

2021 Annual Report of the National Poison Data System[®] (NPDS) from America's Poison Centers: 39th Annual Report

David D. Gummin, James B. Mowry, Michael C. Beuhler, Daniel A. Spyker, Laura J. Rivers, Ryan Feldman, Kaitlyn Brown, P. T. Pham Nathaniel, Alvin C. Bronstein & Julie A. Weber

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2021 Annual Report of the National Poison Data System[®] (NPDS) from America's Poison Centers: 39th Annual Report

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ABSTRACT

Introduction: This is the 39th Annual Report of America's Poison Centers' National Poison Data System (NPDS). As of 1 January, 2021, all 55 of the nation's poison centers (PCs) uploaded case data automatically to NPDS. The upload interval was 4.87 [4.38, 8.62] (median [25%, 75%]) minutes, effectuating a near real-time national exposure and information database and surveillance system.

Methods: We analyzed the case data tabulating specific indices from NPDS. The methodology was similar to that of previous years. Where changes were introduced, the differences are identified. Cases with medical outcomes of death were evaluated by a team of medical and clinical toxicologist reviewers using an ordinal scale of 1-6 to assess the Relative Contribution to Fatality (RCF) of the exposure.

Results: In 2021, 2,851,166 closed encounters were logged by NPDS: 2,080,917 human exposures, 62,189 animal exposures, 703,086 information requests, 4,920 human confirmed nonexposures, and 54 animal confirmed nonexposures. Total encounters showed a 14.0% decrease from 2020, and human exposure cases decreased by 2.22%, while health care facility (HCF) human exposure cases increased by 7.20%. All information requests decreased by 37.0%, medication identification (Drug ID) requests decreased by 20.8%, and medical information requests showed a 61.1% decrease, although these remain about 13-fold higher than before the COVID-19 pandemic. Drug Information requests showed a 146% increase, reflecting COVID-19 vaccine calls to PCs. Human exposures with less serious outcomes have decreased 1.80% per year since 2008, while those with more serious outcomes (moderate, major or death) have increased 4.56% per year since 2000.

Consistent with the previous year, the top 5 substance classes most frequently involved in all human exposures were analgesics (11.2%), household cleaning substances (7.49%), cosmetics/personal care products (5.88%), antidepressants (5.61%), and sedatives/hypnotics/antipsychotics (4.73%). As a class, antidepressant exposures increased most rapidly, by 1,663 cases/year (5.30%/year) over the past 10 years for cases with more serious outcomes.

The top 5 most common exposures in children age 5 years or less were cosmetics/personal care products (10.8%), household cleaning substances (10.7%), analgesics (8.16%), dietary supplements/herbals/homeopathic (7.00%), and foreign bodies/toys/miscellaneous (6.51%). Drug identification requests comprised 3.64% of all information contacts. NPDS documented 4,497 human exposures resulting in death; 3,809 (84.7%) of these were judged as related (RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Conclusions: These data support the continued value of PC expertise and the need for specialized medical toxicology information to manage more serious exposures. Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time status of NPDS represents a national public health resource to collect and monitor US exposure cases and information contacts. The continuing mission of NPDS is to provide a nationwide infrastructure for surveillance for all types of exposures (e.g., foreign body, infectious, venomous, chemical agent, or commercial product), and the identification and tracking of significant public health events. NPDS is a model system for the near real-time surveillance of national and global public health.

NOTE: Comparison of exposure or outcome data from previous America's Poison Centers Annual Reports is problematic. In particular, the identification of fatalities (attribution of a death to the exposure) differed from pre-2006 Annual Reports (see Fatality Case Review – Methods). Death cases were described as all cases resulting in death and those determined to be exposure-related fatalities. Likewise, Table 22 (Exposure cases by Generic Category) since year 2006 restricts the breakdown of included deaths to single-substance cases so as to improve precision and avoid misinterpretation.

Introduction

This is the 39th Annual Report of America's Poison Centers' (<https://poisoncenters.org>) National Poison Data System (NPDS) [1]. Fifty-five regional poison centers (PCs) serving the entire population of the 50 United States, American Samoa, District of Columbia, Federated States of Micronesia, Guam, Puerto Rico, and the US Virgin Islands submitted information and exposure case data collected during the course of providing patient-specific exposure management and poison information for entire year of 2021.

NPDS is the data warehouse for the nation's PCs. Poison centers place emphasis on exposure management, accurate data collection and coding, and responding to the continuing need for poison-related public and professional education. The PC's healthcare professionals are available free of charge to users, 24 hours a day, every day of the year. Poison centers respond to questions from the public, health care professionals, and public health agencies. The continuous staff dedication at the PCs is manifest as the number of exposure and information encounters averaging close to 3.4 million annually since the year 2000. Poison center encounters involve either an exposed human or animal (Exposure case) or a request for information with no person or animal exposed to any foreign body, viral, bacterial, venom, chemical agent or commercial product (Information request). A unique feature of PC case management is the use of follow-up calls to monitor case progress, provide ongoing treatment recommendations, and to determine the medical outcome of the case.

The NPDS Products Database

The NPDS products database contains over 466,000 products ranging from viral and bacterial agents to commercial chemical and drug products. The products database is maintained and continuously updated by data analysts at the Micromedex® POISINDEX® System (Micromedex® [electronic version], Merative™, Ann Arbor, MI, USA. Available at: <https://www.micromedexsolutions.com/>). A robust generic coding system categorizes the product data into 1,114 active generic codes. These generic codes collapse into Pharmaceutical (552) and Nonpharmaceutical (562) groups. These two groups are divided into Major (68) and Minor (188) categories. The generic coding schema undergoes continuous improvement through the work of the America's Poison Centers – Micromedex Joint Coding Committee. The group consists of America's Poison Centers members and Micromedex editorial and lexicon staff working to meet best terminology practices. The generic code system provides enhanced report granularity as reflected in [Appendix B](#) (Table 22). The following generic code was introduced in 2021:

Generic Code Added in 2021*

Melatonin in Combination with Other Substances

*Because the new code was added during 2021, the number of cases for this generic code in [Appendix B](#) (Table 22) does not reflect the entire year. For completeness, certain categories require customized data retrieval until they have been in place for more than 1 calendar year.

What's New in the 2021 NPDS Annual Report?

The American Association of Poison Control Centers (AAPCC) has changed its name and contact information.

- The new name is "America's Poison Centers".
- The new web address is <https://poisoncenters.org>

The organization and its mission haven't changed, but were merely rebranded.

2021 Snapshot – Bupropion

- Profiles a specific substance causing excess morbidity and mortality.

The Emerging Trends section this year profiles Cannabinoid Exposures called to America's Poison Centers.

PoisonHelp.org

Since the advent of the smart phone and tablets in 2006, consumers increasingly turn to web-based resources to obtain poisoning and other health-related information. This raised concern among toxicologists and poison prevention specialists about the type and quality of web-based information available to the average American. In response to this trend, in 2015 America's Poison Centers devised an online tool for consumers to obtain simple individualized poisoning information as an alternative to directly contacting a poison center, but that would guide the consumer to a poison center when poison specialist input would be more appropriate. The platform launched during National Poison Prevention Week in 2016 with initial goals that included a system that would be credible, fast, easy to use, readily accessible from a variety of devices, and available free of charge to consumers. The first open contacts and data collection began in 2017.

PoisonHelp.org is an interactive website that provides critical triage and information on how to manage exposures to potentially toxic products, poisons, and medications. Users are prompted to answer a few questions regarding a human exposure to any of 1,114 generic substances that encompass now more than 466,000 unique products. Recommendations are vetted by specially trained physicians, pharmacists, and nurses from our nation's 55 poison control centers. The website can be accessed from any computer or mobile device and is free, confidential, and available 24/7.

[Appendix D](#) contains contact data obtained during the years of PoisonHelp.org activity. Tables in [Appendix D](#) show substances queried and demographics of those who queried the site. Activity continues to increase over time, as is evidenced in the cumulative contact count depicted in Figures D-1A and D-1B, [Appendix D](#).

Methods

Characterization of Participating Poison Centers and Population Served

All 55 US PCs are accredited, and all submitted data to America's Poison Centers through 31 December 2021. The entire population of the 50 United States, American Samoa, the District of Columbia, Federated States of Micronesia, Guam, Marshall Islands, Northern Marianas, Puerto Rico, and the US Virgin Islands was served by the US PC network in 2021 [2].

The average number of human exposure cases managed per day by all US PCs was 5,701. Similar to other years, higher volumes were observed in the warmer months, with a mean of 5,961 cases per day in September compared with 5,280 per day in December. On average, US PCs experienced a new encounter involving a human exposure every 15.2 seconds.

Encounter Management – Specialized Poison Exposure Emergency Providers

Poison center Managing Directors are primarily responsible for patient care/information service operations, clinical education, and supervising staff instruction. Most are PharmDs or RNs with American Board of Applied Toxicology (ABAT) certification in clinical toxicology. Medical direction is provided by Medical Directors who are board-certified physician medical toxicologists. At some PCs, the Managing and Medical Director roles are held by the same individual.

Encounters with US PCs are managed by healthcare professionals who have received specialized training in toxicology to allow for assessment, triage, management and monitoring of toxic emergencies. These providers include medical and clinical toxicologists, registered nurses (RNs), pharmacists (PharmD or BS), physicians and

physician assistants. Most commonly, RNs and pharmacists make up the contingent of “Specialists in Poison Information” (SPIs) or “Certified Specialists in Poison Information” (CSPIs) in the US. These (C)SPIs triage lay public callers to the most appropriate level of care and provide health care professionals with the most up-to-date management recommendations to care for their poisoned/overdosed patients. For a SPI to become nationally certified as a CSPI, they must log a minimum of 1,200 hours in a PC and handle 2,000 human exposure cases prior to being considered eligible to take the certification examination. RNs, pharmacists, physicians and physician assistants are the only individuals eligible to sit for the CSPI examination. Of note is the lack of an appropriate, core toxicology training within most graduate medical education curricula to allow these medical professionals to be prepared for PC patient management operations. These individuals must receive significant additional training beyond their degree programs to become (C)SPIs. Such training is only offered within the PCs. “Poison Information Providers” (PIPs) are allied healthcare professionals who are allowed to manage information-type and lower acuity cases while working under the supervision of a CSPI and have been utilized to a lesser degree by PCs in recent years. Poison centers undergo a rigorous accreditation process administered by America’s Poison Centers and must submit an annual accreditation report and an extensive reaccreditation application every 7 years.

NPDS – Near Real-time Data Capture

Extensively enhanced over its predecessor, the Toxic Exposure Surveillance System (TESS), which began collecting data in 1983 and near real-time data since 2003, NPDS was launched on 12 April 2006. NPDS is the data repository for all US PCs and includes all case information collected by its predecessor. In 2021, all 55 US PCs uploaded case data automatically to NPDS in near real-time, making NPDS one of the few operational systems of its kind. Poison center staff record cases contemporaneously in 1 of 5 electronic medical record systems. Each PC uploads case data automatically. The time to upload data for all PCs is 4.87 [4.38, 8.62] (median [25%, 75%]) minutes creating a near real-time national exposure database and surveillance system.

The web-based NPDS software facilitates the detection, analysis, and reporting of surveillance anomalies. System software offers a myriad of surveillance uses allowing America’s Poison Centers, its member centers and public health agencies to utilize NPDS exposure data. Users can access regional data for their own areas and view national aggregate data. Custom surveillance definitions are available, along with ad hoc reporting tools. Information in the NPDS database is dynamic. Each year the database is locked prior to extraction of annual report data to ensure consistent, reproducible reports. Additional information including autopsy data on fatalities may be added after the lock date as an addendum to the fatality abstract. The 2021 database was locked on 4 August 2022 at 05:00 PM EDT.

Note: NPDS entries are called human or animal “Exposure cases,” rather than “calls,” because a single call may describe more than one case and because the management of an NPDS case often requires more than a single telephone call or contact. The information in this report reflects only individual case entries that are not duplicates, and only those cases that have been designated by the regional PC as being “Closed.” A case is closed when the PC has determined that no further follow-up/recommendations are required or when no further information is available. Exposure cases are followed to obtain the most precise medical outcome possible, when appropriate to do so. Depending on the case specifics, most cases are “closed” within a few hours of the initial contact. Cases involving complex hospitalized patients or resulting in death may remain open for months while data continue to be collected. Follow-up contacts provide a proven mechanism for monitoring the appropriateness of management

recommendations, enabling continual updates of case information, augmenting patient guidelines, providing poison prevention education, and obtaining final medical outcomes to make the data collected as accurate and complete as possible.

Statistical Methods

All tables except Tables 1A, 3B, 17B, and Tables D-1 and D-2A, D-2B, D-2C, and D-2D were generated directly by the NPDS web-based application and can thus be reproduced by each PC. The analyses for Figures 1-3 were done using SAS JMP® Pro version 16.2.0 (SAS Institute, Cary, NC) and summary counts were generated by the NPDS web-based application. The analyses for Figures 4-7, Table 17B, and Figures D-1A and D-1B were created using Microsoft Excel 365 (Microsoft, Redmond, WA) with the RegressItPC add-in (RegressIt™, version 2021.06.18).

NPDS Surveillance

As previously noted, all active US PCs upload case data automatically to NPDS. This unique near real-time upload is the foundation of the NPDS surveillance system, making both spatial and temporal case volume and case-based surveillance possible. NPDS allows creation of volume and case-based definitions. Definitions can be applied to national, regional, state, or ZIP code coverage areas. Geocentric definitions can also be created, which use cases reported from a geographic location regardless of which PC managed the case. This functionality is available to every PC as well as the America’s Poison Centers Surveillance Team. Poison centers also have the ability to share NPDS near real-time surveillance technology with external organizations such as their state and local health departments or other regulatory agencies. Another NPDS feature is the ability to generate system alerts on adverse drug events and other drug or commercial products of public health interest such as contaminated food or product recalls. Thus, NPDS can provide near real-time adverse event monitoring, surveillance, response and situational awareness.

Surveillance definitions can be created to monitor a variety of parameters (i.e., volume or case based) on any desired substance or commercial product in the Micromedex® products database; and/or set of clinical effects or other parameters. The products database contains over 466,000 entries ranging from viral and bacterial agents to commercial chemical and drug products. Surveillance definitions may be constructed using volume or case-based definitions with a variety of mathematical options and historical baseline periods from 1 to 5 years. NPDS surveillance tools include:

- Volume Alert Surveillance Definitions
 - Total Encounter Volume
 - Human Exposure Case Volume
 - Animal Exposure Case Volume
 - Information Request Volume
 - Clinical Effects Volume (signs and symptoms, or laboratory abnormalities)
 - Syndromic Surveillance Volume - allows Boolean based definitions utilizing various NPDS data fields to be run based on historical trends for user defined periods of interest
- Case Based Surveillance Definitions utilizing various NPDS data fields linked in Boolean expressions
 - Substance
 - Clinical Effects
 - Species
 - Medical Outcome and others

Incoming data are monitored continuously, and anomalous signals generate an automated email alert to the America's Poison Centers-designated PC or public health agency staff. These anomaly alerts are reviewed daily by the America's Poison Centers surveillance team, the PC, or the public health agency that created the surveillance definition. When reports of potential public health significance are detected, additional information is obtained from reporting PCs via the NPDS surveillance correspondence system or phone. The PC then can alert respective local or state health department (if not already done). Public health issues are brought to the attention of the Health Studies Branch, National Center for Environmental Health, Centers for Disease Control and Prevention (HSB/NCEH/CDC).

Clinical and medical toxicologists on the America's Poison Centers Surveillance Team review surveillance definitions on a regular basis to fine-tune the queries. The CDC, as well as state and local health departments with NPDS access granted by their respective PCs, also can create surveillance definitions for routine surveillance tasks or to respond to emerging public health events.

Emerging Trends

Each year since the 2007 annual report, the authors have highlighted a trend in NPDS with public health importance. For example, previous reports have focused on the poison center response to COVID-19, e-cigarette vaping-associated lung injury and adolescent suicides. Over the last 10 years, legalization of medical and recreational cannabis has increased the availability of concentrated tetrahydrocannabinol (THC) products. In 2021, the authors are highlighting the changing landscape of cannabinoid exposures reported to US poison centers.

NPDS was queried for all closed cannabinoid human exposures from January 1, 2012 to June 30, 2022. All generic code groups specific to cannabinoids were used: Cannabidiol (CBD); eCigarettes: Marijuana Devices (unflavored, flavor added, flavor unknown); eCigarettes: Marijuana Liquids (unflavored, flavor added, flavor unknown); Marijuana: Concentrated Extract (Including Oils and Tinctures); Marijuana: Dried Plant; Marijuana: Edible Preparation; Marijuana: Oral Capsule or Pill Preparation; Marijuana: Other or Unknown Preparation; Marijuana: Pharmaceutical Preparation; Marijuana: Topical Preparation; Marijuana: Undried Plant; and Synthetic Cannabinoids, Analogs and Precursors. For the purposes of analysis some generic codes were assigned to a larger category. Marijuana Dried Plant and Marijuana Undried Plant were combined into Marijuana: Plant. All eCigarettes: Marijuana Device generic codes and eCigarettes: Marijuana Liquids generic codes were combined into Marijuana: eCigarette. Concentrated Extract, Oral Capsule or Pill, Pharmaceutical, Topical and Other or Unknown generic codes were combined in Marijuana: Other/Unknown due to their relative infrequency. Cases coded with Medical Outcome: Confirmed Nonexposure were excluded. The frequency of cannabinoid human exposures was tracked over time by generic code. Annual frequencies were reported for whole years ending on December 31, 2021. Medical outcomes and level of health care facility utilization were described using only single-substance cannabinoid exposures. Note: Generic codes were activated in NPDS for Marijuana: Edible in November 2016; eCigarettes: Marijuana in October 2014; and Cannabidiol (CBD) and most generic codes in the Marijuana: Other/Unknown grouping (with the exception of Marijuana: Pharmaceutical) in February 2019. Interpretation of the data should be made considering these limitations.

2021 Snapshot

Bupropion is used to treat depression, ADHD, obesity, and smoking cessation. It is a pharmaceutically available cathinone, structurally similar to the illicit "bath salts" drugs. Its toxicity seems to differ from

other antidepressants and it appears to have more severe adverse effects. This year we provide a snapshot of the toxicity of human bupropion exposures compared to other antidepressants reported to NPDS.

NPDS was queried for all closed human bupropion exposures from January 1, 2012 to December 31, 2021. Medical outcomes of single substance bupropion exposures were compared to the medical outcomes of other closed single substance antidepressant human exposures (lithium salts, selective serotonin reuptake inhibitors (SSRI), tricyclic antidepressants (TCA), and all other antidepressants monoamine oxidase inhibitors (MAOI), serotonin norepinephrine reuptake inhibitors (SNRI), tetracyclic antidepressants, trazodone, other miscellaneous antidepressants, and unknown antidepressants). Severe outcomes were defined as Major Effect and Death for analysis purposes. The reason for exposure versus medical outcome was explored for single substance antidepressants. The route of exposure for single substance bupropion and single substance quetiapine for intentional abuse cases were also compared.

Fatality Case Review and Abstract Selection

NPDS fatality cases are recorded as Death or Death (Indirect report). Medical outcome of Death means that the PC was notified of the death of the case in which PC personnel were involved in some aspect of the management. Deaths (Indirect Report) are deaths that the PC acquired, typically from medical examiners or media, but did not manage or answer any questions related specifically to that case.

The definitions used for the Relative Contribution to Fatality (RCF) classification are defined in [Appendix F](#), and the methods to select abstracts for publications are described in [Appendix C](#). Although PCs may report death as an outcome, the death might not necessarily result from the exposure. We define exposure-related fatality as a death judged by the America's Poison Centers Fatality Review Team to be at least contributory to the exposure (RCF 1-3). The America's Poison Centers fatality review process was first published in detail in the 2008 NPDS Annual Report [1].

Pediatric Fatality Case Review

A focused Pediatric Fatality Review team comprised of 6 toxicologists with pediatric expertise evaluated cases for patients under 19 years of age. The panel reviewed the documentation of all such cases, with specific focus on the conditions behind the poisoning exposure and finding commonalities which might inform efforts at prevention. The reviewed pediatric fatality cases exhibited a bimodal age distribution. Exposures causing death in children ≤ 5 years of age were mostly coded as "Unintentional-General," while those in ages > 13 years were mostly "Intentional." As has been true for several years, the circumstances of the case are often not captured in the reason code or the narrative. The pediatric fatality review team encourages that additional detail be obtained from law enforcement or child protective services, postmortem investigation, and regarding the means by which the child accessed the substances responsible for the fatality.

Results

Information Requests to Poison Centers

Data from 703,086 information requests to PCs in 2021 ([Table 1C](#)) were entered into NPDS, including requests in optional reporting categories such as medical information (293,685), drug information (162,612), caller referred (69,618), poisons information (41,783)

administrative (32,927), and prevention/safety/education (15,357). Total information requests to PCs decreased 37.0% from 2020 (1,116,568 requests) to 2021 (703,086 requests) as shown in Figure 1.

Figure 2 shows that all Medication Identification (Drug ID) requests have decreased dramatically since mid-2008. Answering Drug ID requests is optional for PCs and some have stopped answering such requests. Law enforcement Drug ID requests also showed a decline. Drug ID requests fell to 7th most frequent information request for 2021, comprising 25,569 requests with PCs during the year. Of these, 12,909 (50.5%) were identified as drugs with known abuse potential. However, these cases were categorized based on the drug's abuse potential without knowledge of whether abuse was intended.

Drug information requests increased 146% from 2020 (66,039) to 2021 (162,612) due to increase in requests to PCs about COVID-19 vaccines. The most common drug information requests were medication availability (12.4%), drug-drug interactions (3.08%), and other

drug info (1.74%). The most common COVID-19 vaccine drug information requests were for medication availability (88.6%), therapeutic drug monitoring (6.19%) and medication administration (1.27%).

While the number of medical information requests decreased 61.1% from 2020 (755,103) to 2021 (203,685), the overall number of medical information requests was 13-fold higher in 2021 compared to 22,505 in 2019 and 19,894 in 2018. The majority (91.9%) of the medical information requests were related to COVID-19 disease and COVID-19 vaccines. The most common medical information requests were about other medical, diagnostic or treatment recommendations, disease prevention, and explanation of disease states. Environmental inquiries comprised 1.31% of all information requests. Of these environmental inquiries, specific questions related to pesticides were most common, followed by potential toxicity of chemicals in the environment, air quality, and safe disposal of chemicals.

Of all the information requests, poison information comprised 5.94% of the requests with inquiries involving general toxicity the

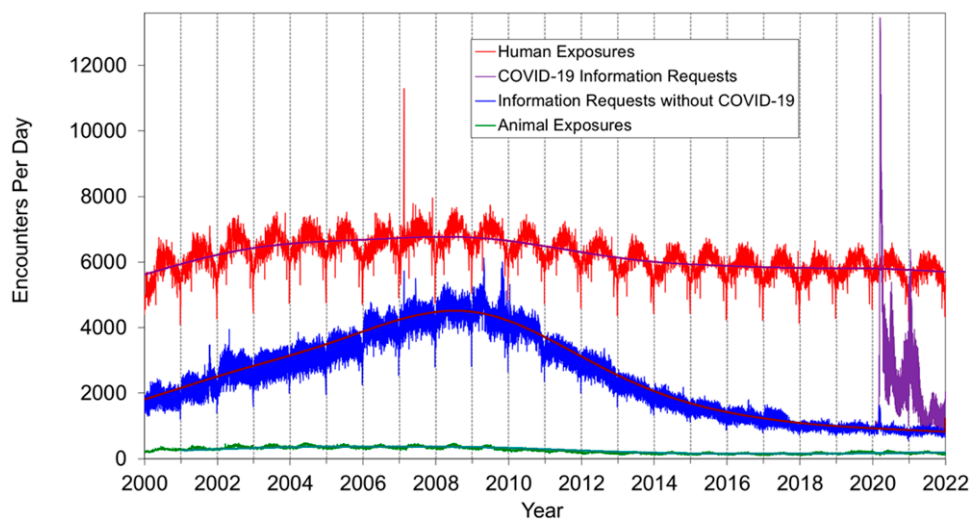


Figure 1. Human Exposure Cases, Information Requests and Animal Exposure Cases by Day since 1 January 2000. Smoothing spline fits using $\lambda = 1200$ for human exposures had associated $RSqr = 0.492$, information requests $RSqr = 0.937$ (excluding COVID-19 information requests) and animal exposures $RSqr = 0.876$. COVID-19 information requests on the disease, vaccines, home tests, and monoclonal antibodies are plotted separately from other information requests.

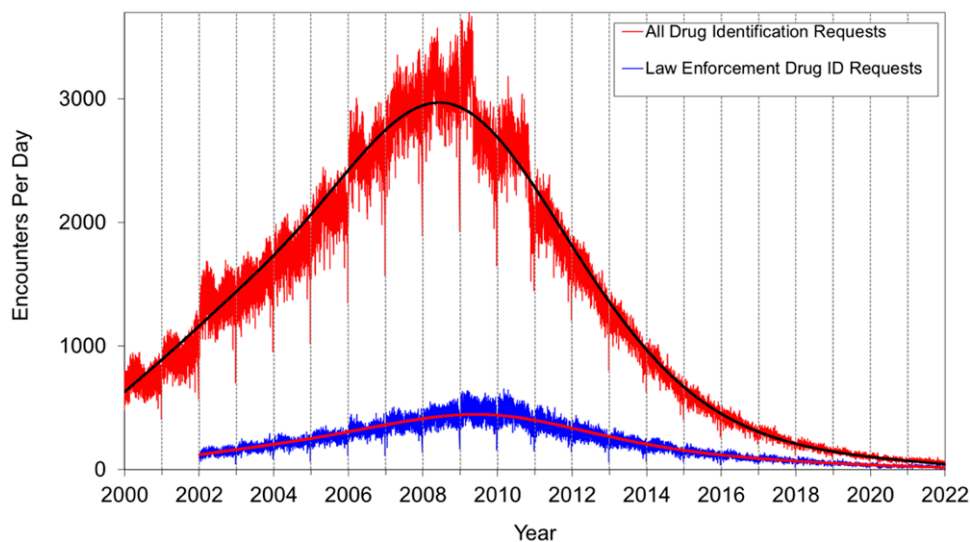


Figure 2. All Drug Identification and Law Enforcement Drug Identification Requests by Day since 1 January 2000. Smoothing spline fits used $\lambda = 1200$, all drug identification requests had associated $RSqr = 0.974$ and law enforcement drug ID requests $RSqr = 0.909$.

most common followed by questions involving other poisons, safe use of household products, food preparation handling practices, and food poisoning.

Exposure Cases Logged at Poison Centers

In 2021, participating PCs logged 2,851,166 total encounters including 2,080,917 closed human exposure cases (Table 1A), 62,198 animal exposures (Table 1B), 703,086 information contacts (Table 1C), 4,920 human confirmed non-exposures, and 54 animal confirmed non-exposures. An additional 13 cases were still open at the time the database was locked. The cumulative America's Poison Centers database now contains over 77 million human exposure case records. A total of 21,789,247 information requests have been logged into the America's Poison Centers database since the year 2000.

Table 1A. America's Poison Centers Population Served and Reported Exposures (1983-2021)

Year	No. of participating centers	Population served (in millions)	Human exposures	Exposures per thousand population
1983	16	43.1	251,012	5.82
1984	47	99.8	730,224	7.32
1985	56	113.6	900,513	7.93
1986	57	132.1	1,098,894	8.32
1987	63	137.5	1,166,940	8.49
1988	64	155.7	1,368,748	8.79
1989	70	182.4	1,581,540	8.67
1990	72	191.7	1,713,462	8.94
1991	73	200.7	1,837,939	9.16
1992	68	196.7	1,864,188	9.48
1993	64	181.3	1,751,476	9.66
1994	65	215.9	1,926,438	8.92
1995	67	218.5	2,023,089	9.26
1996	67	232.3	2,155,952	9.28
1997	66	250.1	2,192,088	8.76
1998	65	257.5	2,241,082	8.70
1999	64	260.9	2,201,156	8.44
2000	63	270.6	2,168,248	8.01
2001	64	281.3	2,267,979	8.06
2002	64	291.6	2,380,028	8.16
2003	64	294.7	2,395,582	8.13
2004	62	293.7	2,438,643	8.30
2005	61	296.4	2,424,180	8.18
2006	61	299.4	2,403,539	8.03
2007	61	305.6	2,482,041	8.12
2008	61	308.5 ^b	2,491,049	8.07
2009	60	310.9 ^b	2,479,355	7.97
2010	60 ^a	313.3 ^b	2,384,825	7.62
2011	57 ^c	315.7 ^b	2,334,004	7.39
2012	57	318.0 ^b	2,275,141	7.15
2013	57 ^d	320.2 ^e	2,188,013	6.83
2014	56 ^d	322.9 ^e	2,165,142	6.71
2015	55 ^f	325.4 ^e	2,168,371	6.66
2016	55	327.0 ^e	2,159,032	6.60
2017	55	330.4 ^e	2,115,186	6.40
2018	55	330.0 ^e	2,099,751	6.36
2019	55	334.0 ^e	2,148,141	6.43
2020	55	336.4 ^e	2,128,198	6.33
2021	55	338.7 ^e	2,080,917	6.14
Total		75,101,189		

^a As of 1 July 2010 there were 60 Participating Centers.

^b America's Poison Centers Total as of 1 July Mid Year US Census (2012 data for 50 United States, District of Columbia and Puerto Rico; 2011 data for Guam; 2010 data for American Samoa, Federated States of Micronesia, and the US Virgin Islands)

^c As of 1 July 2011 there were 57 Participating Centers.

^d One Participating Center closed in September 2013. Its data is included in the 2013 totals but not in the 2014 data.

^e America's Poison Centers Total as of 1 July Mid Year US Census (data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) (2)

^f One Participating Center closed in July 2014. Its data is included in the 2014 totals but not in the 2015 data.

Figure 1 shows the human exposures, information requests and animal exposures by day since 1 January 2000. Smoothing spline fit of these data shows departure from linearity (declining rate of cases since mid-2007) for Human Exposure cases with some flattening over the last 3 years. Animal Exposure cases have been declining since mid-2005. Information requests had been declining until early 2020 when PCs response to COVID-19 showed a sustained increase in information requests.

Table 1B. Non-Human Exposures by Animal Type

Animal	N	%
Dog	55,804	89.73
Cat	5,400	8.68
Bird	187	0.30
Rodent / lagomorph	161	0.26
Horse	98	0.16
Sheep / goat	79	0.13
Cow	45	0.07
Aquatic	22	0.04
Other	393	0.63
Total	62,189	100.00

Table 1C. Distribution of Information Requests

Information request type	N	% of Info. requests
Drug identification		
Public inquiry: Drug sometimes involved in abuse	6,550	0.93
Public inquiry: Drug not known to be abused	5,196	0.74
Public inquiry: Unknown abuse potential	280	0.04
Public inquiry: Unable to identify	2,512	0.36
HCP inquiry: Drug sometimes involved in abuse	259	0.04
HCP inquiry: Drug not known to be abused	322	0.05
HCP inquiry: Unknown abuse potential	27	0.00
HCP inquiry: Unable to identify	173	0.02
Law Enf. inquiry: Drug sometimes involved in abuse	6,100	0.87
Law Enf. inquiry: Drug not known to be abused	2,495	0.35
Law Enf. inquiry: Unknown abuse potential	201	0.03
Law Enf. inquiry: Unable to identify	971	0.14
Other drug ID	483	0.07
Subtotal	25,569	3.64
Drug information		
Adverse effects (no known exposure)	5,037	0.72
Brand / generic name clarifications	325	0.05
Calculations	54	0.01
Compatibility of parenteral medications	184	0.03
Compounding	85	0.01
Contraindications	1,868	0.27
Dietary supplement, herbal, and homeopathic	429	0.06
Dosage	8,812	1.25
Dosage form / formulation	1,059	0.15
Drug use during breast-feeding	852	0.12
Drug-drug interactions	21,678	3.08
Drug-food interactions	1,451	0.21
Foreign drug	24	0.00
Generic substitution	83	0.01
Indications / therapeutic use	4,192	0.60
Medication administration	5,698	0.81
Medication availability	87,193	12.40
Medication disposal	735	0.10
Pharmacokinetics	756	0.11
Pharmacology	406	0.06
Regulatory	1,160	0.16
Stability / storage	1,301	0.19
Therapeutic drug monitoring	6,986	0.99
Other drug info	12,244	1.74
Subtotal	162,612	23.13
Environmental information		
Air quality	932	0.13
Carbon monoxide - no known patient(s)	494	0.07
Carbon monoxide alarm use	296	0.04
Chem / bioterrorism / weapons (suspected or confirmed)	10	0.00

(Continued)

Table 1C. Distribution of Information Requests – Continued.

Information request type	N	% of Info. requests
Clarification of media reports of environmental contamination	11	0.00
Clarification of substances involved in a HAZMAT incident - no known victim(s)	28	0.00
General questions about contamination of air and / or soil	182	0.03
HAZMAT planning	33	0.00
Lead - no known patient(s)	240	0.03
Mercury thermometer cleanup	631	0.09
Mercury (excluding thermometers) cleanup	539	0.08
Notification of a HAZMAT incident - no known patient(s)	211	0.03
Pesticide application by a professional pest control operator	266	0.04
Pesticides (other)	1,203	0.17
Potential toxicity of chemicals in the environment	957	0.14
Radiation	45	0.01
Safe disposal of chemicals	856	0.12
Water purity / contamination	509	0.07
Other environmental	1,785	0.25
Subtotal	9,228	1.31
Medical information		
Dental questions	69	0.01
Diagnostic or treatment recommendations for diseases or conditions - non-toxicology	70,661	10.05
Disease prevention	46,864	6.67
Explanation of disease states	37,609	5.35
General first-aid	1,664	0.24
Interpretation of non-toxicology laboratory reports	175	0.02
Medical terminology questions	910	0.13
Rabies - no known patient(s)	259	0.04
Sunburn management	1,296	0.18
Other medical	134,178	19.08
Subtotal	293,685	41.77
Occupational information		
Occupational treatment / first-aid guidelines - no known patient(s)	38	0.01
Information on chemicals in the workplace	66	0.01
MSDS interpretation	21	0.00
Occupational MSDS requests	90	0.01
Routine toxicity monitoring	10	0.00
Safe handling of workplace chemicals	68	0.01
Other occupational	103	0.01
Subtotal	396	0.06
Poison information		
Analytical toxicology	547	0.08
Carcinogenicity	68	0.01
Food poisoning - no known patient(s)	1,385	0.20
Food preparation / handling practices	4,287	0.61
General toxicity	19,930	2.83
Mutagenicity	17	0.00
Plant toxicity	985	0.14
Recalls of non-drug products (including food)	277	0.04
Safe use of household products	4,532	0.64
Toxicology information for legal use / litigation	123	0.02
Other poison	9,632	1.37
Subtotal	41,783	5.94
Prevention / Safety / Education		
Confirmation of poison center number	9,784	1.39
General (non-poison) injury prevention requests	351	0.05
Media requests	469	0.07
Poison prevention material requests	4,078	0.58
Poison prevention week date inquiries	24	0.00
Professional education presentation requests	60	0.01
Public education presentation requests	88	0.01
Other prevention	503	0.07
Subtotal	15,357	2.18
Teratogenicity information		
Teratogenicity	301	0.04
Subtotal	301	0.04
Other information		
Other	50,247	7.15
Subtotal	50,247	7.15

(Continued)

Table 1C. Distribution of Information Requests – Continued.

Information request type	N	% of Info. requests
Substance Abuse		
Drug screen information	776	0.11
Effects of illicit substances - no known patient(s)	74	0.01
New trend information	75	0.01
Withdrawal from illicit substances - no known patient(s)	92	0.01
Other substance abuse	346	0.05
Subtotal	1,363	0.19
Administrative		
Expert witness requests	23	0.00
Faculty activities	30	0.00
Funding	13	0.00
Personnel issues	58	0.01
Poison center record request	177	0.03
Product replacement / malfunction (issues intended for the manufacturer)	233	0.03
Scheduling of poison center rotations	33	0.00
Other administration	32,360	4.60
Subtotal	32,927	4.68
Caller Referred		
Immediate referral - animal poison center or veterinarian	38,333	5.45
Immediate referral - drug identification	186	0.03
Immediate referral - drug information	127	0.02
Immediate referral - health department	9,650	1.37
Immediate referral - medical advice line	425	0.06
Immediate referral - pediatric triage service	55	0.01
Immediate referral - pesticide hotline	158	0.02
Immediate referral - pharmacy	451	0.06
Immediate referral - poison center	6,014	0.86
Immediate referral - private physician	1,565	0.22
Immediate referral - psychiatric crisis line	117	0.02
Immediate referral - teratology information program	123	0.02
Other call referral	12,414	1.77
Subtotal	69,618	9.90
Total	703,086	100.00

A hallmark of PC case management is the use of follow-up contacts to monitor case progress and medical outcome. PCs made over 2,606,000 follow-up contacts in 2021. (Note: there exists some variation in the way that this number is determined between the 5 data entry systems presently used by America's Poison Centers members). Follow-up was performed in 44.4% of human exposure cases. One follow-up contact was made in 19.7% of human exposure cases and multiple follow-ups (range 2-115) were performed in 24.7% of cases. For human exposure cases in which follow-up contacts were documented, an average of 2.82 contacts per case were done.

Figure 3 shows a graphic summary and analyses of Health Care Facility (HCF) exposure and HCF information requests. HCF exposure cases slightly departs from linearity but continues to increase at a steady rate, while the rate of HCF information requests has declined since early 2005 but leveled off since late 2013 before increasing in 2020 and 2021 due to the COVID-19 pandemic. This increasing use of the PCs for the more serious cases (HCF exposures) is important in the face of the overall decline in exposure and information encounters.

Tables 22A (Nonpharmaceuticals) and 22B (Pharmaceuticals) found in Appendix B provide summary demographic data on patient age, reason for exposure, medical outcome, and use of an HCF for all 2,080,917 human exposure cases, presented by substance categories. The Pharmaceuticals category includes both licit and illicit drugs.

Column 1: Name of the major, minor generic categories and their associated generic substances. Note that for pharmaceuticals, the generic category or generic substance listed is for the initial FDA approved indication and may not reflect current indications or uses for the pharmaceutical.

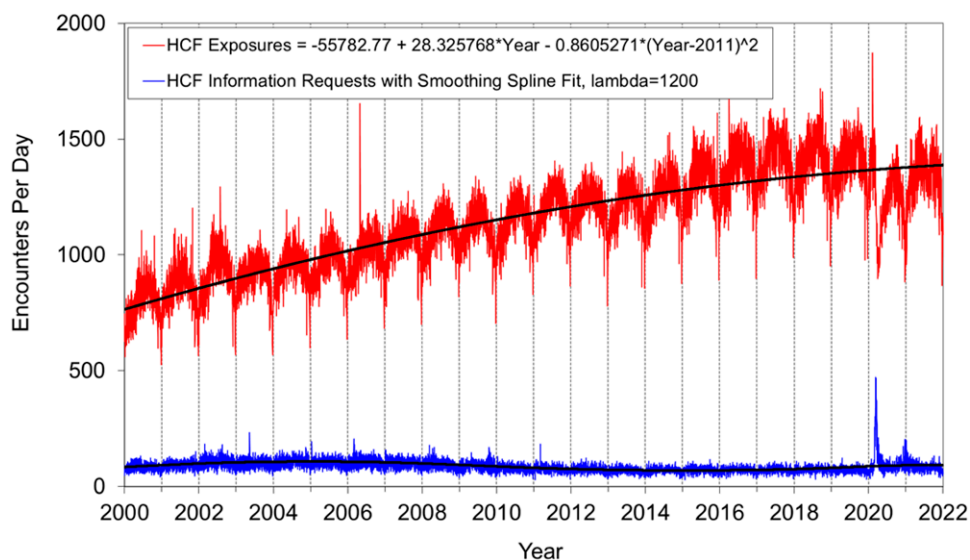


Figure 3. Health Care Facility (HCF) Exposure Cases and HCF Information Requests by Day since 1 January 2000. HCF human exposure, both linear and second order (quadratic) terms were statistically significant ($p < 0.001$) with associated $RSqr = 0.717$. The negative quadratic coefficient means exposure case counts are increasing at a decreasing rate. HCF Information Requests smoothing spline fit has associated $RSqr = 0.249$.

Table 5. Number of Substances Involved in Human Exposure Cases

No. of Substances	Human exposures		Fatal exposures ^a	
	N	%	N	%
1	1,820,250	87.47	714	43.80
2	166,065	7.98	446	27.36
3	52,807	2.54	202	12.39
4	21,053	1.01	114	6.99
5	9,513	0.46	57	3.50
6	4,745	0.23	37	2.27
7	2,538	0.12	20	1.23
8	1,463	0.07	12	0.74
≥9	2,483	0.12	28	1.72
Total	2,080,917	100.00	1,630	100.00

^a Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death, indirect.

Column 2: Number of Case Mentions (all exposures) in grey shading, displays the number of times the specific generic code was reported in any human exposure case. If a human exposure case has multiple instances of a specific generic code it is only counted once.

Column 3: Number of Single Exposures displays the number of human exposure cases that identified only 1 substance (1 case, 1 substance).

The succeeding columns (Age, Reason, Treatment Site, and Outcome) show selected details from these single-substance exposure cases. Death cases include both cases that have the outcome of Death or Death (indirect report). These death cases are not limited by the RCF.

Tables 22A and 22B (Appendix B) restrict the breakdown columns to single-substance cases. Prior to 2007, when multi-substance exposures were included, a relatively innocuous substance could be mentioned in a death column when, for example, the death was attributed to an antidepressant, opioid, or cyanide. The restriction of the breakdowns to single-substance exposures should increase precision and reduce misrepresentation of the results in this by-substance table. Single substance cases reflect the majority (87.5%) of all exposures. In contrast, only 43.8% of fatalities are single substance exposures (Table 5).

Tables 22A and 22B (Appendix B) tabulate 2,080,917 exposures, of which 1,820,250 were single-substance exposures, including 903,760 (49.7%) nonpharmaceuticals and 916,490 (50.3%) pharmaceuticals. In 24.0% of single-substance exposures that involved pharmaceutical substances, the reason for exposure was intentional, compared to only 4.26% when the exposure involved a nonpharmaceutical substance. Correspondingly, treatment in an HCF was provided in a higher percentage of exposures that involved pharmaceutical substances (33.9%) compared with nonpharmaceutical substances (16.8%). Exposures to pharmaceuticals also had more severe outcomes. Of 1,995 single-substance exposure-related fatal cases, 1,530 (76.7) were pharmaceuticals compared with 465 (23.3%) nonpharmaceuticals.

Age and Gender Distributions

The age and gender distribution of human exposures is outlined in Table 3A. Children younger than 3 years of age were involved in 29.5% of exposures and children ≤ 5 years accounted for 40.7% of human exposures. A male predominance was found among cases involving children ≤ 12 years, but this gender distribution was reversed in teenagers and adults, with females comprising the majority of reported exposures. The overall rate of poison

Table 3A. Age and Gender Distribution of Human Exposures

Age (y)	Male		Female		Unknown gender		Total		Cumulative total	
	N	% of age group total	N	% of age group total	N	% of age group total	N	% of total exposures	N	%
Children (<20)										
< 1	49,951	51.92	45,829	47.63	433	0.45	96,213	4.62	96,213	4.62
1	139,112	51.91	128,187	47.83	682	0.25	267,981	12.88	364,194	17.50
2	130,625	52.38	117,962	47.31	771	0.31	249,358	11.98	613,552	29.48
3	69,695	55.08	56,349	44.53	501	0.40	126,545	6.08	740,097	35.57
4	36,425	56.56	27,593	42.85	379	0.59	64,397	3.09	804,494	38.66
5	22,509	57.80	16,157	41.49	274	0.70	38,940	1.87	843,434	40.53
Unknown ≤5	1,469	48.20	1,263	41.44	316	10.37	3,048	0.15	846,482	40.68
Child 6-12	68,190	54.42	55,829	44.55	1,294	1.03	125,313	6.02	971,795	46.70
Teen 13-19	61,906	32.46	128,071	67.14	766	0.40	190,743	9.17	1,162,538	55.87
Unknown Child	1,730	38.25	1,591	35.18	1,202	26.58	4,523	0.22	1,167,061	56.08
Subtotal	581,612	49.84	578,831	49.6	6,618	0.57	1,167,061	56.08	1,167,061	56.08
Adults (≥20)										
20-29	85,968	43.33	112,065	56.49	358	0.18	198,391	9.53	1,365,452	65.62
30-39	75,025	44.63	92,871	55.24	221	0.13	168,117	8.08	1,533,569	73.70
40-49	48,783	41.69	68,102	58.20	128	0.11	117,013	5.62	1,650,582	79.32
50-59	44,342	40.46	65,146	59.45	97	0.09	109,585	5.27	1,760,167	84.59
60-69	36,136	38.07	58,708	61.85	77	0.08	94,921	4.56	1,855,088	89.15
70-79	23,650	36.01	41,977	63.92	47	0.07	65,674	3.16	1,920,762	92.30
80-89	10,613	34.58	20,056	65.35	22	0.07	30,691	1.47	1,951,453	93.78
≥90	2,277	30.83	5,102	69.08	7	0.09	7,386	0.35	1,958,839	94.13
Unknown adult	40,530	37.99	64,201	60.18	1,954	1.83	106,685	5.13	2,065,524	99.26
Subtotal	367,324	40.88	528,228	58.79	2,911	0.32	898,463	43.18	2,065,524	99.26
Other										
Unknown age	5,168	33.57	7,278	47.28	2,947	19.15	15,393	0.74	2,080,917	100.00
Total	954,104	45.85	1,114,337	53.55	12,476	0.60	2,080,917	100.00	2,080,917	100.00

Table 3B. Population-Adjusted Exposures by Age Group

Age Group	Exposures/100k population	Number of Exposures ^a	Population ^b
Children (<20)			
< 1	2,312	96,213	4,161,737
1	6,439	267,981	4,161,793
2	5,997	249,358	4,157,965
3	3,050	126,545	4,149,594
4	1,556	64,397	4,138,539
5	959	38,940	4,060,888
Child 6-12	436	125,313	28,713,017
Teen 13-19	640	190,743	29,825,598
Subgroup	1,400	1,167,061	83,369,131
Adults (≥20)			
20-29	434	198,391	45,678,603
30-39	365	168,117	46,040,403
40-49	285	117,013	41,018,806
50-59	258	109,585	42,494,584
60-69	236	94,921	40,180,189
70-79	251	65,674	26,186,761
80-89	282	30,691	10,891,533
90+	261	7,386	2,834,369
Subgroup	352	898,463	255,325,248
Overall Total	614	2,080,917	338,694,379

^a Number of Exposures excludes unknown ages from the individual age categories, but includes them in the Subtotals and Overall Total (see Table 3A)

^b America's Poison Centers Total as of 1 July 2020, 338,694,379 (see Table 1A).[2]

exposures reported to PCs is 614/100,000 population (Table 3B). The highest rates of poison exposures are in 1-year-old children (6,439/100,000 population) and 2-year-old children (5,997/100,000 population). Rates declined with age from 436/100,000 population in children 6–12 to 352/100,000 population in adults ≥20 years. Table 4 shows the age and gender distribution for the 1,630 exposure-related fatalities (excluding Death, indirect).

Caller Site and Exposure Site

As shown in Table 2, of the 2,080,917 human exposure cases reported, 68.6% of cases originated from a residence (own or other) while 92.8% of exposures occurred at a residence (own or other). Another 23.5% of cases originated from an HCF. Beyond residences, exposures occurred in the workplace (1.80% of cases), schools (0.987%), HCF (0.490%), and restaurants or food services (0.160%).

Table 4. Distribution of Age^a and Gender for Fatalities^b

Age (y)	Male	Female	Unknown	Total (%)	Cumulative total (%)
< 1 year	1	4	0	5 (0.31%)	5 (0.31%)
1 year	2	4	0	6 (0.37%)	11 (0.67%)
2 years	4	3	0	7 (0.43%)	18 (1.10%)
3 years	0	1	0	1 (0.06%)	19 (1.17%)
4 years	3	3	0	6 (0.37%)	25 (1.53%)
5 years	1	0	0	1 (0.06%)	26 (1.60%)
Child 6-12 years	6	5	0	11 (0.67%)	37 (2.27%)
Teen 13-19 years	38	48	0	86 (5.28%)	123 (7.55%)
20-29 years	90	84	1	175 (10.74%)	298 (18.28%)
30-39 years	149	106	0	255 (15.64%)	553 (33.93%)
40-49 years	124	138	0	262 (16.07%)	815 (50.00%)
50-59 years	138	138	0	276 (16.93%)	1,091 (66.93%)
60-69 years	131	136	1	268 (16.44%)	1,359 (83.37%)
70-79 years	74	81	0	155 (9.51%)	1,514 (92.88%)
80-89 years	35	45	0	80 (4.91%)	1,594 (97.79%)
≥ 90 years	12	12	0	24 (1.47%)	1,618 (99.26%)
Unknown adult	7	3	0	10 (0.61%)	1,628 (99.88%)
Unknown age	2	0	0	2 (0.12%)	1,630 (100.00%)
Total	817	811	2	1,630 (100.00%)	1,630 (100.00%)

^a Age includes cases with both actual and estimated ages as shown in Table 21.

^b Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death, indirect.

Table 2. Site of Call and Site of Exposure, Human Exposure Cases

Site	Site of caller		Site of exposure	
	N	%	N	%
Residence				
Own	1,403,557	67.45	1,892,105	90.93
Other	23,201	1.11	39,113	1.88
Workplace	20,827	1.00	37,441	1.80
Health care facility	489,819	23.54	10,195	0.49
School	8,349	0.40	20,549	0.99
Restaurant / food service	390	0.02	3,322	0.16
Public area	7,353	0.35	23,775	1.14
Other	118,272	5.68	27,420	1.32
Unknown	9,149	0.44	26,997	1.30

Exposures in Pregnancy

Exposure during pregnancy occurred in 6,163 women (0.296% of all human exposures). Of those with known pregnancy duration (n = 5,848), 43.4% occurred in the first trimester, 31.3% in the second trimester, and 25.4% beyond the second trimester. Most (73.1%) were unintentional exposures and 18.5% were intentional exposures. There were 2 deaths of pregnant females recorded in 2021 (Fatality cases 1409 and 3144).

Chronicity

Most human exposures, 1,765,288 (84.8%), were acute cases (single, repeated or continuous exposure occurring over 8 hours or less) although these comprised only 1,263 (28.1%) of the 4,497 fatalities. Chronic exposures (continuous or repeated exposures occurring over more than 8 hours) comprised 2.54% (52,770) of all human exposures. Acute-on-chronic exposures (single exposure that was preceded by a continuous, repeated, or intermittent exposure occurring over a period greater than 8 hours) numbered 220,423 (10.6%).

Reason for Exposure

The reason category for most human exposures was unintentional (75.5%), including: unintentional general (46.1%), therapeutic error (14.2%), and unintentional misuse (8.59%) (Table 6A).

Table 6A. Reason for Human Exposure Cases

Reason	N	% Human exposures
Unintentional		
Unintentional - General	960,029	46.13
Unintentional - Therapeutic error	295,738	14.21
Unintentional - Misuse	178,731	8.59
Unintentional - Environmental	51,922	2.50
Unintentional - Bite / sting	32,136	1.54
Unintentional - Occupational	28,399	1.36
Unintentional - Food poisoning	18,683	0.90
Unintentional - Unknown	4,605	0.22
Subtotal	1,570,243	75.46
Intentional		
Intentional - Suspected suicide	282,399	13.57
Intentional - Misuse	53,927	2.59
Intentional - Abuse	48,080	2.31
Intentional - Unknown	17,478	0.84
Subtotal	401,884	19.31
Adverse Reaction		
Adverse reaction - Drug	47,288	2.27
Adverse reaction - Other	11,078	0.53
Adverse reaction - Food	6,729	0.32
Subtotal	65,095	3.13
Unknown		
Unknown reason	25,456	1.22
Subtotal	25,456	1.22
Other		
Other - Contamination / tampering	8,254	0.40
Other - Malicious	7,552	0.36
Other - Withdrawal	2,433	0.12
Subtotal	18,239	0.88
Total	2,080,917	100.00

Scenarios

Of the total 295,738 cases involving therapeutic errors (Table 6A) the most common scenarios for all ages included: inadvertent double-dosing (31.6%), other incorrect dose (15.8%), wrong medication taken or given (15.6%), doses given/taken too close together (10.4%), and inadvertent exposure to someone else's medication (9.20%). The types of therapeutic errors observed are different for each age group and are summarized in Table 6B.

Table 6B. Scenarios for Therapeutic Errors^a by Age^b

Scenario	N	≤5 y (Row %)	6-12 y (Row %)	13-19 y (Row %)	≥20 y (Row %)	Unknown child (Row %)	Unknown adult (Row %)	Unknown age (Row %)
Inadvertently took/given medication twice	93,337	13.04	9.76	5.84	63.92	0.08	6.97	0.39
Other incorrect dose	46,596	26.26	9.43	6.95	52.18	0.08	4.76	0.33
Wrong medication taken/given	46,248	14.10	9.14	5.73	64.64	0.07	6.01	0.31
Medication doses given/taken too close together	30,801	12.60	7.05	6.41	66.40	0.05	7.10	0.38
Inadvertently took/given someone else's medication	27,210	12.39	15.59	6.55	59.52	0.04	5.64	0.27
Other/unknown therapeutic error	19,533	16.22	8.59	6.97	60.06	0.13	7.45	0.58
Incorrect dosing route	16,076	6.90	2.81	6.10	71.29	0.07	12.06	0.77
Confused units of measure	5,856	55.24	12.33	4.47	24.83	0.09	2.95	0.09
More than 1 product containing same ingredient	5,692	9.14	11.91	10.84	59.70	0.05	8.05	0.32
Health professional/iatrogenic error (pharmacist/nurse/physician)	5,619	18.06	8.95	7.17	60.79	0.16	3.90	0.96
Incorrect formulation or concentration given	5,465	47.52	16.29	4.50	28.62	0.09	2.91	0.07
Drug interaction	4,343	5.83	5.60	5.94	67.93	0.09	13.82	0.81
Dispensing cup error	3,034	68.75	13.41	2.57	13.65	0.10	1.45	0.07
10-fold dosing error	1,877	65.85	6.93	2.45	22.86	0.05	1.70	0.16
Incorrect formulation or concentration dispensed	1,357	45.76	13.85	5.53	31.32	0.37	2.80	0.37
Exposure through breast milk	208	91.35	0.00	0.48	5.77	0.96	1.44	0.00

^a All cases with a scenario category of therapeutic error regardless of reason

^b Of the human exposure cases reported to U.S. Poison Centers in 2021, 454,944 (21.9%) were coded to 1 or more of 54 scenarios.

Table 7. Distribution of Reason for Exposure by Age

Reason	≤5 y		6-12 y		13-19 y		≥20 y		Unknown child		Unknown adult		Unknown age		Total	
	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	%
Unintentional	838,159	56.63	102,056	6.90	55,512	3.75	474,624	32.07	4,007	0.27	86,107	5.82	9,778	0.66	1,570,243	75.46
Intentional	44	0.01	18,439	4.68	127,278	32.33	244,838	62.19	219	0.06	8,002	2.03	3,064	0.78	401,884	19.31
Adverse reaction	3,179	5.61	2,255	3.98	4,135	7.30	46,137	81.41	124	0.22	8,296	14.64	969	1.71	65,095	3.13
Unknown	3,924	16.34	1,328	5.53	2,510	10.45	15,132	63.03	83	0.35	1,364	5.68	1,115	4.64	25,456	1.22
Other	1,176	7.72	1,235	8.11	1,308	8.59	11,047	72.52	90	0.59	2,916	19.14	467	3.07	18,239	0.88
Total	846,482	42.97	125,313	6.36	190,743	9.68	791,778	40.20	4,523	0.23	106,685	5.42	15,393	0.78	2,080,917	100.00

Reason by Age

Intentional exposures accounted for 19.3% of human exposures. Suicidal intent was suspected in 13.6% of cases, intentional misuse in 2.59%, and intentional abuse in 2.31%. Unintentional exposures outnumbered intentional exposures in all age groups with the exception of ages 13-19 years (Table 7). In contrast, of the 1,630 reported fatalities with RCF 1-3, the major reason reported for children ≤ 5 years was unintentional, while most fatalities in adults (≥20 years) were intentional (Table 8).

Route of Exposure

Ingestion was the route of exposure in 82.5% of cases (Table 9), followed in frequency by inhalation/nasal (7.25%), dermal (6.96%), and ocular routes (4.18%). For the 1,630 exposure-related fatalities, ingestion (81.4%), unknown (12.9%), inhalation/nasal (8.47%), and parenteral (3.93%) were the predominant exposure routes. Each exposure case may have more than one route.

Clinical Effects

The NPDS database allows for the coding of up to 169 individual clinical effects (signs, symptoms, or laboratory abnormalities) for each

case. Each clinical effect can be further defined as related, not related, or unknown if related. Clinical effects were coded in 827,215 (39.8%) cases (17.6% had 1 effect, 10.1% had 2 effects, 5.52% had 3 effects, 2.86% had 4 effects, 1.46% had 5 effects, and 2.26% had >5 effects coded). Of clinical effects coded, 76.8% were deemed related to the exposure, 9.44% were considered not related, and 13.8% were coded as unknown if related.

Case Management Site

The majority of cases reported to PCs were managed outside of a HCF (66.7%), usually at the site of exposure, primarily the patient's own residence (Table 10). Evaluation or treatment in a HCF occurred in 30.4% of cases. Only 1.35% of cases were referred to a HCF but refused referral.

Of the 633,535 cases managed in a HCF, 293,293 (46.3%) were treated and released, 76,437 (12.1%) were admitted to a critical care unit, 87,612 (13.8%) were admitted to a noncritical unit, and 95,243 (15.0%) were admitted to a psychiatric facility.

The percentage of patients treated in a HCF varied considerably with age. Only 12.1% of children ≤ 5 years and 21.7% of children between 6 and 12 years were managed in a HCF compared to 69.6% of teenagers (13-19 years) and 44.8% of adults (age ≥ 20 years).

Table 8. Distribution of Reason for Exposure and Age for Fatalities^a

Reason	≤5 y	6 – 12 y	13 – 19 y	≥20 y	Unknown child	Unknown adult	Unknown age	Total
Unintentional								
Unintentional - General	11	2	2	23	0	0	0	38
Unintentional - Environmental	8	5	3	32	0	3	0	51
Unintentional - Occupational	0	0	0	8	0	2	0	10
Unintentional - Therapeutic error	2	0	1	44	0	0	0	47
Unintentional - Misuse	0	0	0	24	0	0	0	24
Unintentional - Bite / sting	0	0	0	4	0	0	0	4
Unintentional - Food poisoning	0	0	0	1	0	0	0	1
Unintentional - Unknown	0	0	0	11	0	0	0	11
Subtotal	21	7	6	147	0	5	0	186
Intentional								
Intentional - Suspected suicide	0	2	56	745	0	4	0	807
Intentional - Misuse	0	0	0	79	0	0	0	79
Intentional - Abuse	1	0	10	184	0	1	0	196
Intentional - Unknown	0	0	3	95	0	0	1	99
Subtotal	1	2	69	1,103	0	5	1	1,181
Other								
Other - Contamination / tampering	0	0	0	6	0	0	0	6
Other - Malicious	3	0	1	1	0	0	0	5
Other - Withdrawal	0	0	0	5	0	0	0	5
Subtotal	3	0	1	12	0	0	0	16
Adverse reaction								
Adverse reaction - Drug	0	1	2	58	0	0	0	61
Adverse reaction - Other	0	0	0	2	0	0	0	2
Subtotal	0	1	2	60	0	0	0	63
Unknown								
Unknown reason	1	1	8	173	0	0	1	184
Subtotal	1	1	8	173	0	0	1	184
Total	26	11	86	1,495	0	10	2	1,630

^a Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death, indirect.

Table 9. Route of Exposure for Human Exposure Cases

Route	Human exposures			Fatal exposures ^a		
	N	% of All Routes	% of All Cases	N	% of All Routes	% of All Cases
Ingestion	1,717,375	78.31	82.53	1,326	74.62	81.35
Inhalation/nasal	150,779	6.88	7.25	138	7.77	8.47
Dermal	144,889	6.61	6.96	10	0.56	0.61
Ocular	86,892	3.96	4.18	0	0.00	0.00
Bite/sting	32,154	1.47	1.55	4	0.23	0.25
Parenteral	27,941	1.27	1.34	64	3.60	3.93
Unknown	24,355	1.11	1.17	211	11.87	12.94
Other	3,837	0.17	0.18	9	0.51	0.55
Otic	1,510	0.07	0.07	0	0.00	0.00
Vaginal	1,258	0.06	0.06	0	0.00	0.00
Aspiration (with ingestion)	997	0.05	0.05	14	0.79	0.86
Rectal	932	0.04	0.04	1	0.06	0.06
Total Number of Routes	2,192,919	100.00	105.38^b	1,777	100.00	109.02^b

^a Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death, indirect.

^b Each exposure case may have more than one route.

Table 10. Management Site of Human Exposures

Site of management	N	%
Managed on site, non-health care facility	1,387,399	66.67
Managed in healthcare facility		
Treated/evaluated and released	293,293	14.09
Admitted to psychiatric facility	95,243	4.58
Admitted to noncritical care unit	87,612	4.21
Patient lost to follow-up / left AMA	80,950	3.89
Admitted to critical care unit	76,437	3.67
Subtotal (managed in HCF)	633,535	30.44
Other	16,157	0.78
Refused referral	28,196	1.35
Unknown	15,630	0.75
Total	2,080,917	100.00

Medical Outcome

Table 11 displays the medical outcome of human exposure cases distributed by age. Older age groups exhibit a greater number of severe medical outcomes. Table 12 compares medical outcome and reason for exposure and shows a greater frequency of serious outcomes in intentional exposures.

The duration of effect is required for all cases which report at least 1 clinical effect and have a medical outcome of minor, moderate or major effect (n = 534,453; 25.7% of exposures). Table 13 demonstrates an increasing duration of the clinical effects observed with more severe outcomes.

Table 11. Medical Outcome of Human Exposure Cases by Patient Age^a

Outcome	≤5 y		6-12 y		13-19 y		≥20 y		Unknown child		Unknown adult		Unknown age		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
No effect	182,905	21.61	22,650	18.07	37,120	19.46	98,207	12.40	588	13.00	9,389	8.80	1,760	11.40	352,619	16.95
Minor effect	70,233	8.30	19,427	15.50	55,075	28.87	163,859	20.70	378	8.36	12,573	11.79	1,872	12.20	323,417	15.54
Moderate effect	10,342	1.22	5,758	4.59	35,261	18.49	116,787	14.75	40	0.88	2,119	1.99	344	2.20	170,651	8.20
Major effect	1,550	0.18	588	0.47	5,180	2.72	32,777	4.14	5	0.11	228	0.21	57	0.40	40,385	1.94
Death	35	0.00	19	0.02	103	0.05	2,060	0.26	0	0.00	13	0.01	4	0.00	2,234	0.11
No follow-up, nontoxic	104,177	12.31	11,704	9.34	5,287	2.77	34,196	4.32	460	10.17	10,786	10.11	854	5.60	167,464	8.05
No follow-up, minimal toxicity	449,849	53.14	59,238	47.27	36,963	19.38	269,168	34.00	2,472	54.65	56,935	53.37	5,602	36.40	880,227	42.30
No follow-up, potentially toxic	17,017	2.01	3,672	2.93	11,365	5.96	41,820	5.28	487	10.77	10,516	9.86	4,399	28.60	89,276	4.29
Unrelated effect	10,353	1.22	2,251	1.80	4,332	2.27	30,771	3.89	92	2.03	4,093	3.84	489	3.20	52,381	2.52
Death, indirect report	21	0.00	6	0.00	57	0.03	2,133	0.27	1	0.02	33	0.03	12	0.10	2,263	0.11
Total	846,482	100.00	125,313	100.00	190,743	100.00	791,778	100.00	4,523	100.00	106,685	100.00	15,393	100.00	2,080,917	100.00

^a Total number of cases where Death was an outcome (2,234 + 2,263) is greater than the number of fatalities (1,630) judged to be exposure-related (RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Table 12. Medical Outcome by Reason for Exposure in Human Exposures^a

Outcome	Unintentional		Intentional		Other		Adverse reaction		Unknown		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
No effect	274,126	17.46	69,588	17.32	2,012	11.03	2,053	3.15	4,840	19.01	352,619	16.95
Minor effect	190,878	12.16	111,429	27.73	3,128	17.15	15,441	23.72	2,541	9.98	323,417	15.54
Moderate effect	45,114	2.87	110,505	27.50	1,572	8.62	8,690	13.35	4,770	18.74	170,651	8.20
Major effect	4,358	0.28	31,453	7.83	336	1.84	1,345	2.07	2,893	11.36	40,385	1.94
Death	247	0.02	1,444	0.36	22	0.12	124	0.19	397	1.56	2,234	0.11
No follow-up, nontoxic	161,442	10.28	3,169	0.79	944	5.18	1,433	2.20	476	1.87	167,464	8.05
No follow-up, minimal toxicity	817,402	52.06	30,299	7.54	6,392	35.05	23,607	36.27	2,527	9.93	880,227	42.30
No follow-up, potentially toxic	45,252	2.88	33,098	8.24	2,405	13.19	3,780	5.81	4,741	18.62	89,276	4.29
Unrelated effect	31,318	1.99	8,954	2.23	1,420	7.79	8,613	13.23	2,076	8.16	52,381	2.52
Death, indirect report	106	0.01	1,945	0.48	8	0.04	9	0.01	195	0.77	2,263	0.11
Total	1,570,243	100.00	401,884	100.00	18,239	100.00	65,095	100.00	25,456	100.00	2,080,917	100.00

^a Total number of cases where Death was an outcome (2,234 + 2,263) is greater than the number of fatalities (1,630) judged to be exposure-related (RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Table 13. Duration of Clinical Effects by Medical Outcome

Duration of effect	Minor effect		Moderate effect		Major effect	
	N	%	N	%	N	%
≤2 hours	89,734	27.75	5,718	3.35	1,303	3.23
>2 hours, ≤8 hours	98,532	30.47	38,118	22.34	5,852	14.49
>8 hours, ≤24 hours	59,853	18.51	61,943	36.30	8,952	22.17
>24 hours, ≤3 days	18,114	5.60	31,776	18.62	11,617	28.77
>3 days, ≤1 week	4,512	1.40	8,529	5.00	6,386	15.81
>1 week, ≤1 month	1,428	0.44	1,938	1.14	2,005	4.96
>1 month	394	0.12	481	0.28	280	0.69
Anticipated permanent	152	0.05	107	0.06	478	1.18
Unknown	50,698	15.68	22,041	12.92	3,512	8.70
Total	323,417	100.00	170,651	100.00	40,385	100.00

Decontamination Procedures and Specific Antidotes

Tables 14 and 15 outline the use of 112 decontamination procedures, specific physiological antagonists (antidotes), and measures to enhance elimination in the treatment of patients reported in the NPDS database. These should be interpreted as minimum frequencies because of the limitations of case data gathering.

Ipecac-induced emesis for poisoning continues to decline as shown in Tables 16A and 16B. Ipecac was administered in only 8 (0.0009%) pediatric exposures in 2021. A progressive decrease in ipecac syrup use and availability over the last 2 decades likely reflects ipecac use guidelines issued in 1997 by the American Academy of Clinical Toxicology and the European Association of Poisons Centres and Clinical Toxicologists, updated in 2004 [3,4]. In a separate report, the American Academy of Pediatrics concluded not only that ipecac

Table 14. Decontamination and Therapeutic Interventions

Therapy	N	%
Decontamination Only	955,615	45.92
Therapeutic Intervention Only	267,307	12.85
Decontamination and Therapeutic Intervention	99,267	4.77
Not Coded	758,728	36.46
Total	2,080,917	100.00

should no longer be used routinely as a home treatment strategy, but also recommended disposal of home ipecac stocks [5]. A decline was also observed since the early 1990s for reported use of activated charcoal. While not as dramatic as the decline in use of ipecac, reported use of activated charcoal decreased from 3.66% of pediatric cases in 1993 to just 0.465% in 2021.

Table 15. Therapy Provided in Human Exposures by Age

Therapy	≤5 y	6-12 y	13-19 y	≥20 y	Unknown child	Unknown adult	Unknown age	Total
Decontamination								
Cathartic	152	103	650	1,048	0	3	2	1,958
Charcoal, multiple doses	33	31	294	508	0	4	0	870
Charcoal, single dose	3,903	1,339	13,292	16,327	1	74	13	34,949
Dilute/irrigate/wash	383,180	43,308	25,750	189,321	1,501	36,118	3,320	682,498
Food/snack	106,799	10,629	6,252	34,634	553	6,328	282	165,477
Fresh air	5,484	3,186	4,219	45,003	446	13,253	1,359	72,950
Ipecac	8	4	5	21	0	8	1	47
Lavage	10	7	91	279	0	0	0	387
Other emetic	6,978	835	1,930	7,894	11	637	104	18,389
Whole bowel irrigation	82	30	241	750	0	2	0	1,105
Other Therapies								
2-PAM	3	0	5	28	0	0	0	36
Alkalinization - Systemic	44	78	1,274	5,566	0	8	1	6,971
Alkalinization - Urinary	35	80	966	1,640	0	0	0	2,721
Amyl nitrite	0	0	0	1	0	0	0	1
Antiarrhythmic	21	2	95	912	0	3	0	1,033
Antibiotics	1,491	669	1,403	15,029	4	329	40	18,965
Anticonvulsants ^a	139	61	389	2,133	0	5	4	2,731
Antiemetics	1,604	1,449	13,085	19,904	0	77	17	36,136
Antifungals	7	3	15	94	0	1	0	120
Antihistamines	1,647	1,022	2,043	10,241	17	746	82	15,798
Antihypertensives	25	29	212	3,101	0	10	1	3,378
Antipsychotics	9	67	1,095	6,772	0	19	6	7,968
Antivenom (Immune Fab fragment) – Not Specified	153	222	185	1,924	0	12	2	2,498
Antivenom (Immune Fab) - Centruroides (Scorpion)	146	38	11	120	0	1	0	316
Antivenom (Immune Fab) - Latrodectus	1	0	1	7	0	0	0	9
Antivenom - Elapidae	1	3	8	33	0	0	0	45
Antivenom - Latrodectus	2	2	0	23	0	0	0	27
Antivenom/antitoxin (Non-Fab) – Not Specified	8	15	13	175	0	1	0	212
Antivirals	10	3	13	177	0	2	0	205
Atropine	129	48	242	1,720	0	5	2	2,146
BAL	5	1	1	11	0	0	0	18
Benzodiazepines	1,253	970	10,189	35,926	1	128	26	48,493
Blood Products	39	13	88	1,175	0	8	0	1,323
Botulinum antitoxin	15	0	1	29	0	0	0	45
Bronchodilators	226	160	362	4,024	5	156	15	4,948
Calcium	3,718	372	665	4,643	3	63	9	9,473
Cardioversion	5	1	35	329	0	4	0	374
Colony Stimulating Factors	0	0	0	11	0	0	0	11
Continuous Renal Replacement Therapy (CRRT)	9	5	71	787	0	1	1	874
CPR	134	23	288	2,194	0	16	7	2,662
Deferiprone	0	0	0	1	0	0	0	1
Deferoxamine	6	3	47	32	0	0	0	88
Digoxin Immune Fab	3	0	1	400	0	0	0	404
Direct-acting Oral Anticoagulant Reversal Agents	0	0	0	8	0	0	0	8
DMPS	1	0	0	0	0	0	0	1
DTPA - Calcium	0	0	2	1	0	0	0	3
ECMO	10	2	49	66	0	0	0	127
EDTA	24	1	0	9	0	0	0	34
Ethanol	1	0	2	52	0	3	1	59
Extracorp. procedure (other)	3	1	7	33	0	0	0	44
Fluids, IV	6,065	4,143	38,730	106,036	2	252	83	155,311
Flumazenil	65	23	103	777	0	2	1	971
Folate	12	2	76	3,111	0	4	0	3,205
Fomepizole	96	27	234	2,337	0	7	1	2,702
Glucagon	37	13	169	1,974	0	4	1	2,198
Glucarpidase	0	0	2	0	0	0	0	2
Glucose, > 5%	425	75	531	4,713	0	14	1	5,759
Granulocyte Stimulating Growth Factors	0	0	0	7	0	0	0	7
Hemodialysis	10	6	115	2,398	0	8	1	2,538
Hemoperfusion	0	0	2	22	0	0	0	24
High Dose Insulin/Glucose	2	3	53	602	0	1	0	661
Hydroxocobalamin	12	7	7	170	0	3	1	200
Hyperbaric oxygen	23	32	41	309	0	6	1	412
Hypothermia Protocol	3	1	14	244	0	1	0	263
Insulin	17	21	185	2,239	0	4	0	2,466

(Continued)

Table 15. Therapy Provided in Human Exposures by Age – Continued.

Therapy	≤5 y	6-12 y	13-19 y	≥20 y	Unknown child	Unknown adult	Unknown age	Total
Intubation	499	182	1,902	16,328	1	87	33	19,032
L-Carnitine	5	14	86	505	0	0	0	610
Leucovorin	7	1	15	169	0	1	1	194
Lipid Emulsion Therapy	8	7	60	328	0	0	0	403
Magnesium	24	183	2,665	11,273	0	19	6	14,170
Methylene blue	12	6	49	361	0	2	2	432
Molecular Adsorbant Recirculating System (MARS)	0	0	3	3	0	0	0	6
NAC, IV	236	1,002	10,718	17,384	1	28	8	29,377
NAC, PO	12	56	693	1,146	0	1	1	1,909
Nalmefene	0	1	3	17	0	0	0	21
Naloxone	1,603	261	2,688	23,292	1	147	58	28,050
Neuromuscular blocker	69	32	249	1,861	0	7	2	2,220
Octreotide	107	5	63	544	0	3	1	723
Opioid analgesia	316	237	768	8,281	0	31	6	9,639
Other	16,850	4,750	9,299	53,452	68	2,951	710	88,080
Oxygen	1,728	831	4,130	41,706	8	241	62	48,706
Pacemaker	2	0	4	259	0	0	1	266
Penicillamine	0	0	0	3	0	0	0	3
Physostigmine	8	15	165	225	0	1	0	414
Phytonadione	21	23	191	784	0	1	2	1,022
Plasmapheresis	4	0	9	33	0	0	0	46
Potassium	293	503	5,719	18,789	0	29	9	25,342
Potassium iodide	4	1	27	43	0	0	0	75
Propofol	80	57	968	9,277	0	26	10	10,418
Prussian blue	0	0	0	3	0	3	0	6
Pyridoxine	6	3	34	703	0	1	0	747
Rabies immune globulin	56	44	28	258	2	16	2	406
Rabies vaccine	63	52	37	321	3	25	2	503
Raxibacumab	1	0	1	4	0	1	0	7
Sedation (other)	429	208	1,855	11,801	0	49	12	14,354
Silibinin	0	1	2	9	0	0	0	12
Sodium bicarbonate - metabolic acidosis	29	29	366	2,389	0	4	1	2,818
Sodium bicarbonate - nebulized	5	7	17	148	0	0	0	177
Sodium nitrite	0	0	0	12	0	0	0	12
Sodium thiosulfate	4	1	3	26	0	0	0	34
Steroids	572	284	506	5,082	3	295	27	6,769
Succimer	137	10	4	32	0	1	0	184
Surgical intervention	217	111	95	626	0	3	3	1,055
Thiamine	5	5	134	5,111	0	8	0	5,263
Transplantation	2	0	6	26	0	0	0	34
Vasopressors	154	89	796	8,754	1	36	3	9,833
Ventilation, Non-invasive (CPAP, BiPAP)	72	30	157	3,528	0	28	1	3,816
Ventilator	506	181	1,919	16,594	1	88	33	19,322

^a Excludes benzodiazepines.

Top Substances in Human Exposures

Table 17A presents the 25 most common substance categories, listed by frequency of human exposure. This ranking provides an indication where prevention efforts might be focused, as well as the types of more serious exposures PCs regularly manage (resulting in death, major effect or moderate effect). It is relevant to know whether exposures to these substances are increasing or decreasing.

To better understand these relationships, we examined exposures with more serious outcomes per year over the last 10 years for the change over time for each of the 68 major generic categories via least squares linear regression. The serious outcome exposure cases per year over this period were increasing for 44, static for 7, and decreasing for 17 of the 68 categories with data for the entire time period. The change over time for the 10 yearly values was statistically significant ($p < 0.05$) for 35 of the 68 categories with data for the entire time period. Table 17B shows the 25 categories which were increasing the most rapidly over the past 10 years. Statistical significance of the linear regressions can be verified by noting the 95% confidence interval on the rate of increase excludes

zero for all but 2 of the 25 categories. Figures 4 show the change over time and linear regressions for the top 4 increasing categories in Table 17B for the 10-year period.

Tables 17C and 17D present exposure results for children and adults, respectively, and show the differences between substance categories involved in pediatric and adult exposures.

Table 17E reports the 16 categories of substances most frequently involved in pediatric (≤ 5 years) fatalities in 2021.

Table 17F reports the 25 Drug ID categories most frequently queried in 2021, highlighting the value of Drug ID information to America's Poison Centers, public health, public safety, and regulatory agencies. Internet based resources do not afford the caller the option to speak with a health care professional, if needed. Proper resources to continue this vital public service are essential, especially since the top 10 substance categories include antibiotics, drugs with widespread use and abuse potential, such as opioids and benzodiazepines, and drugs with the potential for serious toxicity.

Table 17G reports the 25 substance categories most frequently reported in exposures involving pregnant patients.

Table 16A. Decontamination Trends (1985–2021)

Year	Human exposures	Ipecac administered (% of all exposures)	Activated charcoal administered (% of all exposures)	Exposures involving children ≤5 y (% of all exposures)	Ipecac administered (% of child exposures)	Activated charcoal administered (% of child exposures)
1985	886,389	132,947 (14.999)	41,063 (4.6)	568,691 (64.2)	94,919 (16.6908)	14,718 (2.59)
1986	1,095,228	145,516 (13.286)	56,481 (5.2)	690,137 (63.0)	99,688 (14.4447)	18,191 (2.64)
1987	1,164,648	117,840 (10.118)	60,310 (5.2)	730,228 (62.7)	83,443 (11.427)	18,507 (2.53)
1988	1,364,113	114,654 (8.4050)	88,876 (6.5)	843,106 (61.8)	80,749 (9.5776)	26,118 (3.10)
1989	1,578,968	110,545 (7.0011)	101,368 (6.4)	963,924 (61.0)	79,192 (8.2156)	30,345 (3.15)
1990	1,646,946	98,986 (6.0103)	108,341 (6.6)	999,751 (60.7)	73,469 (7.3487)	31,579 (3.16)
1991	1,836,364	94,877 (5.1666)	129,092 (7.0)	1,099,179 (59.9)	73,069 (6.6476)	36,177 (3.29)
1992	1,862,796	79,493 (4.2674)	135,625 (7.3)	1,094,256 (58.7)	63,486 (5.8018)	38,937 (3.56)
1993	1,747,147	65,078 (3.7248)	127,893 (7.3)	978,560 (56.0)	50,834 (5.1948)	35,791 (3.66)
1994	1,926,992	51,356 (2.6651)	138,247 (7.2)	1,042,651 (54.1)	41,489 (3.9792)	35,670 (3.42)
1995	2,023,089	47,359 (2.3409)	155,880 (7.7)	1,070,472 (52.9)	38,372 (3.5846)	38,095 (3.56)
1996	2,155,952	39,376 (1.8264)	157,331 (7.3)	1,137,263 (52.7)	32,622 (2.8685)	37,986 (3.34)
1997	2,192,088	32,098 (1.4643)	156,213 (7.1)	1,150,931 (52.5)	26,536 (2.3056)	35,856 (3.12)
1998	2,241,082	26,653 (1.1893)	152,134 (6.8)	1,180,989 (52.7)	22,247 (1.8838)	34,302 (2.90)
1999	2,201,156	21,942 (0.9968)	145,853 (6.6)	1,154,799 (52.5)	18,326 (1.5869)	33,812 (2.93)
2000	2,168,248	18,177 (0.8383)	145,911 (6.7)	1,142,796 (52.7)	15,239 (1.3335)	31,554 (2.76)
2001	2,267,979	16,058 (0.7080)	149,442 (6.6)	1,169,478 (51.6)	13,389 (1.1449)	30,367 (2.60)
2002	2,380,028	13,555 (0.5695)	149,527 (6.3)	1,227,381 (51.6)	11,163 (0.9095)	30,340 (2.47)
2003	2,395,582	9,284 (0.3875)	140,412 (5.9)	1,245,584 (52.0)	7,310 (0.5869)	28,888 (2.32)
2004	2,438,643	4,701 (0.1928)	135,969 (5.6)	1,250,536 (51.3)	3,366 (0.2692)	28,335 (2.27)
2005	2,424,180	3,027 (0.1249)	123,263 (5.1)	1,233,695 (50.9)	1,999 (0.1620)	26,338 (2.13)
2006	2,403,539	2,176 (0.0905)	111,351 (4.6)	1,223,815 (50.9)	1,337 (0.1092)	23,843 (1.95)
2007	2,482,041	1,740 (0.0701)	106,010 (4.3)	1,271,595 (51.2)	1,052 (0.0827)	22,829 (1.80)
2008	2,491,049	1,205 (0.0484)	97,297 (3.9)	1,292,754 (51.9)	641 (0.0496)	21,286 (1.65)
2009	2,479,355	658 (0.0265)	84,805 (3.4)	1,290,784 (52.1)	330 (0.0256)	19,168 (1.48)
2010	2,384,825	360 (0.0200)	74,431 (3.1)	1,207,575 (50.6)	163 (0.0100)	16,581 (1.37)
2011	2,334,004	262 (0.0100)	66,770 (2.9)	1,144,729 (49.1)	98 (0.0100)	13,930 (1.22)
2012	2,275,141	193 (0.0100)	57,888 (2.5)	1,102,307 (48.5)	83 (0.0100)	11,284 (1.02)
2013	2,188,013	134 (0.0100)	50,459 (2.3)	1,049,475 (48.0)	42 (0.0000)	9,334 (0.89)
2014	2,165,142	132 (0.0061)	46,030 (2.1)	1,031,927 (47.7)	41 (0.0040)	7,977 (0.77)
2015	2,168,371	105 (0.0048)	42,712 (2.0)	1,017,369 (46.9)	29 (0.0029)	6,965 (0.68)
2016	2,159,032	88 (0.0041)	40,633 (1.9)	1,002,344 (46.4)	22 (0.0022)	6,333 (0.63)
2017	2,115,186	64 (0.0030)	39,985 (1.9)	956,871 (45.2)	12 (0.0013)	5,743 (0.60)
2018	2,099,751	63 (0.0030)	36,807 (1.8)	927,487 (44.2)	21 (0.0023)	5,006 (0.54)
2019	2,148,141	61 (0.0028)	35,541 (1.7)	920,148 (42.8)	12 (0.0013)	4,633 (0.50)
2020	2,128,198	70 (0.0033)	33,654 (1.6)	886,342 (41.6)	16 (0.0018)	4,007 (0.45)
2021	2,080,917	47 (0.0023)	35,819 (1.7)	846,482 (40.7)	8 (0.0009)	3,936 (0.47)

Table 16B. Decontamination Trends: Total Human and Pediatric Exposures ≤5 Years^a

Therapy	Human exposures		Exposures children ≤5 y	
	N	%	N	%
Activated charcoal administered	35,819	1.72	3,936	0.46
Cathartic	1,958	0.09	152	0.02
Ipecac administered	47	0.00	8	0.00
Lavage	387	0.02	10	0.00
Other Emetic	18,389	0.88	6,978	0.82
Whole Bowel Irrigation	1,105	0.05	82	0.01
Total	57,705	2.77	11,166	1.32

^a Human exposures = 2,080,917; Pediatric exposures = 846,482

Changes Over Time

Total encounters peaked in 2008 at 4,333,012 including 2,491,049 human exposure cases and 1,703,762 information contacts. Total encounters decreased 14.0% from 3,316,738 in 2020 to 2,851,166 in 2021. Information requests decreased by 37.0% from 1,116,568 in 2020 to 703,086 in 2021, with a 61.1% decrease in medical identification requests although still increased 13-fold compared to 2019, a 21.2% decrease in HCF information requests, and a 146% increase in drug information requests reflecting COVID-19 vaccine calls to the poison centers. Human exposures decreased by 2.22% from 2,128,198 to 2,080,917 cases over the same time period.

Figure 5 shows the year-to-year change through 2021 as a percentage of year 2000 for human exposure cases broken down into cases with more serious outcomes (death, major effect, and moderate effect) and less serious outcomes (minor effect, no effect, not followed (non-toxic), not followed (minimal toxicity possible), unable to follow (potentially toxic), and unrelated effect). Since 2000, cases with more serious outcomes have increased by 4.56% (95% CI [4.31%, 4.81%]) per year from 108,148 cases in 2000 to 213,270 cases in 2021. Cases with less serious outcomes have decreased since 2008 by 1.80% [-2.21%, -1.38%] per year from 2,339,460 in 2008 to 1,865,384 cases in 2021. The decrease in less serious exposures has largely driven the overall decrease in human exposures since 2008, with less serious exposures decreasing 2.65% from 2020 to 2021. We see a consistent increase in exposure cases from HCFs (Figure 3), as well as for the most severe exposures (Figure 5), while there is a continued trend toward decreasing cases involving less severe exposures.

Emerging Trends – Cannabinoid Exposures

In the 10-year period there were 132,995 exposures to 134,772 cannabinoid products reported to US poison centers. The frequency of cannabinoid product exposures has increased annually since 2016, with a spike in synthetic cannabinoid exposures in 2015 (Figure 6A). The majority of exposures were in adults (52.78%), followed by adolescents 13–19 years (27.13%), pediatric ≤5 years old (14.36%),

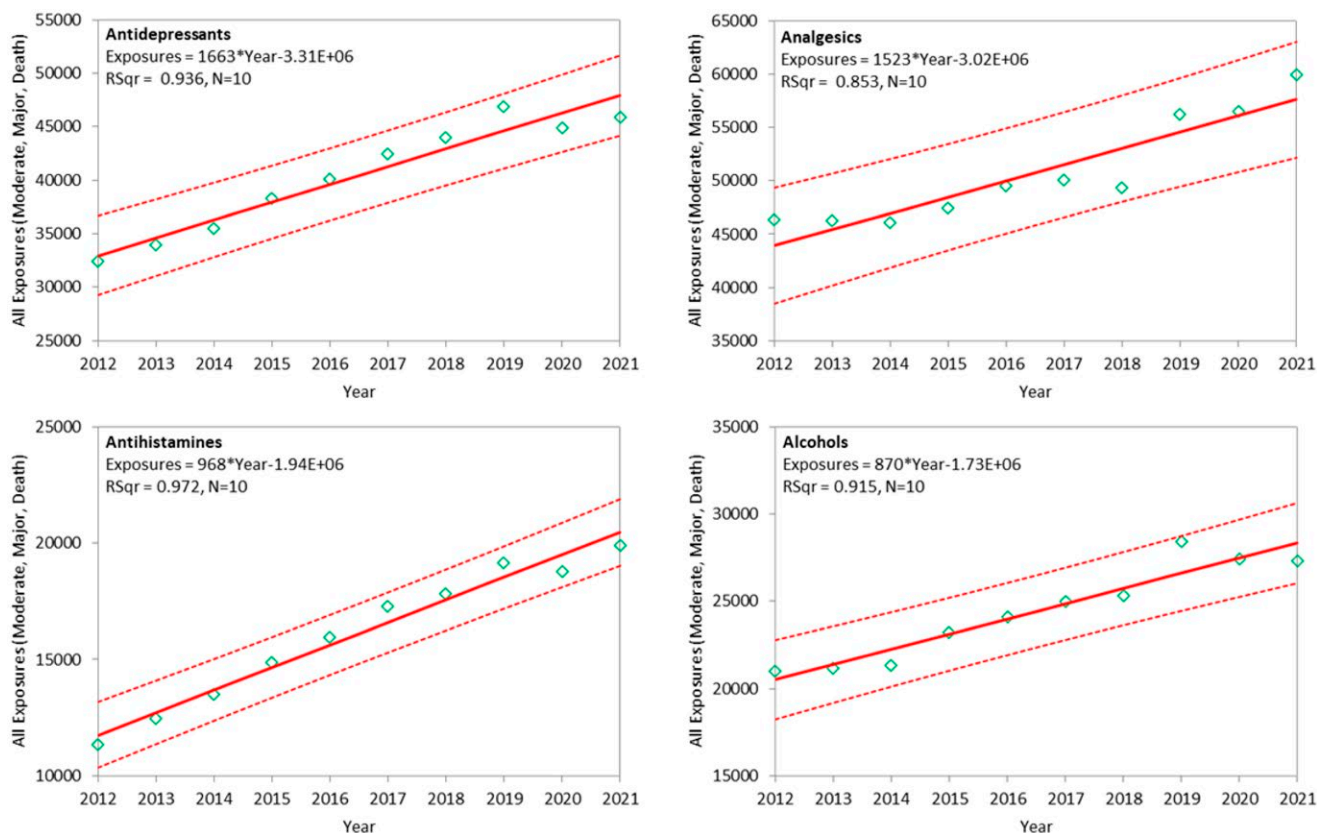


Figure 4. Substance categories with the greatest rate of exposure increase since 1 January 2012 for more severe outcomes (Top 4). Solid lines show least-squares linear regressions for the human exposure cases per year for that category (\diamond). Broken lines show 95% confidence interval on the population.

Table 17A. Substance Categories Most Frequently Involved in Human Exposures (Top 25)

Substance (Major Generic Category)	All substances	% ^a	Single substance exposures	% ^b
Analgesics	283,695	11.23	178,714	9.82
Cleaning Substances (Household)	189,182	7.49	165,505	9.09
Cosmetics/Personal Care Products	148,558	5.88	141,004	7.75
Antidepressants	141,802	5.61	64,568	3.55
Sedative/Hypnotics/Antipsychotics	119,500	4.73	44,277	2.43
Cardiovascular Drugs	116,165	4.60	47,693	2.62
Antihistamines	114,595	4.53	75,493	4.15
Dietary Supplements/Herbals/Homeopathic	87,305	3.45	74,868	4.11
Foreign Bodies/Toys/Miscellaneous	82,772	3.28	79,769	4.38
Stimulants and Street Drugs	75,852	3.00	44,451	2.44
Pesticides	71,574	2.83	66,780	3.67
Alcohols	70,760	2.80	22,529	1.24
Vitamins	63,245	2.50	50,120	2.75
Anticonvulsants	62,137	2.46	24,578	1.35
Topical Preparations	60,512	2.39	58,706	3.23
Hormones and Hormone Antagonists	55,040	2.18	35,173	1.93
Plants	53,951	2.13	51,363	2.82
Chemicals	50,045	1.98	42,255	2.32
Gastrointestinal Preparations	48,192	1.91	33,480	1.84
Cold and Cough Preparations	43,667	1.73	28,518	1.57
Antimicrobials	43,346	1.72	32,780	1.80
Fumes/Gases/Vapors	39,698	1.57	36,772	2.02
Bites and Envenomations	35,786	1.42	35,136	1.93
Electrolytes and Minerals	32,678	1.29	25,697	1.41
Other/Unknown Nondrug Substances	32,018	1.27	29,476	1.62

^a Percentages are based on the total number of substances reported in all exposures (N = 2,527,332)

^b Percentages are based on the total number of single substance exposures (N = 1,820,250)

Table 17B. Substance Categories with the Greatest Rate of Exposure Increase (Top 25)

Substance (Major Generic Category)	Increase in serious exposures per year ^a		All serious exposures in 2021
	Mean	95% CI ^b	
Antidepressants	1,663	[1309, 2017]	45,899
Analgesics	1,523	[1007, 2039]	59,983
Antihistamines	968	[833, 1102]	19,905
Alcohols	870	[653, 1087]	27,308
Stimulants and Street Drugs	772	[329, 1215]	26,919
Cardiovascular Drugs	716	[485, 947]	23,922
Anticonvulsants	654	[315, 994]	17,672
Unknown Drug	616	[481, 752]	10,578
Hormones and Hormone Antagonists	152	[51, 253]	6,889
Gastrointestinal Preparations	133	[76, 191]	3,473
Infectious and Toxin-Mediated Diseases	105	[-11, 220]	1,850
Dietary Supplements/Herbals/Homeopathic	102	[64, 140]	3,060
Cosmetics/Personal Care Products	85	[37, 132]	3,269
Fumes/Gases/Vapors	84	[41, 127]	4,407
Other/Unknown Nondrug Substances	80	[23, 137]	1,847
Serums, Toxoids, Vaccines	66	[-12, 143]	1,231
Electrolytes and Minerals	49	[41, 58]	1,396
Tobacco/Nicotine/eCigarette Products	49	[-11, 108]	474
Narcotic Antagonists	46	[38, 53]	509
Vitamins	40	[29, 50]	1,306
Weapons of Mass Destruction	39	[25, 53]	448
Miscellaneous Drugs	39	[17, 61]	2,600
Miscellaneous Foods	32	[19, 45]	568
Diuretics	30	[9, 52]	1,570
Anesthetics	26	[10, 41]	806

^a Serious exposures have outcomes of Moderate, Major or Death.

^b Increase and confidence intervals are based on least squares linear regression of the number of calls per year for 2012-2021.

Table 17C. Substance Categories Most Frequently Involved in Pediatric (≤ 5 Years) Exposures (Top 25)^a

Substance (Major Generic Category)	All substances	% ^b	Single substance exposures	% ^c
Cosmetics/Personal Care Products	95,848	10.84	93,379	11.38
Cleaning Substances (Household)	94,279	10.67	90,535	11.04
Analgesics	72,155	8.16	65,741	8.01
Dietary Supplements/Herbals/Homeopathic	61,827	7.00	58,754	7.16
Foreign Bodies/Toys/Miscellaneous	57,493	6.51	56,059	6.83
Vitamins	42,784	4.84	37,482	4.57
Antihistamines	42,480	4.81	38,266	4.66
Topical Preparations	37,362	4.23	36,639	4.47
Plants	31,400	3.55	30,322	3.70
Pesticides	28,972	3.28	28,191	3.44
Gastrointestinal Preparations	23,189	2.62	20,974	2.56
Cardiovascular Drugs	18,141	2.05	11,761	1.43
Electrolytes and Minerals	16,760	1.90	15,020	1.83
Arts/Crafts/Office Supplies	15,720	1.78	15,201	1.85
Cold and Cough Preparations	15,233	1.72	13,705	1.67
Antimicrobials	14,865	1.68	13,871	1.69
Stimulants and Street Drugs	14,498	1.64	13,021	1.59
Hormones and Hormone Antagonists	14,220	1.61	11,250	1.37
Deodorizers	13,741	1.55	13,581	1.66
Essential Oils	13,663	1.55	12,950	1.58
Antidepressants	11,719	1.33	8,625	1.05
Chemicals	10,693	1.21	9,793	1.19
Other/Unknown Nondrug Substances	10,538	1.19	10,093	1.23
Tobacco/Nicotine/eCigarette Products	10,322	1.17	10,249	1.25
Alcohols	8,850	1.00	8,605	1.05

^a Includes all children with actual or estimated ages ≤ 5 years old. Results do not include "Unknown Child" or "Unknown Age".

^b Percentages are based on the total number of substances reported in pediatric exposures (N = 883,822)

^c Percentages are based on the total number of single substance pediatric exposures (N = 820,300)

Table 17D. Substance Categories Most Frequently Involved in Adult (≥ 20 years) Exposures (Top 25)^a

Substance (Major Generic Category)	All substances	% ^b	Single substance exposures	% ^c
Analgesics	136,380	11.16	67,777	9.44
Sedative/Hypnotics/Antipsychotics	91,521	7.49	30,202	4.21
Antidepressants	86,134	7.05	33,373	4.65
Cardiovascular Drugs	82,576	6.76	28,329	3.95
Cleaning Substances (Household)	76,832	6.29	59,894	8.35
Alcohols	54,591	4.47	11,261	1.57
Anticonvulsants	46,258	3.78	16,084	2.24
Antihistamines	41,590	3.40	19,176	2.67
Stimulants and Street Drugs	39,465	3.23	17,742	2.47
Pesticides	36,599	2.99	32,997	4.60
Cosmetics/Personal Care Products	36,131	2.96	32,336	4.51
Hormones and Hormone Antagonists	35,228	2.88	20,589	2.87
Chemicals	33,157	2.71	27,210	3.79
Fumes/Gases/Vapors	30,765	2.52	28,364	3.95
Bites and Envenomations	23,965	1.96	23,536	3.28
Antimicrobials	22,204	1.82	15,231	2.12
Gastrointestinal Preparations	19,376	1.59	9,280	1.29
Topical Preparations	18,922	1.55	18,062	2.52
Hydrocarbons	18,336	1.50	17,053	2.38
Cold and Cough Preparations	17,615	1.44	8,916	1.24
Other/Unknown Nondrug Substances	17,019	1.39	15,325	2.14
Muscle Relaxants	16,830	1.38	6,264	0.87
Infectious and Toxin-Mediated Diseases	16,198	1.33	11,565	1.61
Unknown Drug	14,839	1.21	9,026	1.26
Miscellaneous Drugs	14,722	1.20	7,849	1.09

^a Includes all adults with actual or estimated ages ≥ 20 years old. Results also include "Unknown Adult" but do not include "Unknown Age".

^b Percentages are based on the total number of substances reported in adult exposures (N = 1,222,256)

^c Percentages are based on the total number of single substance adult exposures (N = 717,710)

Table 17E. Substance Categories Most Frequently Involved in Pediatric (≤ 5 Years) Deaths^a

Substance (Major Generic Category)	All substances	% ^b	Single substance exposures	% ^c
Analgesics	23	29.11	12	30.77
Fumes/Gases/Vapors	16	20.25	9	23.08
Stimulants and Street Drugs	6	7.59	3	7.69
Batteries	5	6.33	5	12.82
Cardiovascular Drugs	4	5.06	0	0.00
Alcohols	3	3.80	2	5.13
Chemicals	3	3.80	0	0.00
Dietary Supplements/Herbals/Homeopathic	3	3.80	1	2.56
Unknown Drug	3	3.80	1	2.56
Cosmetics/Personal Care Products	2	2.53	1	2.56
Hydrocarbons	2	2.53	2	5.13
Infectious and Toxin-Mediated Diseases	2	2.53	0	0.00
Other/Unknown Nondrug Substances	2	2.53	2	5.13
Anticonvulsants	1	1.27	0	0.00
Antihistamines	1	1.27	1	2.56
Muscle Relaxants	1	1.27	0	0.00
Sedative/Hypnotics/Antipsychotics	1	1.27	0	0.00
Weapons of Mass Destruction	1	1.27	0	0.00

^a Includes all children with actual or estimated ages ≤ 5 years old. Results do not include "Unknown Child" or "Unknown Age". Includes death and death, indirect regardless of RCF.

^b Percentages are based on the total number of substances reported in pediatric fatalities (N = 79)

^c Percentages are based on the total number of single substance pediatric fatalities (N = 39)

pediatric 6-12 years (4.62%), and unknown ages (1.10%). Overall, adults and adolescents comprise the majority of exposures, however in 2020 pediatric exposures ≤ 5 years surpassed adolescents (Figure 6B). This represents a change in exposure demographics and may be related to a changing cannabinoid product landscape.

The most common substance involved in exposure was plant-based marijuana (n = 61,159, 45.38%). Plant-based marijuana exposures increased annually from 2012-2017, with decreases in 2018 and 2019, before resuming the increase in 2020 and 2021. In 2021, however, edible marijuana product exposures surpassed plant-based exposures

(7,688 edible vs 7,691 plant) (Figure 6A and 6C). Among children < 13 years, edible marijuana products were the most common products involved in exposures (40.62% of exposures) followed by plant-based marijuana (29.63%). Conversely, for adults, plant-based marijuana exposures were the most common (47.24%) followed by exposure to synthetic cannabinoids (27.63%). In a subgroup analysis of 20,334 exposures to marijuana edibles, pediatric patients ≤ 5 years represented the largest age group involved in exposures (35.73%). These data suggest a distinct emerging trend in rising edible marijuana exposures driven primarily by a rise in pediatric exposure.

Table 17F. Substance Categories Most Frequently Identified in Drug Identification Calls (Top 25)

Substance (Major Generic Category)	All substances	% ^a
Analgesics	8,915	30.58
Sedative/Hypnotics/Antipsychotics	5,091	17.47
Unknown Drug	2,633	9.03
Cardiovascular Drugs	2,233	7.66
Anticonvulsants	1,438	4.93
Antidepressants	1,347	4.62
Stimulants and Street Drugs	1,338	4.59
Antimicrobials	1,041	3.57
Muscle Relaxants	945	3.24
Antihistamines	942	3.23
Hormones and Hormone Antagonists	651	2.23
Gastrointestinal Preparations	627	2.15
Information Calls	429	1.47
Diuretics	332	1.14
Miscellaneous Drugs	285	0.98
Cold and Cough Preparations	151	0.52
Electrolytes and Minerals	92	0.32
Anticoagulants	81	0.28
Serums, Toxoids, Vaccines	78	0.27
Other/Unknown Nondrug Substances	78	0.27
Asthma Therapies	75	0.26
Infectious and Toxin-Mediated Diseases	57	0.20
Weapons of Mass Destruction	55	0.19
Vitamins	53	0.18
Anticholinergic Drugs	51	0.17

^a Percentages are based on the total number of substances reported in all drug identification calls (N = 29,149)

Table 17G. Substance Categories Most Frequently Involved in Pregnant Exposures^a (Top 25)

Substance (Major Generic Category)	All substances	% ^b	Single substance exposures	% ^c
Analgesics	786	11.09	492	8.98
Cleaning Substances (Household)	703	9.92	520	9.49
Fumes/Gases/Vapors	529	7.46	498	9.09
Pesticides	333	4.70	306	5.59
Antidepressants	262	3.70	162	2.96
Antihistamines	254	3.58	164	2.99
Vitamins	253	3.57	171	3.12
Sedative/Hypnotics/Antipsychotics	234	3.30	112	2.04
Chemicals	223	3.15	178	3.25
Bites and Envenomations	208	2.93	202	3.69
Cosmetics/Personal Care Products	188	2.65	172	3.14
Electrolytes and Minerals	183	2.58	144	2.63
Infectious and Toxin-Mediated Diseases	171	2.41	142	2.59
Plants	168	2.37	162	2.96
Hormones and Hormone Antagonists	160	2.26	132	2.41
Stimulants and Street Drugs	157	2.21	75	1.37
Foreign Bodies/Toys/Miscellaneous	154	2.17	145	2.65
Hydrocarbons	151	2.13	140	2.56
Antimicrobials	141	1.99	108	1.97
Other/Unknown Nondrug Substances	121	1.71	113	2.06
Alcohols	120	1.69	44	0.80
Miscellaneous Foods	118	1.66	111	2.03
Cardiovascular Drugs	115	1.62	74	1.35
Gastrointestinal Preparations	106	1.50	81	1.48
Cold and Cough Preparations	97	1.37	58	1.06

^a Includes all patient classified as pregnant and all female patients with a 'duration of pregnancy' greater than 0.

^b Percentages are based on the total number of substances reported in pregnant exposures (N = 7,090)

^c Percentages are based on the total number of single substance pregnant exposures (N = 5,477)

Clinical effects and hospital resource utilization were analyzed for single substance exposure cases followed to known outcomes. Synthetic cannabinoids were associated with the highest rate of major effects (10.7 % of 17,279 exposure cases). Synthetic cannabinoid exposures have been declining since 2015 (Figure 6A and 6C). Despite the increase in edible cannabis exposures, most cases result in no or only minor effects (61.2% of 12,296 exposure cases), 36.3% had moderate effects and only 2.5% experience major effects. When

analyzing edible exposures in children <13 years old (n = 6,948 exposure cases) 65.9% experienced no or minor effects, 31.4% had moderate effects, and 2.70% had major effects (Figure 6D). No deaths were reported in any year. Rates were similar among the ≤5 and 6 to 12-year-old group. Despite minimal clinical effects 59.6% of children <13 years were evaluated in a healthcare facility for edible marijuana exposure, and 20.5% were admitted to an inpatient unit, reflecting significant healthcare utilization with increasing exposure (Figure 6D).

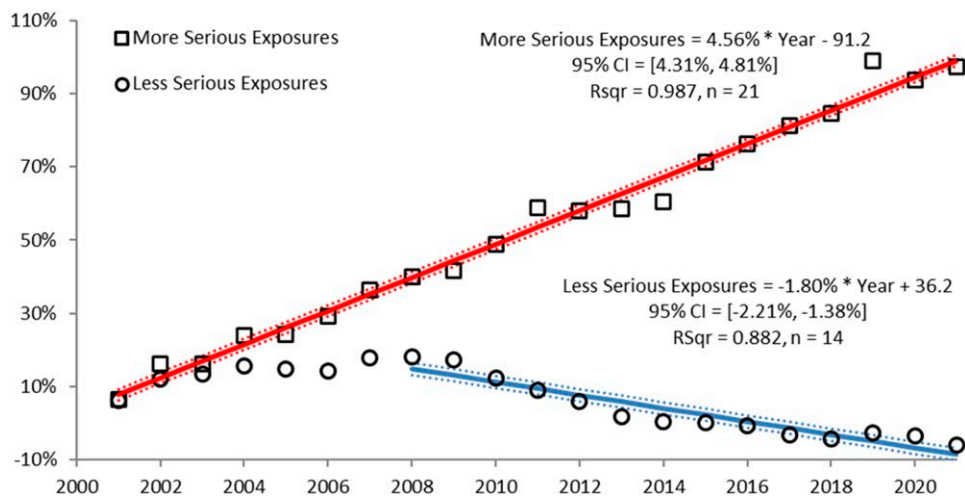


Figure 5. Change in Human Exposures by Outcome from Year 2000. The figure shows the percent change from baseline (year 2000) for human exposure cases divided among the 10 medical outcomes. The more serious exposures (major, moderate and death) increased. The less serious exposures (no effect, minor effect, not followed (non-toxic), not followed (minimal toxicity possible), unable to follow (potentially toxic) and unrelated effect) decreased after 2008. Solid lines show least-squares linear regressions for the change in more serious exposures per year (□) and less serious exposures (○). Broken lines show 95% confidence intervals on the regression.

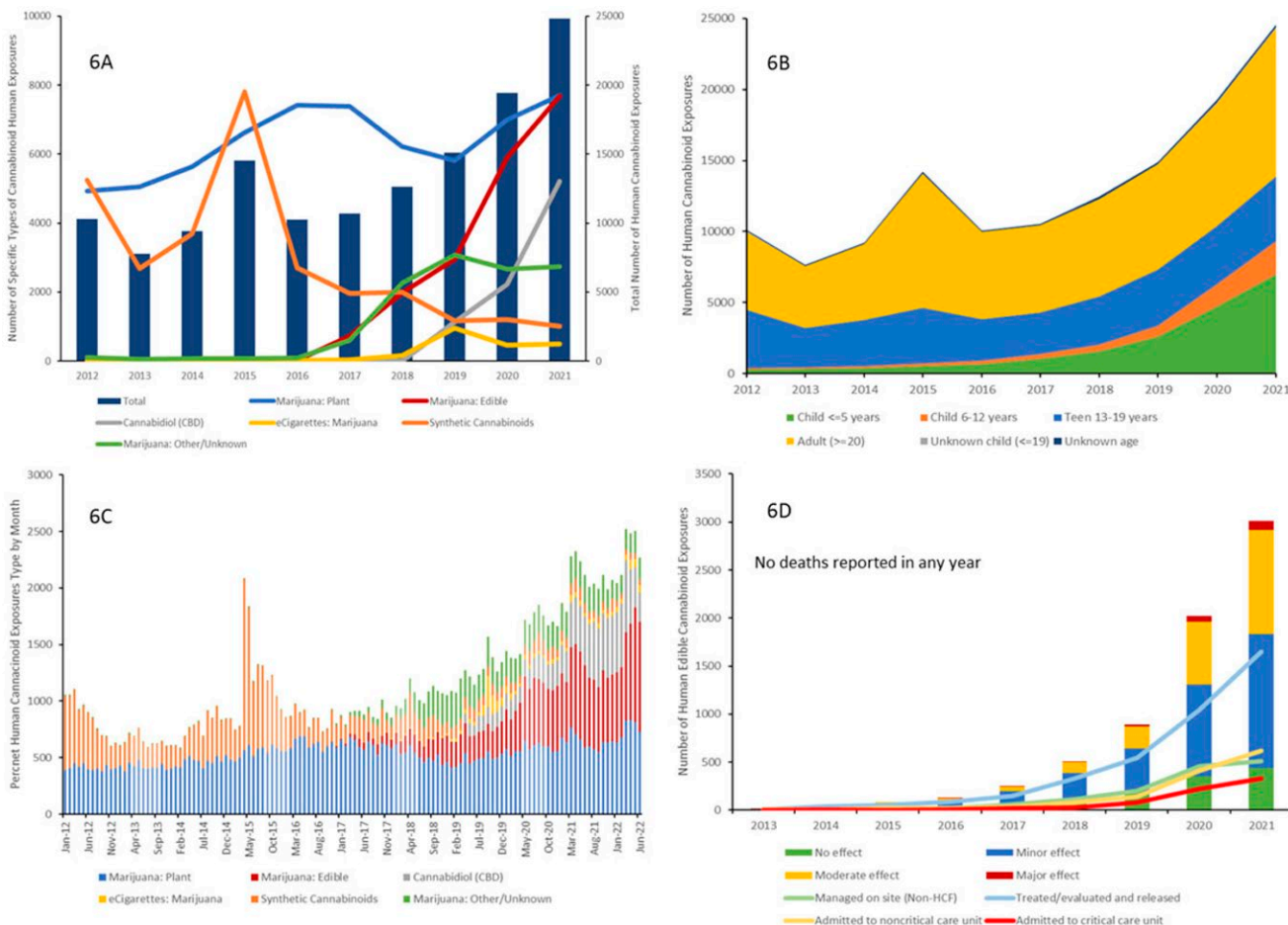


Figure 6. Human Cannabinoid Exposures from 1 January 2012 through 30 June 2022. Figures 6A-6D. All figures with the exception of 6C use data from January 1, 2012 through December 31, 2021. **Figure 6C** uses data from January 1, 2012 through June 30, 2022. **Figure 6A:** Lines depict the annual number of closed human cannabinoid exposures by type and are plotted on the left vertical axis. Bars depict the total number of closed human cannabinoid exposures and are plotted on the right vertical axis. The left and right vertical axis scales are different to emphasize the annual changes. **Figure 6B:** Age distribution of closed human cannabinoid exposures by year. **Figure 6C:** Number of closed human cannabinoid exposures by type by month. **Figure 6D:** Lines depict the annual number of human Marijuana: Edible exposures followed to a known outcome by management site. Bars depict the number of human Marijuana: Edible exposures per year followed to a known outcome by medical outcome. Note: Generic codes were activated in NPDS for Marijuana: Edible in November 2016; eCigarettes: Marijuana in October 2014; and Cannabidiol (CBD) and most generic codes in the Marijuana: Other/Unknown grouping (with the exception of Marijuana: Pharmaceutical) in February 2019. Interpretation of the data should be made considering these limitations.

2021 Snapshot – Bupropion

- Single substance bupropion exposures have increased since 2012 and are second only to SSRIs in their rate of increase.
- Bupropion has been the antidepressant associated with the most severe outcomes (Major or Death used for severe outcomes in this Snapshot) since 2020 when it surpassed lithium and is increasing at a rate more than double that of SSRIs (Figure 7).
- The increase of severe outcomes from bupropion is greater than the increase of the total number of exposures to bupropion; single substance SSRI exposures are increasing at almost three times the rate of bupropion.
- The trajectory of bupropion severe outcomes is concerning along with bupropion's prevalence, but currently severe outcomes occur in higher proportions from lithium or TCA overdoses.
- For single substance exposures, 40.7% of lithium cases had a severe outcome, followed by TCA with 36.3%, then bupropion with 28.5%; SSRIs had less than half the severe outcomes of bupropion at 12.2% despite the greater increase in single substance SSRI exposures.
- A similar trend is also noted in therapeutic errors. Unintentional therapeutic errors were 29,412 (40.0%) of single substance bupropion cases with 0.43% of cases having a severe outcome. This contrasts to lithium with 21.3% therapeutic errors and 1.7% severe outcomes, and TCAs with 21.3% therapeutic errors and 0.72% severe outcomes.
- While lithium appears to have significant numbers of severe outcomes with Unintentional Therapeutic errors, this seems to be more associated with chronic use (49.5% for lithium vs 13.7% for bupropion).
- Of the single substance bupropion exposures, 3.3% were intentional abuse with 38.3% through insufflation. Quetiapine, an atypical antipsychotic with a similar history of abuse, 1.37% of cases involved intentional abuse with 6.51% through insufflation.

