

2017 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 35th Annual Report

David D. Gummin, James B. Mowry, Daniel A. Spyker, Daniel E. Brooks, Krista M. Osterthaler & William Banner

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2017 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 35th Annual Report

David D. Gummin MD^{a,b}, James B. Mowry PharmD^c, Daniel A. Spyker PhD, MD^{d,e}, Daniel E. Brooks MD^f, Krista M. Osterthaler MPH^g and William Banner MD, PhD^h

^aWisconsin Poison Center, Milwaukee, WI, USA; ^bDepartment of Emergency Medicine, Section of Medical Toxicology, Medical College of Wisconsin, Milwaukee, WI, USA; ^cIndiana Poison Center, Indiana University Health, Indianapolis, IN, USA; ^dDepartment of Emergency Medicine, Oregon Poison Center, Oregon Health & Science University, Portland, OR, USA; ^eDepartment of Biopharmaceutical Sciences, University of California, San Francisco, CA, USA; ^fDepartment of Medical Toxicology, Banner University Medical Center - Phoenix, Phoenix, AZ, USA; ^gAmerican Association of Poison Control Centers, Alexandria, VA, USA; ^hOklahoma Center for Poison and Drug Information, University of Oklahoma College of Pharmacy, Oklahoma City, OK, USA

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ABSTRACT

Introduction: This is the 35th Annual Report of the American Association of Poison Control Centers' (AAPCC) National Poison Data System (NPDS). As of 1 January 2017, 55 of the nation's poison centers (PCs) uploaded case data automatically to NPDS. The upload interval was 8.07 [7.32, 12.65] (median [25%, 75%]) minutes, creating 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 2017, 2,607,413 closed encounters were logged by NPDS: 2,115,186 human exposures, 51,164 animal exposures, 435,540 information contacts, 5,424 human confirmed nonexposures, and 99 animal confirmed nonexposures. US PCs also made 2,680,625 follow-up calls in 2017. Total encounters showed a 3.79% decline from 2016, while health care facility (HCF) human exposure cases increased by 3.06%. All information contacts decreased by 11.5%, medication identification (Drug ID) requests decreased by 30.2%, and human exposure cases decreased by 2.03%. Human exposures with less serious outcomes have decreased 2.48% per year since 2008, while those with more serious outcomes (moderate, major or death) have increased 4.44% per year since 2000.

Consistent with the previous year, the top 5 substance classes most frequently involved in all human exposures were analgesics (11.08%), household cleaning substances (7.43%), cosmetics/personal care products (6.76%), sedatives/hypnotics/antipsychotics (5.74%), and antidepressants (5.02%). As a class, sedative/hypnotics/antipsychotics exposures increased most rapidly, by 1962 cases/year (4.91%/year), over the last 17 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 (12.59%), household cleaning substances (10.96%), analgesics (9.18%), foreign bodies/toys/miscellaneous (6.39%), and topical preparations (4.84%). Drug identification requests comprised 22.1% of all information contacts. NPDS documented 3,208 human exposures resulting in death; 2,682 (83.6%) 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 need for specialized medical toxicology information to manage more serious exposures, despite a decrease in cases involving less 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 AAPCC 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 to improve precision and avoid misinterpretation.

Introduction

This is the 35th Annual Report of the American Association of Poison Control Centers' (AAPCC; <http://www.aapcc.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 telephonic patient-specific exposure management and poison information for entire year of 2017.

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 3.5 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 CONTACT). 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 437,000 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 Healthcare Series [Internet database], Greenwood Village, CO: IBM Watson Health). A robust generic coding system categorizes the product data into 1,105 active generic codes. These generic codes collapse into Pharmaceutical (543) and Non-Pharmaceutical (562) groups. These two groups are divided into Major (68) and Minor (184) categories. The generic coding schema undergoes continuous improvement through the work of the AAPCC – Micromedex Joint Coding Group. The group consists of AAPCC members and IBM Watson Health editorial and lexicon staff working to meet best terminology practices. The generic code system provides enhanced report granularity as reflected in Appendix E (Table 22). The following 14 new generic codes were introduced in 2017.

Methods

Characterization of participating poison centers and population served

All 55 US PCs are accredited, and all submitted data to AAPCC through 31 December 2017. The entire population of the 50 United States, American Samoa, the District of

Generic Codes Added in 2017*

1	Bisphosphonates (Including Combinations)
2	Decarboxylase Inhibitor, Alone
3	Fatty Acid Supplements
4	Hematopoietics
5	Kratom
6	Levodopa and Carbidopa with Other Drugs
7	Miscellaneous Alzheimer Drugs
8	Miscellaneous Antidote Drugs
9	Monoclonal Antibodies (Including Fragments)
10	Other Parkinson Drugs (Including Combinations)
11	Other Synthetic Street Drugs
12	Synthetic Cathinones, Analogs and Precursors
13	Synthetic Opioids, Analogs and Precursors (Excluding Pharmaceutical Preparations)
14	Synthetic Tryptamines, Analogs and Precursors

*Because the new codes were added during 2017, the numbers for these generic codes in Appendix E (Table 22) do 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..

Columbia, Federated States of Micronesia, Guam, Puerto Rico, and the US Virgin Islands was served by the US PC network in 2017 [2].

The average number of human exposure cases managed per day by all US PCs was 5,795. Similar to other years, higher volumes were observed in the warmer months, with a mean of 6,156 cases per day in June compared with 5,222 per day in December. On average, US PCs experienced a new encounter involving an actual human exposure every 14.9 seconds.