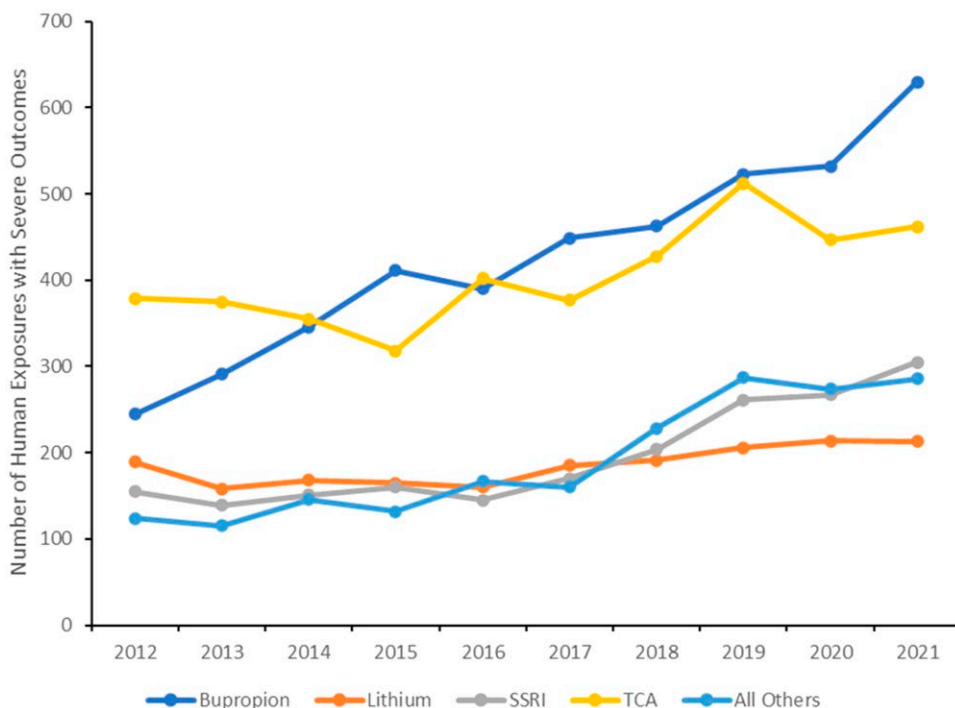


Figure 7. Severe Outcomes from Single Substance Antidepressant Human Exposures by Year since 1 January 2012. The figure shows the annual number of severe outcomes (Major Outcome or Death) from closed single-substance antidepressant human exposures since 1 January 2012.

Distribution of Suicides

Table 19A shows modest variation in the distribution of suicides and pediatric deaths over the past 2 decades as reported to the NPDS national database. Within the last decade, the percent of exposures determined to be suspected suicides ranged from 22.6% to 45.8% and the percent of pediatric cases has ranged from 0.779% to 2.29%. The relatively large changes seen for 2012, 2017, 2018, 2020 and 2021 reflect the large increase in indirect death reports in those years (peaking at 2,482 in year 2020). Analyses of suicides and pediatric deaths for Direct and Indirect reports are shown in Table 19B. For a more detailed review of trends in adolescent suicides, the reader is referred to the 2018 NPDS Annual Report [1].

Plant Exposures

Table 20 provides the number of times a specific plant was reported to NPDS (n = 53,951). The 25 most commonly involved plant species and categories account for 41.6% of all reported plant exposures. Three of the top 5 categories in the table are essentially synonymous for unknown plant and comprise 8.40% (4,532) of all plant exposures. For a variety of reasons, it was not possible to make a precise identification in these 3 groups. The most frequent plant exposures where positive plant identification was made were (descending order): Pokeweed (*Phytolacca americana*), Cherry Pit or Fruit, Elephant's Ear (Family: *Araceae*), Poison Ivy (*Toxicodendron radicans*), *Ilex* species, and *Spathiphyllum* species.

Table 19A. Comparisons of Death Data (1985-2021)^a

Year	Total fatalities		Suicides		Pediatric deaths ^b	
	N	% of cases	N	% of deaths	N	% of deaths
1985	328	0.036	174	53.05	20	6.10
1986	406	0.037	223	54.93	15	3.69
1987	398	0.034	227	57.04	22	5.53
1988	544	0.040	296	54.41	30	5.51
1989	590	0.037	323	54.75	24	4.07
1990	553	0.032	320	57.87	21	3.80
1991	764	0.042	408	53.40	44	5.76
1992	705	0.038	395	56.03	29	4.11
1993	626	0.036	338	53.99	27	4.31
1994	766	0.040	410	53.52	26	3.39
1995	724	0.036	405	55.94	20	2.76
1996	726	0.034	358	49.31	29	3.99
1997	786	0.036	418	53.18	25	3.18
1998	775	0.035	421	54.32	16	2.06
1999	873	0.040	472	54.07	24	2.75
2000	921	0.042	477	51.79	20	2.17
2001	1,085	0.048	553	50.97	27	2.49
2002	1,170	0.049	635	54.27	27	2.31
2003	1,109	0.046	592	53.38	35	3.16
2004	1,190	0.049	642	53.95	27	2.27
2005	1,438	0.059	674	46.87	32	2.23
2006	1,515	0.063	705	46.53	39	2.57
2007	1,597	0.064	737	46.15	47	2.94
2008	1,756	0.070	797	45.39	39	2.22
2009	1,544	0.062	779	50.45	37	2.40
2010	1,730	0.072	779	45.03	55	3.18
2011	2,765	0.118	865	31.28	42	1.52
2012	2,937	0.129	890	30.30	46	1.57
2013	2,477	0.113	785	31.69	51	2.06
2014	1,835	0.085	790	43.05	34	1.85
2015	1,831	0.084	814	44.46	42	2.29
2016	1,977	0.091	906	45.83	44	2.23
2017	3,208	0.151	954	29.74	25	0.78
2018	3,111	0.148	953	30.63	51	1.64
2019	2,619	0.122	909	34.71	31	1.18
2020	4,488	0.210	1,013	22.57	57	1.27
2021	4,497	0.216	1,042	23.17	56	1.25

^a Human exposures with medical outcome of death or death, indirect regardless of RCF.^b Includes all children with actual or estimated ages ≤ 5 years old. Results do not include “Unknown Child” or “Unknown Age”. Includes Death and Death, indirect regardless of RCF.**Table 19B.** Comparisons of Direct and Indirect Death Data (2000-2021)^a

Year	All deaths			Suicides			Pediatric deaths						
	Total	Direct	Indirect	Total	% of deaths	Direct	% of direct	Indirect	Total	% of deaths	Direct	% of direct	Indirect
2000	864	845	19	448	51.85	443	52.43	5	18	2.08	18	2.13	0
2001	1,066	952	114	542	50.84	503	52.84	39	26	2.44	24	2.52	2
2002	850	739	111	455	53.53	436	59.00	19	24	2.82	15	2.03	9
2003	867	826	41	464	53.52	454	54.96	10	29	3.34	22	2.66	7
2004	955	898	57	516	54.03	501	55.79	15	25	2.62	21	2.34	4
2005	1,423	1,332	91	666	46.80	656	49.25	10	32	2.25	26	1.95	6
2006	1,515	1,415	100	705	46.53	687	48.55	18	39	2.57	32	2.26	7
2007	1,597	1,502	95	737	46.15	712	47.40	25	47	2.94	41	2.73	6
2008	1,756	1,535	221	797	45.39	750	48.86	47	39	2.22	32	2.08	7
2009	1,544	1,452	92	779	50.45	748	51.52	31	37	2.40	31	2.13	6
2010	1,730	1,455	275	779	45.03	732	50.31	47	55	3.18	47	3.23	8
2011	2,765	1,503	1,262	865	31.28	758	50.43	107	42	1.52	31	2.06	11
2012	2,937	1,507	1,430	890	30.30	759	50.36	131	46	1.57	30	1.99	16
2013	2,477	1,552	925	785	31.69	698	44.97	87	51	2.06	43	2.77	8
2014	1,835	1,559	276	790	43.05	757	48.56	33	34	1.85	23	1.48	11
2015	1,831	1,670	161	814	44.46	784	46.95	30	42	2.29	34	2.04	8
2016	1,977	1,852	125	906	45.83	885	47.79	21	44	2.23	37	2.00	7
2017	3,208	1,832	1,376	954	29.74	821	44.81	133	25	0.78	19	1.04	6
2018	3,111	1,821	1,290	953	30.63	823	45.19	130	51	1.64	32	1.76	19
2019	2,619	1,923	696	909	34.71	855	44.46	54	31	1.18	22	1.14	9
2020	4,488	2,006	2,482	1,013	22.57	880	43.87	133	57	1.27	37	1.84	20
2021	4,497	2,234	2,263	1,042	23.17	941	42.12	101	56	1.25	35	1.57	21

^a Human exposures with medical outcome of death or death, indirect regardless of RCF.

Table 20. Frequency of Plant Exposures (Top 25)^a

	Botanical name or Category	America's Poison Centers Generic Code Name	N
1	<i>Phytolacca americana</i> (L.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	3,597
2	Cherry & Cherry Pit	Amygdalin and/or Cyanogenic Glycosides	3,454
3	Unknown Botanical Name	Unknown Toxic Types or Unknown if Toxic	2,021
4	Berry (N.O.S.)	Unknown Toxic Types or Unknown if Toxic	1,440
5	Plants-general-unknown	Unknown Toxic Types or Unknown if Toxic	1,071
6	Elephant's Ear	Oxalates	947
7	Poison ivy	Skin Irritants (Excluding Oxalate Containing Plants)	807
8	<i>Ilex spp.</i> (N.O.S.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	769
9	Plants-solanine	Solanine	710
10	<i>Spathiphyllum spp.</i>	Oxalates	674
11	Apple (Fruit & Seed)	Amygdalin and/or Cyanogenic Glycosides	615
12	Plants-cyanogenic glycosides	Amygdalin and/or Cyanogenic Glycosides	600
13	Unknown Botanical Name	Amygdalin and/or Cyanogenic Glycosides	598
14	Unknown Botanical Name	Non-Toxic	575
15	<i>Epipremnum areum</i>	Oxalates	544
16	Plants-oxalates	Oxalates	451
17	Unknown Botanical Name	Oxalates	432
18	<i>Nerium oleander</i> (L.)	Cardiac Glycosides (Excluding Drugs)	425
19	<i>Euphorbia tirucalli</i> (L.)	Skin Irritants (Excluding Oxalate Containing Plants)	416
20	Plum (Species unspecified)	Amygdalin and/or Cyanogenic Glycosides	403
21	<i>Conium maculatum</i> (L.)	Stimulants	403
22	Unknown Botanical Name	Skin Irritants (Excluding Oxalate Containing Plants)	394
23	Unknown Botanical Name	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	381
24	Unknown Botanical Name	Plants: Other Toxic Types	376
25	Plants-cardiac glycosides	Plants: Cardiac Glycosides (Excluding Drugs)	358

^a Number of substances related to a human exposure with a Major Generic Category of Plant. Unknown Botanical Name represents substances with a Major Generic Category of Plant and a NULL substance code. Total = 53,951

Table 19C. Detail of Cases Included in Fatality Tables

Table	Fatalities Included	RCF	N
4	Death only	1,2,3	1,630
5	Death only	1,2,3	1,630
8	Death only	1,2,3	1,630
9	Death only	1,2,3	1,630
11	Death and Death (indirect report)	All	4,497
12	Death and Death (indirect report)	All	4,497
17E	Pediatric Death and Death (indirect report)	All	56
18	Death only	1,2,3	1,630
19A	Death and Death (indirect report)	All	4,497
19B	Death and Death (indirect report)	All	4,497
21	Death and Death (indirect report)	1,2,3	3,809
22	Death and Death (indirect report) - Single substance deaths only	All	1,995

Deaths and Exposure-related Fatalities

A listing of cases (Table 21, Appendix A) and summary of cases (Tables 4, 5, 8, 9, and 18) are provided for fatal cases with reasonable confidence that the death was a result of the exposure (exposure-related fatalities; RCF of 1, 2 or 3 and no death, indirect cases). Tables 11, 12, 17E, 19 and 22 consider all deaths (direct and indirect), irrespective of the RCF. Beginning in 2010, deaths recorded as indirect report were no longer reviewed by the America's Poison Centers fatality review team and the RCF was determined by the reporting PC. Table 19C indicates which cases are included in 12 tables reporting fatalities.

There were 2,234 deaths, and 2,263 indirect deaths. Of these 4,497 cases, 3,809 were judged exposure-related fatalities (RCF = 1 - Undoubtedly responsible, 2 - Probably responsible, or 3 - Contributory). The remaining 688 cases were judged as follows: 182 as RCF 4 - Probably not responsible, 71 as RCF 5 - Clearly not responsible, and 435 as RCF 6 - Unknown. Deaths are sorted in Table 21 (Appendix A) according to the category, then substance deemed most likely responsible for the death (Cause Rank), and then by patient age. The Cause Rank permits the PC to judge 2 or more substances as indistinguishable in terms of cause, for example, 2 substances which appear equally likely to have caused the death could have Substance Rank of 1,2 and Cause Rank of 1,1. Additional agents

implicated in the death are listed below the primary agent in the order of their contribution to the fatality.

As shown in Table 5, a single substance was implicated in 87.5% of reported human exposures, and 12.5% of patients were exposed to ≥ 2 drugs or products. The exposure-related fatalities involved a single substance in 714 cases (43.8%), 2 substances in 446 cases (27.4%), 3 in 202 cases (12.4%), and 4 or more in the balance of cases.

In Table 21 (Appendix A), the Annual Report ID number [bracketed] indicates that the abstract for that case is included in Appendix C. The letters following the Annual Report ID number indicate: i = Death, Indirect report (occurred in 2,179, 57.3% of cases), p = pre-hospital cardiac and/or respiratory arrest (occurred in 579, 15.2% of cases), h = hospital records reviewed (occurred in 1,287, or 33.8% of cases), a = autopsy report reviewed (occurred in 2,144 or 56.3% of cases). The distribution of NPDS RCF was: 1 = Undoubtedly responsible in 1,908 cases (50.1%), 2 = Probably responsible in 1,398 cases (36.7%), 3 = Contributory in 503 cases (13.2%). The denominator for these Table 21 percentages is 3,809.

All Fatalities – All Ages

Table 4 presents the age and gender distribution for the 1,630 exposure-related fatalities (excluding death, indirect). The age distribution

of reported fatalities showed an increase in deaths among children (<20 years old) compared to 2020, with 123 cases representing 7.55% of fatalities. This was an absolute increase of 27 fatalities (28.1%) in that age group. The age distribution of reported fatalities in adults (≥ 20 years) was similar to prior years with 1,505 of 1,630 (92.3%) fatal cases occurring in that age group and 2 (0.123%) occurring in Unknown Age patients. While children ≤ 5 years old were involved in the majority of exposures, the deaths in this group comprised just 1.60% of the exposure-related fatalities. The number of deaths in this age group increased by 5 from 2020. Most (59.4%) of the fatalities occurred in 20 to 59-year-old individuals, in line with prior years, although 32.3% occurred in older individuals (>60 years old).

Table 21 (Appendix A) lists each of the 3,809 human fatalities (RCF 1, 2, 3; including death, indirect) along with all the substances involved for each case. The substance listed in column 3 of Table 21 (alternate name) was chosen to be the most specific generic name based upon the Poisindex[®] product name and generic code selected for that substance. Alternate names are maintained in the NPDS for each substance involved in a fatality. The cross-references at the end of each major category section in Table 21 list all cases that identify the substance as other than the primary substance. This alternate name may not agree with the America's Poison Centers generic categories used in the summary tables (including Appendix B (Table 22)).

Table 18 lists the top 25 minor generic substance categories associated with reported fatalities and the number of single substance exposure fatalities for that category. Acetaminophen alone, miscellaneous sedative/hypnotics/antipsychotics, miscellaneous alcohols, pharmaceutical and illegal opioid preparations, miscellaneous stimulants and street drugs lead this list, followed by calcium antagonists, beta blockers, miscellaneous antidepressants, and single agent hypoglycemics. Note that Table 18 is sorted by all substances to which a patient was exposed (i.e., a patient exposed to an opioid may have also been exposed to 1 or more other products) and shows single substance exposures in the right-hand column.

The first ranked substance (Appendix A, Table 21) was a pharmaceutical in 3,292 (86.4%) of the 3,809 fatalities. These 3,292 first ranked pharmaceuticals included:

1,897 analgesics (1,014 fentanyl (non-prescription), 258 acetaminophen, 162 narcotic, N.O.S., 126 heroin, 76 fentanyl (prescription), 54 oxycodone, 31 salicylate, 27 methadone, 22 acetaminophen/oxycodone, 21 acetaminophen/hydrocodone, 21 morphine, 15 acetaminophen/diphenhydramine, 15 colchicine).
565 stimulants/street drugs (459 methamphetamine, 62 cocaine, 9 amphetamine, 9 *Mitragyna speciosa korthals*, 4 methylenedioxyamphetamine (MDMA), 3 marijuana, 2 amphetamine (hallucinogenic), 2 caffeine, 2 nitrites (amyl), 2 phencyclidine, 2 THC homolog).
282 cardiovascular drugs (97 amlodipine, 26 metoprolol, 19 digoxin, 16 verapamil, 14 carvedilol, 13 diltiazem (ER), 12 calcium antagonist, 12 diltiazem, 11 propranolol).
133 antidepressants (32 bupropion, 24 bupropion (ER), 15 amitriptyline, 12 trazadone, 9 doxepin, 6 lithium, 5 venlafaxine, 4 citalopram).
123 unknown drug (120 drug, N.O.S., 2 caffeine/salicylate, 1 sevoflurane).
66 sedative/hypnotic/antipsychotics (13 quetiapine, 11 alprazolam, 5 clonazepam, 4 zolpidem, 4 olanzapine, 4 antipsychotic (atypical)).
56 hormones and hormone antagonists (37 metformin, 4 insulin, 3 insulin (aspart), 3 insulin (glargine) (ER), 2 glimepiride, 2 glyburide).

The exposure was acute (A) in 975 (25.6%), acute on chronic (A/C) in 445 (11.7%), chronic (C) in 200 (5.25%), and unknown (U) in 2,189 (57.5%) of fatalities.

A total of 1,736 tissue concentrations for 1 or more related analytes were reported in 924 cases. Most of these (1,527) involved fatalities with RCF of 1-3 and are listed in Appendix A (Table 21). Of note, all tissue concentrations are available to the PCs through the NPDS Enterprise Reports. The most frequent of the 154 analytes included: 416 acetaminophen (APAP), 171 ethanol, 87 salicylate, 66 fentanyl, 56 carboxyhemoglobin, 41 methamphetamine, 37 amphetamine, 32

Table 18. Categories Associated with Largest Number of Fatalities (Top 25)^a

Substance (Minor Generic Category)	All substances	% ^b	Single substance exposures	% ^c
Acetaminophen Alone	332	8.94	141	19.75
Miscellaneous Sedative/Hypnotics/Antipsychotics	300	8.08	10	1.40
Miscellaneous Alcohols	287	7.73	28	3.92
Pharmaceutical and Illegal Opioid Preparations	282	7.59	53	7.42
Miscellaneous Stimulants and Street Drugs	226	6.09	42	5.88
Calcium Antagonist	184	4.96	35	4.90
Beta Blockers	135	3.64	14	1.96
Miscellaneous Antidepressants	118	3.18	22	3.08
Hypoglycemic, Single Agent	111	2.99	19	2.66
Miscellaneous Unknown Drug	105	2.83	30	4.20
Sedating Antihistamines	101	2.72	13	1.82
Selective Serotonin Reuptake Inhibitors (SSRI)	89	2.40	0	0.00
Acetaminophen Combinations	87	2.34	22	3.08
Miscellaneous Cardiovascular Drugs	87	2.34	29	4.06
Miscellaneous Fumes/Gases/Vapors	81	2.18	48	6.72
Anticonvulsants: Gamma Aminobutyric Acid and Analogs	74	1.99	1	0.14
Miscellaneous Chemicals	72	1.94	37	5.18
Nonsteroidal Antiinflammatory Drugs	72	1.94	10	1.40
Acetylsalicylic Acid Alone	70	1.89	20	2.80
Miscellaneous Muscle Relaxants	63	1.70	9	1.26
Angiotensin Converting Enzyme Inhibitor	53	1.43	1	0.14
Miscellaneous Anticonvulsants	50	1.35	4	0.56
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)	42	1.13	2	0.28
Tricyclic Antidepressants (TCA)	42	1.13	5	0.70
Cannabinoids and Analogs	40	1.08	0	0.00

^a Numbers represent total exposures associated with 1,630 fatalities (with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory and no death, indirect cases); each fatality may have had exposure to more than one substance.

^b Percentages are based on the total number of substances reported in fatal exposures (N = 3,713)

^c Percentages are based on the total number of single substance fatal exposures (N = 714)

norfentanyl, 28 diphenhydramine, 27 benzoyllecgonine, 26 ethylene glycol, 22 bupropion, 21 hydroxybupropion, and 20 digoxin.

Route of exposure was: ingestion only in 1,244 cases (32.7%), inhalation/nasal in 228 cases (5.99%), and parenteral in 111 cases (2.91%). Most other exposures recorded a combination of routes or an unknown route.

The Intentional exposure reason was: suspected suicide in 900 cases (23.6%), abuse in 1,976 cases (51.9%), misuse in 90 cases (2.36%), and unknown in 124 cases (3.26%). Unintentional exposure reasons were: environmental in 113 cases (2.97%), misuse in 33 cases (0.866%), general in 51 cases (1.34%), therapeutic error in 50 cases (1.31%), occupational in 14 cases (0.368%), unknown in 12 cases (0.315%), bite/sting in 4 cases (0.105%) and food poisoning in 1 case (0.0263%). Adverse drug reaction was the reason in 62 cases (1.63%).

Pediatric fatalities – age ≤ 5 years

Although children younger than 6 years were involved in the majority of exposures, they comprised only 56 (1.25%) of the 4,497 fatalities. These numbers are similar to those reported since 1985 (Table 19A, all RCFs and includes indirect deaths). Table 8 (RCF 1, 2 or 3, excludes indirect deaths) shows the percentage of fatalities in children ≤ 5 years related to total pediatric exposures was 26/846,482 (0.00307%). By comparison, 1,505/898,463 (0.168%) of all adult exposures involved a fatality. Of the 26 pediatric fatalities in Table 8, 21 (80.8%) were reported as unintentional, 3 were malicious (11.5%), 1 was intentional abuse (3.85%) and 1 was unknown (3.85%) (Table 8).

The 43 fatalities in children ≤ 5 years detailed in Appendix A (Table 21) (includes death, indirect reports and RCF 1-3) included 19 non-pharmaceuticals and 24 pharmaceuticals. The first ranked substances associated with these fatalities included: analgesics (17), fumes/gases/vapors (13), batteries (4), stimulants and street drugs (3), hydrocarbons (2), cardiovascular drugs (2), dietary supplements/herbals/homeopathic (1), and unknown drug (1).

Pediatric fatalities – ages 6-12 years

In the age range 6 to 12 years, 17 fatalities are listed in Appendix A (Table 21) (includes death, indirect reports and RCF 1-3) included: fumes/gases/vapors (10), analgesics (4), household cleaning substances (1), anticonvulsants (1), and dietary supplements/herbals/homeopathic (1). In the 11 deaths with RCF 1-3 (no indirect reports), the exposure reasons were: 5 unintentional - environmental, 2 unintentional - general, 2 intentional - suspected suicide, 1 adverse reaction - drug, and 1 unknown. (Table 8).

Adolescent fatalities – ages 13-19 years

In the age range 13 to 19 years, there were 86 reported fatalities with RCF 1-3, an increase of 18 (26.5%) from 2020. Reasons included 69 intentional, 8 unknown, 6 unintentional, 2 adverse reaction, and 1 malicious. (Table 8). The 138 fatalities listed in Appendix A (Table 21) (includes death, indirect reports and RCF 1-3) included 119 pharmaceuticals and 19 nonpharmaceuticals. The first ranked pharmaceuticals associated with these fatalities included: analgesics (68), antidepressants (15), antihistamines (9), cardiovascular drugs (7), unknown drug (6), stimulants and street drugs (5), cold and cough preparations (3), anticonvulsants (1), electrolytes and minerals (1), hormones and hormone antagonists (1), miscellaneous drugs (1), muscle relaxants (1), and sedative/hypnotics/antipsychotics (1). The first ranked nonpharmaceutical associated with these fatalities

included: fumes/gases/vapors (8), chemicals (6), alcohols (2), automotive/aircraft/boat products (1), cleaning substances (household) (1), and cosmetics/personal care products (1).

Pregnancy and Fatalities

There were 2 deaths in pregnant women reported to NPDS in 2021. A total of 56 deaths of pregnant women have been reported between 2000 and 2021. The majority (47 of 56, 83.9%) were intentional exposures (misuse, abuse or suspected suicide).

America's Poison Centers Surveillance Results

Key components of the NPDS surveillance system include the automated monitoring tools available to the NPDS user community. Since Surveillance Anomaly 1, generated at 2:00 pm EDT on 17 September 2006, over 458,000 anomalies have been detected and reported. Over 2,800 were confirmed as representing public health significance with PCs working collaboratively with local health departments and, in some instances the CDC, on the identified issues.

At the time of this report, 1,778 surveillance definitions run continuously, monitoring case and clinical effects volumes and a variety of case-based definitions from food poisoning to nerve agents. These definitions represent the surveillance work by many individual PCs, health departments, America's Poison Centers, the Health Studies Branch (Division of Environmental Hazards and Health Effects, National Center for Environmental Health), and CDC. NPDS has also been used for surveillance during mass gathering events, such as the Super Bowl.

The methodology for automating surveillance continues to be improved in efforts to detect the index case of any relevant public health event. Algorithms for identifying the index case vary greatly regarding the substance to be identified. No individual algorithm works for every application. The magnitude and penetrance of NPDS are critical to epidemiologic surveillance and to the ability to substantiate situational awareness for clinicians, policymakers, and public health officials nationwide. Typically, NPDS surveillance detects the response to an event, rather than predicting an event. This fosters situational awareness that is undoubtedly beneficial to public health activities.

Discussion

The exposure cases and information requests reported by PCs in 2021 do not reflect the full extent of PC efforts, which also include poison prevention activities, partnership with public health entities, and public and health care professional education programs.

NPDS exposure data may be considered “numerator data” in the absence of a true denominator; that is, we do not know the number of actual exposures that occur in the population. NPDS data covers only those exposures that are reported to PCs since most poison exposures and poisoning deaths are not universally reportable events.

NPDS 2000-2021 encounter volume data clearly demonstrate an overall trend toward decreasing exposure cases. This decline has been apparent since mid-2007 and reflects the decreasing use of the PC for less serious exposures. However, during this same period, exposures with a more serious outcome (death, major, moderate) and HCF cases have continued to slightly increase. Possible contributors to the declining PC utilization include declining US birth rate (especially since exposure rates are much higher in children ≤ 5 years of age), increasing use of text rather than voice communication

(although some of these communications may end up as cases), lack of familiarity with poison center services and increasing use of and reliance on internet resources. To meet our public health goals, PCs will need to understand and provide access via the public's 21st century communication preferences. We are concerned that failure to respond to these changes may result in a regression in the pattern of seeking care, with more people seeking medical care at HCFs for exposures that could have been managed on-site by a PC. Likewise, minor exposures may progress to more serious morbidity and mortality because of incorrect internet information or the absence of PC management. The net effect could be more serious poisoning outcomes because fewer people took advantage of PC services, with a resultant increased burden on the national healthcare infrastructure as may be reflected in the increased number of cases managed in a HCF this year. PoisonHelp.org was created to provide appropriate management and triage of poisoning cases by members of the public who do not initially contact a poison center.

Unlike other data sources, NPDS offers the ability to provide a near real-time view of these public health issues without the need for data source extrapolations. A limitation of NPDS data has been the perceived lack of fatality case volume compared to other reporting sources. However, when change over time is studied, NPDS is clearly consistent with other public health fatality analyses. One of the issues leading to this concern is the fact that medical record systems seldom have common output streams. This is particularly apparent with the various electronic medical record systems available. It is important to build a federated approach similar to the one modeled by NPDS to allow data sharing, for example, between hospital emergency departments and other medical record systems, including medical examiner offices, nationwide. Enhancements to NPDS could promote interoperability between NPDS and electronic medical records systems to better trend poison-related morbidity and mortality in the US and internationally.

Summary

Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time status of NPDS represents a national public health resource to collect and monitor US exposure cases and information requests.

Changes in 2021 encounters from 2020 are shown in Figures 1, 3, and 4, and include:

- Total encounters (all exposure cases and information requests) decreased by 14.0%.
- Information requests decreased 37.0%, Drug ID requests decreased 20.8%, Drug information requests increased 146%, medical information requests remain 13-fold higher than prior to 2020 and human exposures decreased 2.22%.
- HCF information requests decreased 21.2% but have reset to slightly higher levels than prior to 2020.
- Exposure cases reported from an HCF increased 7.20%, reflecting the steady increase since 2000.
- Human exposures with less serious outcomes decreased 2.65%, while those with more serious outcomes (moderate, major or death) increased 1.80% with an overall 4.56% yearly increase since 2000. The most rapidly increasing substance categories resulting in more serious outcomes over the past decade are antidepressants, analgesics, antihistamines, alcohols, and stimulants and street drugs.

These data support the continued value of PC expertise and need for specialized medical toxicology information to manage the more severe exposures, despite the slight decrease in total exposures. In addition to telephonic services, PCs must consider newer communication approaches that match current, and future, public preferences. The continuing mission of NPDS is to provide a nation-wide infrastructure for public health surveillance for all types of exposures, public health event identification, resilience, response and situational awareness tracking. NPDS is a model system for the nation and global public health.

Disclaimer

America's Poison Centers (<https://poisoncenters.org/>) maintains the national database of information logged by the country's regional Poison Centers (PCs) serving all 50 United States, Puerto Rico, the US territories of Guam, American Samoa, the Federated States of Micronesia, the US Virgin Islands, and the District of Columbia. Case records in this database are from self-reported encounters: they reflect only information provided when the public or healthcare professionals report an actual or potential exposure to a substance (e.g., an ingestion, inhalation, or topical exposure, etc.) or request information/ educational materials. Exposures do not necessarily represent a poisoning or overdose. America's Poison Centers is not able to verify the accuracy of every report made to member centers. Additional exposures may go unreported to PCs and data referenced from America's Poison Centers should not be construed to represent the complete incidence of national exposures to any substance(s).

Disclosure Statement

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Appendix A

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
Non-Pharmaceutical Exposures										
Alcohols										
1ai	16 y M	methanol	1	1	U	Unk	Int-A	1		
[2h]	16 y F	methanol	1	1	A	Ingst	Int-S	1	methanol	203 mg/dL In Serum @ Unknown
3ai	20 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
		marijuana, N.O.S.	2	2						
4ph	24 y F	ethanol (beverage)	1	1	A/C	Ingst	Int-S	2		
5ai	27 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
6h	28 y F	ethanol (beverage)	1	1	U	Ingst	Int-S	1	ethanol	271 mg/dL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	560 mcg/mL In Serum @ 4 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	77 mg/L In Whole Blood @ Autopsy
7ai	28 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
8ph	28 y M	ethanol (beverage)	1	1	U	Ingst	Unk	3	ethanol	321 mg/dL In Serum @ Unknown
9ha	28 y F	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
		hydroxyzine	2	2					hydroxyzine	180 ng/mL In Blood (unspecified) @ Unknown
		naproxen	3	3					naproxen	110 mcg/mL In Blood (unspecified) @ Unknown
		benzonatate	4	4						
		antihistamine/decongestant	5	5						
		ethanol (beverage)	6	6						
10ai	29 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
		diphenhydramine	2	2						
		hydrocarbon (fluorinated)	3	3						
11ai	29 y F	ethanol (beverage)	1	1	C	Unk	Int-A	1		
		phentermine	2	2						
		venlafaxine	3	3						
12ai	30 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
13ha	30 y F	ethanol (beverage)	1	1	A/C	Ingst + Unk	Oth-W	2		
		ethanol (beverage)	2	2					ethanol	120 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	320 mg/dL In Blood (unspecified) @ Unknown
		ethylene glycol	3	3					ethylene glycol	15 mg/dL In Blood (unspecified) @ Unknown
14ai	31 y M	methanol	1	1	U	Unk	Int-S	1		
15h	31 y F	alcohol, N.O.S.	1	1	U	Ingst	Int-S	2		
		drug, N.O.S.	2	2						
16pa	31 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
17ai	31 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		lorazepam	2	2						
18h	32 y M	ethanol (beverage)	1	1	A	Ingst	Int-M	1		
		ethylene glycol	2	2						
19h	32 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	2	ethanol	196 mg/dL In Blood (unspecified) @ Unknown
20pha	32 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	1	fentanyl	0.63 ng/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	1	1					midazolam	18 ng/mL In Blood (unspecified) @ Unknown
21ai	32 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
22ai	32 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
23ai	32 y M	ethanol (beverage)	1	1	C	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
24h	33 y M	ethanol (beverage)	1	1	C	Ingst	Int-U	3	ethanol	113 mg/dL In Blood (unspecified) @ Unknown
25ph	33 y M	ethanol (beverage)	1	1	U	Ingst	Int-A	3	ethanol	274 mg/dL In Blood (unspecified) @ Unknown
26ai	34 y F	ethanol (beverage)	1	1	U	Unk	Int-A	3		
27ai	35 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
		marijuana	2	2						
28h	35 y F	isopropanol	2	1	U	Ingst	Int-A	2		
		acetaminophen	1	2					acetaminophen (apap)	7.9 mcg/mL In Serum @ Unknown
29ai	35 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
30ai	36 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
31p	36 y F	ethanol (beverage)	2	1	A	Ingst	Int-U	2	ethanol	220 mg/dL In Serum @ Unknown
32ai	36 y M	buprenorphine	1	2	C	Unk	Int-A	3		
		ethanol (beverage)	1	1						
		acetone	2	2						
		marijuana, N.O.S.	3	3						
33	36 y M	ethanol (beverage)	1	1	U	Ingst	Int-A	3		
		acetaminophen	2	2					acetaminophen (apap)	38 mcg/mL In Plasma @ Unknown
34ai	37 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
35h	38 y F	ethanol (beverage)	1	1	U	Unk	Unk	3		
		drug, N.O.S.	2	2						
36h	38 y M	ethanol (beverage)	1	1	C	Ingst	Unk	2	ethanol	92 mg/dL In Blood (unspecified) @ Unknown
37ai	39 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
38ai	39 y M	ethanol (beverage)	1	1	C	Unk	Int-A	1		
39ph	40 y F	ethanol (beverage)	1	1	A/C	Ingst	Int-A	2	ethanol	205 mg/dL In Serum @ Unknown
		ethanol	2	2						
40ai	40 y M	ethanol (beverage)	1	1	C	Unk	Int-A	2		
		methamphetamine	2	2						
		methadone	3	3						
41	41 y F	ethanol (beverage)	1	1	U	Ingst	Int-A	2		
		tramadol	2	2						
		acetaminophen/diphenhydramine	3	3					acetaminophen (apap)	6.5 mcg/mL In Blood (unspecified) @ Unknown
42h	41 y M	ethanol (beverage)	1	1	A	Ingst	Int-U	2		
43h	41 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
44ai	41 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
		risperidone	3	3						
45ai	41 y F	ethanol (beverage)	1	1	U	Unk	Int-A	3		
		fluoxetine	2	2						
46ai	41 y F	ethanol (beverage)	1	1	U	Unk	Unk	3		
47ai	41 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
48ai	41 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
49ai	41 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
		methanol	2	2						
50ai	42 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
51ai	42 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		cyclobenzaprine	3	3						
52ha	42 y M	methanol	1	1	A	Ingst	Unk	2		
		ethanol (beverage)	2	2					ethanol	50 mg/dL In Serum @ 20 m (pe)

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
53ai	43 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
		hydroxyzine	2	2						
		chlordiazepoxide	3	3						
		lorazepam	4	4						
54ai	43 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		buprenorphine	2	2						
55h	43 y F	ethanol (beverage)	1	1	A/C	Ingst	Int-A	2	ethanol	14 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
56	43 y M	ethanol (beverage)	1	1	A/C	Ingst + Aspir	Oth-W	2		
		fluoxetine	2	2						
		ketamine	3	3						
		alprazolam	4	4						
		amphetamine/dextroamphetamine	5	5						
		lisdexamfetamine	6	6						
57ai	43 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
		viral disease (COVID-19-Confirmed)	2	2						
58ai	44 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
59ai	44 y M	ethanol (beverage)	1	1	U	Unk	Int-M	3		
		fentanyl (non-prescription)	2	2						
60h	44 y F	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
61h	44 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
		ethanol (beverage)	1	1						
62h	45 y F	ethanol (beverage)	1	1	A	Ingst	Int-A	1	ethanol	262 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	1	1						
63ai	45 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
64ai	45 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
65ai	46 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
66ai	46 y M	ethanol (beverage)	1	1	A/C	Unk	Int-A	1		
		ethanol (beverage)	1	1						
		sildenafil	2	2						
67ai	46 y M	ethanol (beverage)	1	1	C	Unk	Int-A	1		
		trazodone	3	3						
68h	46 y F	ethanol (beverage)	1	1	A	Ingst	Int-M	2		
		acetaminophen	2	2						
		acetaminophen/dextromethorphan/phenylephrine	3	3						
69ai	46 y F	ethanol (beverage)	1	1	U	Unk	Int-A	2		
70ai	46 y U	ethanol (beverage)	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	1	1						
71ai	46 y M	ethanol (beverage)	1	1	U	Unk	Unk	2		
72ai	47 y F	ethanol (beverage)	1	1	C	Unk	Int-A	3		
73ai	47 y F	ethanol (beverage)	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	1	1						
74ha	47 y M	ethanol (beverage)	1	1	A	Ingst	Int-A	3		
		viral disease (COVID-19-Confirmed)	2	2						
75ai	47 y F	ethanol (beverage)	1	1	C	Unk	Int-A	3		
		drug, N.O.S.	2	2						
76h	47 y M	ethanol (beverage)	1	1	A	Ingst	Int-U	3	ethanol	200 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	1	1						
77ai	48 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
78ai	48 y M	ethanol (beverage)	1	1	U	Unk	Unk	3		
		ethanol (beverage)	1	1						
79ai	48 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
80ai	48 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
		tadalafil	2	2						
81ai	48 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
82ai	49 y M	ethanol (beverage)	1	1	C	Unk	Int-A	2		
83h	49 y M	methanol	2	1	A/C	Ingst	Int-S	1	methanol	196 mg/dL In Serum @ 2 d (pe)
		trazodone	1	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
84ai	49 y M	ethanol (beverage)	1	1	C	Unk	Int-A	2		
85ai	49 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		methanol	2	2						
		isopropanol	3	3						
86i	50 y F	ethanol (beverage)	1	1	C	Unk	Int-A	3		
87ha	50 y M	ethanol (beverage)	1	1	U	Ingst	Int-A	1	ethanol	222 mg/dL In Serum @ Unknown
88ai	50 y F	ethanol (beverage)	1	1	U	Unk	Int-A	2		
89ph	50 y M	ethanol (beverage)	1	1	A/C	Ingst	Int-A	3	ethanol	236 mg/dL In Blood (unspecified) @ 1 h (pe)
90ai	50 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
91p	51 y M	ethanol (beverage)	1	1	A	Ingst	Int-A	2	ethanol	71.6 mg/dL In Blood (unspecified) @ Unknown
		tramadol	2	2						
		muscle relaxant, N.O.S.	3	3						
92ai	51 y M	ethanol (beverage)	1	1	U	Unk	Unk	3		
93ai	51 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
94h	51 y M	ethanol (beverage)	1	1	A/C	Ingst	Int-A	2	ethanol	133 mg/dL In Serum @ 15 m (pe)
95ha	51 y M	ethanol (beverage)	1	1	A/C	Ingst	Oth-W	1		
96ai	52 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
97ai	52 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
98ai	52 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		gabapentin	3	3						
99ai	52 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
100h	52 y M	ethanol (beverage)	1	1	A	Ingst	Unk	2	ethanol	146 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	8 mcg/mL In Blood (unspecified) @ Unknown
101i	52 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
102h	53 y F	ethanol (beverage)	1	1	U	Ingst	Int-U	2		
103ai	53 y M	isopropanol	1	1	U	Unk	Int-U	1		
		marijuana	2	2						
104ai	54 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
105ai	54 y M	ethanol (beverage)	1	1	C	Unk	Int-A	1		
106pha	55 y M	ethanol (beverage)	1	1	A	Ingst	Unt-G	1	ethanol	110 mg/dL In Serum @ Autopsy
		ethanol (beverage)	1	1					ethanol	178 mg/dL In Serum @ Unknown
		disinfectant (isopropanol/pine oil)	2	2						
107h	55 y F	methanol	1	1	U	Ingst	Unk	1	methanol	308 mg/dL In Blood (unspecified) @ 2 h (pe)
		ethylene glycol	2	2					ethylene glycol	10 mg/dL In Blood (unspecified) @ 2 h (pe)
108ai	55 y F	ethanol (beverage)	1	1	U	Unk	Int-A	3		
109ai	55 y F	ethanol (beverage)	1	1	U	Unk	Int-S	1		
		labetalol	2	2						
		metoprolol	3	3						
110h	56 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
111ai	56 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
		hyperthermia	2	2						
112h	56 y F	ethanol (beverage)	1	1	C	Ingst	Int-A	2		
113	57 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
		alcohol, N.O.S.	2	2						
114ai	58 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
115h	58 y M	ethanol (beverage)	1	1	A	Ingst	Int-S	3	ethanol	210 mg/dL In Blood (unspecified) @ Unknown
116ai	58 y F	ethanol (beverage)	1	1	U	Unk	Int-A	3		
117ai	58 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
118ai	58 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
119ai	58 y M	ethanol (beverage)	1	1	U	Unk	Unk	3		
120h	58 y F	ethanol (beverage)	1	1	C	Ingst	Int-A	3	ethanol	158 mg/dL In Serum @ 5 m (pe)
121ai	58 y F	drug, N.O.S.	2	2	U	Unk	Int-A	1		
122pai	58 y M	ethanol (beverage)	1	1	U	Ingst	Int-A	3	ethanol	0.141 g/dL In Blood (unspecified) @ Autopsy
123h	59 y M	ethanol (beverage)	3	1	U	Ingst	Int-U	2	ethanol	202 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	2					salicylate	75 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	3					acetaminophen (apap)	62.5 mcg/mL In Blood (unspecified) @ Unknown
124h	59 y F	ethanol (beverage)	1	1	A/C	Ingst + Unk	Int-U	2	ethanol	235 mg/dL In Blood (unspecified) @ Unknown
		isopropanol	2	2					isopropanol	11 mg/dL In Blood (unspecified) @ Unknown
		isopropanol	2	2					acetone	25 mg/dL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	3	3						
125ph	59 y M	ethanol (beverage)	1	1	U	Ingst	Int-A	3	ethanol	331 mg/dL In Blood (unspecified) @ Unknown
		<i>Mitragyna speciosa korthals</i>	2	2						
126ai	59 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
127ai	59 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
128ai	59 y M	ethanol (beverage)	1	1	U	Unk	Unk	3		
129ha	60 y F	ethanol (beverage)	2	1	C	Ingst + Unk	Unk	1	ethanol	0.15 mg/dL In Blood (unspecified) @ Unknown
		metoprolol (ER)	1	2					metoprolol	190 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	3	3					o-desmethylvenlafaxine	190 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	3	3					venlafaxine	980 ng/mL In Blood (unspecified) @ Unknown
		hydrocodone	4	4					hydrocodone (free)	22 ng/mL In Blood (unspecified) @ Unknown
130ai	60 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
131ai	60 y F	ethanol (beverage)	1	1	C	Unk	Int-A	3		
132ai	60 y F	ethanol (beverage)	1	1	U	Unk	Unk	3		
133h	61 y F	ethanol (beverage)	1	1	U	Ingst	Int-A	2	ethanol	178 mg/dL In Serum @ Unknown
134ai	61 y F	ethanol (beverage)	1	1	U	Unk	Int-A	3		
135ai	61 y M	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
136h	61 y M	ethanol (beverage)	1	1	C	Ingst	Int-A	3		
137ai	61 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
138ai	61 y F	ethanol (beverage)	1	1	C	Unk	Int-A	1		
139ai	61 y M	ethanol (beverage)	1	1	U	Unk	Unk	3		
140ai	61 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
141ai	61 y M	ethanol (beverage)	1	1	C	Unk	Int-A	1		
142ai	62 y M	ethanol (beverage)	1	1	U	Unk	Unt-M	3		
143ai	62 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
144a	62 y F	ethanol (beverage)	1	1	A/C	Ingst	Int-U	3		
		trazodone	2	1						
		ibuprofen	3	3						
		pregabalin	4	4						
145	62 y F	methanol	1	1	A	Ingst	Int-A	1		
		ethanol (beverage)	2	2					ethanol	61 mg/dL In Blood (unspecified) @ Unknown
146p	62 y M	ethanol (beverage)	1	1	A	Ingst	Int-U	3	ethanol	315 mg/dL In Serum @ Unknown
		ethylene glycol	2	2						
147ai	63 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
148ai	63 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
149ai	63 y M	ethanol (beverage)	1	1	U	Unk	Int-S	1		
		fentanyl (non-prescription)	2	2						
		decongestant (imidazoline)	3	3						
		loperamide	4	4						
150h	63 y M	methanol	1	1	A	Ingst	Unt-U	2		
		substance (non-powder), N.O.S.	2	2						
151h	64 y F	methanol	1	1	U	Ingst	Oth-M	1	methanol	13 mg/dL In Blood (unspecified) @ 27 h (pe)
		ethanol (beverage)	2	2					ethanol	0 mg/dL In Blood (unspecified) @ 57 h (pe)
		ethanol (beverage)	2	2					ethanol	11 mg/dL In Blood (unspecified) @ 13 h (pe)
		ophthalmic, N.O.S.	3	3						
152ai	64 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
153h	64 y M	ethanol (denatured) drug, N.O.S.	1	1	U	Ingst	Unk	2		
			2	2						
154ai	64 y F	ethanol (beverage)	1	1	U	Unk	Unk	3		
155h	64 y M	ethanol (beverage)	1	1	A	Ingst	Unk	3		
156ai	65 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
		marijuana	2	2						
157ai	65 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
158ai	65 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
159ai	66 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		venlafaxine	3	3						
160ai	66 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
161ha	67 y M	ethanol (beverage)	2	1	A/C	Ingst	Unk	1	ethanol	121 mg/dL In Serum @ Unknown
		ethanol	1	2					isopropanol	10 mg/dL In Blood (unspecified) @ Unknown
		ethanol	1	2					acetone	21 mg/dL In Blood (unspecified) @ Unknown
162ai	67 y F	ethanol (beverage)	1	1	C	Unk	Int-A	1		
163h	67 y M	ethanol (beverage)	1	1	U	Ingst	Int-A	3		
164ai	67 y F	ethanol (beverage)	1	1	C	Ingst	Int-A	1		
165ai	68 y F	ethanol (beverage)	1	1	U	Unk	Int-A	1		
166ai	69 y M	ethanol (beverage)	1	1	C	Unk	Int-A	3		
167ai	71 y F	ethanol (beverage)	1	1	C	Unk	Int-A	2		
168ai	74 y M	ethanol (beverage)	1	1	U	Unk	Int-A	3		
169i	74 y M	ethanol (beverage)	1	1	C	Ingst+Unk	Int-A	1		
		methamphetamine	2	2						
170ai	76 y F	isopropanol	1	1	A	Ingst+Unk	Int-S	1		
		citalopram	2	2						
171ha	77 y F	ethanol (beverage)	2	1	A	Ingst	Unk	2		
		acetaminophen	1	2					acetaminophen (apap)	21.4 mcg/mL In Blood (unspecified) @ Unknown
172h	91 y M	isopropanol	1	1	A	Ingst	Unk	3		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
See Also case 178, 198, 216, 230, 237, 238, 241, 249, 253, 266, 421, 448, 474, 485, 491, 518, 580, 582, 588, 595, 604, 614, 617, 624, 630, 634, 635, 638, 647, 665, 668, 672, 674, 681, 685, 687, 696, 705, 716, 722, 732, 736, 737, 740, 742, 744, 745, 750, 760, 764, 776, 781, 784, 785, 800, 814, 820, 827, 831, 837, 848, 852, 854, 856, 858, 863, 866, 876, 880, 884, 897, 904, 907, 910, 915, 917, 919, 921, 922, 925, 926, 937, 943, 964, 969, 972, 975, 976, 980, 981, 984, 985, 993, 999, 1007, 1009, 1015, 1021, 1025, 1030, 1038, 1039, 1040, 1041, 1048, 1053, 1061, 1064, 1068, 1073, 1091, 1092, 1093, 1098, 1107, 1119, 1122, 1123, 1124, 1126, 1131, 1133, 1134, 1137, 1138, 1141, 1159, 1160, 1162, 1163, 1166, 1168, 1169, 1171, 1176, 1180, 1184, 1191, 1204, 1205, 1210, 1211, 1218, 1221, 1230, 1231, 1234, 1237, 1240, 1242, 1243, 1245, 1246, 1250, 1252, 1253, 1255, 1266, 1277, 1288, 1291, 1295, 1313, 1316, 1319, 1339, 1342, 1347, 1350, 1351, 1354, 1358, 1360, 1361, 1371, 1374, 1377, 1378, 1382, 1384, 1386, 1387, 1396, 1400, 1412, 1417, 1421, 1423, 1427, 1428, 1432, 1436, 1438, 1442, 1446, 1447, 1448, 1457, 1459, 1462, 1464, 1469, 1471, 1478, 1482, 1487, 1490, 1491, 1496, 1503, 1508, 1513, 1514, 1518, 1529, 1531, 1540, 1542, 1543, 1550, 1551, 1553, 1555, 1561, 1566, 1571, 1582, 1585, 1592, 1596, 1606, 1616, 1619, 1626, 1628, 1633, 1634, 1640, 1641, 1642, 1649, 1656, 1664, 1670, 1683, 1686, 1695, 1704, 1705, 1707, 1712, 1719, 1726, 1729, 1738, 1745, 1754, 1759, 1762, 1763, 1767, 1769, 1771, 1777, 1780, 1786, 1798, 1801, 1806, 1825, 1832, 1841, 1844, 1852, 1853, 1860, 1870, 1880, 1883, 1889, 1896, 1906, 1908, 1913, 1924, 1926, 1939, 1946, 1949, 1955, 1960, 1972, 1985, 1987, 1994, 2001, 2004, 2006, 2008, 2014, 2016, 2018, 2023, 2027, 2030, 2036, 2050, 2051, 2072, 2074, 2077, 2095, 2097, 2102, 2107, 2116, 2120, 2137, 2141, 2142, 2144, 2146, 2147, 2153, 2169, 2182, 2191, 2194, 2202, 2231, 2241, 2242, 2247, 2263, 2267, 2288, 2294, 2303, 2307, 2312, 2313, 2322, 2331, 2338, 2342, 2345, 2372, 2402, 2411, 2412, 2440, 2442, 2445, 2448, 2450, 2479, 2484, 2487, 2488, 2503, 2505, 2510, 2511, 2513, 2514, 2515, 2516, 2522, 2527, 2529, 2535, 2536, 2549, 2552, 2553, 2563, 2564, 2570, 2591, 2597, 2607, 2608, 2609, 2610, 2614, 2619, 2621, 2626, 2627, 2629, 2633, 2639, 2641, 2646, 2655, 2665, 2667, 2675, 2677, 2678, 2680, 2682, 2693, 2700, 2704, 2705, 2715, 2716, 2722, 2723, 2724, 2726, 2729, 2737, 2740, 2741, 2743, 2748, 2755, 2756, 2759, 2760, 2761, 2770, 2776, 2778, 2782, 2787, 2794, 2802, 2806, 2809, 2812, 2814, 2825, 2828, 2834, 2845, 2853, 2854, 2856, 2858, 2859, 2893, 2959, 2976, 2995, 3004, 3006, 3012, 3024, 3028, 3032, 3051, 3062, 3063, 3064, 3065, 3070, 3072, 3082, 3084, 3087, 3089, 3091, 3092, 3094, 3098, 3111, 3123, 3135, 3137, 3143, 3145, 3154, 3158, 3162, 3169, 3174, 3175, 3183, 3184, 3186, 3188, 3195, 3203, 3218, 3219, 3230, 3234, 3235, 3243, 3248, 3252, 3269, 3270, 3271, 3274, 3284, 3290, 3295, 3298, 3314, 3320, 3321, 3324, 3325, 3326, 3332, 3335, 3340, 3341, 3347, 3348, 3351, 3362, 3364, 3368, 3375, 3380, 3389, 3400, 3404, 3420, 3425, 3426, 3430, 3433, 3447, 3448, 3464, 3476, 3477, 3478, 3485, 3487, 3496, 3507, 3509, 3513, 3520, 3522, 3532, 3533, 3540, 3546, 3559, 3561, 3564, 3578, 3581, 3582, 3591, 3603, 3610, 3621, 3628, 3630, 3636, 3643, 3644, 3648, 3653, 3654, 3655, 3658, 3671, 3672, 3674, 3683, 3748, 3750, 3760, 3761, 3769, 3775, 3809										
Automotive/Aircraft/Boat Products										
173ph	19 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	65 mg/dL In Blood (unspecified) @ Unknown
		cleaner (hydrochloric acid)	2	2						
174	24 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Unt-G	2	ethylene glycol	270 mg/L In Blood (unspecified) @ Unknown
175a	33 y M	ethylene glycol (antifreeze)	1	1	A	Unk	Int-S	1	ethylene glycol	220 mg/L In Serum @ Unknown
176h	36 y M	automotive-aircraft-boat product	1	1	A	Ingst	Int-S	2		
177	39 y M	ethylene glycol (antifreeze)	1	1	A	Ingst + Unk	Int-M	1	ethylene glycol	59 mg/L In Serum @ Unknown
		dextromethorphan/guaifenesin/pseudoephedrine	2	2						
		acetaminophen/dextromethorphan/phenylephrine	3	3						
		ivermectin	4	4						
		viral disease (COVID-19-Not Confirmed)	5	5						
178h	45 y F	hydrocarbon	1	1	C	Ingst + Inhal	Int-A	3		
		hydrocarbon	2	2						
		drain cleaner (sodium hydroxide/sodium hypochlorite/sodium silicate)	3	3						
		ethanol (beverage)	4	4						
179h	49 y M	methanol	1	1	A	Ingst	Int-A	2		
180h	50 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Unk	1	ethylene glycol	390 mg/dL In Blood (unspecified) @ Unknown
181h	52 y M	ethylene glycol (antifreeze)	1	1	U	Ingst	Int-S	2		
182h	53 y F	methanol	1	1	C	Inhal	Int-A	2		
		nail polish, N.O.S.	2	2						
183h	54 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	192 mg/dL In Blood (unspecified) @ Unknown
		drug, N.O.S.	2	2						
184ha	55 y M	methanol	1	1	A	Ingst	Int-S	1	methanol	557 mg/dL In Serum @ Unknown
		doxepin	2	2					desmethyldoxepin	52 ng/mL In Blood (unspecified) @ Unknown
185h	56 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	68 mg/dL In Serum @ Unknown
186h	63 y M	ethylene glycol (antifreeze)	1	1	U	Ingst	Int-S	2		
		amitriptyline	2	2						
187	65 y M	methanol	1	1	A	Ingst	Int-S	2	methanol	66 mg/dL In Blood (unspecified) @ Unknown
		salicylate	2	2						
188a	67 y F	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	253 mg/L In Blood (unspecified) @ Unknown
189ha	77 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	360 mg/dL In Serum @ Autopsy
190pha	87 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Unk	1	ethylene glycol	200 mg/dL In Blood (unspecified) @ Unknown
See Also case 482										
Batteries										
191i	2 y F	battery, disc	1	1	A	Ingst	Unt-G	1		
[192ph]	4 y F	battery, disc (lithium)	1	1	U	Ingst	Unt-G	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
193i	17 m F	battery, disc (lithium)	1	1	A	Ingst	Unt-G	1		
194pai	23 m M	battery, disc (lithium)	1	1	A	Ingst	Unt-G	1		
Bites and Envenomations										
[195h]	31 y F	envenomation (<i>Agkistrodon</i>)	1	1	A	B-S	Unt-B	1		
196ph	50 y M	envenomation (<i>Hymenoptera</i>)	1	1	A	B-S	Unt-B	1		
[197ph]	60 y M	envenomation (<i>Crotalinae</i>)	1	1	A	B-S	Unt-B	1		
198h	71 y F	bite, tick	1	1	C	Ingst + B-S	Unt-B	2		
		bite, tick (babesiosis)	2	2						
		ethanol (beverage)	3	3						
		acetaminophen/caffeine/salicylate	4	4						
Chemicals										
199ph	17 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	2		
200ph	17 y F	nitrites (sodium)	1	1	A	Ingst	Int-S	2		
201pha	18 y F	nitrites (sodium)	1	1	U	Unk	Int-S	1		
202a	18 y M	nitrites	1	1	A	Ingst	Int-S	1		
		bismuth subsalicylate	2	2						
		antihistamine, N.O.S.	3	3						
		ibuprofen	4	4						
		melatonin	5	5						
203ha	18 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	1		
204ha	18 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	1	methemoglobin	49 % In Blood (unspecified) @ Unknown
205p	20 y M	nitrites	1	1	A	Ingst	Int-S	2		
206h	21 y F	nitrites	1	1	A	Ingst	Int-S	2		
207ph	22 y F	nitrites (sodium)	1	1	A	Ingst	Unk	1		
208ph	22 y F	nitrites (sodium)	1	1	A	Ingst	Int-S	1		
[209pa]	23 y M	cyanide	1	1	A	Ingst	Int-S	1	cyanide	46 mg/L In Blood (unspecified) @ Autopsy
210	23 y F	nitrites (sodium)	1	1	A	Ingst	Int-S	1	methemoglobin	82.3 % In Blood (unspecified) @ Unknown
211ph	23 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	1		
212	23 y M	alcohol, N.O.S.	1	1	A	Ingst	Int-U	3		
213ai	25 y M	nitrites (sodium)	1	1	U	Unk	Int-S	1		
		clozapine	2	2						
214ph	25 y M	cyanide	1	1	A	Ingst	Int-S	1		
215pha	25 y F	nitrites (sodium)	1	1	U	Ingst	Int-S	1		
216	25 y F	hydrochloric acid	1	1	A	Ingst	Int-S	2		
		drug, N.O.S.	2	2						
		cough and cold preparation, N.O.S.	3	3						
		acetaminophen/dextromethorphan	4	4						
		viral disease (COVID-19-Confirmed)	5	5						
		ethanol (beverage)	6	6						
217ph	25 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	2		
[218pha]	26 y M	cyanide	1	1	A	Ingst	Int-S	1	cyanide	6.6 mcg/mL In Blood (unspecified) @ Unknown
219ha	26 y F	nitrites (sodium)	1	1	A	Ingst	Int-S	1	methemoglobin	28 % In Blood (unspecified) @ Unknown
220ph	26 y M	cimetidine	2	2	A	Ingst	Unt-G	2		
		nitrites (sodium)	1	1						
		methemoglobin causing chemical	2	2						
221h	27 y M	nitric acid	1	1	A	Ingst	Int-U	1		
[222pha]	27 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	1	nitrite	2400 µmol/L In Blood (unspecified) @ Unknown
[223pha]	28 y F	nitrites	1	1	A	Unk	Int-S	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
224p	28 y M	nitrates	1	1	A	Ingst	Int-S	1		
225pha	29 y U	nitrites (sodium)	1	1	A	Inhal	Int-S	1		
226pha	33 y M	nitrates (sodium)	1	1	A	Ingst	Int-S	1	amphetamine	25 ng/mL In Blood (unspecified) @ Unknown
		nitrates (sodium)	1	1					clonazepam	6.4 ng/mL In Blood (unspecified) @ Unknown
		nitrates (sodium)	1	1					paroxetine	91 ng/mL In Blood (unspecified) @ Unknown
227ai	33 y M	propranolol	2	2	A	Unk	Int-S	1		
		nitrates (sodium)	1	1						
		paroxetine	2	2						
		clomipramine	3	3						
		amphetamine	4	4						
		clonazepam	5	5						
228ph	35 y M	nitrates (sodium)	1	1	A	Ingst	Int-S	2		
229h	37 y M	ethylene glycol	1	1	A	Ingst	Int-S	1	ethylene glycol	120.7 mg/dL In Serum @ 16 h (pe)
230p	37 y M	amphetamine	2	2	A	Ingst	Int-S	2		
		ethylene glycol	1	1						
		ethanol (beverage)	2	2						
231ph	38 y M	methylene chloride	1	1	A	Inhal	Unt-O	2		
232ph	39 y M	nitrates (sodium)	1	1	A	Ingst	Int-S	2		
[233ha]	40 y M	hydrochloric acid	1	1	A	Ingst+Unk	Int-S	1		
		amphetamine	2	2						
		marijuana	3	3						
234ai	40 y M	hydrochloric acid	1	1	A	Unk	Int-S	1		
235h	40 y M	nitrites (sodium)	1	1	A	Ingst	Int-S	2		
236ph	41 y F	cyanide	2	1	A	Inhal	Unt-E	2		
		carbon monoxide	1	2					carboxyhemoglobin	5.4 % In Blood (unspecified) @ Unknown
237	43 y M	phosphoric acid	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2					ethanol	110 mg/dL In Blood (unspecified) @ Unknown
238ha	43 y F	ethylene glycol	1	1	C	Ingst	Int-A	3		
		ethanol (beverage)	2	2					ethanol	114 mg/dL In Blood (unspecified) @ Unknown
239ph	44 y F	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	0 mg/dL In Blood (unspecified) @ 28 h (pe)
		ethylene glycol (antifreeze)	1	1					ethylene glycol	32 mg/dL In Blood (unspecified) @ Unknown
240ph	45 y M	trazodone	2	2	A	Inhal	Unt-O	2		
		sulfuric acid	1	1						
		hydrogen sulfide	2	2						
		sulfur trioxide	3	3						
		sulfur dioxide	4	4						
241ai	46 y M	nitrites (sodium)	1	1	U	Unk	Int-S	1		
		clonazepam	2	2						
		ethanol (beverage)	3	3						
242h	49 y M	hydrochloric acid	1	1	A	Ingst	Int-S	2		
		salicylate	2	2					salicylate	7.5 mg/dL In Serum @ Unknown
243h	51 y F	dinitrophenol	1	1	A	Ingst	Int-S	2	salicylate	23.2 mg/dL In Blood (unspecified) @ Unknown
244h	51 y F	salicylate	2	2	A	Ingst	Int-S	2		
245h	52 y M	ethylene glycol	1	1	A	Ingst	Int-S	2		
246a	52 y M	chemical, N.O.S.	1	1	A	Ingst	Int-S	3	ethylene glycol	523 mg/L In Blood (unspecified) @ Unknown
247h	52 y F	ethylene glycol	1	1	A	Ingst	Int-S	1		
248h	55 y M	ethylene glycol	1	1	A	Ingst	Int-U	3	ethylene glycol	19 mg/dL In Blood (unspecified) @ Unknown
249h	58 y M	ethylene glycol	1	1	U	Ingst	Int-S	2	ethylene glycol	65 mg/dL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
250a	58 y M	trazodone	2	2	U	Ingst	Int-S	1	ethanol	163 mg/dL In Blood (unspecified) @ Unknown
		benzodiazepine	3	3						
		ethanol (beverage)	4	4						
251pha	61 y M	ethylene glycol	1	1	U	Unk	Unk	1	ethylene glycol	220 mg/L In Serum @ Unknown
		ethylene glycol	1	1						
252h	63 y F	ethylene glycol	1	1	A	Ingst + Unk	Int-S	1	ethylene glycol	83 mg/dL In Serum @ Unknown
		ethylene glycol	1	1						
253	65 y M	narcotic, N.O.S.	2	2	U	Ingst	Unk	2	ethylene glycol	254 mg/dL In Blood (unspecified) @ 2 d (pe)
		clonazepam	3	3						
		gabapentin	4	4						
254ai	66 y M	ethylene glycol	1	1	U	Unk	Int-S	1	ethylene glycol	24 mg/dL In Blood (unspecified) @ 2 d (pe)
		ethylene glycol	1	1						
255ph	66 y M	ethylene glycol	1	1	A	Inhal	Unt-E	2	ethylene glycol	24 mg/dL In Blood (unspecified) @ 2 d (pe)
		ethylene glycol	1	1						
		ethylene glycol	1	1						
256h	67 y M	ethylene glycol	1	1	A/C	Ingst	Int-S	2	ethylene glycol	17.7 % In Blood (unspecified) @ Unknown
		ethylene glycol	2	1						
		ethylene glycol	2	1						
257h	73 y M	metformin	1	2	A	Ingst	Int-S	1		
258ha	75 y M	sulfuric acid	1	1	U	Unk	Unk	1	ethylene glycol	347 mg/dL In Blood (unspecified) @ Unknown
		ethylene glycol	1	1						
259p	77 y M	ethylene glycol	1	1	A	Unk	Int-S	2		
260ph	30+ y M	phenol	1	1	A	Ingst	Int-S	1	ethylene glycol	347 mg/dL In Blood (unspecified) @ Unknown
		nitrites (sodium)	1	1						
261h	Unknown adult (≥20 yrs) M	ethylene glycol	1	1	A	Ingst	Int-S	3	ethylene glycol	60 mg/dL In Serum @ Unknown
		ethylene glycol	1	1						
262h	Unknown age M	ethylene glycol	1	1	A	Ingst	Unk	2	ethylene glycol	60 mg/dL In Serum @ Unknown
		ethylene glycol	1	1						
See Also case 13, 18, 32, 107, 146, 300, 301, 317, 332, 348, 375, 379, 416, 510, 910, 1623, 2314, 2339, 2955, 3015, 3127, 3132, 3417, 3783										
Cleaning Substances (Household)										
263ph	10 y M	nitrates (sodium)	1	1	A	Ingst + Aspir	Unt-G	3		
264ha	19 y M	hypochlorite	1	1	A	Ingst	Int-S	1		
		drain cleaner (enzyme detergents)	1	1						
[265ha]	27 y M	cleaner (hydrocarbon (fluorinated)/ isopropanol)	1	1	U	Inhal	Int-U	1	1,1-difluoroethane	30 mcg/mL In Serum @ Autopsy
		cocaine	2	2						
		benzoyllecognine	2	2						
266ha	32 y M	nitrous oxide	3	2	A	Ingst	Int-S	2		
		alcohol, N.O.S.	1	1						
		fabric softener, liquid	2	1						
267ha	32 y F	dish detergent (anionic/nonionic)	3	3	A	Ingst	Int-S	1		
		drain cleaner (sodium hydroxide/ sodium hypochlorite/sodium silicate)	1	1						
268h	38 y M	drain cleaner (sodium hydroxide/ sodium hypochlorite/sodium silicate)	1	1	A	Ingst	Int-S	1		
		drain cleaner (sodium hydroxide/ sodium hypochlorite/sodium silicate)	1	1						
269h	41 y F	drain cleaner (sodium hydroxide/ potassium hydroxide)	1	1	A	Ingst	Int-S	2		
270h	46 y M	cleaner (anionic/nonionic)	1	1	A	Par	Int-U	2		
271	50 y F	drain cleaner (alkali)	1	1	A	Ingst	Int-S	1		
[272ha]	56 y F	drain cleaner (alkali)	1	1	A	Ingst	Int-S	1		
		drain cleaner (sodium hydroxide/ sodium hypochlorite)	1	1						
273pha	56 y M	drain cleaner (sodium hydroxide/ sodium hypochlorite)	1	1	A	Ingst	Int-S	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
274ph	58 y M	drain cleaner (sulfuric acid) chlorine gas	1 2	1 2	A	Inhal	Unt-M	2		
275	61 y M	drain cleaner (sodium hydroxide)	1	1	A	Ingst	Int-S	1		
276h	63 y M	drain cleaner (sodium hydroxide/ sodium hypochlorite)	1	1	A	Ingst	Int-S	1		
277h	65 y M	drain cleaner (sodium hydroxide/ sodium hypochlorite/sodium silicate)	1	1	A	Ingst	Unt-M	3		
278ha	68 y M	hydrofluoric acid methamphetamine methamphetamine diphenhydramine	2 1 1 3	1 1 1 3	A	Ingst	Unt-M	1	amphetamine methamphetamine diphenhydramine	320 ng/mL In Blood (unspecified) @ Unknown 4600 ng/mL In Blood (unspecified) @ Unknown 440 ng/mL In Blood (unspecified) @ Unknown
279h	68 y M	toilet bowl cleaner substance (non-drug), N.O.S.	1 2	1 2	U	Ingst	Unk	2		
280h	74 y M	drain cleaner	1	1	A	Ingst + Par	Unt-G	1		
281h	83 y F	drain cleaner (sodium hydroxide/ sodium hypochlorite/sodium silicate) substance (non-drug), N.O.S.	1 2	1 2	A	Ingst	Int-U	1		
282	84 y M	cleaner (alkali/hypochlorite)	1	1	A	Ingst	Unt-G	2		
[283ph]	85 y F	laundry detergent (pod)	1	1	A	Ingst + Aspir	Unt-G	1		
[284ha]	86 y M	cleaner (ammonia) antiplatelet drug viral disease (COVID-19-Confirmed)	1 2 3	1 2 3	A	Ingst	Int-S	1		
See also case 106, 178, 1336, 2307, 2507, 2964, 3159, 3382										
Cosmetics/Personal Care Products										
[285ha]	16 y M	hand sanitizer (methanol)	1	1	U	Ingst	Int-A	1		
[286ha]	31 y M	hand sanitizer (methanol) viral disease (COVID-19-Confirmed)	1 2	1 2	A	Ingst + Unk	Int-A	1		
287ha	36 y F	hand sanitizer (methanol) marijuana	1 2	1 2	A	Ingst	Int-A	1	methanol thc (tetrahydrocannabinol)	200 mg/dL In Blood (unspecified) @ Unknown 92.8 ng/mL In Blood (unspecified) @ Unknown
288ha	38 y F	hand sanitizer (methanol)	1	1	A	Ingst	Int-A	1		
289h	42 y M	ethanol	1	1	A	Ingst	Int-S	2		
290h	85 y M	shampoo, N.O.S.	1	1	A	Ingst + Aspir	Unt-G	3		
291ai	88 y M	talc	1	1	U	Unk	Unk	2		
See Also case 39, 161, 182, 2448, 2507										
Deodorizers										
292ph	22 y M	air freshener (butane/ethanol/ propane)	1	1	A	Inhal	Int-A	2		
293pha	68 y M	formaldehyde/methanol	1	1	A	Ingst	Unk	1	methanol	35 mg/dL In Whole Blood @ Autopsy
Dyes										
[294h]	65 y M	aniline carbon monoxide	1 2	1 2	A	Ingst + Inhal	Unk	2		
Fumes/Gases/Vapors										
[295ph]	2 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	41.4 % In Blood (unspecified) @ Unknown
296ph	2 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	2.7 % In Blood (unspecified) @ Unknown
297pi	3 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
298pi	3 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
299ph	4 y M	carbon monoxide carbon monoxide	1 2	1 2	A	Inhal	Unt-E	1	carboxyhemoglobin	27.7 % In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
300pha	4 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
		carbon monoxide	2	1					carboxyhemoglobin	45 % In Blood (unspecified) @ Unknown
		cyanide	3	2						
301ha	4 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3		
		carbon monoxide	2	1					carboxyhemoglobin	49 % In Blood (unspecified) @ Unknown
		cyanide	3	2						
302ph	4 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	2.2 % In Blood (unspecified) @ Unknown
303ph	5 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	70.9 % In Blood (unspecified) @ 30 m (pe)
304pai	5 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
305pi	5 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
306ph	6 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	73.3 % In Blood (unspecified) @ 30 m (pe)
307pai	6 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
308pi	7 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
309pa	8 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	50 % In Blood (unspecified) @ Unknown
310pa	9 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	52 % In Blood (unspecified) @ Autopsy
311pi	9 y M	carbon monoxide	1	1	A	Inhal	Oth-M	1		
312ph	11 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	10.1 % In Whole Blood @ 2.5 h (pe)
313p	12 y F	carbon monoxide	1	1	A	Inhal	Unt-G	1		
314pi	12 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
315p	12 y F	carbon monoxide	1	1	U	Inhal	Unt-E	2		
316p	13 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
317ph	14 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	24.2 % In Blood (unspecified) @ Unknown
		cyanide	2	2						
318pi	16 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
319pa	17 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
									carboxyhemoglobin	56 % In Blood (unspecified) @ Autopsy
320pi	18 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
321i	19 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
322pi	19 y M	carbon monoxide	1	1	A	Inhal	Unt-G	2		
323pi	19 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
324pi	21 y M	carbon monoxide	1	1	A	Inhal	Unt-G	2		
325pi	21 y M	carbon monoxide	1	1	A	Inhal	Unt-G	2		
326ai	23 y F	carbon monoxide	1	1	U	Unk	Unk	1		
		fentanyl (non-prescription)	2	2						
		methadone	3	3						
		methamphetamine	4	4						
		xylazine	5	5						
327ph	24 y F	carbon monoxide	1	1	A	Inhal + Derm	Unt-E	3		
328ai	26 y F	carbon monoxide	1	1	U	Unk	Unk	1		
		fentanyl (non-prescription)	2	2						
		methadone	3	3						
		methamphetamine	4	4						
329pi	27 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
330pi	27 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
331pai	28 y M	carbon monoxide	1	1	A/C	Inhal	Unt-E	1		
									carboxyhemoglobin	77 % In Blood (unspecified) @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
332pha	29 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	40.8 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	2						
		cyanide	3	3						
		methamphetamine	4	4						
		methamphetamine	4	4						
333ai	29 y M	viral disease (COVID-19-Confirmed)	5	5	U	Unk	Unk	1		
334p	31 y M	carbon monoxide	1	1	A	Inhal	Unk	2		
335ph	32 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	43.9 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1						
336pi	32 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
337pha	33 y M	hydrogen sulfide	1	1	A	Inhal	Unt-O	1		
		asphyxiant (simple)	2	2						
338pi	34 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
339p	34 y F	carbon monoxide	1	1	U	Inhal	Unt-E	2		
340pi	34 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
341i	35 y M	carbon monoxide	1	1	A	Inhal	Unk	2		
342ph	36 y M	carbon monoxide	1	1	A	Inhal	Int-S	1	carboxyhemoglobin	52.7 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1						
343ph	37 y M	carbon monoxide	1	1	A	Inhal	Unk	1	carboxyhemoglobin	47.4 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1						
344pi	37 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
345p	38 y M	argon gas	1	1	A	Inhal	Unt-O	2		
[346pha]	39 y M	hydrogen sulfide	1	1	A	Inhal	Unt-O	1	thiosulfate	1.9 mcg/mL In Blood (unspecified) @ Autopsy
347ph	40 y M	carbon monoxide	1	1	A	Inhal	Unt-O	2	carboxyhemoglobin	1.9 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1					carboxyhemoglobin	20.8 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1					carboxyhemoglobin	56 % In Blood (unspecified) @ Unknown
348ph	40 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	60 % In Blood (unspecified) @ Unknown
		cyanide	2	2						
349pai	41 y M	carbon monoxide	1	1	A/C	Inhal	Unt-E	1	carboxyhemoglobin	71 % In Blood (unspecified) @ Unknown
350ph	42 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
[351ph]	42 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	55.8 % In Whole Blood @ 45 m (pe)
		carbon monoxide	1	1					carboxyhemoglobin	9.5 % In Whole Blood @ 3.5 h (pe)
352pi	42 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
353h	45 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	68.9 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	2						
354hi	46 y F	carbon monoxide	1	1	U	Unk	Unt-G	3	carboxyhemoglobin	37 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1						
355ai	48 y M	carbon monoxide	1	1	A	Unk	Unk	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
356pi	48 y M	carbon monoxide	1	1	A	Inhal	Unt-O	2		
357ph	48 y M	nitrogen	1	1	A	Inhal	Unt-O	2		
		carbon monoxide	1	1						
358pi	49 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
359pi	49 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
360pi	49 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
		carbon monoxide	1	1						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
361ph	50 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
362	50 y M	carbon monoxide	1	1	C	Inhal	Unt-E	2		
363ai	50 y M	carbon monoxide	1	1	U	Inhal	Int-A	1		
364pi	52 y M	carbon monoxide	1	1	A	Inhal	Oth-M	1		
365pi	53 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
366p	55 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3	carboxyhemoglobin	0.7 % In Blood (unspecified) @ Unknown
367	56 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
368pha	57 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	25.9 % In Whole Blood @ 5 m (pe)
369pha	57 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
		carbon monoxide	2	1					carboxyhemoglobin	47.3 % In Blood (unspecified) @ Unknown
370ph	58 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	59.2 % In Blood (unspecified) @ Unknown
371pi	60 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
372p	61 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
373pa	62 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	50 % In Blood (unspecified) @ Autopsy
374pi	62 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
375pha	63 y M	carbon monoxide	1	1	U	Inhal + Derm	Unt-E	1	carboxyhemoglobin	22.3 % In Blood (unspecified) @ Unknown
		cyanide	2	2						
376i	63 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
377ph	64 y M	carbon monoxide	1	1	A	Inhal + Derm	Unt-E	2	carboxyhemoglobin	26.6 % In Blood (unspecified) @ Unknown
378pi	65 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
379ph	65 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	25 % In Blood (unspecified) @ Unknown
		cyanide	2	2						
380pi	65 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
381pai	65 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	70 % In Blood (unspecified) @ Autopsy
382pi	68 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
383pi	68 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
384pha	68 y F	carbon monoxide	1	1	A	Inhal	Unk	1	carboxyhemoglobin	40 % In Blood (unspecified) @ Unknown
385h	69 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	13.1 % In Blood (unspecified) @ 6 h (pe)
		carbon monoxide	1	1					carboxyhemoglobin	21 % In Blood (unspecified) @ 3 h (pe)
		carbon monoxide	1	1					carboxyhemoglobin	3.1 % In Blood (unspecified) @ 1 d (pe)
		carbon monoxide	1	1					carboxyhemoglobin	30.9 % In Blood (unspecified) @ 1 h (pe)
		carbon monoxide	1	1					carboxyhemoglobin	53.7 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	2						
386pi	69 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
387pi	69 y M	carbon monoxide	1	1	A	Inhal	Int-U	2		
388ai	70 y F	carbon monoxide	1	1	A	Inhal	Int-S	1		
389pi	70 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
390pi	70 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
391h	71 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3	carboxyhemoglobin	16 % In Blood (unspecified) @ Unknown
392pi	71 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
393pi	72 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
394pi	72 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
395pa	74 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	9.6 % In Blood (unspecified) @ Unknown
396p	74 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	40.6 % In Blood (unspecified) @ Unknown
397pi	74 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
398h	75 y M	carbon monoxide	1	1	A	Inhal	Int-S	1		
399ph	75 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	29.8 % In Blood (unspecified) @ 1 h (pe)
		carbon monoxide	1	1					carboxyhemoglobin	6.7 % In Blood (unspecified) @ 6 h (pe)
400pi	75 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
401p	75 y M	carbon monoxide	1	1	A/C	Ingst + Inhal	Int-S	2	carboxyhemoglobin	14 % In Blood (unspecified) @ Unknown
		tramadol	2	2						
		meloxicam	3	3						
402pi	76 y M	carbon monoxide	1	1	U	Inhal	Unt-E	2		
403pi	76 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
404pi	77 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
405ai	79 y M	carbon monoxide	1	1	A	Inhal + Unk	Int-S	1		
		gabapentin	2	2						
		marijuana	3	3						
406pi	79 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
407phi	81 y M	carbon monoxide	1	1	A	Inhal	Unt-M	1		
		propane	2	2						
408p	82 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
409pi	83 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3		
410ai	84 y M	carbon monoxide	1	1	U	Unk	Unk	1		
411pa	84 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	35.1 % In Blood (unspecified) @ Unknown
412pi	85 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
413p	89 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
414h	100 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	27 % In Whole Blood @ Unknown
415pai	12 m F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
416ph	15 m F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
		cyanide	2	2						
417ph	70+ y F	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	48 % In Serum @ Unknown
418pi	Unknown child (≤19 yrs) F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
419pi	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	A	Inhal	Unt-M	2		
420pi	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
421pa	Unknown adult (≥20 yrs) M	carbon monoxide	1	1	A	Ingst + Inhal	Unt-E	1	carboxyhemoglobin	33 % In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	297 mg/dL In Blood (unspecified) @ Unknown
		hyperthermia	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
422pi	Unknown adult (≥20 yrs) M	carbon monoxide hydrogen sulfide	1 2	1 2	A	Inhal	Unk	2		
423pi	Unknown adult (≥20 yrs) U	carbon monoxide	1	1	U	Inhal	Unt-E	2		
424i	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
425pi	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
426pi	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
427pi	Unknown adult (≥20 yrs) M	hydrogen sulfide	1	1	A	Inhal	Unt-O	2		
428pi	Unknown adult (≥20 yrs) M	hydrogen sulfide	1	1	A	Inhal	Unt-O	2		
429pi	Unknown adult (≥20 yrs) M	hydrogen sulfide	1	1	A	Inhal	Unt-O	2		
430p	Unknown adult (≥20 yrs) M	hydrogen sulfide	1	1	A	Inhal	Unt-O	1		
431p	Unknown adult (≥20 yrs) M	hydrogen sulfide	1	1	A	Inhal + Derm	Unt-O	1		
432pi	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
433pi	Unknown adult (≥20 yrs) M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
434pi	Unknown adult (≥20 yrs) F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
435	Unknown adult (≥20 yrs) M	carbon monoxide	1	1	U	Inhal	Unt-E	2		
436pi	Unknown adult (≥20 yrs) M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
437pi	Unknown adult (≥20 yrs) M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
438	Unknown adult (≥20 yrs) M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
439pi	Unknown adult (≥20 yrs) M	hydrogen sulfide	1	1	A	Inhal	Unt-G	1	carboxyhemoglobin	47 % In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
440pi	Unknown age U				A	Inhal	Unt-E	1		
441pi	Unknown age U	carbon monoxide	1	1	A	Inhal	Unt-E	1		
442pi	Unknown age U	carbon monoxide	1	1	A	Inhal	Unt-E	1		
443pi	Unknown age U	carbon monoxide	1	1	A	Inhal	Unt-E	2		
444pi	Unknown age M	carbon monoxide	1	1	U	Inhal	Int-S	1		
		helium	1	1						
See Also case 236, 240, 255, 274, 294, 859, 2345, 2763, 3266, 3698										
Heavy Metals										
445	22 y F	lead	1	1	C	Ingst	Int-U	3	lead	38.7 mcg/dL In Whole Blood @ Unknown
[446ha]	34 y M	magnesium	1	1	U	Unk	Int-S	1	magnesium	9.9 mEq/L In Serum @ Unknown
		ibuprofen	2	2					ibuprofen	490 mcg/mL In Blood (unspecified) @ Unknown
447ha	62 y F	potassium chloride	1	1	A	Ingst	Int-S	1	potassium	10 mmol/L In Blood (unspecified) @ Unknown
448h	67 y M	copper	1	1	A	Ingst	Int-S	1		
		ethanol (beverage)	2	2						
[449h]	70 y M	copper	1	1	C	Inhal	Unt-O	3	copper	227 mcg/dL In Blood (unspecified) @ 2 d (pe)
		copper	1	1					copper	266 mcg/dL In Blood (unspecified) @ 12 d (pe)
See Also case 1306										
Hydrocarbons										
450ph	2 y M	hydrocarbon	1	1	A	Ingst + Aspir	Unt-G	3		
451ph	30 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
452ph	31 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
453p	32 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
454h	33 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-U	1		
455	36 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
[456ha]	37 y M	hydrocarbon (fluorinated)	1	1	A/C	Inhal	Int-A	1	1,1-difluoroethane	2.1 mcg/mL In Blood (unspecified) @ Unknown
457h	37 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1		
		hydrocarbon (fluorinated)	2	2						
458ph	38 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
459pha	38 y M	hydrocarbon	1	1	A	Unk	Unk	1		
460ha	40 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1		
461	44 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
462ph	49 y F	hydrocarbon (fluorinated)	1	1	U	Inhal	Int-A	2		
463ph	58 y M	hydrocarbon (fluorinated)	1	1	A/C	Inhal	Int-A	2		
[464ph]	14 m M	hydrocarbon (diesel fuel)	1	1	A	Ingst	Unt-G	2		
See Also case 10, 178, 2073										
Infectious and Toxin-Mediated Diseases										
465pha	23 y M	<i>Palythoa toxica</i>	1	1	A	Inhal	AR-O	3		
466ha	27 y M	viral disease (COVID-19-Confirmed)	2	1	U	Ingst + Unk	Int-S	1		
		acetaminophen	1	2					acetaminophen (apap)	66 mcg/mL In Blood (unspecified) @ Unknown
		ibuprofen	3	3						
		methamphetamine	4	3						
467ai	29 y F	viral disease (COVID-19-Confirmed)	1	1	A	Unk	Int-A	3		
		fentanyl (non-prescription)	2	2						
		methamphetamine	3	3						
468h	39 y F	viral disease (COVID-19-Confirmed)	1	1	U	Ingst + Inhal	Int-M	3		
		acetaminophen	2	2					acetaminophen (apap)	20 mcg/mL In Blood (unspecified) @ 25 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	43 mcg/mL In Blood (unspecified) @ 6.5 h (pe)

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
469h	60 y M	botulism	1	1	A	Par	Oth-C	1		
		heroin	2	2						
470h	65 y M	food poisoning, unknown	1	1	A	Ingst	Unt-F	3		
		pioglitazone/metformin	2	2						
471	74 y M	botulism	1	1	A	Ingst	Oth-C	1		
472h	75 y M	viral disease (COVID-19-Confirmed)	1	1	C	Ingst	AR-D	3		
		acetaminophen	2	2						
473h	92 y F	Tetanus	1	1	A	Derm	Unt-U	2		
See Also case 57, 74, 177, 216, 284, 286, 332, 483, 555, 937, 1124, 1328, 1409, 1420, 1609, 1617, 2031, 2097, 2383, 2503, 2547, 2643, 2648, 2649, 2726, 2938, 2944, 3127, 3146, 3234, 3272, 3289, 3399, 3400, 3493, 3774, 3778										
Matches/Fireworks/Explosives										
474h	40 y M				U	Ingst	Unk	1		
		chlorates	1	1						
		ethanol (beverage)	2	2						
Mushrooms										
[475h]	33 y F	<i>Amanita phalloides</i>	1	1	A	Ingst	Unt-M	2		
476h	60 y F	mushroom (unknown)	1	1	A	Ingst	Int-M	2		
See Also case 3241, 3291										
Other/Unknown Nondrug Substances										
477ph	25 y M	substance (non-drug), N.O.S.	1	1	U	Unk	Unk	2		
		drug, N.O.S.	2	2						
478ai	35 y M	hyperthermia	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
479	35 y M	substance (non-drug), N.O.S.	1	1	A	Unk	Int-A	2		
480ai	39 y F	hyperthermia	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
481pai	53 y M	substance (non-drug), N.O.S.	1	1	A	Unk	Int-A	1		
482ph	56 y F	substance (non-drug), N.O.S.	1	1	A	Unk	Unk	3		
		methanol	2	2						
483pha	67 y F				A	Ingst + Inhal + Unk	Int-U	3		
		substance (non-drug), N.O.S.	1	1						
		viral disease (COVID-19-Confirmed)	2	2						
		methamphetamine	3	3					amphetamine	13 ng/mL In Whole Blood @ Unknown
		methamphetamine	3	3					methamphetamine	31 ng/mL In Whole Blood @ Unknown
484h	67 y M	substance (non-drug), N.O.S.	1	1	U	Unk	Int-S	2		
485ai	68 y M	hyperthermia	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	2	2						
486	70 y M	substance (non-drug), N.O.S.	1	1	A	Ingst	Unt-M	1		
		sodium metabisulfite	2	2						
487i	40+ y M	substance (non-drug), N.O.S.	1	1	U	Unk	Oth-M	2		
See Also case 93, 111, 279, 281, 421, 501, 612, 684, 754, 829, 878, 1060, 1061, 1116, 1164, 1492, 1608, 1722, 1774, 2203, 2281, 2628, 2720, 2790, 2974, 3129, 3187, 3196, 3206, 3209, 3221, 3261, 3265, 3266, 3285, 3291, 3326, 3329, 3341, 3353, 3410, 3411, 3434, 3440, 3446, 3455, 3456, 3478, 3489, 3490, 3493, 3504, 3536, 3553, 3561, 3572, 3591, 3592, 3604, 3616, 3624, 3634, 3645, 3647, 3648, 3654, 3662, 3684										
Pesticides										
488h	25 y M	organophosphate	1	1	A	Ingst	Int-S	2		
[489h]	29 y M	paraquat	1	1	A	Ingst	Int-S	1		
490	31 y M	brodifacoum	1	1	A	Inhal	Oth-C	2		
		rodenticide (anticoagulant)	2	1						
		THC homolog	3	2						
		cocaine	4	3						
491h	32 y F	diquat	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
[492ha]	34 y F	dinitrophenol	1	1	A	Ingst	Int-S	1	dinitrophenol	14 mg/L In Blood (unspecified) @ Autopsy
		venlafaxine	2	2					o-desmethylvenlafaxine	1400 ng/mL In Blood (unspecified) @ Autopsy
		venlafaxine	2	2					venlafaxine	610 ng/mL In Blood (unspecified) @ Autopsy
[493ha]	38 y F	malathion	1	1	A	Ingst	Int-S	1		
494h	41 y M	rodenticide (anticoagulant)	2	1	C	Inhal	Oth-C	1		
		THC homolog	1	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
495h	48 y M	cypermethrin	1	1	A/C	Ingst	Unk	3		
496h	59 y M	arsenic	1	1	A	Ingst	Int-S	1		
[497h]	63 y M	glyphosate	1	1	A	Ingst	Int-S	2		
498i	63 y M	diquat	1	1	A	Ingst	Unt-G	1		
499p	63 y M	cypermethrin	1	1	U	Inhal	Unk	3		
500h	66 y M	herbicide, N.O.S.	1	1	A	Ingst	Unt-M	2		
501ha	66 y M	rodenticide, N.O.S. substance (non-drug), N.O.S.	1 2	1 2	A	Ingst	Int-S	2		
502ph	72 y M	esfenvalerate	1	1	A	Ingst	Int-S	2		
503ha	76 y M	phosphine	1	1	A	Ingst	Int-S	1		
504h	86 y M	pesticide, N.O.S.	1	1	A	Ingst	Int-S	3		
505	87 y M	diquat	1	1	A	Ingst	Int-S	1		
506h	70+ y M	pyrethroids	1	1	A	Ingst	Unt-G	2		
507h	Unknown adult (≥20 yrs) M	glyphosate	1	1	A	Ingst	Int-S	2		
See Also case 2761, 3173, 3281, 3728										
Plants										
508ai	36 y F	plant (<i>Mitragyna</i> species)	1	1	U	Unk	Int-A	1		
[509ph]	36 y F	ibogaine	1	1	U	Ingst	Int-M	2		
[510ha]	37 y M	ricin	1	1	A	Derm + Par	Int-S	1		
		acetone	2	2						
[511a]	37 y M	<i>Sesbania vesicaria</i>	1	1	A	Ingst	Unt-M	1		
[512pa]	38 y F	plant (<i>Taxus</i> species)	1	1	A	Ingst	Int-S	1		
[513ha]	59 y M	<i>Nerium oleander</i>	1	1	U	Ingst	Int-M	1	digoxin	1.2 ng/mL In Blood (unspecified) @ Unknown
[514p]	66 y M	aconite	1	1	U	Ingst	Unt-G	1		
515pa	30+ y F	ricin	1	1	A	Ingst	Int-S	2		
See Also case 569, 580, 747, 807, 832, 889, 1033, 1051, 1249, 1430, 1559, 1564, 2756										
Tobacco/Nicotine/eCigarette Products										
516h	62 y M	nicotine (liquid)	1	1	C	Inhal	Int-A	3		
See Also case 3640										
Weapons of Mass Destruction										
517ai	47 y F	substance (non-powder), N.O.S.	1	1	U	Unk	Unk	2		
See Also case 150										
Pharmaceutical Exposures										
Analgesics										
518ai	2 y M	fentanyl (non-prescription) isopropanol	1 2	1 2	A	Unk	Unt-G	1		
519ph	2 y F	methadone	1	1	A	Ingst	Unt-G	1	methadone	40 ng/mL In Serum @ 50 h (pe)
520h	2 y F	methadone heroin	1 2	1 2	A	Unk	Unk	2	norfentanyl	28 ng/mL In Urine (quantitative only) @ Unknown
		heroin	2	2					fentanyl	4 ng/mL In Urine (quantitative only) @ Unknown
521ai	2 y M	fentanyl (prescription)	1	1	U	Unk	Unk	1		
[522ph]	3 y F	acetaminophen	1	1	A/C	Ingst	Unt-T	2	acetaminophen (apap)	193 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	23 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	53 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	93 mcg/mL In Blood (unspecified) @ Unknown
523pi	3 y F	fentanyl (non-prescription)	1	1	A	Ingst	Unt-G	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
524h	4 y F	acetaminophen	1	1	C	Ingst	Unt-G	1	acetaminophen (apap)	17.8 mcg/mL In Blood (unspecified) @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	24.5 mcg/mL In Blood (unspecified) @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	40.3 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	64 mcg/mL In Blood (unspecified) @ 1 d (pe)
525ai	5 y F	oxycodone	1	1	U	Unk	Oth-M	1		
		gabapentin	2	2						
		methylphenidate	3	3						
		acetaminophen	4	4						
526pi	8 y M	fentanyl (non-prescription)	1	1	A	Ingst	Unt-M	1		
		diphenhydramine	2	2						
527pha	10 y M	fentanyl (prescription)	1	1	A	Ingst	Unk	1	fentanyl	10 ng/mL In Urine (quantitative only) @ Unknown
528ai	10 y F	oxycodone	1	1	U	Unk	Oth-M	1		
		gabapentin	2	2						
		methylphenidate	3	3						
		acetaminophen	4	4						
529ph	12 y M	oxycodone	1	1	A	Ingst + Aspir	Int-S	2		
		tramadol	2	2						
		cyclobenzaprine	3	3						
[530ha]	13 y M	colchicine	1	1	A	Ingst	Oth-M	1	colchicine	11 ng/mL In Blood (unspecified) @ Unknown
		colchicine	1	1					colchicine	12 ng/mL In Blood (unspecified) @ Unknown
		colchicine	1	1					colchicine	9.5 ng/mL In Blood (unspecified) @ Unknown
531ai	13 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
532ai	14 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
533h	14 y M	acetaminophen	1	1	A	Ingst	Unt-G	1	acetaminophen (apap)	10 mcg/mL In Blood (unspecified) @ 40 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	149 mcg/mL In Blood (unspecified) @ 15 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	15 mcg/mL In Blood (unspecified) @ 32 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	34 mcg/mL In Blood (unspecified) @ 24 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	60.1 mcg/mL In Blood (unspecified) @ 9 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	89.9 mcg/mL In Blood (unspecified) @ 4 h (pe)
534ai	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		citalopram	2	2						
		marijuana	3	3						
535ai	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
536pha	15 y M	fentanyl analogs (acrylfentanyl)	1	1	A	Unk	Unk	1	4-anpp (despropionyl fentanyl)	0.1 ng/mL In Blood (unspecified) @ Unknown
537ai	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
538ai	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
539pha	15 y M	fentanyl (non-prescription)	1	1	A/C	Unk	Int-S	2		
		marijuana	2	2					delta-9-thc	9.2 ng/mL In Blood (unspecified) @ Unknown
540ai	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		gabapentin	2	2						
		marijuana, N.O.S.	3	3						
541pha	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Unt-G	3		
		dextromethorphan	2	2					dextrorphan / levorphanol	19 ng/mL In Blood (unspecified) @ Unknown
		dextromethorphan	2	2					lorazepam	19 ng/mL In Blood (unspecified) @ Unknown
		dextromethorphan	2	2					dextro / levo methorphan	320 ng/mL In Blood (unspecified) @ Unknown
542ai	15 y F	propylhexedrine	3	3	U	Unk	Int-S	1		
		salicylate	1	1						
		amphetamine	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
543ai	15 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		citalopram	2	2						
		marijuana, N.O.S.	3	3						
544ai	15 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
545ai	16 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
546h	16 y F	acetaminophen	1	1	A	Ingst + Par	Int-S	2		
		N-acetylcysteine	2	2						
547	16 y M	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	180 mcg/mL In Blood (unspecified) @ Unknown
548h	16 y M	acetaminophen	1	1	C	Ingst	AR-D	1	acetaminophen (apap)	6 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	8.5 mcg/mL In Blood (unspecified) @ Unknown
549ha	16 y F	acetaminophen	1	1	A/C	Ingst	Int-U	1	acetaminophen (apap)	20.6 mcg/mL In Blood (unspecified) @ Unknown
550ai	16 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
551ai	16 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
552ai	16 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
553pha	16 y F	methadone	1	1	A/C	Ingst	Int-S	1		
554ph	16 y F	fentanyl (non-prescription)	1	1	A	Ingst + Unk	Int-U	2	norfentanyl	2.2 ng/mL In Whole Blood @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	5.4 ng/mL In Whole Blood @ Unknown
		marijuana, N.O.S.	2	2					thc (tetrahydrocannabinol)	2.5 ng/mL In Whole Blood @ Unknown
		marijuana, N.O.S.	2	2					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	2.6 ng/mL In Whole Blood @ Unknown
		marijuana, N.O.S.	2	2					carboxy-thc	46 ng/mL In Whole Blood @ Unknown
555pha	17 y M	fentanyl (non-prescription)	1	1	A	Ingst	Int-A	1	fentanyl	6.5 ng/mL In Blood (unspecified) @ 1.5 h (pe)
		marijuana	2	2					thc (tetrahydrocannabinol)	1 ng/mL In Blood (unspecified) @ Unknown
		viral disease (COVID-19)	3	3						
556ai	17 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
557ph	17 y M	oxycodone	1	1	A/C	Ingst	Int-A	2		
		alprazolam	2	2						
558pha	17 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1	fentanyl	2.4 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					delta-9-carboxy-thc	29 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					delta-9-thc	4.2 ng/mL In Blood (unspecified) @ Unknown
[559pha]	17 y F	fentanyl (prescription)	1	1	U	Unk	Int-U	1	norfentanyl	2.9 ng/mL In Whole Blood @ Autopsy
		fentanyl (prescription)	1	1					fentanyl	3.5 ng/mL In Whole Blood @ Autopsy
560h	17 y F	acetaminophen	1	1	A	Ingst	Int-S	2		
561i	17 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
562ai	17 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
563pha	17 y F	fentanyl (non-prescription)	1	1	A	Inhal + Unk	Int-A	2		
		marijuana	2	2					carboxy-thc	15 ng/mL In Blood (unspecified) @ Unknown
564ha	17 y F	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	9.3 mcg/mL In Serum @ Unknown
565ai	17 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
566h	17 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	153 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	31 mcg/mL In Serum @ Unknown
567ph	17 y F	morphine (ER)	1	1	A	Ingst	Int-S	2	morphine (total)	18 ng/mL In Blood (unspecified) @ 79 h (pe)
		alprazolam	2	2						
568pai	18 y M	marijuana	3	3	U	Unk	Int-A	1	fentanyl	0.009 mg/L In Whole Blood @ Autopsy
		fentanyl (non-prescription)	1	1						
569ai	18 y M	fentanyl analogs (despropionyl fentanyl)	2	2	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
570ai	18 y F	alprazolam	2	2	U	Unk	Int-A	1		
		plant (<i>Mitragyna</i> species)	3	3						
571ai	18 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
572ai	18 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		marijuana	2	2						
573ai	18 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
574ai	18 y M	tramadol	3	3	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
575ai	18 y F	methadone	2	2	U	Unk	Int-A	1		
		marijuana	3	3						
576ai	18 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
577h	18 y M	marijuana	3	3	A	Ingst	Int-S	1	salicylate	137 mg/dL In Blood (unspecified) @ 11 h (pe)
		salicylate	1	1						
[578h]	18 y F	salicylate	1	1	A	Ingst	Int-S	1	salicylate	74.6 mg/dL In Blood (unspecified) @ 6 h (pe)
		salicylate	1	1						
579i	18 y M	salicylate	1	1	U	Unk	Int-A	1		
		salicylate	1	1						
580ai	18 y M	salicylate	1	1	U	Ingst + Unk	Int-A	1		
		salicylate	1	1						
581ai	18 y F	salicylate	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
582h	18 y F	fentanyl (non-prescription)	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	82.5 mcg/mL In Blood (unspecified) @ 4 h (pe)
		acetaminophen	1	1						
583h	19 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	14 mcg/mL In Serum @ Unknown
		quetiapine	2	2						
584ai	19 y F	clonazepam	3	3	U	Unk	Int-A	1		
		ibuprofen	4	4						
585ai	19 y M	levothyroxine	5	5	U	Unk	Int-A	1		
		ethanol (beverage)	6	6						
586i	19 y F	ethanol (beverage)	6	6	A	Unk	Int-A	2		
		oxycodone	1	1						
587ai	19 y M	fentanyl (prescription)	2	2	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
588ai	19 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
[589ha]	19 y M	colchicine	1	1	A/C	Ingst	Int-S	1	colchicine	40 ng/mL In Blood (unspecified) @ Unknown
590h	19 y F	acetaminophen	1	1	A	Ingst	Int-S	2		
591h	19 y F	acetaminophen/diphenhydramine	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	534 mcg/mL In Blood (unspecified) @ Unknown
		cyclic antidepressant, N.O.S.	2	2						
592pha	19 y M	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1	norfentanyl	1000 ng/mL In Urine (quantitative only) @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	200 ng/mL In Urine (quantitative only) @ Unknown
		salicylate	2	2					salicylate	17 mg/dL In Blood (unspecified) @ Unknown
593ai	19 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		butalbital	2	2						
594ai	19 y F	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		benzodiazepine	3	3						
595ai	19 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
596pi	19 y F	heroin	1	1	A	Ingst	Int-A	2		
597ai	19 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
598ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
599ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
600pa	20 y M	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1	norfentanyl	2.1 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	29 ng/mL In Blood (unspecified) @ Unknown
601ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
602ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		methylenedioxyamphetamine (MDMA)	3	3						
603ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		flualprazolam	2	2						
604	20 y F	acetaminophen/oxycodone	1	1	A	Ingst	Int-U	2		
		alprazolam	2	2						
		alcohol, N.O.S.	3	3						
605ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
606ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
607ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		olanzapine	2	2						
608i	20 y M	heroin	1	1	U	Unk	Int-A	2		
609ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
610ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
		paroxetine	3	3						
611ai	20 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		sertraline	2	2						
612ai	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
613pha	20 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	1	norfentanyl	3.6 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	8 ng/mL In Blood (unspecified) @ Unknown
		butalbital	2	2					butalbital	8.8 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	3	3					salicylate	25.8 mg/dL In Blood (unspecified) @ Unknown
614ai	20 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
615i	20 y F	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
616ai	20 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
617i	21 y M	oxycodone	1	1	A/C	Ingst	Int-S	2		
		gabapentin	2	2						
		clonazepam	3	3						
		zolpidem	4	4						
		ethanol (beverage)	5	5						
618ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
619ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
620h	21 y M	salicylate	1	1	A	Ingst	Int-M	1	salicylate	103.7 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	112 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	67.8 mg/dL In Blood (unspecified) @ Unknown
621ai	21 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		benzodiazepine	3	3						
622ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
		methamphetamine	3	3						
623ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		alprazolam	3	3						
624pa	21 y M	fentanyl (prescription)	1	1	U	Ingst	Int-U	1		
		ethanol (beverage)	2	2						
625ph	21 y M	acetaminophen	1	1	U	Ingst	Unk	3	acetaminophen (apap)	9 mcg/mL In Blood (unspecified) @ Unknown
		tramadol	2	2						
626i	21 y F	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
627ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hydroxyzine	3	3						
628i	21 y M	heroin	1	1	U	Unk	Int-A	2		
629ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana, N.O.S.	3	3						
630ai	21 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
631i	21 y M	narcotic, N.O.S.	1	1	A	Inhal	Int-A	2		
632ai	21 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
633pa	21 y F	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1	fentanyl	0.08 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (despropionyl fentanyl)	2	2						
634ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol (beverage)	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
635ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
636p	21 y M	tramadol	1	1	A	Ingst	Int-A	2		
637ai	21 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
638	21 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	100.5 mcg/mL In Blood (unspecified) @ Unknown
		diphenhydramine	2	2						
		fluoxetine	3	3						
		salicylate	4	4					salicylate	14.7 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	5	5					ethanol	34.4 mg/dL In Blood (unspecified) @ Unknown
639i	22 y M	narcotic, N.O.S.	1	1	U	Inhal	Int-A	2		
640ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		citalopram	2	2						
641h	22 y M	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	124 mcg/mL In Serum @ Unknown
642i	22 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
643ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
644ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
645h	22 y F	acetaminophen	1	1	A	Ingst	Int-S	3		
646ai	22 y M	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		alprazolam	3	3						
647ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
648ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
649ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		clonazepam	3	3						
650ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
651h	22 y M	acetaminophen/oxycodone	1	1	U	Ingst + Inhal	Int-U	3		
		codeine/promethazine	2	2						
		marijuana	3	3						
652a	22 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.003 mg/L In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	0.004 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2						
		fentanyl analogs (despropionyl fentanyl)	3	3						
		quinine	4	4						
653ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		sertraline	3	3						
654	22 y M	acetaminophen	5	1	A	Ingst	Int-M	1		
		<i>Mitragyna speciosa korthals</i>	1	2						
		lorazepam	2	3						
		aripiprazole	3	4						
		gabapentin	4	5						
655ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
656ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
657ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
658h	22 y M	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	105 mcg/mL In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
659i	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
660ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
661ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
662ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
663ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amlodipine	2	2						
664ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
665ai	22 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
666ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		cocaine	2	2						
		methamphetamine	3	3						
667p	22 y F	fentanyl (non-prescription)	1	1	A	Unk	Int-A	2		
668ai	22 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		doxylamine	3	3						
		ethanol (beverage)	4	4						
669ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
670ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		alprazolam	3	3						
671ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
672ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
		ethanol (beverage)	3	3						
673ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		amphetamine	3	3						
674ai	23 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
675ph	23 y F	naproxen	1	1	A	Ingst	Int-S	2		
		drug, N.O.S.	2	2						
676ai	23 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
677ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
678ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methadone	2	2						
679ai	23 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
680i	23 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
681h	23 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	102 mcg/mL In Serum @ Unknown
		salicylate	2	2					salicylate	14 mg/dL In Serum @ Unknown
		ethanol (beverage)	3	3					ethanol	23 mg/dL In Serum @ Unknown
682ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
683ai	23 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
684ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
685ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
686ai	23 y M	fentanyl (non-prescription) cocaine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
687ph	23 y M	heroin ethanol (beverage)	1 2	1 2	A	Ingst + Inhal	Int-A	2	ethanol	131 mg/dL In Blood (unspecified) @ Unknown
688ai	23 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
689ai	23 y F	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	2		
690ai	23 y M	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
691ai	23 y M	fentanyl (non-prescription) nortriptyline diphenhydramine	1 2 3	1 2 3	U	Unk	Int-A	1		
692ai	23 y M	colchicine beta blocker angiotensin converting enzyme inhibitor	1 2 3	1 2 3	A	Ingst	Int-S	1	colchicine	33 ng/mL In Blood (unspecified) @ Autopsy
693ai	23 y M	fentanyl (non-prescription) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
694ai	23 y F	fentanyl (non-prescription) paroxetine	1 2	1 2	U	Unk	Int-A	1		
695ai	23 y M	fentanyl (non-prescription) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
696i	23 y M	oxycodone hydromorphone baclofen salicylate gabapentin cyclobenzaprine ibuprofen ethanol (beverage)	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	A/C	Ingst	Int-S	2		
697ai	23 y M	fentanyl (non-prescription) alprazolam marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
698ai	23 y F	fentanyl (non-prescription) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
699ai	23 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
700pa	24 y M	fentanyl (prescription) fentanyl (prescription) <i>Mitragyna speciosa korthals</i> flubromazolam marijuana marijuana	1 1 2 3 4 4	1 1 1 3 4 4	U	Par	Int-A	1	norfentanyl fentanyl flubromazepam 11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol) delta-9-thc	0.6 ng/mL In Blood (unspecified) @ Unknown 4.1 ng/mL In Blood (unspecified) @ Unknown 10 ng/mL In Blood (unspecified) @ Unknown 4 ng/mL In Blood (unspecified) @ Unknown 4.8 ng/mL In Blood (unspecified) @ Unknown
701ai	24 y M	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
702ai	24 y M	fentanyl (non-prescription) oxycodone cocaine	1 2 3	1 2 3	U	Unk	Int-A	1		
703ai	24 y M	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
704p	24 y F	ibuprofen melatonin	1 2	1 2	U	Ingst	Int-S	2		
705ai	24 y M	fentanyl (non-prescription) ethanol (beverage) marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
706ai	24 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
707ph	24 y F	acetaminophen/oxycodone oxycodone	2 1	1 2	A	Ingst	Int-U	2		
708ai	24 y M	fentanyl (non-prescription) methamphetamine sertraline	1 2 3	1 2 3	U	Unk	Int-A	1		
709h	24 y M	ibuprofen	1	1	A	Ingst	Int-S	2		
710ai	24 y M	fentanyl (non-prescription) methamphetamine aripiprazole	1 2 3	1 2 3	U	Unk	Int-A	1		
711h	24 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	1477 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	587 mcg/mL In Serum @ 20.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	707 mcg/mL In Serum @ 12.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	773 mcg/mL In Serum @ 11.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	964 mcg/mL In Serum @ 7 h (pe)
712ai	24 y M	benzodiazepine fentanyl (non-prescription) <i>Mitragyna speciosa korthals</i> alprazolam	2 1 2 3	2 1 2 3	U	Unk	Int-A	1		
713i	24 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
714i	24 y M	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
715pi	24 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
716ai	24 y F	fentanyl (non-prescription) methamphetamine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
717ai	24 y M	fentanyl (non-prescription) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
718ai	24 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
719ai	24 y M	fentanyl (non-prescription) gabapentin marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
720ai	24 y F	fentanyl (non-prescription) methamphetamine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
721ai	24 y M	fentanyl (non-prescription) phenobarbital chlordiazepoxide	1 2 3	1 2 3	U	Unk	Int-A	1		
722ai	24 y M	fentanyl (non-prescription) cocaine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
723ai	24 y M	fentanyl (non-prescription) aripiprazole olanzapine	1 2 3	1 2 3	U	Unk	Int-A	1		
724h	24 y F	acetaminophen	1	1	A	Ingst	Int-M	1		
725i	24 y F	acetaminophen/oxycodone	1	1	A/C	Inhal	Int-A	2		
726ai	24 y M	fentanyl (non-prescription) methamphetamine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
727ai	24 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
728ai	24 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
729ai	24 y M	fentanyl (non-prescription) risperidone	1 2	1 2	U	Unk	Int-A	1		
730	24 y M	acetaminophen	1	1	A	Ingst	Int-M	2	acetaminophen (apap)	68.5 mcg/mL In Serum @ Unknown
731ai	24 y F	fentanyl (non-prescription) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
732ai	24 y M	fentanyl (non-prescription) cocaine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
733ai	24 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
734ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		citalopram	2	2						
		venlafaxine	3	3						
735ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		sertraline	2	2						
		carbamazepine	3	3						
736ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
737ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
738ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
		methamphetamine	3	3						
739ha	25 y F	acetaminophen	1	1	A	Ingst+Unk	Unk	1	acetaminophen (apap)	157 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	96 mg/L In Blood (unspecified) @ Autopsy
		drug, N.O.S.	2	2						
740ai	25 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
741ha	25 y M	acetaminophen	1	1	U	Ingst	Int-A	1		
742ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol (beverage)	3	3						
743h	25 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-U	1	acetaminophen (apap)	145 mcg/mL In Serum @ Unknown
		ondansetron	2	2						
		salicylate	3	3					salicylate	10.9 mg/dL In Serum @ Unknown
744ph	25 y M	heroin	1	1	A	Unk	Int-U	2		
		ethanol (beverage)	2	2					ethanol	24 mg/dL In Blood (unspecified) @ Unknown
745ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
746ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
747ai	25 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		plant (<i>Mitragyna</i> species)	2	2						
		clonazepam	3	3						
748i	25 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
749i	25 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
750ph	25 y M	narcotic, N.O.S.	1	1	A	Ingst	Unk	2		
		alprazolam	2	2						
		ethanol (beverage)	3	3						
751ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
752ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
753i	25 y F	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
754ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
755i	25 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
756ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
757i	25 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
758i	25 y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
759ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		hydroxyzine	3	3						
760ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
761ai	25 y M	narcotic, N.O.S.	1	1	C	Unk	Int-A	3		
762ph	25 y M	fentanyl (prescription)	1	1	A	Ingst	Int-M	2		
763ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
764ai	25 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
765ph	25 y F	fentanyl (prescription)	1	1	A	Ingst	Int-A	2		
766ai	25 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana, N.O.S.	3	3						
767pa	26 y F	fentanyl (prescription)	1	1	U	Par + Unk	Int-A	1	norfentanyl	0.7 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					norfentanyl	0.85 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (prescription)	1	1					fentanyl	1.8 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					fentanyl	5.9 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					amphetamine	11 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	69 ng/mL In Blood (unspecified) @ Unknown
		lorazepam	3	3					lorazepam	15 ng/mL In Blood (unspecified) @ Unknown
		cocaine	4	4					benzoyllecognine	120 ng/mL In Blood (unspecified) @ Unknown
		levetiracetam	5	5					levetiracetam	8.2 mcg/mL In Blood (unspecified) @ Unknown
		amphetamine	6	6						
768ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
769i	26 y M	narcotic, N.O.S.	1	1	U	Par	Unk	2		
770ai	26 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
771ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
772ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		venlafaxine	3	3						
773i	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hydroxyzine	2	2						
774ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		morphine	2	2						
		promethazine	3	3						
775i	26 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
776ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
777pa	26 y F	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.08 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (despropionyl fentanyl)	2	2						
		etizolam	3	3						
		quinine	4	4						
778i	26 y M	heroin	1	1	A/C	Par	Int-A	2		
		fentanyl (prescription)	2	2						
779ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
780ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
781ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
782ai	26 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		sertraline	3	3						
783ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		xylazine	3	3						
784ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
785ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
786ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
787	26 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	89 mcg/mL In Serum @ Unknown
788i	26 y M	naproxen	2	2	A/C	Unk	Int-A	2		
789ai	26 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	1		
		fentanyl (prescription)	1	1						
		marijuana, N.O.S.	2	2						
790i	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
791h	26 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	40 mcg/mL In Blood (unspecified) @ Unknown
792ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
793ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
794ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
795ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
796ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
797ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
798ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		acetaminophen	3	3						
799i	26 y M	narcotic, N.O.S.	1	1	U	Inhal	Int-A	2		
		marijuana	2	2						
800ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		<i>Mitragyna speciosa korthals</i>	2	2						
		clonazepam	3	3						
		ethanol (beverage)	4	4						
801ai	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		sertraline	3	3						
802ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
803i	26 y M	heroin	1	1	A	Par	Int-A	2		
804ai	26 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
805h	26 y F	salicylate	1	1	A	Ingst	Int-S	2	salicylate	52 mg/dL In Blood (unspecified) @ Unknown
		propranolol	2	2						
		doxepin	3	3						
		olanzapine	4	4						
		cariprazine	5	5						
		atomoxetine	6	6						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
806ph	26 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-S	2		
807ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		plant (<i>Mitragyna</i> species)	2	2						
808i	27 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
809ha	27 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	33 mcg/mL In Blood (unspecified) @ Unknown
810ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		topiramate	2	2						
		alprazolam	3	3						
811ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
812ai	27 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
813ai	27 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
814ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		ethanol (beverage)	3	3						
815ai	27 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
816ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
		trazodone	3	3						
817ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
818ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
819ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		marijuana	3	3						
820ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
821ai	27 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
822ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		etizolam	2	2						
		flualprazolam	3	3						
823ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		hydroxyzine	3	3						
824ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
825pha	27 y M	fentanyl (prescription)	1	1	U	Ingst + Unk	Int-A	1	norfentanyl	12 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					fentanyl	20 ng/mL In Blood (unspecified) @ Unknown
		<i>Mitragyna speciosa korthals</i>	2	2					mitragynine	7.7 ng/mL In Blood (unspecified) @ Unknown
		cocaine	3	3					benzoylcognine	1000 ng/mL In Blood (unspecified) @ Unknown
		marijuana	4	4					delta-9-thc	3.5 ng/mL In Blood (unspecified) @ Unknown
826ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		marijuana	2	2						
827ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
828pi	27 y M	fentanyl (prescription)	1	1	U	Ingst	Int-A	2	fentanyl	24 mcg/L In Blood (unspecified) @ Autopsy
		drug, N.O.S.	2	2						
829ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
830ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
831ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
832ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		plant (<i>Mitragyna</i> species)	2	2						
833pai	27 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1		
		flubromazolam	2	2						
		fentanyl analogs (para-fluoro)	3	3						
		amphetamine	4	4						
		cocaine	5	5						
		clonazepam	6	6						
834ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
835i	27 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
836i	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
837ai	27 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		ethanol (beverage)	3	3						
838ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		benzodiazepine	3	3						
839ai	27 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
840ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		marijuana	3	3						
841ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
842ai	27 y F	fentanyl (prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
843i	27 y M	narcotic, N.O.S.	1	1	U	Par	Int-A	2		
844	27 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	294.6 mcg/mL In Blood (unspecified) @ Unknown
845ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
846ai	27 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
847i	27 y M	acetaminophen	1	1	U	Unk	Int-S	1		
848ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		lorazepam	2	2						
		ethanol (beverage)	3	3						
849ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
850ai	27 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
851ai	27 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
852ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
853ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		risperidone	3	3						
854ai	28 y M	oxymorphone	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol (beverage)	3	3						
855ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
856ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
857h	28 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	61 mcg/mL In Unknown @ 15 h (pe)
858ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
859ph	28 y F	buprenorphine/naloxone (sublingual tablet)	1	1	A/C	Ingst + Inhal	Int-S	2		
		nitrous oxide	2	2						
860ai	28 y M	methadone	1	1	U	Unk	Int-M	1		
		doxylamine	2	2						
		diphenhydramine	3	3						
861ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		mirtazapine	3	3						
862ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
863ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
864ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
865ai	28 y F	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		methylenedioxymethamphetamine (MDMA)	3	3						
866a	28 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	1400 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
		diphenhydramine	3	3					diphenhydramine	29000 ng/mL In Blood (unspecified) @ Autopsy
867ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		amphetamine	3	3						
868i	28 y F	fentanyl (prescription)	1	1	U	Unk	Int-A	2		
869ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
870ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
871i	28 y F	heroin	1	1	U	Par	Int-A	2		
872ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
873h	28 y F	acetaminophen	1	1	C	Ingst	Int-S	1	acetaminophen (apap)	259 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	289 mcg/mL In Blood (unspecified) @ Unknown
874i	28 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
875ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
876ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
877ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
878ai	28 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
879i	28 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
		cocaine	2	2						
880ai	28 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	2	2						
881ai	28 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		olanzapine	2	2						
		hydroxyzine	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
882ai	28 y M	fentanyl (prescription) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
883i	28 y M	fentanyl (non-prescription)	1	1	U	Inhal	Int-A	2		
884ai	28 y M	fentanyl (non-prescription) cocaine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
885ai	28 y M	fentanyl (non-prescription) <i>Mitragyna speciosa korthals</i> marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
886pa	28 y M	fentanyl analog (acetylfentanyl) fentanyl analog (acetylfentanyl) fentanyl (non-prescription) fentanyl (non-prescription) methamphetamine methamphetamine cocaine cocaine	1 1 2 2 3 3 4 4	1 1 2 2 3 3 4 4	A/C	Par	Int-A	1	4-anpp (despropionyl fentanyl) acetyl fentanyl norfentanyl fentanyl amphetamine methamphetamine benzoylcognine cocaine	0.3 ng/mL In Blood (unspecified) @ Autopsy 1.5 ng/mL In Blood (unspecified) @ Autopsy 0.35 ng/mL In Blood (unspecified) @ Autopsy 7.4 ng/mL In Blood (unspecified) @ Autopsy 220 ng/mL In Blood (unspecified) @ Autopsy 2400 ng/mL In Blood (unspecified) @ Autopsy 110 ng/mL In Blood (unspecified) @ Autopsy 23 ng/mL In Blood (unspecified) @ Autopsy
887pa	28 y F	acetaminophen	1	1	A	Ingst	Int-S	3		
888i	28 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
889ai	28 y M	fentanyl (prescription) plant (<i>Mitragyna species</i>)	1 2	1 2	U	Unk	Unk	2		
890ai	28 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Unk	1		
891ai	28 y F	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
892ph	28 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	1		
893ai	28 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
894ai	28 y M	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
895i	28 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
896ai	28 y M	fentanyl (non-prescription) sertraline	1 2	1 2	U	Unk	Int-A	1		
897ai	28 y M	fentanyl (non-prescription) alprazolam cocaine ethanol (beverage)	1 2 3 4	1 2 3 4	U	Unk	Int-A	1		
898ai	28 y M	fentanyl (non-prescription) risperidone mirtazapine	1 2 3	1 2 3	U	Unk	Int-A	1		
899	28 y M	acetaminophen	1	1	A	Ingst	Unt-G	1	acetaminophen (apap)	213 mcg/mL In Blood (unspecified) @ Unknown
900ai	28 y F	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
901ai	29 y M	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-M	3		
902ai	29 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
903ai	29 y M	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
904ai	29 y M	fentanyl (non-prescription) ethanol (beverage) marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
905ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hydroxyzine	2	2						
906i	29 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
907ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
908p	29 y M	fentanyl (prescription)	1	1	A	Ingst	Int-S	2		
		gabapentin	2	2						
		fluoxetine	3	3						
909ai	29 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		marijuana	2	2						
910ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		nitrites (isobutyl)	2	2						
		ethanol (beverage)	3	3						
911ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
912pai	29 y F	methadone	1	1	A	Unk	Int-U	1	methadone	1.1 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	1.2 mg/L In Blood (unspecified) @ Autopsy
		gabapentin	2	2					gabapentin	50 mg/L In Blood (unspecified) @ Autopsy
		clonazepam	3	3					7-aminoclonazepam	0.09 mg/L In Blood (unspecified) @ Autopsy
913ph	29 y F	narcotic, N.O.S.	1	1	U	Ingst	Int-U	2		
		barbiturate (long acting)	2	2						
		benzodiazepine	3	3						
		marijuana	4	4						
914	29 y M	salicylate	1	1	A	Ingst	Int-S	1	salicylate	113 mg/dL In Blood (unspecified) @ Unknown
915pha	29 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	74 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	88 mg/dL In Blood (unspecified) @ Unknown
916i	29 y M	heroin	1	1	A	Unk	Int-A	2		
917h	29 y F	acetaminophen	1	1	A	Ingst	Unk	2	acetaminophen (apap)	118 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	1.7 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	3	3					ethanol	13 mg/dL In Blood (unspecified) @ Unknown
918i	29 y M	heroin	1	1	U	Par	Int-U	2		
919ai	29 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
920ph	29 y F	hydromorphone	1	1	A/C	Par	Int-U	1	bupivacaine	1.7 mcg/mL In Blood (unspecified) @ Unknown
		hydromorphone	1	1					hydromorphone	901 ng/mL In Blood (unspecified) @ Unknown
		bupivacaine	2	2						
921ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		flualprazolam	2	2						
		ethanol (beverage)	3	3						
922ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		ethanol (beverage)	3	3						
923ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana (oral)	2	2						
924ai	29 y M	fentanyl (prescription)	1	1	U	Unk	Unk	2		
925ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
926ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		ethanol (beverage)	2	2						
927ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		cocaine	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
928ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		lamotrigine	2	2						
		olanzapine	3	3						
929ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
930i	29 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
931ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
932ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
933i	29 y F	heroin	1	1	U	Unk	Int-A	2		
934ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		lorazepam	2	2						
		marijuana, N.O.S.	3	3						
935pa	29 y M	heroin	1	1	A/C	Par	Int-A	1	6-mam (6-monoacetylmorphine)	1.1 ng/mL In Blood (unspecified) @ Autopsy
		heroin	1	1					morphine (free)	55 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (non-prescription)	2	2					norfentanyl	31 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (non-prescription)	2	2					fentanyl	47 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetyl fentanyl)	3	3					acetyl fentanyl	0.54 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	4	4					methamphetamine	110 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	4	4					amphetamine	110 ng/mL In Blood (unspecified) @ Autopsy
936ai	29 y F	acetaminophen	1	1	U	Unk	Int-S	1		
937ph	29 y M	acetaminophen/oxycodone	1	1	U	Ingst + Unk	Int-U	2		
		cocaine	2	2						
		amphetamine	3	3						
		marijuana, N.O.S.	4	4						
		ethanol (beverage)	5	5					ethanol	127 mg/dL In Blood (unspecified) @ Unknown
		viral disease (COVID-19-Confirmed)	6	6						
938ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		acetaminophen	2	2						
939	29 y M	heroin	1	1	A	Inhal	Oth-W	3		
940ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
941ai	29 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
942ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
943ai	29 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
944ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
945ph	29 y M	heroin	1	1	A	Inhal	Int-A	2		
946ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		olanzapine	2	2						
947ai	29 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
		sertraline	3	3						
948ai	29 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
949ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
950h	29 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	46.2 mg/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
951pha	29 y M	fentanyl analogs (para-fluoro)	1	1	U	Unk	Int-A	1	fentanyl	9.2 ng/mL In Blood (unspecified) @ Autopsy
		amphetamine	2	2					amphetamine	
952pi	29 y M	fentanyl (non-prescription)	1	1	A	Ingst	Int-A	2		
953ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
954ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		sertraline	3	3						
955ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
956ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
957ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		citalopram	2	2						
		hydroxyzine	3	3						
958ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
959ai	29 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
960i	29 y F	heroin	1	1	A	Inhal	Int-A	2		
961i	29 y M	heroin	1	1	A	Par	Int-A	2		
962ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
[963ha]	30 y M	colchicine	1	1	A	Ingst	Int-S	1	colchicine	14 ng/mL In Serum @ 18.5 h (pe)
964ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
965i	30 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
966ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
967ha	30 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	170 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2						
		clonazepam	3	3						
968ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
969ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
970ha	30 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	37 mcg/mL In Serum @ 5 m (pe)
		ibuprofen	2	2						
971i	30 y M	heroin	1	1	A/C	Inhal	Int-A	2		
972ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
973ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
974ai	30 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
975ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
976ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
977ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		doxepin	2	2						
		trazodone	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
978ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
979ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		promethazine	3	3						
980ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
981ai	30 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
		ethanol (beverage)	3	3						
982ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		alprazolam	3	3						
983ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		aripiprazole	3	3						
984ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
985ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
986h	30 y F	acetaminophen	1	1	U	Ingst	Unk	3	acetaminophen (apap)	84 mcg/mL In Serum @ Unknown
987i	30 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
988ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		escitalopram	2	2						
		sildenafil	3	3						
989ai	30 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		etizolam	2	2						
		methamphetamine	3	3						
990ph	30 y M	narcotic, N.O.S.	1	1	U	Par	Int-A	2		
991ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
992	30 y M	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
993ai	30 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
994ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana, N.O.S.	3	3						
995i	30 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
996pha	30 y M	fentanyl (non-prescription)	1	1	A/C	Ingst	Int-A	1		
		diazepam	2	2						
		gabapentin	3	3						
997ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
998ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-M	1		
		methamphetamine	2	2						
999i	30 y M	acetaminophen/oxycodone	1	1	A	Ingst	Int-A	2		
		ethanol (beverage)	2	2						
1000ha	30 y F	acetaminophen	2	1	A/C	Ingst + Unk	Int-A	3	hydrocodone (free)	380 ng/mL In Whole Blood @ Unknown
		hydrocodone	1	1						
1001ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		alprazolam	3	3						
1002pa	30 y F	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1	fentanyl	0.019 mg/L In Blood (unspecified) @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		heroin	2	2					morphine (free)	21 mcg/L In Blood (unspecified) @ Autopsy
		xylazine	3	3						
		fentanyl analogs (despropionyl fentanyl)	4	4						
1003ai	30 y M	clonazepam	5	5	U	Unk	Int-A	1		
		heroin	1	1						
1004ai	30 y M	methamphetamine	2	2	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
1005ph	30 y M	methamphetamine	2	2	U	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	127.9 mcg/mL In Serum @ 10 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	24.6 mcg/mL In Serum @ 3 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	270.1 mcg/mL In Serum @ Unknown
		bupropion	2	2						
		quetiapine	3	3						
		gabapentin	4	4						
		hydroxyzine	5	5						
		atomoxetine	6	6						
		ibuprofen	7	7						
1006ai	30 y F	levetiracetam	8	8	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		cocaine	2	2						
1007ai	30 y M	marijuana	3	3	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
1008h	30 y M	salicylate	1	1	A	Ingst	Int-S	2		
1009ai	30 y M	salicylate	1	1	U	Unk	Int-A	1	salicylate	95 mg/dL In Serum @ 5 h (pe)
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
1010ph	30 y M	heroin	1	1	A	Ingst	Int-U	2		
1011ai	30 y F	heroin	1	1	U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
1012ai	30 y F	lorazepam	3	3	U	Unk	Int-A	2		
		fentanyl (non-prescription)	1	1						
		methamphetamine	2	2						
1013ai	30 y M	alprazolam	3	3	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		oxycodone	2	2						
1014ai	30 y M	benzodiazepine	3	3	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
1015ai	30 y M	aripiprazole	2	2	U	Unk	Unk	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
1016ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		fluoxetine	3	3						
1017ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1018ai	30 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		methamphetamine	2	2						
1019ph	30 y M	risperidone	3	3	A	Unk	Int-A	2		
		heroin	1	1						
1020ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		marijuana	2	2						
1021ai	30 y M	marijuana	2	2	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
1022i	30 y F	heroin	1	1	A/C	Par	Int-A	2		
		heroin	1	1						
1023ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
1024ai	30 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		sertraline	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1025ai	30 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1026ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		oxycodone	3	3						
1027i	31 y F	fentanyl (prescription)	1	1	U	Par	Int-A	2		
1028pai	31 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.016 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (despropionyl fentanyl)	2	2						
		fentanyl analogs (acrylfentanyl)	3	3						
		cocaine	4	4						
1029i	31 y F	heroin	1	1	U	Unk	Int-A	2		
1030ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1031ai	31 y M	methadone	1	1	U	Unk	Int-A	1		
		hydrocodone	2	2						
		diazepam	3	3						
1032ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		clonazepam	3	3						
1033ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		plant (<i>Mitragyna species</i>)	2	2						
		chlorpheniramine	3	3						
1034ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1035ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
		trazodone	3	3						
1036ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1037ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-M	1		
		narcotic, N.O.S.	2	2						
		benzodiazepine	3	3						
1038ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1039i	31 y M	heroin	1	1	U	Par	Int-A	2		
		ethanol (beverage)	2	2						
1040ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		trazodone	3	3						
1041ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1042ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amlodipine	2	2						
		marijuana	3	3						
1043ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
1044ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1045i	31 y F	heroin	1	1	U	Unk	Int-A	2		
1046i	31 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1047ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1048ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1049ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
1050ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1051ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		plant (<i>Mitragyna species</i>)	3	3						
1052ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		risperidone	2	2						
		marijuana, N.O.S.	3	3						
1053ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		methamphetamine	3	3						
1054ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		sertraline	3	3						
1055ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		flubromazolam	2	2						
1056ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1057ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1058ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1059ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		fentanyl analogs (para-fluoro)	3	3						
1060ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
1061ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		hyperthermia	3	3						
1062pa	31 y M	fentanyl (non-prescription)	1	1	A/C	Par	Int-A	1	fentanyl	6.7 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analogs (para-fluoro)	2	2					para-fluorobutyl fentanyl (p-fibf)	0.6 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	3	3					methamphetamine	4200 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	4	4					acetyl fentanyl	1.9 ng/mL In Blood (unspecified) @ Autopsy
1063i	31 y M	heroin	1	1	A/C	Par	Int-A	2		
1064ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1065h	31 y F	acetaminophen	1	1	A/C	Ingst	Unt-U	1	acetaminophen (apap)	549 mcg/mL In Blood (unspecified) @ Unknown
		venlafaxine	2	2						
1066ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		trazodone	3	3						
1067i	31 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1068ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1069ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1070ai	31 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1071ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		methadone	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1072h	31 y F	acetaminophen	1	1	A	Ingst	Unk	2	acetaminophen (apap)	13.3 mcg/mL In Blood (unspecified) @ Unknown
1073ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
1074ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1075ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1076h	31 y M	salicylate	1	1	A	Ingst	Int-S	1	salicylate	150 mg/dL In Serum @ Unknown
1077ph	31 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	2		
1078h	31 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	3.3 mcg/mL In Serum @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	44 mcg/mL In Serum @ 15 m (pe)
1079ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1080ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana, N.O.S.	3	3						
1081i	31 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1082ai	31 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		methylenedioxymethamphetamine (MDMA)	3	3						
1083ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1084pha	32 y M	methadone	1	1	A	Ingst	Unk	1		
1085ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1086ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1087ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		aripiprazole	3	3						
1088i	32 y M	heroin	1	1	U	Unk	Int-A	2		
1089ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
		lorazepam	3	3						
1090ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1091ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1092ha	32 y M	acetaminophen	1	1	A	Ingst	Int-A	1	acetaminophen (apap)	73 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
1093ai	32 y M	acetaminophen	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1094ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cyclobenzaprine	2	2						
		marijuana, N.O.S.	3	3						
1095i	32 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1096ha	32 y F	salicylate	1	1	A	Ingst	Int-S	1		
		venlafaxine	2	2						
		gabapentin	3	3						
		hydroxyzine	4	4						
1097ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1098ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1099i	32 y F	heroin	1	1	U	Unk	Int-A	2		
1100pa	32 y F	heroin	2	1	A	Inhal	Int-A	1		
		metonitazene	1	1						
1101i	32 y M	heroin	1	1	U	Unk	Int-A	2		
1102h	32 y M	salicylate	1	1	A	Ingst	Int-S	2	salicylate	84 mg/dL In Blood (unspecified) @ Unknown
1103ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1104ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1105i	32 y F	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
1106ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
1107ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1108i	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1109ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1110i	32 y M	narcotic, N.O.S.	1	1	U	Inhal	Int-A	2		
1111ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		buprenorphine	3	3						
1112i	32 y M	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		
1113i	32 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1114ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hydroxyzine	2	2						
		paroxetine	3	3						
1115ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1116ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
1117ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1118i	32 y M	heroin	1	1	A	Unk	Int-A	2		
1119ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1120ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1121h	32 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	163 mcg/mL In Blood (unspecified) @ Unknown
1122ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1123ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		ethanol (beverage)	3	3						
1124ha	32 y M	fentanyl (prescription)	1	1	U	Unk	Unk	1		
		ethanol (beverage)	2	2					ethanol	135 mg/dL In Serum @ Unknown
		amphetamine	3	3						
		viral disease (COVID-19-Confirmed)	4	4						
1125ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1126ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		olanzapine	3	3						
1127ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
1128ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1129ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	1		
1130ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1131ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1132ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1133ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1134ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		ethanol (beverage)	3	3						
1135ai	32 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		tramadol	2	2						
		alprazolam	3	3						
1136ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1137ph	32 y M	fentanyl (non-prescription)	1	1	A	Ingst	Int-A	3		
		ethanol (beverage)	2	2					ethanol	99 mg/dL In Blood (unspecified) @ Unknown
1138ph	32 y M	fentanyl analog (despropionyl fentanyl)	1	1	A	Ingst	Int-A	2		
		ethanol (beverage)	2	2						
1139ai	32 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1140ai	33 y F	methadone	1	1	U	Unk	Int-A	3		
		marijuana, N.O.S.	2	2						
1141ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
1142pha	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-U	2	o-desmethyltramadol	0 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	24 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					tramadol	49 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoylecognine	1200 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					cocaine	24 ng/mL In Blood (unspecified) @ Unknown
		tramadol	3	3						
1143ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		alprazolam	3	3						
1144ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1145ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1146ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1147ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1148ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1149ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		citalopram	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1150h	33 y M	oxycodone gabapentin acetaminophen	1 2 3	1 2 3	U	Ingst	Int-A	3		
		salicylate	4	4					acetaminophen (apap)	23 mcg/mL In Blood (unspecified) @ Unknown
1151i	33 y M	fentanyl (prescription)	1	1	A/C	Par	Int-A	2		
1152ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
1153ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1154h	33 y F	acetaminophen	1	1	A	Ingst	Int-M	1		
									acetaminophen (apap)	138 mcg/mL In Blood (unspecified) @ Unknown
1155pa	33 y F	fentanyl (prescription)	1	1	U	Unk	Unk	1		
		clonazepam	2	2					fentanyl	3.5 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	2					clonazepam	3 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	2					7-aminoclonazepam	43 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	3	3					amphetamine	72 ng/mL In Blood (unspecified) @ Unknown
		olanzapine	4	4					olanzapine	26 ng/mL In Blood (unspecified) @ Unknown
		hydroxyzine	5	5					hydroxyzine	62 ng/mL In Blood (unspecified) @ Unknown
		zolpidem	6	6					zolpidem	67 ng/mL In Blood (unspecified) @ Unknown
1156pha	33 y M	fentanyl (non-prescription)	1	1	A/C	Unk	Int-A	1		
		fentanyl analog (acetylfentanyl)	2	2					fentanyl	14 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	3	3					cocaethylene	0.017 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					cocaine	0.044 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					benzoylcognine	0.061 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	4	4					alprazolam	0.016 mg/L In Blood (unspecified) @ Autopsy
1157i	33 y M	heroin	1	1	A	Inhal	Int-A	2		
		cocaine	2	2						
1158i	33 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1159ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1160ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1161pa	33 y M	fentanyl (non-prescription)	1	1	A/C	Unk	Int-A	1		
		fentanyl analogs (despropionyl fentanyl)	2	2					fentanyl	0.004 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (para-fluoro)	3	3						
		methadone	4	4						
		xylazine	5	5						
1162h	33 y F	acetaminophen	1	1	C	Ingst	Int-M	1		
		ethanol (beverage)	2	2					acetaminophen (apap)	27 mcg/mL In Serum @ 15 m (pe)
1163ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol (beverage)	3	3						
1164ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
1165ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
1166ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
1167i	33 y M	narcotic, N.O.S.	1	1	U	Par	Int-A	2		
1168ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1169ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1170ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1171ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		isopropanol	3	3						
1172ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1173ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		sertraline	2	2						
1174ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		topiramate	2	2						
		levetiracetam	3	3						
1175ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1176h	33 y M	acetaminophen	1	1	A	Ingst	Int-S	3		
		ethanol (beverage)	2	2						
1177ai	33 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
1178ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		venlafaxine	2	2						
1179ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1180ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1181ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		morphine	2	2						
		methamphetamine	3	3						
1182ai	33 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1183ha	33 y F	heroin	1	1	A	Ingst	Int-S	2		
1184ai	33 y M	sulindac	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
		marijuana	3	3						
1185ai	33 y F	oxycodone	1	1	U	Unk	Int-S	1		
		morphine	2	2						
		gabapentin	3	3						
		bupropion	4	4						
		quetiapine	5	5						
		trazodone	6	6						
		duloxetine	7	7						
1186ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1187ai	34 y M	heroin	1	1	U	Unk	Int-A	1		
		tramadol	2	2						
		marijuana	3	3						
1188ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1189ph	34 y M	heroin	1	1	A/C	Unk	Int-A	2		
1190ai	34 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		marijuana	2	2						
1191pha	34 y F	methadone	1	1	U	Ingst + Unk	Int-U	1	methadone	560 ng/mL In Blood (unspecified) @ Autopsy
		buprenorphine/naloxone (sublingual film)	2	2						
		ethanol (beverage)	3	3					ethanol	54 mg/dL In Blood (unspecified) @ Autopsy
1192ph	34 y M	acetaminophen/hydrocodone	1	1	U	Ingst	Int-U	2	acetaminophen (apap)	53 mcg/mL In Blood (unspecified) @ Unknown
1193ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1194pai	34 y F	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.032 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	2	2					oxycodone	0.1 mg/L In Blood (unspecified) @ Autopsy
		fluoxetine	3	3					fluoxetine	0.2 mg/L In Blood (unspecified) @ Autopsy
		trazodone	4	4					trazodone	0.8 mg/L In Blood (unspecified) @ Autopsy
1195ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		gabapentin	2	2						
		dextromethorphan	3	3						
1196ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1197ai	34 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		clonazepam	3	3						
1198ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
1199h	34 y F	acetaminophen	1	1	U	Ingst	Int-M	1		
		caffeine/salicylamide/salicylate	2	2						
		acetaminophen/caffeine/salicylate	3	3						
1200i	34 y M	narcotic, N.O.S.	1	1	U	Inhal + Unk	Int-A	2		
		cocaine	2	2						
1201i	34 y M	heroin	1	1	U	Unk	Int-A	2		
1202i	34 y F	narcotic, N.O.S.	1	1	A/C	Inhal	Int-A	2		
1203i	34 y M	heroin	1	1	U	Unk	Int-U	2		
1204ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
1205ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		ethanol (beverage)	3	3						
1206ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
1207	34 y F	acetaminophen	1	1	U	Ingst + Par	Int-U	2	acetaminophen (apap)	28.1 mcg/mL In Blood (unspecified) @ 24 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	60.5 mcg/mL In Blood (unspecified) @ 8 h (pe)
		N-acetylcysteine	2	2						
1208ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
1209ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
1210ha	34 y M	acetaminophen	1	1	A	Ingst + Unk	Unt-T	3	acetaminophen (apap)	36 mg/L In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	62 mg/dL In Blood (unspecified) @ Unknown
		methamphetamine	3	3						
1211ai	34 y M	fentanyl (non-prescription)	1	1	U	Ingst + Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1212ai	34 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1213ai	34 y F	fentanyl (prescription)	1	1	U	Unk	Unk	2		
1214i	34 y M	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
1215ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methocarbamol	2	2						
		mirtazapine	3	3						
1216ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1217ai	34 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
		methocarbamol	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1218ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1219ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1220i	34 y F	heroin	1	1	U	Par	Int-A	2		
1221ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		diphenhydramine	3	3						
1222ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1223ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1224i	34 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1225sha	34 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	143 mcg/mL In Blood (unspecified) @ Unknown
		sertraline	2	2					desmethylsertraline	87 ng/mL In Blood (unspecified) @ Unknown
		<i>Mitragyna speciosa korthals</i>	3	3					mitragynine	250 ng/mL In Blood (unspecified) @ Unknown
1226i	34 y M	heroin	1	1	A	Unk	Int-A	2		
1227ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
1228ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1229ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1230h	34 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	61 mcg/mL In Serum @ Unknown
		ethanol (non-beverage)	2	2						
1231ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1232ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1233ai	34 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		methadone	3	3						
1234ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
1235ai	34 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1236h	34 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	602 mcg/mL In Blood (unspecified) @ Unknown
		fluoxetine	2	2						
		barbiturate (long acting)	3	3						
1237ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1238ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1239i	34 y F	narcotic, N.O.S.	1	1	U	Inhal	Int-A	2		
1240ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1241ai	34 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		aripiprazole	3	3						
1242ai	34 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1243pha	35 y M	fentanyl (non-prescription)	1	1	A	Ingst	Int-A	1	fentanyl	15 ng/mL In Blood (unspecified) @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1244h	35 y F	cocaine	3	2	A	Ingst	Int-S	1	benzoylcoagnine	0.069 mg/L In Blood (unspecified) @ Autopsy
		ethanol (beverage)	2	2					ethanol	120 mg/dL In Blood (unspecified) @ Autopsy
		methamphetamine	4	3					methamphetamine	0.054 mg/L In Blood (unspecified) @ Autopsy
1245ai	35 y M	acetaminophen	1	1	U	Unk	Int-A	2	acetaminophen (apap)	239 mcg/mL In Blood (unspecified) @ Unknown
1246ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1247ha	35 y M	fentanyl (non-prescription)	1	1	A	Ingst	Int-S	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1248ai	35 y F	acetaminophen	1	1	U	Unk	Int-A	1	acetaminophen (apap)	159 mcg/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoylcoagnine	78 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	3	3					methamphetamine	20 ng/mL In Blood (unspecified) @ Unknown
1249ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1250ai	35 y F	plant (<i>Mitragyna</i> species)	3	3	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
1251i	35 y M	marijuana, N.O.S.	3	3	A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
1252ha	35 y F	acetaminophen	1	1	A	Ingst	Int-M	1		
		ethanol (beverage)	2	2						
		heroin	3	3						
1253ai	35 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1254ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
1255ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1256i	35 y M	heroin	1	1	A	Par	Int-A	2		
		heroin	1	1						
1257ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1258i	35 y M	heroin	1	1	A	Unk	Int-U	2		
		heroin	1	1						
1259i	35 y M	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
1260ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1261ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		marijuana	2	2						
1262i	35 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
1263i	35 y F	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
		narcotic, N.O.S.	1	1						
1264ai	35 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1265ai	35 y F	fentanyl (prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1266ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1267ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1268ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		gabapentin	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1269ai	35 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1270h	35 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1271i	35 y M	heroin	1	1	U	Unk	Int-A	2		
1272i	35 y F	heroin	1	1	U	Unk	Int-A	2		
1273ai	35 y M	fentanyl (non-prescription) methamphetamine marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
1274ai	35 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1275i	35 y M	narcotic, N.O.S.	1	1	A	Par	Int-A	2		
1276i	35 y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1277ai	35 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1278i	35 y F	heroin	1	1	U	Unk	Int-A	2		
1279i	35 y F	heroin	1	1	U	Par	Int-A	2		
1280ai	35 y M	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
1281ai	35 y M	fentanyl (non-prescription) methylphenidate	1 2	1 2	U	Unk	Int-A	1		
1282ai	35 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1283ai	35 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1284h	35 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	280 mcg/mL In Blood (unspecified) @ Unknown
		trazodone methocarbamol quetiapine gabapentin	2 3 4 5	2 3 4 5						
1285ai	35 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1286i	35 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1287i	35 y F	heroin	1	1	A	Inhal	Int-A	2		
1288ai	35 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1289ai	35 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1290ai	35 y M	fentanyl (non-prescription) risperidone	1 2	1 2	U	Unk	Int-A	1		
1291ai	36 y M	fentanyl (prescription) fentanyl analog (acetylfentanyl) ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1292ai	36 y M	fentanyl (non-prescription) morphine amphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
1293pai	36 y M	fentanyl (non-prescription) heroin fentanyl analogs (para-fluoro) fentanyl analogs (despropionyl fentanyl) xylazine tramadol cocaine diphenhydramine quinine lidocaine	1 10 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9 10	A	Unk	Int-A	1		
1294ai	36 y F	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1295ai	36 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1296i	36 y M	heroin	1	1	U	Par	Int-U	2		

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Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1297i	36 y M	heroin	1	1	A	Unk	Int-A	2		
1298a	36 y M	fentanyl analog (despropionyl fentanyl)	1	1	A	Unk	Int-U	2		
1299ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		clonazepam	3	3						
1300i	36 y M	heroin	1	1	A	Unk	Int-A	2		
1301ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
1302ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		gabapentin	3	3						
1303ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		citalopram	2	2						
		clonazepam	3	3						
1304ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		chlordiazepoxide	3	3						
1305ph	36 y F	methadone	1	1	U	Ingst	Int-U	2		
		alprazolam	2	2						
		clonazepam	3	3						
1306pha	36 y M	fentanyl (non-prescription)	1	1	U	Ingst + Unk	Int-A	2	fentanyl	0.9 ng/mL In Serum @ Unknown
		fentanyl (non-prescription)	1	1					norfentanyl	3.5 ng/mL In Serum @ Unknown
		ibuprofen	2	2						
		beryllium	3	3						
1307ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1308ai	36 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	1		
		benzodiazepine	2	2						
		marijuana	3	3						
1309ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		alprazolam	3	3						
1310ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1311ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
1312ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1313ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1314ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methadone	2	2						
1315ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
		methamphetamine	2	2						
1316ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		phenobarbital	2	2						
		ethanol (beverage)	3	3						
1317ai	36 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1318i	36 y F	fentanyl (prescription)	1	1	A	Par	Int-A	2		
1319ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
1320ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1321i	36 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1322i	36 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1323i	36 y F	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1324ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1325ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		risperidone	2	2						
1326pa	36 y M	fentanyl (non-prescription)	1	1	A/C	Par	Int-A	1	fentanyl	2.5 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					methamphetamine	2400 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					amphetamine	52 ng/mL In Blood (unspecified) @ Autopsy
1327ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		mirtazapine	3	3						
1328ai	36 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		viral disease (COVID-19-Confirmed)	3	3						
1329	36 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	10.3 mcg/mL In Blood (unspecified) @ Unknown
1330i	36 y F	oxycodone	1	1	U	Unk	Int-A	2		
1331ai	36 y M	fentanyl (prescription)	1	1	U	Unk	Unk	2		
1332ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		citalopram	3	3						
1333ai	36 y M	fentanyl (non-prescription)	1	1	U	Ingst	Int-A	1		
1334pi	36 y M	heroin	1	1	A/C	Par	Int-A	2		
		methamphetamine	2	2						
1335ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1336	36 y F	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	87.6 mcg/mL In Blood (unspecified) @ Unknown
		hypochlorite	2	2						
		hydroxyzine	3	3						
		haloperidol	4	4						
1337i	36 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1338ai	36 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		gabapentin	3	3						
1339ai	37 y M	heroin	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1340i	37 y M	heroin	1	1	U	Inhal	Int-A	2		
1341ai	37 y F	oxycodone	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		promethazine	3	3						
1342ha	37 y M	fentanyl (non-prescription)	1	1	A	Ingst + Inhal	Int-A	1		
		ethanol (beverage)	2	2						
1343ha	37 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	600 mcg/mL In Blood (unspecified) @ Unknown
1344ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1345i	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1346pai	37 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.018 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (despropionyl fentanyl)	2	2						
		fentanyl analogs (acrylfentanyl)	3	3						
		clonazepam	4	4					7-aminoclonazepam	0.1 mg/L In Blood (unspecified) @ Autopsy
		xylazine	5	5						
1347ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1348i	37 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1349i	37 y M	fentanyl (prescription) cocaine	1 2	1 2	A	Unk	Int-A	2		
1350ha	37 y F	acetaminophen topiramate diphenhydramine ethanol (beverage)	1 2 3 4	1 2 3 4	A	Ingst	Int-S	1	acetaminophen (apap) topiramate diphenhydramine	130 mcg/mL In Blood (unspecified) @ Autopsy 580 ng/mL In Blood (unspecified) @ Autopsy 710 ng/mL In Blood (unspecified) @ Autopsy
1351ai	37 y F	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1352ai	37 y M	fentanyl (non-prescription) hydroxyzine olanzapine	1 2 3	1 2 3	U	Unk	Int-A	1		
1353ai	37 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1354ai	37 y M	fentanyl (non-prescription) ethanol (beverage) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
1355ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1356ai	37 y F	fentanyl (non-prescription) cyclobenzaprine marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
1357ai	37 y M	fentanyl (non-prescription) cocaine	1 2	1 2	U	Unk	Int-A	1		
1358ai	37 y F	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1359i	37 y M	heroin	1	1	U	Unk	Int-A	2		
1360ai	37 y M	fentanyl (non-prescription) cocaine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1361ai	37 y M	fentanyl (non-prescription) ethanol (beverage) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
1362h	37 y F	acetaminophen acetaminophen acetaminophen ibuprofen	1 1 1 2	1 1 1 2	A/C	Ingst	Unk	3	acetaminophen (apap) acetaminophen (apap) acetaminophen (apap)	106 mcg/mL In Blood (unspecified) @ Unknown 166 mcg/mL In Blood (unspecified) @ Unknown 55 mcg/mL In Blood (unspecified) @ Unknown
1363ai	37 y F	fentanyl (non-prescription) cocaine cyclobenzaprine	1 2 3	1 2 3	U	Unk	Int-A	1		
1364ai	37 y M	fentanyl (non-prescription) methamphetamine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
1365ai	37 y M	heroin	1	1	U	Unk	Int-A	1		
1366ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1367h	37 y F	acetaminophen	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	20 mcg/mL In Blood (unspecified) @ Unknown
1368a	37 y M	heroin heroin fentanyl (prescription) methamphetamine methamphetamine	1 1 2 3 3	1 1 2 3 3	A	Par	Unk	1	morphine (free) 6-mam (6-monoacetylmorphine) fentanyl methamphetamine amphetamine	22 ng/mL In Blood (unspecified) @ Autopsy 30 ng/mL In Urine (quantitative only) @ Autopsy 3.6 ng/mL In Blood (unspecified) @ Autopsy 1200 ng/mL In Blood (unspecified) @ Autopsy 36 ng/mL In Blood (unspecified) @ Autopsy
1369	37 y M	acetaminophen/codeine	1	1	A/C	Ingst	Unt-T	1	acetaminophen (apap)	38 mcg/mL In Blood (unspecified) @ Unknown
1370i	37 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1371ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		ethanol (beverage)	2	2						
1372pa	37 y M	fentanyl (non-prescription)	2	1	A	Par	Int-A	1	norfentanyl	0.8 ng/mL In Blood (unspecified) @ Unknown
		cocaine	1	2					benzoyllecognine	4200 ng/mL In Blood (unspecified) @ Unknown
1373ai	37 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		promethazine	3	3						
1374ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1375ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1376ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		carbamazepine	2	2						
		alprazolam	3	3						
1377ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1378ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1379ai	37 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		cyclobenzaprine	3	3						
1380ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1381pha	37 y F	fentanyl (prescription)	1	1	A/C	Ingst+Unk	Int-A	2	fentanyl	14 ng/mL In Whole Blood @ Unknown
		methamphetamine	2	2					methamphetamine	190 ng/mL In Whole Blood @ Unknown
		methamphetamine	2	2					amphetamine	21 ng/mL In Whole Blood @ Unknown
1382ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1383ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		buprenorphine	2	2						
		marijuana, N.O.S.	3	3						
1384ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1385ph	37 y M	fentanyl (non-prescription)	1	1	A	Ingst	Int-A	1		
1386ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		lorazepam	2	2						
		ethanol (beverage)	3	3						
1387ai	37 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		butalbital	2	2						
		ethanol (beverage)	3	3						
1388ai	38 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		venlafaxine	2	2						
		hydroxyzine	3	3						
1389ai	38 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1390ai	38 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		diphenhydramine	3	3						
1391i	38 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1392i	38 y M	heroin	1	1	A/C	Inhal	Int-A	2		
1393ai	38 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hydroxyzine	3	3						
1394ai	38 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1395h	38 y F	acetaminophen	1	1	U	Ingst	Unk	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1396ph	38 y M	buprenorphine ethanol (beverage)	1 2	1 2	U	Ingst	Int-U	2	ethanol	356 mg/dL In Serum @ Unknown
1397h	38 y F	acetaminophen acetaminophen	1 1	1 1	A	Ingst	Int-M	1	acetaminophen (apap) acetaminophen (apap)	25 mcg/dL In Serum @ Unknown 87 mcg/dL In Serum @ Unknown
1398pha	38 y M	methadone hydroxyzine barbiturate (long acting) barbiturate (long acting) benzodiazepine benzodiazepine	1 2 3 3 4 4	1 2 3 3 4 4	U	Unk	Int-A	3	phenobarbital phenobarbital lorazepam midazolam	5.8 mcg/mL In Bile @ Autopsy 8.9 mcg/g In Liver @ Autopsy 200 ng/mL In Bile @ Autopsy 75 ng/mL In Bile @ Autopsy
1399i	38 y M	heroin	1	1	A	Par	Int-A	2		
1400ai	38 y M	fentanyl (non-prescription) <i>Mitragyna speciosa korthals</i> ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1401pa	38 y M	heroin	1	1	A	Par	Int-U	2		
1402ai	38 y M	fentanyl (non-prescription) cocaine methamphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
1403ai	38 y M	heroin	1	1	U	Unk	Unk	2		
1404i	38 y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1405ai	38 y F	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1406i	38 y M	acetaminophen/oxycodone	1	1	U	Ingst	Int-S	2		
1407ai	38 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1408i	38 y M	acetaminophen/codeine	1	1	U	Unk	Int-A	2		
1409	38 y F-Pregnant	acetaminophen viral disease (COVID-19-Confirmed) prazosin venlafaxine	1 2 3 4	1 2 3 4	A	Ingst+Oth	Unk	2	acetaminophen (apap)	50.7 mcg/mL In Blood (unspecified) @ Unknown
1410ai	38 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1411h	38 y M	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	44 mcg/mL In Blood (unspecified) @ Unknown
1412ai	38 y M	fentanyl (non-prescription) ethanol (beverage) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
1413ai	38 y F	oxycodone oxymorphone alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
1414ai	38 y F	fentanyl (non-prescription) oxycodone alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
1415i	38 y M	narcotic, N.O.S.	1	1	U	Par	Unk	2		
1416ai	38 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1417ai	38 y M	methadone ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1418ai	38 y M	fentanyl (non-prescription) methamphetamine marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
1419h	38 y M	acetaminophen	1	1	C	Ingst	Int-U	1	acetaminophen (apap)	130 mcg/mL In Serum @ Unknown
1420	38 y M	acetaminophen viral disease (COVID-19-Confirmed)	1 2	1 2	C	Ingst+Unk	Int-M	2	acetaminophen (apap)	29 mcg/mL In Blood (unspecified) @ Unknown
1421ai	38 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1422ai	38 y M	fentanyl analogs (para-fluoro) marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
1423ai	39 y M	fentanyl (non-prescription) cocaine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	2		
1424p	39 y F	heroin	1	1	U	Unk	Int-A	2		
1425ai	39 y M	heroin	1	1	U	Par	Int-A	3		
1426i	39 y M	narcotic, N.O.S.	1	1	U	Inhal	Int-A	2		
1427ai	39 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1428ha	39 y F	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	21 mcg/dL In Serum @ 10 m (pe)
1429i	39 y M	ethanol (beverage) fentanyl (prescription) cocaine marijuana, N.O.S. benzodiazepine	2 1 2 3 4	2 1 2 3 4	A	Unk	Int-A	2	ethanol	25 mg/dL In Serum @ 4 h (pe)
1430ai	39 y M	fentanyl (non-prescription) plant (<i>Mitragyna species</i>) sertraline	1 2 3	1 2 3	U	Unk	Int-A	1		
1431ai	39 y M	fentanyl (non-prescription) methadone etizolam	1 2 3	1 2 3	U	Unk	Int-A	1		
1432ph	39 y M	heroin ethanol (beverage)	1 2	1 2	A	Par	Int-U	2	ethanol	11 mg/dL In Blood (unspecified) @ Unknown
1433ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1434i	39 y M	heroin	1	1	A	Inhal	Int-A	2		
1435a	39 y F	fentanyl (non-prescription) fentanyl (non-prescription) morphine	1 1 2	1 1 2	U	Ingst	Int-A	1	fentanyl fentanyl morphine (free)	0.001 mg/L In Blood (unspecified) @ Autopsy 0.01 mg/L In Blood (unspecified) @ Unknown 14 mcg/L In Blood (unspecified) @ Unknown
1436ai	39 y F	heroin cyclobenzaprine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1437ai	39 y M	fentanyl (non-prescription) methamphetamine fluoxetine	1 2 3	1 2 3	U	Unk	Int-A	1		
1438ai	39 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1439i	39 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1440ai	39 y F	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1441pha	39 y M	methadone methadone	1 1	1 1	A	Ingst	Int-U	2	methadone eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	100 ng/mL In Serum @ 5 h (pe) 40 ng/mL In Serum @ 5 h (pe)
1442ai	39 y F	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1443ai	39 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1444ai	39 y M	fentanyl (non-prescription) methamphetamine hydroxyzine	1 2 3	1 2 3	U	Unk	Int-A	1		
1445i	39 y M	heroin	1	1	A	Par	Int-A	2		
1446ph	39 y F	acetaminophen/pamabron acetaminophen/pamabron	3 3	1 1	A	Ingst	Int-S	2	acetaminophen (apap) acetaminophen (apap)	117 mg/L In Serum @ Unknown 4.1 mg/L In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time			
1447ai	39 y M	acetaminophen/pamabron	3	1	U	Unk	Int-A	1	acetaminophen (apap)	51 mg/L In Serum @ Unknown			
		cocaine	1	1							cocaine		
		cocaine	1	1								benzoyllecognine	
		diphenhydramine	2	2									diphenhydramine
		ethanol (beverage)	4	3									
fentanyl (non-prescription)	1	1											
amphetamine	2	2											
ethanol (beverage)	3	3											
1448ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
1449ai	39 y F	ethanol (beverage)	2	2	U	Unk	Int-A	1					
		fentanyl (non-prescription)	1	1									
1450i	39 y M	butalbital	2	2	U	Unk	Int-A	2					
		marijuana, N.O.S.	3	3									
		narcotic, N.O.S.	1	1									
1451ai	39 y M	fentanyl (prescription)	1	1	U	Unk	Unk	3					
		methamphetamine	2	2									
1452i	39 y M	heroin	1	1	A	Par	Int-A	2					
1453i	39 y M	narcotic, N.O.S.	1	1	A	Inhal	Int-A	2					
1454i	39 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2					
1455i	39 y M	narcotic, N.O.S.	1	1	A	Par	Int-A	2					
1456h	39 y F	narcotic, N.O.S.	1	1	A	Ingst	Int-M	3	acetaminophen (apap)	13 mcg/mL In Serum @ 31 h (pe)			
		acetaminophen	1	1							acetaminophen (apap)		
		acetaminophen	1	1								163 mcg/mL In Serum @ 4 h (pe)	
		acetaminophen	1	1									199 mcg/mL In Serum @ 3 h (pe)
		acetaminophen	1	1									
acetaminophen	1	1	51 mcg/mL In Serum @ 11 h (pe)										
1457ai	39 y F	acetaminophen		1	1	U	Unk	Int-S	1				
		fentanyl (non-prescription)		1	1								
		methamphetamine		2	2								
		cocaine		3	3								
		sertraline	4	4									
		alprazolam	5	5									
ethanol (beverage)	6	6											
1458ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
1459ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
		ethanol (beverage)	2	2									
1460i	39 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2					
1461h	39 y M	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	2					
1462ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
		methamphetamine	2	2									
		ethanol (beverage)	3	3									
1463i	39 y F	heroin	1	1	A	Par	Int-A	2					
1464ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
		ethanol (beverage)	2	2									
1465i	39 y F	heroin	1	1	A	Inhal	Int-A	2					
1466ai	39 y M	heroin	1	1	U	Unk	Int-A	1					
		fentanyl (non-prescription)	1	1									
		methamphetamine	2	2									
1467ai	39 y M	methadone	3	3	U	Unk	Int-A	1					
		fentanyl (non-prescription)	1	1									
		marijuana	2	2									
1468ai	39 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
1469ai	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1					
		oxycodone	2	2									
		ethanol (beverage)	3	3									
1470ai	39 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	1					
		methamphetamine	2	2									

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1471i	39 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1472i	39 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1473ha	39 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	429 mcg/mL In Blood (unspecified) @ Unknown
1474i	39 y M	heroin	1	1	A	Par	Int-A	2		
1475	39 y M	acetaminophen	1	1	A	Ingst	Int-M	2		
		salicylate	2	2						
1476ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
		methamphetamine	3	3						
1477ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana	3	3						
1478ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1479ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1480ai	40 y F	oxycodone	1	1	U	Unk	Int-A	3		
		alprazolam	2	2						
		carisoprodol	3	3						
1481ai	40 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		gabapentin	2	2						
		alprazolam	3	3						
1482ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1483ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1484ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1485i	40 y F	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
1486h	40 y F	salicylate	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	8.2 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
1487ai	40 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1488ai	40 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1489pha	40 y F	heroin	1	1	A	Inhal + Unk	Int-A	1	morphine (free)	51 mcg/L In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	2					fentanyl	15 mcg/L In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	2					norfentanyl	2.2 mcg/L In Blood (unspecified) @ Unknown
		gabapentin	3	3					gabapentin	8800 mcg/L In Blood (unspecified) @ Unknown
1490ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		ethanol (beverage)	2	2						
1491ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		phencyclidine	2	2						
		ethanol (beverage)	3	3						
1492ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
1493ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1494	40 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	159 mcg/mL In Blood (unspecified) @ Unknown
1495i	40 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1496ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1497i	40 y F	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1498ai	40 y F	fentanyl (non-prescription) acetaminophen	1 2	1 2	U	Unk	Int-A	1		
1499ai	40 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1500i	40 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1501ai	40 y M	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
1502ai	40 y F	fentanyl (non-prescription) tramadol temazepam	1 2 3	1 2 3	U	Unk	Int-A	1		
1503ai	40 y M	fentanyl (non-prescription) methamphetamine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Unk	2		
1504ai	40 y M	fentanyl (non-prescription) cocaine methamphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
1505ai	40 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1506ai	40 y M	heroin gabapentin	1 2	1 2	U	Unk	Int-A	1		
1507ai	40 y M	fentanyl (non-prescription) amphetamine alprazolam	1 2 3	1 2 3	U	Unk	Int-S	1		
1508ai	40 y M	fentanyl (non-prescription) methamphetamine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1509ai	40 y M	fentanyl (non-prescription) codeine	1 2	1 2	U	Unk	Int-A	1		
1510ai	40 y F	fentanyl (non-prescription) methamphetamine amphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
1511i	40 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1512h	40 y F	acetaminophen acetaminophen acetaminophen acetaminophen acetaminophen acetaminophen acetaminophen clonazepam diphenhydramine cyclobenzaprine	1 1 1 1 1 1 1 2 3 4	1 1 1 1 1 1 1 2 3 4	A	Ingst	Int-S	2	acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap)	117 mcg/mL In Serum @ 74 h (pe) 197 mcg/mL In Serum @ 61 h (pe) 375 mcg/mL In Serum @ 40 h (pe) 521 mcg/mL In Serum @ 2 h (pe) 601 mcg/mL In Serum @ 24.5 h (pe) 715 mcg/mL In Serum @ 16 h (pe) 89 mcg/mL In Serum @ 85 h (pe)
1513ai	41 y M	fentanyl (non-prescription) ethanol (beverage) marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
1514pha	41 y M	fentanyl (non-prescription) <i>Mitragyna speciosa korthals</i> alcohol, N.O.S.	1 2 3	1 2 3	U	Ingst + Unk	Int-A	1		
1515h	41 y F	acetaminophen benzodiazepine	1 2	1 2	A	Ingst	Int-U	2		
1516ai	41 y M	fentanyl (non-prescription) methamphetamine marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
1517ai	41 y M	fentanyl (non-prescription) methamphetamine marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
1518ai	41 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1519ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		clonazepam	3	3						
1520ha	41 y F	methadone	1	1	U	Unk	Int-S	1	methadone	690 ng/mL In Blood (unspecified) @ Unknown
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	91 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	2					norfentanyl	12 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	2					fentanyl	8.7 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	3	3					alprazolam	15 ng/mL In Blood (unspecified) @ Unknown
		cocaine	4	4					benzoyllecognine	1200 ng/mL In Blood (unspecified) @ Unknown
		marijuana	5	5						
		cyclic antidepressant, N.O.S.	6	6						
		methamphetamine	7	7						
1521pi	41 y M	heroin	1	1	A	Par	Int-A	2		
1522ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1523pai	41 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1524h	41 y F	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-U	1	acetaminophen (apap)	40.2 mcg/mL In Blood (unspecified) @ Unknown
1525ai	41 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
		methamphetamine	3	3						
1526h	41 y F	acetaminophen	1	1	U	Ingst	Unk	1		
		amphetamine	2	2						
		naproxen	3	3						
1527ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
1528ai	41 y F	methadone	1	1	U	Unk	Unk	1		
		morphine	2	2						
		oxycodone	3	3						
		promethazine	4	4						
1529	41 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	111 mcg/mL In Serum @ Unknown
		ethanol (beverage)	2	2						
1530ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		methadone	3	3						
1531ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1532ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1533ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		gabapentin	2	2						
		sertraline	3	3						
1534ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1535pa	41 y M	fentanyl (non-prescription)	1	1	A/C	Par	Int-A	1	norfentanyl	3 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (non-prescription)	1	1					fentanyl	3.5 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2					acetyl fentanyl	0.15 ng/mL In Blood (unspecified) @ Autopsy
		methadone	3	3					methadone	43 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	4	4					amphetamine	17 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	4	4					methamphetamine	210 ng/mL In Blood (unspecified) @ Autopsy
1536ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1537ai	41 y M	fentanyl (non-prescription) cocaine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	2		
1538i	41 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1539ai	41 y F	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Unk	1		
1540ai	41 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
1541ai	41 y F	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
1542ai	41 y F	fentanyl (non-prescription) ethanol (beverage) xylazine	1 2 3	1 2 3	U	Unk	Int-A	1		
1543ph	41 y M	fentanyl (non-prescription) ethanol (beverage) acetaminophen narcotic, N.O.S. benzodiazepine	1 2 3 4 5	1 2 3 4 5	U	Ingst	Unk	2	ethanol acetaminophen (apap)	45 mg/dL In Urine (quantitative only) @ Unknown 17 mcg/mL In Blood (unspecified) @ Unknown
1544ai	41 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1545ai	41 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1546ai	41 y M	fentanyl (non-prescription) methamphetamine gabapentin	1 2 3	1 2 3	U	Unk	Int-A	1		
1547ai	42 y F	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-U	2		
1548ai	42 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	2		
1549i	42 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1550ai	42 y M	fentanyl (non-prescription) methamphetamine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1551ai	42 y M	fentanyl (non-prescription) cocaine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1552ai	42 y F	fentanyl (non-prescription) methamphetamine diphenhydramine	1 2 3	1 2 3	U	Unk	Int-A	1		
1553h	42 y M	acetaminophen acetaminophen acetaminophen/hydrocodone insulin (glargine) (ER) ethanol (beverage) liraglutide lisinopril	1 1 2 3 4 5 6	1 1 2 3 4 5 6	A	Ingst + Par	Int-S	2	acetaminophen (apap) acetaminophen (apap)	129 mcg/mL In Blood (unspecified) @ 3 d (pe) 48 mcg/mL In Blood (unspecified) @ 4 d (pe)
1554pha	42 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1555ai	42 y M	fentanyl (non-prescription) <i>Mitragyna speciosa korthals</i> ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
1556i	42 y M	narcotic, N.O.S.	1	1	A	Unk	Int-U	2		
1557ai	42 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1558ai	42 y F	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1559ai	42 y M	fentanyl (non-prescription) plant (<i>Mitragyna</i> species)	1 2	1 2	U	Unk	Unk	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1560ai	42 y F	methadone	1	1	U	Unk	Int-A	2		
		gabapentin	2	2						
		alprazolam	3	3						
1561ai	42 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1562i	42 y F	morphine	1	1	U	Unk	Int-S	1		
		zolpidem	2	2						
1563pa	42 y F	fentanyl (prescription)	1	1	A	Inhal	Int-A	1		
1564ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		plant (<i>Mitragyna species</i>)	2	2						
		marijuana	3	3						
1565ph	42 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	646 mcg/mL In Blood (unspecified) @ Unknown
		lorazepam	2	2						
1566h	42 y M	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	148 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	98 mcg/mL In Serum @ 5 m (pe)
		ethanol (beverage)	2	2						
1567i	42 y F	heroin	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
1568i	42 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1569i	42 y M	heroin	1	1	A	Par	Int-A	2		
1570i	42 y M	heroin	1	1	U	Inhal	Int-A	2		
1571ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-U	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1572ph	42 y F	methadone	1	1	A	Ingst	Unk	2		
1573ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1574ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1575i	42 y M	heroin	1	1	U	Unk	Int-A	2		
1576i	42 y M	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
1577h	42 y M	acetaminophen	1	1	A/C	Ingst	Int-M	2	acetaminophen (apap)	103 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	174 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	204 mcg/mL In Blood (unspecified) @ Unknown
		iron	2	2					iron	243 mcg/dL In Serum @ Unknown
1578ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		olanzapine	3	3						
1579ai	42 y F	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		cyclobenzaprine	3	3						
1580i	42 y M	heroin	1	1	U	Unk	Int-A	2		
1581ai	42 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		phenothiazine	3	3						
1582ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
1583pai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1	fentanyl	0.022 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (despropionyl fentanyl)	2	2						
		fentanyl analogs (para-fluoro)	3	3						
		cocaine	4	4					cocaine	0.09 mg/L In Blood (unspecified) @ Autopsy
		methamphetamine	5	5					methamphetamine	0.3 mg/L In Blood (unspecified) @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
[1584h]	42 y M	xylazine	6	6	A	Ingst	Int-S	1		
		quinine	7	7						
		phencyclidine	8	8						
		diphenhydramine	9	9						
		salicylate	1	1					salicylate	100 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	136 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	159 mg/dL In Blood (unspecified) @ Unknown
1585	42 y F	acetaminophen	1	1	U	Ingst	Int-M	2	acetaminophen (apap)	121 mcg/mL In Blood (unspecified) @ Unknown
1586i	42 y F	ethanol (beverage)	2	2	U	Inhal	Int-A	2		
1587ai	42 y M	heroin	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		cocaine	3	3						
1588ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		risperidone	2	2						
1589ai	42 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		diphenhydramine	3	3						
1590i	42 y M	heroin	1	1	U	Unk	Int-A	2		
1591i	42 y M	heroin	1	1	A	Unk	Int-A	2		
1592ai	42 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
1593h	43 y F	fentanyl (non-prescription)	1	1	C	Ingst	Unt-M	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1594ai	43 y F	acetaminophen	1	1	U	Unk	Int-A	1		
1595ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1596ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1597ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1598ai	43 y F	buprenorphine	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		diphenhydramine	3	3						
1599ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		methamphetamine	2	2						
1600ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1601ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		morphine	3	3						
1602ai	43 y M	butalbital	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		diphenhydramine	3	3						
1603ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		doxepin	2	2						
1604i	43 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	2		
		methamphetamine	2	2						
1605i	43 y M	narcotic, N.O.S.	1	1	A	Par	Int-A	2		
1606ai	43 y F	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		methamphetamine	3	3						
1607i	43 y M	ethanol (beverage)	1	1	U	Unk	Int-A	2		
		narcotic, N.O.S.	2	2						
		narcotic, N.O.S.	3	3						
1608ai	43 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		methamphetamine	3	3						
		hyperthermia	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1609h	43 y F	acetaminophen	1	1	C	Ingst + Oth	Unt-T	3	acetaminophen (apap)	40.2 mcg/mL In Blood (unspecified) @ Unknown
1610pha	43 y M	viral disease (COVID-19-Confirmed)	2	2	U	Inhal + Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
1611i	43 y M	amphetamine	2	2	U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
1612ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		quetiapine	2	2						
		venlafaxine	3	3						
1613ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
1614ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1615i	43 y M	oxycodone	1	1	U	Unk	Int-S	1		
		trazodone	2	2						
		hydroxyzine	3	3						
1616ai	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
1617pha	43 y F	fentanyl (non-prescription)	1	1	A/C	Ingst + Inhal	Unk	3	norfentanyl	1.3 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	2 ng/mL In Blood (unspecified) @ Unknown
		hydrocodone	2	2					hydrocodone	11.6 ng/mL In Blood (unspecified) @ Unknown
		viral disease (COVID-19-Confirmed)	3	2						
1618h	43 y M	acetaminophen	1	1	C	Ingst	Int-M	3	acetaminophen (apap)	20 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	5.1 mcg/mL In Blood (unspecified) @ 1 d (pe)
1619	43 y F	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-S	2		
		glipizide	2	2						
		ethanol (beverage)	4	3						
		fluoxetine	5	4						
		metformin	3	5						
		pravastatin	6	6						
1620i	43 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
1621h	43 y F	acetaminophen/hydrocodone	1	1	C	Ingst	Unk	2	acetaminophen (apap)	12 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	81 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	2	2						
1622	44 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	0 mcg/mL In Serum @ Unknown
1623ha	44 y M	salicylate	1	1	A	Ingst	Int-U	1	salicylate	116.2 mg/dL In Blood (unspecified) @ Unknown
1624ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1625ha	44 y M	fentanyl (prescription)	1	1	A	Ingst	Int-M	2	fentanyl	13 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					norfentanyl	16 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	92 ng/mL In Blood (unspecified) @ Unknown
		marijuana, N.O.S.	3	3					thca (tetrahydrocannabinolic acid)	10 ng/mL In Blood (unspecified) @ Unknown
1626ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1627ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
gabapentin	2	2								
1628ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1629h	44 y F	acetaminophen	1	1	A	Ingst	Int-M	1	acetaminophen (apap)	12 mcg/mL In Serum @ Unknown
1630ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-M	1		
		methamphetamine	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1631i	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1632h	44 y F	colchicine	1	1	A	Ingst	Int-S	1		
		methamphetamine	2	2						
1633ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1634h	44 y M	acetaminophen	1	1	A/C	Ingst	Unk	2		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1635h	44 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	137 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	1.8 mg/dL In Blood (unspecified) @ Unknown
1636ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
1637ai	44 y M	methadone	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
1638ha	44 y M	colchicine	1	1	A/C	Ingst	Int-S	1		
1639ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		alprazolam	2	2						
		tadalafil	3	3						
1640ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1641ha	44 y F	acetaminophen	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	477 mcg/mL In Blood (unspecified) @ 5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	758.9 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	830 mcg/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	830 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
		venlafaxine	3	3						
		buspirone	4	4						
		gabapentin	5	5						
1642ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		quinine	3	3						
1643h	44 y F	colchicine	1	1	A	Ingst	Int-S	2		
		drug, N.O.S.	2	2						
		cyclobenzaprine	3	3						
1644ai	44 y F	fentanyl (prescription)	1	1	U	Unk	Unk	3		
		methamphetamine	2	2						
1645ai	44 y F	fentanyl (prescription)	1	1	U	Unk	Unk	2		
		trazodone	2	2						
		topiramate	3	3						
		tizanidine	4	4						
		gabapentin	5	5						
		citalopram	6	6						
		escitalopram	7	7						
		oxcarbazepine	8	8						
1646h	44 y F	fentanyl (prescription)	1	1	U	Ingst	Int-S	2		
		mirtazapine	2	2						
		bupropion	3	3						
1647i	44 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1648ai	44 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
1649h	44 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	34 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
1650h	44 y F	acetaminophen	1	1	A/C	Ingst	Unk	1	acetaminophen (apap)	80 mcg/mL In Serum @ Unknown
1651ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1652ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		fentanyl analogs (para-fluoro)	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1653ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
1654ai	44 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1655ai	44 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		diazepam	3	3						
1656ai	44 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1657ph	44 y M	drug, N.O.S.	2	1	U	Inhal + Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
1658ai	45 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1659i	45 y M	narcotic, N.O.S.	1	1	U	Par	Int-A	2		
1660ai	45 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	3		
1661ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		aripiprazole	3	3						
1662ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1663ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		gabapentin	3	3						
1664ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1665a	45 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.001 mg/L In Serum @ Unknown
		fentanyl (non-prescription)	1	1					fentanyl	0.008 mg/L In Blood (unspecified) @ Autopsy
		quinine	2	2						
		fentanyl analogs (despropionyl fentanyl)	3	3						
		clonazepam	4	4						
		lidocaine	5	5						
1666ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1667pha	45 y M	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1		
1668ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1669ai	45 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1670ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
		amphetamine (hallucinogenic)	4	4						
		ethanol (beverage)	5	5						
1671h	45 y M	salicylate	1	1	A	Ingst	Int-M	2		
1672ai	45 y M	oxycodone	1	1	U	Unk	Int-A	1		
		carisoprodol	2	2						
		amphetamine	3	3						
1673ai	45 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1674ai	45 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		pseudoephedrine	2	2						
		citalopram	3	3						
1675i	45 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1676h	45 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	5 mcg/mL In Blood (unspecified) @ 3 d (pe)
1677i	45 y M	narcotic, N.O.S.	1	1	U	Par	Int-A	2		
1678ha	45 y F	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	1	oxycodone	0.3 mg/L In Blood (unspecified) @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	187 mg/L In Serum @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	251 mg/L In Serum @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	552 mg/L In Serum @ Unknown
		diphenhydramine	2	2					diphenhydramine	4.46 mg/L In Blood (unspecified) @ Autopsy
1679ai	45 y F				U	Unk	Int-A	2		
		fentanyl (non-prescription)	1	1						
		methadone	2	2						
1680i	46 y M				A/C	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
1681ha	46 y F				U	Ingst	Int-S	1	acetaminophen (apap)	266 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1						
1682i	46 y F				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
1683ai	46 y M				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
1684	46 y F				A	Ingst	Int-S	2	acetaminophen (apap)	29.4 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1						
		drug, N.O.S.	2	2						
1685ai	46 y M				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		methamphetamine	2	2						
1686ai	46 y M				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		ethanol (beverage)	2	2						
1687ai	46 y F				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		gabapentin	2	2						
1688ai	46 y M				U	Unk	Int-A	2		
		fentanyl (non-prescription)	1	1						
		methamphetamine	2	2						
1689ai	46 y F				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		marijuana	2	2						
1690ha	46 y F				U	Unk	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	103.1 mcg/mL In Blood (unspecified) @ 40 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	11 mcg/mL In Blood (unspecified) @ 104.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	16.9 mcg/mL In Blood (unspecified) @ 82.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	192.6 mcg/mL In Blood (unspecified) @ 17.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	340.3 mcg/mL In Blood (unspecified) @ 1.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	50.8 mcg/mL In Blood (unspecified) @ 59 h (pe)
1691ai	46 y F				U	Unk	Int-A	1		
		methadone	1	1						
		trazodone	2	2						
		risperidone	3	3						
1692ai	46 y M				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		fentanyl analogs (para-fluoro)	2	2						
		methamphetamine	3	3						
1693	46 y M				A	Ingst + Aspir	Int-S	3	acetaminophen (apap)	107.3 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1						
		fluoxetine	2	2						
1694i	46 y F				U	Inhal	Unk	2		
		heroin	1	1						
1695ph	46 y F				A	Ingst	Int-S	2	acetaminophen (apap)	64 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/salicylate	1	1					salicylate	81.7 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen/salicylate	1	1					ethanol	58 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
1696i	46 y M				A	Inhal	Int-U	2		
		fentanyl (prescription)	1	1						
1697ai	46 y M				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1698ai	46 y F				U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		gabapentin	2	2						
		promethazine	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1699ai	46 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		diphenhydramine	3	3						
1700ph	46 y M	narcotic, N.O.S.	1	1	A	Unk	Int-S	2		
		fentanyl (non-prescription)	2	2						
1701ai	46 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		etizolam	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
		oxycodone	4	4						
		gabapentin	5	5						
1702ai	46 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
1703ai	46 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		oxycodone	3	3						
1704h	46 y F	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	267 mcg/mL In Blood (unspecified) @ Unknown
		gabapentin	2	2						
		ethanol (beverage)	3	3					ethanol	13 mg/dL In Blood (unspecified) @ Unknown
1705ai	46 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
1706ai	47 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1707ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1708ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1709ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
1710ai	47 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		topiramate	2	2						
		citalopram	3	3						
1711pha	47 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1	fentanyl	5 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					norfentanyl	7.9 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoyllecognine	410 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	3	3					amphetamine	960 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	4	4					7-aminoclonazepam	16 ng/mL In Blood (unspecified) @ Unknown
		duloxetine	5	5					duloxetine	230 ng/mL In Blood (unspecified) @ Unknown
		aripiprazole	6	6					aripiprazole	160 ng/mL In Blood (unspecified) @ Unknown
1712ai	47 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1713i	47 y M	narcotic, N.O.S.	1	1	A/C	Inhal	Int-A	2		
1714ai	47 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		aripiprazole	3	3						
1715i	47 y M	fentanyl (prescription)	1	1	A	Inhal	Int-A	2		
1716h	47 y M	salicylate	1	1	U	Ingst	Int-S	2	salicylate	129 mg/dL In Serum @ Unknown
1717i	47 y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1718h	47 y F	acetaminophen	1	1	C	Ingst	Unt-T	3	acetaminophen (apap)	23 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	34 mcg/mL In Blood (unspecified) @ Unknown
1719ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
1720i	47 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1721ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1722ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
1723ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1724ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1725ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		hydroxyzine	2	2						
		trazodone	3	3						
1726ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1727ai	47 y M	oxycodone	1	1	U	Unk	Int-S	1		
		diphenhydramine	2	2						
		acetaminophen	3	3						
1728pi	47 y M	fentanyl (prescription)	1	1	A/C	Unk	Int-A	1		
1729ph	47 y M	heroin	1	1	A/C	Ingst+ Inhal	Int-A	2		
		ethanol (beverage)	2	2						
1730ai	47 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		diltiazem	3	3						
1731ai	47 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1732ai	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
		methylenedioxyamphetamine (MDMA)	4	4						
1733h	47 y M	acetaminophen	1	1	A/C	Ingst	Unt-M	2	acetaminophen (apap)	5 mcg/mL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
1734pi	47 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1735ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		morphine	2	2						
1736i	48 y M	narcotic, N.O.S.	1	1	U	Unk	Unk	2		
		cocaine	2	2						
1737h	48 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	204.5 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
1738ha	48 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	168 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	74 mcg/mL In Blood (unspecified) @ Autopsy
		ethanol (beverage)	2	2					ethanol	60 mg/dL In Serum @ Unknown
		salicylate	3	3					salicylate	9 mg/dL In Serum @ Unknown
1739ai	48 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		doxepin	2	2						
		promethazine	3	3						
1740h	48 y M	acetaminophen	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	88 mcg/mL In Blood (unspecified) @ Unknown
		diphenhydramine	2	2						
1741i	48 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1742h	48 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	130 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1						
1743h	48 y F	acetaminophen	1	1	C	Ingst	Int-S	2	acetaminophen (apap)	60 mcg/mL In Blood (unspecified) @ Unknown
1744ai	48 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		bupropion	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1745ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1746ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		risperidone	3	3						
1747h	48 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	11 mcg/mL In Blood (unspecified) @ Unknown
1748ha	48 y F	acetaminophen/codeine	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	117 mcg/mL In Blood (unspecified) @ Unknown
		bupropion	2	2					hydroxybupropion	0.32 mg/L In Blood (unspecified) @ Unknown
		citalopram	3	3					citalopram	0.06 mg/L In Blood (unspecified) @ Unknown
		antihistamine/decongestant, N.O.S.	4	4					doxylamine	0.32 mg/L In Blood (unspecified) @ Unknown
		haloperidol	5	5						
1749ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
1750i	48 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1751ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1752ha	48 y F	acetaminophen	1	1	U	Ingst	Unk	3		
		drug, N.O.S.	2	2						
1753h	48 y F	acetaminophen	1	1	C	Ingst	Unt-G	2		
1754ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1755ai	48 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
1756pa	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
1757ai	48 y F	oxycodone	1	1	U	Unk	Unk	1		
		hydromorphone	2	2						
		gabapentin	3	3						
1758ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hydroxyzine	3	3						
1759h	48 y F	acetaminophen	1	1	C	Ingst	Unk	2	acetaminophen (apap)	186 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
1760ai	48 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		diphenhydramine	3	3						
1761ha	48 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	73 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	23.1 mg/dL In Blood (unspecified) @ Unknown
1762ai	48 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1763ai	48 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
1764h	48 y F	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	1		
1765ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1766ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1767i	49 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
1768h	49 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	232 mcg/mL In Serum @ 1 h (pe)
		drug, N.O.S.	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1769ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1770ai	49 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1771ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1772ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		hydrocodone	3	3						
1773i	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1774ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hyperthermia	3	3						
1775sh	49 y F	acetaminophen	1	1	A/C	Ingst	Int-M	2	acetaminophen (apap)	67.5 mcg/mL In Serum @ Unknown
1776ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1777	49 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	53.9 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	6.3 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	3	3					ethanol	39.4 mg/dL In Blood (unspecified) @ Unknown
1778ai	49 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1779ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1780ai	49 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1781ai	49 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		methamphetamine	2	2						
		alprazolam	3	3						
		marijuana, N.O.S.	4	4						
1782ai	49 y M	fentanyl analogs (para-fluoro)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1783h	49 y M	acetaminophen	1	1	A	Ingst	Int-A	2		
		antidepressant, N.O.S.	2	2						
1784i	49 y F	fentanyl (prescription)	1	1	A	Par	Int-A	2		
		cocaine	2	2						
1785pai	50 y F	fentanyl (non-prescription)	1	1	A	Unk	Int-A	1	fentanyl	0.026 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	2	2					acetyl fentanyl	0.023 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (despropionyl fentanyl)	3	3						
		cocaine	4	4					cocaine	0.1 mg/L In Blood (unspecified) @ Autopsy
		promethazine	5	5					promethazine	0.1 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analogs (acrylfentanyl)	6	6						
		quinine	7	7						
1786ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		diphenhydramine	3	3						
1787ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cyclobenzaprine	2	2						
		methamphetamine	3	3						
1788ai	50 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1789i	50 y M	morphine	1	1	A	Ingst	Int-S	2		
		oxycodone	2	2						
1790ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		heroin	2	2						
		methamphetamine	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1791i	50 y M	heroin	1	1	U	Unk	Int-A	2		
1792ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1793i	50 y M	heroin	1	1	A	Inhal	Int-A	2		
1794ph	50 y F	colchicine	1	1	A/C	Ingst	Int-S	2		
1795ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
1796pai	50 y M	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1		
		cocaine	2	2						
		methamphetamine	3	3						
		fentanyl analogs (despropionyl fentanyl)	4	4						
		quinine	5	5						
1797h	50 y M	colchicine	1	1	A/C	Ingst	Unt-T	1		
1798ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1799ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1800ha	50 y F	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	119 mcg/mL In Blood (unspecified) @ Unknown
1801ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		hydroxyzine	3	3						
1802i	50 y M	fentanyl (prescription)	1	1	A	Unk	Int-A	2		
1803ai	50 y M	morphine	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		methamphetamine	3	3						
1804ai	50 y M	morphine	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1805ph	50 y F	acetaminophen (ER)	1	1	A	Ingst	Int-S	2		
		venlafaxine	2	2						
		ibuprofen	3	3						
		diphenhydramine	4	4						
		acetaminophen/pamabron	5	5						
1806ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1807ai	50 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1808i	50 y M	heroin	1	1	A	Par	Int-A	2		
1809i	50 y M	heroin	1	1	U	Par	Int-A	2		
1810ai	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1811i	50 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1812h	50 y F	acetaminophen	1	1	A	Ingst	Int-M	2		
1813h	50 y F	acetaminophen	1	1	A	Unk	Int-S	2	acetaminophen (apap)	111 mcg/mL In Serum @ Unknown
1814pai	50 y F	fentanyl (non-prescription)	1	1	A/C	Unk	Int-A	1		
1815ai	51 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1816ai	51 y M	hydrocodone	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
1817ai	51 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1818ai	51 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cyclobenzaprine	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1819ai	51 y M	fentanyl (non-prescription) alprazolam oxymorphone	1 2 3	1 2 3	U	Unk	Int-A	1		
1820ai	51 y F	fentanyl (non-prescription) methamphetamine marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	3		
1821ai	51 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1822ai	51 y M	fentanyl (non-prescription) methylenedioxymethamphetamine (MDMA) cocaine	1 2 3	1 2 3	U	Unk	Int-A	1		
1823ha	51 y F	acetaminophen (ER) naproxen diphenhydramine/ibuprofen	1 2 3	1 2 3	A	Ingst	Int-S	1		
1824i	51 y M	heroin	1	1	A/C	Unk	Int-A	2		
1825ha	51 y F	colchicine duloxetine ethanol (beverage) ethanol (beverage)	1 3 2 2	1 2 3 3	A/C	Ingst	Int-S	1	colchicine ethanol ethanol	130 ng/mL In Blood (unspecified) @ Unknown 179 mg/dL In Blood (unspecified) @ Unknown 237 mg/dL In Blood (unspecified) @ Unknown
1826ai	51 y F	fentanyl (non-prescription) doxylamine pseudoephedrine	1 2 3	1 2 3	U	Unk	Int-A	2		
1827ai	51 y M	fentanyl (non-prescription) marijuana	1 2	1 2	U	Unk	Int-A	1		
1828ai	51 y F	fentanyl (non-prescription) methamphetamine methadone	1 2 3	1 2 3	U	Unk	Int-A	1		
1829h	51 y M	acetaminophen/diphenhydramine drug, N.O.S. calcium antagonist	1 2 3	1 2 3	U	Ingst + Unk	Int-S	2	acetaminophen (apap)	300 mcg/mL In Serum @ Unknown
1830i	51 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1831ai	51 y M	morphine hydrocodone ketamine	1 2 3	1 2 3	U	Unk	Unk	3		
1832p	51 y F	fentanyl (prescription) fentanyl (prescription) fentanyl analogs (despropionyl fentanyl) chlordiazepoxide chlordiazepoxide cocaine carbamazepine ethanol (beverage)	1 1 2 3 3 4 5 6	1 1 2 3 3 4 5 6	A	Ingst + Unk	Int-A	1	fentanyl norfentanyl nordiazepam chlordiazepoxide benzoyllecognine carbamazepine ethanol	0.63 ng/mL In Blood (unspecified) @ Unknown 2.4 ng/mL In Blood (unspecified) @ Unknown 100 ng/mL In Blood (unspecified) @ Unknown 38 ng/mL In Blood (unspecified) @ Unknown 580 ng/mL In Blood (unspecified) @ Unknown 0.77 ng/mL In Blood (unspecified) @ Unknown 47 mg/dL In Blood (unspecified) @ Unknown
1833ai	51 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1834ai	51 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
1835ai	51 y F	fentanyl (non-prescription) fentanyl analogs (para-fluoro) methamphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
1836h	51 y F	acetaminophen salicylate diphenhydramine	1 2 3	1 2 3	C	Ingst	Unt-M	3	acetaminophen (apap) salicylate	15 mcg/mL In Blood (unspecified) @ Unknown 25 mg/dL In Blood (unspecified) @ Unknown
1837ai	51 y M	fentanyl (non-prescription) methamphetamine diphenhydramine	1 2 3	1 2 3	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1838pha	51 y F	tramadol	1	1	A	Ingst	Int-S	1	tramadol	2400 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	169 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	63 mcg/mL In Blood (unspecified) @ Unknown
		escitalopram	3	3					citalopram	130 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	4	4					gabapentin	38 mcg/mL In Blood (unspecified) @ Unknown
1839ai	51 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		buprenorphine	2	2						
		hydroxyzine	3	3						
1840ph	51 y F	heroin	1	1	A/C	Par	Int-A	2		
1841ai	51 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1842h	51 y M	acetaminophen	1	1	A/C	Ingst	Int-M	2		
1843ai	51 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1844ai	51 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1845ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1846ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		gabapentin	3	3						
1847ai	52 y F	oxycodone	1	1	U	Unk	Int-S	1		
		trazodone	2	2						
		phentermine	3	3						
1848ai	52 y F	oxycodone	1	1	U	Unk	Unt-M	1		
		gabapentin	2	2						
		alprazolam	3	3						
1849ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		cyclobenzaprine	3	3						
1850ai	52 y F	morphine	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		temazepam	3	3						
1851ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		cocaine	2	2						
		methamphetamine	3	3						
1852ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	1		
		ethanol (beverage)	2	2						
1853ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		gabapentin	2	2						
		ethanol (beverage)	3	3						
1854i	52 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1855i	52 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1856ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1857ha	52 y M	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-M	1	acetaminophen (apap)	34.7 mcg/mL In Serum @ Unknown
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	40 mcg/mL In Serum @ 70 m (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	56 mcg/mL In Blood (unspecified) @ 30 m (pe)
1858h	52 y M	salicylate	2	1	A/C	Ingst	Int-M	3		
		acetaminophen	1	2						
1859	52 y F	oxycodone	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	55 mcg/mL In Serum @ Unknown
		acetaminophen	2	2						
1860ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1861ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		gabapentin	3	3						
1862ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1863h	52 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	36 mcg/mL In Blood (unspecified) @ Unknown
1864ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		gabapentin	3	3						
1865h	52 y F	acetaminophen	1	1	C	Ingst	Unk	3	acetaminophen (apap)	24 mcg/mL In Blood (unspecified) @ 22 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	93 mcg/mL In Blood (unspecified) @ 4 h (pe)
1866ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amlodipine	2	2						
		citalopram	3	3						
1867ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1868ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1869ai	52 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
		trazodone	3	3						
1870ai	52 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1871h	52 y M	ibuprofen	1	1	C	Ingst	Int-U	3		
		<i>Mitragyna speciosa korthals</i>	2	2						
		trazodone	3	3						
1872h	52 y F	acetaminophen	1	1	C	Ingst	Int-M	3		
1873pha	52 y F	morphine	1	1	U	Ingst	Int-S	1	morphine	0.31 mg/L In Blood (unspecified) @ Autopsy
1874h	52 y M	acetaminophen	1	1	C	Ingst	Int-M	3		
1875i	53 y M	heroin	1	1	U	Unk	Int-A	2		
1876h	53 y F	acetaminophen	1	1	U	Ingst	Int-S	1	ethanol	13 mg/dL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	132 mcg/mL In Serum @ Unknown
1877ai	53 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1878pai	53 y M	fentanyl (non-prescription)	1	1	A/C	Par	Int-A	1		
		heroin	2	2						
1879ai	53 y M	hydrocodone	1	1	U	Unk	Unk	1		
		venlafaxine	2	2						
		dextromethorphan	3	3						
1880ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1881	53 y F	acetaminophen	1	1	A	Ingst	Unk	3	acetaminophen (apap)	27.6 mcg/mL In Serum @ Unknown
		drug, N.O.S.	2	2						
1882ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1883h	53 y F	hydromorphone	1	1	A	Ingst + Aspir	Int-S	3		
		alprazolam	2	2						
		ethanol (beverage)	3	3					ethanol	5.3 mg/dL In Blood (unspecified) @ Unknown
1884ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1885ha	53 y F	hydromorphone	1	1	A/C	Ingst	Unk	1	hydrocodone (free)	2.8 ng/mL In Whole Blood @ Unknown
		amitriptyline	2	2					nortriptyline	420 ng/mL In Whole Blood @ Unknown
		amitriptyline	2	2					amitriptyline	460 ng/mL In Whole Blood @ Unknown
		clonidine	3	3					clonidine	12 ng/mL In Whole Blood @ Unknown
		acetaminophen/oxycodone	4	4						
1886i	53 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1887ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		hydroxyzine	3	3						
1888	53 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	14.2 mcg/mL In Serum @ Unknown
1889ai	53 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1890h	53 y F	acetaminophen	1	1	C	Ingst	Int-S	1	acetaminophen (apap)	42 mg/L In Blood (unspecified) @ Unknown
1891ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
1892ai	53 y F	morphine	1	1	U	Unk	Unt-M	1		
		diphenhydramine	2	2						
		alprazolam	3	3						
1893i	53 y F	heroin	1	1	A	Par	Int-A	2		
1894ai	53 y F	acetaminophen	1	1	U	Unk	Unk	2		
		diphenhydramine	2	2						
		alprazolam	3	3						
1895ai	53 y F	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1896ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		carbamazepine	3	3						
1897ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
1898ai	53 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1899ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1900pi	53 y M	fentanyl (non-prescription)	1	1	A	Unk	Int-A	2		
1901i	53 y F	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
1902ai	53 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1903i	53 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1904ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1905ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1906ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
1907i	54 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1908ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		diphenhydramine	2	2						
		ethanol (beverage)	3	3						
1909i	54 y M	heroin	1	1	U	Unk	Int-A	2		
1910ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
1911i	54 y F	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1912ai	54 y F	oxycodone	1	1	U	Unk	Int-S	1		
		diazepam	2	2						
		carisoprodol	3	3						
1913ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1914i	54 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1915ai	54 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		marijuana, N.O.S.	3	3						
1916ha	54 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	69.3 mcg/mL In Serum @ Unknown
1917ai	54 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		<i>Mitragyna speciosa korthals</i>	2	2						
1918ha	54 y F	acetaminophen/diphenhydramine	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	95.6 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam	2	1						
1919i	54 y M	heroin	1	1	A/C	Inhal	Int-A	2		
1920i	54 y M	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		
1921ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		fentanyl analog (acetylfentanyl)	3	3						
1922ai	54 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1923	54 y M	acetaminophen	1	1	C	Ingst	Unt-T	3	acetaminophen (apap)	82.5 mcg/mL In Blood (unspecified) @ Unknown
1924ai	54 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1925ha	54 y F	acetaminophen	1	1	U	Ingst	Unt-U	1	acetaminophen (apap)	54 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	77 mg/L In Blood (unspecified) @ 15 m (pe)
1926ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1927i	55 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
1928a	55 y F	buprenorphine/naloxone (sublingual tablet)	2	1	A	Ingst	Int-A	2		
		methamphetamine	1	1						
1929ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1930ai	55 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1931h	55 y M	acetaminophen	1	1	U	Ingst	Int-U	3		
1932ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1933h	55 y F	acetaminophen	1	1	U	Ingst	Int-S	1		
		amitriptyline	2	2						
		methocarbamol	3	3						
1934ai	55 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1935h	55 y M	ibuprofen	1	1	A	Ingst	Int-S	3		
		diphenhydramine	2	2						
		acetaminophen	3	3						
1936ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		alprazolam	3	3						
1937i	55 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
		cocaine	2	2						
1938ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		carisoprodol	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1939ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		ethanol (beverage)	3	3						
1940i	55 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
1941ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
1942ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
1943ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1944ai	55 y M	fentanyl (prescription)	1	1	U	Unk	Unk	2		
		tramadol	2	2						
1945h	55 y M	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	112 mcg/mL In Blood (unspecified) @ Unknown
1946ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
1947ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
1948ai	55 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		buprenorphine	3	3						
1949ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
1950ai	55 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1951ha	55 y F	acetaminophen	1	1	C	Ingst + Inhal	Unt-T	3	acetaminophen (apap)	10 mcg/mL In Serum @ 54 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	15 mcg/mL In Serum @ 30.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	38 mcg/mL In Serum @ 20 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	72 mcg/mL In Serum @ 1 h (pe)
		levamisole	2	2						
1952ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1953ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1954ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
1955ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		ethanol (beverage)	3	3						
1956ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1957ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		diazepam	3	3						
1958h	56 y F	acetaminophen	1	1	A	Ingst	Int-M	3	acetaminophen (apap)	4 mcg/mL In Blood (unspecified) @ Unknown
		diphenhydramine/ibuprofen	2	2						
		naproxen	3	3						
1959ai	56 y F	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		mirtazapine	3	3						
1960ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol (beverage)	3	3						
1961h	56 y M	salicylate	1	1	U	Ingst	Int-S	2	salicylate	61 mg/dL In Blood (unspecified) @ Unknown
1962ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		hydroxyzine	3	3						
1963i	56 y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1964ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hydrocodone	2	2						
		alprazolam	3	3						
1965h	56 y F	acetaminophen/hydrocodone	1	1	C	Ingst	Unt-T	2	acetaminophen (apap)	90 mcg/mL In Serum @ Unknown
		acetaminophen	2	2						
		metformin	3	3						
1966h	56 y M	salicylate	1	1	U	Unk	Unk	2	salicylate	124 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	480 mcg/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	0.07 mcg/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	0.09 mcg/mL In Blood (unspecified) @ Autopsy
1967ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
1968h	56 y F	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	81 mg/L In Serum @ 24 h (pe)
		diphenhydramine	2	2						
1969h	56 y M	acetaminophen	1	1	A	Ingst	Unt-T	3		
1970h	56 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	429 mg/L In Blood (unspecified) @ Unknown
		gabapentin	2	2						
		venlafaxine	3	3						
		clonazepam	4	4						
1971h	56 y M	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	39 mg/L In Serum @ Unknown
1972ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
1973	56 y M	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	3		
		clonazepam	2	2						
1974ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		cyclobenzaprine	3	3						
1975ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1976ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		amlodipine	2	2						
1977ai	56 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
1978h	56 y M	oxycodone	1	1	A	Ingst	Int-S	3		
1979ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		phentermine	2	2						
1980ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		gabapentin	3	3						
1981i	56 y F	fentanyl (prescription)	1	1	A/C	Unk	Int-A	2		
1982ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
1983ai	56 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		diazepam	3	3						
1984ai	57 y F	salicylate	1	1	U	Unk	Unk	1		
1985h	57 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-M	1	acetaminophen (apap)	60.2 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	66 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	25 mg/dL In Blood (unspecified) @ Unknown
1986pai	57 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
1987pai	57 y M	fentanyl (non-prescription)	1	1	A	Inhal	Int-A	1	fentanyl	0.005 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.3 mg/L In Blood (unspecified) @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time		
1988ai	57 y M	fentanyl analogs (despropionyl fentanyl)	3	3	U	Unk	Int-A	1				
		ethanol (beverage)	4	4							ethanol	0.02 % In Blood (unspecified) @ Autopsy
		ethanol (beverage)	4	4							ethanol	0.02 % In Vitreous @ Autopsy
1989ai	57 y M	methadone	1	1	U	Unk	Int-A	1				
		paroxetine	2	2								
		gabapentin	3	3								
1990h	57 y F	fentanyl (non-prescription)	1	1	A	Ingst	Int-S	3				
		methamphetamine	2	2								
1991i	57 y M	acetaminophen/hydrocodone	1	1	U	Unk	Int-A	2				
1992h	57 y M	fentanyl (prescription)	1	1	U	Ingst	Int-S	2				
1993ai	57 y M	acetaminophen/diphenhydramine	1	1	U	Unk	Int-A	1				
		fentanyl (non-prescription)	1	1								
		methamphetamine	2	2								
1994ai	57 y F	<i>Mitragyna speciosa korthals</i>	3	3	U	Unk	Int-A	1				
		fentanyl (non-prescription)	1	1								
		ethanol (beverage)	2	2								
1995	57 y F	acetaminophen	1	1	U	Ingst	Int-U	1	acetaminophen (apap)	350 mcg/mL In Blood (unspecified) @ Unknown		
1996ai	57 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1				
		methamphetamine	2	2								
		phencyclidine	3	3								
1997ai	57 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1				
		methamphetamine	2	2								
		methadone	3	3								
1998ph	57 y F	fentanyl (prescription)	1	1	U	Unk	Int-S	2				
1999ph	57 y F	morphine	1	1	A	Ingst	AR-D	2				
		oxycodone	2	2								
		digoxin	3	3							digoxin	2.9 ng/mL In Serum @ Unknown
2000ai	57 y F				U	Unk	Int-A	1				
2001ai	57 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1				
		methamphetamine	2	2								
2002i	57 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2				
		<i>Mitragyna speciosa korthals</i>	2	2								
		ethanol (beverage)	3	3								
2003h	57 y F	narcotic, N.O.S.	1	1	U	Ingst	Unk	2				
2004	57 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	252 mcg/mL In Serum @ Unknown		
		acetaminophen/diphenhydramine	1	1							acetaminophen (apap)	64 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2							salicylate	12 mg/L In Blood (unspecified) @ Unknown
2005i	58 y M	ethanol (beverage)	3	3	A	Inhal	Int-A	2		23 mg/dL In Blood (unspecified) @ Unknown		
2006pai	58 y M	heroin	1	1	A	Unk	Int-A	1	fentanyl	0.013 mg/L In Whole Blood @ Autopsy		
		fentanyl (non-prescription)	1	1								
		fentanyl analogs (despropionyl fentanyl)	2	2								
		ethanol (beverage)	3	3							ethanol	100 mg/dL In Blood (unspecified) @ Autopsy
		ethanol (beverage)	3	3							ethanol	110 mg/dL In Vitreous @ Autopsy
		ethanol (beverage)	3	3							ethanol	140 mg/dL In Urine (quantitative only) @ Autopsy
		ethanol (beverage)	3	3							ethanol	90 mg/dL In Blood (unspecified) @ Autopsy
		ethanol (beverage)	3	3							ethanol	90 mg/dL In Blood (unspecified) @ Unknown
quinine	4	4										
	5	5										

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2007ai	58 y M	heroin methamphetamine methadone	1 2 3	1 2 3	U	Unk	Int-A	1		
2008ha	58 y M	acetaminophen ethanol (beverage)	1 2	1 2	A/C	Ingst	Int-A	3		
2009i	58 y F	heroin	1	1	A/C	Par	Int-A	2		
2010h	58 y M	acetaminophen	1	1	U	Ingst	Int-U	3		
2011i	58 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2012a	58 y F	acetaminophen	1	1	A/C	Ingst	Unt-M	3	acetaminophen (apap)	83 mcg/mL In Blood (unspecified) @ Unknown
2013ai	58 y M	fentanyl (non-prescription) heroin methamphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
2014ha	58 y F	acetaminophen ethanol (beverage) salicylate	1 2 3	1 2 3	C	Ingst + Unk	Unt-M	1	acetaminophen (apap) ethanol salicylate	246.6 mcg/mL In Blood (unspecified) @ Unknown 44 mg/dL In Blood (unspecified) @ Unknown 1.8 mg/dL In Blood (unspecified) @ Unknown
2015ai	58 y F	acetaminophen	1	1	U	Unk	Unk	2		
2016ai	58 y F	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
2017i	58 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2018ai	58 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
2019ai	58 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
2020i	58 y M	fentanyl (prescription)	1	1	U	Par	Int-A	2		
2021ai	58 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
2022i	58 y F	heroin	1	1	U	Inhal	Int-A	2		
2023ai	58 y F	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
2024ai	58 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
2025ai	58 y M	fentanyl (non-prescription) methamphetamine cocaine	1 2 3	1 2 3	U	Unk	Int-A	1		
2026ai	58 y M	fentanyl (non-prescription) methamphetamine	1 2	1 2	U	Unk	Int-A	1		
2027ai	58 y M	fentanyl (non-prescription) methamphetamine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	2		
2028h	58 y F	oxycodone	1	1	A	Ingst	Int-S	2		
2029ai	58 y F	methadone nortriptyline quetiapine	1 2 3	1 2 3	U	Unk	Unk	1		
2030ai	58 y M	fentanyl (non-prescription) ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
2031ha	58 y F	acetaminophen viral disease (COVID-19-Confirmed)	1 2	1 2	C	Ingst	Unt-T	2	acetaminophen (apap)	94 mcg/mL In Blood (unspecified) @ Unknown
2032i	58 y F	oxycodone	1	1	A/C	Ingst	Int-U	2		
2033i	58 y M	fentanyl (non-prescription) fentanyl analog (acetylfentanyl) hydromorphone	1 2 3	1 2 3	U	Unk	Int-A	1		
2034	58 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	269 mcg/mL In Blood (unspecified) @ Unknown
2035ai	58 y F	benzodiazepine fentanyl (non-prescription) oxycodone alprazolam	2 1 2 3	2 1 2 3	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2036	58 y M	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	3		
		diazepam	2	2						
		ethanol (beverage)	3	3						
2037h	58 y F	acetaminophen	1	1	U	Ingst	Unt-T	2	acetaminophen (apap)	58.2 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	95.9 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/diphenhydramine	2	2						
2038i	58 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2039pai	58 y F	fentanyl (non-prescription)	1	1	A/C	Unk	Int-A	1		
		cocaine	2	2						
2040p	58 y M	methadone	1	1	A	Unk	Int-A	2		
2041ai	58 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
2042ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
2043ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		alprazolam	3	3						
2044ai	59 y F	acetaminophen	1	1	U	Unk	Unk	3		
2045h	59 y M	acetaminophen	1	1	C	Ingst	Unk	1		
2046ai	59 y M	oxycodone	1	1	U	Unk	Int-S	1		
		tramadol	2	2						
		trazodone	3	3						
2047ai	59 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		hydromorphone	2	2						
		methamphetamine	3	3						
2048h	59 y F	acetaminophen	1	1	A	Ingst+Unk	Unt-G	2	acetaminophen (apap)	25 mcg/mL In Blood (unspecified) @ Unknown
		amphetamine	2	2						
		acetaminophen/opioid	3	3						
2049h	59 y M	colchicine	1	1	C	Ingst	Unt-T	2		
2050ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		methamphetamine	3	3						
2051ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
2052i	59 y M	heroin	1	1	A/C	Unk	Int-A	2		
		cocaine	2	2						
2053	59 y M	acetaminophen	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	97 mcg/mL In Serum @ Unknown
2054i	59 y M	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		
2055h	59 y F	acetaminophen	1	1	U	Unk	Unk	3		
		drug, N.O.S.	2	2						
2056h	59 y M	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	162 mcg/mL In Serum @ Unknown
2057ai	59 y M	fentanyl (prescription)	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		methamphetamine	3	3						
2058ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
2059ai	59 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2060i	59 y M	acetaminophen/oxycodone	1	1	U	Unk	Int-A	2		
2061ai	59 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana	3	3						
2062i	59 y M	heroin	1	1	A/C	Par	Int-A	2		
2063ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		trazodone	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2064h	59 y F	acetaminophen	1	1	A	Ingst	Int-M	3	acetaminophen (apap)	34 mcg/mL In Blood (unspecified) @ 16.7 h (pe)
2065h	59 y F	acetaminophen	1	1	A	Ingst	Int-S	3		
2066ai	59 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		morphine	2	2						
		methadone	3	3						
2067h	59 y M	acetaminophen	1	1	A	Ingst	Int-S	2		
2068ha	59 y F	acetaminophen	1	1	A	Ingst	Unk	3	acetaminophen (apap)	97 mcg/mL In Blood (unspecified) @ Unknown
2069ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2070h	59 y F	acetaminophen	1	1	A	Ingst	Unt-M	2	acetaminophen (apap)	182 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/dextromethorphan/phenylephrine	2	2						
		dextromethorphan/guaifensin/pseudoephedrine	3	3						
2071	59 y M	acetaminophen	1	1	U	Ingst	Unk	2		
		primidone	2	2						
2072h	59 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	169 mcg/mL In Blood (unspecified) @ Unknown
2073ph	59 y M	ethanol (beverage)	2	2	U	Ingst + Derm	Unk	2		
		fentanyl (non-prescription)	1	1						
		hydrocarbon	2	2						
2074ai	59 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
2075ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2076i	60 y F	hydrocodone	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		lorazepam	3	3						
2077h	60 y M	methadone	1	1	U	Unk	Oth-W	3		
		ethanol (beverage)	2	2						
2078ai	60 y M	morphine	1	1	U	Unk	Int-A	1		
		lorazepam	2	2						
		tramadol	3	3						
2079ai	60 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
2080i	2 m U	fentanyl (prescription) drug, N.O.S.	1	1	A	Ingst	Unk	2		
			2	2						
2081i	60 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2082h	60 y F	acetaminophen	1	1	A	Ingst	Int-M	2	acetaminophen (apap)	61.2 mcg/mL In Blood (unspecified) @ Unknown
2083i	60 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2084h	60 y F	acetaminophen/butalbital/caffeine	1	1	A	Ingst	Int-S	1		
		omeprazole	2	2						
2085i	60 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2086ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	3		
2087ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		gamma-hydroxybutyric acid	2	2						
		methamphetamine	3	3						
		cocaine	4	4						
2088pha	60 y F	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	39.6 mcg/mL In Serum @ 24 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	56 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	69 mg/L In Blood (unspecified) @ 15 m (pe)
2089i	60 y M	narcotic, N.O.S.	1	1	A	Par	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2090ha	60 y F	oxycodone	1	1	U	Ingst	Int-S	1		
		gabapentin	2	2						
2091ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		morphine	2	2						
		methamphetamine	3	3						
2092zi	60 y M	fentanyl (non-prescription)	1	1	U	Inhal	Int-A	2		
		cocaine	2	2						
2093ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
2094hi	60 y F	acetaminophen	1	1	U	Ingst	Unk	3	acetaminophen (apap)	166 mcg/mL In Serum @ Unknown
2095sh	60 y M	salicylate	1	1	A	Ingst	Int-S	2	salicylate	109.5 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	5 mg/dL In Blood (unspecified) @ Unknown
2096ai	60 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		zolpidem	2	2						
2097ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	2	2						
		methamphetamine	3	3						
		viral disease (COVID-19-Confirmed)	4	4						
2098ai	60 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		morphine	2	2						
		methamphetamine	3	3						
2099ai	60 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2100i	60 y F	oxycodone	1	1	A	Ingst	Int-U	2		
2101ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2102ai	60 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
2103ai	61 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		gabapentin	2	2						
		marijuana, N.O.S.	3	3						
2104ai	61 y M	buprenorphine	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2105ai	61 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
2106ai	61 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
2107ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
2108	61 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	247 mcg/mL In Blood (unspecified) @ 4 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	247 mcg/mL In Blood (unspecified) @ Unknown
		phenobarbital	2	2					phenobarbital	31 mcg/mL In Blood (unspecified) @ 6 d (pe)
2109h	61 y M	acetaminophen	1	1	C	Ingst	Unt-T	2		
2110ai	61 y M	hydrocodone	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		venlafaxine	3	3						
2111ai	61 y F	methadone	1	1	U	Unk	Int-A	1		
		lamotrigine	2	2						
		marijuana	3	3						
2112	61 y F	acetaminophen	1	1	A/C	Ingst	Int-U	2	acetaminophen (apap)	53 mcg/mL In Blood (unspecified) @ Unknown
2113ai	61 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		gabapentin	3	3						
2114i	61 y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2115h	61 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	39 mcg/mL In Blood (unspecified) @ 5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	55 mcg/mL In Blood (unspecified) @ 2 h (pe)
2116ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
2117ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
2118ha	61 y M				U	Ingst + Derm + Unk	Int-S	1		
		narcotic, N.O.S.	1	1					oxycodone (free)	150 ng/mL In Blood (unspecified) @ Unknown
		narcotic, N.O.S.	1	1					hydrocodone (free)	96 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	2	2					lorazepam	29 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	2	2					diazepam	89 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription) (TD)	3	3						
2119ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		marijuana, N.O.S.	3	3						
2120	61 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	361 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
2121ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		gabapentin	2	2						
		marijuana, N.O.S.	3	3						
2122i	61 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2123i	61 y M	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		
2124h	61 y M	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	29 mcg/mL In Serum @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	82 mcg/mL In Serum @ Unknown
2125ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
2126ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
2127ai	61 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		citalopram	3	3						
2128h	61 y M	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	116 mcg/mL In Blood (unspecified) @ Unknown
2129	61 y M	acetaminophen	1	1	A	Ingst	Int-U	2	acetaminophen (apap)	50 mcg/mL In Blood (unspecified) @ Unknown
2130ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2131ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
2132h	61 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	28.8 mcg/mL In Serum @ Unknown
		baclofen	2	2						
2133ai	61 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
2134i	61 y M	narcotic, N.O.S.	1	1	U	Par	Int-A	2		
2135	61 y M	acetaminophen drug, N.O.S.	1	1	U	Unk	Unk	3		
			2	2						
2136i	61 y F	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2137h	62 y F	acetaminophen	1	1	U	Ingst	Int-U	3	acetaminophen (apap)	108 mcg/mL In Serum @ Unknown
		ethanol (beverage)	2	2					ethanol	93 mg/dL In Serum @ Unknown
2138ai	62 y M	hydrocodone	1	1	U	Unk	Int-A	3		
2139ai	62 y F	heroin	1	1	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time																																																																																																																																																																																																																																																																																																																																																																								
2140h	62 y F	methamphetamine	2	2	U	Ingst	Int-U	1	acetaminophen (apap)	128 mcg/mL In Blood (unspecified) @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
		gabapentin	3	3							2141ai	62 y F	acetaminophen	1	1	U	Unk	Int-S	1			oxycodone	1	1	ethanol (beverage)	2	2	carbamazepine	3	3	diphenhydramine	4	4	2142h	62 y M	promethazine	5	5	C	Ingst	Unk	3			acetaminophen	1	1	ethanol (beverage)	2	2	methamphetamine	3	3	2143ai	62 y M	acetaminophen	1	1	U	Unk	Int-A	2			methamphetamine	2	2	2144ai	62 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1			ibuprofen	2	2	ethanol (beverage)	3	3	2145h	62 y M	acetaminophen	1	1	C	Ingst	Unt-M	3	acetaminophen (apap)	59 mcg/mL In Blood (unspecified) @ Unknown				2146ai	62 y M	acetaminophen	1	1	U	Unk	Int-A	2			ethanol (beverage)	2	2	2147i	62 y F	acetaminophen	1	1	A	Ingst + Unk	Unk	2			narcotic, N.O.S.	2	2	cocaine	3	3	2148ha	62 y F	ethanol (beverage)	3	3	C	Ingst	Unt-T	3	acetaminophen (apap)	102 mcg/mL In Blood (unspecified) @ Unknown	acetaminophen	1	1	2149ai	62 y M	acetaminophen	1	1	U	Unk	Int-A	1			fentanyl (non-prescription)	1	1	methamphetamine	2	2	2150i	62 y M	marijuana, N.O.S.	3	3	U	Par + Unk	Int-U	2			fentanyl (prescription)	1	1	2151i	62 y M	drug, N.O.S.	2	2	U	Unk	Int-A	2			narcotic, N.O.S.	1	1	2152h	62 y F	acetaminophen	1	1	U	Ingst	Int-M	3	acetaminophen (apap)	27 mg/L In Serum @ Unknown	acetaminophen	1	1	2153ai	62 y M	acetaminophen	1	1	U	Ingst + Unk	Int-A	1	acetaminophen (apap)	80 mg/L In Serum @ Unknown	oxycodone	1	1	2154	63 y M	ethanol (beverage)	2	2	A	Ingst	Int-S	2			oxycodone	1	1	2155pha	63 y F	acetaminophen	1	1	A	Inhal	Int-A	2			fentanyl (prescription)	1	1	2156ph	63 y M	acetaminophen	1	1	A	Ingst	Unk	3	acetaminophen (apap)	77 mcg/mL In Serum @ Unknown				2157h	63 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	755 mcg/mL In Blood (unspecified) @ Unknown				2158ai	63 y M	acetaminophen	1	1	U	Unk	Int-S	1			oxycodone	1	1	carisoprodol	2	2	2159i	63 y F	diphenhydramine	3	3	A/C	Unk	Int-A	2			narcotic, N.O.S.	1	1	2160ph	63 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	115 mcg/mL In Blood (unspecified) @ Unknown				2161ai	63 y M	oxycodone	2	2	U	Unk	Int-A	2			hydrochlorothiazide	3	3	fentanyl (non-prescription)	1	1	2162i	63 y M	oxycodone	2	2	U	Par	Int-A	2						2163	63 y F	narcotic, N.O.S.	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	146 mg/L In Serum @ Unknown	acetaminophen	1	1	acetaminophen	1	1	acetaminophen	1	1		
2141ai	62 y F	acetaminophen	1	1	U	Unk	Int-S	1																																																																																																																																																																																																																																																																																																																																																																										
		oxycodone	1	1																																																																																																																																																																																																																																																																																																																																																																														
		ethanol (beverage)	2	2																																																																																																																																																																																																																																																																																																																																																																														
		carbamazepine	3	3																																																																																																																																																																																																																																																																																																																																																																														
		diphenhydramine	4	4																																																																																																																																																																																																																																																																																																																																																																														
2142h	62 y M	promethazine	5	5	C	Ingst	Unk	3																																																																																																																																																																																																																																																																																																																																																																										
		acetaminophen	1	1																																																																																																																																																																																																																																																																																																																																																																														
		ethanol (beverage)	2	2																																																																																																																																																																																																																																																																																																																																																																														
		methamphetamine	3	3																																																																																																																																																																																																																																																																																																																																																																														
2143ai	62 y M	acetaminophen	1	1	U	Unk	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
		methamphetamine	2	2																																																																																																																																																																																																																																																																																																																																																																														
2144ai	62 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1																																																																																																																																																																																																																																																																																																																																																																										
		ibuprofen	2	2																																																																																																																																																																																																																																																																																																																																																																														
		ethanol (beverage)	3	3																																																																																																																																																																																																																																																																																																																																																																														
2145h	62 y M	acetaminophen	1	1	C	Ingst	Unt-M	3	acetaminophen (apap)	59 mcg/mL In Blood (unspecified) @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
2146ai	62 y M	acetaminophen	1	1	U	Unk	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
		ethanol (beverage)	2	2																																																																																																																																																																																																																																																																																																																																																																														
2147i	62 y F	acetaminophen	1	1	A	Ingst + Unk	Unk	2																																																																																																																																																																																																																																																																																																																																																																										
		narcotic, N.O.S.	2	2																																																																																																																																																																																																																																																																																																																																																																														
		cocaine	3	3																																																																																																																																																																																																																																																																																																																																																																														
2148ha	62 y F	ethanol (beverage)	3	3	C	Ingst	Unt-T	3	acetaminophen (apap)	102 mcg/mL In Blood (unspecified) @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
		acetaminophen	1	1																																																																																																																																																																																																																																																																																																																																																																														
2149ai	62 y M	acetaminophen	1	1	U	Unk	Int-A	1																																																																																																																																																																																																																																																																																																																																																																										
		fentanyl (non-prescription)	1	1																																																																																																																																																																																																																																																																																																																																																																														
		methamphetamine	2	2																																																																																																																																																																																																																																																																																																																																																																														
2150i	62 y M	marijuana, N.O.S.	3	3	U	Par + Unk	Int-U	2																																																																																																																																																																																																																																																																																																																																																																										
		fentanyl (prescription)	1	1																																																																																																																																																																																																																																																																																																																																																																														
2151i	62 y M	drug, N.O.S.	2	2	U	Unk	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
		narcotic, N.O.S.	1	1																																																																																																																																																																																																																																																																																																																																																																														
2152h	62 y F	acetaminophen	1	1	U	Ingst	Int-M	3	acetaminophen (apap)	27 mg/L In Serum @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
		acetaminophen	1	1																																																																																																																																																																																																																																																																																																																																																																														
2153ai	62 y M	acetaminophen	1	1	U	Ingst + Unk	Int-A	1	acetaminophen (apap)	80 mg/L In Serum @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
		oxycodone	1	1																																																																																																																																																																																																																																																																																																																																																																														
2154	63 y M	ethanol (beverage)	2	2	A	Ingst	Int-S	2																																																																																																																																																																																																																																																																																																																																																																										
		oxycodone	1	1																																																																																																																																																																																																																																																																																																																																																																														
2155pha	63 y F	acetaminophen	1	1	A	Inhal	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
		fentanyl (prescription)	1	1																																																																																																																																																																																																																																																																																																																																																																														
2156ph	63 y M	acetaminophen	1	1	A	Ingst	Unk	3	acetaminophen (apap)	77 mcg/mL In Serum @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
2157h	63 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	755 mcg/mL In Blood (unspecified) @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
2158ai	63 y M	acetaminophen	1	1	U	Unk	Int-S	1																																																																																																																																																																																																																																																																																																																																																																										
		oxycodone	1	1																																																																																																																																																																																																																																																																																																																																																																														
		carisoprodol	2	2																																																																																																																																																																																																																																																																																																																																																																														
2159i	63 y F	diphenhydramine	3	3	A/C	Unk	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
		narcotic, N.O.S.	1	1																																																																																																																																																																																																																																																																																																																																																																														
2160ph	63 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	115 mcg/mL In Blood (unspecified) @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
2161ai	63 y M	oxycodone	2	2	U	Unk	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
		hydrochlorothiazide	3	3																																																																																																																																																																																																																																																																																																																																																																														
		fentanyl (non-prescription)	1	1																																																																																																																																																																																																																																																																																																																																																																														
2162i	63 y M	oxycodone	2	2	U	Par	Int-A	2																																																																																																																																																																																																																																																																																																																																																																										
2163	63 y F	narcotic, N.O.S.	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	146 mg/L In Serum @ Unknown																																																																																																																																																																																																																																																																																																																																																																								
		acetaminophen	1	1																																																																																																																																																																																																																																																																																																																																																																														
		acetaminophen	1	1																																																																																																																																																																																																																																																																																																																																																																														
		acetaminophen	1	1																																																																																																																																																																																																																																																																																																																																																																														
		nortriptyline	2	2					297 mg/L In Serum @ Unknown																																																																																																																																																																																																																																																																																																																																																																									