Encounter management – specialized poison exposure emergency providers

Poison center Managing Directors are primarily responsible for patient care/information service operations, clinical education, and 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 exposure 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, (s)he 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. Of note, while the only individuals eligible to sit for the CSPI examination are RNs, pharmacists, physicians and physician assistants, there is a lack of an appropriate, core toxicology training within most graduate medical

education curricula to allow them 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 (non-hospital) cases while working under the supervision of a CSPI. Poison centers undergo a rigorous accreditation process administered by the AAPCC 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 2017, 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 4 electronic medical record systems. Each PC uploads case data automatically. The average time to upload data for all PCs is 8.07 [7.32, 12.65] (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 AAPCC, 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 prevent inadvertent changes and 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 2017 database was locked on 1 August 2018 at 12:01 EDT.

Annual report case inclusion criteria

Note: In this and last years' reports, human and animal "EXPOSURE CALLs" have been renamed to human and animal "EXPOSURE CASEs," since a single call may result in multiple cases and the NPDS database contains information about individual exposure cases. The information in this report reflects only those cases that are not duplicates and classified by the PC as CLOSED. A case is closed when the PC has determined that no further follow-up/recommendations are required or no further information is available. Exposure cases are followed to obtain the most precise medical outcome possible. Depending on the case specifics, most cases are "closed" within a few hours of the initial contact. Cases

Table 1A. AAPCC population served and reported exposures (1983–2017).

Year	No. of participating centers	Population served (in millions)	Human exposures	Exposures per thousand population
1983	16	43.1	251,012	5.8
1984	47	99.8	730,224	7.3
1985	56	113.6	900,513	7.9
1986	57	132.1	1,098,894	8.3
1987	63	137.5	1,166,940	8.5
1988	64	155.7	1,368,748	8.8
1989	70	182.4	1,581,540	8.7
1990	72	191.7	1,713,462	8.9
1991	73	200.7	1,837,939	9.2
1992	68	196.7	1,864,188	9.5
1993	64	181.3	1,751,476	9.7
1994	65	215.9	1,926,438	8.9
1995	67	218.5	2,023,089	9.3
1996	67	232.3	2,155,952	9.3
1997	66	250.1	2,192,088	8.8
1998	65	257.5	2,241,082	8.7
1999	64	260.9	2,201,156	8.4
2000	63	270.6	2,168,248	8.0
2001	64	281.3	2,267,979	8.1
2002	64	291.6	2,380,028	8.2
2003	64	294.7	2,395,582	8.1
2004	62	293.7	2,438,643	8.3
2005	61	296.4	2,424,180	8.2
2006	61	299.4	2,403,539	8.0
2007	61	305.6	2,482,041	8.1
2008	61	308.5 ^b	2,491,049	8.1
2009	60	310.9 ^b	2,479,355	8.0
2010	60 ^a	313.3 ^b	2,384,825	7.6
2011	57 ^c	315.7 ^b	2,334,004	7.4
2012	57	318.0 ^b	2,275,141	7.2
2013	57 ^d	320.2 ^e	2,188,013	6.8
2014	56 ^d	322.9 ^f	2,165,142	6.7
2015	55 ^g	325.4 ^h	2,168,371	6.7
2016	55	327.0 ⁱ	2,159,032	6.6
2017	55	330.4 ^j	2,115,186	6.4
Total			66,609,913	

^aAs of 1 July 2010 there were 60 Participating Centers.

^bAAPCC 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).

^cAs of 1 July 2011 there were 57 Participating Centers.

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

^eAAPCC Total as of 1 July Mid Year US Census (2013 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands).

^fAAPCC Total as of 1 July Mid Year US Census (2014 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [2].

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

^hAAPCC Total as of 1 July Mid Year US Census (2015 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [2].

ⁱAAPCC Total as of 1 July Mid Year US Census (2016 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [2].

^jAAPCC Total as of 1 July Mid Year US Census (2017 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [2].

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.

Table 1B. Non-human exposures by animal type.

Animal	N	%
Dog	46,125	90.15
Cat	4,329	8.46
Bird	151	0.30
Rodent/lagomorph	126	0.25
Horse	83	0.16
Sheep/goat	45	0.09
Cow	34	0.07
Aquatic	10	0.02
Other	261	0.51
Total	51,164	100.00

Statistical methods

All tables except Tables 3B and 17B were generated directly by the NPDS web-based application and can thus be reproduced by each PC. The analyses for Figures 1-4, Figure 7 and Table 17B were done using SAS JMP® version 12.0.1 (SAS Institute, Cary, NC) and summary counts were generated by the NPDS web-based application. The analysis for Figure 5 was done using Microsoft Excel 2016 (Microsoft, Redmond, WA).

Table 1C. Distribution of information calls.