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2164	63 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	103.2 mg/L In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	426 mg/L In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	51.3 mg/L In Serum @ Unknown
2165pha	63 y F	fentanyl (prescription)	1	1	A	Unk	Int-U	1	norfentanyl	2.2 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					fentanyl	23 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	27 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	3	3					clonazepam	2.6 ng/mL In Blood (unspecified) @ Unknown
		cocaine	4	4					benzoylceognine	180 ng/mL In Blood (unspecified) @ Unknown
		sertraline thioridazine	5 6	5 6						
2166i	63 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2167h	63 y M	acetaminophen	1	1	A	Ingst	Int-M	3	acetaminophen (apap)	165 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	235.7 mcg/mL In Serum @ Unknown
2168	63 y F	acetaminophen/hydrocodone	1	1	C	Ingst	Int-M	3		
		acetaminophen	2	2					acetaminophen (apap)	52.5 mcg/mL In Blood (unspecified) @ Unknown
2169	63 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	626 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	245 mg/dL In Blood (unspecified) @ Unknown
2170ai	63 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		paroxetine	3	3						
2171ai	63 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		xylazine	3	3						
2172h	64 y M	acetaminophen/hydrocodone	1	1	U	Ingst	Unk	1	acetaminophen (apap)	48 mcg/mL In Blood (unspecified) @ Unknown
2173ai	64 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cyclobenzaprine	3	3						
2174h	64 y M	acetaminophen	1	1	A	Ingst	Unk	2	acetaminophen (apap)	18.1 mcg/mL In Serum @ Unknown
2175ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		bupropion	3	3						
2176ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
2177i	64 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2178ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		morphine	2	2						
		duloxetine	3	3						
2179ai	64 y F	oxycodone	1	1	U	Unk	Int-M	1		
		oxymorphone	2	2						
		hydrocodone	3	3						
		tramadol	4	4						
2180ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		amlodipine	3	3						
2181i	64 y M	oxycodone	1	1	A	Ingst	Int-A	2		
2182ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
2183ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		xylazine	2	2						
2184ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2185ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		morphine	2	2						
		hydromorphone	3	3						
2186ha	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		fentanyl analogs (despropionyl fentanyl)	3	3						
2187ai	64 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
2188ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
2189h	64 y M	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	105 mcg/mL In Serum @ Unknown
		rivaroxaban	2	2						
		thiamine	3	3						
		ondansetron	4	4						
		metoprolol	5	5						
		pantoprazole (ER)	6	6						
		meclizine	7	7						
		gabapentin	8	8						
		furosemide	9	9						
		albuterol	10	10						
		atorvastatin	11	11						
		potassium salts	12	12						
		salicylate	13	13						
2190ai	64 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
		gabapentin	3	3						
2191h	64 y M	salicylate	1	1	C	Ingst	Unk	3	salicylate	30.5 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	32.3 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	35.6 mg/dL In Serum @ Unknown
2192ai	64 y M	ethanol (beverage)	2	2	U	Unk	Int-A	1		
2193h	64 y F	heroin	1	1	C	Ingst	Int-M	2		
2194ai	64 y M	acetaminophen	1	1	U	Unk	Int-A	1	acetaminophen (apap)	42 mg/L In Blood (unspecified) @ Unknown
		methadone	1	1						
		oxycodone	2	2						
		ethanol (beverage)	3	3						
2195ha	65 y F	acetaminophen	1	1	U	Ingst	Unt-M	1	acetaminophen (apap)	322.5 mcg/mL In Blood (unspecified) @ Unknown
2196ai	65 y F	oxycodone	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		cyclobenzaprine	3	3						
2197p	65 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	126 mcg/mL In Blood (unspecified) @ Unknown
2198ai	65 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		doxepin	2	2						
		duloxetine	3	3						
2199h	65 y M	salicylate	1	1	A	Ingst	Int-S	1	salicylate	66.4 mg/dL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
2200i	65 y M	heroin	1	1	U	Unk	Int-A	2		
2201ai	65 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-M	1		
		methamphetamine	2	2						
		cocaine	3	3						
2202ai	65 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
		trazodone	4	4						
		gabapentin	5	5						
		bupropion	6	6						
		fluoxetine	7	7						
		aripiprazole	8	8						
2203ai	65 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		hyperthermia	3	3						

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Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2204pha	65 y M	acetaminophen	1	1	U	Unk	Unk	2	acetaminophen (apap)	42 mg/mL In Blood (unspecified) @ Unknown
2205i	65 y M	fentanyl (prescription)	1	1	A	Unk	Unk	2		
2206h	65 y F	acetaminophen	1	1	A/C	Ingst	Int-U	3	acetaminophen (apap)	12 mcg/mL In Blood (unspecified) @ 2 h (pe)
2207ai	65 y M	oxycodone	1	1	U	Unk	Int-U	3		
2208i	65 y F	duloxetine	2	2	U	Unk	Int-A	1		
		tapentadol	1	1						
		promethazine	2	2						
2209i	65 y M	gabapentin	3	3	U	Inhal	Int-A	2		
		heroin	1	1						
2210h	65 y M	colchicine	1	1	A/C	Ingst	Int-S	2		
		atenolol	2	2						
		acetaminophen	3	3						
		trazodone	4	4						
		nitroglycerin	5	5						
		tramadol	6	6						
		tizanidine	7	7						
2211ai	65 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2212h	66 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Unk	3		
		morphine (ER)	2	2						
2213h	66 y M	acetaminophen	1	1	U	Ingst	Unk	3	acetaminophen (apap)	48.9 mcg/mL In Blood (unspecified) @ Unknown
2214ai	66 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2215i	66 y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2216hi	66 y M	colchicine	1	1	C	Ingst	Unt-T	3		
2217ha	66 y F	salicylate	1	1	U	Ingst	Unk	1	salicylate	38.3 mg/dL In Blood (unspecified) @ Unknown
2218ai	66 y F	salicylate	1	1	U	Unk	Unt-M	1		
2219ai	66 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
2220h	66 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	13 mcg/mL In Serum @ Unknown
2221h	66 y M	alprazolam	2	2	C	Ingst	Int-M	2	acetaminophen (apap)	36 mcg/mL In Blood (unspecified) @ 33 h (pe)
		acetaminophen	1	1						
		acetaminophen	1	1						
		acetaminophen	1	1						
2222ph	66 y M	heroin	1	1	A/C	Par	Int-A	2		
2223i	66 y F	narcotic, N.O.S.	1	1	A/C	Unk	Unk	2		
		cocaine	2	2						
2224ai	66 y M	fentanyl (non-prescription)	1	1	U	Unk	Unk	2		
		methamphetamine	2	2						
2225i	66 y M	narcotic, N.O.S.	1	1	A	Unk	Int-A	2		
2226i	66 y M	narcotic, N.O.S.	1	1	A	Par + Unk	Int-A	2		
2227i	66 y F	oxycodone	1	1	A/C	Unk	Unk	2		
2228i	66 y M	heroin	1	1	A/C	Unk	Int-A	2		
2229h	66 y M	salicylate (EC)	1	1	C	Ingst	Unt-T	3	salicylate	10 mg/dL In Blood (unspecified) @ 33 h (pe)
		salicylate (EC)	1	1						
		salicylate (EC)	1	1						
		salicylate (EC)	1	1						
		salicylate (EC)	1	1						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2230ai	66 y M	salicylate (EC)	1	1	U	Unk	Int-A	1	salicylate	85 mg/dL In Blood (unspecified) @ 7 h (pe)
		salicylate (EC)	1	1					salicylate	93 mg/dL In Blood (unspecified) @ 2 h (pe)
		salicylate (EC)	1	1					salicylate	94 mg/dL In Blood (unspecified) @ 0 h (pe)
2231ai	66 y F	oxycodone	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
		gabapentin	3	3						
2232ai	66 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol (beverage)	3	3						
2233ai	66 y F	fentanyl (non-prescription)	1	1	U	Unk	Unk	1		
		methadone	2	2						
		oxycodone	3	3						
2234ha	66 y U	oxycodone	1	1	U	Ingst	Int-M	2		
		doxepin	2	2						
		fluoxetine	3	3						
2235h	67 y F	acetaminophen	1	1					acetaminophen (apap)	177 mcg/mL In Blood (unspecified) @ Unknown
2236pha	67 y M	acetaminophen/codeine	1	1	U	Ingst + Derm + Par	Int-A	3		
		fentanyl (prescription)	1	1					norfentanyl	0.6 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					fentanyl	0.7 ng/mL In Blood (unspecified) @ Unknown
2237ai	67 y F	heroin	2	1	U	Unk	Int-S	1	morphine	206 ng/mL In Blood (unspecified) @ Unknown
		heroin	2	1					6-mam (6-monoacetylmorphine)	8.4 ng/mL In Blood (unspecified) @ Unknown
		methadone	3	3					methadone	607 ng/mL In Blood (unspecified) @ Unknown
2238h	67 y M	methadone	3	3	C	Ingst	Unt-T	3	eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	92 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	4	4					methamphetamine	467 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	4	4					amphetamine	52.6 ng/mL In Blood (unspecified) @ Unknown
2239ai	67 y M	acetaminophen	2	1	U	Unk	Int-A	1		
		acetaminophen/hydrocodone	1	2					acetaminophen (apap)	14 mcg/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1						
2240h	67 y M	acetaminophen	1	1	A/C	Ingst	Unt-M	2		
2241i	67 y M	acetaminophen	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		gabapentin	2	2						
2242ai	67 y M	ethanol (beverage)	3	3	U	Unk	Int-A	1		
		fentanyl (non-prescription)	1	1						
		methamphetamine	2	2						
2243h	67 y F	ethanol (beverage)	3	3	U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	180.3 mcg/mL In Blood (unspecified) @ 15 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	379.8 mcg/mL In Blood (unspecified) @ 1 h (pe)
2244ai	67 y M	acetaminophen	1	1	U	Unk	Int-A	1		
2245h	67 y F	fentanyl (non-prescription)	1	1	A/C	Ingst	Unt-U	2		
		methamphetamine	2	2						
		acetaminophen	1	1					acetaminophen (apap)	77.7 mg/L In Plasma @ 10 h (pe)
2246	67 y F	acetaminophen	1	1	C	Ingst	Unk	3		
2247h	67 y M	acetaminophen	1	1	U	Ingst	Unt-T	1		
		acetaminophen	1	1					acetaminophen (apap)	107 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	12.1 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	3	3					ethanol	79.5 mg/dL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2248h	68 y F	acetaminophen	2	1	U	Ingst	Int-S	1	acetaminophen (apap)	314 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/diphenhydramine	1	1					diphenhydramine	2100 ng/mL In Blood (unspecified) @ Unknown
2249h	68 y M	salicylate	1	1	U	Ingst	Unt-M	2	salicylate	67.7 mg/dL In Serum @ Unknown
2250i	68 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2251h	68 y F	acetaminophen	1	1	C	Ingst	Int-S	1	acetaminophen (apap)	200.2 mcg/mL In Blood (unspecified) @ Unknown
2252	68 y M	acetaminophen	1	1	C	Ingst	Unk	3	acetaminophen (apap)	28.5 mcg/mL In Blood (unspecified) @ Unknown
2253ha	68 y F	acetaminophen	1	1	A/C	Ingst	Int-S	3	acetaminophen (apap)	18 mcg/mL In Blood (unspecified) @ 18 h (pe)
2254	68 y F	oxycodone	1	1	U	Ingst	Unk	2		
		nifedipine (ER)	2	2						
		carvedilol	3	3						
		hydralazine	4	4						
2255ai	68 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		marijuana	3	3						
2256h	68 y M	morphine	1	1	A/C	Ingst	Int-S	2		
		trazodone	2	2						
2257ha	68 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-U	2	acetaminophen (apap)	30 mcg/mL In Blood (unspecified) @ Unknown
2258a	68 y F	methadone	1	1	U	Unk	Unk	1	methadone	0.1 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.2 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2						
		citalopram	3	3					citalopram	0.9 mg/L In Blood (unspecified) @ Autopsy
		citalopram	3	3					citalopram	1.7 mg/L In Blood (unspecified) @ Autopsy
2259i	68 y M	fentanyl (prescription)	1	1	A	Par	Unt-T	2		
2260	68 y F	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	167 mcg/mL In Blood (unspecified) @ Unknown
2261pai	68 y M	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	2		
2262i	68 y M	narcotic, N.O.S.	1	1	A/C	Inhal	Int-A	2		
2263ph	68 y M	acetaminophen	1	1	A	Ingst	Int-U	3	acetaminophen (apap)	34.7 mcg/mL In Serum @ Unknown
		ethanol (beverage)	2	2					ethanol	295 mg/dL In Blood (unspecified) @ Unknown
2264p	68 y F	oxycodone	1	1	A	Ingst	Unk	3		
2265pai	68 y M	fentanyl (non-prescription)	1	1	A/C	Unk	Int-A	1		
		cocaine	2	2						
2266ai	68 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		trazodone	2	2						
		gabapentin	3	3						
2267ai	69 y M	heroin	1	1	U	Unk	Int-A	1		
		gabapentin	2	2						
		ethanol (beverage)	3	3						
2268ai	69 y M	morphine	1	1	U	Unk	Int-A	1		
		acetaminophen/hydrocodone	2	2						
		gabapentin	3	3						
2269i	69 y M	methadone	1	1	U	Unk	Int-M	2		
		gabapentin	2	2						
		diphenhydramine	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2270ai	69 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	3		
		heroin	2	2						
		methamphetamine	3	3						
2271ai	69 y M	morphine	1	1	U	Unk	Int-A	2		
		methadone	2	2						
		methamphetamine	3	3						
2272ha	69 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1	fentanyl	0.81 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	1	1					norfentanyl	2.3 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	38 mcg/mL In Plasma @ Unknown
		diphenhydramine	3	3					diphenhydramine	870 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	4	4					gabapentin	6.4 mcg/mL In Blood (unspecified) @ Unknown
2273ai	70 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	2		
		diazepam	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
2274ai	70 y F	oxycodone	1	1	U	Unk	Int-S	3		
2275ai	70 y M	oxycodone	1	1	U	Unk	Unk	1		
		zolpidem	2	2						
		tramadol	3	3						
		mirtazapine	4	4						
		dextromethorphan	5	5						
2276ai	70 y M	oxycodone	1	1	U	Unk	Int-S	1		
2277	70 y F	salicylate (EC)	1	1	A	Ingst	Unt-G	1	salicylate	124 mg/dL In Serum @ Unknown
2278h	70 y M	colchicine	1	1	A/C	Ingst	Unt-T	2		
2279	71 y F	tramadol	1	1	A/C	Ingst	Int-M	3		
2280ai	71 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		metoprolol	2	2						
2281ai	71 y M	oxycodone	1	1	U	Unk	Int-A	3		
		hyperthermia	2	2						
2282ai	71 y F	heroin	1	1	U	Unk	Int-A	1		
2283h	71 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	451 mcg/mL In Blood (unspecified) @ Unknown
		calcium antagonist	2	2						
		hydralazine	3	3						
		angiotensin receptor blocker, N.O.S.	4	4						
2284phi	71 y F	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	59 mcg/mL In Serum @ Unknown
2285h	71 y F	acetaminophen	1	1	C	Ingst	Int-M	2		
2286h	71 y M	salicylate	1	1	C	Ingst	Int-M	2	salicylate	59 mg/dL In Blood (unspecified) @ Unknown
2287h	71 y F	acetaminophen/hydrocodone	1	1	C	Ingst	Int-M	3	acetaminophen (apap)	55 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
2288ph	71 y F	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	219 mcg/mL In Blood (unspecified) @ Unknown
		methocarbamol	2	2						
		ethanol (beverage)	3	3					ethanol	148 mg/dL In Blood (unspecified) @ Unknown
2289i	72 y M	oxycodone	1	1	A	Ingst	Int-U	2		
2290h	72 y F	acetaminophen	1	1	A	Ingst	Int-S	2		
		camphor/eucalyptus/menthol	2	2						
2291h	72 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-U	3	acetaminophen (apap)	202 mcg/mL In Serum @ Unknown
2292h	72 y M	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	56 mcg/mL In Blood (unspecified) @ Unknown
2293	72 y M	acetaminophen/codeine	1	1	U	Ingst	Unk	2	acetaminophen (apap)	294.2 mcg/mL In Serum @ Unknown
		salicylate	2	2					salicylate	19.6 mg/mL In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2294h	72 y F	acetaminophen	1	1	A	Ingst	Unt-G	2	acetaminophen (apap)	46 mcg/mL In Blood (unspecified) @ Unknown
2295h	72 y F	ethanol (beverage)	2	2	C	Ingst	Unt-G	2	acetaminophen (apap)	50.6 mcg/mL In Blood (unspecified) @ Unknown
2296ai	72 y M	acetaminophen	1	1	U	Unk	Unt-M	1		
		oxycodone	1	1						
		metoprolol	2	2						
		loperamide	3	3						
2297h	73 y M	tramadol	1	1	C	Ingst	Unt-T	2		
2298h	73 y M	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	38 mcg/mL In Serum @ Unknown
		oxycodone	2	2						
		alprazolam	3	3						
2299pha	73 y M	oxycodone	1	1	A	Ingst	Int-S	1	oxycodone	410 ng/mL In Blood (unspecified) @ Unknown
		diazepam	2	2					diazepam	330 ng/mL In Blood (unspecified) @ Unknown
		quetiapine	3	3						
2300h	73 y M	acetaminophen	1	1	U	Ingst	Int-S	2		
2301h	73 y F	acetaminophen	1	1	C	Ingst	Unt-M	2	acetaminophen (apap)	116 mcg/mL In Blood (unspecified) @ Unknown
2302	73 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Unt-U	2	acetaminophen (apap)	50 mcg/mL In Serum @ Unknown
2303	73 y F	tramadol	1	1	A	Ingst	Int-S	2		
		gabapentin	2	2						
		drug, N.O.S.	3	3						
		ethanol (beverage)	4	4						
		acetaminophen	5	5					acetaminophen (apap)	196 mcg/mL In Blood (unspecified) @ Unknown
2304h	73 y F	acetaminophen	3	1	U	Ingst	Int-S	2	acetaminophen (apap)	116 mcg/mL In Blood (unspecified) @ Unknown
		diphenhydramine	2	2						
		hydroxyzine	1	3						
		nonsteroidal antiinflammatory drug, N.O.S.	4	4						
		antacid (proton pump inhibitor)	5	5						
2305h	74 y M	acetaminophen	1	1	C	Ingst	Int-M	3	acetaminophen (apap)	10 mcg/mL In Serum @ 4 h (pe)
2306ai	74 y F	acetaminophen/codeine	1	1	U	Unk	Unk	3		
2307h	74 y M	salicylate	2	1	A/C	Ingst	Int-S	1	salicylate	52.5 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	1	2					acetaminophen (apap)	200 mcg/mL In Blood (unspecified) @ Unknown
		metoprolol	3	3						
		rosuvastatin	4	4						
		furosemide	5	5						
		tamsulosin	6	6						
		clopidogrel	7	7						
		cleaner (alkali)	8	8						
		cleaner (alkali)	9	9						
		disinfectant (isopropanol/pine oil)	10	10						
		cleaner (household)	11	11						
		hypochlorite	12	12						
		ethanol (beverage)	13	13					ethanol	242 mg/dL In Blood (unspecified) @ Unknown
2308ai	74 y M	fentanyl (non-prescription)	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
2309h	75 y M	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	300 mcg/mL In Blood (unspecified) @ Unknown
		duloxetine	2	2						
2310ha	75 y M	acetaminophen	1	1	C	Ingst	Unt-M	1	acetaminophen (apap)	204.9 mcg/mL In Serum @ Unknown
2311h	75 y M	acetaminophen	1	1	C	Ingst	Int-M	3		
2312ha	75 y M	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	17 mcg/mL In Serum @ 25 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	58 mcg/mL In Serum @ 4 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	86 mcg/mL In Serum @ 5 m (pe)

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2313h	75 y F	hydrocodone	2	2	U	Ingst	Int-S	2	hydrocodone	0.38 mg/L In Blood (unspecified) @ 5 m (pe)
		oxycodone	3	3					oxymorphone	0.011 mg/L In Blood (unspecified) @ 5 m (pe)
		oxycodone	3	3					oxycodone	1 mg/L In Blood (unspecified) @ 5 m (pe)
		ethanol (beverage)	4	4					ethanol	40 mg/dL In Serum @ 5 m (pe)
2314h	75 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	205 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					acetaminophen (apap)	6.8 mcg/mL In Blood (unspecified) @ Unknown
2315h	75 y F	acetaminophen/hydrocodone	1	1	U	Ingst	Int-U	2	acetaminophen (apap)	342 mcg/mL In Serum @ 2 d (pe)
		sodium azide	2	2					acetaminophen (apap)	36 mcg/mL In Serum @ Unknown
2316ph	75 y M	acetaminophen	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	71 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	36 mcg/mL In Serum @ Unknown
2317h	76 y F	acetaminophen/oxycodone	1	1	C	Ingst	Int-U	3	acetaminophen (apap)	30.7 mg/dL In Serum @ 7 h (pe)
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	38 mg/dL In Serum @ 5 h (pe)
2318h	76 y M	salicylate	1	1	U	Ingst	Unk	3	salicylate	41 mg/dL In Serum @ 1 h (pe)
		salicylate	1	1					salicylate	8.2 mg/dL In Serum @ 48 h (pe)
		salicylate	1	1					salicylate	
		salicylate	1	1					salicylate	
2319h	76 y F	warfarin	2	2	C	Ingst	Int-S	3	acetaminophen (apap)	28.4 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	451.9 mcg/mL In Serum @ Unknown
2320i	76 y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2	acetaminophen (apap)	370 mcg/mL In Blood (unspecified) @ Autopsy
2321i	76 y M	acetaminophen	1	1	U	Ingst	AR-D	2	acetaminophen (apap)	200 ng/mL In Blood (unspecified) @ Autopsy
2322h	76 y F	oxycodone	1	1	U	Ingst	Unk	2	clonazepam	91 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen	1	1					diphenhydramine	690 ng/mL In Blood (unspecified) @ Autopsy
2323	77 y F	ethanol (denatured)	2	2	U	Ingst	Unk	2	acetaminophen (apap)	261 mcg/mL In Blood (unspecified) @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	319 mcg/mL In Serum @ 1 d (pe)
2324ha	77 y M	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	51.7 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	732.1 mcg/mL In Blood (unspecified) @ Unknown
2325ha	77 y M	acetaminophen	1	1	A	Ingst+Unk	Int-S	1	acetaminophen (apap)	0.41 ng/mL In Blood (unspecified) @ Unknown
		ibuprofen	2	2					fentanyl	1.4 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	3	3						
		clonazepam	3	3						
2326ai	77 y M	diphenhydramine	4	4	U	Unk	Int-S	1	acetaminophen (apap)	1800 ng/mL In Whole Blood @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	8500 ng/mL In Whole Blood @ 1 d (pe)
2327h	78 y M	acetaminophen	1	1	A	Ingst	Unk	2	acetaminophen (apap)	37 mcg/mL In Serum @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	64 mcg/mL In Serum @ Unknown
2328	78 y F	acetaminophen (ER)	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	64 mcg/mL In Serum @ Unknown
		acetaminophen (ER)	1	1					acetaminophen (apap)	64 mcg/mL In Serum @ Unknown
2329ai	78 y F	acetaminophen (ER)	1	1	U	Unk	Int-S	1	acetaminophen (apap)	732.1 mcg/mL In Blood (unspecified) @ Unknown
2330ha	78 y M	oxycodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	732.1 mcg/mL In Blood (unspecified) @ Unknown
		marijuana	2	2					acetaminophen (apap)	732.1 mcg/mL In Blood (unspecified) @ Unknown
2331h	78 y M	tramadol	1	1	U	Ingst	Int-S	2	o-desmethyltramadol	1800 ng/mL In Whole Blood @ 1 d (pe)
		tramadol	1	1					tramadol	8500 ng/mL In Whole Blood @ 1 d (pe)
2332ha	79 y F	acetaminophen	1	1	U	Unk	Int-S	1	acetaminophen (apap)	37 mcg/mL In Serum @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	64 mcg/mL In Serum @ Unknown
		metformin	2	2						
		ethanol (beverage)	3	3						
2332ha	79 y F	acetaminophen	1	1	U	Unk	Int-S	1	acetaminophen (apap)	732.1 mcg/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	2					norfentanyl	0.41 ng/mL In Blood (unspecified) @ Unknown
2332ha	79 y F	fentanyl (prescription)	2	2	U	Unk	Int-S	1	fentanyl	1.4 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	2					fentanyl	1.4 ng/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2333h	79 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	87 mcg/mL In Blood (unspecified) @ Unknown
2334ph	79 y M	acetaminophen/hydrocodone	1	1	A	Ingst	Unt-G	2	acetaminophen (apap)	136 mcg/mL In Serum @ Unknown
2335h	79 y F	tramadol	1	1	A/C	Ingst	Int-S	2		
2336h	79 y M	acetaminophen	1	1	A/C	Ingst	Int-U	2	acetaminophen (apap)	346 mcg/mL In Serum @ Unknown
2337	79 y F	salicylate	1	1	A	Ingst	Unt-U	3		
2338	79 y F	acetaminophen	1	1	C	Ingst	Unt-T	2	acetaminophen (apap)	139 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	70 mg/dL In Blood (unspecified) @ Unknown
2339ph	80 y M	acetaminophen/codeine	1	1	A	Ingst + Unk	Unk	2	ethylene glycol	12 mg/dL In Blood (unspecified) @ Unknown
		ethylene glycol	2	2						
2340ai	80 y F	oxycodone	1	1	U	Unk	Int-S	1		
2341	80 y F	acetaminophen/oxycodone	1	1	U	Ingst	Unk	3	acetaminophen (apap)	62.3 mcg/mL In Blood (unspecified) @ Unknown
2342ha	80 y F	acetaminophen	1	1	C	Ingst	Int-U	1		
		ethanol (beverage)	2	2						
2343ha	80 y M	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	160 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	25 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/oxycodone	1	1					oxycodone (free)	330 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	41 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					oxymorphone (free)	5.2 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/oxycodone	1	1					oxymorphone (free)	6.1 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					oxycodone (free)	66 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2						
2344	81 y F	acetaminophen	1	1	U	Ingst	Int-U	2	acetaminophen (apap)	20 mcg/mL In Blood (unspecified) @ Unknown
2345ha	81 y F				A/C	Ingst + Inhal + Unk	Int-S	2		
		tramadol	1	1						
		diazepam	2	2						
		oxycodone	3	3						
		trazodone	4	4						
		ethanol (beverage)	5	5						
		nitrous oxide	6	6						
		marijuana	7	7						
2346h	82 y F	acetaminophen/diphenhydramine	1	1	U	Ingst	Int-S	2		
2347h	82 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	80 mcg/mL In Blood (unspecified) @ Unknown
2348ha	82 y F	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	480 mg/L In Whole Blood @ 12 h (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	861 mg/L In Plasma @ 4 h (pe)
		tetrahydrozoline	2	2					tetrahydrozoline	2.8 ng/mL In Whole Blood @ 12 h (pe)
		diphenhydramine	3	3					diphenhydramine	2800 ng/mL In Whole Blood @ 12 h (pe)
		pseudoephedrine	4	4					pseudoephedrine	310 ng/mL In Whole Blood @ 12 h (pe)
2349a	82 y M	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	350 mcg/mL In Blood (unspecified) @ Unknown
2350i	82 y F	oxycodone	1	1	A/C	Ingst	Int-S	2		
2351	83 y M	acetaminophen/hydrocodone	1	1	C	Ingst	Int-S	3	acetaminophen (apap)	300 mcg/mL In Blood (unspecified) @ Unknown
2352hi	83 y M	colchicine	1	1	A	Ingst	Unt-T	2		
		digoxin	2	2						
		toremide	3	3						
		tamsulosin	4	4						
		finasteride	5	5						
		anticoagulant, N.O.S.	6	6						
		cyanocobalamin	7	7						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2353ai	83 y F	fentanyl (non-prescription)	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		alprazolam	3	3						
2354h	83 y M	morphine	1	1	U	Ingst	Int-A	2		
		lorazepam	2	2						
		haloperidol	3	3						
2355h	84 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	44 mcg/mL In Plasma @ 76.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	56 mcg/mL In Serum @ 64.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	71 mcg/mL In Serum @ 48 h (pe)
2356h	84 y F	acetaminophen	1	1	A/C	Ingst	Int-U	2	acetaminophen (apap)	173 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	190 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	252 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	291 mcg/mL In Blood (unspecified) @ Unknown
2357ha	84 y M	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	30 mcg/mL In Blood (unspecified) @ Unknown
2358ph	84 y F	acetaminophen	1	1	A	Ingst + Unk	Int-S	2	acetaminophen (apap)	45.5 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2						
		alprazolam	3	3						
		tramadol	4	4						
		trazodone	5	5						
2359ha	84 y F	acetaminophen (ER)	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	397.5 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
2360h	85 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	35.7 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					salicylate	7 mg/dL In Blood (unspecified) @ Unknown
		salicylate	2	2						
2361h	86 y M	acetaminophen/codeine	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	106.1 mg/L In Serum @ Unknown
2362ha	86 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	348 mcg/mL In Blood (unspecified) @ Unknown
		tramadol	2	2						
		meloxicam	5	3						
		alprazolam	10	4						
		fluoxetine	3	5						
		gabapentin	4	6						
		nitrofurantoin	6	6						
		potassium chloride	7	7						
		bumetanide	8	8						
		hydrochlorothiazide	9	9						
		levothyroxine	11	11						
		estradiol	12	12						
2363pha	86 y M	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	1047 mcg/mL In Blood (unspecified) @ Unknown
2364h	87 y M	acetaminophen	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	147.2 mg/L In Plasma @ 19 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	227.9 mg/L In Plasma @ 2.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	258 mg/L In Plasma @ 4 h (pe)
		ibuprofen	2	2						
2365ha	87 y F	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	226 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	270 mcg/mL In Urine (quantitative only) @ Autopsy
		acetaminophen	1	1					morphine	670 ng/mL In Urine (quantitative only) @ Autopsy
2366h	87 y F	salicylate	1	1	A	Ingst	Int-U	1	salicylate	105 mg/dL In Serum @ Unknown
2367ha	87 y M	acetaminophen/diphenhydramine	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	191.5 mcg/mL In Serum @ 5 m (pe)
		sacubitril/valsartan	2	2						
		carvedilol	3	3						
		nitroglycerin	4	4						

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Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2368h	88 y F	acetaminophen	1	1	U	Ingst	Unk	3		
2369ai	88 y M	oxycodone	1	1	U	Unk	Int-S	1		
2370ai	88 y M	morphine	1	1	U	Unk	Int-S	1		
		hydromorphone	2	2						
		hydrocodone	3	3						
2371ha	89 y M	salicylate	1	1	A	Ingst	Int-S	1		
2372h	89 y M	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	97.2 mcg/mL In Blood (unspecified) @ Unknown
		haloperidol	2	2						
		morphine	3	3						
		ethanol (beverage)	4	4						
2373p	90 y M	morphine	1	1	A	Ingst	AR-D	2	morphine	21 ng/mL In Blood (unspecified) @ 20 h (pe)
2374ha	90 y M	acetaminophen/diphenhydramine	1	1	A	Ingst	Int-S	3		
2375ai	91 y F	hydromorphone	1	1	U	Unk	Int-S	1		
		hydrocodone	2	2						
		alprazolam	3	3						
2376ha	91 y F	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	100 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					oxycodone (free)	77 ng/mL In Blood (unspecified) @ Unknown
		temazepam	2	1					temazepam	2100 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	3	2					alprazolam	200 ng/mL In Blood (unspecified) @ Unknown
		naproxen	4	3						
2377ai	91 y F	oxycodone	1	1	U	Unk	Int-S	2		
		temazepam	2	2						
		alprazolam	3	3						
2378	91 y M	morphine	1	1	A/C	Ingst	Unt-T	2		
2379ph	93 y M	salicylate	1	1	C	Ingst	Unk	3	salicylate	21.8 mg/dL In Serum @ 24 h (pe)
		salicylate	1	1					salicylate	25.5 mg/dL In Serum @ 7 h (pe)
		salicylate	1	1					salicylate	26.9 mg/dL In Serum @ 5 d (pe)
		salicylate	1	1					salicylate	31.6 mg/dL In Serum @ 1 h (pe)
2380	93 y F	acetaminophen	1	1	A	Ingst	Unt-U	3	acetaminophen (apap)	72.6 mcg/mL In Serum @ Unknown
		salicylate	2	2						
2381	93 y F	acetaminophen	1	1	C	Ingst	Unt-T	2	acetaminophen (apap)	154 mcg/mL In Blood (unspecified) @ Unknown
2382h	98 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	37 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	4 mcg/mL In Serum @ Unknown
		tramadol	2	2						
[2383ph]	8 m F	fentanyl (prescription)	1	1	A	Ingst+Unk	Oth-M	2		
		viral disease (COVID-19-Confirmed)	2	2						
2384p	11 m F	fentanyl (prescription)	1	1	A	Ingst	Oth-M	2		
2385ai	1 d F	fentanyl (non-prescription)	1	1	U	Unk	Unt-G	2		
		methamphetamine	2	2						
[2386pha]	16 m M	fentanyl (non-prescription)	1	1	A	Ingst	Unt-G	1	fentanyl	2.5 ng/mL In Blood (unspecified) @ 5 m (pe)
2387ph	18 m F	fentanyl (prescription)	1	1	A	Unk	Unt-G	1		
2388phai	19 m M	fentanyl (prescription)	1	1	U	Unk	Unk	1	norfentanyl	1.4 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	1	1					fentanyl	14.9 ng/mL In Blood (unspecified) @ Unknown
		fentanyl analog (acetylfentanyl)	2	2						
2389ai	19 m M	fentanyl (non-prescription)	1	1	U	Unk	Unt-G	1		
2390pha	20 m F	narcotic, N.O.S.	1	1	A	Ingst	Unt-G	1		
2391i	20+ y M	narcotic, N.O.S.	1	1	U	Unk	Unk	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2392i	20+ y F	narcotic, N.O.S.	1	1	A	Unk	Int-U	2		
2393pi	20+ y M	fentanyl (non-prescription) oxycodone	1 2	1 2	U	Unk	Int-A	2		
2394i	30+ y M	heroin	1	1	U	Unk	Int-A	2		
2395i	30+ y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2396i	30+ y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
2397i	30+ y M	narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
2398i	30+ y M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2399i	30+ y F	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2400i	40+ y F	narcotic, N.O.S.	1	1	A	Inhal	Int-A	2		
2401i	50+ y M	narcotic, N.O.S.	1	1	A/C	Par	Int-A	2		
2402i	50+ y F	fentanyl (prescription) heroin ethanol (beverage)	1 2 3	1 2 3	U	Ingst+Unk	Int-A	2		
2403i	50+ y M	fentanyl (prescription)	1	1	A	Unk	Int-A	2		
2404i	Unknown adult (≥20 yrs) M	heroin	1	1	A	Unk	Int-A	2		
2405i	Unknown adult (≥20 yrs) M	heroin	1	1	U	Par	Int-A	2		
2406i	Unknown adult (≥20 yrs) F	heroin	1	1	U	Inhal	Int-A	2		
2407pi	Unknown adult (≥20 yrs) M	heroin	1	1	A	Par	Int-A	2		
2408pi	Unknown adult (≥20 yrs) M	oxycodone	1	1	U	Inhal	Int-A	2		
2409i	Unknown adult (≥20 yrs) M	narcotic, N.O.S.	1	1	U	Unk	Int-A	2		
2410i	Unknown adult (≥20 yrs) M	heroin	1	1	A	Par	Int-A	2		
2411h	Unknown adult (≥20 yrs) F	acetaminophen ethanol (beverage)	1 2	1 2	A	Ingst	Int-S	2	acetaminophen (apap) ethanol	57 mcg/mL In Serum @ Unknown 11 mg/dL In Serum @ Unknown
2412p	Unknown adult (≥20 yrs) F	narcotic, N.O.S. ethanol (beverage)	1 2	1 2	A	Ingst+Inhal	Int-A	2		
2413i	Unknown age U	heroin	1	1	U	Par	Int-A	2		
2414i	Unknown age U	heroin	1	1	U	Par	Int-A	2		
2415pi	Unknown age U	heroin	1	1	A/C	Par	Int-A	2		

See Also case 6, 9, 28, 31, 33, 40, 41, 54, 55, 59, 68, 91, 100, 123, 124, 129, 144, 149, 171, 187, 198, 202, 242, 243, 252, 326, 328, 401, 446, 466, 467, 468, 469, 472, 2417, 2426, 2435, 2439, 2445, 2449, 2462, 2466, 2484, 2496, 2499, 2507, 2512, 2523, 2528, 2529, 2530, 2531, 2536, 2542, 2544, 2545, 2554, 2555, 2556, 2562, 2565, 2566, 2567, 2587, 2598, 2602, 2616, 2617, 2618, 2622, 2631, 2632, 2635, 2636, 2659, 2665, 2666, 2672, 2676, 2677, 2678, 2688, 2692, 2695, 2700, 2702, 2703, 2707, 2718, 2722, 2738, 2741, 2744, 2752, 2753, 2757, 2766, 2775, 2776, 2777, 2783, 2787, 2796, 2798, 2799, 2800, 2803, 2831, 2837, 2839, 2840, 2843, 2854, 2858, 2861, 2862, 2870, 2876, 2892, 2895, 2909, 2912, 2915, 2931, 2940, 2943, 2944, 2946, 2960, 2965, 2967, 2975, 2978, 2988, 2990, 3004, 3006, 3007, 3009, 3024, 3025, 3027, 3032, 3033, 3035, 3036, 3039, 3047, 3049, 3050, 3056, 3057, 3060, 3077, 3080, 3081, 3085, 3090, 3096, 3097, 3100, 3101, 3102, 3104, 3113, 3115, 3116, 3118, 3124, 3125, 3126, 3134, 3142, 3145, 3146, 3147, 3148, 3150, 3156, 3162, 3163, 3165, 3170, 3180, 3182, 3196, 3208, 3219, 3223, 3230, 3251, 3260, 3262, 3263, 3267, 3270, 3271, 3273, 3293, 3309, 3310, 3317, 3338, 3355, 3374, 3378, 3381, 3411, 3416, 3459, 3472, 3473, 3479, 3482, 3483, 3486, 3488, 3493, 3501, 3508, 3512, 3528, 3530, 3568, 3569, 3590, 3603, 3620, 3625, 3628, 3641, 3657, 3663, 3680, 3681, 3684, 3685, 3687, 3694, 3712, 3713, 3731, 3733, 3735, 3750, 3752, 3764, 3765, 3772, 3787, 3789, 3798, 3799, 3805

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
Anesthetics										
2416ph	40 y M				U	Unk	Int-U	2		
2417ph	54 y M	isoflurane	1	1	C	Ingst	Int-M	3		
		benzocaine	1	1						
		buprenorphine/naloxone (sublingual film)	2	2						
2418ai	56 y F				U	Unk	Int-A	1		
		ketamine	1	1						
		primidone	2	2						
		diphenhydramine	3	3						
[2419h]	61 y M				A	Par	Unt-T	3	lidocaine	5 mcg/mL In Blood (unspecified) @ Unknown
		lidocaine	1	1						
[2420ph]	72 y M				A	Par	Unt-T	1	lidocaine	1.7 mcg/mL In Blood (unspecified) @ Unknown
		lidocaine	1	1						
2421	78 y F				A	Par	Unt-T	2		
		ropivacaine	1	1						
See Also case 56, 265, 920, 1293, 1665, 1831, 2450, 2486, 2508, 2660, 2776, 3113										
Anticoagulants										
2422h	51 y M				A	Ingst	AR-D	3		
		warfarin	1	1						
2423h	58 y M				A	Ingst	Int-S	2		
		rivaroxaban	4	1						
		bupropion (ER)	2	2						
		metoprolol	1	3						
		sertraline	3	4						
2424h	66 y M				U	Ingst + Inhal	Unk	2		
		warfarin	1	1						
		cocaine	2	2						
2425a	82 y M				A/C	Ingst	Int-S	1		
		apixaban	1	1						
		metformin	2	2						
		atorvastatin	3	3						
		magnesium	4	4						
		chlorthalidone	5	5						
2426ha	87 y M				A/C	Ingst	Int-S	3		
		apixaban	1	1						
		carvedilol	2	2						
		lisinopril	5	3						
		furosemide	6	4						
		amiodarone	4	5						
		salicylate	3	6						
2427	88 y M				C	Ingst	AR-D	2		
		warfarin	1	1						
2428h	96 y M				A	Ingst	Int-S	3		
		apixiban	1	1						
		pantoprazole	2	2						
See Also case 284, 2189, 2307, 2318, 2352, 2568, 2721, 2787, 2795, 2797, 2798, 2812, 2848, 2850, 2856, 2861, 2891, 2906, 2926, 2931, 2932, 3107, 3631										
Anticonvulsants										
2429a	12 y F				A	Ingst	Int-S	2		
		lamotrigine	3	1						
		quetiapine	2	2						
		drug, N.O.S.	1	3						
2430pa	16 y F				A	Ingst + Unk	Int-S	1		
		lamotrigine	1	1						
		diphenhydramine	2	2						
2431ph	21 y M				A	Ingst	Int-S	2		
		pregabalin	1	1						
		olanzapine	2	2						
2432pha	23 y F				A/C	Ingst	Unk	1		
		carbamazepine (ER)	1	1					carbamazepine	6.8 mcg/mL In Serum @ Unknown
		carbamazepine (ER)	1	1					carbamazepine	7.1 mcg/mL In Serum @ Unknown
		carbamazepine (ER)	1	1					carbamazepine-10,11-epoxide	7.9 mcg/mL In Blood (unspecified) @ Unknown
		oxcarbazepine	2	2						
		prazosin	3	3						
		hydroxyzine	4	4						
2433h	24 y F				A	Ingst	Int-S	2		
		lamotrigine	1	1						
		gabapentin	2	2						
2434ph	24 y M				A	Ingst	Int-S	3		
		lamotrigine	1	1						
		escitalopram	2	2						
		aripiprazole	3	3						
		methylphenidate	4	4						
2435ha	26 y F				A/C	Ingst	Int-S	1		
		topiramate	1	1					topiramate	42000 ng/mL In Serum @ Unknown
		acetaminophen/caffeine/salicylate	2	2					acetaminophen (apap)	120 mcg/mL In Serum @ Unknown
		acetaminophen/caffeine/salicylate	2	2					salicylate	41 mg/dL In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2436p	26 y F	acetaminophen/caffeine/salicylate	2	2	U	Ingst	Unk	2	salicylate	68.6 mg/dL In Serum @ Unknown
		desvenlafaxine	3	3					o-desmethylvenlafaxine	110 ng/mL In Serum @ Unknown
		olanzapine	4	4					olanzapine	75 ng/mL In Serum @ Unknown
		oxcarbazepine	5	5					10-hydroxycarbazepine	29 mcg/mL In Serum @ Unknown
		lamotrigine	1	1						
2437pha	30 y F	levetiracetam	2	2	A/C	Ingst	Int-S	2		
		clonazepam	3	3						
		propranolol	4	4						
		topiramate	1	1					topiramate	180 mcg/mL In Blood (unspecified) @ Unknown
2438ha	31 y M	topiramate	1	1					levetiracetam	195 mcg/mL In Blood (unspecified) @ Unknown
		levetiracetam	2	2						
2439h	38 y F	valproic acid (ER)	1	1	U	Ingst	Int-S	3	valproic acid	150 mcg/mL In Blood (unspecified) @ Unknown
		sertraline	2	2						
2440ph	43 y F	quetiapine (ER)	3	3	A	Ingst	Unk	2		
		quetiapine	4	4						
		pregabalin	2	1					pregabalin	54 mcg/mL In Blood (unspecified) @ Unknown
		gabapentin	1	2					gabapentin	64 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	3	3					salicylate	18.2 mg/dL In Blood (unspecified) @ Unknown
		carvedilol	4	4						
		ibuprofen	5	5						
		diphenhydramine	6	6						
		prochlorperazine	7	7						
dicyclomine	8	8								
2441ph	44 y M	tramadol	9	9						
		gabapentin	1	1						
2442pha	45 y F	ethanol (beverage)	2	2	U	Ingst	Int-S	3	ethanol	12 mg/dL In Serum @ Unknown
		valproic acid	1	1					valproic acid	237 mcg/mL In Serum @ Unknown
2443pa	46 y F	valproic acid	1	1	A/C	Ingst	Int-S	1	valproic acid	300 mcg/mL In Plasma @ Unknown
		ethanol (beverage)	2	2					ethanol	0 mg/dL In Plasma @ Unknown
		butalbital	3	3					butalbital	7.1 mcg/mL In Whole Blood @ Unknown
		<i>Mitragyna speciosa korthals</i>	4	4					mitragynine	69 ng/mL In Whole Blood @ Unknown
		gabapentin	5	5					gabapentin	170 mcg/mL In Whole Blood @ Unknown
2444ai	47 y M	gabapentin	2	1	U	Unk	Int-S	2		
		benzodiazepine	1	2						
		gabapentin	1	1						
2445h	51 y M	amitriptyline	2	2	A	Ingst	Int-S	2		
		trazodone	3	3						
		gabapentin	1	1						
2446h	52 y F	methadone	2	2	U	Ingst	Int-S	2		
		ethanol (beverage)	3	3					ethanol	149 mg/dL In Blood (unspecified) @ 2 h (pe)
2447h	54 y F	valproic acid (ER)	1	1	A/C	Ingst	Int-S	2		
2448ph	56 y F	lamotrigine	1	1	U	Ingst	Int-S	2		
		risperidone	2	2						
		gabapentin	1	1						
		ethanol	2	2						
		ethanol (beverage)	3	3					ethanol	278 mg/dL In Whole Blood @ Unknown
2449p	57 y F	ethanol (non-beverage)	4	4						
		isopropanol	5	5	isopropanol	20 mg/dL In Whole Blood @ Unknown				
		isopropanol	5	5	acetone	35 mg/dL In Whole Blood @ Unknown				
2449p	57 y F	gabapentin	1	1	U	Ingst	Unk	3		
		acetaminophen/oxycodone	2	2						
		sumatriptan	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2450h	62 y M	valproic acid (ER)	1	1	U	Ingst	Unk	2		
		lidocaine	2	2						
		ethanol (beverage)	3	3						
2451ph	62 y F	valproic acid	1	1	A/C	Ingst	Unk	2		
		olanzapine	2	2						
		oxybutynin	3	3						
		sertraline	4	4						
2452h	63 y M	phenytoin	1	1	A/C	Ingst	Unk	3		
		levetiracetam	2	2						
2453h	63 y M	lacosamide	1	1	A/C	Ingst	Int-S	2		
2454hi	66 y F	lamotrigine	1	1	A	Ingst	Int-S	2		
		hydroxyzine	2	2						
2455pha	67 y F	lamotrigine	1	1	A/C	Ingst	Int-S	1	lamotrigine	73 mcg/mL In Blood (unspecified) @ Unknown
		levetiracetam	2	2					levetiracetam	7.7 mcg/mL In Blood (unspecified) @ Unknown
2456phi	74 y F	lamotrigine	1	1	A/C	Ingst	Int-S	2		
		alprazolam	2	2						
		liothyronine	3	3						
		levothyroxine	4	4						
		metformin	5	5						
		quetiapine	6	6						
2457h	75 y F	gabapentin	1	1	A/C	Ingst	Unk	1		
2458h	78 y F	primidone	1	1	U	Ingst	Int-S	2		
2459	86 y F	primidone	1	1	A	Ingst	Int-S	2		
		clonazepam	2	2						
		hydrochlorothiazide	3	3						
		losartan	4	4						
		gabapentin	5	5						
See Also case 98, 144, 252, 405, 525, 528, 540, 617, 654, 696, 719, 735, 767, 810, 908, 912, 928, 996, 1005, 1096, 1150, 1174, 1185, 1195, 1268, 1284, 1302, 1338, 1350, 1376, 1481, 1489, 1506, 1533, 1546, 1560, 1627, 1641, 1645, 1663, 1687, 1698, 1701, 1704, 1710, 1757, 1832, 1838, 1846, 1848, 1853, 1861, 1864, 1896, 1970, 1980, 1988, 2071, 2090, 2103, 2111, 2113, 2121, 2139, 2141, 2189, 2190, 2202, 2208, 2230, 2241, 2266, 2267, 2268, 2269, 2272, 2303, 2362, 2418, 2467, 2474, 2498, 2510, 2512, 2518, 2525, 2526, 2537, 2546, 2555, 2559, 2565, 2584, 2592, 2622, 2631, 2632, 2658, 2675, 2676, 2689, 2694, 2695, 2696, 2701, 2704, 2717, 2722, 2731, 2738, 2739, 2743, 2753, 2772, 2778, 2788, 2790, 2793, 2796, 2801, 2803, 2813, 2818, 2827, 2854, 2862, 2909, 2915, 2943, 2960, 2961, 3000, 3021, 3031, 3032, 3033, 3036, 3039, 3051, 3057, 3058, 3069, 3076, 3083, 3104, 3108, 3113, 3116, 3280, 3362, 3415, 3416, 3670, 3713, 3733, 3757, 3789										
Antidepressants										
2460h	14 y F	bupropion (ER)	1	1	A/C	Ingst	Int-S	1	hydroxybupropion	1000 ng/mL In Blood (unspecified) @ Unknown
		bupropion (ER)	1	1					bupropion	780 ng/mL In Blood (unspecified) @ Unknown
2461h	15 y F	azathioprine	2	2	A	Ingst	Int-S	1		
		bupropion	1	1					hydroxybupropion	110 ng/mL In Serum @ 3 d (pe)
		bupropion	1	1					bupropion	22 ng/mL In Serum @ 3 d (pe)
		iron	2	2						
		cyclobenzaprine	3	3						
		sertraline	4	4						
		fluoxetine	5	5						
		trazodone	6	6						
		spironolactone	7	7						
		aripiprazole	8	8						
		melatonin	9	9						
		loratadine	10	10						
		vitamin D	11	11						
2462pha	15 y M	bupropion	1	1	A/C	Ingst	Int-S	2	hydroxybupropion	5700 ng/mL In Blood (unspecified) @ Unknown
		bupropion	1	1					bupropion	7400 ng/mL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
2463h	15 y F	bupropion (ER)	1	1	A/C	Ingst	Int-S	2		
		melatonin	2	2						
2464h	16 y M	bupropion (ER)	1	1	U	Ingst	Int-S	1		
		diphenhydramine	2	2						
2465	16 y F	bupropion (ER)	1	1	A/C	Ingst	Int-S	1		
2466ph	17 y F	bupropion	1	1	A/C	Ingst	Int-S	1		
		methylphenidate (ER)	2	2						
		acetaminophen	3	3					acetaminophen (apap)	70 mcg/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2467h	17 y M	bupropion (ER) clonazepam clonidine paliperidone (ER) lamotrigine ondansetron omeprazole	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A	Ingst	Int-A	2		
2468ha	17 y M	bupropion quetiapine aripiprazole	1 2 3	1 2 3	A/C	Ingst	Int-S	1	bupropion	20 ng/mL In Blood (unspecified) @ Unknown
2469h	18 y F	venlafaxine venlafaxine venlafaxine venlafaxine venlafaxine venlafaxine	1 1 1 1 1 1	1 1 1 1 1 1	A/C	Ingst	Int-S	1	o-desmethylvenlafaxine o-desmethylvenlafaxine venlafaxine venlafaxine venlafaxine venlafaxine	4900 ng/mL In Blood (unspecified) @ 16 h (pe) 4900 ng/mL In Blood (unspecified) @ 19 h (pe) 5060 ng/mL In Blood (unspecified) @ 3 d (pe) 7120 ng/mL In Blood (unspecified) @ 45 h (pe) 9440 ng/mL In Blood (unspecified) @ 16 h (pe) 9440 ng/mL In Blood (unspecified) @ 19 h (pe)
2470h	18 y F	venlafaxine	1	1	A	Ingst	Int-S	2		
2471	18 y M	venlafaxine hydroxyzine	1 2	1 2	U	Ingst	Int-S	1		
2472ph	19 y M	escitalopram benzodiazepine	1 2	1 2	A/C	Ingst	Int-S	2		
2473h	19 y F	bupropion	1	1	A/C	Ingst	Int-S	2		
2474ai	19 y F	bupropion quetiapine gabapentin	1 2 3	1 2 3	U	Unk	Int-S	1		
2475ha	20 y M	bupropion (ER)	1	1	A/C	Ingst	Int-S	1	bupropion	4010 ng/mL In Blood (unspecified) @ Autopsy
2476h	20 y F	bupropion ethinyl estradiol/levonorgestrel	1 2	1 2	A	Ingst	Int-S	2		
2477h	20 y F	venlafaxine quetiapine alprazolam hydroxyzine	1 2 3 4	1 2 3 4	A/C	Ingst	Int-S	2		
2478h	20 y M	lithium	1	1	U	Ingst	Int-S	1		
2479h	21 y M	bupropion (ER) ethanol (beverage)	1 2	1 2	A	Ingst	Int-S	1	ethanol	90 mg/dL In Blood (unspecified) @ Unknown
2480h	21 y F	doxepin olanzapine fluoxetine amphetamine	1 2 3 4	1 2 3 4	U	Ingst	Int-S	2		
[2481ph]	21 y F	bupropion bupropion	1 1	1 1	A	Ingst	Int-S	1	hydroxybupropion bupropion	1243.7 ng/mL In Blood (unspecified) @ Unknown 1523 ng/mL In Blood (unspecified) @ Unknown
[2482ha]	22 y F	bupropion (ER) bupropion (ER) bupropion (ER) bupropion (ER)	1 1 1 1	1 1 1 1	A	Ingst	Int-S	1	hydroxybupropion bupropion hydroxybupropion bupropion	11000 mcg/mL In Blood (unspecified) @ Autopsy 1500 mcg/mL In Blood (unspecified) @ Autopsy 3000 mcg/mL In Blood (unspecified) @ Unknown 450 mcg/mL In Blood (unspecified) @ Unknown
2483ha	22 y F	doxepin cocaine hydroxyzine	1 2 3	1 2 3	U	Ingst+Unk	Int-S	1	doxepin benzoylceognine	5700 ng/mL In Blood (unspecified) @ Autopsy 1900 ng/mL In Blood (unspecified) @ Autopsy
2484h	22 y F	cyclic antidepressant, N.O.S. ethanol (beverage) oxycodone	1 3 2	1 2 2	A	Ingst	Int-U	2	ethanol	35 mg/dL In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2485	22 y F	doxepin	1	1	A	Ingst	Int-S	1		
		fluoxetine	2	2						
		olanzapine	3	3						
		clonidine	4	4						
2486ph	24 y M	doxepin	1	1	A	Ingst + Inhal	Int-A	2		
		ketamine	2	2						
2487pha	25 y F	bupropion	1	1	A	Ingst + Unk	Int-S	1		
		trazodone	2	2						
		ethanol (beverage)	3	3						
2488h	25 y M	bupropion	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2489	26 y F	lithium	1	1	A	Ingst	AR-D	2	lithium	2.9 ng/mL In Blood (unspecified) @ Unknown
2490ai	27 y F	fluoxetine	1	1	U	Unk	Int-A	1		
		hydroxyzine	2	2						
		trazodone	3	3						
2491ph	27 y M	amitriptyline	1	1	A	Ingst	Int-U	2		
2492h	27 y M	bupropion	1	1	A	Ingst	Int-S	1	bupropion	1000 ng/mL In Blood (unspecified) @ Unknown
		bupropion	1	1					hydroxybupropion	1440 ng/mL In Blood (unspecified) @ Unknown
2493h	29 y M	trazodone	1	1	U	Par	Int-A	2		
2494pha	29 y F	bupropion (ER)	1	1	A	Ingst	Int-S	2		
2495h	29 y M	bupropion	1	1	A	Ingst	Int-S	2		
		propranolol	2	2						
2496pi	30 y F	trazodone	1	1	A	Unk	Int-U	2		
		fluoxetine	2	2						
		fentanyl (prescription)	3	3						
		methamphetamine	4	4						
2497ph	31 y M	bupropion (ER)	1	1	A/C	Ingst	Int-S	2		
2498ha	32 y F	venlafaxine (ER)	1	1	A/C	Ingst	Int-S	1	o-desmethylvenlafaxine	0.999 mg/L In Blood (unspecified) @ Unknown
		venlafaxine (ER)	1	1					venlafaxine	4.29 mg/L In Blood (unspecified) @ Unknown
		lamotrigine	2	2						
		clonazepam	3	3					clonazepam	0.023 mg/L In Blood (unspecified) @ Unknown
2499ai	34 y M	trazodone	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		alprazolam	3	3						
		risperidone	4	4						
2500h	35 y M	bupropion (ER)	1	1	A/C	Ingst	Int-S	2		
2501	35 y M	bupropion	1	1	U	Ingst	Int-S	2		
2502ha	35 y F	bupropion (ER)	1	1	A/C	Ingst	Int-S	1	bupropion	1500 ng/mL In Blood (unspecified) @ Unknown
		bupropion (ER)	1	1					hydroxybupropion	4100 ng/mL In Blood (unspecified) @ Unknown
2503	35 y F	bupropion	1	1	A	Ingst	Int-S	3		
		viral disease (COVID-19-Confirmed)	2	2						
		ethanol (beverage)	3	3						
2504ai	36 y F	bupropion	1	1	U	Unk	Int-S	1		
		fluoxetine	2	2						
		lorazepam	3	3						
2505h	36 y F	amitriptyline	1	1	A	Ingst	Int-S	2		
		propranolol	2	2						
		ethanol (beverage)	3	3						
2506h	37 y F	sertraline	1	1	A/C	Ingst	Int-S	1		
		quetiapine	2	2						
		hydroxyzine	3	3						
2507h	37 y M	lithium	1	1	A/C	Ingst	Int-S	3	lithium	1.1 mEq/L In Blood (unspecified) @ Unknown
		lithium	1	1					lithium	1.6 mEq/L In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		lithium	1	1					lithium	1.7 mEq/L In Blood (unspecified) @ Unknown
		lithium	1	1					lithium	1.9 mEq/L In Blood (unspecified) @ Unknown
		lithium	1	1					lithium	2.65 mEq/L In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	30.4 mg/dL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	32.9 mg/dL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	34.8 mg/dL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	8.8 mg/dL In Blood (unspecified) @ Unknown
		olanzapine	3	3						
		hypochlorite	4	4						
		hydrocarbon	5	5						
		hydrocarbon (naphtha)	6	6						
		hydrogen peroxide	7	7						
		cleaner (anionic/glycol ethers/nonionic)	8	8						
		cleaner (anionic/nonionic)	9	9						
		laundry detergent, liquid	10	10						
2508h	37 y F				U	Par+Unk	Int-S	2		
		cyclic antidepressant, N.O.S.	1	1						
		ketamine	2	2						
2509h	38 y M				A/C	Ingst	Int-S	1		
		bupropion	1	1						
		metoprolol	2	2						
		escitalopram	3	3						
		atomoxetine	4	4						
		trazodone	5	5						
		bupirone	6	6						
		hydrochlorothiazide	7	7						
		clonazepam	8	8						
2510pha	39 y F				U	Ingst	Int-S	1		
		clomipramine	1	1					clomipramine	2200 ng/mL In Blood (unspecified) @ Unknown
		mexiletine	2	2					mexiletine	29 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	3	3					ethanol	89 mg/dL In Blood (unspecified) @ Unknown
		benzodiazepine	4	4						
		gabapentin	5	5						
2511h	39 y F				A/C	Ingst	Int-S	2		
		bupropion (ER)	1	1						
		ethanol (beverage)	2	2					ethanol	217 mg/dL In Blood (unspecified) @ Unknown
		fluoxetine	3	3						
2512	39 y M				U	Ingst+Par	Int-S	2		
		amitriptyline	1	1						
		oxcarbazepine	2	2						
		duloxetine	3	3						
		propranolol	4	4						
		bupirone	5	5						
		gabapentin	6	6						
		lurasidone	7	7						
		rizatriptan	8	8						
		linaclotide	9	9						
		diclofenac	10	10						
		metformin	11	11						
		insulin	12	12						
2513h	40 y F				A/C	Ingst	Int-S	1		
		doxepin	1	1						
		bupropion	2	2						
		metoprolol	3	3						
		ethanol (beverage)	4	4					ethanol	220 mg/dL In Blood (unspecified) @ Unknown
2514	40 y F				U	Ingst	Int-S	2		
		bupropion	1	1						
		ethanol (beverage)	2	2						
2515pha	41 y F				A	Ingst	Int-S	2		
		trazodone	1	1					trazodone	10 mcg/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	318 mg/dL In Blood (unspecified) @ Unknown
		methocarbamol	3	3						
2516h	41 y F				U	Ingst	Int-S	2		
		bupropion	1	1						
		ethanol (beverage)	2	2					ethanol	47 mg/dL In Blood (unspecified) @ Unknown
		drug, N.O.S.	3	3						
2517	41 y M				A/C	Ingst	Int-S	2		
		desvenlafaxine (ER)	3	1						
		amphetamine/dextroamphetamine	1	2						
		aripiprazole	2	3						
2518pa	41 y F				A	Ingst	Int-S	1		
		nortriptyline	1	1					nortriptyline	260 ng/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		quetiapine	3	1					quetiapine	600 ng/mL In Blood (unspecified) @ Unknown
		suvorexant	10	2						
		topiramate	2	2					topiramate	100 mcg/mL In Blood (unspecified) @ Unknown
		lorazepam	4	3					lorazepam	210 ng/mL In Blood (unspecified) @ Unknown
		bupirone	8	4						
		fluoxetine	5	5					fluoxetine	1200 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	5	5					norfluoxetine	460 ng/mL In Blood (unspecified) @ Unknown
		olanzapine	6	6					olanzapine	6.6 ng/mL In Blood (unspecified) @ Unknown
		vilazodone	9	6						
		linaclotide	11	7						
		promethazine	7	7					promethazine	24 ng/mL In Blood (unspecified) @ Unknown
2519ha	41 y F	lubiprostone	12	8						
		bupropion	1	1	A	Ingst	Int-S	1	hydroxybupropion	4 mg/L In Blood (unspecified) @ Autopsy
		clonidine	2	2					clonidine	0.024 mg/L In Blood (unspecified) @ Autopsy
2520ph	42 y F				A/C	Ingst	Int-S	2		
2521h	42 y M	amitriptyline	1	1						
		doxepin	1	1	A/C	Ingst	Int-S	2		
2522ai	43 y F				U	Unk	Int-A	1		
		duloxetine	1	1						
		ethanol (beverage)	2	2						
2523pha	44 y F				U	Ingst+Unk	Int-S	1		
		bupropion	1	1					bupropion	1.9 mg/L In Blood (unspecified) @ Autopsy
		bupropion	1	1					hydroxybupropion	1.9 mg/L In Blood (unspecified) @ Autopsy
		fluoxetine	3	2						
		cocaine	2	3					benzoylcochine	0.8 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen	4	4					acetaminophen (apap)	5.4 mcg/mL In Serum @ Unknown
2524h	44 y M				A/C	Ingst	Int-S	2		
		bupropion (ER)	1	1						
2525pha	45 y M				U	Ingst	Int-S	2		
		bupropion	1	1					hydroxybupropion	2800 ng/mL In Whole Blood @ Autopsy
		bupropion	1	1					hydroxybupropion	3000 ng/mL In Blood (unspecified) @ 5 m (pe)
		bupropion	1	1					bupropion	453 ng/mL In Blood (unspecified) @ 5 m (pe)
		bupropion	1	1					bupropion	980 ng/mL In Whole Blood @ Autopsy
		gabapentin	2	2					gabapentin	12 mcg/mL In Whole Blood @ Autopsy
		fluoxetine	3	3					fluoxetine	1800 ng/mL In Whole Blood @ Autopsy
		fluoxetine	3	3					norfluoxetine	980 ng/mL In Whole Blood @ Autopsy
		trazodone	4	4					mcpp (meta-chlorophenylpiperazine)	0.065 mcg/mL In Whole Blood @ Autopsy
		trazodone	4	4					trazodone	0.068 mcg/mL In Whole Blood @ Autopsy
		hydroxyzine	5	5					hydroxyzine	130 ng/mL In Whole Blood @ Autopsy
		cyclobenzaprine	6	6					cyclobenzaprine	80 ng/mL In Whole Blood @ Autopsy
2526ai	45 y F				U	Unk	Int-U	1		
		duloxetine	1	1						
		gabapentin	2	2						
		quetiapine	3	3						
2527h	46 y M				U	Ingst	Int-S	2		
		bupropion	1	1						
		valsartan and hydrochlorothiazide	2	2						
		alcohol, N.O.S.	3	3					ethanol	300 mg/dL In Blood (unspecified) @ Unknown
2528	46 y M				A/C	Ingst	Int-S	2		
		bupropion (ER)	1	1						
		acetaminophen/butalbital/caffeine	2	2						
		prednisone	3	3						
2529h	46 y F				A/C	Ingst+Oth	Int-S	3		
		duloxetine	1	1						
		clonidine	2	2						
		hydroxyzine	3	3						
		meloxicam	4	4						
		olanzapine	5	5						
		ethanol (beverage)	6	6					ethanol	109 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	7	7						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2530h	46 y M	venlafaxine	1	1	A/C	Ingst	Int-S	2		
		calcium antagonist	9	2						
		hydralazine	2	3						
		clonazepam	3	4						
		amphetamine/dextroamphetamine	7	5						
		cocaine	8	6						
		alprazolam	4	7						
		losartan	6	8						
		meloxicam	5	9						
2531h	47 y M	trazodone	1	1	U	Ingst	Unk	1		
		acetaminophen	2	2						
2532ha	47 y F	trazodone	1	1	A/C	Ingst	Int-A	2		
2533p	48 y F				A/C	Ingst	Int-S	3		
		citalopram	1	1						
		risperidone	2	2						
		mirtazapine	3	3						
2534p	48 y F	bupropion	1	1	A/C	Ingst	Int-S	2		
2535pha	49 y M	amitriptyline	1	1	A	Ingst	Int-S	2		
		alcohol, N.O.S.	2	2					ethanol	236 mg/dL In Blood (unspecified) @ 10 m (pe)
2536ai	49 y F				U	Unk	Int-S	1		
		sertraline	1	1						
		citalopram	2	2						
		naproxen	3	3						
		ethanol (beverage)	4	4						
2537h	49 y M				A	Ingst	Int-S	2		
		nortriptyline	1	1						
		citalopram	2	2						
		desvenlafaxine	3	3						
		carbamazepine	4	4						
		modafinil	5	5						
		clobazam	6	6						
		lorazepam	7	7						
		brivaracetam	8	8						
2538	49 y F	bupropion	1	1	A	Ingst	Int-S	2		
2539h	49 y F				A/C	Ingst	Int-S	2		
		bupropion	1	1						
		duloxetine	2	2						
2540h	50 y F				C	Ingst+Unk	AR-D	3		
		amitriptyline	1	1						
		dextromethorphan	2	2						
		drug, N.O.S.	3	3						
2541pha	50 y M	bupropion	1	1	A/C	Ingst	Int-S	2	bupropion	0.56 mcg/mL In Blood (unspecified) @ Autopsy
2542pa	50 y F				A	Ingst	Int-S	1	trazodone	0.42 mcg/mL In Blood (unspecified) @ Unknown
		trazodone	1	1						
		marijuana, N.O.S.	2	2						
		fentanyl analog (despropionyl fentanyl)	3	3						
2543h	50 y M				A/C	Ingst	Int-S	1		
		doxepin	1	1						
		fluoxetine	2	2						
2544ha	51 y F				A/C	Ingst	Int-S	1		
		citalopram (ER)	6	1					citalopram	0.123 mg/L In Blood (unspecified) @ Unknown
		quetiapine	4	2					quetiapine	1.57 mg/L In Blood (unspecified) @ Unknown
		lithium	2	3					lithium	4.07 mEq/L In Blood (unspecified) @ Unknown
		isosorbide (ER)	3	4						
		metformin	1	5						
		mirtazapine	19	6						
		fenofibrate	8	7						
		famotidine	7	8						
		furosemide	9	9						
		linaclotide	10	10						
		melatonin	11	11						
		Singular	12	12						
		naproxen	13	13						
		prazosin	15	14						
		ropinirole	16	15						
		rosuvastatin	17	16						
		vitamin D	18	17						
		black cohosh	5	18						
		vitamin E	14	19						
2545pi	53 y M	bupropion (ER)	1	1	A	Ingst+Unk	Unk	2	hydroxybupropion	0.12 mg/L In Whole Blood @ Autopsy
		bupropion (ER)	1	1					bupropion	0.31 mg/L In Whole Blood @ Autopsy

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2546h	53 y F	hydroxyzine	2	2	A	Ingst	Int-S	2	hydroxyzine	0.55 mg/L In Whole Blood @ Autopsy
		citalopram	3	3					citalopram	0.7 mg/L In Whole Blood @ Autopsy
		ibuprofen	4	4					ibuprofen	10 mg/L In Whole Blood @ Autopsy
		amitriptyline	1	1						
		sertraline	2	2						
		carbamazepine	3	3						
2547ph	54 y F	quetiapine	4	4	A	Ingst + Oth	Int-S	2		
		diazepam	5	5						
		clonazepam	6	6						
2548p	55 y F	cyclic antidepressant, unknown viral disease (COVID-19-Confirmed)	1	1	A	Ingst	Int-S	2		
			2	2						
2549ph	55 y F	trazodone	1	1	A/C	Ingst	Int-S	2		
		ethanol (beverage)	2	2					ethanol	107 mg/dL In Serum @ 5 m (pe)
2550ai	55 y F				U	Unk	Unk	2		
		doxepin	1	1						
		diphenhydramine	2	2						
2551h	55 y M	promethazine	3	3	A/C	Ingst	Int-S	3		
		mirtazapine	1	1						
		metformin	2	2						
		insulin (glargine) (ER)	3	3						
		metoclopramide	4	4						
		furosemide	5	5						
		paromomycin	6	6						
lisinopril	7	7								
2552ha	55 y M				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
		ethanol (beverage)	2	2					ethanol	280 mg/dL In Blood (unspecified) @ Unknown
2553a	56 y M	trazodone	3	3	A/C	Ingst	Int-S	1		
		bupropion	1	1						
		duloxetine (ER)	2	2						
2554h	56 y M	ethanol (beverage)	3	3	A	Ingst	Int-S	2	ethanol	183 mg/dL In Blood (unspecified) @ Unknown
		bupropion (ER)	1	1						
		acetaminophen/oxycodone	2	2						
2555ha	57 y F	hydrochlorothiazide/lisinopril	3	3	A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1					bupropion	1400 ng/mL In Blood (unspecified) @ Unknown
		bupropion (ER)	1	1					hydroxybupropion	4600 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	2	2					fluoxetine	1100 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	2	2					norfluoxetine	380 ng/mL In Blood (unspecified) @ Unknown
		lamotrigine	3	3					lamotrigine	12 mcg/mL In Blood (unspecified) @ Unknown
		lorazepam	4	4					lorazepam	220 ng/mL In Blood (unspecified) @ Unknown
acetaminophen	5	5	acetaminophen (apap)	75 mcg/mL In Plasma @ Unknown						
2556h	57 y F				A	Ingst + Par	Int-S	3		
		amitriptyline	1	1						
		metoprolol	2	2						
2557h	58 y M	fentanyl (prescription)	3	3	A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
2558i	59 y F	clonazepam	2	2	U	Unk	Unk	1		
		doxepin	1	1						
		citalopram	2	2						
2559	59 y F	diphenhydramine	3	3	A	Ingst	Int-S	2		
		bupropion	1	1						
		beta blocker	2	2						
		hydrochlorothiazide/triamterene	3	3						
		quetiapine	4	4						
		benzodiazepine	5	5						
		lamotrigine	6	6						
		gabapentin	7	7						
		hydroxyzine	8	8						
citalopram	9	9								
2560h	60 y F				A	Ingst	Int-S	1		
		lithium	1	1					lithium	5.91 mmol/L In Blood (unspecified) @ Unknown
		quetiapine	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2561h	61 y M	duloxetine (ER)	3	3	A	Ingst	Int-S	2		
		clonazepam	4	4						
		benzodiazepine	5	5						
2562h	61 y F	trazodone	1	1	A/C	Ingst	Int-S	1		
2563a	61 y F	nortriptyline	1	1	A	Unk	Int-S	1		
		acetaminophen/salicylate	2	2						
		acetaminophen/salicylate	2	2						
		baclofen	3	3						
		clonazepam	4	4						
		mirtazapine	5	5						
		ibuprofen	6	6						
		atorvastatin	7	7						
		loratadine	8	8						
nitroglycerin	9	9								
2564	62 y F	insulin (lispro)	1	1	A/C	Ingst	Int-S	2		
		trazodone	2	1						
		ethanol (beverage)	3	3						
2565ha	63 y F	bupropion	4	4	A/C	Ingst	Int-S	1		
		metformin	5	5						
		venlafaxine (ER)	1	1						
		propranolol	2	2						
		alprazolam	3	3						
2566ph	64 y F	ethanol (beverage)	4	4	U	Ingst + Unk	Int-S	1		
		decongestant, N.O.S.	5	5						
		amitriptyline	1	1						
		fluoxetine	2	2						
		morphine	3	3						
		oxycodone	4	4						
		venlafaxine	5	5						
gabapentin	6	6								
2567ha	64 y F	cyclobenzaprine	7	7	A	Ingst	Int-S	2		
		citalopram	8	1						
		temazepam	1	2						
		lorazepam	5	3						
		propranolol	3	4						
		quetiapine	4	5						
		acetaminophen	6	6						
		telmisartan	2	7						
		marijuana	7	8						
		marijuana	7	8						
2568	65 y F	citalopram	1	1	A/C	Ingst	Unt-T	2		
		citalopram	1	1						
		citalopram	1	1						
		acetaminophen	2	2						
		bupropion (ER)	1	1						
		risperidone	2	2						
		lisinopril	3	3						
		losartan	4	4						
hydroxyzine	5	5								
2569h	66 y F	dexamethasone	6	6	A/C	Ingst	Int-S	3		
		clopidogrel	7	7						
		omeprazole (ER)	8	8						
		imipramine	1	1						
2570	66 y F	quetiapine	2	2	U	Ingst	Int-S	3		
		lithium	3	3						
		citalopram	1	1						
[2571pha]	66 y F	ethanol (beverage)	2	2	A/C	Ingst	Int-S	1		
		amitriptyline	1	1						
2572ai	66 y F	amitriptyline	1	1	U	Unk	Unk	1		
		sertraline	1	1						
2573h	67 y M	acetaminophen (apap)			A	Ingst	Int-S	1	acetaminophen (apap)	162 mcg/mL In Blood (unspecified) @ 3 h (pe)
		acetaminophen (apap)								
2573h	67 y M	acetaminophen (apap)			A	Ingst	Int-S	1	acetaminophen (apap)	185 mcg/mL In Blood (unspecified) @ 4 h (pe)
		acetaminophen (apap)								
2573h	67 y M	ethanol			A	Ingst	Int-S	1	ethanol	40 mg/dL In Serum @ Unknown
		ethanol								
2573h	67 y M	bupropion	4	4	A/C	Ingst	Int-S	2		
		metformin	5	5						
2573h	67 y M	venlafaxine (ER)	1	1	A/C	Ingst	Int-S	1		
		propranolol	2	2						
		alprazolam	3	3						
		ethanol (beverage)	4	4						
		decongestant, N.O.S.	5	5						
		amitriptyline	1	1						
		fluoxetine	2	2						
morphine	3	3								
2573h	67 y M	oxycodone	4	4	U	Ingst + Unk	Int-S	1		
		venlafaxine	5	5						
		gabapentin	6	6						
		cyclobenzaprine	7	7						
		citalopram	8	1						
		temazepam	1	2						
		lorazepam	5	3						
2573h	67 y M	propranolol	3	4	A	Ingst	Int-S	2		
		quetiapine	4	5						
		acetaminophen	6	6						
		telmisartan	2	7						
		marijuana	7	8						
		marijuana	7	8						
		citalopram	8	1						
		temazepam	1	2						
		lorazepam	5	3						
		propranolol	3	4						
2573h	67 y M	quetiapine	4	5	A/C	Ingst	Unt-T	2		
		acetaminophen	6	6						
		telmisartan	2	7						
		marijuana	7	8						
		marijuana	7	8						
		delta-9-thc								
		delta-9-carboxy-thc								
		citalopram	8	1						
temazepam	1	2								
2573h	67 y M	lorazepam	5	3	U	Ingst	Int-S	3		
		propranolol	3	4						
		quetiapine	4	5						
		acetaminophen	6	6						
		telmisartan	2	7						
		marijuana	7	8						
		marijuana	7	8						
2573h	67 y M	acetaminophen	2	2	A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
		risperidone	2	2						
		lisinopril	3	3						
		losartan	4	4						
		hydroxyzine	5	5						
		dexamethasone	6	6						
clopidogrel	7	7								
2573h	67 y M	omeprazole (ER)	8	8	A/C	Ingst	Int-S	3		
		imipramine	1	1						
		quetiapine	2	2						
2573h	67 y M	lithium	3	3	U	Ingst	Int-S	3		
		citalopram	1	1						
		ethanol (beverage)	2	2						
[2571pha]	66 y F	amitriptyline	1	1	A/C	Ingst	Int-S	1		
		amitriptyline	1	1						
2573h	67 y M	sertraline	1	1	U	Unk	Unk	1		
		bupropion	1	1						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2574ph	67 y F	bupropion olanzapine trazodone lorazepam	1 2 3 4	1 2 3 4	A	Ingst + Aspir	Int-U	2		
2575h	67 y M	saflinamide	1	1	A/C	Ingst	Int-S	2		
2576h	68 y F	lithium	1	1	C	Ingst	AR-D	2	lithium	3 mmol/L In Serum @ Unknown
2577pa	68 y M	bupropion bupropion quetiapine	1 1 2	1 1 2	U	Ingst	Int-S	1	bupropion hydroxybupropion	1500 ng/mL In Blood (unspecified) @ Autopsy 2400 ng/mL In Blood (unspecified) @ Autopsy
2578ha	70 y M	escitalopram	1	1	A	Ingst	Int-S	1	citalopram	483 ng/mL In Blood (unspecified) @ Unknown
2579	71 y M	bupropion mirtazapine glipizide metformin	2 3 2 1	2 1 2 3	A	Ingst	Int-S	2		
2580ph	71 y F	bupropion (ER) fluoxetine	1 2	1 2	U	Ingst	Int-S	2		
2581ph	71 y F	bupropion mirtazapine	1 2	1 2	A/C	Ingst	Int-S	2		
2582h	72 y M	lithium lithium lithium lithium lithium	1 1 1 1 1	1 1 1 1 1	C	Ingst	Unt-U	2	lithium lithium lithium lithium lithium	0.8 mEq/L In Blood (unspecified) @ 17 h (pe) 1.1 mEq/L In Blood (unspecified) @ 25 h (pe) 1.3 mEq/L In Blood (unspecified) @ 36 h (pe) 2.2 mEq/L In Blood (unspecified) @ 30 m (pe) 2.6 mEq/L In Blood (unspecified) @ 13 h (pe)
2583h	72 y F	bupropion (ER) clonazepam losartan	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
2584ha	72 y F	amitriptyline amlodipine quetiapine propranolol levetiracetam levothyroxine losartan lisinopril atorvastatin	1 2 3 5 4 6 7 8 9	1 2 3 3 4 4 5 6 7	A/C	Ingst	Int-S	1	nortriptyline quetiapine levetiracetam	180 ng/mL In Blood (unspecified) @ Unknown 2500 ng/mL In Blood (unspecified) @ Unknown 2.9 ng/mL In Blood (unspecified) @ Unknown
2585h	74 y M	amitriptyline	1	1	A/C	Ingst	Int-S	2		
2586ai	76 y F	amitriptyline	1	1	U	Unk	Int-A	2		
2587ai	76 y F	trazodone oxycodone lorazepam	1 2 3	1 2 3	U	Unk	Int-S	1		
2588ai	76 y F	fluoxetine	1	1	U	Unk	Unk	1		
2589h	79 y M	bupropion (ER)	1	1	A/C	Ingst	Int-S	2		
2590ai	81 y M	trazodone quetiapine lorazepam	1 2 3	1 2 3	U	Unk	Int-S	1		
2591h	81 y F	amitriptyline ethanol (beverage)	1 2	1 2	U	Ingst	Int-S	1		
2592	84 y F	mirtazapine lamotrigine hydralazine methylphenidate	1 2 3 4	1 2 3 4	A/C	Ingst	Int-S	2		
2593ph	87 y M	bupropion (ER)	1	1	A/C	Ingst	Int-U	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
See Also case 11, 44, 45, 56, 66, 83, 98, 129, 144, 159, 170, 184, 186, 227, 239, 249, 492, 534, 543, 575, 591, 610, 611, 638, 640, 653, 691, 694, 708, 734, 735, 759, 772, 782, 801, 805, 816, 819, 823, 837, 861, 896, 898, 908, 947, 954, 957, 977, 988, 1005, 1016, 1024, 1035, 1040, 1054, 1065, 1066, 1096, 1114, 1149, 1173, 1178, 1185, 1194, 1205, 1215, 1217, 1225, 1236, 1284, 1303, 1327, 1332, 1388, 1409, 1430, 1437, 1457, 1520, 1533, 1602, 1612, 1613, 1615, 1619, 1641, 1645, 1646, 1674, 1691, 1693, 1710, 1711, 1725, 1739, 1744, 1748, 1760, 1783, 1805, 1825, 1838, 1847, 1866, 1869, 1871, 1879, 1885, 1933, 1939, 1959, 1970, 1988, 2029, 2046, 2063, 2110, 2127, 2163, 2165, 2170, 2175, 2178, 2190, 2196, 2198, 2202, 2207, 2210, 2233, 2237, 2256, 2258, 2266, 2275, 2309, 2345, 2358, 2362, 2423, 2434, 2435, 2438, 2444, 2451, 2596, 2602, 2606, 2608, 2617, 2622, 2630, 2632, 2658, 2661, 2662, 2664, 2667, 2668, 2671, 2672, 2676, 2677, 2679, 2689, 2694, 2695, 2702, 2703, 2711, 2716, 2717, 2722, 2723, 2739, 2741, 2748, 2750, 2753, 2766, 2767, 2777, 2781, 2790, 2792, 2793, 2794, 2798, 2800, 2801, 2806, 2813, 2817, 2818, 2822, 2829, 2831, 2833, 2838, 2842, 2844, 2853, 2859, 2862, 2864, 2869, 2876, 2881, 2892, 2901, 2909, 2910, 2913, 2915, 2943, 2949, 2954, 2960, 2980, 3008, 3020, 3021, 3027, 3028, 3036, 3038, 3048, 3057, 3058, 3060, 3067, 3072, 3076, 3078, 3101, 3110, 3115, 3116, 3119, 3124, 3134, 3192, 3218, 3232, 3312, 3321, 3378, 3406, 3419, 3522, 3570, 3576, 3580, 3582, 3635, 3655, 3678, 3760										
Antihistamines										
2594pha	14 y F	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	27 mg/L In Blood (unspecified) @ Autopsy
2595phai	14 y F	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	1701 ng/mL In Blood (unspecified) @ Autopsy
2596pha	14 y F	hydroxyzine	1	1	A	Ingst	Int-S	1	hydroxyzine	2100 ng/mL In Blood (unspecified) @ Autopsy
		nortriptyline	2	1						
		metformin	3	2						
2597ha	16 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2					ethanol	15 mg/dL In Blood (unspecified) @ Unknown
2598ha	16 y M	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	4.9 mg/L In Serum @ Unknown
		ibuprofen	2	2						
		salicylate	3	3						
2599h	17 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
2600ha	18 y F	diphenhydramine	1	1	U	Ingst	Int-S	1	diphenhydramine	16000 ng/mL In Blood (unspecified) @ Autopsy
2601i	18 y F	diphenhydramine	1	1	U	Unk	Int-S	1		
2602pha	18 y F	diphenhydramine	1	1	A	Unk	Int-S	1	diphenhydramine	10000 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	2	2					fluoxetine	640 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	3	3					acetaminophen (apap)	70 ng/mL In Blood (unspecified) @ Unknown
2603ha	20 y F	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	25109 ng/mL In Blood (unspecified) @ Autopsy
2604pa	20 y M	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	1400 ng/mL In Blood (unspecified) @ Autopsy
		caffeine	2	2					caffeine	120 mcg/mL In Blood (unspecified) @ Autopsy
2605	22 y M	diphenhydramine	1	1	A	Ingst	Int-A	3		
2606gai	24 y F	diphenhydramine	1	1	U	Unk	Int-S	1		
		fluoxetine	2	2						
		melatonin	3	3						
2607pha	25 y M	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	10000 ng/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	80 mg/dL In Blood (unspecified) @ Unknown
2608pa	29 y F	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	56000 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	2	2						
		ethanol (beverage)	3	3					ethanol	115 mg/dL In Blood (unspecified) @ Autopsy
2609ph	29 y M	diphenhydramine	1	1	A	Ingst	Unk	2		
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
2610pai	30 y F	diphenhydramine	1	1	A	Ingst+Unk	Int-S	1	diphenhydramine	24000 ng/mL In Whole Blood @ Autopsy
		ethanol (beverage)	2	2					ethanol	131 mg/dL In Whole Blood @ Autopsy
2611	30 y F	hydroxyzine	1	1	A/C	Ingst	Int-S	2		
2612ph	31 y M	diphenhydramine	1	1	A	Ingst	Int-S	2		
2613	31 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
2614ha	33 y M	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	24.9 mg/L In Blood (unspecified) @ Autopsy
		ethanol (beverage)	2	2						
2615ph	37 y M	diphenhydramine	1	1	A	Ingst	Int-S	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2616ph	38 y M	diphenhydramine	1	1	A	Ingst	Unk	1	diphenhydramine	1.1 mg/L In Blood (unspecified) @ Autopsy
		diphenhydramine	1	1					diphenhydramine	1.7 mg/L In Blood (unspecified) @ Autopsy
2617ha	42 y F	acetaminophen	2	2	A/C	Ingst	Int-S	1	acetaminophen (apap)	12 mg/L In Serum @ Unknown
		diphenhydramine	7	1					diphenhydramine	3000 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	2					acetaminophen (apap)	610 mcg/mL In Blood (unspecified) @ Unknown
		hydroxyzine	2	3					hydroxyzine	320 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	3	4					clonazepam	10 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	3	4					7-aminoclonazepam	23 ng/mL In Blood (unspecified) @ Unknown
		methocarbamol	4	5					quetiapine	250 ng/mL In Blood (unspecified) @ Unknown
		quetiapine	5	6						
		sertraline	6	7					desmethylsertraline	42 ng/mL In Blood (unspecified) @ Unknown
		sertraline	6	7					sertraline	91 ng/mL In Blood (unspecified) @ Unknown
bupirone	8	8	bupirone	42 ng/mL In Blood (unspecified) @ Unknown						
2618h	43 y M	hydroxyzine	1	1	A/C	Ingst	Int-U	2		
		narcotic, N.O.S.	2	2						
		tizanidine	3	3						
		drug, N.O.S.	4	4						
		hydrochlorothiazide	5	5						
2619h	43 y M	diphenhydramine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2620	45 y M	diphenhydramine	1	1	A	Ingst	Unk	3		
2621ph	46 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2622pha	47 y F	diphenhydramine	1	1	A/C	Ingst	Int-S	1	diphenhydramine	1.4 mg/L In Blood (unspecified) @ 2 d (pe)
		bupirone	2	2					acetaminophen (apap)	111 mg/L In Serum @ Unknown
		acetaminophen	3	3						
		acetaminophen	3	3					acetaminophen (apap)	91 mg/L In Blood (unspecified) @ 2 d (pe)
		ibuprofen	4	4					7-aminoclonazepam	0.06 mg/L In Blood (unspecified) @ 2 d (pe)
		lamotrigine	5	5						
		escitalopram	6	6						
clonazepam	7	7								
2623ph	49 y M	doxylamine	1	1	A	Ingst	Int-S	2		
		zolpidem	2	2						
2624ha	51 y M	diphenhydramine	1	1	A	Unk	Int-U	2	diphenhydramine	200 ng/mL In Serum @ Unknown
2625h	53 y F	hydroxyzine	1	1	U	Ingst	Int-S	2		
		diphenhydramine	2	2						
		lorazepam	3	3						
2626pha	55 y M	diphenhydramine	1	1	A/C	Ingst	Int-S	1	diphenhydramine	10 mg/L In Blood (unspecified) @ 1 h (pe)
		ethanol (beverage)	2	2					ethanol	209 mg/dL In Serum @ Unknown
2627ha	57 y M	diphenhydramine	1	1	A	Ingst	Int-S	1		
		marijuana	2	2						
		ethanol (non-beverage)	3	3						
2628ai	64 y M	diphenhydramine	1	1	U	Unk	Unt-M	3		
		hyperthermia	2	2						
2629ai	70 y F	diphenhydramine	1	1	U	Unk	Int-S	1		
		zolpidem	2	2						
		ethanol (beverage)	3	3						
2630	71 y M	hydroxyzine	1	1	A	Ingst	Int-S	3		
		sertraline	2	2						
2631ai	72 y M	hydroxyzine	1	1	U	Unk	Int-S	1		
		gabapentin	2	2						
		hydrocodone	3	3						
		clonazepam	4	4						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2632pha	74 y M	diphenhydramine	3	1	A	Ingst+ Unk	Int-S	2	diphenhydramine	2.594 mg/L In Serum @ Unknown
		acetaminophen	1	2					acetaminophen (apap)	249.6 mcg/mL In Serum @ Unknown
		citalopram	4	3					citalopram	0.173 mg/L In Serum @ Unknown
		lamotrigine	2	4						
2633	75 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
2634h	79 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
2635ai	85 y F	diphenhydramine	1	1	U	Unk	Unk	2		
		acetaminophen	2	2						
		salicylate	3	3						
2636h	89 y M	diphenhydramine	1	1	A	Par	AR-D	2		
		acetaminophen/hydrocodone	2	2						
See Also case 9, 10, 22, 53, 202, 219, 278, 526, 627, 638, 691, 759, 773, 774, 823, 860, 866, 881, 905, 957, 979, 1005, 1033, 1096, 1114, 1134, 1155, 1197, 1221, 1293, 1336, 1341, 1350, 1352, 1373, 1388, 1390, 1393, 1398, 1444, 1446, 1512, 1528, 1552, 1583, 1589, 1595, 1598, 1601, 1615, 1678, 1698, 1699, 1725, 1727, 1739, 1740, 1758, 1760, 1785, 1786, 1801, 1805, 1836, 1837, 1839, 1887, 1892, 1894, 1908, 1935, 1962, 1968, 2141, 2158, 2208, 2269, 2272, 2304, 2325, 2348, 2418, 2430, 2432, 2439, 2454, 2461, 2464, 2471, 2477, 2483, 2490, 2506, 2518, 2525, 2529, 2544, 2545, 2550, 2558, 2559, 2562, 2568, 2637, 2677, 2699, 2704, 2722, 2727, 2735, 2738, 2739, 2766, 2775, 2794, 2804, 2817, 2829, 2831, 2842, 2853, 2856, 2858, 2862, 2863, 2864, 2884, 2910, 2933, 2941, 2943, 2970, 3024, 3042, 3083, 3092, 3116, 3134, 3151, 3287, 3405, 3428, 3518, 3570, 3589, 3604, 3609, 3631, 3644, 3787										
Antimicrobials										
2637pha	30 y F	hydroxychloroquine	1	1	A/C	Ingst	Int-S	1	hydroxychloroquine	35 mg/L In Serum @ Unknown
		metoprolol	2	2						
		hydroxyzine	3	3						
2638ai	46 y M	antimalarial (chloroquine type)	1	1	U	Unk	Int-S	1		
2639ph	51 y M	hydroxychloroquine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2					ethanol	249 mg/dL In Blood (unspecified) @ Unknown
[2640h]	55 y M	dapsone	1	1	C	Ingst	AR-D	3	methemoglobin	1.3 % In Blood (unspecified) @ 20 d (pe)
		dapsone	1	1					methemoglobin	10 % In Blood (unspecified) @ 2 d (pe)
		dapsone	1	1					methemoglobin	25 % In Blood (unspecified) @ 1 d (pe)
2641h	60 y M	antiretrovirals	1	1	U	Ingst	Unk	3		
		ethanol (beverage)	2	2					ethanol	60 mg/dL In Blood (unspecified) @ Unknown
2642	60 y M	ivermectin	1	1	C	Ingst	Int-M	2		
2643h	61 y M	ivermectin	1	1	C	Ingst	Int-M	3		
		viral disease (COVID-19-Confirmed)	2	2						
2644h	63 y F	amantadine	1	1	C	Ingst	Unt-T	3		
2645ha	65 y M	amantadine	1	1	A/C	Ingst	Int-S	2		
[2646ha]	70 y F	hydroxychloroquine	1	1	A	Ingst	Int-S	1	ethanol	198 mg/dL In Serum @ Unknown
		hydroxychloroquine	1	1					hydroxychloroquine	700 ng/mL In Serum @ Unknown
		ethanol (beverage)	2	2						
2647h	70 y F	hydroxychloroquine	1	1	A/C	Ingst	Unt-M	2		
		furosemide	2	2						
		pantoprazole	3	3						
2648h	76 y M	remdesivir	1	1	A/C	Par	AR-D	3		
		viral disease (COVID-19-Confirmed)	2	2						
2649h	82 y M	ivermectin	1	1	A/C	Ingst	AR-D	3		
		viral disease (COVID-19-Confirmed)	2	2						
See Also case 177, 652, 777, 1293, 1583, 1642, 1665, 1785, 1796, 1951, 2006, 2362, 2551, 2678, 2744, 2753, 2766, 2777, 2778, 2939, 2960, 2967										
Antineoplastics										
[2650ha]	67 y M	methotrexate	1	1	A/C	Ingst	Unt-T	2		
2651h	73 y F	methotrexate	1	1	A/C	Ingst	Unt-T	1		
2652hi	74 y F	methotrexate	1	1	A	Ingst	Unt-U	2		
		methotrexate	1	1					methotrexate	0.13 mmol/L In Serum @ Unknown
2653	78 y F	methotrexate	1	1	A	Ingst	AR-D	1		
2654h	85 y M	fluorouracil	1	1	A	Par	AR-D	2		
See Also case 3800										
Asthma Therapies										
[2655ha]	50 y M	theophylline	1	1	A/C	Ingst	Int-S	1	theophylline	150 mcg/mL In Blood (unspecified) @ Autopsy
		ethanol (beverage)	2	2					ethanol	140 mg/dL In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2656h	66 y F	theophylline	1	1	C	Ingst	Unt-U	3	theophylline	27.8 mcg/mL In Blood (unspecified) @ Unknown
See Also case 2189, 2544, 3571										
Cardiovascular Drugs										
[2657pha]	2 y M	nifedipine	1	1	A	Ingst	Unt-G	1	nifedipine	0.29 mg/L In Blood (unspecified) @ Autopsy
		nifedipine	1	1					nifedipine	2.8 mg/L In Bile @ Autopsy
		nifedipine	1	1					nifedipine	50 mg/L In Gastric (stomach content) @ Autopsy
		labetalol	2	2					labetalol	0.14 mg/L In Blood (unspecified) @ Autopsy
		labetalol	2	2					labetalol	15 mg/L In Gastric (stomach content) @ Autopsy
		labetalol	2	2					labetalol	9.8 mg/L In Bile @ Autopsy
2658ph	13 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		barbiturate (long acting)	2	2						
		lamotrigine	3	3						
		escitalopram	4	4						
2659h	14 y F	calcium antagonist	1	1	A	Ingst	Int-S	2		
		ibuprofen	2	2						
2660ha	14 y M	metoprolol	1	1	A	Ingst	Int-S	1		
		amlodipine	2	2						
		ketamine	3	3					ketamine	610 ng/mL In Blood (unspecified) @ Autopsy
2661h	15 y F	amlodipine	1	1	U	Ingst	Int-S	2		
		escitalopram	2	2						
		trazodone	3	3						
		risperidone	4	4						
		hydrochlorothiazide	5	5						
2662ha	16 y F	atenolol	1	1	A	Ingst	Int-S	1		
		bupropion (ER)	2	2					hydroxybupropion	1600 ng/mL In Blood (unspecified) @ Unknown
		bupropion (ER)	2	2					bupropion	68 ng/mL In Blood (unspecified) @ Unknown
		clozapine	3	3					norclozapine	1900 ng/mL In Blood (unspecified) @ Unknown
		clozapine	3	3					clozapine	2500 ng/mL In Blood (unspecified) @ Unknown
		citalopram	4	4					citalopram	1200 ng/mL In Blood (unspecified) @ Unknown
		trazodone	5	5					trazodone	1.6 ng/mL In Blood (unspecified) @ Unknown
2663p	17 y F	beta blocker	1	1	A	Ingst	Int-S	2		
2664h	17 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		metoprolol	2	2						
		atenolol	3	3						
		lisinopril	4	4						
		paroxetine	5	5						
		lovastatin	6	6						
2665ha	20 y M	amlodipine	1	1	A	Ingst	Int-S	1	amlodipine	940 ng/mL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
		ethanol (beverage)	3	3					ethanol	19 mg/dL In Blood (unspecified) @ Unknown
2666h	25 y F	amlodipine	1	1	A/C	Ingst	Int-S	1		
		acetaminophen	2	2					acetaminophen (apap)	12 mcg/mL In Blood (unspecified) @ Unknown
2667	25 y M	metoprolol (ER)	1	1	A	Ingst	Int-S	2		
		trazodone	2	2						
		chlordiazepoxide	3	3						
		ethanol (beverage)	4	4					ethanol	384 mg/dL In Blood (unspecified) @ Unknown
2668ph	26 y F	verapamil	2	1	U	Ingst	Int-S	2		
		bupropion	1	2						
2669	26 y F	prazosin	1	1	A/C	Ingst	Int-S	2		
		benztropine	2	2						
		lurasidone	3	3						
		amphetamine/dextroamphetamine	4	4						
		clonazepam	5	5						
2670h	26 y F	amlodipine/benazepril	1	1	A	Ingst	Int-S	2		
2671h	28 y M	propranolol	1	1	A/C	Ingst	Int-S	2		
		bupropion (ER)	2	2						
		amphetamine/dextroamphetamine	3	3						
		fluoxetine	4	4						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2672ph	28 y F	propranolol buprenorphine sertraline midazolam	1 2 3 4	1 2 3 4	U	Ingst	Int-S	2		
[2673ha]	28 y F	metoprolol (ER)	1	1	A	Ingst	Int-S	1	metoprolol	7000 ng/mL In Blood (unspecified) @ Unknown
2674h	28 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
2675	28 y M	amlodipine gabapentin ethanol (beverage)	1 2 3	1 2 3	A	Ingst	Int-S	2		
2676ha	29 y F	propranolol bupropion bupropion fluoxetine fluoxetine lamotrigine buprenorphine pantoprazole (ER)	1 2 2 3 3 4 5 6	1 2 2 3 3 4 5 6	A/C	Ingst	Int-S	1	propranolol bupropion hydroxybupropion norfluoxetine fluoxetine lamotrigine buprenorphine	1300 ng/mL In Blood (unspecified) @ 5 m (pe) 150 ng/mL In Blood (unspecified) @ 150 m (pe) 2200 ng/mL In Blood (unspecified) @ 5 m (pe) 180 ng/mL In Blood (unspecified) @ 5 m (pe) 250 ng/mL In Blood (unspecified) @ 5 m (pe) 17 mcg/mL In Blood (unspecified) @ 5 m (pe) 1.5 ng/mL In Blood (unspecified) @ 5 m (pe)
2677ha	30 y F	propranolol lithium (ER) hydroxyzine naproxen trazodone ethanol (beverage)	1 2 3 4 6 5	1 2 3 4 4 5	A/C	Ingst	Int-S	1	propranolol lithium hydroxyzine trazodone ethanol	6300 ng/mL In Blood (unspecified) @ Unknown 5.7 mmol/L In Blood (unspecified) @ Unknown 210 ng/mL In Blood (unspecified) @ Unknown 2 mcg/mL In Blood (unspecified) @ Unknown 336 mg/dL In Blood (unspecified) @ Unknown
2678h	30 y F	diltiazem (ER) nadolol clonidine codeine ethanol (beverage) alprazolam metronidazole	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A/C	Ingst	Int-S	2	ethanol	198 mg/dL In Blood (unspecified) @ Unknown
2679ph	31 y F	propranolol amlodipine clonidine prazosin bupropion dexmethylphenidate fluoxetine	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A/C	Ingst	Int-S	2		
2680h	31 y M	verapamil	1	1	A	Ingst	Int-S	1	ethanol	211 mg/dL In Blood (unspecified) @ Unknown
2681	32 y F	alcohol, N.O.S. amlodipine alprazolam oxybutynin	2 1 2 3	2 1 2 3	A	Ingst	Int-S	2		
2682h	34 y F	verapamil ethanol (beverage)	1 2	1 2	A/C	Ingst	Int-S	1	ethanol	139 mg/dL In Blood (unspecified) @ Unknown
2683ph	35 y F	amlodipine alprazolam	1 2	1 2	U	Ingst	Int-S	1		
2684h	35 y F	verapamil	1	1	A	Ingst	Int-S	2		
2685	36 y F	metoprolol ziprasidone	1 2	1 2	U	Ingst	Int-S	2		
2686h	37 y F	verapamil	1	1	A/C	Ingst	Int-S	1		
2687ha	37 y M	carvedilol	1	1	A/C	Ingst	Int-S	1		
2688ph	37 y F	propranolol narcotic, N.O.S. acetaminophen	1 2 3	1 2 3	A	Ingst	Int-S	2	acetaminophen (apap)	95.7 mcg/mL In Blood (unspecified) @ 0 h (pe)

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2689h	38 y F	metoprolol (ER)	1	1	A/C	Ingst	Int-S	2		
		pregabalin	2	2						
		sertraline	3	3						
2690a	38 y F	carvedilol	1	1	A	Ingst	Int-S	2		
2691h	38 y F	amlodipine	1	1	A	Ingst	Int-S	2		
2692	38 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		lisinopril	2	2						
		acetaminophen	3	3						
		ibuprofen	4	4						
2693h	38 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		lisinopril	2	2						
		potassium chloride	3	3						
		pantoprazole (ER)	4	4						
		gastrointestinal preparation, N.O.S.	5	5						
		alprazolam	6	6						
		ethanol (beverage)	7	7						
2694ha	39 y M	clonidine (TD)	1	1	U	Unk	Int-S	2		
		quetiapine	2	2						
		metformin	3	3						
		cocaine	4	4						
		mirtazapine	5	5						
		escitalopram	6	6						
		gabapentin	7	7						
2695	39 y F	carvedilol	1	1	A	Ingst	Int-S	3		
		buprenorphine	2	2						
		risperidone	3	3						
		citalopram	4	4						
		mirtazapine	5	5						
		benzodiazepine	6	6						
		furosemide	7	7						
		amphetamine	8	8						
		valproic acid	9	9						
2696h	39 y M	beta blocker	1	1	A/C	Ingst	Int-S	2		
		quetiapine	2	2						
		pregabalin	3	3						
2697	39 y F	amlodipine	1	1	C	Ingst	Unt-T	3		
		lactulose	2	2						
2698h	39 y M	metoprolol	1	1	A/C	Ingst	Int-U	2		
		lorazepam	2	2						
2699h	39 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		hydroxyzine	2	2						
2700h	39 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		lisinopril	2	2						
		lorazepam	3	3						
		acetaminophen	4	4						
2701h	39 y F	ethanol (beverage)	5	5	A/C	Ingst	Int-S	2	acetaminophen (apap)	46 mg/mL In Serum @ Unknown
										ethanol
2702ha	40 y F	clonidine	1	1	A/C	Ingst + Unk	Int-S	1		
		baclofen	2	2						
		gabapentin	3	3						
2703	40 y F	metoprolol	2	1	A/C	Ingst	Int-S	2	metoprolol	2300 ng/mL In Blood (unspecified) @ Unknown
		metformin	1	2					metformin	300 mcg/mL In Blood (unspecified) @ Unknown
		bupropion	5	3					hydroxybupropion	370 ng/mL In Blood (unspecified) @ Unknown
		bupropion	5	3					bupropion	61 ng/mL In Blood (unspecified) @ Unknown
		oxycodone	4	4					oxycodone (free)	58 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	3	5					alprazolam	18 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	3	5					alpha-oh-alprazolam	9.1 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	7	6					amphetamine	74 ng/mL In Blood (unspecified) @ Unknown
		marijuana	6	7					delta-9-thc	1.9 ng/mL In Blood (unspecified) @ Unknown
		marijuana	6	7					delta-9-carboxy-thc	17 ng/mL In Blood (unspecified) @ Unknown
2703	40 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		trazodone	2	2						
		hydrochlorothiazide/lisinopril	3	3						
		meloxicam	4	4						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2704ai	40 y F	clonidine	1	1	U	Unk	Int-S	1		
		hydroxyzine	2	2						
		gabapentin	3	3						
		ethanol (beverage)	4	4						
2705h	41 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2706h	41 y M	calcium antagonist	1	1	A/C	Ingst	Int-M	2		
2707h	41 y M	clonidine	1	1	A	Par	Int-A	2		
		methadone	2	2						
2708ha	42 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		clonazepam	2	2						
		clonazepam	2	2						
									7-aminoclonazepam	11 ng/mL In Blood (unspecified) @ Unknown
									clonazepam	3.9 ng/mL In Blood (unspecified) @ Unknown
2709h	42 y M	verapamil	1	1	A/C	Ingst	Int-S	2		
2710	42 y M	calcium antagonist	1	1	U	Ingst	Int-U	2		
2711ai	42 y M	guanfacine	1	1	U	Unk	Int-S	1		
		lithium	2	2						
		escitalopram	3	3						
		lisinopril	4	4						
2712h	42 y F	lisinopril	1	1	A	Ingst	Int-S	3		
2713h	42 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		lisinopril	2	2						
2714h	42 y M	propranolol	1	1	A/C	Ingst	Int-S	2		
		metformin/sitagliptin	2	2						
2715h	43 y M	propranolol	1	1	U	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2716ha	43 y F	amlodipine	1	1	A/C	Ingst+Unk	Int-S	1		
		bupropion	2	2						
		bupropion	2	2						
		methamphetamine	3	3						
		methamphetamine	3	3						
		buspirone	4	4						
		ethanol (beverage)	5	5						
								ethanol	301 mg/dL In Serum @ 1 h (pe)	
								amlodipine	860 ng/mL In Blood (unspecified) @ Unknown	
								hydroxybupropion	210 ng/mL In Blood (unspecified) @ Unknown	
								bupropion	22 ng/mL In Blood (unspecified) @ Unknown	
								methamphetamine	100 ng/mL In Blood (unspecified) @ Unknown	
								amphetamine	13 ng/mL In Blood (unspecified) @ Unknown	
								ethanol	29 mg/dL In Blood (unspecified) @ Unknown	
2717h	44 y M	propranolol	1	1	A/C	Ingst	Int-S	2		
		duloxetine	2	2						
		quetiapine	3	3						
		gabapentin	4	4						
		diazepam	5	5						
		mirtazapine	6	6						
2718a	45 y F	amlodipine	1	1	A/C	Ingst	Int-S	1		
		lisinopril	2	2						
		oxycodone	3	3						
		alprazolam	4	4						
								oxycodone	65 ng/mL In Blood (unspecified) @ Unknown	
								alprazolam	10 ng/mL In Blood (unspecified) @ Unknown	
2719ai	45 y F	lisinopril	1	1	U	Unk	Int-S	1		
2720h	46 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		metformin	2	2						
		lithium	3	3						
2721ph	46 y M	digoxin	1	1	U	Ingst	Unk	3		
		warfarin	2	2						
2722ha	46 y F	amlodipine	1	1	A	Ingst	Int-S	1		
		propranolol	2	2						
		bupropion	3	3						
		ethanol (beverage)	4	4						
		mirtazapine	5	5						
		lisinopril	6	6						
		gabapentin	7	7						
		meloxicam	8	8						
		famotidine	9	9						
								ethanol	193 mg/dL In Blood (unspecified) @ Unknown	

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2723h	46 y F	amlodipine	1	1	C	Ingst	Int-S	2		
		citalopram	2	2						
		ethanol (beverage)	3	3						
		cocaine	4	4						
2724	46 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		enalapril	2	2						
		ethanol (beverage)	3	3						
2725	46 y F	carvedilol	1	1	A	Ingst	Int-S	2		
		amlodipine	2	2						
2726	46 y M	calcium antagonist	1	1	A	Ingst	Int-S	3		
		marijuana (edible)	2	2						
		viral disease (COVID-19-Confirmed)	3	3						
		ethanol (beverage)	4	4					ethanol	36 mg/dL In Blood (unspecified) @ Unknown
2727h	47 y M	amlodipine	1	1	U	Ingst + Unk	Int-S	2		
		cyclobenzaprine	2	2						
		hydroxyzine	3	3						
		methamphetamine	4	4						
2728h	47 y F	verapamil	1	1	A/C	Ingst	AR-D	2		
2729h	47 y F	amlodipine	1	1	U	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2730	47 y F	calcium antagonist	1	1	A	Ingst	Int-S	1		
2731h	47 y F	metoprolol	1	1	A	Ingst	Int-S	2		
		gabapentin	2	2						
2732h	47 y F	diltiazem	1	1	A/C	Ingst	Int-S	2		
		hydrochlorothiazide	2	2						
2733ha	48 y M	carvedilol	1	1	A/C	Ingst	Int-S	1		
		amlodipine	2	2					amlodipine	74 ng/mL In Serum @ Unknown
[2734a]	48 y F	hydrochlorothiazide/lisinopril	3	3	A	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	700 ng/mL In Blood (unspecified) @ Unknown
2735h	48 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		diphenhydramine	2	2						
2736h	48 y F	hydrochlorothiazide/lisinopril	1	1	A	Ingst	Int-S	2		
		amlodipine	2	2						
2737h	48 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2738ha	48 y F	amlodipine	1	1	A	Ingst + Unk	Int-S	1		
		tramadol	2	2					o-desmethyltramadol	240 ng/mL In Blood (unspecified) @ Unknown
		tramadol	2	2					tramadol	4200 ng/mL In Blood (unspecified) @ Unknown
		tramadol	2	2					tramadol	4200 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	3	3					acetyl fentanyl	0.77 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	3	3					gabapentin	17 mcg/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	3	3					norfentanyl	45 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	3	3					fentanyl	62 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	4	3						
		cocaine	5	4					benzoylceognine	1000 ng/mL In Blood (unspecified) @ Unknown
2739ha	48 y F	diphenhydramine	6	6	A	Ingst	Int-S	1		
		verapamil	1	1						
		duloxetine	2	2						
		lamotrigine	3	3						
		zolpidem	4	4						
		hydroxyzine	5	5						
2740h	48 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		metoprolol	2	2						
		ethanol (beverage)	3	3					ethanol	134 mg/dL In Blood (unspecified) @ Unknown
2741h	49 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		guanfacine	2	2						
		ethanol (beverage)	3	3					ethanol	224 mg/dL In Serum @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2742	49 y M	drug, N.O.S.	4	4	A	Ingst	Int-S	2		
		lisinopril	5	5						
		citalopram	6	6						
		naproxen	7	7						
2743ph	49 y F	lisinopril	1	1	A/C	Ingst	Unk	2		
		atenolol	2	2						
		amlodipine	3	3						
2744h	49 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
		gabapentin	3	3						
		metoprolol	1	1						
2745h	49 y M	hydroxychloroquine	2	2	A	Ingst	Unk	2		
		acetaminophen	3	3						
		methocarbamol	4	4						
		amlodipine	1	1						
2746ha	50 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		verapamil	1	1						
		verapamil	1	1						
2747h	50 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		metoprolol	2	2						
		quetiapine	3	3						
2748	50 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		beta blocker	2	2						
		venlafaxine	3	3						
		alprazolam	4	4						
		ethanol (beverage)	5	5						
2749h	50 y M	diltiazem	1	1	A/C	Ingst	Int-S	3		
2750ph	51 y M	amlodipine	1	1	U	Ingst	Int-S	2		
		beta blocker	2	2						
		bupropion	3	3						
2751h	51 y F	amlodipine	1	1	U	Ingst	Int-S	1		
		amlodipine	1	1						
2752h	51 y M	propranolol	1	1	A	Ingst	Int-S	3		
		amlodipine	2	2						
		melatonin	3	3						
		ibuprofen	4	4						
		amlodipine	1	1						
2753h	51 y M	verapamil (ER)	1	1	A/C	Ingst	Int-S	1		
		lisinopril	2	2						
		acetaminophen	3	3						
		salicylate	4	4						
		sertraline	5	5						
		gabapentin	6	6						
		doxycycline	7	7						
		nabumetone	8	8						
2754h	52 y F	digoxin	1	1	A/C	Ingst	AR-D	3	digoxin	5 ng/mL In Serum @ Unknown
2755	52 y M	amlodipine/benazpril	1	1	A/C	Ingst	Int-S	2		
		istradefylline	2	2						
		lorazepam	3	3						
		ethanol (beverage)	4	4						
2756ha	52 y M	carvedilol	1	1	A/C	Ingst	Int-S	2		
		carvedilol	1	1						
		ethanol (beverage)	2	3						
2757p	52 y F	plant (<i>Mitragyna species</i>)	3	3	A/C	Ingst	Int-S	2		
		beta blocker	1	1						
2758h	53 y F	acetaminophen/oxycodone	2	2	A/C	Ingst	Int-S	2		
		diltiazem	1	1						
2759h	53 y F	metformin	2	2	A	Ingst	Int-S	2		
		amlodipine	1	1						
2760ha	53 y M	ethanol (beverage)	2	2	A	Ingst	Int-S	2		
		isosorbide (ER)	1	1						
		ethanol (beverage)	2	2					ethanol	70 mg/dL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2761ph	53 y F	amlodipine	1	1	A/C	Ingst	Int-S	2	ethanol	11 mg/dL In Blood (unspecified) @ Unknown
		pesticide, N.O.S.	2	2						
		ethanol (beverage)	3	3						
2762h	53 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
2763	53 y F	amlodipine	1	1	A	Ingst + Inhal	Int-S	3	carboxyhemoglobin	7.2 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	2						
2764h	54 y F	flecainide	1	1	C	Ingst	AR-D	3	flecainide	4.57 mcg/mL In Blood (unspecified) @ Unknown
2765	54 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		lisinopril	2	2						
		zolpidem (ER)	3	3						
2766ph	54 y F	amlodipine	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	114 mg/L In Serum @ Unknown
		bupropion	2	2						
		acetaminophen	3	3						
		salicylate	4	4						
		salicylate	4	4						
		diphenhydramine	5	5						
		tramadol	6	6						
		phentermine	7	7						
		rosuvastatin	8	8						
sulfamethasoxazole/trimethoprim	9	9								
2767h	54 y F	amlodipine	1	1	U	Ingst	Int-S	2		
		prazosin	2	2						
		fluoxetine	3	3						
2768h	54 y F	verapamil (ER)	1	1	A/C	Ingst	Int-S	2		
		bupirone	2	2						
2769h	55 y M	verapamil (ER)	1	1	A/C	Ingst	Int-S	2		
2770h	55 y F	amlodipine	1	1	A/C	Ingst	Int-S	2	ethanol	141 mg/dL In Blood (unspecified) @ Unknown
		tizanidine	2	2						
		lisinopril	3	3						
		ethanol (beverage)	4	4						
2771phai	55 y M	nifedipine (ER)	1	1	A/C	Ingst	Int-S	1	nifedipine	2000 ng/mL In Blood (unspecified) @ Unknown
2772ph	55 y F	clonidine (TD)	1	1	A/C	Ingst	Int-S	1	carbamazepine	31 mg/L In Blood (unspecified) @ Unknown
		carbamazepine	2	2						
		quetiapine	3	3						
2773h	55 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
2774h	55 y F	amlodipine	1	1	A	Ingst	Int-S	2		
2775	55 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		acetaminophen	2	2						
		diphenhydramine	3	3						
		cough and cold preparation, N.O.S.	4	4						
2776ha	55 y F	labetalol	1	1	U	Unk	Int-S	1	labetalol	11000 ng/mL In Blood (unspecified) @ Unknown
		metoprolol	2	2						
		diltiazem	3	3						
		ketamine	4	4						
		tramadol	5	5						
		ethanol (beverage)	6	6						
2777h	55 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		citalopram	2	2						
		salicylate	3	3						
		methamphetamine	4	4						
		doravirine/lamivudine/tenofovir	5	5						
2778	56 y M	verapamil	1	1	U	Ingst	Int-U	2		
		sulfamethasoxazole/trimethoprim	2	2						
		doxycycline	3	3						
		gabapentin	4	4						
		ethanol (beverage)	5	5						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2779h	56 y F	amlodipine	1	1	A	Ingst	Int-S	2		
2780h	56 y M	amlodipine	1	1	A	Ingst	Int-S	2		
2781h	56 y M	losartan	2	2	A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		carvedilol	2	2						
		clonidine	3	3						
		lisinopril	4	4						
		vortioxetine	5	5						
		clonazepam	6	6						
2782ha	56 y F	amlodipine	1	1	A	Ingst	Int-S	1	amlodipine	430 ng/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	136 mg/dL In Blood (unspecified) @ Unknown
2783h	57 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
		metformin	2	2						
		salicylate	3	3						
2784ha	57 y F	labetalol	1	1	U	Ingst	Int-S	1		
2785	57 y M	cardiac glycoside	1	1	C	Ingst	AR-D	3	digoxin	5.3 ng/mL In Blood (unspecified) @ Unknown
2786h	57 y M	calcium antagonist	1	1	A	Unk	AR-D	3		
2787	57 y F	beta blocker	1	1	A/C	Ingst	Int-S	3		
		calcium antagonist	2	2						
		salicylate	3	3						
		antihyperlipidemic	4	4						
		antiplatelet drug	5	5						
		hydralazine	6	6						
		furosemide	7	7						
		nitroglycerin (ER)	8	8						
		ethanol (beverage)	9	9					ethanol	345 mg/dL In Blood (unspecified) @ Unknown
2788	57 y M	metoprolol	1	1	A/C	Ingst	Int-S	3		
		gabapentin	2	2						
		atorvastatin	3	3						
2789ha	58 y M	amlodipine	1	1	A/C	Ingst	Int-S	3		
		carvedilol	2	2						
		amphetamine	3	3						
2790ha	58 y M	amiodarone	1	1	A/C	Ingst	Int-U	1		
		valproic acid	2	2						
		lithium	3	3						
		doxazosin	4	4						
		metoprolol	5	5						
		glipizide	6	6						
		metformin	7	7						
		olanzapine	8	8						
		trazodone	9	9						
		benztropine	10	10						
		aripiprazole	11	11						
		clonazepam	12	12						
		citalopram	13	13						
2791ph	58 y F	digoxin	1	1	A	Ingst	AR-D	3	digoxin	5 ng/mL In Blood (unspecified) @ Unknown
2792	58 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		amlodipine/olmesartan	2	2						
		trazodone	3	3						
		escitalopram	4	4						
		sertraline	5	5						
		allopurinol	6	6						
2793h	58 y F	felodipine	1	1	U	Ingst	Int-S	2		
		hydralazine	2	2						
		duloxetine (ER)	3	3						
		amitriptyline	4	4						
		pregabalin	5	5						
		gabapentin	6	6						
		alprazolam	7	7						
2794h	59 y M	calcium antagonist	1	1	A	Ingst	Int-S	2		
		metoprolol	2	2						
		sertraline	3	3						
		hydroxyzine	4	4						
		ethanol (beverage)	5	5						
2795h	59 y M	carvedilol	1	1	A/C	Ingst	Int-S	2		
		metformin	2	2						
		apixiban	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2796	59 y F	lisinopril	4	4	A	Ingst	Int-S	2		
		calcium antagonist	1	1						
		beta blocker	2	2						
		gabapentin	3	3						
		salicylate	4	4					14 mg/dL In Blood (unspecified) @ Unknown	
2797h	59 y M	verapamil	1	1	A/C	Ingst	Int-S	2		
		warfarin	2	2						
2798	59 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
		clopidogrel	2	2						
		duloxetine (ER)	3	3						
		lisinopril	4	4						
		morphine	5	5						
		rivaroxaban	6	6						
2799ha	59 y F	diltiazem (ER)	1	1	A/C	Ingst+Unk	Int-S	1	diltiazem	170 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen	2	2					acetaminophen (apap)	17.4 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	17.4 mcg/mL In Serum @ Unknown
2800ph	59 y F	metoprolol	1	1	U	Ingst	Int-S	2		
		bupropion	2	2						
		acetaminophen	3	3						
		lithium	4	4						
2801	59 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		bupropion (ER)	2	2						
		lurasidone	3	3						
		clonazepam	4	4						
		zaleplon	5	5						
		acamprosate (ER)	6	6						
		naltrexone	7	7						
		gabapentin	8	8						
		rosuvastatin	9	9						
2802h	60 y M	labetalol	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
2803ha	60 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		quetiapine	2	2					quetiapine	122 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					nordiazepam	165 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					diazepam	68.6 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	4	4					gabapentin	32.8 mcg/mL In Blood (unspecified) @ Unknown
		metoclopramide	5	5						
		butalbital	6	6					butalbital	2.9 mcg/mL In Blood (unspecified) @ Unknown
		ibuprofen	7	7					ibuprofen	3.6 mcg/mL In Blood (unspecified) @ Unknown
2804h	60 y M	diltiazem (ER)	1	1	A	Ingst	Int-S	2		
		hydroxyzine	2	2						
2805ph	60 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		bupropion	2	2						
2806a	60 y M	metoprolol (ER)	1	1	A/C	Ingst	Int-S	1		
		amlodipine	2	2						
		ethanol (beverage)	3	3					ethanol	270 mg/dL In Blood (unspecified) @ Unknown
		venlafaxine	4	4					o-desmethylvenlafaxine	170 ng/mL In Blood (unspecified) @ Autopsy
		venlafaxine	4	4					venlafaxine	88 ng/mL In Blood (unspecified) @ Autopsy
2807ha	60 y F	amlodipine	1	1	U	Ingst	Int-S	2		
		losartan	2	2						
2808h	60 y M	nitroprusside	1	1	C	Par	AR-D	3		
2809	60 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		metoprolol	2	2						
		ethanol (beverage)	3	3					ethanol	147 mg/dL In Blood (unspecified) @ Unknown
2810h	60 y M	digoxin	1	1	A/C	Ingst	Unk	3		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2811h	60 y M	amlodipine	1	1	A/C	Ingst+ Par	Int-S	1		
		insulin	2	2						
2812ha	60 y F	metoprolol	1	1	U	Ingst+ Unk	Int-S	1		
		ethanol (beverage)	2	2					ethanol	173 mg/dL In Blood (unspecified) @ Unknown
		quetiapine	3	3						
		alprazolam	4	4						
		antiplatelet drug	5	5						
2813h	60 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		baclofen	2	2						
		alprazolam	3	3						
		gabapentin	4	4						
		brexpirazole	5	5						
		atorvastatin	6	6						
		fluoxetine	7	7						
2814ha	60 y F	calcium antagonist	1	1	A	Ingst	Int-S	1	diltiazem	1200 ng/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	86 mg/dL In Blood (unspecified) @ Unknown
2815h	61 y F	ranolazine (ER)	1	1	U	Ingst	Int-S	2		
		cyclobenzaprine	3	2						
		amlodipine	2	3						
2816h	61 y F	flecainide	1	1	C	Ingst	AR-D	2		
2817h	61 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		insulin	2	2						
		hydroxyzine	3	3						
		mirtazapine	4	4						
		benzodiazepine	5	5						
2818h	61 y M	propranolol	1	1	A/C	Ingst	Int-S	2		
		lithium	2	2					lithium	3 mEq/L In Blood (unspecified) @ Unknown
		glimepiride	3	3						
		carbamazepine	4	4						
		metformin	5	5						
2819h	61 y M	diltiazem	1	1	A/C	Ingst	Unk	2		
		labetalol	2	2						
2820p	61 y M	amlodipine	1	1	A/C	Ingst+ Par	Int-S	2		
		atenolol	2	2						
		insulin (aspart)	3	3						
		lorazepam	4	4						
		metformin	5	5						
2821ha	61 y M	verapamil	1	1	A/C	Ingst	Int-S	1	verapamil	2800 ng/mL In Whole Blood @ 6 h (pe)
2822	61 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		duloxetine	2	2						
		lisinopril	3	3						
2823h	61 y F	diltiazem	1	1	A/C	Ingst	Int-S	2		
2824h	61 y F	diltiazem (ER)	1	1	A	Ingst	Int-S	2		
2825h	62 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		alcohol, N.O.S.	2	2						
2826h	62 y M	tadalafil	1	1	A	Ingst	AR-D	3		
		cyclobenzaprine	2	2						
2827h	62 y M	amlodipine	1	1	A/C	Ingst	Int-U	2		
		gabapentin	2	2						
		lamotrigine	3	3						
2828	62 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		ethanol (beverage)	2	2					ethanol	249 mg/dL In Blood (unspecified) @ Unknown
2829h	62 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		escitalopram	2	2						
		hydroxyzine	3	3						
		linagliptin	4	4						
		metformin	5	5						
		lisinopril	6	6						
2830h	63 y M	verapamil	1	1	A/C	Ingst	Int-S	2		
		alprazolam	2	2						
2831ha	63 y F	amlodipine	1	1	A/C	Ingst	Int-S	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2832	63 y F	ibuprofen	2	2	A	Ingst	Int-S	1		
		acetaminophen/hydrocodone	3	3						
		oxycodone	4	4						
		quetiapine	5	5						
		hydroxyzine	6	6						
		escitalopram	7	7						
		methamphetamine	8	8						
2833ph	63 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		losartan	2	2						
2834h	63 y F	metoprolol (ER)	1	1	A	Ingst	Int-S	2		
		bupropion (ER)	2	2						
		fluoxetine	3	3						
		mirtazapine	4	4						
2835h	63 y F	diltiazem	1	1	A/C	Ingst	Int-S	2	ethanol	112 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
2836	63 y F	metoprolol (ER)	1	1	A	Ingst	Int-S	2		
2837h	64 y F	calcium antagonist	1	1	A/C	Ingst	Int-S	1		
		atenolol	1	1						
2838h	64 y F	oxycodone	2	2	A/C	Ingst	Int-S	2		
		clonazepam	3	3						
		digoxin	4	4						
		losartan	1	1						
		furosemide	2	2						
		metformin	3	3						
		sertraline	4	4						
		benztropine	5	5						
		bupirone	6	6						
		olanzapine	7	7						
		omeprazole (ER)	8	8						
		levothyroxine	9	9						
		potassium salts	10	10						
		pravachol	11	11						
losartan	12	12								
sertraline	13	13								
pravastatin	14	14								
2839h	64 y F	dofetilide	1	1	A/C	Ingst	Int-S	2		
		calcium antagonist	2	2						
		acetaminophen	3	3						
2840	64 y M	metoprolol	1	1	U	Ingst	Int-S	2		
		cyclobenzaprine	2	2						
		acetaminophen	3	3						
2841	64 y M	metoprolol	1	1	A	Ingst	Int-S	2		
2842h	64 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		atenolol	2	2						
		quetiapine	3	3						
		hydroxyzine	4	4						
		hydrochlorothiazide/losartan	5	5						
		mirtazapine	6	6						
2843h	65 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		calcium antagonist	2	2						
		nitroglycerin	3	3						
		levothyroxine	4	4						
		salicylate	5	5						
		magnesium oxide	6	6						
		zyrtec	7	7						
		loratadine	8	8						
		vitamin D	9	9						
		biotin	10	10						
2844ph	65 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		quetiapine	2	2						
		amitriptyline	3	3						
		citalopram	4	4						
		olanzapine	5	5						
2845h	65 y F	diltiazem (ER)	1	1	A	Ingst	Int-S	1		
		ethanol (beverage)	2	2						
2846a	65 y M	carvedilol	1	1	A	Ingst	Int-S	2		
		amlodipine	2	2						
		tamsulosin	3	3						
2847h	65 y M	digoxin	1	1	C	Ingst	Unk	3	digoxin	4.2 ng/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2848h	65 y F	diltiazem (ER)	1	1	A/C	Ingst	Int-S	2		
		clopidogrel	2	2						
2849	65 y F	digoxin	1	1	A/C	Ingst	AR-D	3	digoxin	3.2 ng/mL In Serum @ Unknown
2850h	66 y F	beta blocker	1	1	A/C	Ingst	Int-S	2		
		losartan	2	2						
		rivaroxaban	3	3						
2851pha	66 y M	diltiazem	1	1	U	Ingst	Int-S	1	diltiazem	160 ng/mL In Blood (unspecified) @ Unknown
		lisinopril	2	2						
2852	66 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		carvedilol	2	2						
2853ph	66 y F	verapamil	1	1	A/C	Ingst	Int-S	2		
		propranolol	2	2						
		trazodone	3	3						
		furosemide	4	4						
		alprazolam	5	5						
		famotidine	6	6						
		pantoprazole	7	7						
		ethanol (beverage)	8	8						
2854h	66 y F	digoxin	1	1	A/C	Ingst	Int-S	2	digoxin	3.21 ng/mL In Serum @ Unknown
		amlodipine	2	2						
		amlodipine/benazepril	3	3						
		gabapentin	5	4						
		acetaminophen	6	5					acetaminophen (apap)	3.4 mcg/mL In Serum @ Unknown
		clonazepam	7	6						
		ethanol (beverage)	4	7					ethanol	45 mg/dL In Serum @ Unknown
2855h	66 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		metoprolol	2	2						
2856h	67 y M	diltiazem	1	1	U	Ingst + Oth	Int-S	2		
		metoprolol	2	2						
		bisoprodol	3	3						
		metformin	4	4						
		lisinopril	5	5						
		cocaine	6	6						
		ethanol (beverage)	7	7						
		hydroxyzine	8	8						
		atorvastain	9	9						
		potassium chloride	10	10						
		furosemide	11	11						
		apixiban	12	12						
		benzodiazepine	13	13						
		marijuana	14	14						
2857h	67 y M	digoxin	1	1	U	Ingst	Unk	2	digoxin	2.2 ng/mL In Blood (unspecified) @ Unknown
2858h	67 y M	diltiazem (ER)	1	1	A	Ingst	Int-S	2		
		diphenhydramine	2	2						
		acetaminophen	3	3						
		ethanol (beverage)	4	4						
2859ph	67 y F	metoprolol	1	1	A	Ingst + Aspir	Int-S	2		
		trazodone	2	2						
		levothyroxine	3	3						
		alcohol, N.O.S.	4	4						
2860h	67 y F	diltiazem	1	1	A/C	Ingst + Aspir	Int-S	2		
		insulin	2	2						
2861h	68 y F	diltiazem (ER)	1	1	A/C	Ingst	Int-S	2		
		carvedilol	2	2						
		lisinopril	3	3						
		acetaminophen/hydrocodone	4	4						
		clopidogrel	5	5						
		apixaban	6	6						
		atorvastain	7	7						
2862h	68 y F	amlodipine	1	1	U	Ingst	Int-S	2		
		bupropion (ER)	2	2						
		drug, N.O.S.	3	3						
		thiazide	4	4						
		eszopiclone	5	5						
		benzodiazepine	6	6						
		hydroxyzine	7	7						
		gabapentin	8	8						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time			
2863h	68 y F	mirtazapine	9	9	A/C	Ingst	Int-S	2					
		quetiapine	10	10									
		eletriptan	11	11									
		odansetron	12	12									
2864ai	68 y F	amlodipine	1	1	U	Unk	Int-S	1					
		loratadine	2	2									
2865h	68 y F	amlodipine	1	1	C	Ingst	AR-D	3					
		fluoxetine	2	2									
		risperidone	3	3									
		trazodone	4	4									
		alprazolam	5	5									
		lurasidone	6	6									
		chlorpheniramine	7	7									
	digoxin	1	1			digoxin	4.97 ng/mL In Blood (unspecified) @ Unknown						
2866ph	69 y F			U	Ingst	Int-S	2						
2867ha	69 y F	lisinopril	1	1	A/C	Ingst	Int-S	1					
		metoprolol	2	2									
2868h	69 y F	diltiazem (ER)	1	1	C	Ingst	Unt-T	3					
2869	69 y F	metoprolol	1	1	A	Ingst	Unk	2					
2870	69 y F	amlodipine	1	1	A	Ingst	Int-S	2					
		quetiapine	2	2									
		losartan	3	3									
		sertraline	4	4									
		atorvastain	5	5									
2871h	69 y M	amlodipine	1	1	A/C	Ingst	Int-S	2					
		angiotensin receptor blocker, N.O.S.	2	2									
2872h	70 y F			A/C	Ingst	Unk	3						
2873ha	70 y M	flecainide	1	1	A	Ingst	Int-S	2					
		metoprolol (ER)	1	1									
		losartan	2	2									
		thiazide	3	3									
2874h	70 y F	atorvastain	4	4	C	Ingst	AR-D	3					
2875h	70 y F			A/C	Ingst	Int-M	3						
2876ph	71 y F	verapamil	1	1	A/C	Ingst	Int-S	2					
		amlodipine	1	1									
		metoprolol	2	2									
		escitalopram	3	3									
		alprazolam (ER)	4	4									
	acetaminophen	5	5			acetaminophen (apap)	395 mcg/mL In Serum @ Unknown						
2877h	72 y F			C	Ingst	AR-D	3						
2878h	72 y F	carvedilol	1	1	A/C	Ingst	AR-D	3					
2879h	72 y M	cardiac glycoside	1	1	C	Ingst	AR-D	3					
2880	72 y F	digoxin	1	1	A/C	Ingst	Int-S	2		14.1 ng/mL In Serum @ 6 d (pe)			
2881ha	72 y F	amlodipine	1	1	A	Ingst	Int-S	2					
		carvedilol	2	2									
		glimpiride	3	3									
		lisinopril	4	4									
2882h	72 y F	amlodipine	1	1	A	Par	Unt-T	2					
		hydrazone	2	2									
		chlorpromazine	3	3									
		venlafaxine	4	4									
		enalapril	5	5									
		haloperidol	6	6									
2883ha	72 y M			A/C	Ingst	Int-S	1						
2884a	72 y F	amlodipine	1	1	A	Ingst	Int-S	1		75 ng/mL In Blood (unspecified) @ Unknown			
		metoprolol	2	2									
		carvedilol	1	1									
		cetirizine	2	2									
		rosuvastatin	3	3									

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2885h	73 y F	amlodipine	1	1	U	Ingst	Int-S	2		
2886ph	73 y F	amlodipine flecainide metoprolol losartan	1 2 3 4	1 2 3 4	U	Ingst	Int-S	2		
2887h	73 y F	amlodipine metformin (ER)	1 2	1 2	A/C	Ingst	Int-S	1		
2888h	73 y F	clonidine verapamil	1 2	1 2	U	Ingst	Int-S	2		
2889	74 y M	digoxin	1	1	A/C	Ingst	Unk	2	digoxin	4.7 ng/mL In Blood (unspecified) @ Unknown
2890	74 y F	quinidine	1	1	A	Ingst	AR-D	3		
2891h	75 y F	diltiazem warfarin clonazepam nitroglycerin lisinopril	1 2 3 4 5	1 2 3 4 5	A/C	Ingst	Int-S	1		
2892ha	76 y M	metoprolol oxycodone fluoxetine fluoxetine zolpidem	1 2 3 3 4	1 2 3 3 4	U	Ingst	Int-S	1	metoprolol oxycodone (free) norfluoxetine fluoxetine	98 ng/mL In Blood (unspecified) @ Unknown 110 ng/mL In Blood (unspecified) @ Unknown 240 ng/mL In Blood (unspecified) @ Unknown 440 ng/mL In Blood (unspecified) @ Unknown
2893	76 y F	amlodipine carvedilol ethanol (beverage)	1 2 3	1 2 3	A	Ingst	Int-S	2	ethanol	235 mg/dL In Serum @ Unknown
2894h	76 y M	digoxin	1	1	A/C	Ingst	Unt-T	2	digoxin	3.7 mcg/mL In Whole Blood @ Unknown
2895h	77 y M	metoprolol beta blocker/diuretic, N.O.S. acetaminophen/hydrocodone lisinopril metformin	1 2 3 4 5	1 2 3 4 5	A	Ingst	Int-S	2		
2896	77 y F	amlodipine alprazolam levothyroxine lisinopril	1 2 3 4	1 2 3 4	A	Ingst	Int-S	2		
2897ha	77 y M	amlodipine	1	1	A/C	Ingst	Unt-G	1	amlodipine	0.07 mg/L In Serum @ Unknown
2898h	77 y F	metoprolol	1	1	C	Ingst	AR-D	2		
2899h	78 y F	beta blocker	1	1	A/C	Ingst	Int-U	2		
2900ph	78 y F	digoxin	1	1	U	Ingst	Unk	2	digoxin	2.5 ng/mL In Serum @ Unknown
2901h	78 y M	diltiazem (ER) flecainide citalopram donepezil memantine atorvastatin	2 1 3 4 5 6	1 2 3 4 5 6	A/C	Ingst	Unt-G	2		
2902h	78 y M	diltiazem (ER)	1	1	A/C	Ingst	Int-S	2		
2903	78 y F	digoxin	1	1	C	Par	AR-D	2	digoxin	5 ng/mL In Blood (unspecified) @ Unknown
2904h	78 y F	carvedilol lisinopril	1 2	1 2	C	Ingst	AR-D	3		
2905h	79 y F	quinidine	1	1	C	Ingst	AR-D	2		
2906h	79 y M	carvedilol digoxin diuretic, unknown warfarin	1 2 3 4	1 2 3 4	A/C	Ingst	AR-D	3	digoxin	1.5 ng/mL In Blood (unspecified) @ Unknown
2907	80 y F	digoxin	1	1	C	Ingst	AR-D	2	digoxin	5.7 ng/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2908	81 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
2909h	81 y F	diltiazem	1	1	A/C	Ingst	Int-S	2		
		lisinopril	2	2						
		hydrocodone	3	3						
		gabapentin	4	4						
		duloxetine	5	5						
		pantoprazole	6	6						
		levothyroxine	7	7						
		antihyperlipidemic	8	8						
		acetaminophen	9	9					acetaminophen (apap)	12 mcg/mL In Blood (unspecified) @ Unknown
2910h	81 y F	diltiazem	1	1	U	Ingst	Int-S	2		
		propafenone	2	2						
		paroxetine	4	3						
		oxybutynin	5	4						
		mirtazapine	6	5						
		donepezil	7	6						
		alprazolam	8	7						
		histamine-2 blocker	9	8						
		furosemide	3	9						
2911h	82 y F	calcium antagonist	1	1	A	Ingst	Int-S	1		
2912a	82 y F	beta blocker	1	1	A	Ingst	Int-S	1		
		lisinopril	2	2						
		oxycodone	3	3						
2913	82 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		mirtazapine	2	2						
2914ha	83 y M	amlodipine	1	1	A/C	Ingst	Unt-G	1	amlodipine	0.52 mg/L In Blood (unspecified) @ Unknown
2915h	83 y F	carvedilol	1	1	U	Ingst	Int-S	2		
		sitagliptin	2	2						
		linagliptin	3	3						
		duloxetine	4	4						
		salicylate	5	5						
		lisinopril	6	6						
		gabapentin	7	7						
		atorvastatin	8	8						
2916ha	83 y M	diltiazem (ER)	1	1	A	Ingst	Int-S	1	diltiazem	910 ng/mL In Blood (unspecified) @ Unknown
2917h	84 y F	minoxidil	1	1	A/C	Ingst	Unt-T	3		
2918h	84 y F	diltiazem (ER)	1	1	A	Ingst	Int-S	2		
2919h	85 y F	metoprolol	1	1	A	Ingst	AR-D	3		
2920h	87 y M	digoxin	1	1	C	Ingst	AR-D	3		
2921h	87 y M	metoprolol (ER)	1	1	C	Ingst	AR-D	2		
2922	87 y F	beta blocker	1	1	A/C	Ingst	Unk	2		
		lisinopril	2	2						
		temazepam	3	3						
		spironolactone	4	4						
2923h	88 y F	carvedilol	1	1	A/C	Ingst	Unt-M	2		
		amlodipine	2	2						
		levothyroxine	3	3						
2924	88 y F	calcium antagonist	1	1	A/C	Ingst	Int-S	2		
		donepezil	2	2						
2925	88 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		zolpidem	2	2						
		simvastatin	3	3						
		lisinopril	4	4						
		metoprolol (ER)	5	5						
2926h	88 y F	verapamil	1	1	A/C	Ingst	Int-S	2		
		warfarin	2	2						
2927	89 y F	cardiac glycoside	1	1	C	Ingst	AR-D	3	digoxin	3.6 ng/mL In Blood (unspecified) @ Unknown
2928h	89 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		lorazepam	2	2						
2929h	89 y F	digoxin	1	1	C	Ingst	Unt-G	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2930	90 y F	flecainide	1	1	C	Ingst	AR-D	2		
		diltiazem (ER)	2	2						
		atenolol	3	3						
2931h	90 y M	amlodipine	2	1	A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	2					acetaminophen (apap)	87 mcg/mL In Serum @ Unknown
		morphine	3	3						
		apixiban	4	4						
2932h	91 y F	metoprolol	1	1	A/C	Ingst	Unt-T	2		
		calcium antagonist	2	2						
		apixaban	3	3						
		levothyroxine	4	4						
		magnesium	5	5						
		eltrombopag	6	6						
2933h	94 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		meclizine	2	2						
2934	94 y M	cardiac glycoside	1	1	A/C	Ingst	Int-S	2		
2935	94 y F	amlodipine	1	1	A	Ingst	Int-S	2		
2936h	97 y F	amlodipine	1	1	A/C	Ingst	Unk	3		
		losartan	2	2						
		levothyroxine	3	3						
2937h	97 y F	digoxin	1	1	C	Ingst	AR-D	3	digoxin	3.4 ng/mL In Serum @ Unknown
2938	13 m F	clonidine	1	1	A	Ingst+Unk	Unt-G	2		
		viral disease (COVID-19-Confirmed)	2	2						
See Also case 66, 80, 109, 129, 226, 663, 692, 805, 988, 1042, 1409, 1553, 1619, 1639, 1730, 1829, 1866, 1885, 1976, 1999, 2180, 2189, 2210, 2254, 2280, 2283, 2296, 2307, 2352, 2367, 2423, 2425, 2426, 2432, 2436, 2439, 2459, 2467, 2485, 2495, 2505, 2509, 2510, 2512, 2513, 2519, 2527, 2529, 2530, 2544, 2551, 2554, 2556, 2559, 2562, 2564, 2566, 2568, 2583, 2584, 2592, 2637, 2967, 2974, 2993, 2997, 3001, 3003, 3007, 3012, 3021, 3028, 3042, 3078, 3093, 3104, 3113, 3159, 3340, 3372, 3429, 3497, 3501, 3514, 3543, 3618, 3643, 3665, 3807										
Cold and Cough Preparations										
2939pha	13 y F	benzonatate	1	1	A	Ingst	Int-S	2		
		levothyroxine	2	2						
		nitrofurantoin	3	3						
		cefдинир	4	4						
2940ph	16 y F	benzonatate	1	1	A	Ingst	Int-S	1		
		acetaminophen	2	2					acetaminophen (apap)	77 mcg/mL In Serum @ 3 h (pe)
		drug, N.O.S.	3	3						
2941ha	16 y F	dextromethorphan	1	1	U	Ingst+Unk	Unk	2	dextro / levo methorphan	490 ng/mL In Blood (unspecified) @ Unknown
		chlorpheniramine	2	2					chlorpheniramine	200 ng/mL In Blood (unspecified) @ Unknown
2942h	31 y M	chlorpheniramine/ dextromethorphan	1	1	A	Ingst	Int-U	3		
2943h	37 y F	benzonatate	1	1	A/C	Ingst	Int-S	2		
		vortioxetine	2	2						
		lamotrigine	3	3						
		trazodone	4	4						
		hydromorphone	5	5						
		hydroxyzine	6	6						
		tramadol	7	7						
		cyclobenzaprine	8	8						
2944h	40 y F	acetaminophen/dextromethorphan/ doxylamine	1	1	C	Ingst	Unt-T	3	salicylate	15 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen/dextromethorphan/ doxylamine	1	1					ethanol	62 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	15 mcg/mL In Blood (unspecified) @ Unknown
		viral disease (COVID-19-Confirmed)	3	3						
		salicylate	4	4						
2945ai	40 y M	dextromethorphan	1	1	U	Unk	Int-S	1		
2946h	43 y M	acetaminophen/dextromethorphan/ phenylephrine	1	1	C	Ingst	Unt-T	2	acetaminophen (apap)	10 mg/L In Serum @ Unknown
		acetaminophen	2	2						
2947h	44 y F	dextromethorphan	1	1	A	Ingst	Int-A	2		
See Also case 9, 68, 177, 216, 541, 651, 668, 860, 1195, 1674, 1748, 1826, 1879, 2070, 2189, 2275, 2348, 2540, 2564, 2775, 3048, 3116, 3128, 3210, 3280, 3364										
Dietary Supplements/Herbals/Homeopathic										
2948	11 y F	dietary supplement/homeopathic agent, N.O.S.	1	1	A	Par	AR-D	3		
		drug, N.O.S.	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2949h	58 y F	<i>Piper methysticum</i> tianeptine	1 2	1 2	A	Ingst	AR-O	2		
2950h	31 d F	dietary supplement, botanical	1	1	C	Ingst	Unt-T	3		
See Also case 202, 704, 2461, 2463, 2544, 2606, 2752, 3021, 3026, 3317, 3403										
Diuretics										
2951p	80 y F	acetazolamide	1	1	C	Ingst	Unt-G	2		
See Also case 2160, 2189, 2307, 2352, 2362, 2425, 2426, 2459, 2461, 2509, 2544, 2551, 2559, 2618, 2647, 2661, 2695, 2732, 2787, 2838, 2853, 2856, 2862, 2873, 2906, 2910, 2922										
Electrolytes and Minerals										
[2952]	14 y F	iron	1	1	A	Ingst	Int-S	1	iron	2100 mcg/dL In Blood (unspecified) @ Unknown
2953	43 y F	iron	2	1	A	Ingst	Unk	1	iron	2000 mcg/dL In Blood (unspecified) @ Unknown
2954h	59 y F	drug, N.O.S. potassium chloride	1 1	2 1	U	Ingst	Unk	2	potassium	8.6 mmol/L In Serum @ 2 h (pe)
		bupropion sertraline	2 3	2 3						
[2955h]	75 y M	calcium potassium phosphate	1 2	1 2	A	Par	Unt-T	2		
See Also case 1577, 2189, 2362, 2425, 2461, 2693, 2838, 2843, 2856, 2932, 3403										
Eye/Ear/Nose/Throat Preparations										
2956h	68 y M	tetrahydrozoline	1	1	A	Ingst	Int-S	2		
See Also case 149, 151, 541, 2348										
Gastrointestinal Preparations										
2957ph	31 y M	loperamide	1	1	C	Ingst	Int-M	2		
[2958pha]	37 y M	loperamide	1	1	A/C	Ingst	Int-A	2		
2959ai	55 y F	loperamide ethanol (beverage) marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
See Also case 149, 202, 743, 2084, 2189, 2296, 2304, 2428, 2439, 2451, 2467, 2512, 2518, 2544, 2551, 2568, 2647, 2676, 2681, 2693, 2697, 2803, 2838, 2853, 2862, 2870, 2909, 2910, 2967, 2993, 3021, 3104										
Hormones and Hormone Antagonists										
2960	15 y F	metformin acetaminophen benzodiazepine sertraline lamotrigine antibiotic, N.O.S.	1 2 3 4 5 6	1 2 3 4 5 6	A	Ingst	Int-S	1		
									acetaminophen (apap)	164 mcg/mL In Blood (unspecified) @ Unknown
2961	22 y M	metformin lamotrigine	1 2	1 2	A	Ingst	Int-S	2		
2962ha	26 y F	insulin (glargine) (ER)	1	1	A	Par	Int-S	1	insulin	600 microU/mL In Serum @ Unknown
2963h	29 y F	insulin (glargine) (ER) insulin (lispro) tizanidine	1 2 3	1 2 3	A/C	Ingst + Par	Int-S	2		
2964	31 y M	metformin hypochlorite cleaner (alkali/anionic/nonionic)	1 2 3	1 2 3	A	Ingst	Int-S	3		
2965h	36 y M	metformin ibuprofen acetaminophen	1 2 3	1 2 3	A/C	Ingst	Int-M	2		
									acetaminophen (apap)	13 mcg/mL In Blood (unspecified) @ Unknown
2966ha	38 y M	insulin (aspart)	1	1	A/C	Par	Int-S	1		
2967h	42 y F	metformin oxybutynin cephalexin nitrofurantoin lisinopril acetaminophen/hydrocodone	1 2 3 4 5 6	1 2 3 4 5 6	A	Ingst	Int-S	2		
									acetaminophen (apap)	33.6 mcg/mL In Blood (unspecified) @ Unknown
2968	46 y F	glimepiride	1	1	A/C	Ingst	Int-S	2		
2969h	48 y M	insulin	1	1	A/C	Par	Int-S	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2970h	48 y F	metformin hydroxyzine	1 2	1 2	A	Ingst	Int-S	2		
2971h	50 y M	metformin	1	1	A/C	Ingst	Int-S	1		
2972	51 y M	metformin	1	1	U	Ingst	Unk	2		
2973h	51 y M	insulin	1	1	A/C	Par	Unk	2		
2974h	51 y M	metformin metoprolol (ER) lithium dapagliflozin	1 2 3 4	1 2 3 4	A	Ingst	Int-S	2		
2975h	52 y F	metformin acetaminophen	1 2	1 2	A/C	Ingst	AR-D	3		
2976ha	53 y M	metformin ethanol (beverage)	1 2	1 2	A/C	Ingst	Int-S	1		
2977ai	53 y M	metformin	1	1	U	Unk	Int-A	1		
2978h	54 y M	metformin naproxen acetaminophen	1 2 3	1 2 3	A	Ingst	Int-S	1		
[2979ha]	54 y F	metformin	1	1	A	Ingst	Int-S	1	acetaminophen (apap) metformin	160 mcg/mL In Blood (unspecified) @ Unknown 360 mcg/mL In Blood (unspecified) @ Unknown
2980	55 y F	metformin lithium	1 2	1 2	A	Ingst	Int-S	2	lithium	1.23 mEq/L In Serum @ Unknown
2981h	56 y M	glyburide amphetamine	1 2	1 2	A/C	Ingst + Unk	Int-S	3		
2982	57 y M	glipizide insulin empagliflozin insulin (glargine) (ER) metformin	1 2 3 4 5	1 2 3 4 5	A/C	Ingst + Par	Int-U	2		
2983	58 y F	metformin	1	1	C	Ingst	AR-D	2		
2984ph	59 y F	levothyroxine caffeine	1 2	1 2	U	Ingst	Unk	2		
2985	60 y M	glimepiride	1	1	C	Ingst	AR-D	1		
2986h	61 y M	insulin	1	1	A/C	Par	Unk	2		
2987h	61 y F	metformin	1	1	A/C	Ingst	Int-S	2		
2988	62 y M	metformin acetaminophen	1 2	1 2	A/C	Ingst	Int-S	2		
2989h	63 y M	glyburide drug, N.O.S.	1 2	1 2	U	Ingst	Int-S	2		
2990h	63 y F	metformin acetaminophen	1 2	1 2	A/C	Ingst	Int-S	2	acetaminophen (apap)	163.9 mcg/mL In Blood (unspecified) @ Unknown
2991h	63 y F	metformin/sitagliptin	1	1	A	Ingst	AR-D	3		
2992	64 y M	metformin	1	1	A/C	Ingst	Int-S	1		
2993h	65 y M	insulin (glargine) (ER) metformin quinpril sucralfate	1 2 3 4	1 2 3 4	A/C	Ingst + Par	Int-S	2		
2994h	67 y F	insulin (aspart)	1	1	A/C	Par	Int-S	2		
2995h	68 y M	metformin insulin ethanol (beverage)	2 1 3	1 2 3	A/C	Ingst + Par	Int-S	1	ethanol	76 mg/dL In Serum @ Unknown
2996	69 y F	metformin	1	1	U	Unk	Unk	3		
2997h	69 y M	metformin carvedilol hydralazine lisinopril atorvastatin	1 2 3 4 5	1 2 3 4 5	A	Ingst + Unk	Int-S	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
2998ha	69 y M	insulin (aspart) insulin (glargine) (ER)	1 2	1 2	A/C	Par	Unt-T	2		
2999h	70 y M	metformin	1	1	A	Ingst	Int-S	1		
3000ha	70 y M	metformin glipizide gabapentin	1 2 3	1 2 3	A/C	Ingst	Int-S	1	metformin gabapentin	87 mcg/mL In Blood (unspecified) @ Autopsy 7.4 mcg/mL In Blood (unspecified) @ Autopsy
3001	71 y F	metformin digoxin	1 2	1 2	C	Ingst+Unk	Unk	2		
3002h	71 y F	metformin oral hypoglycemic (sulfonylurea)	1 2	1 2	A/C	Ingst	AR-D	3		
3003h	72 y F	metformin lisinopril	1 2	1 2	A/C	Ingst	Int-S	2		
3004h	72 y M	metformin ethanol (beverage) empagliflozin meloxicam insulin	1 2 3 4 5	1 2 3 4 5	U	Ingst+Unk	Unk	2	ethanol	173 mg/dL In Serum @ Unknown
3005h	72 y M	metformin linagliptin	1 2	1 2	A/C	Ingst	Int-S	2		
3006h	73 y M	metformin acetaminophen	1 2	1 2	C	Ingst	AR-D	3	acetaminophen (apap)	17.5 mcg/mL In Blood (unspecified) @ Unknown
3007ha	75 y M	ethanol (beverage) metformin lisinopril atorvastatin oxycodone	3 1 2 3 4	3 1 2 3 4	A	Ingst	Int-S	1	oxycodone (free)	16 ng/mL In Blood (unspecified) @ Unknown
3008	75 y M	metformin paroxetine	1 2	1 1	A	Ingst	Unk	2		
3009hi	76 y F	insulin (detemir) (ER) acetaminophen	1 2	1 2	A/C	Ingst+Par	Int-S	2		
3010ph	76 y F	insulin	1	1	A/C	Par	Int-S	3		
3011h	77 y F	metformin	1	1	C	Ingst	AR-D	3		
3012h	80 y M	metformin lisinopril lorazepam eszopiclone ethanol (beverage)	1 2 3 4 5	1 2 3 4 5	A/C	Ingst	Int-S	2	ethanol	169 mg/dL In Serum @ Unknown
3013h	84 y F	drug, N.O.S. metformin	6 1	6 1	U	Ingst	Unk	2		
3014h	90 y M	metformin	1	1	C	Ingst	AR-D	3		
See Also case 256, 470, 582, 1553, 1619, 1965, 2331, 2362, 2425, 2456, 2476, 2512, 2528, 2544, 2551, 2563, 2568, 2579, 2584, 2596, 2694, 2702, 2714, 2720, 2758, 2783, 2790, 2795, 2811, 2817, 2818, 2820, 2829, 2838, 2843, 2856, 2859, 2860, 2870, 2880, 2887, 2895, 2896, 2909, 2915, 2923, 2932, 2936, 2939, 3048, 3057, 3104, 3787										
Miscellaneous Drugs										
[3015ha]	16 y F	deferasirox	1	1	A	Ingst	AR-D	3		
3016	33 y M	rasburicase	1	1	A	Par	AR-D	3		
3017ai	37 y M	drug, N.O.S.	1	1	U	Unk	Int-A	1		
3018hi	63 y F	tacrolimus tacrolimus tacrolimus	1 1 1	1 1 1	A	Ingst	Unk	2	tacrolimus tacrolimus tacrolimus	4.9 ng/mL In Blood (unspecified) @ Unknown 60 ng/mL In Blood (unspecified) @ 4 d (pe) 60 ng/mL In Blood (unspecified) @ 5 d (pe)
3019h	64 y F	nintedanib	1	1	A/C	Ingst	Int-S	2		
3020h	65 y M	carbidopa/levodopa quetiapine haloperidol paroxetine	1 2 3 4	1 2 3 4	C	Ingst	AR-D	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3021h	83 y F	aricept duloxetine (ER) gabapentin ursodiol lisinopril melatonin simvastatin	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A/C	Ingst	Int-S	2		
3022h	92 y M	carbidopa/levodopa	1	1	A/C	Ingst	Unk	3		
See Also case 183, 546, 805, 1005, 1207, 2352, 2460, 2509, 2544, 2755, 2792, 2901, 2910, 2924, 2932										
Muscle Relaxants										
[3023pha]	19 y F	baclofen	1	1	A/C	Par	Unt-T	1	baclofen	0.55 mcg/mL In Blood (unspecified) @ Unknown
3024pha	21 y F	baclofen baclofen baclofen ethanol (beverage) hydroxyzine ibuprofen	1 1 1 2 3 4	1 1 1 2 3 4	A/C	Ingst	Int-S	2	baclofen baclofen baclofen ethanol	0.03 ng/mL In Blood (unspecified) @ 5 d (pe) 0.46 ng/mL In Blood (unspecified) @ 3 d (pe) 3.8 ng/mL In Blood (unspecified) @ 2 d (pe) 41 mg/dL In Blood (unspecified) @ 0 d (pe)
3025p	30 y F	baclofen narcotic, N.O.S.	1 2	1 2	U	Unk	Int-A	2		
3026	30 y M	baclofen <i>Piper methysticum</i>	1 2	1 2	A	Ingst + Aspir	Int-S	2		
3027h	33 y M	baclofen acetaminophen (ER) duloxetine (ER)	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
3028h	34 y F	cyclobenzaprine amlodipine trazodone lisinopril ethanol (beverage)	1 2 3 4 5	1 2 3 4 5	A	Ingst	Int-S	2		
3029h	43 y M	carisoprodol benzodiazepine	1 2	1 2	A	Ingst	Int-A	2		
3030pha	43 y M	baclofen	1	1	A	Ingst	Int-S	1		
3031p	45 y M	baclofen gabapentin	1 2	1 2	A	Ingst	Int-S	2		
3032pha	46 y F	cyclobenzaprine gabapentin oxycodone ethanol (beverage)	1 2 3 4	1 2 3 4	A/C	Ingst	Int-S	1	ethanol	33 mg/dL In Serum @ 30 m (pe)
3033h	46 y F	cyclobenzaprine diazepam tramadol gabapentin	1 2 3 4	1 2 3 4	A/C	Ingst	Int-S	2		
3034	47 y F	methocarbamol	1	1	A	Ingst	Unk	2		
3035ha	48 y F	cyclobenzaprine naproxen	1 2	1 2	A/C	Ingst	Int-S	3	cyclobenzaprine naproxen	140 ng/mL In Blood (unspecified) @ Autopsy 27 mcg/mL In Blood (unspecified) @ Autopsy
3036gai	50 y M	cyclobenzaprine oxymorphone gabapentin citalopram	1 2 3 4	1 2 3 4	U	Unk	Int-S	1		
3037ha	52 y F	baclofen amphetamine marijuana	1 2 3	1 2 3	U	Ingst + Unk	Int-S	1		
3038ai	52 y F	baclofen methamphetamine amitriptyline	1 2 3	1 2 3	U	Unk	Int-S	3		
3039h	52 y F	baclofen gabapentin oxycodone diazepam	1 2 3 4	1 2 3 4	U	Unk	Int-S	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3040p	57 y F	cyclobenzaprine	1	1	A	Ingst	Int-S	2		
3041h	58 y F	carisoprodol	1	1	A	Ingst	Int-S	3		
3042ph	60 y F	baclofen	1	1	A	Ingst	Int-S	3		
		alpha-adrenergic blocker	2	2						
		hydroxyzine	3	3						
		suvorexant	4	4						
3043h	64 y F	tizanidine	1	1	A	Ingst	Int-S	2		
3044ha	65 y F	baclofen	1	1	A/C	Ingst	Int-S	2		
3045h	66 y F	baclofen	1	1	A/C	Ingst	Int-S	2		
		clonazepam	2	2						
3046h	66 y M	baclofen	1	1	A	Ingst	Int-S	3		
		zolpidem	2	2						
		cyclobenzaprine	3	3						
3047	68 y M	tizanidine	1	1	A/C	Ingst	Unk	3		
		baclofen	2	2						
		hydrocodone	3	3						
3048ha	70 y F	baclofen	1	1	A/C	Ingst	Int-S	3		
		doxepin	2	2						
		metformin	3	3						
		pseudoephedrine	4	4					pseudoephedrine	65.8 ng/mL In Blood (unspecified) @ Unknown
3049ha	71 y F	methocarbamol	1	1	A	Ingst	Int-S	3		
		acetaminophen/hydrocodone	2	2						
3050ph	72 y F	baclofen	1	1	A/C	Ingst + Unk	Unt-T	2		
		narcotic, N.O.S.	2	2						
		barbiturate (long acting)	3	3						
		benzodiazepine	4	4						
3051h	73 y M	baclofen	1	1	A/C	Ingst	Int-S	2		
		gabapentin	2	2						
		ethanol (beverage)	3	3						
3052h	83 y F	baclofen	1	1	C	Ingst	AR-D	3		
3053h	91 y F	baclofen	1	1	A/C	Ingst	Int-S	2		
See Also case 51, 91, 529, 696, 1094, 1215, 1217, 1284, 1356, 1363, 1379, 1436, 1480, 1512, 1579, 1643, 1645, 1672, 1787, 1818, 1849, 1912, 1933, 1938, 1974, 2132, 2158, 2173, 2196, 2210, 2288, 2461, 2515, 2525, 2562, 2565, 2617, 2618, 2701, 2727, 2744, 2770, 2813, 2815, 2826, 2840, 2943, 2963, 3057, 3078, 3086, 3089, 3091, 3102, 3175, 3188, 3650, 3682										
Sedative/Hypnotics/Antipsychotics										
3054ph	19 y M	alprazolam drug, N.O.S.	1	1	A/C	Inhal + Unk	Int-A	2		
			2	2						
3055i	21 y M	alprazolam	1	1	U	Unk	Int-A	2		
3056ph	21 y M	alprazolam narcotic, N.O.S.	1	1	A/C	Unk	Int-A	2		
			2	2						
3057ha	24 y M	zolpidem	1	1	A/C	Ingst	Int-U	1	zolpidem	260 ng/mL In Whole Blood @ Unknown
		cyclobenzaprine	2	2					cyclobenzaprine	79 ng/mL In Whole Blood @ Unknown
		gabapentin	3	3					gabapentin	3.3 mcg/mL In Whole Blood @ Unknown
		naproxen	5	3					naproxen	74 mcg/mL In Whole Blood @ Unknown
		prednisone	6	4						
		trazodone	4	4					trazodone	0.084 mcg/mL In Whole Blood @ Unknown
3058ai	26 y F	clozapine	1	1	U	Unk	Int-S	1		
		trazodone	2	2						
		zonisamide	3	3						
		risperidone	4	4						
3059ph	27 y F	acepromazine	1	1	A	Ingst	Int-S	2		
		diazepam	2	2						
		xylazine	3	3						
3060h	28 y F	olanzapine	1	1	A/C	Ingst	Int-S	1	olanzapine	0.77 mg/L In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2					hydrocodone	0.11 mg/L In Blood (unspecified) @ Unknown
		trazodone	3	3					trazodone	1.4 mg/L In Blood (unspecified) @ Unknown
3061	32 y M	olanzapine	1	1	A	Ingst	Unt-G	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3062ph	34 y M	quetiapine zolpidem ethanol (beverage)	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
3063ai	35 y F	benzodiazepine ethanol (beverage)	1 2	1 2	U	Unk	Unk	3		
3064pha	36 y M	alprazolam ethanol (beverage)	1 2	1 2	A/C	Ingst	Int-S	2		
3065ha	36 y F	zolpidem ethanol (beverage)	1 2	1 2	U	Ingst+Oth	Int-S	1		
3066h	36 y F	propofol	1	1	A	Par	Unt-T	1		
3067h	37 y F	antipsychotic (atypical) fluoxetine	1 2	1 2	A	Ingst	Int-S	2		
3068h	37 y M	antipsychotic (atypical)	1	1	A	Ingst	Int-S	3		
3069ai	39 y F	butalbital primidone amphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
3070ai	40 y M	chlordiazepoxide ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
3071h	40 y M	pentobarbital	1	1	C	Par	AR-D	3		
3072ai	41 y F	buspirone citalopram ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
3073h	42 y M	clonazepam	1	1	A	Ingst	Int-S	3		
3074ha	43 y M	quetiapine quetiapine quetiapine	1 1 1	1 1 1	U	Ingst	Int-S	3	quetiapine aripiprazole sertraline	1800 ng/mL In Blood (unspecified) @ Unknown 58 ng/mL In Blood (unspecified) @ Unknown 59 ng/mL In Blood (unspecified) @ Unknown
3075hi	43 y F	quetiapine	1	1	A/C	Ingst	Int-S	3		
3076ha	45 y F	quetiapine (ER) clozapine mirtazapine lamotrigine	1 2 4 3	1 2 3 4	A	Ingst	Int-S	1	quetiapine clozapine mirtazapine lamotrigine	1700 ng/mL In Blood (unspecified) @ Unknown 710 ng/mL In Blood (unspecified) @ Unknown 1100 ng/mL In Blood (unspecified) @ Unknown 2.8 mcg/mL In Blood (unspecified) @ Unknown
3077h	45 y M	quetiapine tramadol clonazepam	1 2 3	1 2 3	A	Ingst	Int-S	2		
3078ph	45 y F	clonazepam metoprolol lurasidone cyclobenzaprine bupropion	1 2 3 4 5	1 2 3 4 5	A/C	Ingst	Int-S	2		
3079p	45 y M	olanzapine	1	1	A/C	Ingst	Int-S	2		
3080ph	45 y M	quetiapine buprenorphine/naloxone (sublingual film)	1 2	1 2	A	Ingst	Int-A	2		
3081ha	46 y M	asenapine acetaminophen	1 2	1 2	A	Ingst	Int-S	2	acetaminophen (apap)	582 mg/mL In Blood (unspecified) @ Unknown
3082ai	47 y M	benzodiazepine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	2		
3083ha	48 y F	risperidone risperidone hydroxyzine quetiapine lamotrigine	1 1 2 3 4	1 1 2 3 4	A/C	Ingst	Int-S	1	9-hydroxyrisperidone risperidone hydroxyzine quetiapine lamotrigine	102 ng/mL In Blood (unspecified) @ Autopsy 86 ng/mL In Blood (unspecified) @ Autopsy 980 ng/mL In Blood (unspecified) @ Autopsy 3900 ng/mL In Blood (unspecified) @ Autopsy 23 mcg/mL In Plasma @ Autopsy
3084pa	50 y F	clonazepam ethanol (beverage)	1 2	1 2	A	Ingst	Int-U	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3085ai	50 y M	alprazolam	1	1	U	Unk	Int-S	2		
		oxycodone	2	2						
		cocaine	3	3						
3086h	50 y M	lorazepam	1	1	A/C	Ingst	Int-S	3		
		cyclobenzaprine	2	2						
3087pha	51 y M	olanzapine	1	1	A	Unk	Int-U	1	olanzapine	0.8 mg/L In Whole Blood @ Autopsy
		olanzapine	1	1					olanzapine	1.1 mg/L In Whole Blood @ Autopsy
		ethanol (beverage)	2	2					ethanol	160 mg/dL In Whole Blood @ Autopsy
3088i	51 y M	clonazepam	1	1	U	Ingst	Unk	2		
3089ha	52 y F	quetiapine	1	1	A	Ingst	Int-S	3		
		carisoprodol	2	2						
		alprazolam	3	3						
		ethanol (beverage)	4	4					ethanol	263 mg/dL In Blood (unspecified) @ Unknown
3090ph	53 y F	alprazolam	1	1	A/C	Ingst	Int-S	2		
		oxycodone	2	2						
		drug, N.O.S.	3	3						
3091i	53 y F	alprazolam	1	1	U	Unk	Int-S	1		
		tizanidine	2	2						
		ethanol (beverage)	3	3						
3092ai	53 y M	quetiapine	1	1	U	Unk	Unk	3		
		hydroxyzine	2	2						
		ethanol (beverage)	3	3						
3093ai	53 y F	pentobarbital	1	1	U	Unk	Int-S	1		
		amphetamine	2	2						
		metoprolol	3	3						
3094phi	53 y F	alprazolam	1	1	A/C	Ingst	Int-S	2		
		ethanol (beverage)	2	2						
3095h	56 y F	clonazepam	1	1	U	Ingst	Int-S	3		
3096h	57 y M	antipsychotic (atypical)	1	1	A	Ingst	Int-S	2		
		acetaminophen	2	2						
3097ph	57 y F	quetiapine	1	1	U	Ingst	Int-S	2		
		narcotic, N.O.S.	2	2						
		acetaminophen	3	3					acetaminophen (apap)	105 mcg/mL In Blood (unspecified) @ 24 h (pe)
		acetaminophen	3	3					acetaminophen (apap)	283 mcg/mL In Blood (unspecified) @ 11 h (pe)
		acetaminophen	3	3					acetaminophen (apap)	31 mcg/mL In Blood (unspecified) @ 48 h (pe)
		acetaminophen	3	3					acetaminophen (apap)	516 mcg/mL In Blood (unspecified) @ 0 h (pe)
		acetaminophen	3	3					acetaminophen (apap)	85 mcg/mL In Blood (unspecified) @ 30 h (pe)
		clonazepam	4	4						
		narcotic, N.O.S.	5	5						
		ibuprofen	6	6						
3098ai	57 y M	alprazolam	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3099a	58 y F	diazepam	1	1	A	Ingst	Int-S	3	nordiazepam	230 ng/mL In Blood (unspecified) @ Unknown
		diazepam	1	1					oxazepam	29 ng/mL In Blood (unspecified) @ Unknown
		diazepam	1	1					diazepam	340 ng/mL In Blood (unspecified) @ Unknown
		diazepam	1	1					temazepam	57 ng/mL In Blood (unspecified) @ Unknown
		quetiapine	2	2						
3100pha	58 y F	alprazolam	4	1	A	Ingst	Int-U	1		
		narcotic, N.O.S.	1	2						
		cocaine	3	3					benzoylceognine	1200 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	4					fentanyl	1.8 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	2	4					norfentanyl	15 ng/mL In Blood (unspecified) @ Unknown
3101pha	58 y F	alprazolam	1	1	U	Ingst+Unk	Int-U	1	alprazolam	63 ng/mL In Blood (unspecified) @ Unknown
		quetiapine	2	2					quetiapine	340 ng/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fluoxetine	3	3					norfluoxetine	180 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	3	3					fluoxetine	310 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	4	4					fentanyl	2.1 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (prescription)	4	4					norfentanyl	3.1 ng/mL In Blood (unspecified) @ Unknown
3102h	59 y M				A/C	Ingst	Int-S	2		
		diazepam	2	1						
		cyclobenzaprine	1	2						
		zolpidem	3	3						
		acetaminophen	4	4					acetaminophen (apap)	32.7 mcg/mL In Serum @ Unknown
3103h	59 y M				A	Ingst	Int-S	3		
		diazepam	1	1						
		lorazepam	2	2						
3104h	60 y F				A	Ingst	Unt-T	3		
		quetiapine	3	1						
		acetaminophen/hydrocodone	1	2						
		gabapentin	4	3						
		lisinopril	6	4						
		salicylate	8	5						
		casanthranol/docusate sodium	10	6						
		atorvastatin	9	7						
		dexamethasone	7	8						
		clonazepam	2	9						
		isosorbide (ER)	5	10						
3105h	60 y M				A/C	Ingst	Int-S	2		
		chlorpromazine	1	1						
		benztropine	2	2						
3106	61 y M				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
3107	62 y F				A/C	Ingst	Unk	2		
		eszopiclone	1	1						
		warfarin	2	2						
3108pha	62 y F				A	Ingst	Int-S	1		
		antipsychotic (atypical)	1	1					quetiapine	2500 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	2	2					gabapentin	300 ng/mL In Blood (unspecified) @ Unknown
		lamotrigine	3	3					lamotrigine	6900 ng/mL In Blood (unspecified) @ Unknown
		valproic acid	4	4					valproic acid	57000 ng/mL In Blood (unspecified) @ Unknown
3109ph	63 y M				A	Ingst	Int-S	2		
		pentobarbital	1	1						
3110ai	66 y F				U	Unk	Int-S	1		
		zolpidem	1	1						
		duloxetine	2	2						
3111h	66 y M				A/C	Ingst	Int-S	2		
		quetiapine	1	1					ethanol	18 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
3112h	66 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		temazepam	2	2						
3113ha	67 y F				A	Ingst + Aspir	Int-S	2		
		benzodiazepine	1	1						
		methadone	2	2						
		gabapentin	3	3						
		hydromorphone	4	4						
		bupivacaine	5	5						
		clonidine	6	6						
3114ph	71 y M				A/C	Ingst	Int-S	2		
		lorazepam	1	1						
3115pha	74 y F				U	Ingst	Int-S	1		
		zolpidem	3	1					zolpidem	8600 ng/mL In Serum @ Unknown
		diazepam	2	2					nordiazepam	200 ng/mL In Serum @ Unknown
		diazepam	2	2					oxazepam	22 ng/mL In Serum @ Unknown
		diazepam	2	2					diazepam	520 ng/mL In Serum @ Unknown
		diazepam	2	2					temazepam	72 ng/mL In Serum @ Unknown
		oxycodone	1	3					oxycodone (free)	21 ng/mL In Serum @ Unknown
		venlafaxine	4	4					o-desmethylvenlafaxine	1100 ng/mL In Serum @ Unknown
		venlafaxine	4	4					venlafaxine	260 ng/mL In Serum @ Unknown
3116ha	74 y F				A/C	Ingst	Int-S	1		
		temazepam	5	1					temazepam	5.7 mg/L In Blood (unspecified) @ Unknown
		diazepam	4	2					oxazepam	0.048 mg/L In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		diazepam	4	2					diazepam	0.468 mg/L In Blood (unspecified) @ Unknown
		citalopram	1	3						
		bupropion	2	4						
		tramadol	3	5						
		promethazine	6	6						
		benzonatate	7	7						
		pregabalin	8	8						
3117h	78 y F				A	Ingst	Int-S	2		
		doxylamine	1	1						
3118h	84 y M				A/C	Ingst	Int-S	1		
		lorazepam	1	1						
		morphine	2	2						
3119ph	Unknown adult (≥20 yrs) F				A	Ingst	Int-S	2		
		quetiapine	1	1						
		bupropion (ER)	2	2						
		clonazepam	3	3						
See Also case 17, 44, 51, 53, 56, 213, 227, 241, 249, 252, 557, 567, 569, 573, 581, 582, 593, 594, 599, 601, 603, 604, 605, 607, 613, 617, 618, 621, 623, 626, 629, 634, 637, 646, 649, 653, 654, 668, 670, 672, 686, 697, 700, 710, 711, 712, 720, 721, 723, 726, 729, 742, 746, 747, 750, 766, 767, 777, 800, 805, 810, 813, 817, 822, 824, 833, 838, 839, 848, 853, 854, 881, 897, 898, 912, 913, 921, 928, 934, 946, 967, 973, 979, 982, 983, 989, 994, 996, 1001, 1002, 1005, 1011, 1012, 1013, 1014, 1018, 1031, 1032, 1037, 1043, 1052, 1055, 1080, 1087, 1089, 1125, 1126, 1135, 1143, 1152, 1155, 1156, 1163, 1177, 1185, 1197, 1206, 1236, 1241, 1284, 1290, 1299, 1302, 1303, 1304, 1305, 1308, 1309, 1316, 1325, 1336, 1346, 1352, 1364, 1376, 1386, 1387, 1398, 1413, 1414, 1429, 1431, 1449, 1457, 1477, 1480, 1481, 1502, 1507, 1512, 1515, 1519, 1520, 1536, 1537, 1543, 1560, 1562, 1565, 1578, 1581, 1587, 1591, 1598, 1601, 1612, 1637, 1639, 1641, 1653, 1655, 1661, 1665, 1691, 1701, 1702, 1711, 1714, 1746, 1748, 1755, 1781, 1816, 1819, 1832, 1848, 1850, 1883, 1892, 1894, 1912, 1915, 1918, 1936, 1957, 1960, 1964, 1970, 1973, 1983, 2029, 2034, 2035, 2036, 2041, 2043, 2076, 2078, 2096, 2108, 2118, 2165, 2187, 2202, 2220, 2230, 2273, 2275, 2298, 2299, 2325, 2345, 2353, 2354, 2358, 2362, 2372, 2375, 2376, 2377, 2429, 2431, 2434, 2435, 2436, 2438, 2439, 2442, 2443, 2447, 2451, 2456, 2459, 2461, 2467, 2468, 2472, 2474, 2477, 2480, 2485, 2498, 2499, 2504, 2506, 2507, 2509, 2510, 2512, 2517, 2518, 2526, 2529, 2530, 2533, 2537, 2544, 2546, 2555, 2557, 2559, 2560, 2562, 2564, 2566, 2568, 2569, 2574, 2577, 2583, 2584, 2587, 2590, 2617, 2622, 2623, 2625, 2629, 2631, 2658, 2661, 2662, 2667, 2669, 2672, 2678, 2681, 2683, 2685, 2693, 2694, 2695, 2696, 2698, 2700, 2702, 2708, 2716, 2717, 2718, 2739, 2747, 2748, 2755, 2765, 2768, 2772, 2781, 2790, 2793, 2801, 2803, 2805, 2812, 2813, 2817, 2820, 2830, 2831, 2837, 2838, 2842, 2844, 2853, 2854, 2856, 2862, 2864, 2869, 2876, 2881, 2891, 2892, 2896, 2910, 2922, 2925, 2928, 2960, 3012, 3020, 3029, 3033, 3039, 3042, 3045, 3046, 3050, 3124, 3132, 3134, 3135, 3137, 3141, 3166, 3207, 3219, 3223, 3227, 3228, 3245, 3251, 3257, 3287, 3315, 3327, 3339, 3357, 3429, 3476, 3479, 3483, 3486, 3497, 3540, 3568, 3593, 3597, 3635, 3653, 3674, 3682, 3764, 3778, 3789										
Serums, Toxoids, Vaccines										
3120pa	48 y M	vaccine (COVID-19)	1	1	A	Par	AR-D	3		
Stimulants and Street Drugs										
3121h	2 y M	cocaine	1	1	A	Unk	Unt-G	2		
[3122pha]	16 y M	lysergic acid diethylamide (LSD)	1	1	A	Unk	Int-A	1	Isd (lysergic acid diethylamide)	0.66 ng/mL In Urine (quantitative only) @ Unknown
3123ha	17 y M	methamphetamine	1	1	U	Ingst + Inhal	Int-A	1	methamphetamine	1669 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					amphetamine	93 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2						
		THC homolog	3	3						
		marijuana	4	4					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	1.9 ng/mL In Blood (unspecified) @ Unknown
		marijuana	4	4					thc (tetrahydrocannabinol)	2.2 ng/mL In Blood (unspecified) @ Unknown
3124h	17 y M	ethanol (beverage)	5	5	U	Unk	Unk	2		
		<i>Mitragyna speciosa korthals</i>	1	1						
		heroin	2	2						
		fentanyl (prescription) drug, N.O.S.	3	3						
		alprazolam	4	4						
		aripiprazole	5	5						
		sertraline	6	6						
		sertraline	7	7						
		cocaine	8	8						
		marijuana	9	9						
		salicylate	10	10						
3125ph	18 y M	cocaine	1	1	A	Ingst	Unk	2		
		oxycodone	2	2						
3126gai	18 y M	methamphetamine	1	1	U	Unk	Int-M	1		
		fentanyl (non-prescription)	2	2						
3127p	20 y M	cocaine	1	1	U	Unk	Unk	3		
		viral disease (COVID-19-Confirmed) chemical, N.O.S.	2	2						
		chemical, N.O.S.	3	3						
3128bai	20 y M	<i>Mitragyna speciosa korthals</i>	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		doxylamine	3	3						
3129ai	20 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3130ai	20 y F	cocaine	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
3131i	21 y F	cocaine	1	1	U	Unk	Int-U	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3132i	21 y F	marijuana	1	1	U	Unk	Int-S	1		
		nitrites (sodium)	2	2						
		alprazolam	3	3						
3133h	21 y M	methamphetamine	1	1	A	Ingst	Int-A	2		
3134ph	21 y F	methamphetamine	4	1	A	Unk	Int-S	2	eutylone	71 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	5	2					alpha-hydroxyetizolam	11 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	5	2					etizolam	7.7 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	3					benzoylecognine	230 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	6	4					venlafaxine	3200 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	6	4					o-desmethylvenlafaxine	550 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	9	5					amphetamine	49 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	7	6					acetaminophen (apap)	220 mcg/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	7						
		diphenhydramine	8	8					diphenhydramine	150 ng/mL In Blood (unspecified) @ Unknown
		marijuana, N.O.S.	3	9					delta-9-thc	0.7 ng/mL In Blood (unspecified) @ Unknown
		marijuana, N.O.S.	3	9					delta-9-carboxy-thc	29 ng/mL In Blood (unspecified) @ Unknown
3135ai	21 y M	cocaine	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol (beverage)	3	3						
3136pha	21 y F	methylenedioxymethamphetamine (MDMA)	1	1	A	Ingst	Int-A	2		
		cocaine	2	2						
3137ph	21 y M	<i>Mitragyna speciosa korthals</i>	1	1	A	Ingst	Int-A	3		
		clonazepam	2	2						
		ethanol (beverage)	3	3						
3138i	22 y M	cocaine	1	1	U	Unk	Int-A	1		
3139a	22 y M	methamphetamine	1	1	U	Par	Int-U	1	methamphetamine	1458 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	2	2					amphetamine	81.9 ng/mL In Blood (unspecified) @ Unknown
3140ai	22 y M	methylenedioxymethamphetamine (MDMA)	1	1	U	Unk	Int-A	3		
3141	22 y M	cocaine	1	1	A	Inhal	Int-U	2		
		benzodiazepine	2	2						
3142ai	23 y M	methamphetamine	1	1	U	Unk	Unk	2		
		fentanyl (non-prescription)	2	2						
3143i	23 y M	cocaine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3144h	23 y F-Pregnant	amphetamine	1	1	A	Ingst + Inhal + Oth	Int-A	3		
		marijuana, N.O.S.	2	2						
		stimulant/street drug, N.O.S	3	3						
3145ai	23 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		ethanol (beverage)	3	3						
3146ai	23 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		fentanyl (non-prescription)	2	2						
		viral disease (COVID-19-Confirmed)	3	3						
3147ai	24 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
3148pha	24 y F	methamphetamine	2	1	U	Unk	Int-A	1	methamphetamine	2000 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (prescription)	1	2					fentanyl	4.4 ng/mL In Blood (unspecified) @ Autopsy
3149ai	25 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3150ph	25 y M	methamphetamine	1	1	U	Unk	Unk	1		
		fentanyl (non-prescription)	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3151ai	25 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		hydroxyzine	2	2						
		marijuana	3	3						
3152h	25 y M	methylenedioxyamphetamine (MDMA)	1	1	U	Unk	Int-A	2		
3153ai	25 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3154ai	25 y F	cocaine	1	1	U	Unk	Unk	2		
		ethanol (beverage)	2	2						
3155ai	26 y M	cocaine	1	1	U	Unk	Int-A	1		
3156pha	26 y F	methamphetamine	1	1	U	Unk	Int-A	1	amphetamine	24 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	280 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoyllecognine	960 ng/mL In Blood (unspecified) @ Unknown
		heroin	3	3						
		methylenedioxyamphetamine (MDMA)	4	4						
		fentanyl (prescription)	5	5					para-fluorofentanyl	0.21 ng/mL In Blood (unspecified) @ Unknown
3157ph	26 y F	1,4-butanediol	1	1	U	Ingst	Int-A	2		
		gamma-hydroxybutyric acid	2	1						
3158ai	26 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3159a	26 y M	methamphetamine	1	1	A	Ingst+Unk	Int-A	1		
		metoprolol	2	1						
		cleaner (household)	3	2						
3160ai	27 y F	methamphetamine	1	1	U	Unk	Unk	1		
3161	27 y M	methamphetamine	1	1	C	Unk	Int-A	2		
3162ai	27 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		ethanol (beverage)	3	3						
3163ai	27 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		marijuana, N.O.S.	3	3						
3164h	27 y M	cocaine	1	1	U	Ingst	Int-M	2		
3165p	28 y M	cocaine	1	1	A	Ingst+Unk	Int-A	2		
		oxycodone	2	2						
3166ai	28 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
3167ai	28 y M	methamphetamine	1	1	U	Unk	Unk	3		
3168ai	28 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3169i	28 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		cocaine	1	1						
		ethanol (beverage)	2	2						
		marijuana	3	3						
3170ai	28 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
3171ai	28 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3172ai	28 y M	methamphetamine	1	1	U	Unk	Unk	1		
3173h	28 y M	THC homolog	1	1	C	Inhal	Oth-C	1		
		rodenticide (anticoagulant)	2	2						
3174ai	29 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3175ai	29 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		cyclobenzaprine	2	2						
		ethanol (beverage)	3	3						
3176ai	29 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3177ai	29 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3178h	29 y M	methamphetamine	1	1	U	Inhal	Int-A	2		

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Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3179h	29 y M	methamphetamine	1	1	A	Unk	Int-A	2		
		amphetamine (hallucinogenic), cathinone	2	2						
3180ai	29 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		fentanyl (non-prescription)	2	2						
3181ai	29 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
3182i	30 y M	marijuana	1	1	A/C	Inhal	Int-A	2		
		narcotic, N.O.S.	2	2						
3183h	30 y M	amphetamine (hallucinogenic)	1	1	U	Ingst + Unk	Int-U	2		
		ethanol (beverage)	2	2					ethanol	210 mg/dL In Blood (unspecified) @ Unknown
		marijuana	3	3						
		amphetamine/dextroamphetamine	4	4						
3184a	30 y M	amphetamine (hallucinogenic), 3,4-methylenedioxy amphetamine (MDMA)	1	1	A	Ingst	Int-A	3	methamphetamine	47 ng/mL In Blood (unspecified) @ Unknown
		amphetamine (hallucinogenic), 3,4-methylenedioxy amphetamine (MDMA)	1	1					amphetamine	5.7 ng/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2					ethanol	47 mg/dL In Blood (unspecified) @ Unknown
3185ai	30 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3186ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3187ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		hyperthermia	2	2						
3188ai	30 y M	cocaine	1	1	U	Unk	Int-A	1		
		cyclobenzaprine	2	2						
		ethanol (beverage)	3	3						
3189ai	30 y M	methamphetamine	1	1	C	Unk	Int-M	1		
3190ai	30 y M	cocaine	1	1	U	Unk	Int-A	1		
3191ha	30 y M	nitrites (amyl)	1	1	U	Unk	Int-A	1	n-butanol	46 mcg/mL In Blood (unspecified) @ Autopsy
		nitrites (amyl)	1	1					isobutanol	9.8 mcg/mL In Blood (unspecified) @ Autopsy
3192ai	31 y M	<i>Mitragyna speciosa korthals</i>	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
		venlafaxine	3	3						
3193ai	31 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		amphetamines (hallucinogenic), 2C class N.O.S.	2	2						
3194	31 y M	cocaine	1	1	U	Unk	Int-A	2		
3195p	31 y M	cocaine	1	1	A	Ingst	Int-U	3		
		ethanol (beverage)	2	2						
3196ai	31 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		hyperthermia	3	3						
3197pha	31 y M	methamphetamine	1	1	A	Unk	Unk	1	amphetamine	15 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	620 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	2	2						
3198h	31 y M	methamphetamine	1	1	U	Par + Unk	Int-A	3		
3199pha	31 y F	cocaine	1	1	A/C	Inhal	Int-A	2		
3200ai	31 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3201ai	31 y F	methamphetamine	1	1	U	Unk	Unk	2		
3202h	31 y M	methamphetamine	1	1	U	Ingst	Int-S	2		
3203ai	31 y M	nitrites (butyl)	1	1	U	Unk	Unk	1		
		ethanol (beverage)	2	2						
3204ai	32 y M	methamphetamine	1	1	U	Unk	Unk	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3205h	32 y M	amphetamine drug, N.O.S.	1 2	1 2	A	Ingst	Int-A	2		
3206ai	32 y M	methamphetamine hyperthermia marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
3207ai	32 y F	methamphetamine benztropine haloperidol	1 2 3	1 2 3	U	Unk	Int-A	1		
[3208pha]	32 y M	methamphetamine methamphetamine methadone methadone fentanyl (prescription) fentanyl (prescription)	1 1 2 2 3 3	1 1 2 2 3 3	A	Ingst + Unk + Rec	Int-A	1	methamphetamine amphetamine eddp (2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine) methadone fentanyl norfentanyl	23000 ng/mL In Blood (unspecified) @ Unknown 700 ng/mL In Blood (unspecified) @ Unknown 230 ng/mL In Blood (unspecified) @ Unknown 850 ng/mL In Blood (unspecified) @ Unknown 0.43 ng/mL In Blood (unspecified) @ Unknown 1.1 ng/mL In Blood (unspecified) @ Unknown
3209ai	32 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	1		
3210pa	32 y M	<i>Mitragyna speciosa korthals</i> ephedrine dextromethorphan	1 2 3	1 2 3	U	Unk	Unk	1	mitragynine ephedrine dextromethorphan	6.6 mg/L In Blood (unspecified) @ Autopsy 3 mg/L In Blood (unspecified) @ Autopsy 0.4 mg/L In Blood (unspecified) @ Autopsy
3211	32 y F	phenylpropanolamine methamphetamine drug, N.O.S.	4 1 2	4 1 2	A	Par	Int-A	2		
3212ai	32 y M	cocaine	1	1	U	Unk	Int-A	1		
3213ai	32 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3214pai	32 y M	<i>Mitragyna speciosa korthals</i> methamphetamine methamphetamine	2 1 1	2 1 1	U	Unk	Int-A	3	amphetamine methamphetamine	1700 ng/mL In Liver @ Autopsy 5900 ng/mL In Liver @ Autopsy
3215ai	32 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3216ai	33 y F	cocaine	1	1	U	Unk	Int-A	1		
3217ai	33 y M	methamphetamine	1	1	C	Unk	Int-A	3		
3218ai	33 y F	amphetamine fluoxetine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-S	1		
3219ai	33 y M	cocaine oxycodone alprazolam ethanol (beverage)	1 2 3 4	1 2 3 4	U	Unk	Int-A	1		
3220ph	33 y M	amphetamine cocaine	1 2	1 2	U	Unk	Int-A	2		
3221ai	33 y F	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	1		
3222ai	34 y F	methamphetamine phencyclidine marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
3223h	34 y M	cocaine oxycodone benzodiazepine	1 2 3	1 2 3	U	Unk	Int-A	2		
3224p	34 y F	methamphetamine drug, N.O.S.	1 2	1 2	A	Ingst	Int-S	2		
3225ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3226ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3227ai	34 y M	methamphetamine olanzapine	1 2	1 2	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3228ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		risperidone	2	2						
3229ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3230ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		fentanyl (non-prescription)	2	2						
		ethanol (beverage)	3	3						
3231ai	34 y M	methamphetamine	1	1	U	Unk	Unk	2		
3232ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		sertraline	2	2						
3233ai	34 y M	amphetamine	1	1	U	Unk	Int-A	1		
		methylenedioxymethamphetamine (MDMA)	2	2						
3234	34 y M	amphetamine	1	1	U	Unk	Unk	2		
		viral disease (COVID-19-Confirmed)	2	2						
		ethanol (beverage)	3	3					ethanol	134 mg/dL In Blood (unspecified) @ Unknown
3235ai	34 y M	methamphetamine	1	1	U	Ingst+Unk	Int-A	1		
		ethanol (beverage)	2	2						
3236ai	35 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3237ai	35 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3238h	35 y M	methamphetamine	1	1	A	Ingst	Int-M	2		
3239ai	35 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
3240ai	35 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3241ha	35 y M	methamphetamine	1	1	A	Ingst	Unt-M	3		
		methamphetamine	1	1					amphetamine	12 ng/mL In Blood (unspecified) @ Unknown
		mushroom (unknown)	2	2					methamphetamine	270 ng/mL In Blood (unspecified) @ Unknown
3242ai	35 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		amphetamine	2	2						
3243i	35 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		ethanol (beverage)	2	2						
3244ai	35 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		marijuana, N.O.S.	2	2						
3245ai	36 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		benzodiazepine	2	2						
3246ai	36 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3247ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3248pha	36 y M	methamphetamine	1	1	U	Ingst+Inhal	Int-A	2		
		nitrites (amyl)	1	1						
		ethanol (beverage)	2	2					ethanol	161 mg/dL In Blood (unspecified) @ Unknown
3249ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3250ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3251ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		lorazepam	3	3						
3252ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
3253pha	36 y M	methamphetamine	1	1	U	Unk	Unk	2	methamphetamine	4.8 mcg/mL In Blood (unspecified) @ Autopsy
3254ai	36 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		trihexphenidyl	2	2						
3255ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3256pa	36 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1					cocaine	0.2 mg/L In Blood (unspecified) @ Autopsy
3257ai	36 y F	methamphetamine	1	1	U	Unk	Int-S	1		
		zolpidem	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3258ai	37 y M	methamphetamine cocaine	1 2	1 2	U	Unk	Int-A	1		
3259ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3260ai	37 y M	methamphetamine fentanyl (non-prescription) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
3261ai	37 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	1		
3262ai	37 y M	methamphetamine fentanyl (non-prescription)	1 2	1 2	U	Unk	Unk	3		
3263ai	37 y M	methamphetamine fentanyl (prescription)	1 2	1 2	U	Unk	Unk	3		
3264ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3265ai	37 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	1		
3266ai	37 y F	methamphetamine hyperthermia carbon monoxide	1 2 3	1 2 3	U	Unk	Int-A	3		
3267ai	37 y M	methamphetamine methadone	1 2	1 2	U	Unk	Int-A	1		
3268ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3269ai	37 y M	methamphetamine cocaine ethanol (beverage)	1 2	1 2	U	Unk	Unk	3		
3270ai	37 y M	methamphetamine fentanyl (non-prescription) ethanol (beverage)	1 2 3	1 2 3	U	Unk	Unk	2		
3271ai	37 y M	methamphetamine fentanyl (non-prescription) ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
3272ai	37 y F	methamphetamine viral disease (COVID-19-Confirmed)	1 2	1 2	U	Unk	Int-A	3		
3273ai	38 y F	methamphetamine fentanyl (non-prescription)	1 2	1 2	U	Unk	Int-A	3		
3274ai	38 y F	methamphetamine ethanol (beverage) marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
3275h	38 y M	methamphetamine	1	1	A	Ingst+ Par	Int-A	1		
3276ai	38 y M	methamphetamine	1	1	U	Unk	Unk	2		
3277ai	38 y F	methamphetamine	1	1	C	Unk	Int-A	3		
3278ai	38 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3279ai	38 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3280ai	38 y M	methamphetamine phenylpropanolamine gabapentin	1 2 3	1 2 3	U	Unk	Int-A	2		
3281h	38 y M	THC homolog rodenticide (anticoagulant)	1 2	1 2	U	Inhal	Oth-C	1		
3282ai	39 y M	cocaine	1	1	U	Unk	Int-A	1		
3283ph	39 y M	cocaine	1	1	A	Inhal	Int-A	2		
3284ai	39 y M	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
3285ai	39 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	2		
3286ai	39 y M	methamphetamine marijuana	1 2	1 2	U	Unk	Int-A	1		
3287ai	39 y F	methamphetamine hydroxyzine clonazepam	1 2 3	1 2 3	U	Unk	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3288ai	39 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3289ai	39 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3290ai	39 y M	viral disease (COVID-19-Confirmed)	2	2	U	Unk	Int-A	2		
3291h	40 y M	methamphetamine	1	1	C	Ingst	Int-A	3		
		ethanol (beverage)	2	2					ethanol	40 mg/dL In Serum @ Unknown
		mushroom (psilocybin-psilocin)	1	2						
		bong water	2	3						
3292ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3293ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
3294pha	40 y M	cocaine	1	1	A/C	Ingst	Int-U	2		
3295pha	40 y M	methamphetamine	1	1	U	Ingst+ Unk	Unk	2		
		ethanol (beverage)	2	2					methamphetamine	690 ng/mL In Blood (unspecified) @ Autopsy
		ethanol (beverage)	2	2					ethanol	75 mg/dL In Blood (unspecified) @ Autopsy
		ethanol (beverage)	2	2					ethanol	99 mg/dL In Blood (unspecified) @ Unknown
3296ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3297ai	40 y M	methamphetamine	1	1	U	Unk	Unk	2		
3298ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		cocaine	1	1						
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
3299ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3300p	40 y M	methamphetamine	1	1	A	Ingst	Int-M	2		
3301i	40 y F	methamphetamine	1	1	C	Unk	Int-A	2		
3302p	41 y F	methamphetamine	1	1	A/C	Ingst	Unk	2		
		dexmethylphenidate (ER)	1	1						
		beta-sisosterol/caffeine/calcium	2	2						
3303ai	41 y M	methamphetamine	1	1	U	Unk	Unk	2		
3304ai	41 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3305ai	41 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3306ai	41 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		<i>Mitragyna speciosa korthals</i>	2	2						
3307phi	41 y M	cocaine	1	1	A	Unk	Int-A	2		
		marijuana	2	2						
3308h	41 y M	cocaine	1	1	U	Unk	Unt-G	3		
3309a	41 y M	cocaine	1	1	A	Unk	Int-A	1		
		fentanyl analogs (para-fluoro)	2	2						
3310ai	41 y M	methamphetamine	1	1	U	Unk	Unk	3		
		narcotic, N.O.S.	2	2						
3311ai	41 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3312ai	41 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
		fluoxetine	3	3						
3313ai	41 y M	methamphetamine	1	1	U	Unk	Unk	3		
3314ai	41 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol (beverage)	3	3						
3315ai	41 y F	cocaine	1	1	U	Unk	Int-A	1		
		methylenedioxymethamphetamine (MDMA)	2	2						
		alprazolam	3	3						
3316ai	41 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3317pha	41 y M	methamphetamine	1	1	A	Ingst+ Unk	Int-A	1		
		methamphetamine	1	1					amphetamine	100 ng/mL In Blood (unspecified) @ Unknown

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		methamphetamine	1	1					methamphetamine	510 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoylecognine	340 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	3	3					norfentanyl	4.6 ng/mL In Blood (unspecified) @ Unknown
		fentanyl (non-prescription)	3	3					fentanyl	6.2 ng/mL In Blood (unspecified) @ Unknown
3318ai	42 y M	arginine/astragalus/black pepper	4	4						
		<i>Mitragyna speciosa korthals</i>	1	1						
3319ai	42 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		marijuana, N.O.S.	2	2						
3320ai	42 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol (beverage)	2	2						
3321pha	42 y M				A	Ingst	Int-S	1		
		methamphetamine	1	1					amphetamine	94 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	9600 ng/mL In Blood (unspecified) @ Unknown
		mirtazapine	2	2						
		ethanol (beverage)	3	3						
3322ai	42 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
3323ai	42 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
3324ai	42 y M				U	Unk	Int-S	1		
		methamphetamine	1	1						
		ethanol (beverage)	2	2						
3325ai	42 y F				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
3326ai	42 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol (beverage)	2	2						
		hyperthermia	3	3						
3327h	42 y M				A/C	Unk	Int-A	2		
		methamphetamine	1	1						
		haloperidol	2	2						
3328ha	42 y F				A	Inhal	Int-A	1		
		methamphetamine	1	1						
3329ai	42 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		hyperthermia	2	2						
3330ai	42 y F				U	Unk	Unk	3		
		methamphetamine	1	1						
3331ai	42 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
3332ai	42 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
		ethanol (beverage)	2	2						
		marijuana	3	3						
3333h	42 y M				A	Unk	Int-S	2		
		cocaine	1	1						
		methamphetamine	2	2						
3334ai	43 y F				U	Unk	Int-U	3		
		methamphetamine	1	1						
3335ai	43 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol (beverage)	2	2						
3336ai	43 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
3337i	43 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
3338ph	43 y M				A	Inhal	Int-A	2		
		cocaine	1	1						
		fentanyl (non-prescription)	2	2						
3339i	43 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		alprazolam	2	2						
		marijuana	3	3						
3340pha	43 y F				A	Ingst + Unk	Int-A	1		
		methylenedioxyamphetamine (MDMA)	1	1					mdma (3, 4-methylenedioxy methamphetamine)	960 ng/mL In Blood (unspecified) @ Unknown
		methylenedioxyamphetamine (MDMA)	2	2					mda (3, 4-methylenedioxy amphetamine)	25 ng/mL In Blood (unspecified) @ Unknown
		cocaine	3	3					benzoylecognine	77 ng/mL In Blood (unspecified) @ Unknown
		ethanol (beverage)	4	4					ethanol	42 mg/mL In Blood (unspecified) @ Unknown
		propranolol	5	5						
3341ai	43 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time	
3342h	43 y M	ethanol (beverage)	2	2							
		hyperthermia	3	3							
3343ai	43 y M	methamphetamine	1	1	A/C	Unk	Int-S	1			
3344ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	3			
3345ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	2			
3346ai	44 y F	methamphetamine	1	1	U	Unk	Int-A	2			
3347ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	1			
3348ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	1			
		ethanol (beverage)	2	2							
		marijuana	3	3							
3349ai	44 y M	cocaine	1	1							
		ethanol (beverage)	2	2							
3350pha	44 y M	methamphetamine	1	1	U	Inhal	Int-A	3			
3351ai	44 y F	phencyclidine	1	1						benzoylceognine	93 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2							
		marijuana	3	3						phencyclidine	120 ng/mL In Blood (unspecified) @ Autopsy
		phencyclidine	4	4							
3352ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	1			
		amphetamine	2	2							
		ethanol (beverage)	3	3							
3353ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	1			
		gamma-hydroxybutyric acid	2	2							
		marijuana, N.O.S.	3	3							
3354ph	44 y M	methamphetamine	1	1	A	Ingst	Unt-U	2			
		hyperthermia	2	2							
3355ai	44 y M	gamma-hydroxybutyric acid	1	1							
		cocaine	2	2							
3356ha	44 y M	methamphetamine	1	1	A	Ingst	Int-U	2			
		fentanyl (non-prescription)	2	2							
		cocaine	3	3							
3357ai	45 y M	phencyclidine	1	1	U	Unk	Int-A	1			
3358ai	45 y F	methamphetamine	1	1	U	Unk	Int-A	2			
		risperidone	2	2							
3359h	45 y M	methamphetamine	1	1	U	Unk	Int-M	1			
3360ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	1			
3361ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	1			
3362ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	3			
		<i>Mitragyna speciosa korthals</i>	1	1							
		gabapentin	2	2							
3363ph	45 y M	ethanol (beverage)	3	3	U	Unk	Int-A	2			
		methamphetamine	1	1							
3364ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	3			
		pseudoephedrine	2	2							
		ethanol (beverage)	3	3							
3365ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	3			
		marijuana	2	2							
3366ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	3			
3367ai	46 y M	methamphetamine	1	1	U	Unk	Unk	3			
3368ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	1			
		<i>Mitragyna speciosa korthals</i>	1	1							
3369ph	46 y M	ethanol (beverage)	2	2	A	Ingst	Int-S	2			
		cocaine	1	1							
3370h	46 y M	methamphetamine	1	1	A/C	Unk	Int-A	2			
3371ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	1			
3372ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	3			
		metoprolol	2	2							

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3373ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3374ai	46 y F	methamphetamine oxycodone	1 2	1 2	U	Unk	Int-U	1		
3375ai	47 y F	methamphetamine ethanol (beverage) marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
3376ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3377ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3378ai	47 y F	methamphetamine methadone duloxetine	1 2 3	1 2 3	U	Unk	Int-A	1		
3379ai	47 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3380ph	47 y M	methamphetamine cocaine ethanol (beverage)	1 1 2	1 1 2	U	Ingst + Unk	Int-A	2	ethanol	26 mg/dL In Blood (unspecified) @ Unknown
3381ai	47 y F	methamphetamine fentanyl (prescription) morphine	1 2 3	1 2 3	U	Unk	Unk	3		
3382ha	47 y F	methamphetamine methamphetamine hypochlorite drug, N.O.S.	1 1 2 3	1 1 2 3	A	Ingst	Int-S	1	amphetamine methamphetamine	42 ng/mL In Blood (unspecified) @ Unknown 440 ng/mL In Blood (unspecified) @ Unknown
3383ha	47 y F	methamphetamine methamphetamine	1 1	1 1	U	Unk	Int-A	3	amphetamine methamphetamine	50.3 ng/mL In Blood (unspecified) @ Unknown 981 ng/mL In Blood (unspecified) @ Unknown
3384h	47 y M	methamphetamine	1	1	U	Unk	Int-U	1		
3385h	47 y F	methamphetamine	1	1	A/C	Unk	Int-U	3		
3386ai	47 y M	methamphetamine marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	1		
3387ai	47 y F	methamphetamine	1	1	U	Unk	Unk	1		
3388ai	47 y F	methamphetamine marijuana	1 2	1 2	U	Unk	Int-A	1		
3389h	48 y F	methamphetamine alcohol, N.O.S.	1 2	1 2	U	Unk	Unk	3		
3390ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3391ai	48 y F	methamphetamine	1	1	U	Unk	Int-A	2		
3392ai	48 y F	methamphetamine cocaine	1 1	1 1	U	Unk	Int-A	3		
3393i	48 y F	marijuana	1	1	U	Unk	Int-A	2		
3394ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3395ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3396ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3397ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3398ai	48 y M	methamphetamine cocaine marijuana, N.O.S.	1 1 2	1 1 2	U	Unk	Int-A	3		
3399ai	48 y M	methamphetamine viral disease (COVID-19-Confirmed)	1 2	1 2	U	Unk	Int-A	3		
3400ai	48 y M	methamphetamine ethanol (beverage) viral disease (COVID-19-Confirmed)	1 2 3	1 2 3	U	Unk	Int-A	3		
3401ai	48 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3402ai	48 y M	methamphetamine cocaine marijuana, N.O.S.	1 1 2	1 1 2	U	Unk	Int-A	1		
3403pha	48 y M	caffeine	1	1	C	Ingst	Int-M	3		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3404i	49 y M	caffeine/yohimbine	2	2	U	Unk	Int-A	2		
		yohimbe	3	3						
		dietary supplement	4	4						
		sodium bicarbonate	5	5						
3405ai	49 y F	methamphetamine	1	1	U	Ingst + Unk	Int-A	2		
		ethanol (beverage)	2	2						
3406pha	49 y F	methamphetamine	1	1	U	Ingst	Int-S	2		
		diphenhydramine	2	2						
		methamphetamine	1	1						
		methamphetamine	1	1						
		methamphetamine	1	1						
		methamphetamine	1	1						
		venlafaxine (ER)	2	2						
venlafaxine (ER)	2	2								
3407i	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		amphetamine (hallucinogenic)	2	2						
		marijuana	3	3						
3408	49 y M	methamphetamine	1	1	A	Unk	Int-A	2		
3409ai	49 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3410ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		hyperthermia	2	2						
3411ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		hyperthermia	3	3						
3412ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
3413h	49 y M	methamphetamine	1	1	A	Ingst	Int-M	2		
3414ai	49 y F	methamphetamine	1	1	U	Unk	Unk	2		
3415ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		carbamazepine	2	2						
3416ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		fentanyl (non-prescription)	2	2						
		levetiracetam	3	3						
3417ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		nitrites (isobutyl)	2	2						
		ethyl chloride	3	3						
3418ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		methamphetamine	1	1						
		bupropion	2	2						
3419ai	49 y M	citalopram	3	3	U	Unk	Int-A	1		
		methamphetamine	1	1						
3420ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3421ha	49 y M	methamphetamine	1	1	A	Ingst	Int-A	1		
		methamphetamine	1	1						
		methamphetamine	1	1						
3422ai	49 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3423ai	49 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3424ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		marijuana, N.O.S.	2	2						
3425ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3426ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		isopropanol	2	2						
3427ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3428ai	50 y M	methamphetamine	1	1	U	Unk	Int-S	1		
		diphenhydramine	2	2						

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Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3429ai	50 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		verapamil	2	2						
		lorazepam	3	3						
3430ai	50 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
3431ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3432ai	50 y M	methamphetamine	1	1	U	Unk	Unk	3		
3433ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3434ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		hyperthermia	2	2						
3435h	50 y M	methamphetamine	1	1	A	Unk	Int-A	2		
3436	50 y M	methamphetamine	1	1	A	Ingst	Int-M	2		
3437ai	51 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3438ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3439ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3440ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3441ai	51 y M	methamphetamine	1	1	U	Unk	Unk	3		
3442ai	51 y M	methamphetamine	1	1	U	Unk	Unk	3		
3443ai	51 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3444ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3445ai	51 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3446ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3447ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3448ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		marijuana	3	3						
3449h	51 y M	methamphetamine	1	1	A/C	Ingst	Int-A	2		
3450ai	52 y M	methamphetamine	1	1	U	Unk	Unk	3		
3451ai	52 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3452ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3453ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3454ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3455ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3456ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		hyperthermia	2	2						
3457ai	52 y M	cocaine	1	1	U	Unk	Int-A	3		
3458ai	52 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		marijuana, N.O.S.	2	2						
3459ai	52 y F	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		heroin	3	3						
3460ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3461ai	52 y M	methamphetamine	1	1	U	Unk	Unk	2		
3462ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3463ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3464ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3465ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3466ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3467h	53 y M	amphetamine drug, N.O.S.	1 2	1 2	A	Ingst	Unk	2		
3468ai	53 y M	methamphetamine marijuana	1 2	1 2	U	Unk	Int-A	1		
3469ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3470ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3471ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3472ha	53 y F	methamphetamine	1	1	A	Ingst	Int-A	1		
		cocaine	1	1						
		methadone	2	2						
		narcotic, N.O.S.	3	3						
3473ai	53 y M	methamphetamine fentanyl (non-prescription) THC homolog	1 2 3	1 2 3	U	Unk	Int-A	2		
3474ai	53 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3475ai	53 y M	methamphetamine marijuana	1 2	1 2	U	Unk	Int-U	2		
3476ai	53 y M	methamphetamine olanzapine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
3477ai	53 y M	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
3478ai	53 y M	methamphetamine ethanol (beverage) hyperthermia	1 2 3	1 2 3	U	Unk	Int-A	1		
3479ai	53 y M	methamphetamine fentanyl (non-prescription) alprazolam	1 2 3	1 2 3	U	Unk	Int-A	2		
3480ai	53 y M	methamphetamine	1	1	U	Unk	Unk	3		
3481h	53 y F	amphetamine drug, N.O.S.	1 2	1 2	C	Unk	Int-A	3		
3482ai	53 y F	methamphetamine methadone marijuana	1 2 3	1 2 3	U	Unk	Int-A	1		
3483pa	53 y M	methamphetamine	1	1	U	Ingst	Int-S	1	methamphetamine	1800 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					amphetamine	190 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (non-prescription)	2	2					fentanyl	6.6 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl (non-prescription)	2	2					norfentanyl	6.6 ng/mL In Blood (unspecified) @ Autopsy
		antipsychotic (atypical)	3	3					aripiprazole	62 ng/mL In Blood (unspecified) @ Autopsy
3484ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3485ai	54 y M	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	2		
3486ai	54 y F	methamphetamine oxycodone alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
3487ai	54 y M	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	2		
3488ai	54 y M	cocaine fentanyl (prescription)	1 2	1 2	U	Unk	Unk	2		
3489ai	54 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	2		
3490ai	54 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	1		
3491ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3492ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3493ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		fentanyl (non-prescription)	2	2						
		hyperthermia	3	3						
		viral disease (COVID-19-Confirmed)	4	4						
3494ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3495ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3496ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
3497ai	54 y M	ethanol (beverage)	2	2	U	Unk	Int-A	1		
		methamphetamine	1	1						
3498ai	54 y M	quetiapine	2	2	U	Unk	Int-A	1		
		amlodipine	3	3						
		methamphetamine	1	1						
3499ai	55 y M	marijuana, N.O.S.	2	2	U	Unk	Int-A	3		
		methamphetamine	1	1						
3500ai	55 y F	cocaine	1	1	U	Unk	Int-A	1		
3501ai	55 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		metoprolol	3	3						
3502ai	55 y M	methamphetamine	1	1	U	Unk	Unk	3		
3503ai	55 y F	cocaine	1	1	U	Unk	Int-A	3		
3504ai	55 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3505ai	55 y F	hyperthermia	2	2	U	Unk	Int-A	1		
		methamphetamine	1	1						
3506ai	55 y M	methamphetamine	1	1	U	Unk	Unk	2		
3507ai	55 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3508ai	55 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		fentanyl (non-prescription)	2	2						
3509h	55 y M	ingst			A	Ingst	Int-A	3		
		marijuana (edible)	1	1						
		ethanol (beverage)	2	2						
3510i	55 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3511ai	56 y F	methamphetamine	1	1	C	Unk	Int-A	3		
3512ai	56 y M	methamphetamine	1	1	U	Unk	Unk	2		
		fentanyl (prescription)	2	2						
3513ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3514ai	56 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		metoprolol	2	2						
3515a	56 y F	cocaine	1	1	U	Unk	Int-U	2	benzoylceognine	1600 ng/mL In Blood (unspecified) @ Unknown
		marijuana	2	2					delta-9-thc	2.7 ng/mL In Blood (unspecified) @ Unknown
		marijuana	2	2					delta-9-carboxy-thc	8.5 ng/mL In Blood (unspecified) @ Unknown
3516ai	56 y M	methamphetamine	1	1	U	Unk	Unk	3		
3517ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3518ai	56 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
3519ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3520ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3521ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3522ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	2	2						
		duloxetine	3	3						
3523ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
		marijuana, N.O.S.	3	3						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3524ai	56 y M	methamphetamine	1	1	U	Unk	Unk	3		
3525ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3526ai	56 y M	methamphetamine	1	1	U	Unk	Unk	3		
3527pa	56 y F	methamphetamine	1	1	A/C	Inhal	Int-A	3	amphetamine	15 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					methamphetamine	360 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	28 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoyllecognine	860 ng/mL In Blood (unspecified) @ Autopsy
3528ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
3529ai	56 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		marijuana, N.O.S.	2	2						
3530ai	56 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		methadone	2	2						
3531ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3532ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		isopropanol	2	2						
		ethanol (beverage)	3	3						
3533ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3534ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3535ai	57 y M	methamphetamine	1	1	U	Unk	Unk	3		
3536ai	57 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3537ai	57 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3538ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3539ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
3540ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
		olanzapine	3	3						
3541ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3542ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3543ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		marijuana, N.O.S.	2	2						
		metoprolol	3	3						
3544ai	57 y F	methamphetamine	1	1	U	Unk	Int-A	2		
3545ai	58 y F	methamphetamine	1	1	U	Unk	Int-A	2		
3546ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3547ai	58 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3548ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3549ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
[3550pha]	58 y M	nitrites (amyl-butyl)	1	1	A	Ingst	Unt-M	1	nitrite	2100 µmol/L In Serum @ 90 m (pe)
3551ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3552ai	58 y M	cocaine	1	1	U	Unk	Int-A	1		
3553ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3554ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3555	58 y M	methamphetamine	1	1	A	Ingst	Int-M	2		
3556ai	58 y M	methamphetamine	1	1	U	Unk	Unk	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3557ai	58 y F	methamphetamine cocaine	1 2	1 2	U	Unk	Int-A	2		
3558ai	58 y F	methamphetamine	1	1	U	Unk	Unk	3		
3559ai	58 y F	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
3560ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3561ai	58 y M	methamphetamine ethanol (beverage) hyperthermia	1 2 3	1 2 3	U	Unk	Int-A	2		
3562ph	58 y M	cocaine	1	1	U	Unk	Int-A	2		
3563ai	58 y F	methamphetamine	1	1	U	Unk	Unk	3		
3564pha	58 y M	<i>Mitragyna speciosa korthals</i> ethanol (beverage)	1 2	1 2	U	Ingst	Int-S	1	mitragynine ethanol	312.2 ng/mL In Blood (unspecified) @ Unknown 420 mg/dL In Blood (unspecified) @ Unknown
3565ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3566ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3567ai	59 y M	cocaine	1	1	U	Unk	Int-A	2		
3568ai	59 y M	methamphetamine methadone alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
3569ai	59 y F	methamphetamine oxycodone	1 2	1 2	U	Unk	Int-A	2		
3570ai	59 y M	methamphetamine doxepin diphenhydramine	1 2 3	1 2 3	U	Unk	Int-A	3		
3571ai	59 y M	methamphetamine ephedrine/theophylline	1 2	1 2	U	Unk	Int-A	1		
3572ai	59 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	2		
3573ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3574ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3575ai	59 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3576ai	59 y F	methamphetamine benztropine loxapine	1 2 3	1 2 3	U	Unk	Int-A	2		
3577ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3578i	59 y M	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	1		
3579ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3580ai	59 y M	methamphetamine bupropion marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	1		
3581ai	59 y M	methamphetamine ethanol (beverage) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	3		
3582ai	59 y F	methamphetamine ethanol (beverage) citalopram	1 2 3	1 2 3	U	Unk	Int-A	1		
3583ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3584ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3585ai	59 y F	methamphetamine phenacyclidine	1 2	1 2	U	Unk	Int-A	3		
3586ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3587ai	60 y F	methamphetamine marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	2		
3588ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	1		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3589ai	60 y M	marijuana	2	2	U	Unk	Int-A	1		
3590ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		diphenhydramine	2	2						
3591ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		fentanyl (non-prescription)	2	2						
3592ai	60 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
		hyperthermia	3	3						
3593ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		clozapine	2	2						
3594ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3595ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3596ph	2 m M	methamphetamine	1	1	A	Ingst	Oth-M	3		
3597ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
		quetiapine	2	2						
3598ai	61 y F	aripiprazole	3	3	U	Unk	Int-A	1		
		methamphetamine	1	1						
		marijuana, N.O.S.	2	2						
3599ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3600ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3601h	61 y M	methamphetamine	1	1	A	Ingst	Int-S	2		
3602ai	61 y M	caffeine	1	1	U	Unk	Int-A	2		
3603ai	61 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
		heroin	2	2						
3604ai	61 y M	ethanol (beverage)	3	3	U	Unk	Int-A	1		
		methamphetamine	1	1						
		hyperthermia	2	2						
3605ai	61 y M	diphenhydramine	3	3	U	Unk	Int-A	1		
		methamphetamine	1	1						
		hyperthermia	2	2						
3606ai	61 y F	methamphetamine	1	1	U	Unk	Unk	2		
3607ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3608ai	61 y M	methamphetamine	1	1	U	Inhal	Int-A	1		
3609ai	61 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		diphenhydramine	2	2						
3610ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol (beverage)	2	2						
3611ai	62 y M	methamphetamine	1	1	U	Unk	Unk	3		
3612ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3613ai	62 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3614ai	62 y M	methamphetamine	1	1	U	Unk	Unk	3		
		marijuana	2	2						
3615ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3616ai	62 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		hyperthermia	2	2						
3617ai	62 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3618ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3619ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		metoprolol	2	2						
3620ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3621ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
3622ai	63 y F	methamphetamine	1	1	U	Unk	Unk	3		
		ethanol (beverage)	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3623ai	63 y M	methamphetamine	1	1	C	Unk	Int-A	1		
3624ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hyperthermia	2	2						
3625ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		fentanyl (non-prescription)	2	2						
		fentanyl analogs (para-fluoro)	3	3						
3626ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3627ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3628ha	63 y M	methamphetamine	1	1	U	Unk	Unk	3		
		cocaine	1	1						
		ethanol (beverage)	2	2						
		narcotic, N.O.S.	3	3						
3629ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		marijuana	2	2						
3630ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
3631ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		warfarin	3	3						
3632ai	64 y M	cocaine	1	1	U	Unk	Int-A	3		
3633ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3634ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		hyperthermia	2	2						
		marijuana, N.O.S.	3	3						
3635ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		aripiprazole	2	2						
		sertraline	3	3						
3636ai	64 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		ethanol (beverage)	2	2						
3637ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3638ai	64 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		marijuana	2	2						
3639ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3640ai	64 y M	methamphetamine	1	1	C	Unk	Int-A	3		
		nicotine	2	2						
3641ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methadone	2	2						
3642ai	65 y F	methamphetamine	1	1	U	Unk	Int-A	2		
3643ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol (beverage)	2	2						
		amlodipine	3	3						
3644ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		hydroxyzine	2	2						
		ethanol (beverage)	3	3						
3645ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		hyperthermia	2	2						
3646ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
3647ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		hyperthermia	2	2						
3648ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		hyperthermia	2	2						
		ethanol (beverage)	3	3						
3649ai	65 y M	amphetamine (hallucinogenic)	1	1	U	Unk	Int-A	3		
		amphetamine	2	2						
3650ai	66 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		cyclobenzaprine	2	2						
3651h	66 y F	methamphetamine	1	1	A/C	Ingst	Int-A	3		
3652ai	66 y M	methamphetamine	1	1	U	Unk	Int-A	3		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3653ai	66 y M	methamphetamine ethanol (beverage) aripiprazole	1 2 3	1 2 3	U	Unk	Int-A	1		
3654ai	66 y M	methamphetamine hyperthermia ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	2		
3655ai	66 y M	methamphetamine citalopram ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	3		
3656ai	66 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3657ha	67 y F	amphetamine amphetamine amphetamine fentanyl (prescription)	1 1 1 2	1 1 1 2	U	Unk	Int-S	3	sertraline amphetamine methamphetamine	46 ng/mL In Blood (unspecified) @ Unknown 9.4 ng/mL In Blood (unspecified) @ Unknown 91 ng/mL In Blood (unspecified) @ Unknown
3658ai	68 y M	methamphetamine ethanol (beverage)	1 2	1 2	U	Unk	Int-A	3		
3659ai	68 y M	methamphetamine marijuana, N.O.S.	1 2	1 2	U	Unk	Int-A	3		
3660ai	68 y M	methamphetamine	1	1	C	Unk	Int-A	3		
3661ai	68 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3662ai	68 y M	methamphetamine hyperthermia	1 2	1 2	U	Unk	Int-A	3		
3663ai	68 y M	methamphetamine morphine	1 2	1 2	U	Unk	Int-A	1		
3664ai	68 y F	methamphetamine	1	1	U	Unk	Int-A	1		
3665ai	69 y M	methamphetamine beta blocker	1 2	1 2	U	Unk	Int-A	2		
3666ai	69 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3667ai	69 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3668ai	69 y M	methamphetamine	1	1	U	Unk	Int-A	1		
3669ai	69 y M	methamphetamine cocaine	1 2	1 2	U	Unk	Int-A	1		
3670ai	70 y M	methamphetamine gabapentin	1 2	1 2	U	Unk	Int-A	3		
3671ai	70 y M	methamphetamine ethanol (beverage) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	3		
3672ai	70 y M	methamphetamine ethanol (beverage) marijuana, N.O.S.	1 2 3	1 2 3	U	Unk	Int-A	3		
3673ai	71 y M	methamphetamine	1	1	U	Unk	Int-A	2		
3674ai	72 y M	methamphetamine clozapine ethanol (beverage)	1 2 3	1 2 3	U	Unk	Int-A	1		
3675ai	73 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3676ai	73 y F	methamphetamine	1	1	C	Unk	Int-A	3		
3677ai	73 y F	methamphetamine	1	1	U	Unk	Int-A	3		
3678ai	74 y M	methamphetamine amitriptyline	1 2	1 2	U	Unk	Int-A	2		
3679ai	75 y M	methamphetamine	1	1	U	Unk	Int-A	3		
3680ha	75 y M	cocaine cocaine oxycodone	1 1 2	1 1 2	A	Inhal+Unk	Int-A	1	cocaine benzoylcognine oxycodone (free)	24 ng/mL In Blood (unspecified) @ Unknown 4600 ng/mL In Blood (unspecified) @ Unknown 16 ng/mL In Blood (unspecified) @ Unknown
3681h	76 y M	amphetamine/dextroamphetamine	1	1	U	Ingst	Int-S	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3682h	3 d F	salicylate	2	1	A/C	Oth	Int-A	3	salicylate	21.8 mg/dL In Blood (unspecified) @ 7 h (pe)
		salicylate	2	1					salicylate	51 mg/dL In Blood (unspecified) @ 21 h (pe)
		acetaminophen/hydrocodone	3	2					acetaminophen (apap)	134.1 mcg/mL In Blood (unspecified) @ 7 h (pe)
		methamphetamine	1	1					methamphetamine	50 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					zolpidem	66 ng/mL In Blood (unspecified) @ Unknown
3683h	50+ y F	methamphetamine	1	1	C	Unk	Int-A	3	amphetamine	9.1 mg/mL In Blood (unspecified) @ Unknown
		zolpidem	2	2						
3684ai	Unknown adult (≥20 yrs) M	cyclobenzaprine	3	3	U	Unk	Int-A	1		
		cocaine drug, N.O.S.	1	1						
3685a	Unknown age M	hyperthermia	3	3	A	Unk	Int-U	2		
		methamphetamine	1	1						
		fentanyl (non-prescription)	2	2						
		phencyclidine	2	2						
		fentanyl (non-prescription)	3	3						
See Also case 3, 11, 27, 32, 37, 40, 56, 103, 125, 135, 156, 169, 227, 229, 233, 265, 278, 287, 326, 328, 332, 355, 405, 466, 467, 478, 480, 483, 490, 494, 525, 528, 532, 534, 537, 539, 540, 542, 543, 551, 552, 554, 555, 556, 562, 563, 565, 567, 571, 572, 574, 575, 576, 584, 585, 588, 594, 599, 601, 602, 606, 609, 610, 612, 614, 616, 618, 619, 621, 622, 623, 626, 627, 629, 637, 644, 647, 648, 649, 651, 652, 654, 656, 657, 660, 661, 662, 666, 670, 671, 673, 674, 676, 677, 680, 683, 685, 686, 689, 690, 693, 695, 697, 698, 699, 700, 701, 702, 703, 705, 708, 710, 712, 716, 717, 719, 720, 722, 726, 731, 732, 733, 737, 738, 745, 746, 751, 752, 754, 755, 763, 766, 767, 768, 770, 771, 772, 776, 780, 781, 782, 783, 784, 785, 789, 790, 793, 795, 796, 797, 798, 799, 800, 801, 802, 811, 813, 814, 815, 818, 819, 820, 824, 825, 826, 829, 830, 831, 833, 838, 839, 840, 841, 842, 845, 849, 850, 851, 852, 853, 855, 861, 864, 865, 867, 869, 870, 872, 875, 876, 878, 879, 882, 884, 885, 886, 890, 891, 893, 894, 897, 900, 901, 902, 903, 904, 907, 909, 911, 913, 922, 923, 925, 927, 929, 931, 932, 934, 935, 937, 940, 941, 942, 944, 945, 947, 948, 951, 954, 955, 956, 959, 966, 968, 972, 973, 975, 976, 978, 980, 982, 983, 985, 989, 991, 994, 997, 998, 1003, 1004, 1006, 1007, 1009, 1011, 1012, 1016, 1018, 1020, 1025, 1026, 1028, 1030, 1034, 1036, 1042, 1043, 1047, 1048, 1049, 1051, 1052, 1053, 1056, 1057, 1058, 1059, 1060, 1062, 1066, 1068, 1069, 1071, 1073, 1075, 1079, 1080, 1082, 1085, 1086, 1087, 1091, 1094, 1097, 1103, 1104, 1108, 1109, 1111, 1115, 1116, 1117, 1120, 1122, 1123, 1124, 1128, 1130, 1131, 1140, 1141, 1142, 1143, 1144, 1146, 1147, 1152, 1153, 1155, 1156, 1159, 1166, 1168, 1169, 1170, 1171, 1180, 1181, 1184, 1186, 1187, 1188, 1190, 1193, 1196, 1200, 1204, 1206, 1210, 1211, 1212, 1216, 1218, 1225, 1227, 1228, 1231, 1232, 1233, 1234, 1235, 1238, 1241, 1242, 1243, 1246, 1247, 1248, 1249, 1250, 1253, 1257, 1260, 1261, 1264, 1265, 1267, 1268, 1269, 1273, 1280, 1281, 1283, 1285, 1289, 1292, 1293, 1294, 1301, 1304, 1307, 1308, 1309, 1310, 1315, 1317, 1320, 1324, 1326, 1327, 1328, 1332, 1334, 1335, 1338, 1344, 1347, 1349, 1353, 1354, 1356, 1357, 1360, 1361, 1363, 1364, 1368, 1372, 1375, 1378, 1379, 1381, 1383, 1389, 1393, 1394, 1400, 1402, 1405, 1410, 1412, 1416, 1418, 1422, 1423, 1429, 1437, 1440, 1443, 1444, 1446, 1447, 1449, 1451, 1457, 1462, 1466, 1467, 1470, 1476, 1477, 1479, 1483, 1484, 1487, 1488, 1491, 1492, 1499, 1501, 1503, 1504, 1507, 1508, 1510, 1513, 1514, 1516, 1517, 1519, 1520, 1522, 1523, 1525, 1526, 1527, 1530, 1532, 1534, 1535, 1536, 1537, 1539, 1541, 1545, 1546, 1547, 1548, 1550, 1551, 1552, 1555, 1557, 1558, 1564, 1567, 1571, 1573, 1578, 1581, 1582, 1583, 1586, 1589, 1592, 1594, 1596, 1597, 1599, 1600, 1603, 1606, 1608, 1610, 1614, 1620, 1624, 1625, 1626, 1630, 1631, 1632, 1634, 1640, 1644, 1651, 1652, 1653, 1654, 1655, 1656, 1661, 1662, 1663, 1664, 1669, 1670, 1672, 1673, 1685, 1688, 1689, 1692, 1697, 1699, 1701, 1703, 1705, 1706, 1707, 1708, 1711, 1712, 1714, 1719, 1721, 1722, 1723, 1724, 1726, 1730, 1731, 1732, 1736, 1744, 1745, 1746, 1751, 1754, 1755, 1756, 1758, 1763, 1765, 1766, 1770, 1771, 1773, 1774, 1778, 1780, 1781, 1782, 1784, 1785, 1787, 1788, 1790, 1792, 1796, 1798, 1799, 1803, 1804, 1807, 1811, 1815, 1817, 1818, 1820, 1821, 1822, 1827, 1828, 1832, 1833, 1834, 1835, 1837, 1841, 1843, 1844, 1846, 1847, 1849, 1851, 1856, 1860, 1862, 1867, 1868, 1870, 1871, 1877, 1880, 1882, 1884, 1889, 1891, 1895, 1899, 1902, 1904, 1906, 1910, 1913, 1915, 1917, 1922, 1924, 1928, 1929, 1930, 1934, 1936, 1937, 1938, 1941, 1943, 1946, 1947, 1948, 1953, 1956, 1962, 1966, 1967, 1972, 1974, 1975, 1979, 1980, 1982, 1983, 1986, 1987, 1989, 1993, 1996, 1997, 2000, 2001, 2006, 2007, 2013, 2025, 2026, 2027, 2039, 2041, 2047, 2048, 2050, 2052, 2057, 2058, 2059, 2061, 2063, 2069, 2074, 2075, 2079, 2087, 2091, 2092, 2097, 2098, 2099, 2101, 2103, 2104, 2105, 2106, 2111, 2116, 2117, 2119, 2121, 2125, 2127, 2130, 2133, 2139, 2142, 2143, 2147, 2149, 2165, 2170, 2171, 2173, 2175, 2176, 2180, 2186, 2188, 2201, 2202, 2203, 2211, 2214, 2223, 2224, 2231, 2236, 2237, 2242, 2244, 2250, 2255, 2258, 2265, 2270, 2271, 2273, 2308, 2329, 2345, 2385, 2424, 2434, 2442, 2466, 2480, 2483, 2496, 2517, 2523, 2530, 2537, 2542, 2566, 2592, 2604, 2609, 2627, 2669, 2671, 2679, 2694, 2695, 2702, 2716, 2723, 2726, 2727, 2738, 2766, 2777, 2789, 2831, 2856, 2959, 2981, 2984, 3037, 3038, 3069, 3085, 3093, 3100, 3693, 3715, 3716, 3717, 3735, 3764, 3769										
Topical Preparations										
[3686p]	53 y M				A	Ingst	Int-S	1		
3687ha	78 y M	mercury cyanide	1	1	A	Ingst	Unt-M	3		
		methyl salicylate	1	1					salicylate	31.8 mg/dL In Serum @ Unknown
		methyl salicylate	1	1					salicylate	34.2 mg/dL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	17 mcg/mL In Blood (unspecified) @ Unknown
See Also case 2290										
Unknown Drug										
3688pi	15 y M	drug, N.O.S.	1	1	A	Ingst	Int-S	2		
3689p	17 y M	drug, N.O.S.	1	1	A	Ingst	Unk	2		
3690i	17 y F	drug, N.O.S.	1	1	U	Inhal + Unk	Int-A	2		
3691p	17 y F	drug, N.O.S.	1	1	A	Ingst	Int-S	2		
3692ph	19 y M	drug, N.O.S.	1	1	U	Unk	Unk	2	alprazolam	323 ng/mL In Blood (unspecified) @ Autopsy
3693p	19 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3694h	20 y M	marijuana	2	2	A	Unk	Unk	2		
		drug, N.O.S.	1	1						
		acetaminophen	2	2						
3695i	20 y F	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3696h	20 y F	drug, N.O.S.	1	1	A/C	Ingst	Int-S	2		
3697i	21 y F	drug, N.O.S.	1	1	U	Unk	Int-A	2		
3698i	21 y F	drug, N.O.S.	1	1	A	Unk	Int-S	2		
		carbon monoxide	2	2						