Information call type	N	% of Info. calls
Drug identification		
Public inquiry: Drug sometimes involved in abuse	33,058	7.59
Public inquiry: Drug not known to be abused	19,919	4.57
Public inquiry: Unknown abuse potential	643	0.15
Public inquiry: Unable to identify	8,810	2.02
HCP inquiry: Drug sometimes involved in abuse	797	0.18
HCP inquiry: Drug not known to be abused	1,239	0.28
HCP inquiry: Unknown abuse potential	79	0.02
HCP inquiry: Unable to identify	561	0.13
Law Enf. Inquiry: Drug sometimes involved in abuse	18,238	4.19
Law Enf. Inquiry: Drug not known to be abused	9,446	2.17
Law Enf. Inquiry: Unknown abuse potential	398	0.09
Law Enf. Inquiry: Unable to identify	2,430	0.56
Other drug ID	603	0.14
Subtotal	96,221	22.09
Drug information		
Adverse effects (no known exposure)	7,726	1.77
Brand/generic name clarifications	667	0.15
Calculations	94	0.02
Compatibility of parenteral medications	141	0.03
Compounding	181	0.04
Contraindications	1,244	0.29
Dietary supplement, herbal, and homeopathic	442	0.10
Dosage	10,192	2.34
Dosage form/formulation	1,211	0.28
Drug use during breast-feeding	1,524	0.35
Drug-drug interactions	19,944	4.58
Drug-food interactions	1,390	0.32
Foreign drug	92	0.02
Generic substitution	181	0.04
Indications/therapeutic use	5,178	1.19
Medication administration	4,503	1.03
Medication availability	361	0.08
Medication disposal	1,637	0.38
Pharmacokinetics	1,194	0.27
Pharmacology	639	0.15
Regulatory	1,344	0.31
Stability/storage	1,680	0.39
Therapeutic drug monitoring	299	0.07
Other drug info	14,150	3.25
Subtotal	76,014	17.45
Environmental information		
Air quality	1,458	0.33
Carbon monoxide – no known patient(s)	485	0.11
Carbon monoxide alarm use	313	0.07
Chem/bioterrorism/weapons (suspected or confirmed)	14	0.00
Clarification of media reports of environmental contamination	27	0.01
Clarification of substances involved in a HAZMAT incident – no known victim(s)	53	0.01
General questions about contamination of air and/or soil	262	0.06
HAZMAT planning	94	0.02
Lead – no known patient(s)	376	0.09
Mercury thermometer cleanup	953	0.22
Mercury (excluding thermometers) cleanup	1,524	0.35
Notification of a HAZMAT incident – no known patient(s)	743	0.17
Pesticide application by a professional pest control operator	538	0.12
Pesticides (other)	2,370	0.54
Potential toxicity of chemicals in the environment	1,077	0.25
Radiation	41	0.01
Safe disposal of chemicals	1,023	0.23

(continued)

Table 1C. Continued.

Information call type	N	% of Info. calls
Water purity/contamination	559	0.13
Other environmental	2,789	0.64
Subtotal	14,699	3.37
Medical information		
Dental questions	84	0.02
Diagnostic or treatment recommendations for diseases or conditions – non-toxicology	5,997	1.38
Disease prevention	786	0.18
Explanation of disease states	2,935	0.67
General first-aid	795	0.18
Interpretation of non-toxicology laboratory reports	104	0.02
Medical terminology questions	53	0.01
Rabies – no known patient(s)	268	0.06
Sunburn management	24	0.01
Other medical	44,424	10.20
Subtotal	55,470	12.74
Occupational information		
Occupational treatment/first-aid guidelines – no known patient(s)	27	0.01
Information on chemicals in the workplace	77	0.02
MSDS interpretation	38	0.01
Occupational MSDS requests	351	0.08
Routine toxicity monitoring	13	0.00
Safe handling of workplace chemicals	57	0.01
Other occupational	230	0.05
Subtotal	793	0.18
Poison information		
Analytical toxicology	725	0.17
Carcinogenicity	84	0.02
Food poisoning – no known patient(s)	1,748	0.40
Food preparation/handling practices	5,293	1.22
General toxicity	23,009	5.28
Mutagenicity	50	0.01
Plant toxicity	1,463	0.34
Recalls of non-drug products (including food)	175	0.04
Safe use of household products	3,837	0.88
Toxicology information for legal use/litigation	136	0.03
Other poison	12,985	2.98
Subtotal	49,505	11.37
Prevention/Safety/Education		
Confirmation of poison center number	11,943	2.74
General (non-poison) injury prevention requests	346	0.08
Media requests	162	0.04
Poison prevention material requests	6,353	1.46
Poison prevention week date inquiries	25	0.01
Professional education presentation requests	186	0.04
Public education presentation requests	245	0.06
Other prevention	740	0.17
Subtotal	20,000	4.59
Teratogenicity information		
Teratogenicity	1,711	0.39
Subtotal	1,711	0.39
Other information		
Other	48,986	11.25
Subtotal	48,986	11.25
Substance Abuse		
Drug screen information	2,080	0.48
Effects of illicit substances – no known patient(s)	142	0.03
New trend information	538	0.12
Withdrawal from illicit substances – no known patient(s)	105	0.02
Other substance abuse	431	0.10
Subtotal	3,296	0.76
Administrative		
Expert witness requests	19	0.00
Faculty activities	37	0.01
Funding	9	0.00
Personnel issues	172	0.04
Poison center record request	166	0.04
Product replacement/malfunction (issues intended for the manufacturer)	2,371	0.54
Scheduling of poison center rotations	68	0.02
Other administration	17,403	4.00
Subtotal	20,245	4.65
Caller Referred		
Immediate referral – animal poison center or veterinarian	20,362	4.68
Immediate referral – drug identification	1,102	0.25
Immediate referral – drug information	114	0.03

(continued)

Table 1C. Continued.