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3699a	23 y F	drug, N.O.S.	1	1	A	Ingst	Int-S	1	bupropion	1300 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					topiramate	21000 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					hydroxybupropion	2700 ng/mL In Blood (unspecified) @ Unknown
3700h	23 y F	drug, N.O.S.	1	1	A/C	Ingst	Int-S	2		
		benztropine	2	2						
3701h	24 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3702i	25 y M	drug, N.O.S.	1	1	U	Unk	Int-A	2		
3703i	26 y F	drug, N.O.S.	1	1	U	Unk	Unk	2		
3704pi	26 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3705ai	26 y M	drug, N.O.S.	1	1	U	Unk	Int-A	1		
3706i	27 y M	drug, N.O.S.	1	1	U	Inhal	Int-A	2		
3707i	27 y M	drug, N.O.S.	1	1	A	Par	Int-A	2		
3708	27 y F	drug, N.O.S.	1	1	A	Ingst	Int-A	2		
3709i	27 y F	drug, N.O.S.	1	1	A	Unk	Int-U	2		
3710i	30 y F	drug, N.O.S.	1	1	U	Unk	Unk	2		
3711h	30 y M	drug, N.O.S.	1	1	U	Unk	Unk	2	midazolam	58.6 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1						
3712	31 y F	drug, N.O.S.	1	1	A	Unk	Unk	2		
		fentanyl (non-prescription)	2	2						
3713pha	32 y F	drug, N.O.S.	1	1	U	Ingst + Unk	Int-S	1	fentanyl	10 mcg/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					gabapentin	85000 mcg/mL In Blood (unspecified) @ Unknown
		gabapentin fentanyl (prescription)	2 3	2 3						
3714i	32 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3715pha	32 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
		marijuana, N.O.S.	2	2						
		phencyclidine	3	3						
3716h	32 y M	drug, N.O.S.	1	1	A	Oth + Unk	Int-A	3		
		methamphetamine	2	2						
3717ph	32 y M	drug, N.O.S.	1	1	U	Ingst + Unk	Unk	3		
		marijuana, N.O.S.	2	2						
		phencyclidine	3	3						
3718	32 y M	drug, N.O.S.	1	1	A/C	Ingst	Int-A	2		
3719i	33 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3720i	33 y M	drug, N.O.S.	1	1	U	Par	Unk	2		
3721h	33 y M	drug, N.O.S.	1	1	A/C	Ingst	Int-S	2		
3722i	33 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3723i	34 y M	drug, N.O.S.	1	1	A	Unk	Unk	2		
3724	35 y F	drug, N.O.S.	1	1	A	Unk	Unk	2		
3725i	35 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3726i	35 y M	drug, N.O.S.	1	1	U	Par	Int-A	2		
3727i	36 y F	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3728h	36 y M	drug, N.O.S.	1	1	A	Inhal + Unk	AR-D	3		
		pyrethroids	2	2						
3729i	36 y M	drug, N.O.S.	1	1	U	Inhal	Unk	2		
3730i	38 y F	drug, N.O.S.	1	1	U	Unk	Unk	2		
3731p	38 y F	drug, N.O.S.	1	1	A	Ingst	Unk	2	acetaminophen (apap)	8 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
3732pi	38 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3733pha	38 y M	drug, N.O.S.	1	1	A	Ingst+ Unk	Int-U	2		
		narcotic, N.O.S.	2	2						
		gabapentin	3	3						
3734i	39 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3735phai	39 y M	drug, N.O.S.	1	1	U	Unk	Int-S	1	methadone	0.41 mg/L In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					mitragynine	55 ng/mL In Blood (unspecified) @ Unknown
		methadone	2	2						
		<i>Mitragyna speciosa korthals</i>	3	3						
3736p	39 y M	drug, N.O.S.	1	1	A	Ingst	Int-A	2		
3737ph	39 y F	drug, N.O.S.	1	1	A	Ingst	Int-S	1		
3738	39 y F	drug, N.O.S.	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	5.5 mcg/mL In Blood (unspecified) @ Unknown
3739i	40 y F	drug, N.O.S.	1	1	A	Unk	Int-U	2		
3740p	40 y F	drug, N.O.S.	1	1	A	Ingst	Int-S	2		
3741i	40 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3742i	40 y M	drug, N.O.S.	1	1	A/C	Inhal	Int-A	2		
3743h	40 y M	drug, N.O.S.	1	1	U	Unk	Int-S	2		
3744i	41 y F	drug, N.O.S.	1	1	A	Inhal	Int-A	2		
3745i	41 y M	drug, N.O.S.	1	1	U	Unk	Int-A	2		
3746i	42 y M	drug, N.O.S.	1	1	U	Inhal + Unk	Unk	2		
3747h	42 y F	drug, N.O.S.	1	1	A	Unk	Unk	2		
3748h	43 y F	drug, N.O.S.	1	1	A/C	Ingst	Int-S	2	ethanol	76 % In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
3749i	44 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3750h	44 y F	drug, N.O.S.	1	1	U	Ingst	Int-S	3		
		ethanol (beverage)	2	2						
		ibuprofen	3	3						
3751i	45 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3752ph	46 y F	drug, N.O.S.	1	1	U	Unk	Int-A	2		
		narcotic, N.O.S.	2	2						
3753ph	46 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3754i	47 y F	drug, N.O.S.	1	1	A	Ingst	Int-A	2		
3755ph	47 y F	drug, N.O.S.	1	1	A	Unk	Unk	2		
3756ph	47 y F	caffeine/salicylate	1	1	U	Ingst	Int-S	1	salicylate	127 mg/dL In Serum @ Unknown
		caffeine/salicylate	1	1					salicylate	360 mcg/mL In Blood (unspecified) @ Autopsy
		caffeine/salicylate	1	1					salicylate	42.32 mg/dL In Serum @ Unknown
		caffeine/salicylate	1	1					salicylate	57.4 mg/dL In Serum @ Unknown
		caffeine/salicylate	1	1					salicylate	98.1 mg/dL In Serum @ Unknown
3757h	48 y F	drug, N.O.S.	2	1	U	Ingst	Unt-T	3		
		phenytoin	1	2						
3758i	49 y M	drug, N.O.S.	1	1	A	Unk	Unk	2		
3759i	49 y M	drug, N.O.S.	1	1	A	Unk	Unk	2		
3760ha	50 y F	drug, N.O.S.	1	1	U	Ingst+ Unk	Unk	3	ethanol	486 mg/dL In Plasma @ Unknown
		drug, N.O.S.	1	1					trazodone	6100 ng/mL In Serum @ Unknown
		ethanol (beverage)	2	2						
		trazodone	3	3						
3761h	50 y F	drug, N.O.S.	1	1	U	Ingst	Int-S	2		
		ethanol (beverage)	2	2					ethanol	88.5 mg/dL In Serum @ Unknown
3762i	50 y M	drug, N.O.S.	1	1	A	Ingst	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3763i	51 y F	drug, N.O.S.	1	1	U	Unk	Unk	2		
3764ha	51 y M	drug, N.O.S.	1	1	A	Ingst	Unk	3	ecgonine methyl ester	11.3 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					oxycodone	138.1 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					benzoylcegonine	462.8 mg/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					7-aminoclonazepam	49.6 ng/mL In Blood (unspecified) @ Unknown
		oxycodone	2	2						
		midazolam	3	3					midazolam	516.9 ng/mL In Blood (unspecified) @ Unknown
		cocaine	4	4						
3765h	52 y M	drug, N.O.S.	1	1	U	Ingst	Unk	1		
		acetaminophen	2	2					acetaminophen (apap)	330 mcg/mL In Blood (unspecified) @ Unknown
3766i	53 y M	drug, N.O.S.	1	1	A	Par	Int-A	2		
3767i	53 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3768p	54 y M	drug, N.O.S.	1	1	U	Unk	Int-S	2		
3769pha	54 y M	drug, N.O.S.	1	1	A	Ingst	Unk	2	ethanol	113 mg/dL In Blood (unspecified) @ Unknown
		ethanol (beverage)	2	2						
		marijuana, N.O.S.	3	3						
3770i	54 y F	drug, N.O.S.	1	1	U	Par	Unk	2		
3771i	54 y F	drug, N.O.S.	1	1	A	Par	Int-A	2		
3772ph	55 y M	drug, N.O.S.	1	1	U	Ingst+Unk	Int-S	2		
		acetaminophen	2	2					acetaminophen (apap)	28 mcg/mL In Blood (unspecified) @ Unknown
3773i	56 y M	drug, N.O.S.	1	1	U	Unk	Unk	2		
3774h	56 y F	drug, N.O.S.	1	1	U	Ingst	Int-S	2		
		viral disease (N.O.S.)	2	2						
3775h	57 y F	drug, N.O.S.	1	1	U	Ingst+Unk	Int-S	2		
		ethanol (beverage)	2	2					ethanol	81 mg/dL In Blood (unspecified) @ Unknown
3776i	57 y M	drug, N.O.S.	1	1	A	Par	Int-A	2		
3777ph	58 y M	drug, N.O.S.	1	1	U	Ingst	Int-S	2		
3778h	58 y F	drug, N.O.S.	1	1	A/C	Ingst+Unk	Int-S	3		
		zolpidem	2	2						
		viral disease (COVID-19-Confirmed)	3	3						
3779i	58 y F	drug, N.O.S.	1	1	U	Unk	Int-A	2		
3780i	59 y M	drug, N.O.S.	1	1	U	Unk	Int-A	2		
3781ph	59 y M	drug, N.O.S.	1	1	A	Par	Int-S	2		
3782ai	59 y M	drug, N.O.S.	1	1	C	Unk	Int-A	3		
3783ha	59 y M	drug, N.O.S.	1	1	A	Ingst	Int-S	2		
		chemical, N.O.S.	2	2						
3784ai	59 y M	drug, N.O.S.	1	1	C	Unk	Int-A	3		
3785i	60 y F	drug, N.O.S.	1	1	U	Unk	Unk	2		
3786i	2 m M	drug, N.O.S.	1	1	A	Ingst	Unk	2		
3787h	61 y F	drug, N.O.S.	1	1	A	Ingst	Int-S	2		
		metformin	2	2						
		acetaminophen/hydrocodone	3	3						
		diphenhydramine	4	4						
		acetaminophen	5	5						
3788ph	61 y F	drug, N.O.S.	1	1	A/C	Ingst	Int-S	2		
3789h	62 y F	drug, N.O.S.	1	1	A	Ingst+Aspir	Int-S	2		
		oxycodone	2	2						
		topiramate	3	3						
		aripiprazole	4	4						
3790h	62 y F	caffeine/salicylate	1	1	C	Ingst	Unt-T	3		
3791h	63 y F	drug, N.O.S.	1	1	U	Par	Int-A	2		

(continued)

Table 21. Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
3792ai	64 y M	drug, N.O.S.	1	1	C	Unk	Int-A	3		
3793h	65 y F	drug, N.O.S.	1	1	A/C	Ingst	Int-S	3		
3794i	65 y M	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3795h	65 y M	sevoflurane	1	1	A	Inhal	AR-D	3		
3796ai	66 y M	drug, N.O.S.	1	1	C	Unk	Int-A	3		
3797i	66 y F	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3798ha	66 y F	drug, N.O.S. acetaminophen	1 2	1 2	U	Ingst + Unk	Unk	3	acetaminophen (apap)	36.5 mcg/mL In Blood (unspecified) @ Unknown
3799h	68 y M	drug, N.O.S. acetaminophen	1 2	1 2	U	Ingst	Int-S	2	acetaminophen (apap)	196 mg/L In Serum @ Unknown
3800h	70 y F	drug, N.O.S. methotrexate	2 1	1 1	U	Ingst + Unk	Unk	2	methotrexate	0.7 mmol/L In Serum @ Unknown
3801	71 y M	drug, N.O.S.	1	1	A	Unk	Int-U	3		
3802i	71 y M	drug, N.O.S.	1	1	U	Unk	Int-A	2		
3803i	72 y F	drug, N.O.S.	1	1	A	Unk	Int-A	2		
3804	77 y F	drug, N.O.S.	1	1	A	Unk	Unk	3		
3805h	82 y F	drug, N.O.S. acetaminophen	1 2	1 2	A	Ingst	Int-S	2	acetaminophen (apap)	94 mcg/mL In Serum @ 51 m (pe)
3806i	83 y F	drug, N.O.S.	1	1	U	Unk	Unk	2		
3807	86 y M	drug, N.O.S. amlodipine	2 1	1 2	A/C	Ingst	Int-S	3		
3808h	95 y F	drug, N.O.S. scopolamine	1 2	1 2	C	Ingst + Derm	AR-D	2		
3809ph	40+ y F	drug, N.O.S. ethanol (beverage)	1 2	1 2	A	Ingst	Int-S	2	ethanol	347 mg/dL In Blood (unspecified) @ Unknown

See Also case 15, 35, 75, 120, 153, 216, 477, 675, 739, 828, 1157, 1643, 1657, 1684, 1752, 1768, 1829, 1881, 2055, 2080, 2135, 2150, 2303, 2429, 2516, 2540, 2618, 2741, 2862, 2940, 2948, 2953, 2989, 3012, 3054, 3090, 3124, 3134, 3197, 3205, 3211, 3224, 3382, 3467, 3481, 3683

Listing of 3,808 (1,630 Direct + 2,179 Indirect) fatalities classified as Relative Contribution to Fatality category 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory.

Annual Report ID: Bracketed [case number]=Narrative provided for this case in [Appendix C](#)

i=Indirect case; identified through other sources (news feeds, medical examiner data, or other) about which no inquiry to the PC was made, **p**=prehospital cardiac and/or respiratory arrest, **h**=hospital records reviewed, **a**=autopsy report reviewed.

Age Gender: **y** years, **m** months, **d** days, **F** female, **M** male, **F-Pregnant** pregnant, **U** unknown

Substance: **EC** enteric coated, **ER** extended release, **TD** transdermal

Cause Rank: Designates and orders the substance(s) deemed to have made the greatest contribution to the death. Cause rank permits 2 or more substances to be judged indistinguishable in terms of contribution to the death. Additional agents implicated in the death are listed below the primary agent(s) in the order of their contribution to the fatality.

Chronicity: **C**=chronic exposure, **A**=acute exposure, **A/C**=acute on chronic, **U**=unknown

Route: **Aspir**=Aspiration (with ingestion), **B-S**=Bite/sting, **Derm**=Dermal, **Ingst**=Ingestion, **Inhal**=Inhalation/nasal, **Oc**=Ocular, **Ot**=Otic, **Oth**=Other, **Par**=Parenteral, **Rec**=Rectal, **Unk**=Unknown, **Vag**=Vaginal

Reason: **AR-D**=Adverse reaction – Drug, **AR-F**=AR – Food, **AR-O**=AR – Other, **Int-A**=Intentional – Abuse, **Int-M**=Int – Misuse, **Int-S**=Int – Suspected Suicide, **Int-U**=Int – Unknown, **Oth-C**=Other – Contamination/tampering, **Oth-M**=Oth – Malicious, **Oth-W**=Oth – Withdrawal, **Unk**=Unknown reason, **Unt-B**=Unintentional – Bite/sting, **Unt-E**=Unt – Environmental, **Unt-F**=Unt – Food poisoning, **Unt-G**=Unt – General, **Unt-M**=Unt – Misuse, **Unt-O**=Unt – Occupational, **Unt-T**=Unt – Therapeutic error, **Unt-U**=Unt – Unknown

RCF (Relative Contribution to Fatality): 1 = Undoubtedly responsible, 2 = Probably responsible, 3 = Contributory. Provided by the RPC for Indirect cases and the America's Poison Centers Fatality Review Team for the direct (non-Indirect) cases.

PE=post-exposure.

Appendix B

**Table 22(A) & Table 22(B), Demographic profile of Single Substance exposure cases by generic category
Nonpharmaceuticals (Table 22(A))**

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category

	No. of Case Mentions	No. of Single Exposures	Age					Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death	
Nonpharmaceuticals																			
Adhesives/Glues																			
Miscellaneous Adhesives/Glues	4,822	4,743	1,780	324	315	1,797	63	445	95	21	49	1,400	567	1,038	197	3	0		
Cyanoacrylates (Superglues, etc)	1,215	1,154	354	44	46	563	14	130	15	7	19	305	166	240	71	5	0		
Epoxy	467	428	266	81	27	46	2	5	26	4	0	24	54	20	3	0	0		
Non-Toxic Adhesives/Glues (White Glue, Paper Glue, etc)	202	194	55	11	10	86	4	27	5	7	6	36	23	47	10	0	0		
Toluene/Xylene (Adhesives Only)	3,478	3,301	1,299	240	161	1,166	53	367	114	24	66	469	499	447	84	4	0		
Unknown Types of Adhesive, Glue, Cement or Paste	10,184	9,820	3,754	700	559	3,658	136	974	255	63	140	2,234	1,309	1,792	365	12	0		
Category Total:																			
Alcohols																			
Miscellaneous Alcohols	51,048	7,758	2,272	224	923	3,801	107	422	4,049	392	199	3,465	907	1,244	1,412	379	114		
Ethanol (Beverages)	2,530	2,079	1,252	109	74	535	8	94	107	13	16	212	362	202	39	7	1		
Ethanol (Non-Beverage, Non-Rubbing)	118	99	38	8	4	41	2	5	9	1	0	18	12	18	8	1	0		
Higher Alcohols (Butanol, Amyl Alcohol, Propanols, etc)	5,356	4,577	1,761	159	237	2,060	40	315	872	37	42	1,242	737	853	344	71	1		
Isopropanol (Excluding Rubbing Alcohols and Cleaning Agents)	706	557	71	9	27	380	4	65	47	12	7	234	108	97	38	25	4		
Methanol (Excluding Automotive Products and Cleaning Agents)	185	131	49	8	8	56	0	9	16	2	2	33	16	17	17	5	0		
Other Types of Alcohol	2,603	650	138	15	72	367	13	44	322	19	11	326	59	91	130	45	2		
Rubbing Alcohols																			
Rubbing Alcohols: Ethanol with Methyl Salicylate	9	8	2	0	0	6	0	0	0	0	0	3	1	1	0	0	0		
Rubbing Alcohols: Ethanol without Methyl Salicylate	219	206	102	5	8	72	1	18	21	1	3	37	49	38	9	1	0		
Rubbing Alcohols: Isopropanol with Methyl Salicylate	135	123	73	7	2	36	0	5	7	0	0	28	35	11	7	0	0		
Rubbing Alcohols: Isopropanol without Methyl Salicylate	6,875	6,099	2,773	190	308	2,433	38	350	924	53	22	1,321	978	1,006	327	51	0		
Rubbing Alcohols: Unknown	308	242	74	7	12	123	2	24	70	4	0	91	30	39	31	4	0		
Category Total:	70,092	22,529	8,605	741	1,675	9,910	215	1,351	6,444	534	302	7,010	3,294	3,617	2,363	589	122		
Arts/Crafts/Office Supplies																			
Miscellaneous Arts/Crafts/Office Supplies	3,003	2,898	2,153	162	113	370	11	74	54	15	11	125	384	168	15	1	0		
Artist Paints (Non-Water Color)	912	992	813	86	30	50	4	8	21	3	1	19	119	22	2	0	0		
Artist Paints (Water Color)	1,699	1,657	1,372	156	34	71	7	12	17	2	2	23	120	45	1	0	0		
Clays	1,356	1,299	1,051	147	32	48	3	7	41	0	3	67	195	87	6	0	0		
Crayons	74	71	21	3	9	33	1	4	1	1	1	10	5	9	2	0	0		
Glazes	59	58	36	4	2	12	2	1	3	0	0	5	10	5	1	0	0		

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death	
Other Types of Arts/Crafts/ Writing Products	5,767	5,439	3,947	539	181	575	25	142	30	5,232	128	28	19	268	790	290	25	1	0
Pencils	866	819	385	297	80	25	12	14	6	702	91	18	2	36	90	44	1	0	0
Pens or Inks	6,589	6,347	4,463	1,069	365	293	22	110	25	5,966	289	11	37	247	897	207	13	0	0
Typewriter Correction Fluids	206	200	126	17	15	33	1	7	1	182	17	0	0	18	47	16	2	0	0
Unknown Types of Arts/Crafts/ Writing Products	89	86	63	9	2	9	2	1	0	81	4	0	1	8	12	4	2	0	0
Category Total:	21,637	20,747	15,201	2,540	902	1,534	104	382	84	19,764	689	79	80	881	2,809	944	75	3	0
Automotive/Aircraft/Boat Products																			
Automotive Products: Brake Fluids	779	728	140	13	48	451	0	67	9	678	27	7	3	231	126	186	45	2	0
Automotive Products: Ethylene Glycol (Including Antifreeze)	5,747	5,370	365	76	421	3,892	2	562	52	4,557	589	136	11	1,801	1,011	761	292	117	9
Automotive Products: Glycol and Methanol Mixtures	98	90	22	3	5	44	2	12	2	80	8	1	0	31	22	18	6	1	0
Automotive Products: Hydrocarbons (Transmission Fluids, Power Steering Fluids, etc)	1,551	1,454	358	46	85	798	1	147	19	1,357	51	19	6	437	228	414	86	6	0
Automotive Products: Methanol (Dry Gas, Windshield Washing Solutions, etc)	1,384	1,321	180	47	102	812	1	163	16	1,200	101	10	2	382	304	244	50	10	1
Automotive Products: Other Glycols	221	212	58	15	11	102	1	23	2	191	8	10	1	53	51	32	8	0	0
Miscellaneous Automotive/ Aircraft/Boat Products																			
Automotive/Aircraft/Boat Products: Non-Toxic Products: Other	13	13	5	1	1	4	0	2	0	13	0	0	0	2	2	0	0	0	0
Automotive/Aircraft/Boat Products: Unknown	1,295	1,214	413	31	99	532	2	116	21	1,166	12	13	21	333	188	325	61	2	0
Automotive/Aircraft/Boat Products: Unknown	173	162	21	3	15	101	0	16	6	132	18	6	2	70	27	48	15	0	1
Category Total:	11,261	10,564	1,562	235	787	6,736	9	1,108	127	9,374	814	202	46	3,340	1,959	2,028	563	138	11
Batteries																			
Disc Batteries: Alkaline (MNO2)	453	445	252	66	16	82	2	26	1	407	16	5	7	313	239	47	7	1	1
Disc Batteries: Lithium	289	277	93	35	14	103	2	27	3	255	11	1	6	139	92	46	10	3	3
Disc Batteries: Mercuric Oxide	5	5	1	0	0	4	0	0	0	5	0	0	0	1	2	0	0	0	0
Disc Batteries: Nickel Cadmium	5	5	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Disc Batteries: Other	28	26	12	3	1	7	0	3	0	24	1	0	0	16	4	0	1	0	0
Disc Batteries: Silver Oxide	54	53	33	8	0	11	0	0	1	50	2	1	0	37	23	1	1	1	0
Disc Batteries: Unknown	1,767	1,710	1,102	254	54	245	9	32	14	1,606	66	7	1	1,362	769	132	44	16	2
Disc Batteries: Zinc-Air	514	500	229	32	4	222	2	8	3	485	13	1	0	397	261	29	9	1	0
Miscellaneous Batteries																			
Automotive/Aircraft/Boat Batteries	1,661	1,614	146	45	103	1,038	3	253	26	1,544	35	18	8	413	178	445	94	6	0
Other Types of Battery Penlight/Flashlight/Dry Cell Batteries	482	470	101	26	31	225	7	73	7	432	24	2	9	92	94	65	14	1	0
Unknown Types of Battery	5,680	5,506	3,303	543	302	1,036	14	263	45	5,014	401	32	23	1,182	1,630	534	63	2	0
Category Total:	270	252	100	30	9	85	3	24	1	229	19	2	1	48	58	28	5	1	0
Category Total:	11,208	10,859	5,373	1,042	534	3,058	42	709	101	10,052	588	70	55	4,000	3,350	1,327	248	32	6

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age										Reason				Treated in Health Care Facility				Outcome			
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death						
Bites and Envenomations																							
Aquatic																							
496	488	22	30	45	354	0	32	5	483	1	0	4	214	17	53	2	0						
262	259	39	65	40	99	0	13	3	256	0	1	2	58	5	81	2	0						
516	501	256	45	27	146	1	24	2	476	16	5	4	87	69	75	3	0						
Other or Unknown Marine Animal Bites and/or Envenomations																							
1	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0						
Exotic Snakes																							
Exotic Snake: Unknown If Poisonous																							
21	21	2	0	7	12	0	0	0	21	0	0	0	17	0	10	5	0						
43	42	0	0	2	35	0	3	2	39	2	1	0	35	0	9	14	0						
Insects																							
423	393	115	37	15	186	0	36	4	376	4	12	1	51	26	92	22	0						
2,176	2,088	360	186	94	1,174	6	245	23	2,083	0	0	5	351	20	701	150	22						
1,014	1,002	244	119	59	483	5	80	12	984	8	1	7	173	43	343	38	0						
344	342	110	28	16	165	0	22	1	337	2	2	2	45	28	91	19	0						
80	78	29	7	3	26	0	12	1	78	0	0	0	11	1	20	2	0						
3,273	3,167	757	228	165	1,631	6	334	46	3,026	19	86	21	644	140	753	181	1						
8,134	8,100	1,030	836	537	5,295	5	341	56	8,097	3	0	0	1,098	64	4,828	538	30						
475	456	121	34	25	186	9	73	8	455	1	0	0	110	19	68	13	0						
Mammals																							
792	781	85	57	34	445	14	119	27	774	0	0	0	473	117	87	3	0						
735	727	42	61	53	488	3	58	22	726	0	0	0	478	11	278	25	0						
2,279	2,257	276	411	218	1,178	8	129	37	2,254	2	1	0	1,688	22	912	162	4						
16	16	0	1	2	12	0	1	0	16	0	0	0	14	0	10	0	0						
16	15	1	1	1	8	0	4	0	16	0	1	0	4	0	4	0	0						
594	577	56	56	44	330	12	58	21	561	0	2	6	318	57	142	16	1						
94	93	7	6	5	67	0	6	2	92	0	0	0	62	9	30	1	0						
776	751	141	107	53	334	7	101	8	708	1	36	4	244	23	146	13	0						
Rodent or Lagomorph Bites (Squirrels, Rats, Mice, Gerbils, Hamsters, Rabbits, etc)																							
15	15	1	0	1	11	0	2	0	14	0	0	0	9	1	3	2	0						
Miscellaneous Bites and Envenomations																							
327	324	51	33	27	161	1	42	9	311	6	0	4	125	17	92	31	0						
292	286	89	61	18	98	3	13	4	264	7	6	6	69	28	79	10	0						
1,999	1,954	537	134	91	957	9	207	19	1,924	6	15	4	358	58	386	120	2						
Spider Bite and/or Envenomation																							
520	514	38	78	85	292	1	18	2	513	0	0	1	355	19	302	43	0						
2,170	2,135	163	239	220	1,449	2	49	13	2,126	5	1	0	1,937	71	945	668	44						
Miscellaneous Snake Bites and Envenomations																							
520	514	38	78	85	292	1	18	2	513	0	0	1	355	19	302	43	0						
2,170	2,135	163	239	220	1,449	2	49	13	2,126	5	1	0	1,937	71	945	668	44						
Snakes																							
2,287	2,264	91	176	181	1,787	1	24	4	2,257	5	0	1	2,195	16	633	1,406	53						
75	71	3	0	11	52	0	0	5	71	0	0	0	61	10	25	19	1						
229	223	10	16	21	174	0	2	0	222	1	0	0	214	7	68	113	10						
1,184	1,145	49	73	65	936	0	17	5	1,141	4	0	0	1,118	25	304	579	112						
524	505	33	50	49	366	0	6	1	503	1	0	0	483	4	170	257	15						

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility			Outcome			
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death		
Spiders																				
Black Widow Spider Bites and/or Envenomations	1,004	991	109	61	51	707	1	57	5	990	1	0	0	0	500	20	335	211	9	0
Brown Recluse Spider Bites and/or Envenomations	566	551	66	47	41	337	2	49	9	549	0	0	0	0	277	10	116	128	29	1
Other Necrotizing Spider Bites and/or Envenomations	77	76	12	4	4	49	0	7	0	76	0	0	0	0	13	3	27	9	0	0
Other Spider Bites and/or Envenomations	1,928	1,907	332	147	94	1,135	3	174	22	1,896	3	5	2	455	35	468	139	2	0	0
Tarantula Bites and/or Envenomations	20	20	1	2	2	12	0	1	2	18	0	0	2	9	0	10	3	0	0	0
Category Total:	35,777	35,136	5,278	3,437	2,406	21,177	99	2,359	380	34,731	97	175	76	14,354	995	12,810	5,036	355	7	0
Building and Construction Products																				
Insulation																				
Asbestos	349	309	43	15	13	148	6	61	23	303	1	2	2	65	35	21	4	0	0	0
Fiberglass	645	606	238	41	35	216	1	66	9	579	6	9	9	107	77	96	23	0	0	0
Other Types of Insulation	77	74	25	0	0	43	0	6	0	71	0	0	3	19	4	19	4	0	0	0
Unknown Types of Insulation	334	308	174	9	11	81	2	24	7	302	5	0	1	48	49	29	9	0	0	0
Urea or Formaldehyde Insulations	3	3	2	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0
Miscellaneous Building and Construction Products																				
Caulking Compounds and Construction Putties	2,070	1,997	1,207	83	45	471	4	168	19	1,929	26	5	20	139	384	180	15	3	0	0
Cement or Concrete (Excluding Glues)	1,236	1,181	293	35	39	664	5	128	17	1,131	16	8	13	466	135	273	191	6	0	0
Other Types of Building or Construction Products	2,025	1,851	893	84	65	632	6	147	24	1,764	46	6	30	314	286	261	78	5	0	0
Soldering Flux	137	134	34	2	9	71	0	15	3	128	3	2	0	42	20	36	14	1	0	0
Unknown Types of Building or Construction Products	76	72	15	4	1	31	3	18	0	69	0	1	2	15	18	6	2	2	0	0
Category Total:	6,952	6,535	2,924	273	218	2,357	27	634	102	6,279	103	33	80	1,215	1,008	921	340	17	0	0
Chemicals																				
Acids																				
Hydrochloric Acid	1,576	1,295	65	35	84	959	3	137	12	1,210	38	24	13	555	107	448	163	21	1	0
Hydrofluoric Acid	529	443	6	1	24	373	0	34	5	432	3	1	3	343	54	153	112	8	0	0
Other Types of Acid	5,030	3,897	665	222	240	2,286	7	425	52	3,654	106	52	67	1,240	467	1,102	397	23	2	0
Unknown Types of Acid	190	154	17	5	7	96	0	27	2	139	5	5	1	73	11	41	19	1	0	0
Miscellaneous Chemicals																				
Acetone (Excluding Nail Polish Removers)	1,646	1,426	501	36	107	648	1	121	12	1,281	86	17	13	352	175	351	64	8	0	0
Alkalis (Excluding Cleaning Agents, Bleaches, Batteries, and Detergents)	3,471	3,103	566	109	198	1,877	4	304	45	2,920	82	28	46	1,460	288	918	510	49	0	0
Ammonia (Excluding Cleaning Agents)	2,268	1,543	226	67	75	928	4	222	21	1,416	68	26	23	584	133	465	169	13	0	0
Borates or Boric Acid (Excluding Topicals and Pesticides)	6,993	6,741	1,348	239	500	3,779	15	798	62	6,476	124	54	64	609	1,080	416	49	1	0	0
Chlorates (Excluding Matches and Fireworks)	25	17	4	0	0	11	0	2	0	14	1	0	2	6	4	4	3	0	0	0
Cyanides (Excluding Rodenticides)	236	163	5	3	7	120	1	22	5	103	15	27	1	80	29	30	15	5	4	0
Dioxins	2	2	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason				Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death	
Ethylene Glycol (Excluding Automotive, Aircraft, or Boat Products)	727	576	93	18	22	393	3	40	7	403	110	25	1	273	98	76	42	52	11
Formaldehyde or Formalin	502	451	24	9	27	307	1	62	21	403	11	12	21	193	39	147	38	2	0
Ketones	306	270	77	5	11	152	0	22	3	255	7	0	7	92	41	97	15	0	0
Methylene Chloride (Excluding Paint Strippers)	147	127	12	9	6	79	0	20	1	122	1	3	0	53	14	46	12	2	1
Nitrates and Nitrites (Excluding Medications and Substances of Abuse)	997	886	215	130	82	381	6	55	17	616	226	12	11	311	162	118	54	26	23
Other Chemicals	16,469	13,257	4,476	832	634	5,800	51	1,286	178	11,998	540	179	417	2,837	1,923	2,506	633	54	1
Other Chemicals-Unknown If Toxic	2	2	0	0	0	0	0	0	0	2	0	0	0	0	1	0	1	0	0
Other Glycols (Excluding Automotive, Aircraft, or Boat Products)	701	550	218	29	26	230	2	40	5	486	28	4	25	122	89	95	20	5	1
Phenol or Cresoles (Excluding Disinfectants)	215	201	15	7	13	139	1	23	3	190	9	0	2	92	20	57	29	6	1
Strychnine (Excluding Rodenticides)	31	23	7	1	0	12	0	1	2	11	4	4	2	13	6	2	2	0	0
Toluene Disocyanate	868	841	132	21	20	437	9	188	34	812	14	5	9	160	362	133	35	0	0
Unknown Chemicals	6,782	1,119	279	296	3,252	34	1,121	186	186	4,780	187	795	233	1,859	739	1,396	372	62	2
Category Total:	49,713	42,255	9,793	2,057	2,379	22,260	142	4,950	674	37,725	1,665	1,273	961	11,307	5,842	8,601	2,754	338	47
Cleaning Substances (Household)																			
Automatic Dishwasher Detergents																			
Automatic Dishwasher Detergents: Granules (Unit Dose)	1,472	1,454	1,340	16	7	78	2	10	1	1,412	7	3	2	82	278	232	6	0	0
Automatic Dishwasher Detergents: Granules (Various Containers)	1,358	1,331	1,061	25	18	186	2	37	2	1,300	8	17	4	73	181	175	11	1	0
Automatic Dishwasher Detergents: Granules with Liquids (Unit Dose)	7,634	7,588	7,013	62	65	354	8	78	8	7,536	15	18	1	462	1,439	1,355	72	2	0
Automatic Dishwasher Detergents: Liquids (Unit Dose)	414	409	329	14	5	54	0	6	1	405	3	0	0	70	50	94	9	0	0
Automatic Dishwasher Detergents: Liquids (Various Containers)	1,096	1,044	738	31	24	214	0	34	3	1,017	6	15	1	95	186	181	30	1	0
Automatic Dishwasher Detergents: Tablets	2,081	2,057	1,798	33	18	172	5	23	8	2,033	14	6	1	154	413	352	19	0	0
Automatic Dishwasher Rinse Agents	708	693	475	19	12	151	1	31	4	675	7	6	0	52	93	122	13	2	0
Other or Unknown Types of Automatic Dishwasher Detergent	2,743	2,705	2,271	39	31	298	4	57	5	2,651	11	36	5	192	395	455	25	4	0
Bleaches																			
Bleaches: Borates	462	353	130	17	25	138	1	38	4	319	21	6	5	61	69	61	11	2	0
Bleaches: Hypochlorite (Liquid and Dry)	40,985	32,472	10,522	1,208	2,399	14,814	73	3,067	389	28,890	2,503	473	369	8,037	4,260	8,952	1,276	49	3
Bleaches: Non-Hypochlorite	380	296	72	10	22	150	2	36	4	251	30	4	8	70	48	82	10	0	0
Bleaches: Other or Unknown (Household)	1,476	1,102	274	40	107	548	4	114	15	945	116	26	10	331	108	235	46	6	0

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death			
Cleaners	2,220	1,956	56	54	488	2	86	14	1,879	39	17	174	297	237	21	2	0				
Anionic or Nonionic Cleaners	2,514	2,241	88	116	757	8	185	12	2,046	116	40	434	323	410	73	2	0				
Other or Unknown Types of Household Cleanser																					
Disinfectants	2,004	1,738	47	67	708	4	128	20	1,591	60	26	372	258	440	61	2	0				
Disinfectants: Hypochlorite (Non-Bleach Products)	8,730	7,882	571	437	2,598	31	710	106	7,173	418	161	84	972	1,254	141	10	0				
Disinfectants: Other or Unknown	372	330	17	20	125	1	36	1	302	18	4	3	60	52	15	0	0				
Disinfectants: Phenol	4,416	3,706	152	142	1,529	8	261	55	3,438	172	43	29	591	686	87	9	1				
Disinfectants: Pine Oil																					
Drain Cleaners	183	160	12	6	109	0	25	2	151	6	1	1	57	21	17	1	0				
Drain Cleaners: Acids	2,392	2,010	44	78	1,266	7	321	24	1,860	92	10	26	606	219	216	30	8				
Drain Cleaners: Alkalis	22	17	2	0	12	0	3	0	16	1	0	0	1	2	3	0	0				
Drain Cleaners: Hydrochloric Acid																					
Drain Cleaners: Other or Unknown	1,026	815	367	22	11	330	0	76	776	19	4	9	150	126	50	6	2				
Drain Cleaners: Sulfuric Acid	594	498	41	20	336	0	77	12	479	12	0	5	199	53	79	3	0				
Fabric Softeners/Antistatic Agents	33	31	24	0	1	6	0	0	30	0	0	1	3	5	0	0	0				
Fabric Softener/Antistatic Agent: Other or Unknown	68	65	49	2	0	12	0	2	64	1	0	0	2	11	4	3	0				
Fabric Softeners/Antistatic Agents: Aerosol or Spray	12	12	11	0	0	1	0	0	12	0	0	0	1	2	1	0	0				
Fabric Softeners/Antistatic Agents: Dry or Powder (Unit Dose)	11	11	8	0	1	2	0	0	10	0	0	1	0	1	0	0	0				
Fabric Softeners/Antistatic Agents: Dry or Powder (Various Containers)	21	18	13	0	0	4	0	0	18	0	0	0	3	2	1	0	0				
Fabric Softeners/Antistatic Agents: Liquid (Unit Dose)	810	728	486	17	23	169	2	30	671	36	6	5	75	115	69	1	0				
Fabric Softeners/Antistatic Agents: Liquid (Various Containers)	445	438	370	9	3	39	3	13	427	3	1	2	9	68	19	0	0				
Fabric Softeners/Antistatic Agents: Solid or Sheet	669	571	372	27	36	106	2	28	514	43	5	1	61	101	65	4	0				
Glass Cleaners	82	77	47	4	17	0	5	0	66	3	0	1	15	19	2	0	0				
Glass Cleaners: Ammonia Containing	754	660	414	32	28	143	1	36	614	33	9	1	54	139	85	5	0				
Glass Cleaners: Isopropanol	2,654	2,285	1,409	77	164	505	5	96	2,076	155	31	8	255	481	26	2	0				
Glass Cleaners: Other or Unknown Types of Household																					
Hand Dishwashing	7,365	6,300	3,145	410	1,987	14	492	55	5,877	139	174	56	445	682	1,113	68	3				
Anionic or Nonionic Hand Dishwashing Detergents	2,177	1,868	860	124	66	634	3	166	1,763	35	61	5	122	144	29	20	1				
Other or Unknown Types of Household Hand Dishwashing Detergent																					
Laundry Additives	107	99	46	5	5	32	0	11	92	1	2	1	19	12	20	4	0				
Enzyme and/or Microbiological Laundry Additives																					

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death			
25	19	9	0	1	6	0	3	0	19	0	0	0	0	2	6	1	0	0		
Laundry Bleuing and/or Brightening Agents (without Detergent)																				
430	409	290	22	10	67	3	11	6	388	14	5	2	29	80	43	2	0	0		
1,563	1,490	1,163	78	44	159	3	41	2	1,399	47	21	10	115	280	166	9	0	0		
29	29	18	1	0	8	1	1	0	27	0	1	1	0	5	1	0	0	0		
Laundry Detergents																				
341	325	203	16	17	75	0	10	4	308	7	1	4	52	58	72	10	1	0		
2,394	2,224	1,405	107	72	473	4	153	10	2,121	70	14	14	272	356	381	36	1	0		
238	238	198	10	4	20	0	5	1	227	3	1	2	63	35	84	7	0	0		
12,307	12,189	10,296	665	230	748	32	193	25	11,884	207	22	23	3,875	2,025	4,652	569	16	1		
5,797	5,504	3,386	186	229	1,370	13	290	30	5,187	215	43	16	803	766	1,078	95	8	1		
330	294	168	9	12	70	1	34	0	276	13	0	1	54	46	59	4	0	0		
260	236	125	7	14	63	2	23	2	225	8	3	0	23	28	35	5	0	0		
78	76	60	2	3	9	0	2	0	75	1	0	0	12	8	10	3	0	0		
250	237	179	2	3	41	2	9	1	213	3	1	4	30	44	48	4	0	0		
7	7	5	0	0	2	0	0	0	7	0	0	0	0	1	0	0	0	0		
70	66	49	5	0	7	0	4	1	59	0	0	0	5	16	7	0	0	0		
216	213	151	5	3	43	0	11	0	207	3	0	3	27	36	29	6	0	0		
999	950	772	16	23	109	2	27	1	925	20	2	1	100	136	186	13	0	0		
1,580	1,409	1,032	41	39	248	2	44	3	1,358	21	19	6	172	247	245	25	0	0		
37	36	24	0	1	10	0	1	0	35	0	1	0	1	3	12	0	0	0		
54	51	44	0	0	4	1	1	1	48	1	0	1	0	11	7	0	0	0		
2,019	1,779	675	51	68	802	1	164	18	1,651	45	58	17	261	301	345	46	5	0		

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death		
Miscellaneous Cleaning Agents: Alkalis	7,286	6,194	2,815	185	249	2,342	21	521	61	5,792	237	74	51	1,328	960	1,403	302	19	1	
Miscellaneous Cleaning Agents: Anionics or Nonionics	4,690	4,166	2,370	195	178	1,119	11	271	22	3,910	129	60	36	515	624	651	80	2	0	
Miscellaneous Cleaning Agents: Cationics	3,014	2,787	1,176	164	174	1,059	5	183	26	2,554	161	24	35	541	414	589	107	6	0	
Miscellaneous Cleaning Agents: Ethanol (Excluding Automotive Products)	397	364	235	20	11	72	1	21	4	345	12	1	5	33	72	46	4	0	0	
Miscellaneous Cleaning Agents: Glycols (Excluding Automotive Products)	348	305	175	16	22	74	2	13	3	285	16	1	3	45	68	51	4	0	0	
Miscellaneous Cleaning Agents: Isopropanol (Excluding Automotive Products and Glass)	783	724	342	65	41	225	2	42	7	667	44	4	5	90	128	123	20	3	0	
Miscellaneous Cleaning Agents: Methanol (Excluding Automotive Products)	39	38	7	0	0	29	0	2	0	35	2	0	1	11	9	7	5	0	0	
Miscellaneous Cleaning Agents: Other or Unknown	4,920	4,364	2,096	221	201	1,427	11	363	45	4,017	200	74	48	727	828	884	98	7	1	
Miscellaneous Cleaning Agents: Household Cleaning Agents	20	16	5	1	0	9	0	1	0	15	0	1	0	7	0	3	0	0	0	
Miscellaneous Cleaning Agents: Phenol (Excluding Disinfectants)																				
Miscellaneous Cleaning Substances (Household)																				
Ammonia Cleaners (All Purpose)	728	469	110	12	26	239	2	76	4	410	27	20	7	98	90	123	11	0	0	
Carpet, Upholstery, Leather, or Vinyl Cleaners	2,884	2,674	1,699	79	56	679	8	141	12	2,558	51	24	18	305	450	426	42	0	0	
Hydrofluoric Acid or Bifluoride	37	35	5	3	6	19	0	1	1	34	1	0	0	23	5	16	3	0	0	
Wheel Cleaners																				
Starches, Fabric Finishes, or Sizing	78	76	41	3	5	21	0	6	0	69	4	2	1	7	12	5	1	0	0	
Oven Cleaners																				
Oven Cleaners: Acids	42	38	4	0	2	22	1	9	0	37	0	1	0	4	5	8	3	0	0	
Oven Cleaners: Alkalis	1,655	1,592	225	51	148	948	5	193	22	1,478	20	57	26	463	217	411	165	8	0	
Oven Cleaners: Detergent Types	15	14	5	1	0	7	0	1	0	11	1	2	0	3	0	3	0	1	0	
Oven Cleaners: Other or Unknown	550	518	56	18	32	314	6	79	13	467	3	34	9	127	73	104	39	2	1	
Rust Removers																				
Rust Removers: Acids Other Than Hydrofluoric Acid Types	332	260	62	2	7	155	1	30	3	249	8	1	1	70	49	76	8	1	0	
Rust Removers: Alkalis	18	17	0	0	1	14	0	1	1	17	0	0	0	5	2	5	1	0	0	
Rust Removers: Hydrofluoric Acid	166	155	18	4	3	111	0	16	3	144	6	2	2	85	28	54	13	4	0	
Rust Removers: Other or Unknown	132	116	16	1	3	80	0	13	3	111	1	1	2	23	12	37	8	0	0	
Spot Removers/Dry Cleaning Agents																				
Spot Removers/Dry Cleaning Agents: Anionics or Nonionics	97	92	65	3	4	16	0	3	1	89	2	0	1	10	23	9	3	0	0	
Spot Removers/Dry Cleaning Agents: Carbon Tetrachloride	1	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome				
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death					
Spot Removers/Dry Cleaning Agents: Glycols	38	36	23	0	3	8	0	0	2	2	1	0	33	2	1	0	5	8	3	0	0	0	
Spot Removers/Dry Cleaning Agents: Isopropanol	20	19	13	0	0	5	0	1	0	0	0	0	19	0	0	0	1	4	6	0	0	0	
Spot Removers/Dry Cleaning Agents: Other Halogenated Hydrocarbon Containing Products	14	14	8	0	0	4	0	2	0	0	0	0	13	0	0	1	4	4	4	2	0	0	
Spot Removers/Dry Cleaning Agents: Other Hydrocarbon and/or Non-Halogenated Containing	826	775	511	10	11	201	3	33	6	748	8	7	5	91	176	95	10	0	0	0	0	0	
Spot Removers/Dry Cleaning Agents: Other or Unknown	78	67	45	0	3	17	0	1	1	65	2	0	0	15	12	15	2	0	0	0	0	0	
Toilet Bowl Cleaners																							
Toilet Bowl Cleaners: Acids	2,541	1,895	1,006	60	54	618	1	141	15	1,818	52	7	14	332	419	402	76	6	0	0	0	0	
Toilet Bowl Cleaners: Alkalis	2,651	2,328	1,842	53	52	304	7	65	5	2,257	51	6	13	275	613	305	31	3	0	0	0	0	
Toilet Bowl Cleaners: Other or Unknown	5,176	4,588	3,805	85	62	468	7	148	13	4,477	67	7	11	402	991	413	27	0	0	0	0	0	
Wall/Floor/Tile Cleaners																							
Wall/Floor/Tile Cleaners: Acids	941	743	396	26	31	234	0	52	4	695	29	5	8	138	149	167	19	1	0	0	0	0	
Wall/Floor/Tile Cleaners: Alkalis	5,405	4,673	2,555	157	171	1,444	10	300	36	4,396	172	36	47	899	927	1,109	155	10	1	0	0	0	
Wall/Floor/Tile Cleaners: Antionics or Nonionics	8,536	7,314	3,882	273	318	2,392	11	396	42	6,786	312	80	48	1,233	1,289	1,179	128	8	1	0	0	0	
Wall/Floor/Tile Cleaners: Cationics	2,319	2,008	1,096	98	89	591	3	120	11	1,886	69	26	10	266	308	384	43	1	0	0	0	0	
Wall/Floor/Tile Cleaners: Ethanol	98	85	58	3	4	19	0	1	0	79	6	0	0	6	12	17	2	0	0	0	0	0	
Wall/Floor/Tile Cleaners: Glycols	679	588	350	16	35	145	2	39	1	545	28	12	2	77	97	97	9	0	0	0	0	0	
Wall/Floor/Tile Cleaners: Isopropanol	349	313	188	16	23	73	0	13	0	285	18	5	4	27	50	46	4	1	0	0	0	0	
Wall/Floor/Tile Cleaners: Methanol	1,450	1,242	796	55	46	293	4	45	3	1,147	53	15	6	154	233	202	18	2	0	0	0	0	
Wall/Floor/Tile Cleaners: Other or Unknown	188,868	165,505	90,535	6,355	7,056	49,204	384	10,690	1,281	154,563	6,615	1,987	1,235	28,700	26,442	35,565	4,712	256	21	0	0	0	
Cosmetics/Personal Care Products																							
Dental Care Products																							
False Teeth Cleaning Agents	2,010	1,990	155	29	37	1,529	2	225	13	1,917	35	6	23	115	303	161	9	1	0	0	0	0	
Other Dental Care Products (Excluding Fluoride Supplements)	1,174	1,142	387	52	45	496	1	135	26	1,016	25	5	92	83	146	114	17	0	0	0	0	0	
Toothpastes (with Fluoride)	11,501	11,173	9,198	398	209	989	13	323	43	10,658	148	22	270	199	1,709	630	24	0	0	0	0	0	
Toothpastes (without Fluoride)	1,455	1,397	1,177	29	20	126	4	37	4	1,348	9	2	30	23	180	56	3	0	0	0	0	0	
Hair Care Products																							
Curl Activators	33	32	24	1	1	3	0	3	0	32	0	0	0	5	7	4	0	0	0	0	0	0	
Hair Coloring Agents (Excluding Peroxides)	2,230	2,137	817	88	163	834	5	208	22	1,857	49	9	208	370	281	475	74	1	0	0	0	0	
Hair Oils	640	607	505	10	14	52	3	20	3	592	5	2	0	86	110	86	14	2	0	0	0	0	

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age										Reason				Treated in Health Care Facility				Outcome		
			Age										Reason				Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Facility	None	Minor	Moderate	Major	Death				
Hair Relaxers (with Other Alkalines)	83	78	54	1	4	14	0	0	5	0	73	1	0	0	4	45	9	30	6	0	0		
Hair Relaxers (with Other Non-Alkalines)	22	21	15	0	0	4	0	1	1	18	1	1	0	2	4	4	3	3	1	0	0		
Hair Relaxers (with Sodium Hydroxide)	140	139	77	2	4	46	0	10	10	130	2	1	6	6	75	24	48	21	0	0	0		
Hair Rinses, Conditioners, Relaxers	1,882	1,766	1,375	81	53	204	4	40	40	1,669	57	6	6	16	103	299	159	6	0	0	0		
Hair Sprays	761	683	355	36	33	191	4	58	58	612	49	8	7	7	81	90	124	24	0	1	0		
Other Hair Care Products (Excluding Peroxides)	2,153	2,039	1,464	73	82	347	3	66	66	1,931	36	8	8	49	289	307	313	45	1	0	0		
Permanent Wave Solutions	73	72	28	1	8	30	0	5	5	63	1	0	0	8	17	11	18	3	0	0	0		
Shampoos	4,820	4,527	3,100	245	180	795	9	174	174	4,230	202	15	44	44	393	527	760	44	1	1	1		
Hand Sanitizers																							
Hand Sanitizers: Ethanol Based	29,239	27,536	17,735	2,750	1,280	4,912	37	736	736	24,103	2,799	344	75	75	3,547	6,091	2,702	530	67	2	2		
Hand Sanitizers: Isopropanol Based	434	392	222	44	18	87	1	18	18	318	62	7	2	2	68	84	56	14	1	0	0		
Hand Sanitizers: Non-Alcohol Based	709	680	541	28	23	73	3	11	11	628	31	8	2	2	28	109	46	3	0	0	0		
Hand Sanitizers: Unknown	2,868	2,496	1,174	265	169	712	28	126	126	1,908	435	89	12	12	692	464	384	127	18	3	3		
Miscellaneous Cosmetics/ Personal Care Products																							
Baby Oils	1,401	1,369	1,198	20	21	103	1	24	24	1,325	16	6	7	7	117	279	117	4	0	0	0		
Bath Oils and/or Bubble Baths	3,443	3,340	2,862	259	46	129	7	28	28	3,242	51	3	25	25	168	555	350	22	0	0	0		
Creams, Lotions, and Make-Up	15,593	14,972	11,877	416	329	1,854	27	416	416	14,330	190	30	334	334	544	2,001	823	68	4	1	1		
Deodorants	8,422	8,256	6,970	269	306	534	10	145	145	7,798	256	21	119	119	305	1,142	608	34	1	0	0		
Depilatories	554	533	180	11	60	219	1	58	58	383	32	10	102	102	149	59	117	57	1	0	0		
Douches	50	45	20	6	1	16	0	2	2	39	3	2	1	1	2	6	3	0	0	0	0		
Eye Products	1,069	1,019	745	29	33	164	2	40	40	964	11	5	30	30	83	127	84	13	1	0	0		
Lipsticks and Lip Balms (with Camphor)	346	340	302	9	1	20	1	7	7	330	3	0	5	5	5	49	14	1	0	0	0		
Lipsticks and Lip Balms (without Camphor)	3,283	3,183	2,841	113	42	120	3	52	52	3,050	32	1	76	76	51	406	155	13	0	0	0		
Perfumes, Colognes, and Aftershaves	4,736	4,515	3,404	224	248	498	8	118	118	4,181	222	50	26	26	463	782	717	56	1	0	0		
Peroxides	5,798	5,232	1,262	265	386	2,680	12	553	553	4,739	278	39	123	123	1,036	629	1,212	185	12	0	0		
Powders Made of Material Other Than Talc	951	908	694	40	29	119	3	23	23	859	30	2	12	12	64	120	142	12	0	0	0		
Powders Made of Talc	831	801	543	38	43	138	4	31	31	743	35	7	8	8	105	141	116	11	0	1	1		
Soaps (Bar, Hand or Complexion)	12,083	11,319	6,956	710	464	2,552	25	547	547	10,520	444	78	190	190	858	1,239	1,636	118	4	0	0		
Suntan and/or Sunscreen Products	5,034	4,932	4,135	232	67	381	7	93	93	4,789	40	26	56	56	145	653	331	26	0	0	0		
Mouthwashes																							
Mouthwashes: Ethanol Containing	4,670	4,149	729	281	287	2,402	4	411	411	3,445	628	5	39	39	613	559	362	174	24	1	1		
Mouthwashes: Fluoride Containing	4,139	4,073	2,447	851	87	566	8	105	105	3,969	58	1	21	21	72	535	127	10	0	0	0		
Mouthwashes: Non Ethanol Containing	1,758	1,685	430	162	95	832	1	152	152	1,576	72	1	27	27	65	219	93	6	0	0	0		
Mouthwashes: Unknown	211	171	27	14	14	80	0	33	33	130	31	1	7	7	25	21	17	6	1	0	0		
Nail Products																							
Acrylic Nail Adhesives	1,597	1,584	515	236	210	543	6	65	65	1,541	27	5	8	8	713	156	523	133	5	0	0		
Acrylic Nail Primers	152	146	103	3	7	27	0	5	5	142	1	1	1	1	56	29	46	9	2	0	0		
Acrylic Nail Removers	28	28	15	1	3	8	0	1	1	26	1	1	1	1	9	4	8	0	0	0	0		

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason				Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death	
Miscellaneous Nail Products	804	777	489	32	42	173	2	37	2	748	9	2	16	141	133	145	21	2	0
Nail Polish Removers (Acetone Containing)	1,641	1,572	973	63	115	343	4	64	10	1,468	71	14	3	192	277	274	11	4	0
Nail Polishes	3,813	3,668	3,055	190	75	260	17	65	6	3,552	69	18	14	243	577	413	14	1	0
Other Nail Polish Removers	545	536	383	13	26	87	2	22	3	508	23	2	2	66	120	93	5	0	0
Unknown Nail Polish Removers	3,117	2,944	1,821	169	188	609	6	137	14	2,773	133	17	9	364	538	477	30	3	0
Category Total:	148,296	141,004	93,379	8,789	5,568	26,901	278	5,435	654	130,273	6,713	880	2,111	12,877	22,110	15,172	2,004	158	10
Deodorizers																			
Air Freshener	1,835	1,750	1,076	131	77	355	11	89	11	1,629	60	22	15	143	303	256	19	3	1
Air Fresheners: Aerosols	7,723	7,633	6,720	195	84	489	11	124	10	7,448	58	45	14	433	1,347	1,061	38	0	0
Air Fresheners: Liquids	1,736	1,717	1,540	40	22	89	1	19	6	1,685	12	6	1	116	295	135	12	1	0
Air Fresheners: Solids	1,684	1,648	1,282	80	31	185	5	54	11	1,590	30	8	10	142	242	236	15	2	0
Air Fresheners: Unknown Form	24	23	20	0	0	2	1	0	0	23	0	0	0	1	5	2	0	0	0
Miscellaneous Deodorizers	4,453	4,240	2,702	172	117	999	11	222	17	4,066	78	36	46	421	770	597	58	1	1
Diaper Pail Deodorizers	248	241	197	4	4	28	3	4	1	234	3	1	0	34	61	17	1	1	0
Diaper Pail Deodorizers (Excluding Moth Repellants)	72	70	44	5	2	11	0	8	0	68	1	1	0	7	14	14	1	0	0
Other Types of Deodorizer (Not For Personal Use)	17,775	17,322	13,581	627	337	2,158	43	520	56	16,743	242	119	86	1,297	3,037	2,318	144	8	2
Toilet Bowl/Deodorizers	402	391	286	27	16	47	2	12	1	373	8	2	4	20	74	17	0	0	0
Unknown Types of Deodorizer (Not for Personal Use)	424	389	319	42	6	11	4	7	0	373	8	1	4	11	51	15	1	0	0
Category Total:																			
Dyes																			
Miscellaneous Dyes	52	52	38	3	1	9	0	1	0	51	0	1	0	4	9	2	0	0	0
Dyes: Fabrics	453	404	199	76	36	78	2	13	0	379	12	1	11	33	85	19	3	3	0
Dyes: Foods (Including Easter Egg)	94	83	53	6	5	15	0	3	1	75	2	1	5	13	22	6	4	0	0
Dyes: Leathers	1,425	1,319	895	154	64	160	8	36	2	1,251	30	6	24	81	241	59	8	3	0
Dyes: Other	547	495	330	46	11	84	2	19	3	440	23	2	26	49	44	170	10	0	0
Dyes: Unknown	528	478	279	11	11	143	2	31	1	408	23	4	32	77	97	113	8	0	0
Essential Oils	14,957	14,210	10,320	439	305	2,458	35	613	40	13,594	225	59	254	879	2,660	2,061	110	1	0
Miscellaneous Essential Oil	25	25	5	4	2	12	0	2	0	18	6	0	1	4	12	2	0	0	0
Cinnamon Oil	2,525	2,350	1,201	56	83	814	6	172	18	2,163	98	8	44	259	524	261	26	2	0
Clove Oil	20,103	18,915	12,950	605	442	3,892	53	904	69	17,895	422	79	372	1,483	3,642	2,789	182	5	0
Eucalyptus Oil	1,467	1,427	647	100	49	515	10	102	4	1,397	11	10	4	51	222	75	4	0	0
Miscellaneous Essential Oil (Generally for Indoor Plants)	1,588	1,475	887	90	27	354	9	94	14	1,416	24	11	17	94	253	107	19	1	0
Household Plant Foods	1,962	1,834	1,036	120	40	524	3	97	14	1,768	22	14	14	134	375	124	21	0	0
Other Types of Fertilizer	99	88	34	4	1	39	1	8	1	83	1	2	1	7	22	9	0	0	0
Outdoor Fertilizers	204	177	106	16	3	42	1	8	1	170	2	2	3	14	19	15	0	0	0
Plant Hormones	5,320	5,001	2,710	330	120	1,474	24	309	34	4,834	60	39	39	300	891	330	44	1	0
Unknown Types of Fertilizer	1,566	1,485	134	106	147	834	5	217	42	1,326	51	70	22	428	172	455	91	2	0
Category Total:																			
Fire Extinguishers																			
Miscellaneous Fire Extinguisher	1,566	1,485	134	106	147	834	5	217	42	1,326	51	70	22	428	172	455	91	2	0
Miscellaneous Fire Extinguishers																			
Category Total:																			

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason				Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death	
																			Age
Foreign Bodies/Toys/Miscellaneous Miscellaneous Foreign Bodies/ Toys/Miscellaneous																			
Ashes	346	324	252	6	3	48	2	11	2	319	2	0	1	17	53	23	6	0	
Bubble Blowing Solutions	2,293	2,258	1,996	151	33	58	6	12	2	2,221	25	4	2	116	221	442	12	0	
Charcoals	568	431	270	25	14	87	2	29	4	385	18	5	21	25	58	28	3	0	
Christmas ornaments	224	221	170	6	5	30	0	9	1	218	0	1	2	12	40	11	0	0	
Coins	2,884	2,813	2,237	509	29	24	4	8	2	2,744	44	0	1	976	643	295	33	0	
Desiccants	16,320	16,173	12,678	1,171	468	1,293	85	408	70	15,650	307	151	22	727	2,107	188	11	0	
Feces/Urine	5,171	4,492	3,310	157	88	644	13	243	37	4,292	46	103	17	166	564	154	20	0	
Glass	2,467	2,404	517	129	92	1,119	22	478	47	2,271	21	95	12	172	407	95	15	0	
Glow Products	8,152	8,140	5,829	1,872	154	156	50	67	12	7,975	116	4	6	272	827	1,588	39	0	
Incense (Punk)	232	221	149	7	5	44	0	10	6	208	6	2	4	15	33	16	1	0	
Other Types of Foreign Body, Toy, or Miscellaneous Substance	27,819	26,533	17,657	3,253	914	3,268	136	1,109	196	25,099	764	330	186	2,771	4,532	1,319	140	0	
Oxygen Absorbers	970	959	343	237	65	225	7	66	16	874	48	28	4	66	220	32	1	0	
Soil	2,123	1,908	1,379	87	37	304	8	80	13	1,826	35	7	30	106	257	116	13	0	
Toys	9,192	9,088	7,297	1,315	170	182	35	76	13	8,847	159	16	27	588	1,601	578	30	0	
Unknown Types of Foreign Body, Toy, or Miscellaneous Substance	2,227	2,189	1,666	270	60	129	12	42	10	2,118	40	14	9	148	340	153	7	0	
Thermometers																			
Thermometers: Mercury	1,065	1,048	154	82	49	467	7	261	28	1,038	4	4	2	55	190	15	1	0	
Thermometers: Other	487	476	134	43	41	160	0	87	11	456	8	2	5	18	62	15	0	0	
Thermometers: Unknown	92	91	21	10	1	34	0	23	2	89	0	2	0	1	10	0	0	0	
Category Total:	82,632	79,769	56,059	9,330	2,228	8,272	389	3,019	472	76,630	1,643	768	351	6,251	12,165	5,068	333	24	0
Fumes/Gases/Vapors																			
Miscellaneous Fumes/Gases/Vapors																			
Carbon Dioxide	639	615	42	55	46	366	1	94	11	555	35	4	15	123	111	122	29	0	
Carbon Monoxide	13,941	12,728	1,408	896	908	7,454	91	1,754	217	12,132	366	30	55	5,955	2,161	3,109	1,592	124	
Chloramine Gas	3,682	3,480	82	69	194	2,450	15	606	64	3,340	95	7	21	518	413	875	218	5	
Chlorine Gas	3,538	3,317	111	109	189	2,157	21	680	50	3,148	126	3	29	718	382	990	334	19	
Chlorine Gas (When Household Acid is Mixed with Hypochlorite)	5,024	4,800	158	110	313	3,440	12	704	63	4,655	89	1	31	788	722	1,434	336	7	
Hydrogen Sulfide (Sewer Gas)	1,012	872	68	33	33	549	14	158	17	851	3	7	4	316	119	209	98	7	
Methane and Natural Gas	4,352	4,128	726	285	211	2,003	87	732	84	4,075	8	7	20	666	1,036	674	112	4	
Other Types of Fume, Gas or Vapor	2,211	2,000	166	83	141	1,218	19	333	40	1,783	137	15	53	502	302	370	135	22	
Polymer Fume Fever	8	8	0	0	1	4	0	3	3	8	0	0	0	5	0	1	4	0	
Simple Asphyxiants	3,144	2,876	311	296	243	1,618	13	364	31	2,595	218	13	20	906	454	675	239	23	
Unknown Types of Fume, Gas or Vapor	2,047	1,948	79	50	72	1,128	9	549	61	1,812	22	82	15	416	136	395	83	8	
Category Total:	39,598	36,772	31,151	1,986	2,351	22,387	282	5,977	638	34,954	1,099	169	263	10,913	5,836	8,854	3,180	448	138
Heavy Metals																			
Miscellaneous Heavy Metals																			
Aluminum	841	782	443	47	30	204	5	45	8	741	13	15	8	45	88	39	7	1	
Arsenic (Excluding Pesticides)	701	610	32	15	17	439	1	88	18	308	7	146	26	331	76	57	36	4	
Barium, Soluble Salts	7	4	0	0	1	3	0	0	0	4	0	0	0	3	1	2	1	0	
Cadmium	83	49	4	0	0	40	0	5	0	29	0	1	6	28	14	4	3	0	
Copper	684	585	97	44	82	298	1	58	5	475	33	19	30	181	59	161	31	2	
Fireplace Flame Colors	18	16	5	4	3	2	1	1	0	16	0	0	0	6	0	7	0	0	

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death			
Gold	2	2	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0			
Lead	2,240	2,079	957	162	85	683	12	165	15	1,892	41	58	22	985	151	66	7	1			
Manganese	49	35	5	0	2	25	0	2	1	21	0	0	8	16	2	2	0	0			
Mercury (Other)	385	336	28	15	14	210	1	59	9	262	5	20	33	92	48	24	1	0			
Mercury, Elemental (Excluding Thermometer)	643	612	49	35	16	360	5	132	15	541	5	16	29	134	125	30	12	0			
Metal Fume Fever	253	224	2	2	18	162	0	24	16	212	2	1	5	87	7	69	24	0			
Other Types of Heavy Metal	4,698	3,404	1,150	199	197	1,498	4	322	34	2,608	215	36	521	442	432	451	85	3			
Thallium	103	66	3	4	1	44	0	12	2	24	0	25	3	40	5	3	4	3			
Unknown Types of Heavy Metal	83	80	11	2	5	45	0	15	2	47	1	25	0	36	8	2	4	0			
Category Total:	10,790	8,884	2,787	529	471	4,014	30	928	125	7,182	322	362	691	2,426	1,373	1,004	288	22	3		
Hydrocarbons																					
Miscellaneous Hydrocarbons																					
Benzene	129	99	6	2	7	63	0	19	2	77	2	14	3	39	20	16	11	0	0		
Carbon Tetrachloride	35	31	2	0	2	17	0	9	1	29	1	0	1	9	8	4	3	0	0		
Diesel Fuels	1,023	964	142	22	48	624	4	112	12	895	49	13	0	278	105	286	61	3	1		
Freon and Other Propellants	4,778	4,581	282	225	331	3,006	18	629	90	3,817	637	60	21	1,545	569	1,090	486	54	14		
Gasolines	9,803	9,473	1,192	422	819	5,640	33	1,246	121	8,764	524	73	35	1,779	1,147	2,829	341	15	0		
Kerosenes	532	485	182	21	15	207	5	49	6	436	20	17	0	142	80	131	28	5	0		
Lamp Oils	1,044	1,026	678	32	23	239	5	38	11	998	17	5	4	341	221	259	91	9	0		
Lighter Fluids and/or Naphtha	1,568	1,472	775	40	86	448	2	94	27	1,338	55	51	11	497	304	355	80	7	0		
Lubricating Oils and/or Motor Oils	2,865	2,650	1,259	100	129	932	3	201	26	2,482	82	46	16	479	592	417	66	2	0		
Mineral Seal Oil	29	28	12	0	1	11	1	3	0	25	1	1	1	4	2	4	1	0	0		
Mineral Spirits	1,773	1,610	369	41	88	937	2	155	18	1,466	87	25	17	536	208	454	115	7	0		
Other Types of Halogenated Hydrocarbon	192	166	16	3	10	114	0	22	1	151	7	4	2	61	16	61	16	1	0		
Other Types of Hydrocarbon	3,347	3,079	1,362	99	139	1,184	5	246	44	2,894	106	37	30	708	477	575	159	13	1		
Toluene and/or Xylene (Excluding Adhesives)	545	472	42	2	12	337	2	69	8	443	9	6	8	208	38	159	47	5	0		
Turpentine	223	197	35	6	15	115	0	23	3	143	47	4	1	68	29	37	15	1	0		
Unknown Types of Hydrocarbon	508	457	145	19	20	214	0	50	9	403	35	10	4	148	79	101	26	5	1		
Category Total:	28,394	26,790	6,499	1,034	1,745	14,088	80	2,965	379	24,361	1,679	366	154	6,842	3,895	6,778	1,546	127	17		
Industrial Cleaners																					
Miscellaneous Industrial Cleaners																					
Industrial Cleaner: Disinfectants	2,203	2,047	312	175	174	981	18	333	54	1,800	145	74	21	541	257	533	113	5	0		
Industrial Cleaner: Other or Unknown	1,323	1,207	225	41	98	713	5	111	14	1,080	49	61	14	441	116	426	86	3	0		
Industrial Cleaners: Acids	1,714	1,397	334	35	69	792	7	137	23	1,316	24	42	7	418	190	395	98	6	0		
Industrial Cleaners: Alkalis	2,273	2,103	283	56	188	1,369	7	173	27	1,968	81	34	16	1,085	167	767	363	21	0		
Industrial Cleaners: Anionics or Nonionics	388	347	133	19	22	142	0	27	4	318	17	4	8	76	50	74	9	0	0		
Industrial Cleaners: Cationics	1,564	1,476	278	106	111	739	63	158	21	1,318	116	22	17	392	215	456	66	3	0		
Category Total:	9,465	8,577	1,565	432	662	4,736	100	939	143	7,800	432	237	83	2,953	995	2,651	735	38	0		
Infectious and Toxin-Mediated Diseases																					
Algae Associated Exposures																					
Cyanobacteria Exposure (Blue Green Algae)	627	595	113	92	53	247	30	52	8	563	3	14	14	91	143	100	14	0	0		
Karenia brevis Exposure (Red Algae Tide)	92	89	12	7	3	56	0	8	3	87	0	0	1	19	1	25	5	0	0		
Unknown Type of Algae Associated Exposure	11	11	5	1	0	3	0	2	0	9	0	2	0	1	0	2	0	0	0		

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason				Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death	
																			Age
Botulinum Toxins																			
Botulism	421	368	115	11	4	189	0	43	6	271	11	10	61	100	58	21	16	32	1
Ichthyosarcotoxins																			
Ciguatera Poisoning	97	95	4	0	2	72	0	16	1	79	0	0	16	55	0	20	29	3	0
Clupeotoxic Fish Poisoning	3	3	0	0	0	3	0	0	0	2	0	0	1	1	0	1	1	0	0
Other Types of Seafood Poisoning	116	104	9	3	3	75	0	14	0	75	0	2	26	24	4	19	16	0	0
Palytoxin Poisoning	88	83	2	3	2	72	0	3	1	78	1	0	4	52	3	23	24	0	1
Paralytic Shellfish Poisoning	63	61	3	4	4	43	0	7	0	55	1	0	5	23	3	12	5	1	0
Scombroid Fish Poisoning	90	87	2	0	2	68	0	14	1	61	0	0	26	26	1	25	16	1	0
Tetrodotoxin Poisoning	328	327	49	65	30	153	2	25	3	285	28	2	11	37	63	54	6	1	0
Infectious Diseases																			
Bacterial Diseases	493	455	74	46	22	233	1	73	6	401	4	12	33	90	43	45	20	5	1
Fungal Diseases	673	643	166	45	28	314	1	83	6	588	2	16	36	30	57	46	10	3	0
Other Types of Bacterial Food Poisoning (Salmonella, Shigella, Vibrio, Staphylococcus, Streptococcus, etc)	79	76	18	7	5	30	1	15	0	72	2	0	2	9	9	7	7	0	0
Parasitic Diseases	29	29	8	4	2	12	0	3	0	24	0	3	1	3	6	1	1	0	0
Unknown Types of Bacterial Food Poisoning	413	393	68	29	18	187	0	89	2	364	2	6	20	43	16	59	10	0	0
Unknown Types of Suspected Food Poisoning	12,069	11,432	1,847	760	803	6,231	53	1,590	148	10,535	26	136	710	929	644	1,849	380	6	1
Viral Diseases	7,908	2,283	109	141	155	1,212	36	328	302	2,012	8	5	39	163	61	63	23	7	0
Category Total:	23,600	17,134	2,604	1,218	1,136	9,200	124	2,365	487	15,561	88	208	1,006	1,696	1,112	2,372	583	59	4
Information Calls																			
Food Information Calls																			
Information Calls About Food Products, Additives or Supplements	2,593	2,268	932	193	95	786	13	233	16	1,906	64	64	219	178	279	200	58	2	0
Obsolete: Information Calls About Possibly Spoiled Foods	819	802	184	62	28	369	4	136	19	778	0	11	13	10	25	16	6	0	0
Category Total:	3,412	3,070	1,116	255	123	1,155	17	369	35	2,684	64	75	232	188	304	216	64	2	0
Lacrimators																			
Miscellaneous Lacrimators																			
Lacrimators: Capsicum Defense Sprays	3,134	3,101	683	673	358	966	81	269	71	2,544	109	264	34	616	123	1,509	119	1	0
Lacrimators: CN (Chloroacetophenone)	60	57	13	17	3	15	1	6	2	47	5	4	0	11	5	20	8	0	0
Lacrimators: CS (O-Chlorobenzylidene Malonitrile)	22	18	1	4	2	9	0	2	0	10	1	7	0	11	1	8	2	0	0
Lacrimators: Other	61	36	2	3	2	15	0	8	6	35	0	1	0	3	0	11	1	0	0
Lacrimators: Unknown	145	133	32	18	12	52	0	12	7	105	2	21	1	36	7	53	9	1	0
Category Total:	3,422	3,345	731	715	377	1,057	82	297	86	2,741	117	297	35	677	136	1,601	139	2	0
Matches/Fireworks/Explosives/Miscellaneous Matches/Fireworks/Explosives																			
Fireworks/Explosives	159	153	76	14	9	42	1	11	0	126	15	7	3	54	30	18	4	2	0
Fireworks	726	720	609	50	12	42	0	5	2	710	6	2	0	86	219	50	14	1	0
Matches	220	214	173	3	8	24	0	5	1	207	1	1	1	8	44	6	0	0	0
Other Types of Match, Firework, or Explosive	62	61	42	10	3	3	0	3	0	58	1	2	0	8	16	13	1	0	0

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death			
Unknown Types of Match, Firework, or Explosive	7	7	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
Category Total:	1,174	1,155	905	78	32	112	1	24	3	1,108	23	12	4	157	311	90	19	3	0		
Miscellaneous Foods																					
Capsicum Peppers	2,675	2,612	609	540	379	815	29	205	35	1,847	297	123	326	362	76	1,074	121	0	0		
Food Additives	1,394	1,116	453	68	45	419	1	121	9	836	122	12	122	144	169	148	19	2	0		
Food Products	14,267	13,180	5,349	880	560	4,548	88	1,535	220	10,362	243	510	1,967	834	1,315	1,167	214	9	2		
Other Adverse Reactions to Food	1,450	1,374	252	84	77	667	7	263	24	721	21	40	584	179	77	256	95	7	0		
Category Total:	19,786	18,282	6,663	1,572	1,061	6,449	125	2,124	288	13,766	683	685	2,999	1,519	1,637	2,645	449	18	2		
Mushrooms																					
Miscellaneous Mushrooms																					
Group 1 Mushrooms: Cyclopeptides	95	86	19	1	7	50	0	6	3	61	20	0	3	52	24	17	8	6	1		
Group 1A Mushrooms: Orellanine	11	9	4	1	1	3	0	0	0	9	0	0	0	4	5	1	0	0	0		
Group 2 Mushrooms: Muscimol (Ibotenic Acid)	55	50	16	3	5	25	0	1	0	27	17	2	0	29	11	11	13	4	0		
Group 3 Mushrooms: Monomethylhydrazine (MMH)	34	32	3	2	2	23	0	1	1	15	3	1	13	10	13	8	1	0	0		
Group 4 Mushrooms: Muscarine and Histamine	33	31	5	1	3	20	0	2	0	21	2	0	8	13	7	15	2	0	0		
Group 5 Mushrooms: Coprine	10	9	6	0	0	3	0	0	0	9	0	0	0	2	4	1	0	0	0		
Group 6 Mushrooms: Hallucinogenics (Psilocybin and Psilocin)	1,146	794	83	31	239	373	3	48	17	147	623	6	9	577	55	181	273	21	0		
Group 7 Mushrooms: Gastrointestinal Irritants	439	408	137	27	26	195	0	21	2	294	63	0	46	160	64	138	44	0	0		
Mushrooms: Miscellaneous, Non-Toxic	377	325	132	22	12	135	2	22	0	234	28	1	60	57	50	60	14	0	0		
Mushrooms: Other Potentially Toxic	182	152	54	25	6	58	0	9	0	113	17	0	22	46	40	24	7	2	0		
Mushrooms: Unknown	5,132	4,887	2,938	464	279	1,029	16	127	34	4,015	630	12	189	1,342	1,725	682	233	21	2		
Category Total:	7,514	6,783	3,397	577	580	1,914	21	237	57	4,945	1,403	22	350	2,292	1,998	1,138	595	54	3		
Other/Unknown Nondrug Substances																					
Miscellaneous Other/Unknown Nondrug Substances																					
Other Non-Drug Substances	24,300	22,212	8,841	1,761	1,064	7,838	97	2,267	344	18,762	814	1,261	878	3,486	3,026	2,618	761	118	20		
Unknown Substances Unlikely to be Drug Products	7,673	7,264	1,252	271	237	4,188	28	1,032	256	5,143	215	1,048	240	1,741	485	737	330	93	12		
Category Total:	31,973	29,476	10,093	2,032	1,301	12,026	125	3,299	600	23,905	1,029	2,309	1,118	5,227	3,511	3,355	1,091	211	32		
Paints and Stripping Agents																					
Miscellaneous Paints and Stripping Agents																					
Other Types of Paint, Varnish or Lacquer	624	571	227	16	10	237	2	70	9	543	7	11	7	106	69	105	24	0	0		
Unknown Types of Paint, Varnish or Lacquer	2,922	2,750	1,508	126	82	795	6	204	29	2,646	44	9	38	398	422	266	52	3	0		
Varnishes and Lacquers	655	614	134	14	21	331	5	92	17	590	7	1	12	109	66	144	23	2	0		
Paints																					
Anti-Algae Paints	26	23	0	0	4	16	0	3	0	22	1	0	0	6	3	3	4	1	0		
Anti-Corrosion Paints	36	34	5	0	0	28	0	1	0	32	1	0	1	14	3	10	5	0	0		
Oil-Base Paints	1,940	1,830	547	84	82	853	7	233	24	1,696	53	8	52	293	187	377	64	4	0		

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death	
Water Base Paints (Acrylic, Latex, etc)	4,234	4,070	2,894	130	113	708	16	188	21	3,937	48	10	54	317	565	315	38	2	0
Wood stains	631	582	210	17	17	246	4	84	4	550	9	2	16	67	100	88	17	2	0
Stripping Agents																			
Methylene Chloride Stripping Agents	267	251	9	1	10	186	0	40	5	238	2	0	8	114	17	96	39	3	0
Other Types of Stripping Agent	432	403	78	5	21	255	1	42	1	383	8	4	8	151	37	107	58	4	0
Unknown Types of Stripping Agent	164	143	14	1	8	96	0	20	4	134	2	1	5	62	14	35	18	2	0
Category Total:	11,931	5,626	3,94	368	3,751	41	977	114	10,771	182	46	201	1,637	1,483	1,546	342	23	0	
Pesticides																			
Fumigants																			
Aluminum Phosphide	58	52	6	2	1	38	0	4	1	49	2	1	0	28	10	10	8	1	1
Methyl Bromide	11	10	0	0	1	9	0	0	0	10	0	0	0	3	1	1	0	0	0
Other Fumigants	49	43	3	0	2	30	0	7	1	40	1	0	2	17	2	17	3	0	0
Sulfuryl Fluoride	226	198	27	18	2	100	1	42	8	181	2	9	5	27	25	28	3	0	0
Unknown Fumigants	130	125	16	6	7	67	1	23	5	115	2	3	3	38	12	26	8	0	0
Fungicides (Non-medical)																			
Carbamate Fungicides	59	43	8	1	2	21	0	8	3	39	0	2	2	8	7	10	3	1	0
Copper Compound Fungicides	126	120	7	1	2	84	1	24	1	119	0	0	1	11	19	13	1	0	0
Non-Mercurial Fungicide	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Other Types of Non-Medical Fungicide	565	471	96	13	13	268	0	71	10	440	9	5	14	72	95	93	11	0	0
Other/Unknown Type of Non-Medical Fungicide	6	3	0	0	0	2	0	0	1	3	0	0	0	0	0	1	0	0	0
Phthalamide Fungicides	20	11	4	0	2	5	0	0	0	11	0	0	0	4	1	3	0	0	0
Unknown Types of Non-Medical Fungicide	33	27	11	0	1	12	0	3	0	25	1	1	0	4	6	2	0	0	0
Wood Preservatives	109	105	19	4	1	64	1	12	4	101	1	1	1	15	14	20	9	0	0
Herbicides (Including Algaecides, Defoliants, Desiccants, Plant Growth Regulators)																			
Carbamate Herbicides (Excluding Metam Sodium)	15	14	4	0	1	7	0	1	1	14	0	0	0	1	5	1	1	0	0
Chlorophenoxy Herbicides	1,339	1,161	269	55	30	601	6	171	29	1,114	13	9	20	173	226	231	29	4	0
Diquat	416	383	91	14	6	206	2	59	5	361	10	3	7	75	74	76	21	3	2
Glyphosate	2,580	2,310	447	94	64	1,350	5	314	36	2,148	64	32	47	417	333	517	69	5	2
Other Types of Herbicide	1,546	1,302	314	56	24	708	5	178	17	1,263	10	6	15	188	215	255	37	0	0
Paraquat	132	112	2	3	7	82	0	18	0	91	3	12	4	58	18	24	12	1	1
Triazine Herbicides	176	134	24	2	5	82	0	19	2	127	1	0	5	25	20	31	4	0	0
Unknown Types of Herbicide	492	414	79	15	13	224	2	70	11	375	8	22	6	91	58	68	11	2	1
Urea Herbicides	38	30	6	3	0	15	0	5	1	26	0	2	2	5	3	5	1	0	0
Insecticides (Including Insect Growth Regulators, Molluscicides, Nematicides)																			
Carbamate Insecticides Alone	1,104	1,034	367	38	12	500	1	99	17	978	21	21	11	154	226	146	37	5	0
Carbamate Insecticides in Combination with Other Insecticides	228	217	39	13	11	108	0	39	7	205	5	2	2	20	25	45	4	0	0
Chlorinated Hydrocarbon Insecticides Alone	101	92	26	5	4	46	0	11	0	83	3	1	2	19	10	11	3	0	0
Chlorinated Hydrocarbon Insecticides in Combination with Other Insecticides	160	156	16	6	7	92	0	33	2	149	3	1	2	41	13	45	7	0	0
Insect Growth Regulators	111	84	34	4	2	41	0	3	0	79	2	1	2	9	11	11	0	0	0

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age										Reason					Treated in Health Care Facility				Outcome			
			≤5		6-12		13-19		≥20		Unknown Child		Unknown Adult		Unknown Age		Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death
Metaldehyde	23	21	8	3	0	9	0	1	0	0	1	0	0	21	0	0	0	0	0	1	6	4	0	0	
Nicotine (Excluding Tobacco Products)	148	141	93	6	4	29	0	8	1	132	2	1	4	25	29	23	3	0	0	0	0	0	0		
Organophosphate Insecticides Alone	1,609	1,474	411	64	55	744	7	168	25	1,343	67	28	23	458	296	78	15	4	0	0	0	0	0		
Organophosphate Insecticides in Combination with Carbamate Insecticides	36	35	8	2	2	18	0	5	0	35	0	0	0	4	9	5	0	0	0	0	0	0	0		
Organophosphate Insecticides in Combination with Non-Carbamate Insecticides	377	363	54	16	10	221	1	51	10	342	7	2	6	54	47	19	1	1	0	0	0	0	0		
Other Types of Insecticide	8,236	7,686	3,669	294	143	2,686	34	746	114	7,338	116	44	138	716	1,417	108	5	1	0	0	0	0	0		
Piperonyl Butoxide & Pyrethrins (without Carbamate or O.P.)	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0		
Pyrethrins	4,344	4,097	1,070	186	158	2,118	7	500	58	3,786	119	28	141	836	447	217	7	1	0	0	0	0	0		
Pyrethroids	18,207	17,158	3,652	649	585	9,622	49	2,300	301	15,726	550	216	500	2,855	2,139	633	29	5	0	0	0	0	0		
Rotenone	35	35	3	2	1	24	0	5	0	28	0	2	5	1	16	5	0	0	0	0	0	0	0		
Unknown Types of Insecticide	3,551	3,204	659	130	109	1,659	33	541	73	2,749	134	143	120	833	351	156	15	2	0	0	0	0	0		
Veterinary Insecticide/Pesticide Product (For Pets-Flea Collars, Etc.)	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0		
Miscellaneous Pesticides																									
Arsenic Pesticides	23	22	3	0	2	12	0	4	1	17	1	3	0	9	3	1	0	1	0	0	0	0	0		
Borates and/or Boric Acid Pesticides (Excluding Other Uses)	8,362	8,287	7,420	122	62	507	19	131	26	8,178	41	26	9	459	1,344	18	0	0	0	0	0	0	0		
Metam Sodium	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
Repellents																									
Animal Repellents	436	424	111	25	21	184	3	72	8	391	8	10	13	50	53	6	0	0	0	0	0	0	0		
Insect Repellents (Exclude Lacrimators)	2	2	0	0	0	2	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0		
Insect Repellents with DEET	2,891	2,834	1,379	320	107	785	9	202	32	2,566	69	34	142	245	375	60	1	0	0	0	0	0	0		
Insect Repellents without DEET	1,708	1,670	1,146	111	35	284	6	75	13	1,595	11	12	36	80	241	8	1	0	0	0	0	0	0		
Naphthalene Moth Repellents (Excluding Deodorizing Products)	582	563	254	24	9	191	1	73	11	532	13	3	10	100	129	16	3	0	0	0	0	0	0		
Other Types of Moth Repellent	12	12	5	0	0	1	0	6	0	11	1	0	0	2	1	0	0	0	0	0	0	0	0		
Paradichlorobenzene Moth Repellents (Excluding Deodorizing Products)	78	78	42	1	0	27	0	8	0	72	1	1	0	10	19	5	0	0	0	0	0	0	0		
Unknown Types of Insect Repellent	281	272	133	28	6	77	0	27	1	240	6	18	7	30	35	9	0	0	0	0	0	0	0		
Unknown Types of Moth Repellent	1,758	1,715	807	80	35	549	15	211	18	1,622	42	22	19	220	381	13	0	0	0	0	0	0	0		
Rodenticides																									
ANTU (1-naphthalenylthiourea)	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Bromethalin Rodenticides	1,293	1,249	853	44	18	237	3	68	26	1,166	39	29	10	324	412	5	0	0	0	0	0	0	0		
Cholecalciferol Rodenticides	481	471	344	11	4	81	1	20	10	442	11	6	6	120	126	23	0	0	0	0	0	0	0		
Cyanide Rodenticides	4	3	0	0	0	3	0	0	0	3	0	0	0	2	1	0	0	0	0	0	0	0	0		
Long-Acting Anticoagulant Rodenticides	3,227	3,066	2,237	82	44	509	7	152	35	2,908	85	43	11	737	750	32	2	0	0	0	0	0	0		
Other Types of Rodenticide	879	845	576	19	13	182	9	40	6	804	23	9	3	185	193	8	1	0	0	0	0	0	0		
Sodium Monofluoroacetate	3	3	2	0	0	1	0	0	0	3	0	0	0	1	3	0	0	0	0	0	0	0	0		
Strychnine Rodenticides	65	50	4	0	2	34	0	8	2	24	2	15	2	27	6	7	1	0	0	0	0	0	0		

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death		
Unknown Types of Rodenticide	2,338	2,135	1,233	77	39	510	18	194	64	1,800	132	142	17	627	449	102	32	5	0	
Warfarin Type Anticoagulant Rodenticides	106	103	76	3	1	15	0	5	3	99	2	1	0	26	27	2	0	0	0	
Zinc Phosphide Rodenticides	115	106	24	4	3	58	0	16	1	100	5	0	1	36	37	16	2	0	0	
Category Total:	71,049	66,780	28,191	2,656	1,688	26,146	247	6,851	1,001	62,225	1,648	972	1,377	10,576	10,770	10,823	1,712	108	22	
Photographic Products																				
Miscellaneous Photographic Products																				
Developers, Fixing Baths, Stop Baths	85	77	26	2	6	36	0	6	1	71	1	0	5	14	10	18	1	0	0	
Other Types of Photographic Product	398	376	286	20	17	44	0	9	0	371	4	0	1	32	97	26	8	2	0	
Photographic Coating Fluids	20	20	19	0	0	0	0	1	0	20	0	0	0	0	4	1	0	0	0	
Unknown Types of Photographic Product	3	3	1	1	0	0	0	0	1	3	0	0	0	0	1	0	0	0	0	
Category Total:	506	476	332	23	23	80	0	16	2	465	5	0	6	46	112	45	9	2	0	
Plants																				
Miscellaneous Plants																				
Plants: Amygdalin and/or Cyanogenic Glycosides	8,475	8,379	4,239	1,037	328	2,173	36	515	51	7,691	242	67	310	396	1,528	301	44	4	0	
Plants: Anticholinergics	767	728	423	62	20	179	3	34	7	644	56	5	18	115	162	56	28	1	0	
Plants: Cardiac Glycosides (Excluding Drugs)	2,009	1,951	1,068	221	74	462	8	110	8	1,789	113	9	34	227	476	107	41	5	1	
Plants: Colchicine	7	6	2	0	1	3	0	0	0	5	1	0	0	2	2	1	1	0	0	
Plants: Depressants	269	192	97	10	10	69	0	6	0	142	20	1	27	34	34	13	14	2	0	
Plants: Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	6,776	6,546	4,535	732	145	889	30	200	15	6,040	291	14	157	389	1,185	533	58	1	1	
Plants: Hallucinogenics (Code as Street Drug Unless Plant Part Involved)	409	356	73	35	51	170	0	22	5	186	103	8	50	119	46	62	55	4	0	
Plants: Nicotine (Excluding Tobacco Products)	307	295	124	35	10	92	7	26	1	256	21	3	14	62	70	41	13	1	0	
Plants: Non-Toxic	4,035	3,719	2,373	501	96	545	28	142	34	3,365	147	16	165	169	440	206	34	2	0	
Plants: Other Toxic Types	6,158	5,861	3,652	733	174	990	33	255	24	5,309	321	13	187	571	1,116	397	123	17	3	
Plants: Oxalates	5,932	5,840	4,204	713	179	561	22	149	12	5,413	320	7	70	439	894	1,225	80	4	0	
Plants: Skin Irritants (Excluding Oxalate Containing Plants)	5,777	5,304	2,201	456	206	1,943	23	423	52	4,794	168	9	308	811	498	895	237	5	0	
Plants: Solanine	2,244	2,189	1,115	155	53	675	8	169	14	1,895	62	12	208	133	400	227	31	1	0	
Plants: Stimulants	707	669	128	88	33	312	25	77	6	594	47	3	20	149	154	77	21	2	0	
Plants: Toxalbumins	276	258	109	25	12	90	0	18	4	201	35	10	5	88	72	41	11	3	2	
Plants: Unknown Toxic Types or Unknown if Toxic	9,621	9,070	5,979	992	259	1,375	59	349	57	8,365	394	38	245	661	1,473	721	100	10	2	
Category Total:	53,769	51,363	30,322	5,795	1,651	10,528	282	2,495	290	46,689	2,341	215	1,818	4,365	8,550	4,903	891	62	9	
Polishes and Waxes																				
Miscellaneous Polishes and Waxes																				
Floor Waxes, Polishes, or Sealers	298	279	154	7	7	77	1	30	3	264	7	1	4	37	58	43	9	0	0	
Furniture Polishes	826	773	601	24	16	96	1	28	7	745	13	3	2	59	208	102	7	0	0	
Miscellaneous Polishes and Waxes (Excluding Mineral Seal Oils)	948	897	542	22	31	245	1	50	6	852	20	8	13	130	153	129	14	0	0	
Category Total:	2,072	1,949	1,297	53	54	418	3	108	16	1,861	40	12	19	226	419	274	30	0	0	

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRxn	None	Minor	Moderate	Major	Death		
Radiation																			
Ionizing Radiation																			
3	3	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	5	0	0	0	4	0	0	0	0	0	0	0	0	1	1	0	0	0	
51	48	2	0	0	30	0	1	1	30	0	5	7	16	2	2	3	0	0	
95	89	7	4	4	46	5	2	87	0	0	0	1	20	11	5	2	1	0	
97	75	8	3	6	34	0	5	61	3	2	5	18	13	1	2	0	0	0	
20	20	1	1	0	14	0	0	13	0	0	0	6	1	0	0	0	0	0	
Miscellaneous Radiation																			
9	9	0	0	0	6	0	0	6	0	2	0	4	2	0	0	0	0	0	
Non-ionizing Radiation																			
2	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	
4	4	1	0	0	2	0	0	3	0	1	0	1	0	0	0	0	0	0	
14	14	0	0	2	11	0	0	13	0	0	1	2	5	1	0	0	0	0	
31	30	1	0	0	13	0	1	22	0	2	6	7	2	1	1	0	0	0	
10	10	0	0	0	6	0	0	6	1	1	1	5	0	0	0	0	0	0	
21	20	0	4	0	11	0	0	18	1	0	1	6	1	4	1	0	0	0	
7	6	1	0	0	4	0	0	4	0	1	1	3	2	1	0	0	0	0	
370	335	22	12	12	182	5	92	270	5	15	30	89	40	16	9	1	0	0	
Sporting Equipment																			
Miscellaneous Sporting Equipment																			
57	56	34	6	4	6	1	5	51	4	0	0	2	11	9	0	0	0	0	
13	12	8	0	1	2	0	1	10	1	0	1	3	1	0	0	0	0	0	
39	35	7	0	1	22	0	5	33	0	2	11	8	8	1	0	0	0	0	
411	400	214	25	30	114	2	11	359	12	14	4	128	112	39	13	2	0	0	
10	9	8	1	0	0	0	0	7	0	0	1	1	2	1	0	0	0	0	
530	512	271	32	36	144	3	22	460	17	14	8	143	136	58	14	2	0	0	
Swimming Pool/Aquarium																			
Miscellaneous Swimming Pool/Aquarium																			
449	396	104	24	11	185	3	59	386	6	0	3	55	61	79	17	0	0	0	
1,068	1,005	719	58	28	146	6	43	964	18	5	8	63	199	51	13	1	0	0	
67	62	19	2	2	28	0	2	56	1	0	5	11	9	14	6	0	0	0	
3,196	3,044	580	387	206	1,527	12	299	2,912	36	17	57	740	217	1,023	294	6	0	0	
2,708	2,528	653	343	131	1,125	16	220	2,414	38	8	62	520	260	838	202	5	0	0	
136	122	54	8	12	41	0	5	116	4	2	0	15	18	18	3	0	0	0	
7,624	7,157	2,129	831	390	3,052	37	628	6,848	103	32	135	1,404	764	2,023	535	12	0	0	
Tobacco/Nicotine/eCigarette Products																			
2,317	2,221	1,809	40	105	210	10	40	1,981	149	7	76	435	487	560	74	4	1	0	
700	682	573	16	21	58	0	12	634	22	1	19	86	178	198	5	2	0	0	

(continued)

Table 22A. Demographic profile of Single Substance Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death		
eCigarettes: Nicotine Device Without Added Flavors	546	535	451	12	17	45	1	6	3	484	31	5	13	67	126	12	2	0		
eCigarettes: Nicotine Liquid Flavor Unknown	1,152	1,110	812	25	50	186	2	32	3	972	76	9	44	265	271	38	4	0		
eCigarettes: Nicotine Liquid With Added Flavors	505	495	391	15	21	61	0	7	0	447	24	0	14	110	95	14	2	0		
eCigarettes: Nicotine Liquid Without Added Flavors	146	137	115	0	2	15	0	4	1	123	5	0	9	27	46	1	0	0		
Miscellaneous Tobacco Products																				
Chewing Tobacco	1,571	1,541	1,321	32	24	134	1	27	2	1,482	29	4	16	258	417	41	1	0		
Cigarettes	3,551	3,419	3,068	33	23	222	2	65	6	3,248	64	25	41	404	962	36	1	0		
Cigars	198	187	110	4	7	54	1	8	3	144	17	1	16	20	39	6	1	0		
Dissolvable Tobacco	7	7	6	0	0	1	0	0	0	7	0	0	0	0	3	1	0	0		
Filter Tips Only (i.e. Butts)	74	70	62	1	1	3	0	3	0	67	0	0	1	9	25	4	0	0		
Heat Not Burn Tobacco	7	7	5	0	0	2	0	0	0	6	1	0	0	0	1	0	0	0		
Other Types of Tobacco Product	743	710	476	21	17	162	2	29	3	620	56	1	28	137	186	24	1	0		
Snuff	163	163	137	3	3	19	0	1	0	150	4	1	1	27	46	7	0	0		
Unknown Types of Tobacco Product	1,462	1,360	913	32	56	288	2	64	5	1,155	110	7	80	293	340	44	2	0		
Category Total:	13,142	12,644	10,249	234	347	1,460	21	298	35	11,520	588	61	358	2,138	3,307	302	20	1		
Waterproofers/Sealants																				
Miscellaneous Waterproofers/Sealants																				
Waterproofers/sealants: aerosols	160	153	64	4	7	67	0	10	1	143	3	2	4	20	18	6	0	0		
Waterproofers/sealants: liquids	101	96	44	6	2	38	0	6	0	94	1	0	1	13	18	4	0	0		
Waterproofers/sealants: solids	5	5	2	0	0	3	0	0	0	5	0	0	0	1	0	0	0	0		
Waterproofers/sealants: unknown form	34	25	8	0	1	15	0	1	0	23	1	0	1	9	4	4	0	0		
Category Total:	300	279	118	10	10	123	0	17	1	265	5	2	6	43	40	14	0	0		
Weapons of Mass Destruction																				
Miscellaneous Weapons of Mass Destruction																				
Anthrax	7	4	0	0	1	2	0	1	0	2	0	1	0	3	0	1	0	0		
Nerve Gases	9	9	0	0	0	6	0	3	0	1	0	5	0	1	2	0	0	0		
Other Biological Weapons	4	4	1	0	0	3	0	0	0	4	0	0	0	1	0	1	0	0		
Other Chemical Weapons	11	9	0	0	1	5	0	3	0	7	0	2	0	3	1	1	0	0		
Other Nuclear Weapons	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Other Suspicious Powders	181	163	28	6	6	93	1	25	4	105	19	31	0	62	33	18	8	0		
Other Suspicious Substances (Non-Powder)	2,006	1,747	310	78	136	911	8	241	63	855	214	342	66	771	148	188	76	8		
Suspicious Powders in Envelope or Package	29	25	5	0	0	14	0	6	0	10	2	9	0	8	6	2	1	0		
Category Total:	2,248	1,961	344	84	144	1,034	9	279	67	984	235	390	66	849	190	211	85	8		
Nonpharmaceuticals Total:	1,025,478	903,760	441,145	57,873	39,984	287,641	3,313	64,904	8,900	826,912	38,539	12,878	16,939	152,164	136,185	32,020	3,240	465		

Pharmaceuticals (Table 22(B))**Table 22B.** Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category

	No. of Case Mentions	No. of Single Exposures	Age					Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death	
																			Unint
Analgesics																			
Acetaminophen Alone																			
Acetaminophen Alone, Adult	57,666	38,343	7,612	1,865	12,072	15,647	18	919	210	16,628	20,579	19	565	24,995	10,258	7,499	3,924	1,080	122
Acetaminophen Alone, Pediatric	17,033	15,610	14,192	1,003	184	184	16	27	4	15,215	262	3	76	2,040	3,328	325	53	4	3
Acetaminophen Alone, Unknown if Adult or Pediatric	13,195	7,679	1,624	408	2,341	3,080	8	161	57	3,105	4,249	3	86	5,304	2,104	1,509	895	314	60
Acetaminophen Combinations with Other Drugs, Adult	6,667	4,000	620	310	2,067	939	2	46	16	1,109	2,752	2	66	2,906	870	1,194	727	54	0
Acetaminophen in Combination Formulations with Other Drugs, Pediatric	387	328	294	24	7	2	0	1	0	321	5	0	2	32	58	21	1	0	0
Acetaminophen with Codeine Formulations	2,001	907	98	17	115	608	1	61	7	415	400	2	72	469	188	180	89	21	6
Acetaminophen with Diphenhydramine	5,910	3,457	476	131	780	1,958	1	94	17	1,031	2,317	0	54	2,470	666	856	737	143	8
Acetaminophen with Hydrocodone	9,082	3,990	434	86	441	2,830	1	174	24	1,926	1,769	10	185	2,205	895	790	473	196	12
Acetaminophen with Other Narcotics or Narcotic Analogs	164	84	13	2	12	53	0	4	0	37	39	0	6	49	11	21	12	4	1
Acetaminophen with Oxycodone	5,880	2,711	211	28	399	1,925	0	124	24	901	1,611	22	109	1,846	442	459	456	473	10
Acetaminophen with Propoxyphene	16	8	1	0	2	5	0	0	0	3	5	0	0	5	1	2	1	0	0
Acetylsalicylic Acid Alone																			
Acetylsalicylic Acid Alone, Low-dose	1,254	618	390	46	68	105	0	9	0	486	121	1	7	205	166	35	38	2	0
Acetylsalicylic Acid Alone, NOT Low-dose	4,626	2,478	935	124	555	813	1	40	10	1,312	1,081	0	42	1,357	677	348	368	35	6
Acetylsalicylic Acid Alone, Unknown Dose	9,927	4,513	1,248	219	1,056	1,843	4	114	29	1,955	2,269	1	115	2,887	946	757	925	143	19
Acetylsalicylic Acid Combinations																			
Acetylsalicylic Acid in Combination with Other Drugs, Adult Formulations	779	508	141	30	49	273	0	11	4	289	184	2	16	283	99	83	74	17	0
Acetylsalicylic Acid in Combination with Other Drugs, Pediatric Formulations	3	2	1	0	1	0	0	0	0	1	1	0	0	1	1	0	0	0	0
Acetylsalicylic Acid with Codeine	8	4	0	0	0	4	0	0	0	1	2	0	1	3	0	1	0	1	0
Acetylsalicylic Acid with Other Narcotics or Narcotic Analogs	2	1	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	0	0
Acetylsalicylic Acid with Oxycodone	10	4	1	0	1	1	0	0	1	2	2	0	0	3	0	0	0	1	0
Miscellaneous Analgesics																			
Non-Aspirin Salicylates (Excluding Topicals and/or Gastrointestinal Drugs)	283	235	130	14	12	68	1	9	1	204	22	0	6	50	48	38	11	2	1
Other Analgesics	515	353	121	18	40	157	0	14	3	216	124	0	12	150	57	86	47	3	0
Phenazopyridine	1,298	1,087	807	13	22	210	0	29	6	972	43	1	61	241	348	99	38	8	0
Salicylamide	4	3	0	0	0	2	1	0	0	3	0	0	0	0	0	0	0	0	0
Unknown Analgesics	141	72	9	4	31	27	0	0	1	19	49	0	2	57	20	21	9	0	0
Nonsteroidal Antiinflammatory Drugs																			
Colchicine	387	273	42	6	14	202	0	7	2	195	38	1	38	139	53	66	34	8	10

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
			Age							Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age												
Cyclooxygenase-2 Inhibitors	920	473	126	19	21	271	0	34	2	407	46	0	0	19	75	103	30	10	1	0	
Ibuprofen	74,355	53,642	29,369	2,707	10,935	9,343	65	960	263	37,732	15,065	0	0	531	16,284	12,933	5,375	1,404	110	4	
Ibuprofen with Diphenhydramine	1,953	1,174	195	33	206	693	0	37	10	541	614	0	0	12	639	209	234	181	19	0	
Ibuprofen with Hydrocodone	28	11	3	0	1	7	0	0	0	7	3	0	0	0	2	5	2	1	0	0	
Indomethacin	279	140	25	4	17	83	0	10	1	85	32	0	0	23	42	34	17	6	0	0	
Ketoprofen	31	15	3	3	2	7	0	0	0	11	4	0	0	0	6	7	2	0	0	0	
Naproxen	10,681	5,858	1,534	251	1,750	2,072	3	209	39	3,058	2,591	0	0	159	2,688	1,565	1,009	236	11	1	
Other Types of Nonsteroidal Antiinflammatory Drug	7,381	4,211	1,368	141	262	2,090	5	318	27	3,563	453	0	0	180	670	866	298	58	5	2	
Unknown Types of Nonsteroidal Antiinflammatory Drug	16	8	1	0	0	4	0	3	0	5	1	0	0	0	4	1	1	1	0	0	
Other Acetaminophen and Acetylsalicylic Acid Combinations																					
Acetaminophen and Acetylsalicylic Acid with Other Ingredients	6,062	3,754	939	188	1,244	1,294	1	70	18	1,680	1,921	0	0	115	2,127	760	970	476	27	0	
Acetaminophen and Acetylsalicylic Acid without Other Ingredients	246	144	33	10	41	60	0	0	0	58	81	0	0	2	97	31	29	31	3	0	
Pharmaceutical and Illegal Opioid Preparations																					
Buprenorphine	4,438	2,589	1,044	48	45	1,254	2	158	38	1,547	686	0	0	188	1,868	399	619	571	117	2	
Butorphanol	42	19	4	1	0	14	0	0	0	16	1	0	0	1	7	1	3	2	0	0	
Codine	635	356	95	36	35	172	0	14	4	238	81	0	0	27	122	76	48	23	1	0	
Difenoxin	15	7	1	0	1	4	0	1	0	5	1	0	0	0	2	1	1	1	0	0	
Dihydrocodeine	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fentanyl (Prescription)	4,125	2,151	120	10	122	1,781	1	97	20	352	1,634	0	0	38	1,843	216	248	436	788	33	
Heroin	6,548	3,759	55	7	63	3,507	0	92	35	138	3,494	0	0	7	3,359	294	352	595	1,923	93	
Hydrocodone Alone or in Combination (Excluding Combination Products with Acetaminophen, Acetylsalicylic Acid or Ibuprofen)	1,381	508	79	13	34	337	2	36	7	295	161	0	0	36	230	106	81	43	20	1	
Hydromorphone	684	324	21	3	12	262	0	21	5	186	89	0	0	4	177	54	60	48	28	1	
Levorphanol	7	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
Meperidine	26	11	2	1	1	6	0	1	0	5	2	0	0	3	8	3	1	4	0	0	
Methadone	1,943	911	107	13	27	714	1	39	10	355	387	0	0	53	749	115	119	246	160	7	
Morphine	1,709	826	100	9	41	605	0	59	12	488	258	0	0	44	485	177	116	120	67	5	
Nalbuaphine	4	1	1	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	
Non-Prescription Fentanyl	2,902	1,104	60	2	122	870	0	30	20	110	861	0	0	5	838	91	174	203	276	136	
Other or Unknown Narcotics	4,436	2,642	134	9	115	2,296	0	75	13	209	2,009	0	0	34	2,248	107	138	326	1,584	153	
Oxycodone Alone or in Combination (Excluding Combination Products with Acetaminophen or Acetylsalicylic Acid)	6,816	3,218	375	80	309	2,229	1	185	39	1,375	1,580	0	0	156	2,053	541	502	508	551	17	
Oxymorphone	48	21	2	0	1	17	0	0	1	11	9	0	0	0	17	0	7	6	3	0	
Pentazocine	11	8	2	0	0	5	0	1	0	7	1	0	0	0	6	2	3	1	0	0	
Propoxyphene	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Synthetic Opioids, Analogs and Precursors (Excluding Pharmaceutical Preparations)	76	45	4	0	5	29	0	5	2	6	34	0	0	2	33	4	5	7	11	1	