Information call type	N	% of Info. calls
Immediate referral – health department	8,107	1.86
Immediate referral – medical advice line	442	0.10
Immediate referral – pediatric triage service	98	0.02
Immediate referral – pesticide hotline	298	0.07
Immediate referral – pharmacy	440	0.10
Immediate referral – poison center	4,217	0.97
Immediate referral – private physician	1,883	0.43
Immediate referral – psychiatric crisis line	92	0.02
Immediate referral – teratology information program	168	0.04
Other call referral	11,277	2.59
Subtotal	48,600	11.16
Total	435,540	100.00

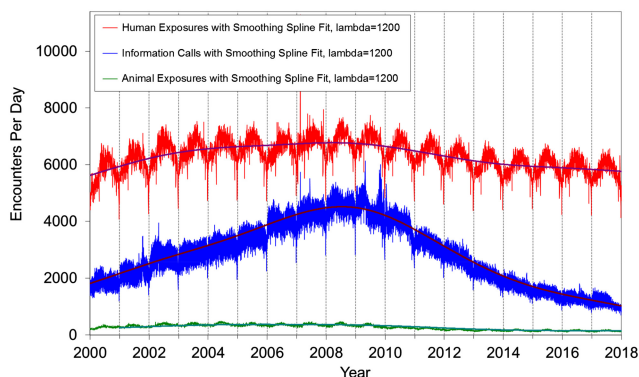


Figure 1. Human exposure cases, information contacts and animal exposure cases by day since 1 January 2000.

Smoothing spline fits using $\lambda = 1200$ for human exposures had associated $RSqr = 0.447$, information contacts $RSqr = 0.904$ and animal exposures $RSqr = 0.871$.

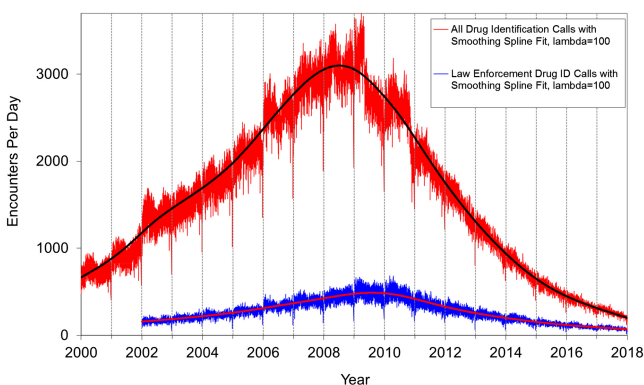


Figure 2. All drug identification and law enforcement drug identification contacts by day since 1 January 2000.

Smoothing spline fits used $\lambda = 100$, all drug identification contacts had associated $RSqr = 0.966$ and law enforcement drug ID contacts $RSqr = 0.868$.

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 software 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 AAPCC surveillance team. Poison centers also have the ability to share NPDS

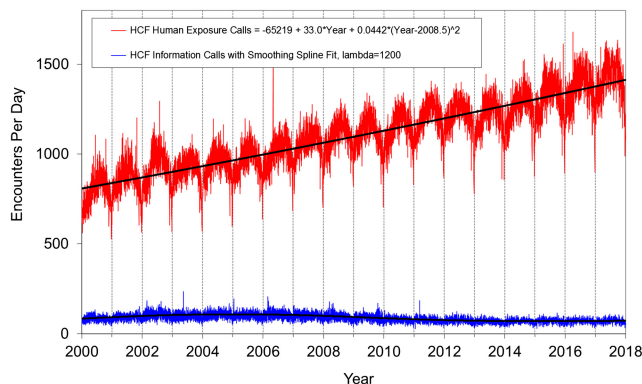


Figure 3. Health care facility (HCF) exposure cases and hcf information contacts by day since 1 January 2000.

Both linear and second order (quadratic) terms were statistically significant ($p < 0.001$) for regression of HCF human exposure with associated $RSqr = 0.766$. The quadratic coefficient is positive meaning the case counts are increasing faster than linearly. Smoothing spline fit with $\lambda = 1200$ for HCF information contacts had associated $RSqr = 0.369$.

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 Poisindex products database; and/or set of clinical effects or other parameters. The products database contains over 437,000 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 15 years. NPDS surveillance tools include:

- Volume Alert Surveillance Definitions
- Total Encounter Volume
- Human Exposure Case Volume
- Animal Exposure Case Volume
- Information Contact Volume
- Clinical Effects Volume (signs and symptoms, or laboratory abnormalities)

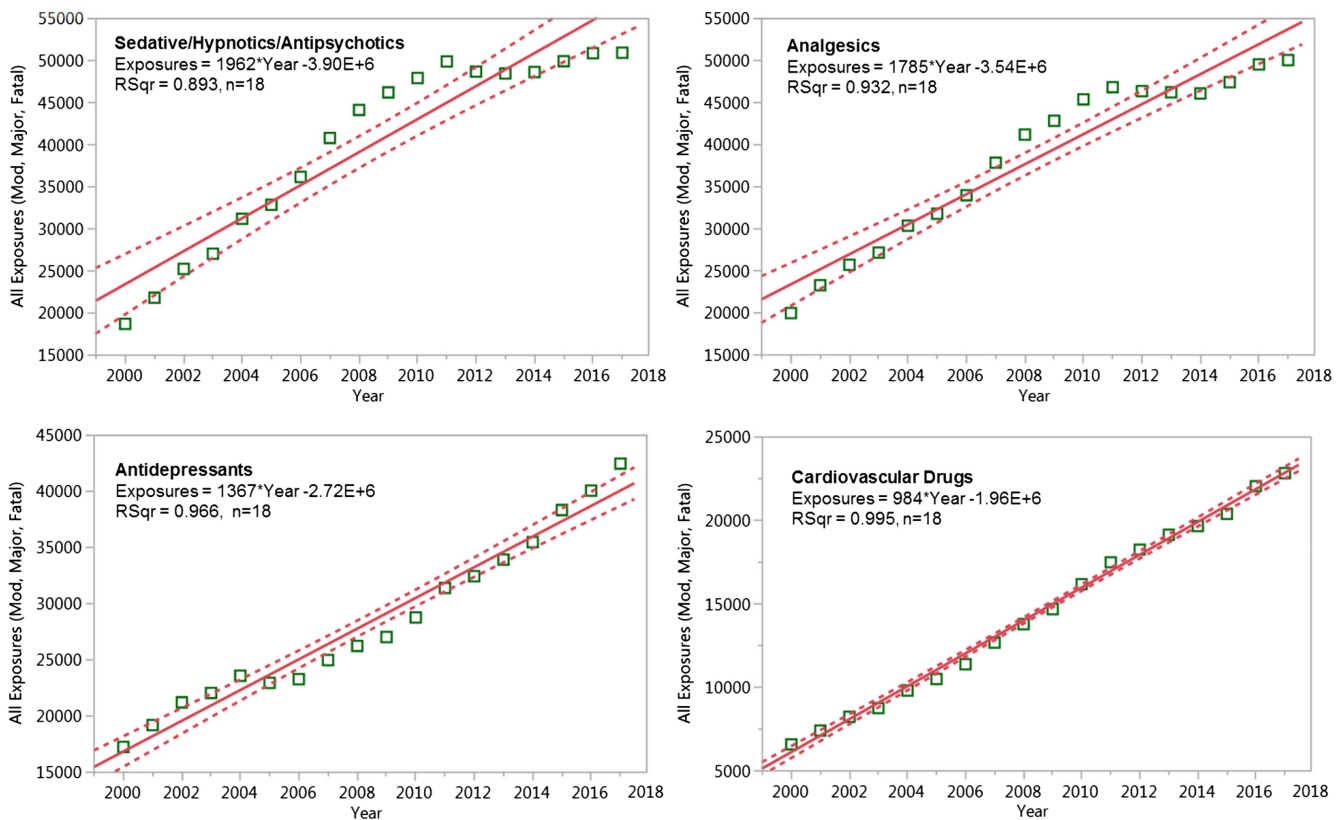


Figure 4. Substance categories with the greatest rate of exposure increase since 1 January 2000 for more severe outcomes (Top 4). Solid lines show least-squares linear regressions for the human exposure cases per year for that category (□). Broken lines show 95% confidence interval on the regression.

- Case Based Surveillance Definitions utilizing various NPDS data fields linked in Boolean expressions
 - Substance
 - Clinical Effects
 - Species
 - Medical Outcome and others
- Syndromic Surveillance Definitions allows Boolean based definitions utilizing various NPDS data fields to be run based on historical trends for user defined periods of interest

Incoming data are monitored continuously, and anomalous signals generate an automated email alert to the AAPCC's surveillance team, designated PC or public health agency staff. These anomaly alerts are reviewed daily by the AAPCC 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 alerts their respective local or state health departments. 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). This near real-time tracking ability is a unique feature offered by NPDS and the PCs.

AAPCC Surveillance Team clinical and medical toxicologists 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 have the ability to 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 selected a topic that exemplifies recent trends in NPDS data. Past trends have compared NPDS data to other sources such as trademark and CDC reports. Two of the last 3 years have focused on the opioid epidemic. The worldwide prevalence of illicit substance use is currently in flux, and the pattern of use in the United States is no exception. An increasing number of individual states within the US have begun to legalize and control the sale and consumption of phytocannabinoids, complicating the definition of "illicit" [3]. The opioid and specifically the heroin epidemic continues to beleague the US and other western nations, but data characterizing patterns of use of other classes of abusable substances, including "novel psychoactive substances" (NPS), remain incomplete. According to federal sources, cocaine consumption in the US fell sharply from 2005-2010, and has only increased in more recent years [3,4]. At least 97% of cocaine trafficked to the US is cultivated in South America, most notably Columbia, Peru, and Bolivia, where production has increased since 2014.

In June, 2017, the AAPCC Board of Directors approved a change in the way that search strategies could be employed in NPDS. The Historical Generic Code (GC) search strategy process allows identification and categorization of substance searches by product code before definition of the GC. Creating this strategy facilitated identification of cases associated with specific substances within the database particularly for novel substances.

We evaluated a broader view of substances of abuse, and examined all closed human single substance exposures, by

week, from 1-Jul-2010 through 30-Jul-2018 by Generic Code (GC) for:

0201127 - Methamphetamines (Active 01/01/1985)
 0113000 - Cocaine (Active 01/01/1985)
 0201126 - Hallucinogenic Amphetamines (Active 01/11/1985)
 0037702 - Heroin (Active 01/01/1985)
 0310130 - Kratom (Active 03/06/2017)
 0310140 - Synthetic Cathinones, Analogs and Precursors (Active 10/24/2017)
 0310141 - Synthetic Opioids, Analogs and Precursors (excluding pharmaceutical preparations) (Active 10/24/2017)
 0310142 - Synthetic Tryptamines, Analogs and Precursors (Active 10/24/2017)

Since 4 of these GCs predate NPDS and 4 were activated in 2017, we utilized the newly defined Historical Generic Code search strategy to map these GCs. We examined changes over time for each GC using flexible (spline) fits. We also examined recent rates of change, by linear regression, for the last 52 weeks of data for each GC. From a public health perspective, changes in both the absolute number

Table 2. Site of call and site of exposure, human exposure cases.