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age										Reason					Treated in Health Care Facility				Outcome			
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death							
Tapentadol	140	68	3	0	1	59	0	2	3	38	25	1	3	45	12	10	5	0							
Tramadol	6,403	2,794	383	56	234	1,990	0	104	27	1,310	1,257	13	154	1,749	633	576	103	6							
Serotonin 5-HT_{1B}/1D Receptor Agonists	380	172	48	19	25	69	0	11	0	121	20	1	29	42	38	26	0	0							
Serotonin 5-HT _{1B} /1D Receptor Agonists: Other or Unknown																									
Serotonin 5-HT _{1B} /1D Receptor Agonists: Sumatriptan	917	480	105	33	59	246	1	32	4	332	73	0	70	193	121	81	32	0							
Category total:	282,880	178,714	65,741	8,044	36,000	63,329	136	4,448	1,016	100,638	71,399	774	3,447	86,407	40,742	25,528	14,986	8,324	720						
Inhalation Anesthetics																									
Nitrous Oxide	303	225	16	15	15	167	0	7	5	49	163	1	11	165	21	51	74	1							
Other Types of Inhalation Anesthetic	79	63	2	2	2	40	0	13	4	55	3	0	3	33	9	15	9	1							
Unknown Types of Inhalation Anesthetic	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0							
Local and/or Topical Anesthetics																									
Dibucaine	11	10	9	0	0	0	0	1	0	9	0	0	1	0	1	0	0	0							
Lidocaine	2,568	2,309	622	98	142	1,222	2	202	21	1,782	127	10	347	483	431	326	130	4							
Other or Unknown Local and/or Topical Anesthetic	2,723	2,495	1,073	100	128	989	2	180	23	2,063	114	5	284	481	542	338	85	40							
Miscellaneous Anesthetics																									
Ketamine and Analogs	373	172	6	9	16	110	0	28	3	72	69	7	19	124	32	32	47	2							
Other Types of Anesthetic	27	21	9	0	1	9	0	2	0	17	1	0	3	5	5	6	1	0							
Unknown Types of Anesthetic	11	6	2	0	1	2	0	1	0	2	0	0	4	1	0	2	1	0							
Category Total:	6,096	5,302	1,740	224	305	2,539	4	434	56	4,049	477	23	673	1,292	1,041	770	347	93	9						
Anticholinergic Drugs																									
Miscellaneous Anticholinergic Drugs	4,257	2,164	171	58	125	1,575	2	222	11	1,716	247	19	151	501	338	209	175	23	0						
Anticholinergic Drugs (Excluding Cough and Cold Preparations, and Plants)																									
Category Total:	4,257	2,164	171	58	125	1,575	2	222	11	1,716	247	19	151	501	338	209	175	23	0						
Anticoagulants																									
Miscellaneous Anticoagulants	11	8	0	0	0	8	0	0	0	8	0	0	0	1	1	0	0	0							
Glycoprotein IIa/IIIb Inhibitors	213	172	38	7	5	105	1	13	3	147	9	0	13	56	44	13	6	4							
Heparins	2,791	944	170	15	13	667	0	75	4	891	30	2	16	143	187	27	9	3							
Other Antiplatelets	6,885	3,356	544	27	31	2,518	0	226	10	3,069	208	1	65	561	679	89	52	9							
Other Types of Anticoagulant	11	7	3	0	0	3	0	1	0	3	1	0	3	3	2	0	0	1							
Unknown Types of Anticoagulant	1,539	761	121	8	14	557	0	61	0	655	77	0	25	241	144	39	66	9							
Warfarin (Excluding Rodenticides)																									
Category Total:	11,450	5,248	876	57	63	3,858	1	376	17	4,773	325	3	122	1,005	1,057	168	133	26	4						
Anticonvulsants																									
Anticonvulsants: Carbamazepine and Analogs	2,194	1,062	87	16	66	856	0	34	3	436	436	0	125	768	152	238	318	61	0						
Carbamazepine	4,561	1,942	344	247	474	820	2	45	10	1,025	860	1	39	1,048	376	465	290	42	0						
Oxcarbazepine																									
Anticonvulsants: Gamma Aminobutyric Acid and Analogs																									
Gabapentin	20,887	7,157	1,185	129	538	4,955	3	286	61	3,320	3,443	38	212	3,967	1,686	1,428	766	167	5						
Other Types of Gamma Aminobutyric Acid	2,671	1,015	156	18	46	739	0	49	7	562	382	14	38	503	201	204	135	32	0						
Aminobutyric Acid Anticonvulsant																									

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated In Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown			Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
							Child	Adult	Age												
Anticonvulsants: Hydantoins	5	4	0	1	0	3	0	0	2	0	0	0	2	4	0	0	1	2	0		
Fosphenytoin	1,369	872	24	3	17	804	0	20	284	153	0	0	342	735	77	282	274	37	2		
Miscellaneous Anticonvulsants	56	16	6	3	1	6	0	0	16	0	0	0	0	4	5	2	2	0	0		
Felbamate	10,863	4,183	495	184	869	2,442	2	176	2,599	1,432	4	4	119	1,909	718	893	533	98	1		
Lamotrigine	5,265	2,672	822	251	287	1,217	1	85	2,131	469	0	53	725	646	320	124	124	16	1		
Levetiracetam	1,518	605	117	57	55	349	0	27	489	89	1	18	230	126	109	58	58	15	1		
Other Types of Anticonvulsant (Excluding Barbiturates)	389	117	13	1	4	88	1	10	87	15	1	14	40	17	30	8	8	1	1		
Primidone	184	112	52	36	9	14	0	1	99	12	0	1	28	24	11	6	6	1	0		
Succinimides	4,280	1,657	377	136	350	730	1	57	917	644	4	67	850	418	357	200	200	18	0		
Topiramate	14	4	0	0	1	3	0	0	0	3	0	1	3	0	2	1	1	0	0		
Unknown Types of Anticonvulsant (Excluding Barbiturates)	6,908	2,776	211	123	380	1,972	2	72	1,044	1,120	5	441	1,905	541	569	580	580	100	2		
Valproic Acid	783	384	75	33	49	209	2	15	307	60	0	11	91	96	39	16	16	2	0		
Zonisamide	61,947	24,578	3,964	1,238	3,146	15,207	14	877	13,318	9,118	68	1,483	12,810	5,083	4,949	3,312	3,312	592	13		
Antidepressants	6,043	3,383	75	43	411	2,739	2	91	748	996	13	1,387	2,845	416	726	1,322	1,322	174	7		
Lithium Salts																					
Miscellaneous Antidepressants	62	16	1	0	6	5	0	1	6	8	1	1	9	3	2	3	3	0	0		
Antidepressants: Type Unknown to Consumer	18,031	9,412	773	251	1,635	6,215	5	467	5,591	3,582	3	153	5,497	1,724	1,422	1,957	1,957	613	18		
Bupropion	259	82	9	2	15	44	0	7	32	43	0	3	48	13	15	7	7	2	0		
Other Types of Antidepressant	21,817	8,231	654	306	1,608	5,409	4	192	2,181	5,796	9	143	6,238	1,642	2,469	1,869	1,869	140	7		
Trazodone																					
Monoamine Oxidase Inhibitors (MAOI)	2	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0		
Isocarboxazid	52	22	1	0	0	19	0	2	20	2	0	0	5	8	0	2	2	0	1		
Other Types of Monoamine Oxidase Inhibitor (MAOI)	29	12	0	0	0	12	0	0	7	2	1	2	8	3	1	2	2	1	0		
Phenelzine	32	14	4	0	0	10	0	0	13	0	0	0	4	5	1	1	1	0	0		
Selegiline	32	12	0	1	1	10	0	0	4	2	0	6	8	1	1	3	3	1	0		
Tranylcypromine																					
Selective Serotonin Reuptake Inhibitors (SSRI)	5,933	2,397	484	147	655	1,025	1	75	1,138	1,170	5	69	1,323	620	418	368	368	53	0		
Citalopram	15,468	7,447	1,062	500	3,011	2,624	2	205	3,111	4,097	8	176	4,428	1,761	1,584	1,129	1,129	55	0		
Escitalopram	17,212	8,245	827	725	4,361	2,100	3	178	2,662	5,392	6	126	5,578	2,491	1,949	906	906	89	1		
Fluoxetine	621	215	23	6	61	105	0	19	130	67	2	15	78	36	35	24	24	1	0		
Fluvoxamine	2,951	1,340	302	58	422	523	1	27	652	639	1	37	792	361	317	141	141	14	0		
Other Types of Selective Serotonin Reuptake Inhibitor (SSRI)	2,368	900	156	30	195	480	0	28	428	423	2	37	472	204	195	113	113	7	0		
Paroxetine	23,836	12,359	2,595	789	4,667	3,949	4	295	5,501	6,407	19	333	7,327	2,856	3,053	1,715	1,715	86	1		
Sertaline																					
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)	6,467	2,382	533	69	465	1,217	2	84	1,256	985	6	107	1,292	555	552	318	318	25	0		
Duloxetine	13	7	1	0	0	4	0	2	4	0	2	1	5	0	3	0	0	0	0		
Nefazodone	631	263	36	9	72	134	0	12	140	108	1	12	131	64	60	29	29	0	0		
Other Types of Serotonin Norepinephrine Reuptake Inhibitor (SNRI)	6,710	2,710	473	78	553	1,500	0	96	1,432	1,139	16	100	1,511	602	534	454	454	71	2		
Venlafaxine																					

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death		
Tetracyclic Antidepressants	4,998	1,613	241	64	250	998	0	50	10	642	898	6	48	1,037	349	453	222	34	0	
Mirtazapine																				
Tricyclic Antidepressants (TCA)	4,654	2,106	260	84	403	1,314	1	31	13	739	1,246	2	57	1,528	281	369	598	314	5	
Amitriptyline	17	11	1	1	3	4	1	0	1	3	7	0	1	9	4	0	3	1	0	
Amoxapine	252	134	14	2	20	80	0	15	3	83	35	0	13	62	23	32	13	5	0	
Clomipramine	42	19	1	1	17	0	0	0	0	11	3	0	0	14	4	0	5	2	0	
Desipramine	1,497	556	31	18	45	438	0	18	6	187	339	0	18	385	81	118	121	76	1	
Doxepin	164	74	14	9	11	33	0	7	0	41	25	0	8	45	15	12	16	5	0	
Imipramine	66	17	1	0	1	13	0	2	0	7	10	0	0	13	3	4	4	0	0	
Loxapine	795	372	46	14	58	237	0	16	1	191	146	1	27	222	65	65	71	20	1	
Nortriptyline	366	204	3	2	9	178	0	10	2	14	134	31	7	185	13	32	86	28	0	
Other Types of Tricyclic Antidepressant (TCA)																				
Protriptyline	3	1	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0	
Tricyclic Antidepressants (TCA) Formulated with a Benzodiazepine	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tricyclic Antidepressants (TCA) Formulated with a Phenothiazine	5	4	2	0	1	1	0	0	0	2	2	0	0	2	1	0	0	1	0	
Tricyclic Antidepressants (TCA): Type Unknown to Consumer	15	5	1	0	0	3	0	0	1	1	3	0	0	4	0	0	0	2	0	
Trimipramine	2	2	1	0	0	1	0	0	0	1	1	0	0	1	1	0	1	0	0	
Category Total:	141,447	64,568	8,625	3,208	18,940	31,443	26	1,930	396	26,978	33,708	135	2,892	41,108	14,206	14,422	11,503	1,821	44	
Antihistamines																				
Histamine H2 Antagonists	7,912	5,952	4,557	243	203	773	3	158	15	5,609	229	3	89	441	1,299	159	15	2	0	
Cimetidine and Other Histamine-2 Blockers																				
Less Sedating Antihistamines	19,499	15,092	10,020	2,115	1,034	1,668	13	222	20	14,115	809	2	109	1,219	3,239	524	70	1	0	
Cetirizine	3,015	2,151	776	282	210	770	4	106	3	1,982	128	1	36	218	436	94	20	0	0	
Fexofenadine	1,804	1,364	760	230	96	240	1	36	1	1,296	43	0	15	91	289	38	7	1	0	
Levocetirizine	14,568	11,234	7,047	1,857	728	1,360	10	217	15	10,493	595	5	84	983	2,467	407	71	1	0	
Loratadine	129	87	45	6	9	18	1	8	0	78	8	0	0	21	29	7	2	0	0	
Other Less Sedating Antihistamines																				
Miscellaneous Antihistamines	2,744	1,632	736	246	257	359	3	21	10	1,164	424	3	29	531	274	202	142	11	0	
Other Antihistamines Alone (Excluding Cough and Cold Preparations)																				
Sedating Antihistamines	27,584	18,877	8,607	1,258	3,343	5,195	13	370	91	11,548	6,796	9	342	8,312	3,438	2,899	2,971	433	12	
Diphenhydramine Alone	17,926	6,866	805	296	2,269	3,264	4	157	71	1,757	4,932	2	107	5,024	1,773	1,943	1,109	56	2	
Hydroxyzine	622	389	119	20	92	141	1	11	5	189	190	0	7	228	60	82	83	14	0	
Obsolete: Diphenhydramine Alone (Prescription)																				
Obsolete: Diphenhydramine Alone (Unknown if Over the Counter or Prescription)	13,720	9,033	3,493	549	1,874	2,897	7	151	62	4,813	3,889	12	158	4,551	1,719	1,587	1,721	265	5	
Other Sedating Antihistamines	4,656	2,816	1,301	183	283	933	0	101	15	2,089	591	2	104	969	685	380	225	25	0	
Category Total:	114,179	75,493	38,266	7,285	10,398	17,618	60	1,558	308	55,133	18,634	39	1,080	22,588	15,708	8,322	6,436	809	19	
Antimicrobials																				
Anthelmintics	16	15	10	2	0	1	0	2	0	14	0	0	0	1	1	1	0	0	0	
Diethylcarbamazine	35	20	3	0	0	16	0	1	0	16	3	1	0	6	1	7	0	0	0	
Levamisole	3,569	2,690	890	145	74	1,337	6	193	45	1,727	702	13	210	697	573	296	150	19	2	
Other Types of Anthelmintic	104	98	64	5	2	23	0	3	1	87	11	0	0	19	33	7	2	0	0	
Piperazine																				

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death		
Unknown Types of Anthelmintic Antibiotics	8	6	1	0	1	2	0	0	1	4	2	0	0	0	0	2	2	0	0	0
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	22,383	16,811	6,513	976	1,230	6,839	30	1,113	110	13,727	1,152	14	1,839	2,338	2,733	1,384	282	39	1	
Topical Antibiotic Preparations (Dermal, Otic, Ophthalmic, Nasal)	3,409	3,251	2,000	137	80	776	12	227	19	3,084	35	6	113	96	460	157	12	2	0	
Unknown Types of Antibiotic Preparation	257	185	106	8	7	46	0	17	1	159	5	1	19	21	29	17	0	0	0	
Antifungals	1,167	862	319	56	24	396	0	59	8	763	12	1	85	75	142	66	10	0	0	
Systemic Antifungal Preparations (Oral, Intravenous, Intramuscular)	5,386	5,078	2,925	163	110	1,484	6	347	43	4,809	63	9	172	329	715	341	41	0	1	
Topical Antifungal Preparations (Dermal, Otic, Ophthalmic, Nasal)	19	18	0	0	1	16	0	0	1	17	0	1	0	1	0	0	0	0	0	
Unknown Types of Antifungal Preparation	1,029	543	135	22	27	323	1	34	1	433	68	0	39	217	137	50	44	9	1	
Antiparasitics	1,602	876	236	20	65	461	1	76	17	703	63	1	101	116	132	86	13	0	0	
Antimalarials	38	37	15	3	4	12	0	2	1	33	1	0	3	9	7	3	1	0	0	
Metronidazole	59	42	3	4	8	26	0	1	0	29	6	0	7	21	8	3	7	6	0	
Other Types of Antitubercular	24	13	0	0	11	0	0	1	0	12	0	0	0	1	4	1	0	0	0	
Isoniazid	61	44	9	1	4	24	2	4	0	36	2	0	6	12	10	4	3	0	0	
Rifampin	367	118	23	16	18	54	0	7	0	82	21	0	14	50	27	11	17	4	2	
Amantadine	801	480	54	11	16	348	0	45	6	381	75	1	19	116	89	41	10	0	0	
Antiretrovirals	132	103	40	11	8	40	0	4	0	96	1	0	6	10	23	5	1	0	1	
Other Anti-Influenza Agents	1,566	1,041	283	20	53	603	2	78	2	851	98	0	81	207	183	78	45	7	1	
Systemic Antiviral Preparations (Oral, Intravenous, Intramuscular)	137	133	57	6	2	53	0	12	3	126	1	0	6	3	15	8	0	0	0	
Topical Antiviral Preparations (Dermal, Otic, Ophthalmic, Nasal)	100	65	18	2	4	36	0	3	2	51	8	0	6	9	9	8	0	0	0	
Unknown Types of Antiviral Preparations	254	241	164	4	4	55	1	12	1	231	5	1	4	26	54	21	1	1	0	
Miscellaneous Antimicrobials	15	10	2	0	0	5	0	2	1	6	2	0	1	4	0	2	1	0	0	
Other Types of Antimicrobial	42,538	32,780	13,871	1,612	1,742	12,987	61	2,244	263	27,477	2,336	49	2,732	4,386	5,387	2,597	640	87	9	
Unknown Types of Antimicrobial	2,335	1,809	256	44	43	1,283	1	174	8	1,644	44	6	100	515	356	179	87	33	6	
Antineoplastics	2,335	1,809	256	44	43	1,283	1	174	8	1,644	44	6	100	515	356	179	87	33	6	
Miscellaneous Antineoplastics	3,277	2,916	1,153	505	245	822	9	159	23	2,303	372	5	211	412	470	384	200	5	0	
Antineoplastic Drugs	141	83	9	0	2	68	0	4	0	48	4	0	23	49	10	15	18	2	2	
Asthma Therapies	5,149	3,292	1,928	471	199	587	1	96	10	3,060	191	0	21	344	763	68	12	0	0	
Miscellaneous Asthma Therapies	2,323	2,288	844	497	109	723	2	107	6	2,217	48	0	17	539	148	982	176	5	0	
Albuterol																				
Aminophylline or Theophylline																				
Leukotriene Antagonist or Inhibitor																				
Non-Selective Beta Agonists																				

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRn	None	Minor	Moderate	Major	Death		
Other Asthma Therapeutic Agents	238	191	70	12	8	91	0	7	3	171	11	0	8	38	41	31	5	0	0	
Terbutaline and Other Beta-2 Agonists	837	696	84	49	38	441	0	79	5	588	67	3	36	93	90	86	46	5	0	
Unknown Asthma Therapeutic Agents	8	5	0	1	0	2	0	1	1	4	0	0	1	1	0	1	1	0	0	
Category Total:	11,973	9,471	4,088	1,535	601	2,734	12	453	48	8,391	693	8	317	1,476	1,522	1,567	458	17	2	
Cardiovascular Drugs																				
Angiotensin Converting Enzyme Inhibitor																				
Angiotensin Converting Enzyme Inhibitor in Combination with Diuretic	1,703	920	294	48	46	503	0	28	1	810	97	0	4	239	274	53	34	0	0	
Angiotensin Converting Enzyme Inhibitor in Combination with Other Drugs (Excluding Calcium Antagonists)	7	4	0	0	1	2	0	1	0	3	1	0	0	1	2	0	0	0	0	
Angiotensin Converting Enzyme Inhibitor, Alone	13,306	5,271	1,932	291	215	2,617	3	190	23	4,508	651	4	57	1,632	1,772	235	165	15	2	
Angiotensin Receptor Blocker																				
Angiotensin Receptor Blocker in Combination with Other Drugs (Excluding Calcium Antagonists)	1,497	815	141	18	20	583	0	50	3	753	43	1	8	147	221	37	18	1	0	
Angiotensin Receptor Blocker, Alone	508	180	50	2	3	116	0	8	1	169	6	0	5	39	50	13	4	1	0	
Angiotensin Receptor Blocker, Alone	9,414	3,986	817	112	126	2,664	0	252	15	3,640	269	1	49	809	1,141	190	69	4	0	
Antihyperlipidemic																				
Antihyperlipidemic Combinations (Excluding Calcium Antagonists)	31	14	3	1	1	7	0	2	0	9	1	0	4	4	2	1	1	0	0	
Antihyperlipidemic, Alone	13,141	4,106	1,352	138	163	2,164	3	273	13	3,755	247	2	84	468	729	132	23	2	0	
Antihypertensives																				
Antihypertensive (Excluding Diuretics), Alone	5,517	2,867	699	1,232	621	289	3	17	6	2,240	536	4	57	1,397	807	466	457	38	0	
Antihypertensive in Combination with Diuretic	10	5	0	0	1	4	0	0	0	3	1	0	0	2	0	1	0	0	0	
Antihypertensive in Combination with Other Drugs (Excluding Diuretics)	9	6	0	0	1	4	0	0	1	5	1	0	0	1	3	1	0	0	0	
Beta Blockers																				
Beta Blocker in Combination with Diuretic	216	98	9	4	6	72	0	7	0	89	8	0	1	21	19	5	6	1	0	
Beta Blocker in Combination with Other Drugs (Excluding Calcium Antagonists)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Calcium Antagonist																				
Calcium Antagonist in Combination with Angiotensin Converting Enzyme Inhibitor	27,541	10,832	2,452	355	611	6,894	0	473	47	8,482	1,978	3	266	4,268	3,508	731	1,094	144	18	
Calcium Antagonist, Alone	346	189	36	5	9	131	0	8	0	160	20	0	5	70	67	12	6	0	1	

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	Facility	None	Minor	Moderate	Major	Death		
		20	3	2	73	0	5	0	100	3	0	0	0	41	46	4	2	1	0	
150	103	20	3	2	73	0	5	100	3	0	0	0	41	46	4	2	1	0		
22	7	1	0	0	5	0	1	5	1	0	1	1	1	1	0	1	0	0		
2	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0		
44	28	7	1	1	19	0	0	27	1	0	0	11	8	1	1	0	0	0		
15,381	6,162	1,228	161	231	4,266	3	257	5,178	806	2	129	2,961	2,145	484	522	119	37			
Miscellaneous Cardiovascular Drugs																				
6,263	1,761	201	52	263	1,136	0	94	1,074	608	5	60	770	432	280	184	16	0			
2,293	1,158	114	10	15	950	0	63	1,040	46	0	64	513	378	85	102	46	9			
1,434	1,028	53	3	6	949	1	12	329	43	0	586	879	105	117	423	121	34			
10,890	5,512	1,602	1,252	1,189	1,390	8	57	3,342	1,982	18	111	3,751	942	1,038	1,786	233	0			
1,613	553	109	7	18	378	0	38	452	79	0	21	225	159	69	45	1	0			
1,020	267	47	3	6	198	0	12	240	17	0	9	82	75	35	16	0	0			
639	409	187	14	9	177	0	16	300	75	1	19	170	157	37	22	0	1			
13	9	1	0	0	8	0	0	0	0	0	0	9	1	0	2	3	1			
414	150	25	4	4	109	0	6	141	3	0	5	42	31	17	10	0	0			
1,477	970	306	20	32	525	0	70	730	110	5	118	332	225	126	60	2	1			
51	16	5	0	1	8	0	1	10	5	0	0	12	3	2	1	0	0			
23	16	3	1	1	10	0	1	11	1	0	4	4	3	0	2	0	0			
302	250	67	31	15	119	1	16	236	3	0	7	87	27	70	21	7	0			
115,280	47,693	11,761	3,768	3,617	26,371	22	1,958	37,842	7,642	46	1,683	18,988	13,334	4,242	5,077	755	104			
Category Total:																				
Cold and Cough Preparations																				
Acetaminophen and Acetylsalicylic Acid with Decongestant and/or Antihistamine																				
12	5	2	0	2	0	0	1	3	2	0	0	3	2	1	0	0	0	0		
Acetaminophen and Acetylsalicylic Acid with Antihistamine without Opioids																				
8	5	3	2	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0		
Acetaminophen and Acetylsalicylic Acid with Decongestant without Opioids																				
4	4	2	0	0	2	0	0	3	0	0	1	0	0	0	0	0	0	0		
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Antihistamine																				
9	7	4	0	1	2	0	0	4	3	0	0	5	1	2	0	0	0	0		
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Decongestant																				
11	5	3	1	0	1	0	0	4	1	0	0	2	2	0	0	0	0	0		

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
4	3	2	0	1	0	0	0	2	1	0	0	0	1	2	0	0	0			
2	2	0	0	1	0	0	1	0	2	0	0	0	2	0	1	0	0			
1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0			
1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0			
1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0			
2	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0			
11	6	3	1	0	2	0	0	4	0	0	2	0	1	0	0	0	0			
2,690	1,206	443	90	211	426	1	27	681	469	2	33	540	277	198	114	18	0			
3,861	1,983	999	177	238	498	0	62	1,523	333	0	102	478	432	209	81	7	0			
3,747	1,827	814	148	257	560	2	38	1,163	568	3	60	694	366	293	131	13	0			
1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
459	271	56	10	57	140	1	6	82	177	0	3	198	49	65	70	8	0			
970	551	314	65	58	100	1	10	428	99	0	14	131	112	56	24	4	1			

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Facility	None	Minor	Moderate	Major	Death	
728	391	175	37	57	113	0	7	2	289	77	0	21	90	77	35	16	2	0		
7	6	4	0	1	1	0	0	0	4	1	0	0	2	0	1	0	0	0		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	4	0	0	2	2	0	0	0	1	3	0	0	4	0	0	3	0	0		
7	6	6	0	0	0	0	0	0	6	0	0	0	1	2	0	0	0	0		
17	14	7	4	2	1	0	0	0	12	1	0	0	1	0	0	0	0	0		
1	1	0	0	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0		
5	4	3	0	0	0	0	1	0	4	0	0	0	1	1	0	0	0	0		
54	29	14	6	4	5	0	0	0	25	2	0	2	6	13	4	0	0	0		
2	2	1	1	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0		
32	23	12	0	2	8	0	1	0	16	4	0	2	7	7	0	2	0	0		
2,192	1,824	1,323	265	63	162	0	8	3	1,691	102	0	22	232	411	147	40	5	1		
10	4	2	0	0	1	0	1	0	4	0	0	0	2	2	0	0	0	0		
3,671	2,890	1,900	329	158	436	3	56	8	2,649	164	1	56	444	670	222	66	11	0		
190	124	74	7	12	74	0	6	1	87	31	0	5	45	27	28	16	1	0		
2,438	1,840	456	150	356	852	0	23	3	781	997	1	31	1,083	282	348	515	34	1		
58	40	8	2	3	26	0	1	0	31	4	0	4	13	13	8	1	0	0		
1,475	867	423	36	110	270	0	23	5	563	264	0	34	378	242	120	92	9	1		
10	4	0	2	0	2	0	0	0	4	0	0	0	0	1	0	0	0	0		
1,395	1,086	771	158	42	106	0	7	2	962	91	1	23	153	242	86	41	2	0		

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome							
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death								
Decongestant with Other Opioid	6	4	3	0	0	1	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0		
Decongestant without Opioid	3,017	2,018	953	140	180	653	9	83	9	0	0	1,770	143	0	78	256	487	131	61	6	0	0	0	0		
Obsolete: Antihistamine and/or Decongestant with Dextromethorphan without Phenylpropanolamine	65	49	0	0	5	44	0	0	0	0	0	0	49	0	0	48	4	14	26	1	0	0	0	0		
Obsolete: Antihistamine and/or Decongestant without Phenylpropanolamine and Opioid	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
Miscellaneous Cold and Cough Preparations																										
Acetaminophen in Combination with Dextromethorphan (Without Decongestants or Antihistamines)	128	72	32	11	8	17	0	4	0	53	16	0	2	19	14	13	2	0	0	0	0	0	0	0	0	0
Cough and Cold Preparations (Not Otherwise Classified)	3,055	2,146	1,601	122	111	265	4	30	13	1,797	275	0	54	361	399	181	73	9	1	0	0	0	0	0	0	
Dextromethorphan Preparations (Not Otherwise Classified)	7,905	5,690	1,968	559	942	2,062	3	135	21	3,429	2,026	10	168	2,384	870	981	977	60	3	0	0	0	0	0	0	
Dextromethorphan With Expectorants	1,150	853	441	106	75	209	0	20	2	640	179	1	22	242	139	107	81	8	0	0	0	0	0	0	0	
Expectorants Without Dextromethorphan	1,808	1,136	396	55	91	509	0	79	6	952	131	0	49	148	204	55	21	2	0	0	0	0	0	0	0	
Non-Narcotic Antitussives Excluding Dextromethorphan	1,676	1,161	359	59	140	526	1	62	14	898	181	0	72	427	321	190	44	12	0	0	0	0	0	0	0	
Obsolete: Unknown Types of Cough and Cold Preparation	18	6	1	0	1	4	0	0	0	2	4	0	0	4	0	0	2	0	0	0	0	0	0	0	0	
Non-Acetylsalicylic Acid Salicylates with Decongestant and/or Antihistamine																										
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Antihistamine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Decongestant	8	8	6	1	0	0	0	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates with Decongestant and Antihistamine without Opioid	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates with Decongestant and/or Antihistamine without Opioid	2	2	0	0	1	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Obsolete: Non-Acetylsalicylic Acid Salicylates and Opioid Combinations with Antihistamine without Phenylpropanolamine	1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age						Reason					Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death		
17	8	4	0	0	4	0	0	4	4	0	0	0	4	0	1	3	0	0	
3	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
13	7	3	0	1	3	0	0	5	2	0	0	1	0	0	1	0	0	0	
2	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	
13	11	6	2	2	1	0	0	8	3	0	0	3	1	0	0	0	0	0	
5	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
4	4	3	1	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	
2	2	0	0	0	2	0	0	1	1	0	0	1	0	0	0	0	1	0	
51	42	24	9	2	6	0	1	38	3	0	1	4	5	3	1	0	0	0	
25	20	15	3	0	2	0	0	19	1	0	0	3	7	2	0	0	0	0	

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death		
Non-Acetylsalicylic Acid Salicylates, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	272	233	110	1	1	110	0	231	1	0	0	0	0	15	66	5	2	0	1	
Other Phenylpropanolamine Preparations (Excluding Street Drugs and Diet Aids)																				
Category Total:	43,344	28,518	13,705	2,561	3,200	8,212	16	704	120	20,907	6,419	19	861	8,441	5,760	3,508	2,506	214	9	
Diagnostic Agents																				
Miscellaneous Diagnostic Agents	4	4	0	0	0	2	0	2	0	4	0	0	0	0	0	0	0	0	0	
Diagnostic Tablets for Glucose or Ketones	862	724	185	42	30	349	5	97	16	609	22	3	86	130	132	101	18	5	0	
Other Types of Diagnostic Agent	7	7	1	1	0	4	0	1	0	6	0	0	1	2	1	2	2	0	0	
Unknown Types of Diagnostic Agent																				
Category Total:	873	735	186	43	30	355	5	100	16	619	22	3	87	132	133	103	20	5	0	
Dietary Supplements/Herbals/ Homeopathic																				
Amino Acids	117	80	44	7	13	13	0	3	0	57	10	0	11	9	19	4	3	0	1	
Creatine	848	544	260	30	37	196	0	19	2	384	49	3	103	82	80	85	15	3	0	
Other Amino Acid Dietary Supplements																				
Botanical Products																				
Citrus Aurantium (Single Ingredient)	6	4	2	1	0	1	0	0	0	3	1	0	0	0	0	0	0	0	0	
Echinacea	129	93	63	10	4	13	0	3	0	82	3	1	5	5	12	6	1	0	0	
Ginkgo Biloba	99	54	25	5	1	18	1	4	0	44	0	0	8	5	11	6	0	0	0	
Ginseng	90	54	22	2	2	24	0	3	1	33	2	1	17	12	4	10	3	0	0	
Kava Kava	121	63	10	1	5	42	0	4	1	20	20	2	19	32	3	18	6	0	0	
Ma Huang/Ephedra (Single Ingredient)	9	6	0	0	0	4	0	2	0	3	0	0	3	3	0	0	1	0	0	
Multi-Botanicals with Citrus Aurantium	37	29	13	1	3	11	0	1	0	17	5	0	7	13	10	7	4	1	0	
Multi-Botanicals with Ma Huang	17	14	1	1	2	9	0	0	1	5	5	0	4	10	1	3	4	0	0	
Multi-Botanicals without Ma Huang or Citrus Aurantium	2,182	1,729	1,023	106	69	469	3	55	4	1,293	139	7	267	318	286	175	96	10	2	
Other Single Ingredient Botanicals	4,049	3,163	1,682	161	131	977	4	192	16	2,585	189	10	346	375	450	324	73	4	0	
St. John's Wort	211	135	102	5	9	18	0	1	0	114	16	0	5	25	34	13	0	1	0	
Valerian	224	117	37	6	8	53	1	10	2	62	26	0	25	34	20	9	8	2	0	
Yohimbe	90	67	4	0	2	55	0	6	0	14	11	0	41	34	3	9	25	1	0	
Cultural Medicines																				
Asian Medicines	88	69	26	4	3	31	0	5	0	43	7	0	18	24	14	9	2	1	0	
Ayurvedic Medicines	191	125	62	12	14	33	1	2	1	92	11	2	20	26	25	14	5	0	0	
Hispanic Medicines	11	7	4	0	0	2	0	0	1	7	0	0	0	4	3	0	2	0	0	
Other Cultural Medicines	132	107	49	6	3	42	0	5	2	65	10	0	29	40	16	6	12	1	0	
Energy Products																				
Energy Drinks: Caffeine Containing (From Any Source Including Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	1,097	889	505	92	120	154	0	15	3	652	98	5	118	140	170	151	69	5	0	

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	Facility	None	Minor	Moderate	Major	Death	
																				486
Energy Drinks: Caffeine Only (Without Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	837	619	396	59	62	87	0	11	4	486	77	6	47	63	124	77	23	2	0	
Energy Drinks: Ethanol and Caffeine Containing (From Any Source Including Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	80	18	5	2	6	4	0	1	0	9	8	0	1	8	1	4	3	3	0	
Energy Drinks: Ethanol and Caffeine Only (Without Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	4	2	2	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	
Energy Drinks: Ethanol Containing Without Caffeine (From Any Source)	5	5	2	1	0	2	0	0	4	4	0	0	1	0	4	0	1	0	0	
Energy Drinks: No Caffeine (From Any Source)	30	23	18	1	0	4	0	0	21	2	2	0	0	2	4	2	0	0	0	
Energy Drinks: Unknown	867	643	299	104	106	109	5	18	2	444	99	6	87	119	83	106	49	1	0	
Energy Products: Other	207	166	69	13	21	58	1	4	105	31	0	30	54	33	34	14	3	0	0	
Hormonal Products	178	115	45	1	8	51	0	8	64	17	2	31	43	18	12	21	0	0	0	
Androgen or Androgen Precursor Dietary Supplements	20	14	6	1	0	7	0	0	11	2	0	1	2	0	1	0	0	0	0	
Glandular Dietary Supplements	61,686	54,669	44,868	5,622	2,147	1,660	99	203	51,034	2,969	36	269	5,164	9,499	4,027	162	7	0	0	
Melatonin Alone	31	28	20	3	1	3	0	0	25	1	0	1	2	8	2	0	0	0	0	
Melatonin in Combination with Other Substances	69	49	21	0	4	22	0	2	34	6	0	9	9	5	5	2	0	0	0	
Phytoestrogen Dietary Supplements																				
Miscellaneous Dietary Supplements/Herbals/ Homeopathic	8,442	7,851	6,882	273	87	462	18	116	13	7,532	94	4	190	518	1,335	210	21	5	0	
Homeopathic Agents	2,016	1,620	998	84	66	408	2	49	13	1,282	87	6	226	315	299	159	59	5	1	
Unknown Dietary Supplements or Homeopathic Agents																				
Other Dietary Supplements	359	261	212	10	6	26	0	5	2	241	7	0	8	20	53	7	0	0	0	
Fatty Acid Supplements	636	455	326	11	15	84	1	17	1	415	21	1	12	25	76	10	0	0	0	
Glucosamine (with or without Chondroitin)	1,766	981	651	66	31	192	1	37	3	853	48	1	70	92	160	57	11	3	0	
Other Single Ingredient Non-Botanical Dietary Supplements																				
Category Total:	86,981	74,868	58,754	6,701	2,986	5,344	137	801	145	68,137	4,071	93	2,029	7,627	12,863	5,562	695	58	4	
Diuretics																				
Miscellaneous Diuretics	3,215	928	276	43	37	523	2	43	4	839	68	0	16	262	205	110	46	1	0	
Furosemide	3,436	1,223	377	62	81	629	0	69	5	1,017	139	2	55	283	287	107	38	1	1	
Other Types of Diuretic	3,996	1,252	420	62	59	636	1	69	5	1,093	125	2	24	264	323	69	29	3	0	
Thiazide	441	142	42	2	7	84	1	6	0	123	16	0	3	34	27	18	4	0	0	
Unknown Types of Diuretic	11,088	3,545	1,115	169	184	1,872	4	187	14	3,072	348	4	98	843	842	304	117	5	1	
Category Total:																				
Electrolytes and Minerals																				
Miscellaneous Electrolytes and Minerals	10,114	8,675	7,546	452	105	466	13	80	13	8,373	179	5	68	357	1,439	174	27	4	0	
Calcium and Calcium Salts	166	143	51	8	4	62	1	16	1	131	3	2	6	21	32	13	1	0	0	
Chromium, Trivalent	176	141	53	13	0	66	0	8	1	79	31	1	29	47	16	6	3	0	0	
Colloidal Silver																				

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death		
Fluoride (Excluding Vitamins, Hydrofluoric Acid & Mouthwashes)	989	934	720	89	18	74	2	29	869	10	1	50	50	178	66	5	0	0		
Germanium and Germanium Salts	1	1	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0		
Iron and Iron Salts (Excluding Vitamins with Iron)	7,200	5,311	2,154	209	762	1,928	3	229	4,018	855	6	383	1,398	1,007	772	188	14	2		
Magnesium and Magnesium Salts	3,021	2,398	1,174	139	114	822	9	127	1,965	179	7	221	284	422	293	39	8	0		
Multi-Mineral and Multi-Herbal Dietary Supplement	422	304	152	17	32	93	0	9	197	61	0	44	99	54	65	29	1	0		
Multi-Mineral Dietary Supplements	230	172	73	13	9	71	0	5	125	12	2	32	27	26	42	5	0	0		
Other Types of Electrolyte or Mineral	75	60	23	3	6	21	0	6	49	1	1	7	9	3	3	0	0	0		
Potassium and Potassium Salts	1,697	647	157	10	30	401	1	41	499	94	5	41	160	119	46	41	2	0		
Selenium and Selenium Salts	122	80	22	3	9	40	0	4	64	3	2	4	17	24	12	0	0	0		
Sodium and Sodium Salts	4,983	4,068	2,008	320	182	1,270	13	243	3,400	428	39	151	665	681	694	89	2	0		
Unknown Types of Electrolyte or Mineral	9	8	4	0	0	4	0	0	7	1	0	0	3	3	2	1	0	0		
Vanadium and Vanadium Salts	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0		
Zinc and Zinc Salts	3,382	2,754	881	134	154	1,354	3	210	1,848	165	2	723	204	241	513	51	3	0		
Category total:	32,588	25,697	15,020	1,410	1,425	6,672	45	1,008	21,626	2,022	73	1,759	3,341	4,246	2,711	482	37	2		
Miscellaneous Eye/Ear/Nose/Throat Preparations																				
Topical Steroids For Eye/Nose/Throat	1,723	1,475	539	255	48	505	5	110	1,356	62	3	49	48	228	88	6	0	0		
Nasal Preparations																				
Other Nasal Decongestants or Sympathomimetics (Excluding Tetrahydrozoline)	1,796	1,676	426	95	161	806	2	169	1,426	100	7	133	197	311	182	40	4	0		
Other Types of Nasal Preparation	647	625	329	26	16	189	1	61	591	6	4	24	25	89	59	5	0	0		
Tetrahydrozoline, Nasal Preparations	38	37	18	3	4	9	0	2	33	3	0	1	13	15	2	1	1	0		
Unknown Types of Nasal Preparation	9	8	0	0	0	5	0	3	4	0	2	2	0	0	1	2	0	0		
Ophthalmic Preparations																				
Contact Lens Products	1,514	1,462	778	31	65	496	2	82	1,411	18	6	18	214	172	251	55	0	0		
Glaucoma Medications	465	400	89	13	8	254	1	35	362	8	4	23	74	73	33	17	2	0		
Other Ophthalmic Sympathomimetics	656	636	351	22	38	186	0	35	565	25	18	19	132	227	45	4	1	0		
Other Types of Ophthalmic Preparation	2,473	2,356	1,135	77	61	860	6	197	2,183	52	28	78	157	358	101	26	1	0		
Tetrahydrozoline, Ophthalmic Preparations	868	795	267	24	58	356	1	74	558	115	79	20	258	212	66	45	1	2		
Unknown Types of Ophthalmic Preparation	60	50	17	3	1	21	0	8	30	7	2	10	17	11	4	3	0	0		
Otic Preparations																				
Combination Products	392	387	119	26	12	186	1	40	373	5	0	8	29	38	101	11	0	0		
Other Types of Otic Preparation	2,308	2,282	643	78	52	1,251	6	235	2,236	9	1	32	309	204	733	50	3	0		
Unknown Types of Otic Preparation	47	45	8	2	1	25	0	8	44	0	0	1	7	4	17	2	1	0		
Throat Preparations																				
Other Types of Throat Preparation	558	546	78	43	65	301	1	51	502	32	0	12	38	75	45	2	0	1		

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility			Outcome			
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
Throat Lozenges with Local Anesthetics	169	149	59	2	18	59	0	10	1	129	6	0	0	12	7	29	13	1	0	0	
Throat Lozenges without Local Anesthetics	438	405	297	36	8	51	2	10	1	375	14	1	1	12	19	76	24	3	0	0	
Unknown Types of Throat Preparation	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
Category Total:	14,163	13,335	5,153	736	616	5,561	28	1,130	111	12,179	462	155	454	1,544	2,122	1,765	273	14	3	3	
Gastrointestinal Preparations																					
Antacids																					
Antacids: Other Types	2,507	2,250	1,884	100	25	191	2	41	7	2,135	45	0	60	70	296	59	6	0	0	0	
Antacids: Proton Pump Inhibitors	10,565	4,608	1,951	135	332	1,845	5	315	25	4,005	436	4	143	581	887	204	27	0	0	0	
Antacids: Salicylate-Containing	2,722	2,349	1,631	244	70	344	0	51	9	2,079	147	2	88	259	452	117	33	0	0	0	
Antidiarrheals																					
Antidiarrheals: Diphenoxylate and Atropine Containing	142	88	21	2	4	58	0	3	0	58	17	0	10	51	25	18	14	0	0	0	
Antidiarrheals: Loperamide	944	637	254	23	23	292	0	41	4	459	108	4	58	185	180	48	33	8	3	3	
Antidiarrheals: Non-Narcotic Containing (Excluding Salicyl Containing)	38	28	19	1	2	3	0	2	1	24	2	0	1	2	6	0	1	0	0	0	
Antidiarrheals: Paregoric Containing	2	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
Antispasmodics																					
Antispasmodics: Anticholinergic Containing	2,573	984	299	55	150	424	1	47	8	701	215	0	59	383	251	137	92	10	0	0	
Antispasmodics: Other Types	372	149	14	4	2	119	0	10	0	138	2	0	8	14	35	7	4	0	0	0	
Miscellaneous Gastrointestinal Preparations																					
Laxatives	15,263	13,172	8,555	714	424	2,858	21	558	42	12,005	515	22	565	1,099	1,711	1,294	158	4	0	0	
Other Types of Gastrointestinal Preparation	9,228	7,439	5,392	341	114	1,296	14	246	36	6,663	206	13	520	475	1,243	470	67	11	0	0	
Unknown Types of Gastrointestinal Preparation	32	19	10	3	0	4	0	2	0	13	2	0	3	4	2	2	0	0	0	0	
Serotonin 5-HT3 Receptor Antagonists																					
Serotonin 5-HT3 Receptor	3,240	1,751	943	136	144	473	1	52	2	1,495	185	0	60	426	524	133	52	1	0	0	
Antagonists: Ondansetron	8	5	1	0	0	1	0	3	0	5	0	0	0	0	1	0	0	0	0	0	
Serotonin 5-HT3 Receptor Antagonists: Other or Unknown																					
Category Total:	47,636	33,480	20,974	1,758	1,290	7,909	44	1,371	134	29,781	1,880	45	1,575	3,550	5,613	2,489	487	34	3	3	
Hormones and Hormone Antagonists																					
Hypoglycemic, Combination																					
Hypoglycemic: Biguanide Combinations (Excluding Sulfonylurea)	451	235	38	2	6	169	0	20	0	225	3	0	6	32	60	9	3	2	1	1	
Hypoglycemic: Other or Unknown Oral Hypoglycemic Combination	23	12	3	0	1	6	0	2	0	11	1	0	0	3	4	0	0	0	0	0	
Hypoglycemic: Sulfonylurea Combinations	65	41	13	0	2	22	0	4	0	34	4	0	2	25	13	3	9	0	0	0	
Hypoglycemic, Single Agent																					
Hypoglycemics: Glucagon-Like Peptide-1 (GLP-1) Receptor Agonists	1,351	1,240	39	14	9	1,057	0	113	8	1,121	37	1	77	309	245	198	68	4	0	0	

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
Hypoglycemics: Other or Unknown	15	10	2	0	1	7	0	0	0	6	3	0	0	0	6	2	0	1	2	0	
Insulin	6,629	5,511	143	123	184	4,679	3	355	24	4,627	766	9	80	2,482	2,148	384	876	73	6		
Oral Hypoglycemics: Alpha-Glucosidase Inhibitors	32	14	6	1	0	7	0	0	0	12	1	0	1	4	6	1	0	0	0		
Oral Hypoglycemics: Biguanides	9,198	3,671	662	96	333	2,335	2	221	22	2,848	658	5	108	1,155	708	368	263	77	18		
Oral Hypoglycemics: Dipeptidyl Peptidase-4 (DPP-4) Inhibitors	950	287	68	7	2	186	0	23	1	262	13	0	12	57	75	11	8	2	0		
Oral Hypoglycemics: Meglitinides	88	47	8	1	4	32	0	2	0	40	7	0	0	22	21	2	4	0	0		
Oral Hypoglycemics: Sodium Glucose Co-Transporter 2 Inhibitor (SGLT2) Inhibitors	1,171	482	125	14	18	288	1	34	2	437	25	0	17	104	151	17	10	0	1		
Oral Hypoglycemics: Sulfonylureas	2,992	1,084	409	16	36	588	1	30	4	844	125	0	84	822	321	60	321	74	2		
Oral Hypoglycemics: Thiazolidinediones	443	165	60	9	6	78	0	11	1	147	12	0	3	38	66	4	2	0	0		
Miscellaneous Hormones and Hormone Antagonists																					
Androgens	435	358	65	7	22	205	1	48	10	260	37	8	48	79	46	50	17	7	0		
Corticosteroids	10,595	8,477	3,220	564	304	3,623	13	695	58	7,786	159	15	498	529	1,110	364	59	4	1		
Estrogens	1,280	884	353	31	38	391	0	68	3	813	44	1	24	53	143	36	5	0	0		
oral Contraceptives	2,805	2,141	1,314	80	303	350	5	78	11	1,770	316	1	34	233	356	146	7	0	0		
Other Hormone Antagonists	697	507	124	18	19	296	0	44	6	478	16	0	10	54	75	18	2	1	0		
Other Hormones	859	641	175	74	52	287	1	51	1	584	29	0	24	131	135	51	11	1	0		
Progestins	1,362	1,038	524	33	62	345	0	67	7	929	47	2	55	98	179	53	13	1	0		
Selective Estrogen Receptor Modulators	224	138	34	6	10	76	0	9	3	131	6	0	1	15	34	4	2	0	0		
Thyroid Preparations (Including Synthetics and Extracts)	12,636	8,187	3,865	321	257	3,213	21	472	38	7,785	289	5	79	1,019	1,475	173	60	2	0		
Unknown Hormones or Hormone Antagonists	8	3	0	1	0	2	0	0	0	2	0	0	1	1	1	0	1	0	0		
Category Total:	54,309	35,173	11,250	1,418	1,669	18,242	48	2,347	199	31,152	2,598	47	1,164	7,271	7,374	1,952	1,742	250	29		
Miscellaneous Drugs																					
Alzheimer Drugs																					
Miscellaneous Alzheimer Drugs	2,532	769	80	15	11	631	0	30	2	683	34	1	33	250	133	131	78	3	0		
Antidotes																					
Miscellaneous Antidote Drugs	397	223	53	12	17	123	1	13	4	181	18	2	17	80	49	29	16	0	1		
Other Miscellaneous Drugs																					
Allopurinol	978	308	97	13	8	167	0	21	2	270	27	0	9	55	75	13	2	2	0		
Bisphosphonates (Including Combinations)	621	565	8	2	2	502	0	49	2	535	4	0	26	115	98	48	16	0	0		
Disulfiram	185	66	7	1	0	51	0	6	1	25	15	0	23	25	8	8	9	2	0		
Ergot Alkaloids	32	23	8	2	1	10	0	2	0	17	1	2	3	14	6	5	2	1	0		
Hematopoietics	44	38	10	3	3	17	0	5	0	36	0	0	2	9	7	2	0	0	0		
Monoclonal Antibodies (Including Fragments)	402	337	19	10	12	256	0	35	5	243	2	1	88	58	50	64	11	0	0		
Neuromuscular Blocking Agents (Succinylcholine, Curare, etc)	40	26	0	0	0	25	0	1	0	18	1	1	6	18	8	5	4	1	0		
Nicotine Pharmaceuticals	1,340	1,257	729	85	31	351	3	54	4	1,069	109	4	69	220	289	195	31	1	0		
Other Types of Miscellaneous Prescription or Over the Counter Drug	12,531	8,921	3,371	495	610	3,814	13	547	71	7,777	564	29	465	1,521	1,654	836	305	36	7		
Parkinson Drugs																					
Decarboxylase Inhibitor, Alone	26	8	1	1	0	6	0	0	0	6	1	0	1	4	3	2	1	0	0		

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated In Health Care Facility			Outcome		
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	Facility	None	Minor	Moderate	Major	Death
Levodopa (Alone or with Decarboxylase Inhibitor)	1,417	847	115	2	2	663	1	57	7	738	56	3	36	201	165	102	57	5	1
Levodopa and Carbidopa with Other Drugs	66	36	6	0	0	28	0	1	1	30	4	0	1	10	8	6	3	0	0
Other Parkinson Drugs (Including Combinations)	1,476	616	185	22	22	355	0	29	3	479	83	4	43	267	89	177	73	5	0
Category Total:	22,087	14,040	4,689	663	719	6,999	18	850	102	12,107	919	47	822	2,847	2,642	1,623	608	56	9
Muscle Relaxants																			
Miscellaneous Muscle Relaxants																			
Baclofen	4,620	2,036	240	80	152	1,511	0	45	8	700	1,050	31	142	1,582	273	314	593	358	11
Carisoprodol (Formulated Alone)	799	337	13	1	10	299	1	11	2	67	250	1	5	272	28	97	110	30	1
Cyclobenzaprine	7,656	3,154	697	169	323	1,857	1	96	11	1,579	1,448	2	65	1,861	672	676	576	105	3
Metaxalone	265	134	13	3	8	95	0	14	1	82	45	0	6	57	29	18	14	2	0
Methocarbamol	2,394	911	123	27	112	616	0	28	5	400	475	1	26	562	226	238	130	29	1
Other Types of Muscle Relaxant	456	148	17	4	12	103	0	9	3	77	57	1	9	73	35	24	19	1	0
Tizanidine	4,592	1,955	250	37	117	1,471	1	72	7	885	922	7	102	1,310	243	415	638	85	1
Unknown Types of Muscle Relaxant	183	42	4	0	1	37	0	0	0	9	32	0	1	34	12	5	9	1	0
Category Total:	20,965	8,717	1,357	321	735	5,989	3	275	37	3,799	4,279	43	356	5,751	1,518	1,787	2,089	611	17
Narcotic Antagonists																			
Miscellaneous Narcotic Antagonists																			
Miscellaneous Narcotic Antagonist	1,448	549	44	14	28	382	1	65	15	268	132	21	120	241	60	90	78	31	0
Category Total:	1,448	549	44	14	28	382	1	65	15	268	132	21	120	241	60	90	78	31	0
Radiopharmaceuticals																			
Miscellaneous																			
Radiopharmaceutical Specific Pharmaceutical Radionuclides	36	30	7	1	0	13	0	9	0	20	0	0	10	8	3	4	1	0	0
Category Total:	36	30	7	1	0	13	0	9	0	20	0	0	10	8	3	4	1	0	0
Sedative/Hypnotics/Antipsychotics																			
Barbiturates																			
Long Acting Barbiturates	1,177	681	131	12	29	464	2	41	2	545	86	5	26	193	149	92	42	20	1
Short or Intermediate Acting Barbiturates	127	54	3	1	2	39	0	8	1	37	11	0	6	25	11	11	5	1	2
Unknown Types of Barbiturate	27	9	2	0	2	4	0	1	0	2	7	0	0	7	0	0	2	3	0
Miscellaneous Sedative/Hypnotics/Antipsychotics																			
Atypical Antipsychotics	43,722	16,809	1,690	785	3,202	10,526	7	461	138	5,375	10,388	43	710	12,548	2,866	4,357	4,210	749	15
Benzodiazepines	47,851	17,658	2,288	422	2,242	11,801	16	700	189	5,076	11,584	302	332	13,046	3,136	5,267	3,376	620	10
Bupropione	7,951	2,301	352	87	471	1,298	1	75	17	879	1,318	1	78	1,443	647	610	243	20	0
Chloral Hydrate	12	8	2	0	0	4	0	2	0	6	2	0	0	6	0	2	1	0	0
Ethchlorvynol	13	11	4	1	4	1	0	1	0	8	3	0	0	6	1	0	2	0	0
Meprobamate	8	4	0	0	1	3	0	0	0	1	3	0	0	3	1	0	1	0	0
Methaqualone	7	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	1	0
Nonbenzodiazepine Hypnotics	6,884	2,888	258	95	173	2,217	1	120	24	1,063	1,692	11	62	1,925	423	900	549	93	0
Other Types of Sedative/Hypnotic/Anti-Anxiety or Anti-Psychotic Drug	2,466	1,103	70	27	65	881	1	47	12	355	605	44	67	762	136	289	263	76	1
Phenothiazines	3,317	1,246	103	32	144	904	1	53	9	468	605	1	149	881	211	233	354	34	0
Sleep Aids, Over the Counter Only (Excluding Diphenhydramine)	2,093	1,448	752	24	154	484	1	25	8	863	547	1	18	736	390	214	233	32	1

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
		≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
172	56	1	3	11	40	0	1	0	4	40	6	1	45	7	6	21	3	0		
115,827	44,277	5,656	1,489	6,500	28,667	30	1,535	400	14,682	26,892	414	1,449	31,623	7,978	11,981	9,302	1,653	30		
11,295	10,276	272	186	468	8,429	10	775	136	1,576	11	7	8,653	1,644	272	3,260	1,001	111	13		
11,295	10,276	272	186	468	8,429	10	775	136	1,576	11	7	8,653	1,644	272	3,260	1,001	111	13		
5,211	4,432	1,613	490	455	1,663	8	168	35	2,572	1,224	20	553	2,403	550	1,176	919	66	1		
360	282	148	12	66	49	0	7	0	175	90	2	15	154	26	97	46	5	0		
17	14	7	0	3	3	0	0	1	9	4	0	1	5	2	3	3	0	0		
21	19	9	0	6	2	0	2	0	9	7	1	2	12	3	4	4	0	0		
67	51	22	0	16	8	0	3	2	24	22	2	3	33	3	15	6	1	0		
6	5	4	0	0	1	0	0	0	4	0	0	0	2	0	1	1	0	0		
16	15	9	0	2	4	0	0	0	11	3	0	1	5	2	3	3	0	0		
1,138	867	281	63	208	273	3	29	10	421	351	10	68	623	66	250	243	32	0		
7,625	3,265	1,262	301	611	903	7	133	48	1,722	1,174	57	187	2,246	273	916	879	113	1		
7,692	6,925	2,953	1,265	1,030	1,516	17	104	40	4,624	1,772	84	342	4,992	499	2,303	1,882	132	0		
106	87	30	7	10	35	0	5	0	43	22	0	19	47	12	17	24	1	0		
1,401	429	226	31	55	95	0	18	4	260	110	9	20	330	23	106	158	30	0		
58	36	14	1	2	15	0	3	1	21	10	1	3	16	9	9	4	0	0		
32	29	16	2	0	11	0	0	0	25	3	0	1	8	6	4	2	0	0		
66	21	9	1	5	5	0	1	0	9	6	3	3	15	4	4	5	2	0		
1,014	532	35	11	110	344	2	21	9	84	390	7	20	449	23	101	205	70	0		
8	5	2	0	2	1	0	0	0	3	2	0	0	3	2	0	1	0	0		
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
105	82	34	6	8	32	0	2	0	48	18	0	16	27	15	13	12	1	0		
15	9	4	1	1	3	0	0	0	6	2	0	1	5	1	1	1	0	0		
30	20	9	0	2	7	0	1	1	10	4	1	5	7	0	5	2	1	0		
16,375	9,931	3,109	1,431	1,856	3,202	10	262	61	6,810	2,671	34	213	4,750	2,287	1,713	1,640	140	1		
328	266	7	0	12	211	0	29	7	86	169	1	7	153	13	57	47	29	2		

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated In Health Care Facility				Outcome			
			Age							Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death				
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age													
Caffeine	3,789	2,943	1,260	154	375	992	41	0	1	130	2	1,912	581	19	397	695	397	497	308	15	1	
Cocaine	5,248	1,120	96	20	62	820	741	1	50	17	160	588	48	117	712	69	213	305	67	4	4	
Ephedrine	74	48	27	1	0	19	0	0	1	1	0	35	11	0	1	16	7	6	5	1	0	
gamma-Hydroxybutyric Acid including Analogs or Precursors	637	392	8	2	17	338	0	0	20	7	77	234	47	6	317	17	52	132	92	0	0	
Hallucinogenic Amphetamines	148	60	4	1	12	41	0	0	1	1	5	50	1	2	49	4	11	24	2	0	0	
Kratom	1,524	948	91	5	43	741	1	1	50	17	160	588	48	117	712	69	213	305	67	4	4	
Lysergic acid diethylamide (LSD)	847	491	14	10	297	133	2	20	20	15	32	440	5	4	413	29	96	252	24	1	0	
Mescaline/Peyote	29	20	2	0	1	15	0	1	1	1	10	9	1	0	12	2	4	5	1	0	0	
Methamphetamines	9,122	3,721	255	24	117	2,985	3	244	93	483	483	2,934	113	35	2,916	307	630	1,252	302	217	0	
Methphenidate	8,723	5,701	1,230	2,207	1,426	754	4	62	18	4,418	1,139	6	97	1,810	1,298	820	620	20	0	0	0	
Other Hallucinogens	6	3	1	0	1	1	0	0	0	0	1	1	1	0	2	0	2	1	0	0	0	
Other Stimulants (Excluding Amphetamines)	713	458	178	20	62	176	0	17	5	303	96	1	56	150	84	75	54	7	0	0	0	
Other Street Drugs	27	13	0	0	2	8	0	0	1	2	1	11	1	0	10	0	1	7	1	0	0	
Other Synthetic Street Drugs	22	13	2	0	3	7	0	0	1	2	2	11	0	0	0	1	1	8	2	0	0	
Phencyclohexylpiperidine (PCP)	438	165	8	4	13	124	1	13	2	19	112	8	2	137	5	19	54	31	1	1	0	
Synthetic Cathinones, Analogs and Precursors	195	110	3	0	6	62	0	17	22	9	69	30	1	81	3	11	28	9	0	0	0	
Synthetic Phenethylamines, Analogs, and Precursors	1,576	694	34	7	122	464	1	44	22	70	563	20	16	567	62	132	230	56	2	0	0	
Synthetic Tryptamines, Analogs and Precursors	109	69	0	0	8	50	0	8	3	13	49	4	2	60	0	13	29	4	1	0	0	
Unknown Hallucinogens	7	5	1	0	1	2	0	1	0	1	1	3	1	0	3	0	1	3	0	0	0	
Unknown Stimulants or Street Drugs	264	155	4	7	25	104	0	11	4	14	110	18	1	132	7	17	47	33	1	1	0	
Category Total:	75,191	44,451	13,021	6,084	7,053	16,219	65	1,523	486	24,692	15,927	596	2,227	25,294	6,241	9,561	9,762	1,449	260	0	0	
Miscellaneous Topical Preparations																						
Acne Preparations	1,649	1,561	681	104	249	433	3	81	10	1,397	83	2	63	133	241	162	21	3	0	0	0	
Boric Acid or Borates (As Antiseptics, Excluding Insecticides)	3,206	3,185	167	8	270	2,342	0	371	27	3,132	17	2	33	236	626	147	4	0	0	0	0	
Calamine (Including All Caladryl Type Products)	1,271	1,228	672	50	11	429	3	58	5	1,205	8	1	9	95	155	143	8	0	0	0	0	
Camphor	7,739	7,572	5,750	192	149	1,205	12	236	28	7,309	116	18	87	902	1,944	896	61	7	1	0	0	
Camphor and Methyl Salicylate Combinations	983	964	612	44	31	230	1	42	4	913	13	0	33	122	222	130	10	0	0	0	0	
Diaper Care and Rash Products	19,734	19,388	18,223	190	122	643	67	121	22	19,226	28	11	32	465	2,518	787	25	0	0	0	0	
Hexachlorophene Containing Antiseptics	23	23	11	2	2	8	0	0	0	22	1	0	0	2	4	1	0	0	0	0	0	
Hydrogen Peroxide 3% Iodine or Iodine Containing Antiseptics	8,430	7,906	1,944	384	446	4,334	6	749	43	7,481	247	43	87	709	734	1,364	99	6	1	0	0	
Mercury Containing Antiseptics	16	14	4	1	0	6	0	3	0	11	2	1	0	4	0	2	1	1	0	1	0	
Methyl Salicylate	3,354	3,280	1,998	159	71	815	7	209	21	3,115	42	7	99	280	579	452	23	4	0	0	0	
Minoxidil, Topical	171	166	51	3	4	85	0	23	0	139	8	1	18	42	28	26	11	1	0	0	0	
Other Types of Rubefacient or Liniment (Excluding Camphor and Methyl Salicylate)	2,237	2,174	1,404	60	58	527	3	114	8	1,963	20	3	173	115	296	317	19	0	0	0	0	
Other Types of Topical Antiseptic	1,950	1,876	670	78	80	859	3	174	12	1,739	60	5	52	263	288	262	32	3	0	0	0	
Podophyllin	67	65	21	10	1	27	0	4	2	57	3	0	4	12	15	8	4	0	0	0	0	

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome		
			Age							Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death			
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age												
Silver Nitrate	56	52	14	2	4	27	1	42	1	0	0	9	14	7	16	2	0	0			
Topical Steroids (Including Otic, Ophthalmic, and Dermal Preparations)	6,430	6,263	3,240	436	153	1,971	10	6,131	32	5	69	129	850	230	15	0	0	0			
Topical Steroids in Combination with Antibiotics (Including Otic, Ophthalmic, and Dermal Preparations)	1,145	1,105	515	57	23	416	2	1,079	3	1	19	34	144	112	6	0	0	0			
Wart Preparations and Other Keratolytics	949	935	480	81	36	267	1	861	7	5	53	137	159	139	31	1	0	0			
Category Total:	60,448	58,706	36,639	1,899	1,763	15,199	121	56,613	772	112	899	3,860	9,007	5,321	389	29	4	0			
Unknown Drug																					
Miscellaneous Unknown Drug	23,617	15,182	2,941	558	2,213	8,152	41	4,537	6,369	880	586	11,630	2,024	2,123	3,407	2,097	216	216			
Miscellaneous Unknown Drugs	23,617	15,182	2,941	558	2,213	8,152	41	4,537	6,369	880	586	11,630	2,024	2,123	3,407	2,097	216	216			
Veterinary Drugs																					
Miscellaneous Veterinary Drugs	7,825	6,971	1,531	151	144	4,366	9	6,841	58	9	37	463	1,349	554	83	8	0	0			
Miscellaneous Veterinary Drugs without Human Equivalent	7,825	6,971	1,531	151	144	4,366	9	6,841	58	9	37	463	1,349	554	83	8	0	0			
Vitamins																					
Miscellaneous Vitamins	824	579	407	39	19	98	1	517	30	2	28	52	103	27	8	1	0	0			
Other Types of Vitamin	927	692	518	77	21	55	4	631	36	2	15	51	107	25	2	0	0	0			
Multiple Vitamin Liquids: Adult Formulations																					
Multiple Vitamin Liquids: Adult Formulations with Fluoride (No Iron)	7	6	0	3	0	3	0	5	1	0	0	1	1	0	0	0	0	0			
Multiple Vitamin Liquids: Adult Formulations with Fluoride (No Iron)	222	182	106	7	2	47	0	160	6	0	16	22	25	10	0	0	0	0			
Multiple Vitamin Liquids: Adult Formulations with Iron and Fluoride	7	7	5	0	0	2	0	6	0	0	1	1	2	0	1	0	0	0			
Multiple Vitamin Liquids: Adult Formulations without Iron or Fluoride	535	420	272	37	15	78	1	381	16	1	19	28	56	18	4	0	0	0			
Multiple Vitamin Liquids: Pediatric Formulations																					
Multiple Vitamin Liquids: Pediatric Formulations with Fluoride (No Iron)	104	100	93	7	0	0	0	99	0	0	1	5	11	3	0	0	0	0			
Multiple Vitamin Liquids: Pediatric Formulations with Iron (No Fluoride)	517	485	457	23	1	2	0	474	2	0	5	29	96	20	0	0	0	0			
Multiple Vitamin Liquids: Pediatric Formulations with Iron (No Fluoride)	16	15	13	1	1	0	0	15	0	0	0	1	3	0	0	0	0	0			
Multiple Vitamin Liquids: Pediatric Formulations with Iron and Fluoride	1,020	927	790	114	12	9	0	904	18	0	5	30	135	36	1	0	0	0			
Multiple Vitamin Liquids: Pediatric Formulations without Iron or Fluoride																					

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age						Reason					Treated in Health Care Facility			Outcome				
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	AdvRn	None	Minor	Moderate	Major	Death			
Multiple Vitamin Tablets: Adult Formulations	143	125	102	13	1	8	0	1	0	123	1	0	1	0	1	8	14	5	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Fluoride (No Iron)	4,166	3,152	2,245	76	117	615	0	90	0	2,917	147	4	64	296	655	135	18	1	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron (No Fluoride)	33	20	9	3	1	6	0	1	0	16	1	0	3	2	2	0	0	0	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron and Fluoride	111	96	66	8	3	15	0	4	0	88	1	0	5	6	23	7	1	0	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron Carbonyl (No Fluoride)	10,305	8,327	6,066	972	316	821	18	119	15	7,751	377	4	157	452	1,487	258	24	3	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations	171	163	143	16	0	4	0	0	0	158	2	0	3	5	26	3	0	0	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Fluoride (No Iron)	3,142	2,877	2,510	269	46	41	5	5	1	2,817	47	0	9	243	554	175	10	0	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron (No Fluoride)	12	11	9	2	0	0	0	0	0	11	0	0	0	1	2	1	0	0	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron and Fluoride	34	27	25	1	0	1	0	0	0	26	1	0	0	2	4	2	0	0	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron Carbonyl (No Fluoride)	15,416	14,496	11,924	2,189	245	102	13	17	6	14,045	401	6	9	435	2,136	365	14	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations	4	4	3	0	0	1	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations with Fluoride (No Iron)	978	688	464	29	31	137	0	26	1	618	50	1	18	81	131	27	3	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations with Iron (No Fluoride)	12	5	5	0	0	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations with Iron and Fluoride	730	601	466	71	25	32	0	7	0	570	22	0	9	35	110	18	0	0	0	0	0
Multiple Vitamins, Unspecified Pediatric Formulations	30	26	20	4	0	1	1	0	0	24	0	0	1	1	11	2	0	0	0	0	0

(continued)

Table 22B. Demographic profile of Single Substance Pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason					Treated in Health Care Facility				Outcome				
			≤5	6-12	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv/Rn	None	Minor	Moderate	Major	Death					
Multiple Vitamins, Unspecified Pediatric Formulations with Iron (No Fluoride)	70	66	58	7	0	1	0	0	0	63	2	0	0	0	0	0	9	19	2	0	0	0	
Multiple Vitamins, Unspecified Pediatric Formulations with Iron and Fluoride	5	4	3	1	0	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0	
Multiple Vitamins, Unspecified Pediatric Formulations without Iron or Fluoride	1,553	1,455	1,189	225	25	10	5	0	1,405	44	0	0	2	53	272	40	0	0	0	0	0	0	
Other Vitamins																							
Other B Complex Vitamins	5,068	3,143	2,347	153	92	438	9	98	6	2,882	126	2	104	213	518	85	13	1	0	0	0	0	
Vitamin A	488	384	188	25	12	124	1	29	5	341	13	0	28	33	60	30	6	0	0	0	0	0	
Vitamin B3 (Niacin)	691	528	111	20	33	305	1	54	4	250	53	0	222	111	38	179	24	0	0	0	0	0	
Vitamin B6 (Pyridoxine)	416	261	209	8	7	29	0	6	2	243	10	0	6	15	40	10	2	0	0	0	0	0	
Vitamin C	2,802	1,725	1,224	222	54	172	4	44	5	1,585	82	1	47	97	271	53	10	0	0	0	0	0	
Vitamin D	11,718	8,144	5,173	552	359	1,762	12	259	27	7,731	245	5	126	737	1,395	285	42	1	0	0	0	0	
Vitamin E	588	379	262	15	17	74	1	9	1	350	15	0	8	22	57	9	2	0	0	0	0	0	
Category Total:	62,865	50,120	37,482	5,189	1,455	4,993	76	835	90	47,219	1,749	28	912	3,077	8,367	1,830	185	7	0	0	0	0	0
Pharmaceuticals Total:	1,486,968	916,490	379,155	58,424	107,458	332,519	1,040	32,646	5,248	641,786	219,553	3,766	38,778	310,263	177,188	119,481	76,381	19,249	1,530	0	0	0	0
GRAND TOTAL (Nonpharmaceuticals + Pharmaceuticals):	2,512,446	1,820,250	820,300	116,297	147,442	620,160	4,353	97,550	14,148	1,468,698	258,092	16,644	55,717	462,427	313,373	266,673	108,401	22,489	1,995	0	0	0	0

APPENDIX C

Abstracts of Selected Cases

Selection of Abstracts for Publication

The abstracts included in Appendix C were selected for publication in a 3-stage process consisting of qualifying, ranking, and reading. Changes in place since the 2014 report for the selection of the top 200 cases: include all pregnant subjects, include all children (0-2 y/o) subjects, increase (double) the weight on the autopsy report, add a weighting for Age of subject (1/age in years), add a weighting for infrequency of substance category (Generic Code).

Qualifying cases were thus: Age 0-2 y/o, Pregnant, or RCF 1-Undoubtedly Responsible, 2-Probably Responsible or 3-Contributory. Fatalities by Indirect report were excluded beginning with the 2008 annual report. The ranking was based on Final Case Weighting (FCW).

$$\text{FCW} = f \left[\frac{1}{(\text{num substances in this case}), \text{WCS}, \frac{1}{\text{Age (years)}}, \frac{1}{(\text{num cases in that generic code this year})} \right]$$

Where:

$$\begin{aligned} \text{Weighted Case Score (WCS)} = & \text{Hospital records} * 8.8 \\ & + \text{Postmortem} * 15.2 \\ & + \text{Blood levels} * 6.9 \\ & + \text{Quality/Completeness} * 6.4 \\ & + \text{Novelty/Educational value} * 13.2 \end{aligned}$$

WCS Scores were normalized (z-score) within each America's Poison Centers reviewer before the final weighting: 25% for each (1/NumSubstances, WCS, 1/Age, 1/NumCodes).

The WCS weighting factors were the averages of review team recommendations gathered in 2006.

The top ranked abstracts (200 ties) were each read by individual reviewers who volunteered (See Appendix E) and the 2 managers (DAS and JBM). Each reader judged each abstract as "publish" or "omit" and all abstracts receiving 9 or more of 12 publish votes were selected, further edited, cross-reviewed by the 2 managers, MCB, and DDG, and published in this report.

Abstracts

Abstracts of the cases were selected (see Selection of Abstracts for Publication, above) from the human fatalities judged related to an exposure as reported to US PCs in 2021. A structured format for abstracts was required in the PC preparation of the abstracts and was used in the abstracts presented. Abbreviations, units and normal ranges omitted from the abstracts are given at the end of this appendix.

Case 2. Acute methanol ingestion: undoubtedly responsible

Scenario/Substances: A 16 y/o female was found unresponsive ~2h after speaking with her mother. EMS transported her and she had a possible seizure during transport. EMS provided naloxone without response.

Past Medical History: Suicide attempts. Home medications: fluoxetine.

Physical Exam: GCS 3, pupils dilated, T 33.9°C.

Laboratory/Diagnostic Findings: Na 138 / K 5.2 / Cl 106 / CO₂ 3 / BUN 12 / Cr 0.8 / Glu 81 / AG 29, ammonia 125 mcmol/L, ABG-pH 6.88, lactate 11.4 mmol/L, Osm 409, EKG: NSR on monitor. CT head

unremarkable. Serum APAP, ethanol and salicylate not detected. Methanol 203 mg/dL.

Clinical Course: She was transferred to a tertiary care center and intubated without sedation. Briefly on epinephrine for hypotension. She received fosphenytoin, lorazepam, and levetiracetam with concern for seizures; antibiotics with concern for sepsis; hydroxocobalamin with concern for cyanide, and fomepizole ~8h after arrival. At this time, she was also given a dose of activated charcoal. BP 115/60, HR 112, RR 18, pupils minimally responsive, T up to 36°C on the warming blanket, but metabolic acidosis persisted. HD could not be performed because hydroxocobalamin created a false positive blood leak signal on the machine. Pupils were fixed and dilated. Repeat head CT showed diffuse cerebral edema, brainstem herniation, basal effacement, tonsillar herniation and putaminal hemorrhaging. Peak ammonia 213 mcmol/L. She was started on CRRT with high dose effluent. Despite CRRT, vasopressors, fomepizole, and leucovorin she died on Day 4.

Autopsy Findings: Not performed.

Case 192. Lithium disc battery ingestion: undoubtedly responsible

Scenario/Substances: A 4 y/o female complaining of abdominal pain and vomiting presented to ED.

Clinical Course: In the ED abdominal ultrasound ruled out appendicitis and she was discharged home. Fifteen days later she was transported to the regional trauma center in cardiac arrest. A lithium button battery had lodged in esophagus and eroded through esophagus into the aorta. She was taken to the OR and given blood products for Hgb 4, but she arrested in the OR and died.

Autopsy Findings: Not available.

Case 195. Acute Agkistrodon envenomation: undoubtedly responsible

Scenario/Substances: A 31 y/o female was bitten on the right fingertip by her pet copperhead snake. She called 911 and EMS transported her to the ED.

Physical Exam: Bruising on envenomed hand. Tachypneic, hypotensive, hypoxic.

Clinical Course: She presented to the ED complaining of 10/10 pain. She was intubated and transported via helicopter to a tertiary care center that stocked polyvalent immune Fab antivenom. On arrival at the receiving hospital (~12h after envenomation) she was hypotensive, VBG-pH 6.7. She received multiple vasopressors but experienced a cardiac arrest. The patient had a total of 6 additional arrests and received 2 vials of antivenom throughout her care. The final cardiac arrest occurred ~15h after envenomation.

Autopsy Findings: Not available.

Case 197. Acute Crotalinae envenomation: undoubtedly responsible

Scenario/Substances: A 60 y/o male presented to the ED via EMS with a rattlesnake bite on the left outer ankle. EMS found him pulseless and believed he was having an anaphylactic reaction. He was unresponsive for 8 min, was intubated, sedated, and put on pressors and received 500 ml of LR.

Past Medical History: Hypertension, COPD, depression, BPH.

Physical Exam: After ROSC: BP 156/108, HR 86, RR 22 (on vent), T 36°C, O₂ Sat 98% (on vent).

Laboratory/Diagnostic Findings: Na 136 / K 3.4 / PT 15.4 / INR 1.3 / Plt 333.

Clinical Course: In the ED he received 6 vials of Crotalidae immune Fab, IM epinephrine x 3, diphenhydramine, methylprednisolone, dexamethasone, epinephrine drip, norepinephrine drip, and lorazepam; he was intubated and placed on a vent. After resuscitation he was sedated with ketamine. Day 2, he received 30+ vials of antivenom. He was in DIC and cardiogenic shock. LFTs were increasing with low urine output. Day 3, coagulation parameters were prolonged, and there were increases in BUN, Cr, CK, and LFTs. He received a total of 56 vials of antivenom. Day 4 he was placed prone to improve ventilation. LFTs, BUN, Cr, CK and coagulation parameters were increased, and platelets decreased. Day 5 he was doing better, but platelets decreased further. Treatment included NAC and CRRT. He received 6 more vials of antivenom. Day 6, platelets declined but his INR and fibrinogen improved. NAC was discontinued. He began HD. Day 8 there was clinical evidence of fluid overload, and he had bleeding from the mouth and catheter site. He was positive for *C. difficile* infection. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 13.

Autopsy Findings: Not available.

Case 209. Acute cyanide ingestion: undoubtedly responsible

Scenario/substances: A 23 y/o male drank about 5 grams of potassium cyanide obtained from work; a glass container labeled KCN was found in a nearby room with a note warning his parents not to touch the containers or crystals. His mother called 911.

Past Medical History: Autism, depression, suicidal ideation.

Physical Exam: Unconscious, GCS 3, apneic with weak pulses. HR 89, RR 12 (assisted) O₂ sat 86%.

Laboratory/Diagnostic Findings: EKG rhythm strip: sinus bradycardia at 52.

Clinical Course: EMS arrived 8 min after the ingestion and administered 2 mg intranasal naloxone without effect; bag valve ventilations were initiated. He became pulseless and CPR was started 19 min after the ingestion for slow PEA. IO and IV epinephrine, NS, sodium bicarbonate and hydroxocobalamin x2 (first dose was given 1 hour after ingestion) without any improvement, and he died 74 min after the ingestion. Concerns for scene cyanide exposure were investigated by the hazmat team who determined there were no threats to the responders.

Autopsy Findings: Autopsy demonstrated pink discoloration of tissues and organs as well as marked pulmonary edema. Postmortem iliac vein blood cyanide 46 mg/L. Cause of Death: cyanide toxicity. Manner of Death: suicide.

Case 218. Acute cyanide ingestion: undoubtedly responsible

Scenario/Substances: A 26 y/o male informed a bystander that he ingested cyanide to kill himself. He was found unresponsive and not breathing in his car with a vial containing white powder near him. EMS began CPR and administered hydroxocobalamin and thiosulfate.

Laboratory/Diagnostic Findings: Lactate 17.1 mmol/L initially then 6.3 mmol/L 6 h later. ABG-pH 7.17/ pCO₂ 22.5/ pO₂ 171/ HCO₃ 16.4/ BE -6.

Clinical Course: In the ED he was intubated, and hypotension responded to 3 vasopressors. He was transferred to tertiary care center. He received activated charcoal and WBI was initiated. After a second dose of hydroxocobalamin he was stable on 2 vasopressors. At that time had a lactate of 17.1 mmol/L and ABG-pH of 7.1. He was placed on a sodium bicarbonate infusion and pH and lactate improved. He had no brainstem reflexes, and he was declared brain dead. He was declined for donation because tissue cyanide concentration could not be provided, and he died on Day 2.

Autopsy Findings: Antemortem hospital blood: cyanide 6.6 mcg/ml.

Case 222. Acute sodium nitrate ingestion: undoubtedly responsible

Scenario/Substances: A 27 y/o male was found blue and unresponsive 45 minutes after ingesting an unknown amount of sodium nitrate for self-harm. EMS intubated the patient enroute to the ED and administered IVF.

Past Medical History: Depression, prior suicidal ideation.

Physical Exam: BP 67/44, HR 119, SpO₂ 86%

Laboratory/Diagnostic Findings: Na 135 / K 3.7 / Cl 104 / CO₂ 22 / BUN 19 / Cr 0.99 / Glu 86 / AG 9, WBC 7.6 / Hgb 15.6 / Hct 44.2 / Plt 214, AST 17, ALT 21, lactate 12 mmol/L. ABG-pH 7.18, HCO₂ 16. UDS positive for THC.

Clinical Course: Shortly after presentation to the ED, the patient suffered a cardiac arrest and received ACLS measures for one hour including epinephrine, methylene blue and sodium bicarbonate. Based on the prognosis, the family opted for institution of comfort measures, and he died shortly after.

Autopsy Findings: Blood nitrates and nitrites were 2400 microM and MetHgb was 1.9%. Cause of Death: sodium nitrate toxicity. Manner of Death: suicide.

Case 223. Acute sodium nitrate: undoubtedly responsible

Scenario/Substances: A 28 y/o 47 kg female was found by her parents vomiting and dizzy, then becoming less responsive, with a bag of white powder next to her labeled as "fertilizer." Paramedics found her unresponsive and apneic; she was intubated enroute to hospital. Subsequent information indicated possible access to ketorolac, metformin, naltrexone, prednisone, and nicotinamide. Police investigation reported finding a syringe with yellow fluid in it and a scale and bowl, as well as a computer search history on the use of sodium nitrate for suicide.

Past Medical History: Anxiety, depression. Home medications: diazepam and venlafaxine.

Physical Exam: Unresponsive. BP 60s/30s.

Laboratory/Diagnostic Findings: CO₂ 10.2, lactate 10.8 mmol/L, LFTs unremarkable, WBC 11.8 / Hgb 11.8 / Hct 37.2% / Plt 263, MetHgb >30%, COHb 2.8%. Serum APAP, ethanol and salicylate not detected. UDS was positive for benzodiazepines. ECG: HR 140-150s, QTc 0.451, few PVCs.

Clinical Course: Initial hypotension was managed with IVF, norepinephrine, and vasopressin infusions. The blood appeared "dark muddy brown" when drawn. Methylene blue 1 mg/kg x 2 and ascorbic acid 1,500 mg were given intravenously. ~1-2 h later, the patient began shaking and developed clonus. Midazolam and lorazepam were administered, with serotonin syndrome a likely complication. There was concern regarding polymorphic VT vs artifact on telemetry, and she received magnesium and calcium. Following a third dose of methylene blue within 6 h of admission, MetHgb had declined to 3%. A head CT was unremarkable; continuous EEG was without evidence of seizure activity. Pressor agents and oxygen supplementation were tapered on Day 1. A peak temperature of 37.9°C was noted on Day 2. Tremors resolved. The patient remained unresponsive; MRI demonstrated 4th ventricular collapse and cerebellar edema. Based on the prognosis, the family opted for institution of comfort measures, and she died on Day 5.

Autopsy Findings: Not performed. LC-MS/MS analysis of antemortem blood drawn ~3 h after being found: alprazolam 8.5 ng/mL, lorazepam 45 ng/mL, and olanzapine 10 ng/mL (all low therapeutic range).

Case 233. Acute hydrochloric acid ingestion, amphetamine and marijuana: undoubtedly responsible

Scenario/Substances: A 40 y/o male ingested ~1 glass full of muriatic acid at a home improvement store in a suicidal attempt. EMS removed patient's clothes and decontaminated with full body irrigation. He was speaking full sentences, airway intact, and no burns noted around the airway, but he complained of throat pain. Enroute to the ED: BP 110/58, HR 88, O₂ sat 92%.

Past Medical History: Hepatitis C, methamphetamine abuse.

Physical Exam: Alert, oriented and oropharynx appears non-erythematous, no blisters, although possible blistering on the lips. Tongue and oropharynx were covered in white film/mucous. Breath sounds diminished throughout all fields. He had excessive salivation and was agitated. HR 69, RR 13, T 36.6, O₂ sat 100%.

Laboratory/Diagnostic Findings: Na 135 / K 4.3 / Cl 101 / CO₂ 17 / BUN 33 / Cr 1.04 / Glu 142 / AG 17, Ca 9.3, AST 1137 / ALT 421 / ALP 80 / bilirubin 2.3, lactate 2.0 mmol/L, Osm 296, OG 6, troponin 27, WBC 9.2 / Hgb 16.5 / HCT 48.5 / Platelet 113, UA: red color, cloudy, WBC 11-20, RBC 5-21, mucus and bacteria present, moderate hyaline cast, ABG-pH 7.03 / pCO₂ 38 / pO₂ 488 / HCO₃ 10 / O₂ sat 100% on FiO₂ 1.0. Serum APAP, ethanol, and salicylate not detected. UDS positive for amphetamines, opiates, and THC. GS/MS positive: amphetamine, APAP, caffeine, cotinine, methamphetamine, morphine, nicotine. EG 10 mg/dL (false positive), acetone, ethanol, isopropanol, methanol not detected. EKG: NSR 76, QRS 87, QTc 405. EGD: Diffuse severe mucosal changes characterized by black discoloration and inflammation found in the entire esophagus. Necrotic appearing esophagus. CT Chest/Abd/Pelvis showed a fluid distended esophagus, faint ground glass opacities in the posterior aspect of the right upper lobe, prominent diffuse wall thickening ascending colon, possible mild wall thickening in the transverse colon consistent with colitis, small free fluid in the abdomen/pelvis, and a flattened appearance of the IVC. CxR: No pneumothorax, lungs and pleural spaces are clear.

Clinical Course: Day 1 he was intubated for airway protection, transferred to the ICU and shortly after arrival, became hypotensive and coded. Fluid resuscitated initiated with NS. Arterial and central lines inserted, and vasopressors initiated. He was acidotic and given multiple doses of sodium bicarbonate and calcium. Sodium bicarbonate and LR were infused. K 7.8, unremarkable QRS. Patient was on antibiotics, fentanyl, midazolam, ondansetron, pantoprazole, phenylephrine, propofol, bicarb drip and vasopressin. K 5.8 / Cl 114 / CO₂ 17 / BUN 37 / Cr 1.55 / Glu 482, Ca 11.6, AST 677, ALT 229, albumin 1.5, bilirubin 4.9, WBC 11.1 / Hgb 9.0 / HCT 26.8 / Plt 39, PT 29.2, INR 2.6, CK 5396 and lactate 9.8 mmol/L. ~2h later the patient decompensated and went into PEA arrest. He received several rounds of CPR with ROSC but remained severely hypotensive and acidotic. Given additional IVF and sodium bicarbonate. K was 8.3 and given insulin, D50W and more calcium chloride. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 1.

Autopsy Findings: Cause of Death: muriatic acid toxicity. Manner of Death: suicide.

Case 265. Acute-on-chronic fluorinated hydrocarbon/isopropanol cleaner, cocaine, and nitrous oxide inhalation: undoubtedly responsible

Scenario/Substances: A 27 y/o male developed tingling, numbness, and cramping to his upper and lower extremities after huffing nitrous oxide and refrigerant-based propellant cleaner. He was brought to the ED by private vehicle.

Past Medical History: Huffing, vaped nicotine, occasional beer.

Physical Exam: Anxious, alert, oriented. BP 146/103, HR 170, RR 30, O₂ sat 100% on room air,

Laboratory/Diagnostic Findings: Na 137 / K 4 / Cl 87 / CO₂ 19 / BUN 14 / Cr 3 / Glu 216 / AG 31, Ca 7.8, CPK 304. ECG: Sinus tachycardia; intervals not reported.

Clinical Course: In the ED, he was given lorazepam, ondansetron, and IVF. Two hours after arrival he started convulsing as he was being admitted. He went into respiratory and then cardiac arrest 10 minutes later; CPR was initiated. ROSC was achieved briefly but he coded again. ACLS measures were performed for nearly 1 hour. He was pronounced dead 3 h after arrival to the ED.

Autopsy Findings: Toxicology: 1,1-Difluoroethane 30 mcg/mL, benzoylcgonine 110 ng/mL. Cause of Death: acute 1,1-difluoroethane toxicity with other significant conditions of cocaine abuse. Manner of Death: accident.

Case 272. Acute sodium hydroxide/sodium hypochlorite ingestion: undoubtedly responsible

Scenario/Substances: A 56 y/o female ingested a half bottle of drain clog cleaning gel. She was minimally responsive when found at home with a suicide note and vomit around mouth.

Past Medical History: Hypertension, depression, anxiety, prior suicide attempts, s/p Roux-en-Y gastric bypass for obesity.

Physical Exam: BP 120/65, HR 120-130s, RR 20.

Laboratory/Diagnostic Findings: Na 149 / K 3.7 / CO₂ 19 / Cr 1.29 / Glu 300s, lactate 8 mmol/L, VBG-pH 7.31 / pCO₂ 41. Serum APAP, ethanol and salicylate not detected. EKG: rate 107, QRS 76, QTc 440. Abdominal CT showed moderate perigastric edema, moderate edema involving jejunum and proximal ileum, and mild gastric and small bowel extension. CxR: diffuse bilateral multilobar air spaces.

Clinical Course: She arrived in the ED dyspneic and hypoxic requiring BiPAP and was intubated and sedated on propofol. She was started on prophylactic antimicrobials. She was transferred to a tertiary care center for EGD, which found grade 1-2 caustic esophagitis. Overnight she developed severe hypotension despite norepinephrine, phenylephrine, vasopressin but responded to a dose of methylene blue. Echocardiogram showed a hyperdynamic heart. On Day 2 Na 154 and was placed on D5W and sodium bicarbonate infusion. Paralytic was stopped on Day 3. A repeat CT showed fluid filled small bowel consistent with enteritis and caustic injury. She developed oliguria with Cr to 2.7 and she was started on TPN. She became hemodynamically stable, laboratory improved and on Day 9 she was transitioned to tube feeding. On Day 10 she developed hypotension, a rising white count; repeat CT showed mediastinal free air and EGD revealed circumferential esophageal necrosis. Based on the prognosis, the family opted for institution of comfort measures, and she died on Day 10.

Autopsy Findings: Cause of Death: complications of caustic ingestion.

Case 283. Acute laundry detergent pod ingestion and aspiration: undoubtedly responsible

Scenario/Substances: An 85 y/o female accidentally ate a laundry detergent pod which she mistook for candy. She was initially fine but 2h later she vomited, aspirated and became profoundly encephalopathic.

Past Medical History: Undiagnosed dementia, cognitive impairment.

Physical Exam: O₂ sat 60%.

Laboratory/Diagnostic Findings: CXR: bilateral aspiration pneumonia.

Clinical Course: She arrived to the ED in respiratory failure and was placed on BIPAP, but the tubing was disconnected for 12 min without oxygen flow. She was intubated, sedated on midazolam, placed on ARDS protocol, and admitted to the ICU. She was pale on arrival to the unit. Lactate 7.0 mmol/L, pH 6.9 and she was started on a sodium bicarbonate infusion. She became hypotensive and required multiple vasopressors before going into PEA arrest. She received 3 rounds of CPR before achieving ROSC. She coded again 2 h later and was unable to be oxygenated. She died about 14 h after ingestion.

Autopsy Findings: Not performed.

Case 284. Acute ammonia cleaner and antiplatelet drug ingestion, COVID-19 (confirmed): undoubtedly responsible

Scenario/Substances: An 86 y/o male ingested an ammonia all-purpose cleaner was found down at home by his daughter covered in feces and altered with reduced respirations.

Past Medical History: Dementia and CAD. Home medications: donepezil, carvedilol, nitroglycerin, atorvastatin.

Physical Exam: Intubated and sedated. Bloody sputum and blood per rectum, PERRLA. BP 121/95, HR 117, RR 14, O₂ sat 100% on 30% FIO₂, T 35.2°C.

Laboratory/Diagnostic Findings: Na 132 / K 4.4 / Cl 104 / CO₂ 15 / BUN 28 / Cr 1.5 / Glu 168 / AG 13, lactate 2.3 mmol/L, AST 60, ALT 32. INR 1.2, WBC 10.7 / Hgb 13.4 / Hct 40.9 / Plt 125, VBG-pH 7.4 / pCO₂ 45 / pO₂ 132 / HCO₃ 30 / BE 4.6. Serum APAP, ethanol, and salicylate not detected. UDS negative. CT abdomen/pelvis/chest: mucosal burns in GI tract from top to bottom. EGD: Extensive ulceration and necrosis of esophagus, stomach, and duodenum. ECG: sinus tachycardia, no ectopy. COVID-19 positive.

Clinical Course: He was minimally responsive in the ED so was sedated with propofol and fentanyl, intubated and ventilated. IVF and norepinephrine were started for hypotension. Blood products were administered for rectal bleeding. He was admitted to the ICU where blood was repeatedly suctioned from his NG tube and a proton pump inhibitor infusion was started. Day 2 imaging (CT and EGD) demonstrated significant corrosive injury to esophagus, stomach, and duodenum. Esophagectomy was considered but not performed. Over the next 3 weeks he remained intubated and sedated and his Hgb continued to drop requiring transfusions. He developed worsening acidosis, electrolyte abnormalities, and his transaminases and bilirubin started to rise with 3+ pitting edema in extremities. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 21.

Autopsy Findings: Autopsy not performed. Cause of Death: GI hemorrhage, esophageal necrosis, acute respiratory failure with hypoxia and poisoning by aromatic ammonia spirits. Contributing Factors: Covid-19, ingestion of caustic substance, septic shock, non-traumatic acute kidney injury. Manner of Death: accidental.

Case 285. Hand sanitizer (methanol) ingestion: undoubtedly responsible

Scenario/Substances: A 16 y/o male broke up with his girlfriend. The next day he developed abdominal pain and vomiting lasting for 2 days and altered mental status after a syncopal episode where he fell and hit his head. He was transported to the ED.

Physical Exam: GCS 3, bradycardic, hypotensive, and bradypneic. Orogastric tube with blood in it, pupils fixed and dilated.

Laboratory/Diagnostic Findings: K 5.2 / Glu 200 / Cr 2.5 / AG 40, ABG-pH 6.7 / pCO₂ 24 / pO₂ 105, Osm 390, OG 90, methanol 160 mg/dL, EG negative. Serum APAP and salicylate not detected, Fe 80, UDS

negative. EKG: NSR. MRI: bilateral diffuse hemorrhagic necrosis of putamen, caudate, diffuse white matter edema.

Clinical Course: In the ED, the patient was intubated and alkalization, IVF, fomepizole, D50W with insulin initiated. He was transferred to a tertiary care center. In the PICU, his pupils were slightly reactive and he had a little bit of movement on propofol with PRN fentanyl. Possible posturing, non-purposeful movements, some tremors, and febrile. BP 172/86, HR 134, RR 18, O₂ sat 97% on FIO₂ 21%, T 37.7°C. Fomepizole continued. HD held pending family decision. MRI on Day 3 showed bilateral putamen and caudate necrosis c/w MeOH exposure. Family discussed palliative care. Both the brother and patient had been ingesting hand sanitizer. It is unclear if this was acute or chronic. On Day 5, methanol 10, no longer on fomepizole, on norepinephrine. Minimal brain activity noted and the patient died on Day 7.

Autopsy Findings: Cause of Death: complications of acute methanol toxicity. Manner of Death: accident.

Case 286. Acute hand sanitizer (methanol) ingestion and COVID-19: undoubtedly responsible

Scenario/Substances: A 31 y/o male was found unresponsive at home by family who had seen him drinking hand sanitizer.

Past Medical History: Depression, ethanol abuse, polysubstance abuse, methadone OD.

Physical Exam: Hypothermic, GCS 4, hypotensive.

Laboratory/Diagnostic Findings: Bicarb <5, AG 21.5, lactate 11. ABG-pH 6.9 / CO₂ 38. Repeat ABG-pH 7.34 / pCO₂ 29 / pO₂ 82 / HCO₃ 16 / O₂ sat 95%, Na 145 / K 3.3 / Cl 110 / CO₂ 17 / BUN 14 / Cr 1.84 / Glu 95 / AG 18, sOsm 468, AST 220, ALT 69, Alk pho 59, PT 12.6, INR 1.1. Ethanol and EG not detected; methanol 474 mg/dL. EKG: QRS 88, QTc 453. CxR: Perihilar and left basilar airspace opacities could represent pulmonary edema or pneumonia. Probable small left pleural effusion. Head CT: negative. COVID positive.

Clinical Course: In the ED, the patient was intubated, placed on norepinephrine, vasopressin, and epinephrine and was transferred to tertiary care center. On Day 1 in the ICU he remained intubated on vasopressors, fomepizole, thiamine and folic acid. BP 119/69, HR 104.0, RR 30, O₂ sat 100% on FIO₂ 60%. On antibiotics for possible pneumonia, steroids, fomepizole, calcium, thiamine, folic acid, and electrolyte replacement. On Day 2 CRRT was initiated as u/o declined and he remained on 3 vasopressors for hypotension. Na 146, K 3.4, Cl 111, CO₂ 21, BUN 11, Cr 1.16, Glu 167, AG 14, Osm 446, OG 141, AST 326, ALT 88, lactate 2.6. Repeat COVID negative. Head CT c/w severe cerebral edema with suspected uncal herniation. On Day 3 he remained intubated, no sedation, and dilated pupils, on norepinephrine, vasopressin, levetiracetam, fomepizole and CRRT. EEG indicated electrocerebral silence. Brain flow studies showed absent flow and patient was pronounced brain dead.

Autopsy Findings: Not available.

Case 294. Acute aniline ingestion and carbon monoxide inhalation: probably responsible

Scenario/Substances: A 65 y/o male worked in a laboratory with access to chemicals. His son found him slumped down next to his running truck after drinking aniline and smoking a cigar.

Physical Exam: Unresponsive with grey skin color. Blood was chocolate-colored. BP 120/58, HR 120, RR 20, O₂ sat 91%.

Laboratory/Diagnostic Findings: MetHgb 31.7%. COHb was above the limits of lab detection.

Clinical Course: An initial dose of methylene blue was given without effect on MetHgb levels. A second dose was administered 3 h

post arrival in the ED, and the MetHgb was 20.6%. The patient developed cardiopulmonary arrest and died.

Autopsy Findings: Not available.

Case 295. Acute carbon monoxide (smoke) inhalation: undoubtedly responsible

Scenario/Substances: A 2 y/o female presented in cardiac arrest after a house fire with smoke inhalation. Downtime ~6 minutes.

Physical Exam: Intubated, normocephalic, atraumatic, dry mucous membranes, tachycardic, regular rhythm, coarse breath sounds bilaterally, abdomen soft. BP 119/61, HR 145, RR 42, O₂ sat 97% on the ventilator, T 35.9°C.

Laboratory/Diagnostic Findings: Na 140 / K 4.6 / Cl 100 / CO₂ 7 / BUN 11 / Cr 0.91 / Glu 430 / AG 33, WBC 19 / Hgb 10 / Plt 357, VBG-pH <7.00 / pCO₂ 79, COHb 41.4%, lactate 1.6 mmol/L, CxR unremarkable, ECG NSR.

Clinical Course: She received epinephrine x 2, was intubated, given a bolus of crystalloid and hydroxocobalamin 35mg/kg with ROSC. She was transferred to a hyperbaric center; however, she was judged too unstable for therapy. After an initial period of stable vital signs, the patient began to develop hypoxic episodes, B lines on ultrasound, and coarse breath sounds. ARDS from thermal injury was suspected. She had episodes of seizures, ultimately culminating in status epilepticus. She was loaded with fosphenytoin and phenobarbital. She developed progressive neurologic deterioration and episodes of desaturation on the ventilator. She had recurrent episodes of cardiac arrest and died on Day 2.

Autopsy Findings: Not available.

Case 346. Acute hydrogen sulfide inhalation: undoubtedly responsible

Scenario/Substances: A 39 y/o male sewer systems inspector entered a manhole (previously tested negative for toxic gases) without personal protection/respirator. He had coughing and vomiting on site and collapsed within 10-15 seconds. Upon EMS arrival, hydrogen sulfide meter was "maxed out" and ~5 min were required to extract him from the manhole. He was intubated and CPR initiated. Patient was given 2 doses of epinephrine and 1 amp of sodium bicarbonate on scene. Pt only had one shockable rhythm for EMS, otherwise was in PEA. Patient was then transferred to a tertiary care center.

Laboratory/Diagnostic Findings: Na 140/ Cl 108/ HCO₃ 10/ AG 27, Cr 1.72, ionized Ca 1.92, Glu 428, lactate 15.48 mmol/L Hgb 11.1/ Hct 33, troponin < 0.03, AST 60, ALT 49, bilirubin 0.5, D-Dimer 1.61. ABG-pH 6.99/ PCO₂ 37/ PO₂ 94/ HCO₃ 9.

Clinical Course: In the ED he was unresponsive, pulseless, cyanotic, vomitus near mouth, pupils fixed and dilated. He continued to be bagged and CPR was provided by a chest compression machine. Cardiac monitoring revealed a narrow-complex tachycardia with PEA. On further evaluation, patient had near complete electromechanical dissociation with only cardiac twitching and continued PEA. Resuscitative efforts continued for 2 hours until he was found to have cardiac standstill and asystole. Medications given in the ED included: sodium nitrite, calcium chloride, epinephrine, vasopressin, methylprednisolone, epinephrine, and vasopressin infusions.

Autopsy Findings: Exposed to high levels of hydrogen sulfide gas. He entered manhole without respirator and collapsed within 10-15 seconds. Ambient H₂S after retrieval of decedent, 19.9 ppm. Anatomic Findings: Lungs with bilateral foamy exudate; abrasions and contusions on left elbow; s/p resuscitation; and s/p tissue donation. Postmortem subclavian blood (11 h post time of death): thio-sulfate 1.9 mcg/mL, caffeine, cotinine.

Case 351. Acute carbon monoxide (smoke) inhalation: undoubtedly responsible

Scenario/Substances: A 42 y/o male and 2 children were rescued from a methamphetamine production house fully engulfed in flames. CPR was started at the scene and he was transported to the ED

Physical Exam: No pulse, no heartbeat; pupils constricted and fixed bilaterally; soot all over the body and intraorally.

Laboratory/Diagnostic Findings: Na 148/ K 5.3/ Cl 108/ HCO₃ 6, AST 141, ALT 121, Bilirubin 0.7, Glu 308, BUN 11, Cr 1.22, lactate 14.7 mmol/L, WBC 13.5, polys 4% lymphocytes 85%, monocytes 11%, Hgb 16.3, Plt 143, COHb 55.8%, During resuscitation VBG-pH 6.54/ pCO₂ 76/ pO₂ 35. CXR: no consolidation.

Clinical Course: He was in cardiac arrest upon arrival to the ED. The supraglottic airway was replaced by an endotracheal tube. Smoke inhalation injury was evident. After ~1 hour of resuscitation attempt, with no pulse, hydroxocobalamin from another facility, was administered and ROSC was achieved. Five liters of NS, multiple boluses of bicarbonate, epinephrine, D50W and insulin (for elevated serum K), and albuterol inhalation were given. The patient was placed on a ventilator. Blood pressure immediately after ROSC was 70/40 and epi and nor-epi infusions were begun. HR was in the 130s. Systolic blood pressure rose to 170, and pressors were discontinued. An orogastric tube returned bright red blood. Cooling was begun with ice packs, and he was transferred to a tertiary care center 3 h after rescue. He was intubated and ventilated without sedation. COHb 9.6%, pH 7.2, pCO₂ 45, pO₂ 474, HCO₃ 17.1; lactate 6.2 mmol/L, INR 2, fibrinogen <60. Cerebral herniation was judged to be underway and head CT showed it was complete. Based on the prognosis, the family opted for institution of comfort measures, and he died ~37 h after rescue from the fire.

Autopsy Findings: Not performed.

Case 446. Acute magnesium and ibuprofen ingestion: undoubtedly responsible

Scenario/Substances: A 34 y/o male was found unresponsive in a public bathroom of a suspected suicidal overdose. Empty bottles of magnesium and ibuprofen were at the scene. EMS administered naloxone without response.

Physical Exam: Unresponsive with non-reactive 8 mm pupils. BP 71/36, HR 67, RR 14, T 30.6°C.

Laboratory/Diagnostic Findings: Na 131 / K 3.6 / Cl 92 / CO₂ 19 / Cr 1.5 / Glu 267 / AG 20, lipase 120, CPK 102, ABG-pH 7.19 / pCO₂ 56 / pO₂ 199 / HCO₃ 21.6, Mg 9.9, lactate 7.4 mmol/L. Serum APAP, ethanol and salicylate not detected. ECG: QRS 132, QTc 507. He was negative for COVID.

Clinical Course: He was intubated and placed on a ventilator for airway protection and re-warmed. He received fluids, furosemide, calcium chloride and multiple vasopressors. He was admitted to the ICU and Nephrology was consulted for immediate HD. In the ICU, patient was found too unstable for HD or VA-ECMO. CRRT was started instead. He received methylene blue for blood pressure support. Mg 4.5, Cr 2.5, and lactate 9.1 mmol/L. On Day 2, he was on five vasopressors. He developed an ileus and ischemic bowel was suspected. Exploratory laparotomy was negative. On Day 3, he developed DIC with PTT > 50 and platelets 41. Additionally, patient had ecchymoses and blood in NG tube. He received blood products. On Day 4, increased abdominal pressure was noted, lactate > 10 mmol/L and ischemic bowel was again suspected. Patient suffered a cardiac arrest and died.

Autopsy Findings: Toxicology on antemortem blood: ibuprofen 490 mcg/mL (therapeutic 17-36 mcg/mL). Cause of Death: complications following acute intoxication due to the combined effects of ibuprofen and magnesium. Manner of Death: suicide.

Case 449. Chronic copper inhalation: contributory

Scenario/Substances: A 70 y/o male came into the ED with c/o fatigue, weakness, confusion, and lethargy. His initial labs showed hemolytic anemia (anemia, elevated LDH, low haptoglobin), hepatic dysfunction, coagulopathies, and elevated Ca requiring treatment with calcitonin. He also received ursodiol for cholelithiasis. Over the next week his neuro status did not improve. He had worked as a welder for many years (and was still actively working as a welder until this illness) and so heavy metal poisoning was suspected. Copper, lead, arsenic, mercury, zinc, and cadmium levels were sent. Seven days later the copper level returned elevated.

Past Medical History: Cirrhosis (unrelated to ethanol), hyperparathyroidism, DM Type 2.

Physical Exam: On Day 8, drowsy and confused. BP 153/92, HR 96, RR 16, O₂ sat 92% on RA.

Laboratory/Diagnostic Findings: Day 1: AST 360, ALT 103, bilirubin 1.5, LDH 1712, INR 1.1, Hgb 11.6 / Hct 34.2; Day 2: CPK 109, Hgb 8.4, ceruloplasmin 51 mg/dL (range 16-31); Day 8: Na 142 / K 4.5 / CO₂ 29 / BUN 76 / Cr 1.74, AST 37, ALT 32, bilirubin 0.8, haptoglobin < 10 mg/dL, ammonia 25 mcmol/L, ceruloplasmin 55 mg/dL, Hgb 9.1 / Hct 27.6, INR 1.3; Copper level (Day 2) 227 mcg/dL (range 69-130).

Clinical Course: He was admitted to pulmonary ICU. On Day 14, he was lethargic and moaned when touched. BP 167/74, HR 67. Over a few days he was given 6 units of blood, 3 units of platelets, and started on tube feedings. Cr 2.5, AST 40 / ALT 32, ammonia 25 mcmol/L. On Day 15 he was still confused. BP 174/65, HR 65, O₂ sat 97% on 4L O₂. Cr 3.57, AST 46 / ALT 94. Day 4 heavy metal screen was negative for arsenic, mercury, zinc, and cadmium. Plasmapheresis was started Day 15. On Day 16 he received 1-unit PRBC, had HD and plasmapheresis. On Day 17, copper 266 mcg/dL (Day 12), Fe 135 (Day 12), ferritin > 100,000 ng/mL at peak was 1974 ng/mL on Day 13, folate 19.9 ng/mL, lead < 1 mcg/dL (Day 15). His condition remained unchanged with continuing hemolytic anemia on plasmapheresis and HD. On Day 18, he was talking more with a strong cough and continued on HD and plasmapheresis. On Day 20, his Hgb was 6.1 for which he received 2 units of PRBCs and 2 units of plasma along with plasmapheresis. On Day 21, he was unresponsive with miosis, and his respiratory status declined. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 22. The preexisting contributing illnesses included cirrhosis, hyperparathyroidism, and type 2 DM.

Autopsy Findings: Not available.

Case 456. Acute-on-chronic fluorinated hydrocarbon inhalation: undoubtedly responsible

Scenario/Substances: A 37 y/o male huffed 8-10 cannisters of an unknown refrigerant-based propellant cleaner as he had every day for past 2 weeks. He presented to the ED 1 h later.

Past Medical History: Refrigerant-based propellant cleaner inhalation abuse and ethanol abuse

Physical Exam: Flushed, tachypneic, foaming at the mouth, BP 183/123, HR 157, RR 30, O₂ sat 88% on room air then 100% on NRB.

Laboratory/Diagnostic Findings: Na 142 / K 4.5 / Cl 108 / CO₂ 15 / BUN 15 / Cr 1.88 / Glu 305 / AG 19, lactate 9.3 mmol/L, Mg 0.3, Ca 3, AST 183, ALT 97. Serum APAP, ethanol and salicylate not detected. UDS was negative. ECG: acute MI, ST elevation with RBBB, unstable rhythm, HR 159, QRS 166, QTc 412.

Clinical Course: In the ED he reported he had never experienced symptoms like this previously when huffing. ~3 h later, patient became hypotensive (SBP 49/19) and then asystolic for 8 seconds. Patient was given magnesium, thiamine, folate, and sodium bicarbonate and was intubated. He arrested several more times and could not be resuscitated.

Autopsy Findings: Anatomical Findings: left ventricular hypertrophy; pulmonary congestion and edema; congestive hepatomegaly with hepatic steatosis; and cerebral edema. Cause of Death: 1,1-difluoroethane toxicity (blood level 2.1 mcg/mL) due to inhalation of propellant cleaner.

Case 464. Acute diesel fuel ingestion: probably responsible

Scenario/Substances: A 14 m/o male ingested ~15 mL of diesel fuel. His parents found him foaming at the mouth. He had a cardiac arrest on the way to the ED and was resuscitated by EMS.

Past Medical History: Normally developed, healthy child.

Physical Exam: BP 38/23, HR 168, O₂ sat 82% intubated on 100% FiO₂ on oscillator

Laboratory/Diagnostic Findings: Na 151 / K 2.8 / Cl 110 / CO₂ 20 / BUN 21 / Cr 0.6 / Glu 152 / AG 21, lactate 6.4 mmol/L, AST 76, ALT 9, bilirubin 0.4, WBC 3.8 / Hgb 9 / Hct 26.6 / Plt 183. ABG-pH 7.28 / pCO₂ 51 / pO₂ 65 / HCO₃ 24 / BE -2.7. CxR: complete white out.

Clinical Course: On ED arrival, he was intubated and started on vasopressors, IVF, calcium, and bicarbonate. He was transferred to a tertiary care center and started on ECMO. He was later placed on cooling measures. On Day 5, EEG was consistent with severe profound cerebral dysfunction. CT of the brain showed brain bleed with poor prognosis. On Day 7, patient was unresponsive, but his parents wanted to continue with treatment. The child developed poor perfusion, refractory hypotension, and multisystem organ failure despite full ECMO support. On Day 10, care was withdrawn, and the patient died.

Autopsy Findings: Not available.

Case 475. Acute Amanita phalloides ingestion: probably responsible

Scenario/Substance: A 33 y/o female developed abdominal pain, nausea, and vomiting soon after ingesting a white mushroom that she found on the side of a trail. She presented to the ED.

Past Medical History: Polysubstance abuse, methamphetamine use (3 days prior).

Physical Exam: Awake and in mild distress, tender abdomen. BP 116/67, HR 86, RR 16, O₂ sat 98% on RA, Temp 36.3°C.

Laboratory/Diagnostic Findings: Na 139 / K 5.4 / Cl 110 / CO₂ 21 / BUN 22 / Cr 0.6 / Glu 63, AST 140, ALT 79, bilirubin 0.5, INR 3 (Day 2), WBC 8.8 / Hgb 13.5 / Hct 41.7 / Plt 463. Serum APAP, ethanol and salicylate not detected. CxR: unremarkable. CT abdomen and pelvis c/w enteritis.

Clinical Course: In the ED, she had intractable vomiting despite the administration of IVF and antiemetics. Mildly elevated LFTs were noted. She was admitted for further evaluation on IVF and antiemetics. On Day 2, AST 15,000, ALT 9,000, INR 8.6 and elevated bilirubin. She was started on NAC, cimetidine, vitamin C, lactulose, vitamin K and FFP. Ammonia became elevated and she was transferred to the ICU for altered mental status and encephalopathy. She was then transferred to a liver transplant unit where she continued to be altered and confused. Her condition continued to deteriorate, and she was started on CRRT. She was determined to not be a liver transplant candidate, was made DNR, and died on Day 14.

Autopsy Findings: Not available.

Case 489. Acute paraquat ingestion: undoubtedly responsible

Scenario/Substances: A 29 y/o male intentionally ingested "an inch" of paraquat in a suicide attempt 3 days prior to presentation.