Site	Site of caller		Site of exposure	
	N	%	N	%
Residence				
Own	1,399,309	66.16	1,915,044	90.54
Other	28,606	1.35	46,089	2.18
Workplace	23,085	1.09	38,849	1.84
Health care facility	515,962	24.39	7,083	0.33
School	10,493	0.50	30,628	1.45
Restaurant/food service	445	0.02	3,679	0.17
Public area	8,065	0.38	23,005	1.09
Other	123,385	5.83	26,641	1.26
Unknown	5,836	0.28	24,168	1.14

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	55,512	51.82	51,198	47.79	416	0.39	107,126	5.06	107,126	5.06
1	160,303	52.07	147,019	47.75	560	0.18	307,882	14.56	415,008	19.62
2	154,214	52.10	141,193	47.70	596	0.20	296,003	13.99	711,011	33.61
3	74,858	54.85	61,302	44.92	319	0.23	136,479	6.45	847,490	40.07
4	37,919	56.38	29,101	43.27	238	0.35	67,258	3.18	914,748	43.25
5	23,040	57.07	17,128	42.42	207	0.51	40,375	1.91	955,123	45.16
Unknown ≤5	763	43.65	745	42.62	240	13.73	1,748	0.08	956,871	45.24
Child 6-12	74,924	56.57	56,310	42.51	1,217	0.92	132,451	6.26	1,089,322	51.50
Teen 13-19	62,615	36.55	108,000	63.05	688	0.40	171,303	8.10	1,260,625	59.60
Unknown Child	1,710	38.63	1,658	37.45	1,059	23.92	4,427	0.21	1,265,052	59.81
Subtotal	645,858	51.05	613,654	48.51	5,540	0.44	1,265,052	59.81	1,265,052	59.81
Adults (≥20)										
20-29	86,158	45.97	101,064	53.92	206	0.11	187,428	8.86	1,452,480	68.67
30-39	68,350	44.48	85,209	55.45	100	0.07	153,659	7.26	1,606,139	75.93
40-49	48,498	41.27	68,940	58.66	82	0.07	117,520	5.56	1,723,659	81.49
50-59	46,687	40.76	67,759	59.16	82	0.07	114,528	5.41	1,838,187	86.90
60-69	33,429	38.50	53,356	61.44	51	0.06	86,836	4.11	1,925,023	91.01
70-79	20,022	37.14	33,853	62.80	33	0.06	53,908	2.55	1,978,931	93.56
80-89	9,974	35.19	18,358	64.77	12	0.04	28,344	1.34	2,007,275	94.90
≥90	2,185	31.50	4,742	68.37	9	0.13	6,936	0.33	2,014,211	95.23
Unknown adult	33,583	38.54	51,855	59.50	1,709	1.96	87,147	4.12	2,101,358	99.35
Subtotal	348,886	41.72	485,136	58.01	2,284	0.27	836,306	39.54	2,101,358	99.35
Other										
Unknown age	4,577	33.10	6,222	45.00	3,029	21.90	13,828	0.65	2,115,186	100.00
Total	999,321	47.25	1,105,012	52.24	10,853	0.51	2,115,186	100.00	2,115,186	100.00

and percentage of exposures may be relevant, so both parameters were calculated and presented.

Fatality case review and abstract selection

NPDS fatality cases are recorded as DEATH or DEATH (INDIRECT REPORT). Medical outcome of DEATH is by direct report. DEATHS (INDIRECT REPORT) are deaths that the PC acquired from medical examiners or media but did not manage or answer any questions related specifically to that case.

Although PCs may report death as an outcome, the death may not be a direct result of the exposure. We define

Table 3B. Population-adjusted exposures by age group.

Age Group	Exposures/ 100 k population	Number of Exposures ^a	Population ^b
Children (<20)			
< 1	2,618	107,126	4,092,273
1	7,542	307,882	4,082,061
2	7,270	296,003	4,071,693
3	3,363	136,479	4,058,295
4	1,664	67,258	4,041,350
5	996	40,375	4,051,951
Child 6-12	456	132,451	29,064,156
Teen 13-19	576	171,303	29,727,838
Subgroup	1,521	1,265,052	83,189,617
Adults (≥20)			
20-29	405	187,428	46,239,807
30-39	351	153,659	43,732,816
40-49	286	117,520	41,148,415
50-59	260	114,528	44,024,966
60-69	232	86,836	37,463,960
70-79	245	53,908	21,975,428
80-89	283	28,344	10,023,916
90+	266	6,936	2,609,019
Subgroup	338	836,306	247,218,327
Overall Total	640	2,115,186	330,407,944

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

^bAAPCC Total as of 1 July 2017 330,407,944 (see Table 1A) [2].

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

Age (y)	Male	Female	Unknown	Total (%)	Cumulative total (%)
< 1 year	2	2	0	4 (0.3%)	4 (0.3%)
1 year	1	0	0	1 (0.1%)	5 (0.4%)
2 years	2	1	0	3 (0.2%)	8 (0.6%)
3 years	1	0	0	1 (0.1%)	9 (0.7%)
4 years	3	0	0	3 (0.2%)	12 (0.9%)
Child 6–12 years	8	4	1	13 (0.9%)	25 (1.8%)
Teen 13–19 years	19	27	0	46 (3.3%)	71 (5.1%)
20–29 years	123	81	1	205 (14.8%)	276 (19.9%)
30–39 years	148	95	0	243 (17.5%)	519 (37.4%)
40–49 years	99	128	0	227 (16.4%)	746 (53.8%)
50–59 years	131	137	0	268 (19.3%)	1,014 (73.1%)
60–69 years	75	114	0	189 (13.6%)	1,203 (86.7%)
70–79 years	43	61	0	104 (7.5%)	1,307 (94.2%)
80–89 years	25	33	0	58 (4.2%)	1,365 (98.3%)
>= 90 years	5	12	0	17 (1.2%)	1,382 (99.6%)
Unknown adult	3	1	0	4 (0.3%)	1,386 (99.9%)
Unknown age	0	1	1	2 (0.1%)	1,388 (100.0%)
Total	688	697	3	1,388 (100.0%)	1,388 (100.0%)

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

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

Table 5. Number of substances involved in human exposure cases.

No. of Substances	Human exposures		Fatal exposures ^a	
	N	%	N	%
1	1,858,385	87.86	598	43.08
2	159,710	7.55	327	23.56
3	53,855	2.55	214	15.42
4	22,485	1.06	97	6.99
5	9,764	0.46	74	5.33
6	4,814	0.23	24	1.73
7	2,504	0.12	22	1.59
8	1,427	0.07	9	0.65
>=9	2,242	0.11	23	1.66
Total	2,115,186	100.00	1,388	100.00

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

exposure-related fatality as a death judged by the AAPCC Fatality Review Team to be at least contributory to the exposure. The definitions used for the Relative Contribution to Fatality (RCF) classification are defined in Appendix B and the methods to select abstracts for publications are described in Appendix C. For details of the AAPCC fatality review process, see the 2008 annual report [1].

Pediatric fatality case review

A focused Pediatric Fatality Review team comprised of 6 pediatric toxicologists 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 continues to encourage the procurement of further

Table 6A. Reason for human exposure cases.

Reason	N	% Human exposures
Unintentional		
Unintentional – General	1,072,789	50.7
Unintentional – Therapeutic error	271,112	12.8
Unintentional – Misuse	141,330	6.7
Unintentional – Environmental	51,755	2.4
Unintentional – Bite / sting	41,850	2.0
Unintentional – Occupational	29,834	1.4
Unintentional – Food poisoning	16,181	0.8
Unintentional – Unknown	4,525	0.2
Subtotal	1,629,376	77.0
Intentional		
Intentional – Suspected suicide	274,390	13.0
Intentional – Misuse	57,085	2.7
Intentional – Abuse	49,234	2.3
Intentional – Unknown	19,452	0.9
Subtotal	400,161	18.9
Adverse Reaction		
Adverse reaction – Drug	34,896	1.6
Adverse reaction – Other	11,033	0.5
Adverse reaction – Food	5,561	0.3
Subtotal	51,490	2.4
Unknown		
Unknown reason	17,986	0.9
Subtotal	17,986	0.9
Other		
Other – Contamination / tampering	7,262	0.3
Other – Malicious	7,151	0.3
Other – Withdrawal	1,760	0.1
Subtotal	16,173	0.8
Total	2,115,186	100.0

detail regarding law enforcement or child protective services involvement, postmortem investigation, and the means by which the child accessed the substances responsible for the fatality. Poison Centers are encouraged to heed previously published pediatric narrative guidelines to improve the determination of causality, and preventability, wherever possible.

Results

Informational contacts with poison centers

Data from 435,540 information contacts to PCs in 2017 (Table 1C) was transmitted to NPDS, including contacts in optional reporting categories such as prevention/safety/education (20,000), administrative (20,245), and caller referral (48,600).

Figure 2 shows that all Drug ID contacts have decreased dramatically since mid-2008. Law enforcement Drug ID contacts also showed a decline. The most frequent information contacts was for Drug ID, comprising 96,221 contacts with PCs during the year. Of these, 52,093 (54.1%) 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 actually intended.

While the number of Drug information contacts decreased 5.98% from 2016 (80,847 contacts) to 2017 (76,014 contacts), the percentage of these slightly increased to 17.45% of all information requests. The most common drug information requests were about drug-drug interactions, followed by other drug information, questions about dosage, inquiries of adverse effects (without a known exposure), and therapeutic use and indications. Environmental inquiries comprised 3.37% of all information contacts. Of these environmental

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	82,891	16.56	12.13	5.79	59.41	0.09	5.69	0.32
Wrong medication taken/given	45,212	15.74	11.33	5.91	61.66	0.08	4.93	0.35
Other incorrect dose	39,469	32.26	11.66	6.62	45.27	0.10	3.67	0.42
Medication doses given/taken too close together	30,371	17.33	9.65	6.33	60.28	0.08	6.01	0.32
Inadvertently took/given someone else's medication	24,479	15.39	19.48	6.75	53.72	0.07	4.37	0.22
Other/unknown therapeutic error	17,436	22.38	9.97	6.84	53.90	0.20	6.22	0.48
Incorrect dosing route	10,488	8.39	4.55	3.63	71.97	0.16	10.65	0.65
Confused units of measure	8,407	58.76	17.28	3.69	18.43	0.15	1.64	0.05
Incorrect formulation or concentration given	5,861	48.17	16.65	4.85	27.83	0.05	2.25	0.20
Health professional/iatrogenic error (pharmacist/nurse/physician)	5,748	24.55	10.73	6.89	52.24	0.33	4.24	1.01
Dispensing cup error	4,931	68.02	18.07	2.78	10.06	0.12	0.93	0.02
More than 1 product containing same ingredient	4,625	11.61	15.14	14.31	53.10	0.06	5.36	0.41
Drug interaction	2,806	6.52	7.34	6.56	64.83	0.29	13.93	0.53
Incorrect formulation or concentration dispensed	1,304	44.10	15.87	6.67	29.45	0.08	3.53	0.31
10-fold dosing error	1,268	57.81	9.70	2.68	28.08	0.16	1.42	0.16
Exposure through breast milk	143	92.31	0.00	0.00	4.20	2.80	0.00	0.70

^aAll cases with a scenario category of therapeutic error regardless of reason.