Past Medical History: Bipolar disorder, schizophrenia.

Physical Exam: No apparent distress, erythema/ulceration of the posterior oropharynx, tongue/uvula midline, tolerating secretions, speaking clearly, tachycardic, bilateral breath sounds, no crackles, no respiratory distress, good inspiratory effort, abdomen soft and non-tender, skin warm and dry, alert, and oriented.

Laboratory/Diagnostic Findings: Na 129 / K 3.7 / Cl 88 / CO₂ 25 / Glu 107, BUN 50 / Cr 4.5, Ca 9.5, WBC 14.5 to 18.4, LFTs unremarkable, VBG-pH 7.46, lactate 2 mmol/L. Serum APAP and salicylate not detected.

Clinical Course: He presented to a hospital in Guyana, received activated charcoal, left AMA and flew to the United States. Upon presentation to the ED, he reported some difficulty eating solid foods but denied stridor, drooling, voice changes, nausea, and vomiting. Intravenous dexamethasone, NAC, and ascorbic acid were given. The patient continued to decline, became sicker, and was offered to the ECMO team who declined. The patient continued to decline in the ICU. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 25.

Autopsy Findings: Not performed.

Case 492. Acute dinitrophenol and venlafaxine ingestion: undoubtedly responsible

Scenario/Substances: A 34 y/o female intentionally ingested 25, 125 mg dinitrophenol tablets and an unknown amount of venlafaxine. She presented to the ED with diaphoresis and vomiting.

Past Medical History: Depression, PTSD, migraine, GERD, smoking. Home Medications: venlafaxine, prazosin, mirtazapine, buspirone.

Physical Exam: Alert, "uncomfortable appearing." HR 160's, BP 110's, T 38.0°C

Laboratory/Diagnostic Findings: Na 138 / K 4.4 / Cl 106 / CO₂ 22.7 / BUN 13 / Cr 0.85 / Glu 324, AST 28 / ALT 21, VBG-pH 7.533 pCO₂ 26.9. Serum APAP and salicylate not detected.

Clinical Course: She was given intravenous fluids, ondansetron, and lorazepam and intubated using etomidate and rocuronium ~5.5 h after ingestion due to a rapidly rising temperature. A dose of activated charcoal was administered. After intubation, the patient rapidly became hyperthermic and had cardiac arrest within 15 minutes. Her temperature rose from 38.0°C to 39.4°C within 2 h of presentation and to 41.8°C near the time of death, ~3 h after presentation. Despite aggressive attempts with ACLS, ROSC was never achieved, and the patient died.

Autopsy Findings: Postmortem concentrations: dinitrophenol 14 mg/L, venlafaxine 610 ng/ml, O-desmethylvenlafaxine 1400 ng/ml.

Case 493. Acute malathion ingestion: undoubtedly responsible

Scenario/Substances: A 39 y/o female intentionally drank malathion in a suicide gesture. EMS identified the malathion and found the patient to be confused and drowsy, diaphoretic and having diarrhea.

Past Medical History: History of seizures, not on medications.

Physical Exam: GCS 8, drowsy, depressed mentation, diaphoretic, having diarrhea, tremulous. BP 164/130, HR 127, RR 25, O₂ sat 100% FiO₂ 40% on ventilator,

Laboratory/Diagnostic Findings: Na 138 / K 3.3 / CO₂ 17 / BUN 7 / Cr 0.67 / Glu 117 / lactate 4.5 mmol/L, AST 20, ALT 13, WBC 11 / Hgb 13.2 / Plt 198, ABG-pH 7.15 / pCO₂ 73 / pO₂ 38 / HCO₃ 25.4. Serum APAP and salicylate not detected. Ethanol 14mg/dL.

Clinical Course: She was intubated due to deteriorating respiratory function and sedated with midazolam. She was treated with 4mg IV atropine, 2-PAM, and additional benzodiazepines. She was thought

to have seizure like activity upon initial stabilization. She was admitted to the ICU with a 2-PAM infusion. During Day 1 initial sedation weaning began, however increased seizure like activity (vs fasciculations) were noted and levetiracetam was started as well as additional benzodiazepines. She became less responsive, with abnormal eye movements. She failed a trial of extubation on Day 2 and was intermittently agitated over the next two days, and eventually extubated on Day 5. She failed a swallow study. She was then diagnosed with aspiration pneumonia, increased secretions, fevers, worsening tachycardia, respiratory distress and was reintubated. She was treated with additional doses of atropine; aspiration was of concern due to left sided consolidation on CxR vs additional toxicity from hydrocarbon exposure in malathion product. Antibiotics were started however she developed septic shock on pressors as well as worsening hypoxia despite advancing ventilatory support. Based on the prognosis, he was made DNR and died on Day 19.

Autopsy Findings: Cause of Death: organophosphate (malathion) toxicity. Manner of Death: suicide.

Case 497. Acute diquat and glyphosate ingestion: probably responsible

Scenario/Substances: A 63 y/o male ingested 3 ounces of a concentrated weed and grass killer containing 2.1% diquat dibromide and 41% glyphosate in a self-harm attempt. Enroute to the ED, he vomited profusely.

Past Medical History: Crohn's disease, chronic abdominal pain, and hypertension. Home medications: Vitamin D, naproxen.

Physical Exam: Alert and oriented, but diaphoretic. BP 157/100, HR 99, RR 26, O₂ sat 97% on room air, T 36°C.

Laboratory/Diagnostic Findings: Na 140 / K 4 / Cl 103 / CO₂ 17 / BUN 16 / Cr 1.48 / Glu 98 / AG 24, AST 26, ALT 22, bilirubin 1.2, VBG-pH 7.34. Serum APAP, ethanol, and salicylate not detected. UDS was negative for barbiturates, benzodiazepines, opiates, oxycodone, THC, and amphetamines. ECG: NSR, HR 97, QRS 80, QTc 459.

Clinical Course: He was transferred to a tertiary care center and admitted to the ICU. He became restless and received lorazepam. He complained of a sore throat/throat burning and a dry mouth but was no longer diaphoretic. He received IVF and ~5 h from admission T 39.3°C, RR 30. Urine output 150 cc/8 h despite IV hydration. Later that day he became more altered, hypotensive, was intubated and started on fentanyl and midazolam drips. He received albumin and norepinephrine. Liver enzymes rose, lactate 4.7 mmol/L. He became anuric, Cr 3.48. HD was attempted but not tolerated. He subsequently required 4 vasopressors and a sodium bicarbonate drip. Day 2, pH 7.27, lactate 7 mmol/L. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 2.

Editor's Note: In Table 21 Listing of Fatal Nonpharmaceutical and Pharmaceutical Exposures, the substance is listed as glyphosate instead of diquat/glyphosate.

Autopsy Findings: Not available.

Case 509. Acute ibogaine ingestion: probably responsible

Scenario/Substances: A 36 y/o female took 4 grams of ibogaine and was found unresponsive by her spouse who initiated CPR. EMS gave 2 mg of naloxone without response and she was in PEA after 6 min of CPR. She was given epinephrine with ROSC.

Past Medical History: Polysubstance abuse, seizures, hypertension.

Physical Exam: BP 164/109, HR 111, RR 16, O₂ sat 98% on room air, T 36.4°C.

Laboratory/Diagnostic Findings: Na 136 / K 2.7 / Cl 101 / CO₂ 17 / BUN 14 / Cr 1.13 / Glu 232 / AG 18, AST 121, ALT 94, bilirubin 0.4, INR

1.1, WBC 9.7 / Hgb 13.2 / Hct 40.3 / Plt 346, troponin 10, lactate 7.15 mmol/L, ABG-pH 7.346 / pCO₂ 31.6 / pO₂ 92.9 / HCO₃ 16.9 / BE -7.5, UDS was positive for amphetamine, MDMA, benzos, and opiates. ECG: HR 110, QTc 544.

Clinical Course: In the ED she exhibited purposeful behavior but was not fully awake. She was intubated and sedated for airway protection. She was admitted to ICU, sedation held, but she was still not following commands. IVF started with magnesium, potassium, calcium and phosphate replacement. She was re-sedated and a cooling protocol initiated. Because of recurrent myoclonic posturing, she was started on levetiracetam and fosphenytoin. Day 2 she had a brief run of VF and was cardioverted. She had a run of VT, Torsades de Pointes arrest, given 2 rounds of CPR and started on lidocaine with no reoccurrence. On day 3 persistent hypertension was treated with nicardipine. On Day 4 antibiotics started for possible aspiration pneumonia. Patient was diaphoretic and had nystagmus. EEG showed hypoxic ischemic injury. She exhibited no signs of purposeful movement. On Day 15, based on the prognosis, the family opted for institution of comfort measures, and she died on Day 17.

Autopsy Findings: Not available.

Case 510. Acute ricin and acetone injection: undoubtedly responsible

Scenario/Substances: A 37 y/o male injected the extraction from 400 castor beans with acetone into his left biceps muscle in a suicide attempt. The next morning he developed respiratory difficulties, requested medical assistance, 911 was contacted and EMS brought him to the ED.

Past Medical History: IV drug abuse, depression, prior suicide attempts (>10), no allergies. Home medications: methadone, bupropion, hydroxyzine, mirtazapine, lamotrigine, and an albuterol inhaler.

Physical Exam: The injection site was bruised, painful, and erythematous. His whole torso was erythematous. He was hypoxic and complained of chest pain/discomfort and tightness with mild dyspnea. He was alert and oriented x4. BP 123/92, HR 101, RR 16, O₂ sat 84% on room air, T afebrile.

Laboratory/Diagnostic Findings: AST 156, ALT 98. Serum APAP, ethanol, and salicylate not detected. Volatile alcohol panel was negative, urine showed no ketones. ECG: unremarkable.

Clinical Course: In the ED his O₂ sat increased to 98% on nasal cannula. He had no GI symptoms. He was admitted to a medical floor where he remained awake, alert, oriented. He complained of right and left flank pain and developed tremors, and nausea. He received oxygen and IVF. On Day 3, the patient experienced twitching/tremors and became uncooperative. INR was 1.5, CK fell from 938 to 682. He received phytonadione and IVF. On Day 4, he remained awake and oriented, was eating and drinking with no issues. AST 497, ALT 191, INR 1.4, PLT 53, albumin 3.0, Ca 8.2, BNPT 281. Plasmapheresis was started. On Day 5 he appeared to improve, ALT 82, AST 162, INR 1.2. Day 6 he became agitated. He received dexmedetomidine, IVF, and plasmapheresis. On Day 7, MAP 57, HR 100, afebrile, he developed kidney and respiratory failure requiring intubation and ventilation. On Day 8, HR 82, BP 119/56 maintained by norepinephrine, CRRT was begun, he was paralyzed and sedated with midazolam and hydromorphone. On Day 11, Cr 3 and he still required vasopressors. The patient was transferred to palliative care and died on day 13.

Autopsy Findings: ME reported he had recently acquired numerous castor beans and processed them using acetone to extract ricin, injecting the resulting concoction into his arm. His respiratory and renal failure progressively worsened and expanded to include liver failure. He developed sepsis in addition to multisystem organ failure. Because patient had a long history of polysubstance abuse

that contributed to his overall poor health, this was considered a contributing factor to his death. Cause of Death: complications of ricin toxicity. Contributory Conditions: chronic polysubstance abuse. Manner of Death: suicide.

Case 511. Acute Sesbania vesicaria ingestion: undoubtedly responsible

Scenario/Substances: A 37 y/o male developed severe abdominal pain and 10 episodes of vomiting after ingesting 40 individual beans from a bagpod plant (*Sesbania vesicaria*) while on a bike ride ~2.5 h prior to ED presentation.

Physical Exam: Awake, vomiting, with severe abdominal pain.

Laboratory/Diagnostic Findings: Cr 1.4, AST 197, ALT 100, WBC 25.6.

Clinical Course: He was treated with IVF, ondansetron, and pantoprazole with improvement in his symptoms and was discharged after several hours of observation and resolution of vomiting. The following day he presented to his PCPs office with vomiting and diarrhea overnight. HR 110, SBP 60s. He was sent back to the ED where CK 12,000, K 6.1, Cr 3.4, WBC 23, AST 309, ALT 118. He was given an IVF bolus and started on sodium bicarbonate, insulin, and glucose for hyperkalemia and a norepinephrine drip for hypotension. IV NAC was started later that day. Albumin was added on Day 2. He continued to have diarrhea. Cr 2.9, BUN 44, K 5.1, AST 426, ALT 151, CK 17,000. Later that day, he became non-verbal and his O₂ sat dropped into the 80s. He was intubated and sedated with multiple sedatives. On Day 3, CRRT and plasmapheresis were started. He was also given methylene blue. On Day 4 he remained on vasopressors for pressure support. Lactate 13.1, INR 2.1, fibrinogen 173, Cr 3.4, AG 21, CO₂ 15, K 4.4. The patient died on Day 5.

Autopsy Findings: Coroner's Cause of Death: Refractory vasoplegic shock, cytokine storm, *Sesbania* ingestion with toxicity.

Case 512. Acute Taxus species ingestion: undoubtedly responsible

Scenario/Substances: A 38 y/o female picked yew leaves (needles) and chewed and swallowed 24 ounces (3 cups). She then called her mother, who called 911. EMS found her awake, pale, and complaining of generalized weakness. She verbally confirmed that she ingested yew in a suicide attempt and did not take other medications. She was bradycardic with weak pulse, IO access was established, and she received IO atropine. She lost consciousness, developed VF, was treated with cardioversion x 3, epinephrine IO, and amiodarone IO. Rhythm was then asystole and was treated with 2 additional doses of epinephrine IO.

Clinical Course: Code called in the field. Referred to ME.

Autopsy Findings: The patient reported no other ingestions, and no other products were found at the scene. There was a large pile of Yew leaves in the car. Taxine B present on toxicology, but not quantifiable. Cause of Death: most likely due to yew ingestion.

Case 513. Acute Nerium oleander ingestion: undoubtedly responsible

Scenario/Substances: A 59 y/o male ingested a "tea" made from plant leaves to treat his diabetes. ~20 minutes later he felt weak, laid down, then became nauseated and vomited. After he became less responsive, his family called EMS. EMS found him disoriented, slow to respond and he vomited again. The plant leaves and a sample of the tea were transported with the patient to the ED. This was the first time he had prepared and ingested this tea, and he was in his usual state of health prior to consuming the tea. IV lactated Ringers

was administered. BP 144/75, HR 133, R 20, O₂ sat 100%, T 36.1°C, Glu 269.

Past Medical History: Type 2DM, hypertension, permanent pacemaker. Home medications: metformin, lisinopril, hydrochlorothiazide-lisinopril.

Physical Exam: Well-developed and well-nourished, pupils 6 mm equal with minimal reactivity to light; mucus membranes moist, foaming secretions in oropharynx; tachycardic, regular rhythm; no respiratory distress, clear to auscultation, pacemaker in place over left chest wall; diaphoretic to head, chest wall; tracking movement, but not verbally interactive. BP 102/89, HR 152, RR 33, O₂ sat 98% on room air, T 35.9°C,

Laboratory/Diagnostic Findings: Na 134 / K 6.3 / Cl 97 / CO₂ 24 / BUN 16 / Cr 0.99 / Glu 253 / AG 13, lactate 2.4 mmol/L, AST 35, ALT 19, bilirubin 0.6, INR 1.2, ammonia 21 mcml/L, WBC 6.8 / Hgb 15.9 / Hct 47.7 / Plt 388, VBG-pH 7.49 / pCO₂ 44 / pO₂ 16 / HCO₃ 33 / BE 10.0. Serum APAP, ethanol, and salicylate not detected. Digoxin 1.2 ng/mL. CxR: no evidence of acute cardiopulmonary process. Right basilar atelectasis seen. Pacemaker unremarkable. ECG: HR 162, QRS 134, QTc 526.

Clinical Course: On arrival to the ED, he was administered magnesium, calcium gluconate, insulin, dextrose, zirconium cyclosilicate, ondansetron and IVF. There was concern that the leaves used to prepare the tea were oleander leaves, and 10 vials of digoxin immune FAB were given. The patient confirmed that he had ingested the tea to treat his diabetes. He continued to spit up thick oral secretions. ~50 minutes after arrival to the ED, the patient had a seizure, which resolved spontaneously. The patient then developed agonal respirations and became apneic and pulseless. CPR was started, epinephrine, sodium bicarbonate, and calcium gluconate were given, and the patient was intubated. Another 10 vials of digoxin immune FAB were administered. He developed VF and was defibrillated. He remained pulseless, and an ultrasound showed no cardiac activity. After consultation with his wife, resuscitative efforts were discontinued. The patient died ~3 h and 49 minutes after the ingestion. A photo of the plant leaves was identified as *Nerium oleander*.

Autopsy Findings: The digoxin sample was "unsuitable," and cancelled. Drug of abuse panel, peripheral blood, was negative. Electrolyte panel, vitreous eye: Na 158 / K 7.9 / Cl 131 / CO₂ 116 / BUN 13 / Cr <0.2. Analysis of the "oleander home brewed tea" showed: digitoxigenin, oleandrin, desacetyloleandrin, oleandrin, and gitoxigenin. Cause of Death: digoxin intoxication. Manner of Death: accident.

Case 514. Acute aconite ingestion: undoubtedly responsible

Scenario/Substances: A 66 y/o male presented to the ED in VF arrest ~45 minutes after inadvertently drinking several shots of vodka that had been steeped with an *Aconitum* plant. A family member was using the homemade *Aconitum* tincture to manage symptoms from cancer treatment, and the patient was unaware that the vodka was steeped with *Aconitum*.

Physical Exam: VF arrest.

Clinical Course: CPR was initiated, and patient was intubated. He was given amiodarone, lidocaine, sodium bicarbonate, magnesium, and calcium gluconate. Electrical cardioversion was attempted numerous times. After extensive CPR, the patient developed PEA arrest and died ~1.5 h after ingestion.

Autopsy Findings: Not performed

Case 522. Acute-on-chronic APAP ingestion: probably responsible

Scenario/Substances: A 3 y/o female developed diarrhea, lethargy, became unresponsive and cyanotic, and registered a home pulse oximetry O₂ sat of 80%.

Past Medical History: Developmental delay, cerebral palsy, non-verbal, epilepsy. Home medications: levetiracetam, clobazam, iron supplement, famotidine, clonazepam, and APAP.

Physical Exam: Lethargic, no evidence of trauma, AMS, sleepy but arousable (not at baseline), gastric tube present, otherwise unremarkable. BP 90/52, HR 153, RR 33, O₂ sat 96% on room air, T 36.2°C.

Laboratory/Diagnostic Findings: Day 1: AST 400, ALT 717.

Clinical Course: In the ED she was found to have elevated liver enzymes, so she was hospitalized (Day 1). Day 2, she was given a dose of 5 mL (160 mg) APAP for discomfort. Her weight was 15 kg. Laboratories were AST 1939, ALT 3739, INR 5.8, serum APAP 193 mcg/mL. She was started on standard dosing of NAC. The patient's mother reported giving her APAP no more than 3 mL per dose, and only 1-3 times per week. The mother denied any acute overdose and hospital staff/nursing denied any medication errors at the primary health care facility although an APAP concentration was not checked on admission. Day 3, AST 6,000, INR 5, APAP 93 mcg/mL. On Day 4, she was transferred to a tertiary care center for transplant evaluation. Laboratories were Cr 0.2, ALT 16,313 / GGT 94 / bilirubin 3.1 / INR 14, lactate 4.25 mmol/L, Phos 2.8, VBG-pH 7.43 / pCO₂ 36 / pO₂ 72 / HCO₃ 24, and APAP 53 mcg/mL. She was continued on NAC, with a 1 h gap after the first 21-hour protocol ended. She was listed for transplant. No initial APAP concentration from the primary health care center could be obtained as the blood had not been saved. On Day 5, she had declining mental status. Laboratories were Cr 0.9, AST 6,800 / bilirubin 4.6 / INR > 14, lactate 2.9 mmol/L, and APAP 23 mcg/mL. On Day 6, the patient had a cardiac arrest and ROSC was not achieved.

Autopsy Findings: Not available.

Case 530. Acute colchicine ingestion: undoubtedly responsible

Scenario/Substances: A 13 y/o male ingested unknown tablets and developed tachycardia, nausea and vomiting. He vomited up pills and his family identified them online as colchicine. He was transported to the ED

Physical Exam: Intubated and sedated, regular tachycardia with no murmurs/regurgitation/gallop, minimally reactive pinpoint pupils, lungs clear to auscultation bilaterally, abdomen soft, sedated and paralyzed. BP 130/70, HR 100, RR vent, O₂ sat unremarkable, T afebrile.

Laboratory/Diagnostic Findings: Cr 1.16, WBC 20, lactate 3.0 mmol/L, INR 3.3, ABG-pH 7.41 / pCO₂ 31 / pO₂ 221 / HCO₃ 19.6. Serum APAP, ethanol and salicylate not detected.

Clinical Course: Day 1 (24 h post-ingestion) WBC 27. At ~30 h post-ingestion, the patient developed acute hypoxic respiratory failure, altered mental status, and cardiogenic shock. He required endotracheal intubation and multiple vasopressors. After nasogastric tube placement, 50 g of activated charcoal was administered. Cardiac echo showed global decreased systolic function with an ejection fraction of 38%. ~34 h post-ingestion, the patient experienced a bradycardic cardiac arrest followed by ROSC and was started on ECMO and CRRT. Exchange transfusion was attempted on Day 6 but was discontinued due to hypotension. The WBC count dropped progressively to a nadir of 0.6 on Day 8; troponin rose to a peak of 3.71 on Day 8. The patient died on Day 8. The patient's blood colchicine concentration on Day 1 (~30 h post ingestion) was 12 ng/mL. Subsequent values on Days 5 and 7 were 11 ng/mL, and 9.5 ng/mL.

Autopsy Findings: Not available.

Case 559. Acute fentanyl ingestion: undoubtedly responsible

Scenario/Substances: A 17 y/o female purchased oxycodone tablets (thought to be laced with fentanyl) and ingested one pill. Within 1 hour she developed diaphoresis, frothy/excess oral secretions,

and CNS depression. Her parents found her 7 h later with severe CNS and respiratory depression and called 911. EMS found patient to be in cardiac arrest, began CPR, and intubated with ROSC after one dose each of epinephrine IV and naloxone IV.

Physical Exam: Intubated, sedated with ET tube in place; tachycardic; coarse breath sounds bilaterally; abdomen soft, non-distended; extremities warm and well-perfused; GCS 3.

Laboratory/Diagnostic Findings: Na 147 / K 4.2 / Cl 120 / CO₂ 15 / Glu 13 / BUN 15 / Cr 1.93, AST 482, ALT 382, bilirubin 0.3, WBC 1.98 / Hgb 11.1 / Hct 36.9% / Plt 5, VBG-pH 7.01 / pCO₂ 73.8 / pO₂ 35. Serum salicylates not detected, APAP 4.9 mcg/mL.

Clinical Course: In the ED she received vasopressors and IVF for hypotension and tachycardia, was transferred to a tertiary care center and admitted to the PICU where mechanical ventilation was continued with sedation and neuromuscular blockade. She was treated with supplemental potassium IV and started on IV NAC. The patient continued to be hypotensive; an echocardiogram showed severely depressed left ventricular function and moderately depressed right ventricular function thought to be secondary to the cardiac arrest. ECMO was initiated for cardiovascular support. CT head showed diffuse cerebral edema and loss of grey-white differentiation c/w hypoxic-ischemic injury. She developed excessive urine output and hypernatremia; sedation was stopped, and no neurological activity or responsiveness was noted. Right pupil was 8mm and non-reactive, left pupil was 2mm and non-reactive. EEG showed severe diffuse voltage attenuation and absent reactivity. Based on the prognosis, the family opted for institution of comfort measures, and she died on Day 3.

Autopsy Findings: Anatomical findings: Bilateral pulmonary congestion, bilobated right lung, diffuse cerebral edema and congestion. Postmortem blood levels: Caffeine positive, 11-Hydroxy delta-9 THC 3.3 ng/mL, delta-9 carboxy THC 51 ng/mL, delta-9 THC 2.7 ng/mL, fentanyl 3.5 ng/mL, norfentanyl 2.9 ng/mL. Postmortem UDS: opiates positive (reporting limit 300 ng/mL), benzodiazepines positive (reporting limit 50 ng/mL), cannabinoids positive (reporting limit 50 ng/mL), fentanyl/metabolite positive (reporting limit 2.0 ng/mL).

Case 578. Acute APAP ingestion: undoubtedly responsible

Scenario/Substances: An 18 y/o female intentionally ingested 150 APAP 500 mg tablets. 911 was called, EMS transported her to the ED, and she vomited pill fragments enroute.

Past Medical History: Anemia. Home medications: Iron.

Physical Exam: HR 103, RR 40, O₂ sat 100% on room air, neuro unremarkable.

Laboratory/Diagnostic Findings: Na 139 / K 3.5 / Cl 104 / CO₂ 8 / BUN 3 / Cr 0.72 / Glu 41 / AG 27, lactate 14.9 mmol/L, AST 19, ALT 8, INR 1.4, ammonia 62 mcmmol/L, WBC 5.7 / Hgb 9 / Plt 518, VBG-pH 6.99 / pCO₂ 24 / HCO₃ 6. Serum APAP 189 mcg/mL @ 2 h post ingestion. Serum ethanol and salicylate not detected. UDS negative, CxR: unremarkable, ECG: HR 68, QRS 80, QTc 416.

Clinical Course: In the ED APAP 140 mcg/mL @ 4 h, LFTs were unremarkable, and she was medically cleared. Day 1 (morning) CO₂ 8 / Glu 41, lactate 14.9 mmol/L; VBG-pH 6.99 / pCO₂ 24. D50W and apple juice raised Glu to 162. Fe 25, APAP 88.9 mcg/mL @ 15 h, she was started on high dose IV NAC and admitted to the ICU. She began HD for acidosis thought to be secondary to APAP. There was no reported metformin exposure. She was intubated for declining level of consciousness and started on norepinephrine for MAPs in the 50s. She received FFP and IV phytonadione for INR 5.2. AST 904, ALT 586. She was transferred to a tertiary care center for possible liver transplant. Later that day, her osmolar gap was 23, and she was given 15 mg/kg fomepizole. Blood for ethylene glycol and methanol were sent and ultimately returned negative. Day 2, head CT negative for

cerebral edema, but she had a poor neuro exam. Ammonia 262 mcmmol/L, INR 14.2, AST 12,363, ALT 9,351. Day 3, head CT showed cerebral edema. Her NAC was switched to 1/2 NS, she received another dose of fomepizole and was started on CVVH and phenylephrine drip for hypotension. On Day 4, her pressor requirements increased, and she was started on 3% hypertonic saline and a D10 infusion for persistent hypoglycemia. She did not receive any further doses of phytonadione or FFP. On Day 5, transcranial doppler revealed no flow, pupils were fixed and dilated. She continued on CVVH and vasopressors with minimal urine output. Neurology evaluated her for brain death, and she was determined to not be a liver transplant candidate. On Day 6 based on the prognosis, the family opted to make the patient an organ donor, and she died on Day 6.

Autopsy Findings: Patient was an organ donor; no autopsy performed.

Case 589. Acute-on-chronic colchicine ingestion: undoubtedly responsible

Scenario/Substances: A 19 y/o male was prescribed 120 tablets of colchicine for pericarditis/myocarditis. He followed up in the ED, had been told to stop the colchicine and was changed to ibuprofen. Then he reportedly took up to 100 tablets of colchicine 0.6 mg. Exact time of ingestion was uncertain, but likely occurred late on the night prior to ED arrival. He presented to the ED with nausea, vomiting, and diarrhea that had begun ~4 h prior to ED arrival.

Past Medical History: Pericarditis/myocarditis. Home medications: colchicine.

Physical Exam: Vomiting and diarrhea with some hematemesis. BP 111/70, HR 118, T 37.9°C, O₂ sat 99% on RA.

Laboratory/Diagnostic Findings: Na 142 / K 3.2 / BUN 15 / Cr 1.2 / Ca 8.8, AST 103, ALT 109, troponin 0.05, WBC 31.0. ABG-pH 7.45 / pCO₂ 28 / pO₂ 77. Serum APAP and salicylate not detected. CxR: No infiltrates or cardiomegaly. ECG: HR 118.

Clinical Course: He received IV promethazine, ondansetron, famotidine, pantoprazole and an IVF bolus. He was given a dose of activated charcoal in the ED. The patient was transferred to a tertiary care center on Day 1 due to the concerns for multiorgan failure. In the ICU, BP 99/84, HR 110, RR 35, O₂ sat 95% on RA, with ongoing vomiting and diarrhea. BUN 16 / Cr 1.1, AST 291 / ALT 92 / ALP 214, and WBC 50.3. Later that evening lactate was 3.4 mmol/L, INR 2.6, and T 38.3°C. His condition deteriorated requiring endotracheal intubation and ventilation with sedation. Lactate increased from 3 to 8 to 14 mmol/L. The patient was prepared for possible ECMO. On Day 2 he was requiring maximal doses of multiple vasopressors with BP 75/69, HR 111, T 37.7°C, RR 15, and O₂ sat 96% on the ventilator. He was sedated with propofol, fentanyl, and dexmedetomidine and receiving a sodium bicarbonate infusion with additional IVF. He was too unstable for HD, but ECMO was initiated along with CRRT. WBC 28, Plt 172, lactate 6.6 mmol/L, with elevated CPK and troponin. On Day 3, MAP 60, HR 100, WBC 6.3, K 4.3, BUN 34, Cr 3.2, and INR 4.6. He was continued on ECMO and CRRT, but his neurological exam deteriorated with bilaterally fixed pupils and cerebral edema on imaging. On Day 4, WBC 0.27, AST 642, ALT 111, BUN 27, Cr 2.5, platelets 70, lactate 4.8 mmol/L, CPK 14,538, troponin 23.6, and INR 1.7. On Day 5 brain death was confirmed, and the patient died.

Autopsy Findings: Antemortem colchicine 40 ng/mL.

Case 963. Acute colchicine ingestion: undoubtedly responsible

Scenario/Substances: A 30 y/o male took 30 colchicine 0.6 mg tablets ~15 h prior to coming to ER where he presented with complaints of abdominal pain but failed to inform them of the colchicine ingestion until ~24 h post-ingestion.

Past Medical History: Drug abuse.

Physical Exam: BP 130/78, HR 120, RR 18, O₂ sat 100% on room air, T 36.7°C.

Laboratory/Diagnostic Findings: Na 136 / K 3.8 / Cl 99 / CO₂ 21 / BUN 19 / Cr 1.18 / Glu 93 / AG 20, AST 225, ALT 62, bilirubin 0.3. lactate 0.3 mmol/L, Plt 239. ECG: HR 126, QRS 85, QTc 433.

Clinical Course: Hydromorphone was given for severe abdominal pain. Repeat labs ~24 h post-ingestion: Na 137 / K 4.6 / Cl 106 / CO₂ 16 / Cr 1.87 / Glu 85, Ca 6.9, lactate 9.5 mmol/L, AST 1,650 / ALT 1,498, PTT 34.1, D-dimer 18,474, WBC 22.6 / Hgb 17.7 / Hct 54.4 / Plt 33. IV fluid boluses, ceftriaxone and IV NAC were given. Day 2, WBC 12.4 / Hgb 15.6 / Hct 48 / Plt 23, INR 2.8, fibrinogen 274, CO₂ 14 / AG 28 / Cr 2.3, Ca 6.5, Mg 2.0, Phos 7.2, AST 13,209, ALT 6,525, CK 1,774, ammonia 68 mcml/L. ABG-pH 7.05, pCO₂ 26, pO₂ 89, HCO₃ 7, lactate 16 mmol/L. CRRT was begun for acidosis. He was intubated with rocuronium and sedated with propofol, dexmedetomidine and fentanyl. Phytonadione and steroids were given. He required 4 vasopressors. Day 3, AST 20,558, ALT 10,863, bilirubin 0.9, INR 3.6, lactate 16.0 mmol/L. ABG-pH 7.19, pCO₂ 29, pO₂ 120, HCO₃ 11, lactate 15 mmol/L. EEG showed diffuse delta theta slowing without focal or epileptiform activity. He had coffee ground emesis, epistaxis/mucosal bleeding. Multi-dose activated charcoal not given due to ileus. Day 4, WBC 2.5 / Hgb 12.8 / Plt 13 / INR 1.9, AST 14,142, ALT 9,027, bilirubin 2.4. Noted to have clonic movements and oozing from his mouth, ETT and OGT. Lactulose given. Day 5, WBC 1.4 / Hgb 11.3 / Plt 19, INR 1.3, AST 7,793, ALT 5,979, bilirubin 4.9. CxR: mild fluid overload, interval new patchy ground-glass opacities in right lung bas medially, retrocardiac opacity in left lung base. On Day 6, purpura bilateral on feet, patellas, right hand and left ear lobe were noted. EKG: QRS 96, QTc 417. ABG-pH 7.29 / pCO₂ 39 / pO₂ 86 / HCO₃ 19, lactate 9.6 mmol/L, K 5.0. Day 7, INR 1.4, Ca 5.7, AST 1,763, ALT 2,573. ABG-pH 7.05, pCO₂ 56, pO₂ 121, HCO₃ 16, lactate 10.8 mmol/L. CxR showed increased consolidation in both lung bases. Started proning requiring sedation and paralytics. CRRT and vasopressors continued. Based on the prognosis, the family opted for institution of comfort measures, vasopressors were withdrawn, and he died on Day 7.

Autopsy Findings: Anatomical Findings: Anasarca, jaundice, conjunctival hemorrhages, purple discoloration hands, feet, and knees with multiple bullae on hands, multifocal pulmonary mucosal necrosis, compatible with diffuse alveolar damage, multifocal GI mucosal necrosis, liver compatible with APAP toxicity, heart edematous, kidneys pale. Antemortem blood from day of admission: colchicine 14 ng/mL, methamphetamine 320 ng/mL, amphetamine 44 ng/mL, delta-9 carboxyTHC positive, caffeine positive, and cotinine positive. Methamphetamine was deemed non-contributory to the death.

Case 1584. Acute salicylate ingestion: undoubtedly responsible

Scenario/Substances: A 42 y/o male ingested 1500 tablets of 325 mg aspirin at 2000 the night before. He went to the ED of the local hospital but left after vomiting in triage. He returned a second time and was found to have a serum salicylate of > 100 mg/dL.

Physical Exam: BP 137/64, HR 100, RR 27, O₂ sat 100% on 2L.

Laboratory/Diagnostic Findings: Cl 103 / CO₂ 17 / Cr 1.09 / Glu 175 / AG 20, AST 24, ALT 17, ABG-pH 7.56 / pCO₂ 17 / pO₂ / HCO₃ 15.7. Serum APAP not detected, salicylate > 100 mg/dL. ECG: QRS 90, QTc 513.

Clinical Course: The patient was started on a sodium bicarbonate drip and given a dose of activated charcoal. He was airlifted to a tertiary hospital for HD. Repeat salicylate levels 136 mg/dL and 160 mg/dL. The patient became combative with staff and had to be restrained and sedated with ketamine IM. He was intubated with

the goal of keeping his serum pH in the normal range. An HD catheter was inserted. He was treated with another dose of activated charcoal. He had seizures, pulseless VT, was cardioverted and ECMO was attempted but failed to oxygenate him. CPR was stopped and the patient died on Day 1.

Autopsy Findings: Not available.

Case 2383. Acute fentanyl ingestion and COVID-19 (confirmed): probably responsible

Scenario/Substances: An 8 m/o female was found unresponsive and apneic in bed. Bystander rescue breaths were provided after calling 911. EMS continued respiratory support during transport to the ED. She was in her usual state of health the prior evening. Her mother reported that only opioid in the home was APAP/oxycodone tablets.

Past Medical History: No prior hospitalizations or medical illnesses
Physical Exam: Unresponsive in respiratory arrest with pinpoint pupils. BP 111/78, O₂ sat 98% while being bagged, T 36.2°C.

Laboratory/Diagnostic Findings: Na 141 / K 7.1 / Glu 118, ABG-pH 6.99 / pCO₂ 51 / pO₂ 94 / HCO₃ 12. Serum APAP, ethanol, and salicylate not detected. UDS positive for fentanyl. SARS-CoV-2 screen positive.

Clinical Course: In the ED she received 3-4 doses of naloxone during resuscitation which she did respond to with resumption of spontaneous respirations and moving arms and legs. Shortly after arrival to the PICU she was intubated. Head CT showed severe hypoxic injury. Less than 24 h after arrival she developed signs of herniation. Two formal neurologic exams were consistent with brain death, and she died on Day 2.

Autopsy Findings: Not available.

Case 2386. Acute fentanyl ingestion: undoubtedly responsible

Scenario/Substances: A 16 m/o male patient ingested green tablets from a bag. He was found in his home cyanotic and unresponsive, EMS found him in asystole. ROSC was achieved on scene with a positive response to naloxone noted. By the imprint code the tablets were oxycodone, but fentanyl adulteration was suspected.

Physical Exam: BP 101/46, HR 144, RR 32, O₂ sat 100%, T37.9°C (rectal)

Laboratory/Diagnostic Findings: K 2.9 / BUN 40 / Cr 0.69 / lactate 8.1 mmol/L, AST 398, ALT 185, ABG [later Day 1]-pH 7.27 / pCO₂ 56 / pO₂ 102 / HCO₃ 23. UDS was positive for fentanyl. ECG: Peaked p waves. CT head demonstrated herniation.

Clinical Course: He was intubated; hypotension was treated with epinephrine and norepinephrine with subsequent tachycardia to 170s. He was on an insulin infusion. He received a sodium acetate infusion for academia. Later Day 1 he had declining urine output, was less responsive and had a decrease in spontaneous respirations. Brain death testing performed twice revealed no function. Based on the prognosis, comfort measures were instituted, and he underwent organ harvest on Day 3.

Autopsy Findings: Autopsy did not demonstrate an anatomical cause of death. Antemortem peripheral blood obtained soon after admission demonstrated fentanyl 2.5 ng/ml. Postmortem liver did not show benzodiazepines, cocaine, gabapentin, opiates/opioids, or organic bases. Cause of Death: fentanyl intoxication. Manner of Death: accidental.

Case 2419. Acute lidocaine IV: contributory

Scenario/Substances: A 61 y/o male reported that "his life vest kept shocking him." He was transported to the ED.

Past Medical History: Heart failure with preserved ejection fraction, CAD s/p stents and recent CABG ~2 weeks prior, with a life vest wearable defibrillator, HTN, hyperlipidemia, alcohol abuse.

Physical Exam: At tertiary care center: sedation off, intubated, pupils poorly reactive and somewhat dilated, equal chest rise,

abdomen non-distended, extremities with no appreciable cyanosis, deformity, or edema, no skin rash or bruises, not sedated, did not respond to noxious stimuli, did not follow commands, no facial asymmetry. Pupillary, corneal, oculocephalic, cough/gag reflex absent. Did not withdraw to pain in all four extremities, arms flexed with greatly increased tone, legs extended with moderately increased tone. MAP 57 / HR 46.

Laboratory/Diagnostic Findings: AST 2486 / ALT 1155, lactate 4.82 mmol/L. Serum APAP, ethanol and salicylate not detected. Urgent coronary angiogram: no new occlusive disease

Clinical Course: In the ED he was sedated and intubated for comfort. He became bradycardic and needed chest compressions. During the ACLS, he was inadvertently given lidocaine 1 g IV. He then became less responsive and developed flexed posturing. He received an ILE bolus of 115 mL. A stat CT angiogram showed no new blockage, an intra-aortic balloon pump was placed, and he was transferred to a tertiary care center. Upon arrival to the cardiac ICU, HR 84, BP 101/21, RR 18, SpO₂ 100%. He was on amiodarone and norepinephrine infusions. The patient was not following commands or withdrawing to pain off sedation with bilateral flexed arm posturing. A lidocaine level was 5 (timing and units unclear, suspect ug/mL). Due to an elevated WBC, he received antibiotics. Though the cardiac arrest was described as brief, a cooling protocol was instituted. Na 136 / K 4.2 / Cl 102 / CO₂ 20 / BUN 13 / Cr 0.98 / Glu 162, Ca 8.1, lactate 1.7 mmol/L, MetHgb 0.6%. Additional vasopressor support was required, on NAC for elevated LFTs and sedated with fentanyl and midazolam. He developed multiple episodes of sustained monomorphic VT at ~200 per min c/w origin from the basal septal inferior LV. Day 2, BP 101/21, HR 70-77, RR 16, T 31.1°C, SpO₂ 100% on 50% FIO₂. ABG-pH 7.479 / pO₂ 69.2 / pCO₂ 36.7 / HCO₃ 26.7, lactate 1.73 mmol/L, MetHgb 0.4%, COHb 1.2%, Hgb 9.1, Hct 27, PT 19.3, INR 1.7, PTT 34.7. Day 3, BP 127/ (41-76) (balloon pump), HR 65-81, RR 10-28, T 36.3-37.3°C, SpO₂ 85-100%. Exam showed pupils equal and round, opens eyes to sound. ALT 1614, AST 1232, WBC 15.01, Hgb 9.1, PT 16.8, INR 1.4, PTT 40.2. Midazolam was discontinued and ketamine was started. Day 4, AST and ALT had "improved markedly", WBC was 16.79. A chest x-ray showed new complete opacification of left hemithorax. Video EEG was suggestive of diffuse severe encephalopathy. Day 5, the intra-aortic balloon pump was removed and T 39.1°C. Day 6, MAP 58-85 on a vasopressor, RR 11-29, SpO₂ 91-100% on 40% FIO₂. He continued to spike fevers and remained sedated and intubated, with GCS 6. Cultures showed no growth (blood, urine, tracheal aspirate). CxR showed mild right atelectasis; left effusion and atelectasis improved. He received vancomycin, piperacillin/tazobactam, and amiodarone and norepinephrine infusions. Sedation was changed to dexmedetomidine and fentanyl. An MRI performed on Day 7 showed extensive hypoxic injury. Based on the prognosis, the family opted for institution of comfort measures, and he died later that day. Contributing illness was VT storm in a recent CABG patient prior to the lidocaine overdose.

Autopsy Findings: Not available.

Case 2420. Acute lidocaine IV: undoubtedly responsible

Scenario/Substances: A 70 y/o male was getting an outpatient cardiac MRI. Instead of NS to flush the contrast dye, a 2% lidocaine solution was used (20 mg /mL x 30 mL = 600 mg = 5.3 mg/kg).

Past Medical History: "Heart problems".

Physical Exam: He had no brainstem reflexes in ED. BP 90/50 on vasopressors, HR 51, RR 20 on a ventilator, O₂ sat 100% on ventilator air, T afebrile.

Laboratory/Diagnostic Findings: Na 143 / K 2.9 / Cl 103 / CO₂ 18 / BUN 12 / Cr 1.96 / Glu 238 / AG 22, ABG-pH 7.2 / lactate 14 mmol/L, troponin 43, WBC 5.9 / Hgb 13.6. Serum APAP, ethanol and salicylate not detected. ECG: Sinus bradycardia.

Clinical Course: The patient went into cardiac arrest and ROSC was achieved in the MRI suite, lost, and then achieved again in the ED with 1 round of epinephrine. His downtime was believed to be at least 45 minutes. He was subsequently intubated and admitted to the ICU on IV epinephrine. The patient was intubated and placed on a cooling protocol. In the ICU, he had seizure-like movements. ILE was given without improvement. He was gradually rewarmed and weaned off sedation. He never regained consciousness, underwent palliative extubation and died on Day 13. The initial lidocaine level was 1.7 mcg/mL and not detected at the time of ILE administration.

Autopsy Findings: Not done.

Case 2481. Acute bupropion ingestion: undoubtedly responsible

Scenario/Substances: A 21 y/o female was found seizing in bed by her husband. Empty bottles of bupropion were found at the scene. She had 3 seizures before EMS arrived. She had an additional 2 seizure in route to the ED and was given midazolam after which she lost pulses. CPR was started and she received several rounds of epinephrine prior to arrival in the ED.

Past Medical History: Hypertension, kidney stones, migraine headache, postpartum depression, and prior suicide attempts. Home medications: lorazepam, bupropion, sulfamethoxazole/trimethoprim, oral contraceptives, ondansetron, ferrous sulfate.

Physical Exam: Intubated, pupils 5 mm fixed and non-reactive to light, no response to pain, does not follow commands. BP 109/84, HR 99, RR 19, O₂ Sat 99% on vent, Temp 35.6°C.

Laboratory/Diagnostic Findings: Na 144 / K 3.9 / Cl 113 / CO₂ 5 / BUN 10 / Cr 1.38 / Glu 219 / AG 26, AST 79, ALT 75, bilirubin 0.3. INR 1.2, troponin 2,295, WBC 4.9 / Hgb 10.4 / Hct 36.2 / Plt 236, ABG-pH 6.679 / pCO₂ 72.6 / pO₂ 142.1 / HCO₃ <20, lactate 5.3 mmol/L, serum APAP, ethanol, and salicylate not detected. UDS was positive for benzodiazepines, opiates, THC. CxR: unremarkable. CT brain suggestive of acute anoxic brain injury. ECG: NSR with unremarkable intervals.

Clinical Course: In the ED, she was intubated and given sodium bicarbonate and several additional rounds of epinephrine with ROSC. She was noted to have asystole, wide complex and narrow complex tachycardia during the code. She was started on antiepileptics, vasopressors, empiric antibiotics and admitted to the ICU where she received activated charcoal and was started on a cooling protocol. CT head showed diffuse cerebral edema without herniation. She developed hypernatremia secondary to diabetes insipidus for which she was started on DDAVP and D5W. She never regained meaningful neurologic function after rewarming. A cerebral perfusion study showed no intracranial arterial flow. She was declared brain dead on Day 5.

Autopsy Findings: Not available. Antemortem toxicology: bupropion 1,523 ng/mL, hydroxybupropion 1,243.7 ng/mL.

Case 2482. Acute bupropion (ER) ingestion: undoubtedly responsible

Scenario/Substances: A 22 y/o female ingested "a couple handfuls" of her mother's bupropion sustained release 300 mg for self-harm and was brought to the ED.

Physical Exam: Alert and oriented with no notable agitation. BP 145/68, HR 160, RR 18, O₂ sat 96% on room air, T afebrile.

Laboratory/Diagnostic Findings: AST 15, ALT 15, CK 37. Serum APAP and salicylate not detected. Ethanol 0.01 mg/dL. ECG: HR 155, QRS 90, QTc 415.

Clinical Course: She received 2 mg of lorazepam and her HR decreased to 140. While in the ED, the patient remained awake and alert but began to have trouble “finding words.” ~6 h after arrival she had a seizure while enroute to the ICU. She received another 2 mg of lorazepam. Upon arrival to ICU the patient vomited and multiple whole pills were noted in the emesis. BP was unremarkable, but she had persistent tachycardia to 130's. CI 109, AG 16, and WBC 16. She had multiple episodes of brief seizure-like activity that became more frequent. The patient was started on levetiracetam and continued to receive PRN lorazepam. Head CT showed no significant abnormalities. ~20 h after arrival to the ED, the patient went into VF and then asystole that evolved into VT. ACLS protocols were initiated, and she was given magnesium and sodium bicarbonate without ROSC.

Autopsy Findings: Stomach and small intestines contained 72 round white pills without discernible imprint (size, shape, and color consistent with bupropion XL 150). Antemortem blood: bupropion 450 mcg/L, hydroxybupropion 3000 mcg/L. Postmortem iliac blood: bupropion 1,500 mcg/L, hydroxybupropion 11,000 mcg/L.

Case 2571. Acute-on-chronic, amitriptyline ingestion: undoubtedly responsible

Scenario/Substances: A 66 y/o female ingested 120-180 tablets of amitriptyline 25 mg. She was last seen awake the previous evening, her daughter found her the next day and she was transported to the ED.

Past Medical History: Diabetes mellitus, anxiety. Home medications: amitriptyline.

Physical Exam: Patient arrived at the ED in respiratory arrest. BP 117/70 HR 88, O₂ sat 100% on ventilator

Laboratory/Diagnostic Findings: Na 140/ K 4/ Cl 102, Ca 8.2, ABG-HCO₃ 29. Serum APAP and salicylate not detected; ethanol was not reported. ECG: QRS 134, QTc 520.

Clinical Course: Patient was intubated and ventilated upon arrival to the ED. Pupils were not reactive. HR 90s, BP stable, T 36.3°C. Sodium bicarbonate was given. BP 147/71, HR 92, SpO₂ 100% on ventilator. Day 2, patient was in the ICU sedated, intubated, and on ventilator. She grimaced to painful stimulus when off sedation but was not responsive otherwise. BP 159/75, HR 98; RR 20, SpO₂ 96% on 30% FiO₂, T 36.6°C. EKG: QRS 90, QTc of 589. She continued to receive propofol, sodium bicarbonate, magnesium, and she was on an insulin drip for hyperglycemia. Later her QRS was 116 and then 118, QTc 517. Her sodium bicarbonate drip was stopped, and she received antibiotics. Her sedation was discontinued without recovery of consciousness. BP 133/63, HR 104, off vasopressors. Day 3 she was fighting the ventilator and was started on dexmedetomidine. Day 4 she was tachypneic and developed VT. She received an esmolol drip and metoprolol. EKG: QRS 156, QTc of 603, and she received sodium bicarbonate and magnesium. Her HR had slowed down, but tachypnea continued, and she died on Day 4.

Autopsy Findings: Antemortem toxicology: amitriptyline 1.41 mg/L, nortriptyline 0.196 mg/L. Cause of Death: complications of acute amitriptyline toxicity. Manner of Death: suicide.

Case 2640. Chronic dapsone ingestion: contributory

Scenario/Substances: A 55 y/o male had increased SOB for 1 week. On Day 8 he came into the ED with severe respiratory distress and hypoxia.

Past Medical History: Hodgkin's lymphoma, myelodysplastic syndrome, s/p chemotherapy, splenectomy (with ITP s/p), allogenic stem cell transplant 2 years before; paroxysmal AF, PE with chronic respiratory failure. Radiation pneumonitis causing COPD, R heart failure, pulmonary hypertension, on home O₂. Home Medications: acyclovir, alendronate, mometasone inhaler, ipratropium inhaler, dapsone 100 mg daily, digoxin, diltiazem, pantoprazole, posaconazole, prednisone, and rivaroxaban.

Physical Exam: Intubated on the ventilator, unresponsive, pupils equal & reactive. No cyanosis but had pitting edema of LE. BP 136/88, HR 65, RR 12, O₂ sat 87% on FIO₂ 30%.

Laboratory/Diagnostic Findings: Na 137, K+ 3.6, Glu 201, Lac 2.6; Hgb 13.3, Hct 39%; ABGs: pH 7.63, pCO₂ 26, pO₂ 168, BE 6, Bicarb 27.1, O₂ sat 100%, FIO₂ 40%; MetHgb 10%.

Clinical Course: In the ED he was intubated; his O₂ sat did not correlate with his pO₂s. Sedated with fentanyl and midazolam drips. His MetHgb level was > 25% so dapsone was discontinued. His MetHgb level fell to < 10% without treatment. He was empirically put on antibiotics. As he continued to worsen, on Day 12 he was transferred to a tertiary care center and admitted to ICU. Medications included cefepime, famotidine, norepinephrine, and dexmedetomidine; potassium, phosphate, and magnesium repleted. On Day 13, he was paralyzed for diaphoretic tachycardia, sedated, on the ventilator and norepinephrine. BP 141/94, HR 59, RR 12, Temp 35.6°C PO, O₂ sat 86%. Na 139 / K 4.5 / Cl 103 / CO₂ 28 / AG 8 / BUN 57 / Cr 1.15 / Glu 178, Ca 8.3, WBC 21.1 / Hgb 13 / Hct 37.9 / Plt 121. On Day 14, he was off paralytics, but remained on dexmedetomidine, midazolam, and fentanyl. On dobutamine, norepinephrine, digoxin, and epoprostenol with worsening right ventricular heart failure and pulmonary hypertension. CxR: pleural effusions. WBC 22.9 / Hgb 11.9 / Plt 97. On Day 15, he was extubated, HR 60s, ST. He developed AF, amiodarone replaced dopamine with a reduction in HR to 130s ST. GCS 11. BP 128/52, HR 102, RR 22, T 37.1°C PO, O₂ sat 86%, FIO₂ 30% (on vent, prior to extubation). Over the next 14 days he remained unstable in critical care. He was weaned from the ventilator but was reintubated within 24 h. Sedatives were resumed for comfort while intubated. When not sedated he was awake, oriented, and c/o SOB, chest pain, palpitations, muscle weakness. He continued to receive the vasopressors, along with amiodarone, phenylephrine, epoprostenol, agatrobane, heparin, and treprostinil. SBP 90s-170s, HR 91-135, RR 20-28, Temp 37.1-38.1°C, O₂ sat 93%, on 30L/M per nasal cannula to 75% FIO₂. His respiratory failure steadily progressed. His CxR showed infiltrates. His Hgb and Hct continued to drop, despite several units of PRBCs. Based on the prognosis, comfort measures were instituted, and he died on Day 29. His contributing illnesses included acute hypoxic respiratory failure, septic shock, and MRSA bacteremia.

Autopsy Findings: Not available.

Case 2646. Acute hydroxychloroquine and ethanol ingestion: undoubtedly responsible

Scenario/Substances: A 70 y/o female was found with altered mental status at home. EMS was called and during transport the patient had an asystolic cardiac arrest.

Past Medical History: Ethanol use disorder and overdose attempts. Home Medications: gabapentin, lamotrigine, metoprolol, sertraline, hydralazine.

Clinical Course: In the ED, she continued to have multiple episodes of cardiac arrest with multiple rhythms including asystolic and wide complex VT. An internal pacemaker was placed. Initially, there was no known history of overdose/ingestion. Overnight, she had multiple episodes of cardiac arrest including wide complex VT. The morning after presentation, she had multiple episodes of both monomorphic and polymorphic VT that resolved with overdrive pacing.

At that time, the husband found an empty bottle of his hydroxychloroquine. She was intubated and sedated and paced at a rate of 90 bpm. Lidocaine was given for arrhythmias and sodium bicarbonate for wide QRS complex. Vasopressor therapy with dopamine was required. A single dose of 100 ml of ILE was given on Day 1 after a cardiac arrest. Initial electrocardiograms were reviewed and showed a QRS complex of > 180 msec with a large R-wave in AVR. Over the next 48 h, vasopressor requirements lessened and there were no further episodes of arrhythmias. Despite improvement in cardiovascular status, the patient remained unresponsive not requiring sedation. Based on the prognosis, the family opted for institution of comfort measures, and she died on Day 7.

Autopsy Findings: Antemortem hydroxychloroquine 700 ng/mL. Cause of Death: mixed drug toxicity (ethanol and hydroxychloroquine). Manner of Death: suicide.

Case 2650. Acute-on-chronic methotrexate ingestion: probably responsible

Scenario/Substances: A 67 y/o male resident of an assisted living facility received methotrexate 15mg (2.5mg x 6 tablets) every day for 4 days. Exact days in which the methotrexate had been given were not clear. He was transported to the ED.

Past Medical History: Hepatitis C, AF. Home medications: methotrexate, apixaban, sertraline, others.

Vital Signs: Diarrhea. BP 122/66, HR 101, RR 30-35, T 38.7°C, SpO₂ 91% on 8L O₂.

Laboratory/Diagnostic Findings: WBC 0.1, Plt 7, Hgb 10.3, Cr 0.57, CO₂ 21, ALT 93, bilirubin 2, INR 1.7

Clinical Course: In the ED he received folic acid, dexamethasone, platelets, sodium bicarbonate drip and fresh frozen plasma. He was transferred to a tertiary care center, admitted to a general floor and started on vancomycin and cefepime and dexamethasone. Sodium bicarbonate infusion for urinary alkalization was started. BP 107/76, HR 152, RR 41, O₂ sat 92% on 8L. The patient was not following commands, not talking, agitated and shaky. He received IVF with sodium bicarbonate and potassium, dexamethasone, pantoprazole, filgrastim, leucovorin, and vancomycin. No methotrexate level was available. BP 89/66 (MAP 74), HR 130s-140s earlier, now NSR to AF, T 36.2°C, O₂ sat 100% on 80% FiO₂. He was on the ventilator, sedated with propofol, started on a phenylephrine, diltiazem, and sodium bicarbonate infusions, and had scheduled doses of dexamethasone, leucovorin and antibiotics. On Day 2, he was still intubated, on phenylephrine and a sodium bicarbonate infusion. WBC was 0.1 and the patient had been given his 3rd unit of platelets. On Day 3, phenylephrine was weaned and fentanyl started for sedation. Sodium bicarbonate infusion and leucovorin continued. Urine pH 6.5. BUN 22, Cr 0.6, WBC 0.2, platelets 80. Patient received filgrastim and folic acid. His K was 3.7; replaced with PO and IV potassium. Later on Day 3, he remained on sodium bicarbonate infusion, vancomycin, cefepime and leucovorin every 4 h. A total of 12 units of platelets had been given. WBC 0.2, Plt 32, Hgb 7.4, Cr 0.78, methotrexate < 0.04 mol/L. Leucovorin, sodium bicarbonate, and folic acid were stopped. On Day 5, he developed AF with rapid ventricular response, and his status declined. The family made him DNR, and no more blood products were given, although filgrastim continued. WBC 0.3, Plt 12, Hgb 9.5, Hct 28.3. On Day 7, the patient remained on filgrastim. WBC 2.7, Plt 71. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 7.

Autopsy Findings: Cause of Death: complications of methotrexate toxicity. Other significant medical conditions: bilateral pneumonia, hypertensive atherosclerotic cardiovascular disease, chronic hepatitis C, diabetes mellitus. Manner of Death: accident.

Case 2655. Acute-on-chronic theophylline and ethanol ingestion: undoubtedly responsible

Scenario/Substances: A 50 y/o male took an unknown amount of his own theophylline medication to self-harm at unknown time.

Past Medical History: Alcohol abuse and seizures.

Physical Exam: BP 68/46, HR 133, RR 24, O₂ sat 97% on room air.

Laboratory/Diagnostic Findings: Na 153 / K 3.3 / Cl 103 / CO₂ 11 / BUN 95 / Cr 1.25 / Glu 356 / AG 39, lactate 29.6 mmol/L, Ca 8.9, AST 82, ALT 47, bilirubin 0.1. Serum APAP and salicylate not detected. Serum ethanol 140 mg/dL. ECG: HR 129, QRS 118, QTc 313, incomplete BBB.

Clinical Course: He was initially agitated and started on vasopressors for tachycardia and hypotension and received activated charcoal and a bicarbonate drip. At 2 h after presentation, he had a seizure followed by cardiac arrest. He was intubated, received midazolam, magnesium, and started on dexmedetomidine. He continued to have seizures, findings concerning for Torsades de Pointes, and vomiting. Theophylline level was drawn and sent out for assay. He died the next day.

Autopsy Findings: Toxicology: theophylline 150 mcg/mL, ethanol 119 mg/dL, midazolam 41 ng/mL, caffeine positive. Cause of Death: acute theophylline toxicity.

Case 2657. Acute nifedipine and labetalol ingestion: undoubtedly responsible

Scenario/Substances: A 2 y/o male was found with pills of his mother's nifedipine and labetalol scattered on the floor. An hour later, he became unusually sleepy and less responsive, so he was taken to the ED by private car. He stopped breathing enroute to the ED.

Physical Exam: Somnolent. BP 68/32.

Laboratory/Diagnostic Findings: Glu 177.

Clinical Course: Upon arrival to the ED, he was given epinephrine, calcium chloride, glucagon, and insulin 1 U/kg for hypotension and persistent bradycardia. Sodium bicarbonate was administered for dysrhythmia. He went into full cardiac arrest. CPR was performed and ILE was administered with no response. He died ~4 h post ingestion.

Autopsy Findings: Postmortem Toxicology: labetalol 0.14 mg/L (heart blood), 15 mg/L (gastric), 9.8 mg/L (bile); nifedipine 0.29 mg/L (heart blood), >50 mg/L (gastric), 2.8 mg/L (bile). Cause of Death: acute combined labetalol and nifedipine toxicity. Manner of Death: accidental.

Case 2673. Acute metoprolol (ER) ingestion: undoubtedly responsible

Scenario/Substances: A 28 y/o female presented ~18 h after ingesting handfuls of metoprolol. She was unable to provide any history in the ED, however an empty bottle of metoprolol XL was found at the scene that had contained 90 tablets.

Past Medical History: Morbid obesity, major depression, prior suicide attempts, hypertension.

Physical Exam: Lethargic and unable to follow commands, lungs CTA bilateral, no respiratory distress, bradycardia, regular rhythm with unremarkable heart sounds. BP 86/64, HR 47, RR 20, O₂ Sat 82 % on RA, T afebrile.

Laboratory/Diagnostic Findings: Na 136 / K 8.1 / Cl 102 / CO₂ 16 / BUN 26 / Cr 3.57 / Glu 208 / AG 26, AST 211, ALT 188, bilirubin 0.5. INR 1.2, WBC 27.5 / Hgb 13.1 / Hct 42.9 / Plt 329, ABG-pH 7.140 / pCO₂ 42.6 / pO₂ 27.6 / HCO₃ 14.2 / BE -14.3, lactate 9.7. CxR: Right mainstem intubation, left lung completely opacified. ECG: complete heart block with HR 50.

Clinical Course: In the ED, she was given glucagon, high dose insulin and transcutaneous pacing. Despite these interventions, she developed worsening hypotension and bradycardia and lost pulses. CPR was started and she was intubated. She received epinephrine, bicarbonate drip, calcium, and albuterol. She had intermittent ROSC but arrested again. Eventually she was stabilized and admitted to the ICU where HD was started. However, she coded again, could not be resuscitated, and died on Day 1.

Autopsy Findings: Obesity, pulmonary congestion, fatty change of liver, bilateral pleural effusions, and ascites, left ventricular cardiac hypertrophy. Antemortem blood analysis: metoprolol 7,000 ng/mL. Cause of Death: acute metoprolol toxicity. Manner of Death: suicide.

Case 2734. Acute amlodipine ingestion: undoubtedly responsible

Scenario/Substances: A 48 y/o female ingested an estimated 60-80, 5 mg amlodipine tablets in a suicide attempt ~1 h prior to her arrival at the ED.

Physical Exam: Awake and alert, "shaky". BP 80/40.

Laboratory/Diagnostic Findings: Na 143 / K 3.8 up from 2.8 / Cl 114 / CO₂ 20 / BUN 13 / Cr 0.7 / Glu 340 / AG 9, AST 77, ALT 71. Serum APAP, ethanol, and salicylate not detected. ECG: Sinus tachycardia HR 116, PR 132, T-wave flattening.

Clinical Course: The patient received intravenous saline, calcium gluconate, sodium bicarbonate, and insulin (0.5 units/kg/h); norepinephrine, vasopressin, and dopamine were begun and increased as her blood pressure fluctuated between 60/40 – 90/55 over the first 12 h. She received potassium and magnesium to correct electrolyte deficiencies. The patient vomited early in her course; she did not receive activated charcoal or WBI. She became lethargic but protected her airway. Insulin was not titrated up because of glucose readings in the 150 mg/dL range. A dose and infusion of ILE was given. By 24 h post-ingestion, while receiving insulin 1 unit/kg/hour and D10W 200mL/hour (Glu 114mg/dL), pressor requirements transiently decreased, and urine output increased from 25 to 100-125mL/hour. However, the patient was volume overloaded (11 liters positive) and required increased oxygen supplementation to maintain her oxygen saturation. The patient was transferred to a tertiary care center for consideration of ECMO on Day 2, on insulin 2 units/kg/hour, norepinephrine, epinephrine, vasopressin, and dobutamine. One dose of methylene blue was administered. Following transfer, the insulin infusion was increased above 10 units/kg/hour and she was intubated and sedated, with the addition of phenylephrine. The patient was considered too vasoplegic for ECMO. Abdominal distention was noted. The patient died ~38 h after her ingestion.

Autopsy Findings: Antemortem blood: caffeine and lidocaine identified by LC/TOF-MS, amlodipine 700 ng/mL by LC-MS/MS.

Case 2952. Acute iron ingestion: undoubtedly responsible

Scenario/Substances: A 14 y/o female ingested her iron supplement in a suicide attempt after an argument with her family (135 tabs of 65 mg elemental iron and weighed 60 kg = 140 mg/kg ingestion). She arrived at the ED ~1 h after ingestion.

Past Medical History: Depression. Home medications: iron supplement.

Physical Exam: Lethargic appearing, BP 106/62, HR 120, O₂ sat 98% on room air.

Laboratory/Diagnostic Findings: CO₂ 18 / Glu 175, lactate 4.38 mmol/L, Ca 10.3, AST and ALT unremarkable, WBC 15.5. Serum APAP, ethanol and salicylate not detected. Fe > 2,100.

Clinical Course: Arrived in the ED with multiple episodes of emesis, lethargy and confusion. Deferoxamine was started and continued

through her course. She was drowsy but oriented with episodes of hypoxia to 80s-90s on NRB. CXR c/w aspiration. IVF was administered for hypotension to 96/55. Abdominal x-ray was negative. Repeat Fe 1,590 and pH 7.16. She required high flow nasal cannula and multiple pressors for hypotension. Repeat Fe 559 (dropping to 383). She developed hepatic failure with INR 13.1, bilirubin 4.6, AST 2500, ALT 2700. She was listed for liver transplant and still awake and alert however HR increased to 140s. Day 2 she received plasmapheresis as she could not tolerate HD. Required intubation and continued pressors, pH 6.8, lactate 17.7 mmol/L prior to intubation. Stress dose steroids administered and deferoxamine discontinued 5 h prior to death for concerns of worsening hypotension and to allow family to have time with patient. Based on the prognosis, the family opted for institution of comfort measures, and she died on Day 2.

Autopsy Findings: Not available.

Case 2955. Acute calcium and potassium phosphate infusion: probably responsible

Scenario/Substances: A 75 y/o male was admitted to the hospital for neutropenic fever secondary to colorectal cancer. The patient was medically stable when he received an infusion of potassium phosphate and calcium gluconate that had precipitated in the bag.

Past Medical History: Metastatic stage IV adenocarcinoma of colon with metastases to lungs, hemicolectomy, duodenectomy, distal gastrectomy, right lung wedge resection, paroxysmal AF with ablation. Home medications: sotalol, warfarin.

Physical Exam: HR 110, O₂ sat 100% on BiPAP

Laboratory/Diagnostic Findings: Na 136/ K 3.3 /Cl 108 /CO₂ 17 / BUN 12/ Cr 0.72/ Glu 127, AST 17, ALT 16, Bili 1.2, INR 1.8 on admission. Following the medication error: at 4.5 h VBG-pH 7.12/ pCO₂ 53.3/ pO₂ 32/ BE -12.6, bicarb 16.9, O₂ 44%; at 5.5 h ABG-pH 7.15/ pCO₂ 43.1/ pO₂ 69/ BE -13.8, bicarb 14.5, O₂ 87.6%; at 7 h ABG-pH 7.094/ pCO₂ 57/ pO₂ 76/ BE -12, bicarb 17, O₂ 88% at 8 h, INR 6.6, D-dimer > 12, ; at 10.5 h ABG-pH 7.195/ pCO₂ 56/ pO₂ 54/ BE -7, bicarb 21, O₂ 79% lactate 8.2 mmol/L. CXR: pulmonary vasculature congestion. Influenza/RSV/COVID-19 negative.

Clinical Course: The patient was started on broad-spectrum antibiotics and appeared to improve. On day 3 the inpatient pharmacist was asked to concentrate fluids for the patient. The pharmacist compounded 20 mEq potassium phosphate and 2 grams calcium gluconate in a 250 mL bag of 0.9% sodium chloride. The resulting mixture was administered at a rate of 62 mL/h via the patient's chemotherapy port terminating in the right atrium. The patient became flushed and rapidly hypoxic, so the infusion was reduced to 30 mL/h at which point the care team noticed the mixture precipitating in the infusion bag. He required BiPAP and was short of breath. He developed signs of pulmonary edema and new infiltrates and the medical team begin diuresis with furosemide. Patient became unresponsive and was subsequently intubated. Infusions of epinephrine, norepinephrine, phenylephrine, and vasopressin were started. The patient became hyperpneic and received sodium bicarbonate intravenously. He became increasingly hypotensive and progressed to cardiac arrest. The patient died on Day 3, 13 h after the medication error.

Autopsy Findings: Not performed.

Case 2958. Chronic loperamide ingestion: probably responsible

Scenario/Substances: A 37 y/o male was found unresponsive at home by his mother. EMS found him in PEA arrest, performed 8 min of CPR and 1 dose of epinephrine.

Past Medical History: Migraines treated with sumatriptan, IV drug use and years of abuse with loperamide. Mother reported he had been abusing loperamide to attain an opioid like high for the last seven days, had brief syncopal episode, and multiple episodes of light headedness and palpitations.

Physical Exam: BP 193/98, HR 70, RR 19 (vent), O₂ sat 100% FIO₂ 50%, T 35°C rectal (warming blanket).

Laboratory/Diagnostic Findings: Na 131 / K 3.2 / Cl 97 / CO₂ 16 / BUN 10 / Cr 1.6 / Glu 219 / AG 21.2, lactate 9 mmol/L, troponin 10.8, CK 324, AST 164, ALT 135, WBC 16.5. ABG-pH 7.39 / pCO₂ 34 / pO₂ 121 / HCO₃ 21, Serum APAP, ethanol and salicylate not detected. UDS was negative. ECG: HR 78, QRS 130, QTc 642; in and out of Torsades de Pointes. CxR was unremarkable, CT of chest and brain were unremarkable.

Clinical Course: In the ED, patient went into Torsades des Pointes, then cardiac arrest. ROSC was achieved after CPR and magnesium sulfate. He was intubated in the ED and sedated with propofol. On arrival to the ICU, he developed seizure activity and received IVF, benzodiazepines, phenobarbital and levetiracetam. He was in and out of Torsades des Pointes then coded again. He received ILE, sodium bicarbonate, isoproterenol, lidocaine, and epinephrine infusions. Magnesium and potassium were supplemented. EEG showed status epilepticus and the patient was placed in a pentobarbital-induced coma. EEG showed no brain activity on Day 5. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 11.

Autopsy Findings: Cause of Death: probable drug intoxication. Manner of Death: accident (substance use).

Case 2979. Acute metformin ingestion: undoubtedly responsible

Scenario/Substances: A 54 y/o female took 25.5 grams of metformin after she was evicted from her home. She arrived at the ED with confusion and agitation.

Past Medical History: DM type 2. Home medications: metformin.

Physical Exam: Encephalopathic, confused, agitated, not following commands. BP 124/57, HR 74, T 34.0°C on external rewarming device.

Laboratory/Diagnostic Findings: ABG-pH 7.09 / BUN 20 / Cr 1.6 / Glu 43 / AG 21.0, lactate 7.3 and 16 mmol/L, ammonia 95 mcmol/L. Serum APAP, ethanol and salicylate not detected.

Clinical Course: Her initial blood glucose was 245, but soon dropped to 43. She was given an amp of D50W with her next blood glucose 180. She was given IVF, sodium bicarbonate boluses for metabolic acidosis, a norepinephrine infusion, and an external rewarming device for hypothermia. She was admitted to the ICU. A lactate level repeated shortly after the initial value was >24 mmol/L. Nephrology initiated HD, but she had cardiac arrest 30 minutes into the procedure. She was intubated, given oxygen, placed on a ventilator, and sedated with fentanyl. ROSC was achieved after CPR and ACLS. She had 2 more episodes of cardiac arrest. She was placed on epinephrine, norepinephrine, phenylephrine, vasopressin, dopamine, and sodium bicarbonate infusions. BP 35/29, HR 60. VBG-pH 6.86 / pCO₂ 16.9 / pO₂ 298 / HCO₃ 3, Glu 145. Based on the prognosis, comfort measures were instituted, and she died 10h after admission.

Autopsy Findings: Metformin 360 mcg/mL (hospital blood). Cause of Death: metformin overdose. Manner of Death: suicide.

Case 3015. Chronic deferasirox ingestion: contributory

Scenario/Substances: A 16 y/o female developed 12h of worsening periumbilical abdominal pain, nausea, and non-bilious, non-bloody vomiting.

Past Medical History: Blood transfusion-dependent beta-thalassemia major treated with deferasirox for 5 years.

Physical Exam: BP 103/62, HR 108, RR 18, O₂ sat 100% on room air, T 37.5°C.

Laboratory/Diagnostic Findings: Na 141 / K 3.7 / Cl 110 / CO₂ 19 / BUN 26 / Cr 0.88 / Glu 91 / AG 12, ferritin 188 ng/mL, AST 19, ALT 19, bilirubin 10.4, INR 1.7, ammonia 718 mcmol/L, WBC 3.6 / Hgb 9.2 / Hct 27.3 / Plt 133, VBG- pH 7.25 / pCO₂ 29 / pO₂ 41 / HCO₃ 12. Head CT: unremarkable. ECG: HR 101, QRS 71, QTc 460.

Clinical Course: In the ED, bilirubin 11.0, aPTT 38, INR, 1.7, lactate 5.7, and AST 25, ALT 26. Comprehensive testing for viral etiologies was negative, abdominal ultrasound showed no hepatic abnormalities, and antinuclear antibody was negative. She developed acute onset of agitation, hypotension, tachycardia, and muscle rigidity. Neuroleptic malignant syndrome was ruled out. She was admitted to the ICU where she rapidly became unresponsive with labored breathing requiring intubation. She developed disconjugate gaze, absent withdrawal from pain, and present extensor plantar responses. Dialysis was initiated. Despite treatment, ~16h after presentation to the ED, her pupils became fixed and dilated. Subsequent neurological evaluation was consistent with brain death. No underlying metabolic conditions were identified via exome sequencing. She died 64 h after presentation to the ED.

Autopsy Findings: Major findings: chronic (lymphocytic) myocarditis; hemorrhage in mesenteric and bronchial lymph nodes and in thymus; lymphocytic infiltrate in adrenal cortices with apparent parenchymal cytolysis; cerebral edema; beta thalassemia (anamnesitic), well controlled, no iron deposition in liver or spleen, bone marrow with proliferation of blood elements and decrease of fat cell; toxicologic studies non-contributory. Cause of Death: acute onset of lymphocytic myocarditis (probable viral etiology), Beta thalassemia, Manner of Death: natural.

Editor's Note: Deferasirox-related deaths start with an insult (e.g., myocarditis) followed by stress that leads to mitochondrial urea cycle dysfunction and hyperammonemia. This case looks like several other deferasirox-related deaths. Free drug accumulation in the setting of chelation with low iron stores and drug metabolizing enzyme polymorphisms could have been contributing factors.

Case 3023. Acute-on-chronic baclofen infusion: undoubtedly responsible

Scenario/Substances: A 19 y/o female presented to her HCF for refill of her baclofen infusion device. On the way home, the mother noted the patient was not breathing.

Past Medical History: Spastic quadriplegia, focal seizures, GERD, restrictive lung disease with severe neuromuscular scoliosis, sleep disordered breathing, bilateral hip dysplasia with pain, failure to thrive, gastric tube, intrathecal baclofen since 2010, device revision 2012.

Physical Exam: Patient appeared chronically ill, apneic and pulseless, GCS 3. BP 117/100, HR 135, T 37°C, RR 20, Pulse ox 92%. Pulse ox on room air was 53%.

Laboratory/Diagnostic Findings: NA 141 / K 4.9 / CL 103 / CO₂ 25 / BUN 17 / CR 0.63 / Glu 214 / CA 9.4, lactate 4.8 mmol/L, WBC 19.8 / Hgb 16.6 / Hct 53 / Plt 263, INR 1.1, ABG-pH 7.14 / pCO₂ 73 / pO₂ 406 / BE -7, EKG: NSR, QT 472.

Clinical Course: Patient arrived at the ED with CPR in progress. ROSC was achieved and she was admitted to ICU. She developed seizures and was started on her home diazepam dosing. HRs up to 170 were attributed to baclofen withdrawal. The HCF did not identify how much baclofen was delivered or whether it was in the pump reservoir although the delivery rate was reduced to

the previous dose. Rescue dosing with baclofen 20 mg orally three times daily was started. The patient was extubated on Day 7 and developed difficulty breathing and respiratory distress. Treatment with racemic epinephrine, ipratropium/albuterol and cough assist were unsuccessful. She was reintubated, developed a significant pneumothorax and suffered another PEA arrest. ROSC was achieved after CPR. A right sided chest tube was placed. Two days later the patient developed a nosebleed and another PEA arrest. An emergency bronchoscopy was done with manual removal via suction of several blood clots at the end of ET tube. This event resulted in CPR lasting longer than 20 min before ROSC. Another chest tube was placed on the left side following this code. Based on the prognosis, the family opted for DNR status. A CT was done on Day 10. Upon return to the ICU, she developed bradycardia in the 20s with weak pulses. She developed asystole and died on Day 13.

Autopsy Findings: Anatomical Findings: widespread acute global hypoxic-ischemic injury; remote hypoxic-ischemic insults, hippocampi, and cerebellum; low brain weight for age (870 grams). Cause of Death: Apparent acute baclofen intoxication in the setting of therapy for spastic quadriplegia due to remote blunt force injuries. Per the medical procedure note, there was concern for creation of a subcutaneous pocket of medication. Postmortem fluid collected from around the subcutaneous baclofen pump tested positive for baclofen. Manner of Death: Homicide (Editor's Note: Homicide due to the injuries she sustained at age 3 months and a complication of baclofen OD on presentation at age 19).

Case 3122. Acute lysergic acid diethylamide (LSD) exposure: undoubtedly responsible

Scenario/substances: A 16 y/o male was with friends using substances they thought were cocaine and "acid". The patient drank ~1 gallon of water to treat a "fire inside of himself", had several episodes of vomiting and subsequently became unresponsive. EMS found him pulseless and cyanotic.

Past Medical History: ADHD.

Physical Exam: Unresponsive with pupils 6 mm, fixed and nonreactive. Digested material in the airway. Skin warm and dry, no hyperreflexia or rigidity. BP 127/44, HR 114, RR 20, O₂ sat 94% on 100% FIO₂, T 36.9C. U

Laboratory/Diagnostic Findings: Na 122 / K 3.8 / Cl 89 / CO₂ 89 / BUN 12 / Cr 1.19 / Glu 243 / AG 22, lactate 11.47 mmol/L, AST 61, ALT 36, bilirubin 0.7, INR 1.5, WBC 23.5 / Hgb 12.5 / Hct 38.6 / Plt 246, ABG-pH <7.00/ pCO₂ 51.2 / pO₂ 167. Serum APAP, ethanol and salicylate not detected. UDS positive for benzodiazepines and THC; negative for amphetamines, barbiturates, cocaine, opiates, oxycodone, methadone, tricyclic antidepressants. EKG: Sinus tachycardia at 113, QRS 106, QTc 515 with injury pattern.

Clinical Course: ROSC was achieved after 15 min of CPR. He was intubated and unresponsive without sedation. He received epinephrine x 3, phenylephrine and an epinephrine drip for hypotension. He was transferred to a tertiary care center. He developed diabetes insipidus and required multiple doses of DDAVP and a vasopressin drip. Exam was consistent with brain death on Day 2. Based on the prognosis, the family opted for institution of comfort measures, and he died on Day 3.

Autopsy Findings: Severe cerebral edema and pneumonia along with complications of resuscitation including microscopic cell death in heart, brain, and pituitary gland. Antemortem urine collected soon after arrival demonstrated LSD, 0.66 ng/ml. Cause of Death: complications of hyponatremia due to psychogenic polydipsia due to lysergic acid diethylamide intoxication. Manner of Death: accidental.

Case 3208. Acute methamphetamine, methadone and fentanyl per rectum: undoubtedly responsible

Scenario/Substances: A 32 y/o incarcerated male told his cell mate that he had stuffed balloons containing substances in his rectum and was having trouble getting them out. No history of suicidality or recent trauma. He subsequently became lethargic, then unresponsive, and suffered a PEA arrest. Responders initiated resuscitative measures including naloxone and multiple rounds of CPR and ACLS. ROSC was obtained and he was transported to the ED

Past Medical History: Bipolar type 1, viral hepatitis, tuberculosis, PTSD, IV drug abuse in methadone treatment.

Physical Exam: Unresponsive, intubated. BP 73/42, HR 92, O₂ Sat 99%

Laboratory/Diagnostic Findings: Na 140 / K 4.0 / Cl 108 / CO₂ 14 / BUN 13 / Cr 1.08 / Glu 219 / AG 18, AST 306 / ALT 223 / bilirubin 0.2 / INR 1.22, WBC 11.6 / Hgb 11.5 / Hct 38.2 / Plt 307, ABG-pH 7.01 / pCO₂ 55 / pO₂ 270 / HCO₃ 14 / BE -17.5. Serum APAP, ethanol and salicylate not detected. UDS positive for amphetamines, methadone and opiates. CxR: ET tube OK, gaseous gastric distention. Cardiac echo: unremarkable. ECG: HR 93, QRS 119, QTc 525.

Clinical Course: Patient had ACLS for roughly 60 min prior to obtaining ROSC, subsequently admitted to the ICU where a small bag was retrieved from the rectum. CT abdomen/pelvis was without obvious retained foreign bodies. He was placed on a cooling protocol and received supportive care. NAC was started for elevated LFTs. Imaging showed anoxic brain injury, he was declared brain dead 4 days after initial event and plans were made for organ donation.

Autopsy Findings: Antemortem hospital blood: methamphetamine 23,000 ng/ml, amphetamine 700 ng/ml, methadone 850 ng/ml, EDDP 230 ng/ml, fentanyl 0.43 ng/ml, norfentanyl 1.1 ng/ml. Cause of Death: Combined toxic effects of methamphetamine, methadone, and fentanyl with complications (anoxic brain injury, respiratory alkalosis, diabetes insipidus, and severe cerebral edema). Hepatic cirrhosis contributed to his death.

Case 3550. Acute isobutyl nitrite ingestion: undoubtedly responsible

Scenario/Substances: A 58 y/o male purchased a 30 mL bottle containing isobutyl nitrite from an adult sex shop for purposes of sexual enhancement. He misunderstood the directions and ingested the entire bottle. He called the poison center and was advised to call 911. EMS found him pale and cyanotic with agonal breathing.

Clinical Course: In the ED, he was cyanotic and bagged. He had a cardiopulmonary arrest shortly after arrival. 200 mg Methylene blue IV was administered. ACLS efforts were unsuccessful, and he died.

Autopsy Findings: Antemortem hospital blood contained nitrates + nitrites 2100 mcM (Normal nitrites in blood 0-0.35 mcM with a mean of 0.17 mcM. Nitrates in blood average 37.7 +/- 15.4 mcM in adults). Cause of Death: isobutyl nitrite poisoning. Manner of Death: accidental.

Case 3686. Acute mercury cyanide ingestion: undoubtedly responsible

Scenario/Substances: A 53 y/o male ingested a crystalline cyanide substance when taken into custody by the police. He became unresponsive nearly immediately with foaming at the mouth. Hazmat team confirmed the substance to be mercury cyanide.

Physical Exam: Cardiac arrest, foaming at the mouth.

Laboratory/Diagnostic Findings: Na 148 / K 4.0 / BUN 15 / Cr 1.0 / Glu 143, Ca 8, lactate 16.2 mmol/L, Hgb 11.2 / Hct 34.8, pH 6.96 /

HCO₃ 16.2. Serum APAP, ethanol and salicylate not detected. UDS positive for cocaine, opioids.

Clinical Course: The patient arrived in the ED in cardiac arrest, was intubated, placed on the ventilator, and CPR initiated. He was treated with sodium nitrate and sodium thiosulfate as well as sodium bicarbonate bolus and infusion with ROSC. Recurrent episodes of hypotension were treated with additional thiosulfate and norepinephrine infusion. He had a lactate-associated metabolic acidosis consistent with cyanide toxicity. He was sedated with propofol and given vecuronium for ventilator desynchrony. Despite resuscitation efforts with multiple vasopressors including norepinephrine, vasopressin, and epinephrine as well as IVF and sodium bicarbonate therapy, the patient remained severely acidemic and hypotensive. Based on the prognosis, the family opted for institution of comfort measures, and he died hours after arrival.

Autopsy Findings: Not available.

Disclaimer – all laboratories are different and provide their own normal ranges. Units and normal ranges are provided here for general guidance only. These values were taken from Harrison's^a, Goldfrank's^b or Dart^c

^aTable S10-1 Selected Examples of Laboratory Critical Values, *Harrison's Principles of Internal Medicine 20e*. McGraw-Hill Professional, 2022. Available from: <http://www.accessmedicine.com/> Oct 2, 2022.

^b*Goldfrank's Toxicologic Emergencies, 11th Edition*, McGraw-Hill Education, 2019.

^c*Dart RC, ed. Medical Toxicology, 3rd Edition*, Lippincott, Williams & Wilkins, 2004.

Typical laboratory panels

ABG-pH/pCO₂/pO₂/HCO₃/BE

Basic metabolic panel: Na/K/Cl/CO₂/BUN/Cr/Glu/AG

Complete blood count: WBC/Hgb/Hct/platelets

Abbreviations & Normal Ranges

~	approximately;
abd	abdomen;
ABG-pH/pCO ₂ /pO ₂ /HCO ₃ /BE	
ABG	arterial blood gases;
pH	hydrogen ion concentration [7.38-7.42 mmHg];
pCO ₂	partial pressure of carbon dioxide [38-42 mmHg];
pO ₂	partial pressure of oxygen [90-100 mmHg];
HCO ₃	bicarbonate [22 - 28 mEq/L];
BE	base excess [\pm 2mEq/L or mmol/L];
ACLS	advanced cardiac life support, protocol for the provision of cardiac resuscitation;
ADHD	attention deficit hyperactivity disorder;
AF	atrial fibrillation;
AG	anion gap Na - (Cl HCO ₃) [12 \pm 4 mEq/L or mmol/L];
AICD	automatic implanted cardioverter-defibrillator;
AKI	acute kidney injury;
ALP	alkaline phosphatase [13-100] U/L;
ALT	Alanine aminotransferase [7-41] U/L = (SGPT);
AMA	against medical advice;
ammonia	[25-80] mcg/dL [15-47] mmol/L;
amp	ampoule;
amphetamines (hallucinogenic)	one or more of the products (6-APB, bath salts, plant food, Bliss, Ivory Wave, Purple Wave,

AMS	altered mental status;
APAP	acetaminophen (acetyl-para-aminophenol), therapeutic [10-20] mcg/mL;
APLS	advanced pediatric life support, protocol for the provision of cardiac resuscitation;
aPTT	activated partial thromboplastin time [30-40] sec;
ARDS	acute respiratory distress syndrome;
AST	Aspartate aminotransferase [12-38] U/L = (SGOT);
AV block	atrio-ventricular block;
BAL	British anti-Lewisite;
BBB	bundle branch block;
BE	base excess [\pm 2mEq/L or mmol/L]; bicarbonate [22-26] mmol/L;
bili (direct)	direct bilirubin [0.1, 0.4] mg/dL;
bili (indirect)	indirect bilirubin [0.2, 0.9] mg/dL;
bilirubin	total [0.3-1.3] mg/dL;
BiPAP	bilevel positive airway pressure, pressure support with 2 levels of continuous positive airway pressure;
BLQ	below the limit of quantitation;
BMI	body mass index;
BMP	basic metabolic panel;
BNPT	prohormone with a 76 amino acid N-terminal inactive protein that is cleaved from the molecule to release brain natriuretic peptide. CHF is likely if BNPT > 125 pg/mL (<75 y/o), > 450 pg/mL (>75 y/o);
body packing	insertion of drugs into body orifices to evade law enforcement;
body stuffing	the ingestion of drugs in order to evade law enforcement;
BP	Blood Pressure, systolic/diastolic, (Torr);
BPH	benign prostatic hypertrophy;
BUN	see Urea nitrogen;
C	degrees Centigrade;
Ca (ionized)	ionized calcium, [4.5-5.6] mg/dL;;
Ca	calcium [8.7-10.2] mg/dL;
CABG	coronary artery bypass graft;
CAD	coronary artery disease;
CHF	congestive heart failure;
CIWA	Clinical Institute Withdrawal Assessment for Alcohol;
CK	creatinine kinase (CPK), total: [39-238] U/L females, [51-294] U/L males;
CKMB	MB fraction of CK [0.0-5.5 mcg/L; 0.0-5.5 ng/mL]
Cl	Fraction of total CK activity [0-0.04; 0-4.0%];
CMV	chloride [102-109] mEq/L;
CNS	cytomegalovirus;
CO ₂	central nervous system;
COHb	bicarbonate on BMP [22-26] mmol/L;
CPAP	carboxyhemoglobin (RR < 3%);
CPR	chronic obstructive pulmonary disease;
Cr	continuous positive airway pressure;
CRRT	cardiopulmonary resuscitation;
CSF	creatinine [0.5-0.9] mg/dL females, [0.6-1.2] males;
CT	continuous renal replacement therapy;
	cerebrospinal fluid;
	computed tomography (CAT scan);

CVA	cerebrovascular accident;	IgE	immunoglobulin E;
CVP	central venous pressure;	ILE	intravenous lipid emulsion (20%);
CVVH	continuous venovenous hemodiafiltration;	IM	intramuscular;
CxR	chest radiograph, chest xray;	INR	international normalized ratio (PT to control) [0.8-1-2];
c/w	consistent with;	IO	intraosseous;
D10W	10% dextrose in water;	IU/L	international units per Liter;
D50W	50% dextrose in water;	IV	intravenous;
D5NS	5% dextrose in normal saline;	IVF	intravenous fluid(s);
D5W	5% dextrose in water;	K	potassium [3.5-5] mEq/L;
Day	when capitalized, Day hospital day, i.e., days since admission to the initial hospital admission for this exposure;	kg	kilogram;
		L	Liter;
DIC	disseminated intravascular coagulation;	lactate	lactic acid [4.5-14.4] mg/dL arterial, [4.5-19.8] mg/dL venous
DM	diabetes mellitus;		[0.5-1.6] mmol/L arterial, [0.5-2.2] mmol/ L venous;
DNI	do not intubate;	LBBBB	left bundle branch block on ECG;
DNR	do not resuscitate;	LFT	liver function tests;
drip	intravenous infusion;	LV	left ventricle;
Dx	diagnosis;	LVEF	left ventricular ejection fraction;
ECG	electrocardiogram (EKG), leads I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6;	m/o	months old;
	echocardiogram;	MAP	mean arterial pressure;
ECHO	extracorporeal membrane oxygenation;	mcg/dL	micrograms per deciliter;
ECMO	emergency department, in these abstracts refers to the initial health care facility;	mcg/L	micrograms per Liter;
ED	principal methadone metabolite, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine;	mcg/min	micrograms per minute;
EDDP	electroencephalogram;	mcg/mL	micrograms per milliliter;
EEG	esophagogastroduodenoscopy;	mcmol/L	micromoles per liter;
EGD	enzyme-linked immunosorbent assay;	MDA	3,4-methylenedioxyamphetamine;
ELISA	emergency medical services, paramedics, the first responders;	MDMA	methylenedioxyamphetamine (ecstasy, molly);
EMS	extraocular movements intact;	ME	medical examiner;
EOMI	extended release medication;	MetHgb	methemoglobin (RR < 1%);
ER	endotracheal tube;	Mg	magnesium [1.5-2.3] mg/dL;
ETT	serum iron [60-170] mcg/dL;	mg	milligrams;
Fe	fresh frozen plasma;	mg/dL	milligrams per deciliter;
FFP	fraction of inspired oxygen (%);	mg/kg	milligrams per kilogram;
FI _O ₂	grams;	mg/L	milligrams per Liter;
g	grams per deciliter;	min	minutes;
g/dL	Glasgow Coma Score, ranges from 3 to 15;	ml	milliliter;
GCS	gastroesophageal reflux disease;	mmol	millimoles;
GERD	gastrointestinal;	mmol/L	millimoles per Liter (previously mEq/L);
GI	glucose, fasting [75-110] mg/dL;	mosm/kg	milliosmoles per kilogram;
Glu	hours;	mosm/L	milliosmoles per Liter;
h	hyperbaric oxygen treatment/therapy;	MRI	Magnetic Resonance Imaging;
HBO	health care facility;	MRSA	Methicillin-resistant Staphylococcus aureus;
HCF	human chorionic gonadotropin test for pregnancy;	ms	milliseconds;
HCG	bicarbonate [22 - 28 mEq/L];	MSDS	material safety data sheet;
HCO ₃	health care provider;	Na	sodium [136-146] mEq/L;
HCP	hematocrit [35.4-44.4] females, [38.8-46.4]% males;	NAC	n-acetyl cysteine;
Hct	hemodialysis;		
HD	hemoglobin [12.0-15.8] g/dL females, [13.3-16.2] g/ dL males;	Narrative Headers:	
Hgb	hyperinsulinemia-euglycemia therapy;	• Scenario/Substances: concise narrative of EMS & pre-HCF events	
HIE	human immunodeficiency virus;	• Past Medical History: available relevant past medical history	
HIV	when capitalized, Hour or hours since admission or since exposure as specified in the narrative;	• Physical Exam: initial physical exam if available	
Hour	HR, beats per min;	• Laboratory/Diagnostic Findings: initial results, give units except for units given in abbreviations	
HR	intraaortic balloon pump;	• Clinical Course: concise narrative of HCF & beyond with outcome	
IABP	intracranial pressure;	• Autopsy Findings medical examiner and/or autopsy results;	
ICP	intensive care unit;		
ICU	insulin dependent diabetes mellitus;	NG	nasogastric;
IDDM		ng/mL	nanograms per milliliter;
		NOS	not otherwise specified;
		not detected	analyte below the level of quantitation, negative;

NPO	<i>nil per os</i> , nothing by mouth;	(cannabicyclohexanol, CP-47,497, JWH-018,
NRB	non rebreathing mask for O ₂ delivery;	JWH-073, JWH-200, et al);
NS	normal saline;	TPN
NSR	normal sinus rhythm;	Tprot
NSTEMI	non-ST segment elevation myocardial infarction;	troponin
O ₂ sat	oxygen percent saturation [94-100]% at sea level;	
OG	serum osmol gap measured serum osmolality – calculated serum osmolality [0 ± 10 mOsmol/kg];	TTE
OR	operating room;	U
Osm	osmole;	U/dL
OTC	over the counter;	U/L
PALS	pediatric advanced life support;	U/mL
PC	poison center (PCC, or Poison Control Center);	UA
PCC	prothrombin complex concentrate;	UDS
PCP	primary care provider;	Urea nitrogen
PEA	pulseless electrical activity;	(BUN) [6-17] mg/dL;
PEEP	positive end expiratory pressure;	VBG
PERRLA	pupils, equal, round and reactive to light and accomodation;	venous blood gases;
Phos	phosphate (phosphorous) [2.5-4.5] mg/dL;	VF
PICU	pediatric intensive care unit;	VSD
PLT	platelet count [150-400] x10 ⁹ /L;	VT
PO	per os (“by mouth” in Latin);	WBC
POC	point of care;	white blood cell (leukocyte) count [3.54-9.06] 10 ³ /mm ³ ;
Ppm	parts per million;	WBI
PR	P-R interval [120-200] msec on the ECG;	whole bowel irrigation;
PRN	as needed;	WNL
PT	prothrombin time, INR is preferred, but PT may be used if INR is not available;	within normal limits;
PTA	Prior to admission;	y/o
PTSD	post-traumatic stress disorder;	year old;
PTT	partial thromboplastin time [26.3-39.4] sec;	
PVC	premature ventricular contraction;	
QRS	ECG QRS complex duration [60-100] msec;	
QT	Q to T interval on the ECG waveform, varies with HR;	
QTc	QT interval corrected for HR, usually QTcB QT/RR ^{1/2} (Bazett correction) 1-15 y-o [<440] msec, adult male [<430] msec, adult female [<450] msec;	
RA	on room air;	
RBBB	right bundle branch block on ECG;	
RBC	red blood cell(s);	
ROSC	return of spontaneous circulation;	
RPC	regional poison center;	
RR	respiratory rate, breaths per minute;	
s/p	status post;	
salicylate	aspirin, acetylsalicylic acid, therapeutic [15-30] mg/dL;	
SBP	systolic blood pressure;	
sec	seconds;	
SL	sublingual;	
SVT	supraventricular tachycardia;	
T (oral)	Temperature (oral) [36.4, 37.2]°C;	
T (rectal)	Temperature (rectal) [36.4, 37.2]°C;;	
T (tympanic)	Temperature (tympanic) [36.4, 37.2]°C;;	
TBSA	total body surface area;	
THC	tetrahydrocannabinol;	
THC Homolog	one or more of the products (Blaze, Dawn, herbal incense, K2, Red X, spice, et al) or chemicals	

APPENDIX D

POISONHELP.ORG

Methods: Raw data from PoisonHelp.org was extracted into Microsoft Excel 365 (Redmond, WA, USA) in sequential contact format. On review of each year, it was evident that some sequential contacts appeared to be repeat entries due to similarities of nearly every data field over short time periods (i.e., minutes) between contacts. To account for these apparent repeats, identified by adjacent sequential contact numbers or separated by only a single contact, line items with identical age category, state, verbatim substance input (first three characters), and originating operating system were considered repeat entries and were excluded from the final analyses. Total number of entries and repeat entries excluded by this process were:

Year	2017	2018	2019	2020	2021	5 Year Totals
Original Counts	17,870	38,010	43,981	28,662	21,691	150,214
Final Counts	14,070	32,228	37,415	24,485	18,447	126,645
Number Excluded	3,800	5,782	6,566	4,177	3,244	23,569
% Excluded	21.3%	15.2%	14.9%	14.6%	15.0%	15.7%

Table D-1. Age Distribution of PoisonHelp.org Contacts (repeats excluded).

	2017	2018	2019	2020	2021
Age ≤5	7,194	10,641	11,004	6,352	3,799
6-12	1,072	1,996	2,084	1,218	946
Teen 13-19	1,075	3,870	4,739	3,113	2,490
Adult 20-69	4,454	14,440	17,922	12,591	10,143
Adult 70+	275	1,281	1,666	1,200	1,068
Unknown Age	0	0	0	11	1
Total Counts	14,070	32,228	37,415	24,485	18,447

The table shows ages of individuals who were involved in human exposures (HEs) reported to PoisonHelp.org Virtual Poison Center during the initial 5 years of operation.

Table D-2A. Substance Frequency – 2017.

Substance Generic Code	Contact Counts	Percentage of Contacts
Bleaches: Hypochlorite (Liquid and Dry)	269	2.66%
Ibuprofen	261	2.58%
Acetaminophen Alone, Adult	248	2.46%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	184	1.82%
Pyrethroids	162	1.60%
Diphenhydramine Alone (Over the Counter)	151	1.50%
Diaper Care and Rash Products	147	1.46%
Creams, Lotions, and Make-Up	146	1.45%
Desiccants	120	1.19%
Soaps (Bar, Hand or Complexion)	113	1.12%
Other Non-Drug Substances	103	1.02%
Deodorants	101	1.00%
Hand Sanitizers: Ethanol Based	100	0.99%
Miscellaneous Essential Oils	96	0.95%
Other Chemicals	94	0.93%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 10,100) reported to PoisonHelp.org in year 2017.

Table D-2B. Substance Frequency – 2018.

Substance Generic Code	Contact Counts	Percentage of Contacts
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	983	4.30%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	910	3.98%
Benzodiazepines	888	3.89%
Atypical Antipsychotics	463	2.03%
Ibuprofen	451	1.97%
Sertraline	431	1.89%
Other Types of Miscellaneous Prescription or Over the Counter Drug	421	1.84%
Acetaminophen Alone, Adult	386	1.69%
Bleaches: Hypochlorite (Liquid and Dry)	341	1.49%
Beta Blocker, Alone	272	1.19%
Diphenhydramine Alone (Over the Counter)	233	1.02%
Leukotriene Antagonist or Inhibitor	229	1.00%
Other Types of Nonsteroidal Anti-inflammatory Drug	221	0.97%
Antacids: Proton Pump Inhibitors	206	0.90%
Angiotensin Receptor Blocker, Alone	203	0.89%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 22,846) reported to PoisonHelp.org in year 2018.

Table D-2C. Substance Frequency – 2019.

Substance Generic Code	Contact Counts	Percentage of contacts
Benzodiazepines	1,447	5.42%
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	1,394	5.22%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	1,235	4.63%
Other Types of Miscellaneous Prescription or Over the Counter Drug	596	2.23%
Atypical Antipsychotics	591	2.21%
Sertraline	559	2.09%
Ibuprofen	473	1.77%
Diphenhydramine Alone (Over the Counter)	457	1.71%
Angiotensin Receptor Blocker, Alone	416	1.56%
Acetaminophen Alone, Adult	363	1.36%
Beta Blocker, Alone	346	1.30%
Antacids: Proton Pump Inhibitors	333	1.25%
Bleaches: Hypochlorite (Liquid and Dry)	318	1.19%
Cimetidine and Other Histamine-2 Blockers	282	1.06%
Other Types of Nonsteroidal Anti-inflammatory Drug	276	1.03%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 26,697) reported to PoisonHelp.org in year 2019.

Table D-2D. Substance Frequency – 2020.

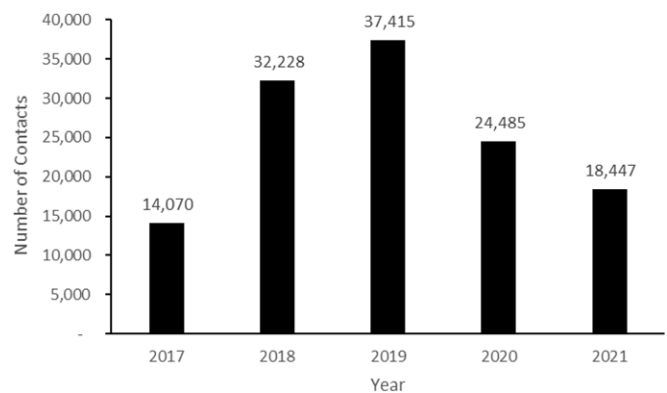
Substance Generic Code	Contact Counts	Percentage of Contacts
Benzodiazepines	940	5.17%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	871	4.79%
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	660	3.63%
Sertraline	605	3.33%
Diphenhydramine Alone (Over the Counter)	507	2.79%
Ibuprofen	491	2.70%
Other Types of Miscellaneous Prescription or Over the Counter Drug	418	2.30%
Atypical Antipsychotics	351	1.93%
Angiotensin Receptor Blocker, Alone	313	1.72%
Bleaches: Hypochlorite (Liquid and Dry)	279	1.53%
Antacids: Proton Pump Inhibitors	259	1.42%
Acetaminophen Alone, Adult	254	1.40%
Beta Blocker, Alone	206	1.13%
Other Types of Nonsteroidal Anti-inflammatory Drug	192	1.06%
Corticosteroids	190	1.04%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 18,183) reported to PoisonHelp.org in year 2020.

Table D-2E. Substance Frequency – 2021.

Substance Generic Code	Contact Counts	Percentage of Contacts
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	847	6.02%
Benzodiazepines	637	4.53%
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	552	3.93%
Sertraline	514	3.66%
Ibuprofen	433	3.08%
Other Types of Miscellaneous Prescription or Over the Counter Drug	428	3.04%
Atypical Antipsychotics	345	2.45%
Diphenhydramine Alone Over the Counter	324	2.30%
Antacids: Proton Pump Inhibitors	262	1.86%
Beta Blocker, Alone	231	1.64%
Corticosteroids	226	1.61%
Acetaminophen Alone, Adult	211	1.50%
Angiotensin Receptor Blocker, Alone	200	1.42%
Other Types of Nonsteroidal Anti-inflammatory Drug	165	1.17%
Amphetamines and Related Compounds	160	1.14%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 14,059) reported to PoisonHelp.org in year 2021.

**Figure D-1A.** Cases per Year. The figure demonstrates total contacts to the PoisonHelp.org Virtual Poison Center during the initial 5 years of operation.

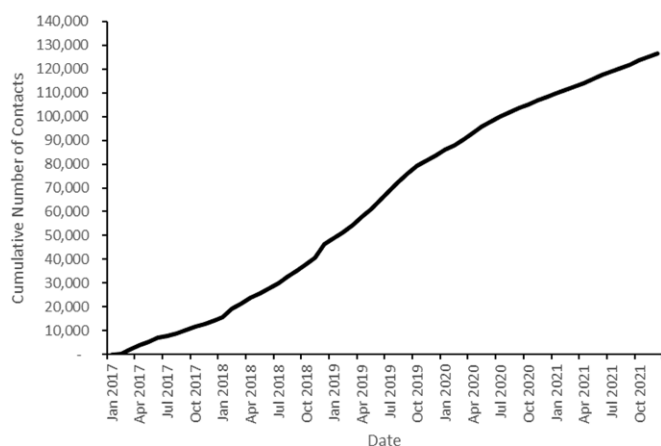


Figure D-1B. Cumulative counts. The figure demonstrates cumulative contacts to the PoisonHelp.org Virtual Poison Center during the first 5 years of operation.

APPENDIX E

Acknowledgments

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Poison Centers (PCs)

We gratefully acknowledge the extensive contributions of each participating PC and the assistance of the many health care providers who report comprehensive data to the PCs for inclusion in this database. We especially acknowledge the dedicated efforts of the Specialists in Poison Information (SPIs) who meticulously managed and coded 2,851,166 encounters at US PCs in 2021.

As in previous years, the initial review of reported fatalities and development of the abstracts and case data for NPDS was the responsibility of the staff at the 55 participating PCs. Many individuals at each center participated in the fatality case preparation. These toxicology professionals and their centers are:

Alabama Poison Information Center at Children's of Alabama

Will Rushton MD, FACEP, FACMT
Amy White RN, CSPI

Arizona Poison and Drug Information Center

F. Mazda Shirazi, MS, MD, PhD, FACEP, FAMCT
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NPDS surveillance anomalies are analyzed daily by a team of 9 medical and clinical toxicologists working across the country in a distributed system. These dedicated professionals interface with the Health Studies Branch, National Center for Environmental Health, Centers for Disease Control and Prevention (HSB/NCEH/CDC) and the PCs on a regular basis to identify anomalies of public health significance and improve NPDS surveillance systems:

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Regional Poison Center Fatality Awards

Each year, America's Poison Centers and the Fatality Review team recognizes several regional PCs for their extra effort in their preparation of fatality reports and prompt responses to reviewer queries. The awards are presented each year at the North American Congress of Clinical Toxicology Annual meeting.

First Center to Complete all Cases (2/15/2022, 29 cases)
 Virginia Poison Center (Richmond)
 Largest Number with Autopsy Reports (33 of 42 cases; 79%)
 Banner Poison Control Center (Phoenix)
 Highest Percentage with Autopsy Reports (79% of 42 cases)
 Banner Poison Control Center (Phoenix)
 Largest Number of Indirect cases (n= 1,986; 80% of all Indirect cases)
 Banner Poison & Drug Information Center (Phoenix)
 Highest Overall Quality of Reports (5.24 out of possible 12 for 38 cases)
 Arizona Poison & Drug Information Center (Tucson)
 Greatest improvement in Overall Quality of Reports (1.08 increase from last year)
 Pittsburgh Poison Center (Pittsburgh)
 Most Abstracts Published in the 2021 Annual report (5 of the 65 published narratives)
 New York City Poison Control Center (New York)
 Most Helpful Regional Poison Center Staff (17 hour 94% responses to 16 initial case queries),
 Nebraska Regional Poison Center (Omaha), Ronald Kirschner
Teaching Award for outstanding contributions to case quality through Reviewer teaching
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APPENDIX F

DATA DEFINITIONS

Reason for Exposure

NPDS classifies all encounters as either an Exposure case (concern about an exposure to a substance) or an Information request (no exposed human or animal). A contact may provide information about one or more exposed person or animal.

SPIs coded the reasons for exposure reported by callers to PCs according to the following definitions:

Unintentional general: All unintentional exposures not otherwise defined below.

Environmental: Any passive, non-occupational exposure that results from contamination of air, water, or soil. Environmental exposures are usually caused by manmade contaminants.

Occupational: An exposure that occurs as a direct result of the person being on the job or in the workplace.

Therapeutic error: An unintentional deviation from a proper therapeutic regimen that results in the wrong dose, incorrect route of administration, administration to the wrong person, or administration of the wrong substance. Only exposures to medications or products used as medications are included. Drug interactions resulting from unintentional administration of drugs or foods which are known to interact are also included.

Unintentional misuse: Unintentional, improper or incorrect use of a nonpharmaceutical substance. Unintentional misuse differs from intentional misuse in that the exposure was unplanned or not foreseen by the patient.

Bite/sting: All animal bites and stings, with or without envenomation, are included.

Food poisoning: Suspected or confirmed food poisoning; ingestion of food contaminated with microorganisms is included.

Unintentional unknown: An exposure determined to be unintentional, but the exact reason is unknown.

Suspected suicidal: An exposure resulting from the inappropriate use of a substance for reasons that are suspected to be self-destructive or manipulative.

Intentional misuse: An exposure resulting from the intentional improper or incorrect use for reasons other than the psychotropic effect.

Intentional abuse: An exposure resulting from the intentional improper or incorrect use where the patient was likely attempting to gain a high, euphoric effect or some other psychotropic effect, including recreational use of a substance for any effect.

Contaminant/tampering: The patient is an unintentional victim of a substance that has been adulterated (either maliciously or unintentionally) by the introduction of an undesirable substance.

Malicious: Patients who are victims of another person's intent to harm them.

Withdrawal: Inquiry about or experiencing of symptoms from a decline in blood concentration of a pharmaceutical or other substance after discontinuing therapeutic use or abuse of that substance.

Adverse Reaction Drug: Unwanted effects due to an allergic, hypersensitivity, or idiosyncratic response to the active ingredient(s), inactive ingredient(s) or excipient of a drug, chemical, or other drug substance when the exposure involves the normal, prescribed, labeled or recommended use of the substance.

Adverse Reaction Food: Unwanted effects due to an allergic, hypersensitivity, or idiosyncratic response to a food substance.

Adverse Reaction Other: Unwanted effects due to an allergic, hypersensitivity, or idiosyncratic response to a substance other than drug or food.

Unknown Reason: Reason for the exposure cannot be determined or no other category is appropriate.

Medical Outcome

No effect: The patient did not develop any signs or symptoms as a result of the exposure.

Minor effect: The patient developed some signs or symptoms as a result of the exposure, but they were minimally bothersome and generally resolved rapidly with no residual disability or disfigurement. A minor effect is often limited to the skin or mucous membranes (e.g., self-limited gastrointestinal symptoms, drowsiness, skin irritation, first degree dermal burn, sinus tachycardia without hypotension, and transient cough).

Moderate effect: The patient exhibited signs or symptoms as a result of the exposure that were more pronounced, more pro-

longed, or more systemic in nature than minor symptoms. Usually, some form of treatment is indicated. Symptoms were not life-threatening, and the patient had no residual disability or disfigurement (e.g., corneal abrasion, acid-base disturbance, high fever, disorientation, hypotension that is rapidly responsive to treatment, and isolated brief seizures that respond readily to treatment).

Major effect: The patient exhibited signs or symptoms as a result of the exposure that were life-threatening or resulted in significant residual disability or disfigurement (e.g., repeated seizures or status epilepticus, respiratory compromise requiring intubation, ventricular tachycardia with hypotension, cardiac or respiratory arrest, esophageal stricture, and disseminated intravascular coagulation).

Death: The patient died as a result of the exposure or as a direct complication of the exposure.

Not followed, judged as nontoxic exposure: No follow-up calls were made to determine the outcome of the exposure because the substance implicated was nontoxic, the amount implicated was insignificant, or the route of exposure was unlikely to result in a clinical effect.

Not followed, minimal clinical effects possible: No follow-up calls were made to determine the patient's outcome because the exposure was likely to result in only minimal toxicity of a trivial nature. (The patient was expected to experience no more than a minor effect.)

Unable to follow, judged as a potentially toxic exposure: The patient was lost to follow-up, refused follow-up, or was not followed, but the exposure was significant and may have resulted in a moderate, major, or fatal outcome.

Unrelated effect: The exposure was probably not responsible for the effect.

Confirmed nonexposure: This outcome option was coded to designate cases where there was reliable and objective evidence that an exposure initially believed to have occurred actually never occurred (e.g., all missing pills are later located). All cases coded as confirmed nonexposure are excluded from this report.

Death, indirect report: Death, indirect report are deaths that the poison center acquired from medical examiner or media, but did not manage nor answer any questions about the death.

Relative Contribution to Fatality (RCF)

The Case Review Team (CRT) includes the Author and Reviewer from the RPC, the America's Poison Centers Lead Reviewer, Peer Reviewer and Manager.

The definitions used for the Relative Contribution to Fatality (RCF) classification were as follows:

- 1. Undoubtedly responsible** - In the opinion of the CRT, the Clinical Case Evidence establishes beyond a reasonable doubt that the SUBSTANCES actually caused the death.
- 2. Probably responsible** - In the opinion of the CRT, the Clinical Case Evidence suggests that the SUBSTANCES caused the death, but some reasonable doubt remained.
- 3. Contributory** - In the opinion of the CRT, the Clinical Case Evidence establishes that the SUBSTANCES contributed to the death, but did not solely cause the death. That is, the SUBSTANCES alone would not have caused the death, but

combined with other factors, were partially responsible for the death.

4. **Probably not responsible** - In the opinion of the CRT, the Clinical Case Evidence establishes to a reasonable probability, but not conclusively, that the SUBSTANCES associated with the death did not cause the death.
5. **Clearly not responsible** - In the opinion of the CRT, the Clinical Case Evidence establishes beyond a reasonable doubt that the SUBSTANCES did not cause this death.
6. **Unknown** - In the opinion of the CRT, the Clinical Case Evidence is insufficient to impute or refute a causative relationship for the SUBSTANCES in this death.