^bOf the human exposure cases reported to U.S. Poison Centers in 2017, 418,629 (19.8%) 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	951,369	61.13	112,399	7.22	55,954	3.60	427,736	27.49	3,858	0.25	69,331	4.46	8,729	0.56	1,629,376	77.03
Intentional	79	0.02	14,632	3.74	107,982	27.61	265,430	67.86	246	0.06	8,785	2.25	3,007	0.77	400,161	18.92
Adverse reaction	3,350	7.37	2,703	5.95	3,612	7.95	34,817	76.64	182	0.40	5,881	12.95	945	2.08	51,490	2.43
Unknown	834	4.96	1,032	6.14	2,021	12.02	12,140	72.21	58	0.34	1,115	6.63	786	4.67	17,986	0.85
Other	1,239	8.82	1,685	11.99	1,734	12.34	9,036	64.29	83	0.59	2,035	14.48	361	2.57	16,173	0.76
Total	956,871	47.29	132,451	6.55	171,303	8.47	749,159	37.02	4,427	0.22	87,147	4.31	13,828	0.68	2,115,186	100.00

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	7	0	0	19	0	1	0	27
Unintentional – Environmental	2	7	2	25	0	0	0	36
Unintentional – Occupational	0	0	0	8	0	0	0	8
Unintentional – Therapeutic error	0	1	0	26	0	0	0	27
Unintentional – Misuse	0	0	0	16	0	0	0	16
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	1	7	0	0	0	8
Subtotal	9	8	3	106	0	1	0	127
Intentional								
Intentional – Suspected suicide	0	3	25	671	0	2	1	702
Intentional – Misuse	0	0	1	61	0	0	0	62
Intentional – Abuse	0	0	11	216	0	1	1	229
Intentional – Unknown	0	0	1	79	0	0	0	80
Subtotal	0	3	38	1,027	0	3	2	1,073
Other								
Other – Contamination/tampering	1	0	0	0	0	0	0	1
Other – Malicious	1	0	1	5	0	0	0	7
Other – Withdrawal	0	0	0	1	0	0	0	1
Subtotal	2	0	1	6	0	0	0	9
Adverse reaction								
Adverse reaction – Drug	0	0	1	42	0	0	0	43
Adverse reaction – Other	0	0	0	2	0	0	0	2
Subtotal	0	0	1	44	0	0	0	45
Unknown								
Unknown reason	1	2	3	128	0	0	0	134
Subtotal	1	2	3	128	0	0	0	134
Total	12	13	46	1,311	0	4	2	1,388

^aIncludes cases with RCF of 1–Undoubtedly responsible, 2–Probably responsible, or 3–Contributory. This excludes reports with outcome of Death INDIRECT.

inquiries, specific questions related to pesticides were most common, followed by cleanup of mercury (thermometers and other), and air quality.

Of all the information contacts, poison information comprised 11.4% of the requests with inquiries involving general toxicity the most common followed by questions involving

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	1,764,932	79.19	83.44	1,065	71.09	76.73
Dermal	153,009	6.87	7.23	11	0.73	0.79
Inhalation/nasal	133,867	6.01	6.33	120	8.01	8.65
Ocular	89,313	4.01	4.22	2	0.13	0.14
Bite/sting	41,825	1.88	1.98	4	0.27	0.29
Parenteral	21,365	0.96	1.01	100	6.68	7.20
Unknown	17,185	0.77	0.81	175	11.68	12.61
Other	2,770	0.12	0.13	6	0.40	0.43
Otic	1,657	0.07	0.08	0	0.0	0
Aspiration (with ingestion)	1,110	0.05	0.05	11	0.73	0.79
Vaginal	932	0.04	0.04	1	0.07	0.07
Rectal	827	0.04	0.04	3	0.20	0.22
Total Number of Routes	2,228,792	100.00	105.37	1,498	100.00	107.93 ^b

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

^bEach exposure case may have more than one route.

Table 10. Management site of human exposures.

Site of management	N	%
Managed on site, nonhealth care facility	1,385,895	65.5
Managed in healthcare facility		
Treated/evaluated and released	309,330	14.6
Admitted to critical care unit	101,849	4.8
Admitted to psychiatric facility	85,629	4.1
Patient lost to follow-up/left AMA	82,448	3.9
Admitted to noncritical care unit	76,979	3.6
Subtotal (managed in HCF)	656,235	31.0
Other	19,941	0.9
Refused referral	25,734	1.2
Unknown	27,381	1.3
Total	2,115,186	100.0

food preparation handling practices, safe use of household products, and food poisoning.

Exposure cases logged at poison centers

In 2017, the participating PCs logged 2,607,413 total encounters including 2,115,186 closed human exposure cases (Table 1A), 51,164 animal exposures (Table 1B), 435,540 information contacts (Table 1C), 5,424 human confirmed non-exposures, and 99 animal confirmed non-exposures. An additional 170 cases were still open at the time the database was locked. The cumulative AAPCC database now contains more than 68 million human exposure case records (Table 1A). A total of 19,250,405 information contacts have been logged into the AAPCC database since the year 2000.

Figure 1 shows the human exposures, information contacts 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 2 years. information contacts are declining more rapidly and are also described by a smoothing spline fit, and Animal Exposure cases have likewise been declining since mid-2005. The 2 May 2006 exposure data spike on Figure 1 was the result of 602 children in a Midwest school reporting a noxious odor which caused anxiety but resolved without sequelae.

A hallmark of PC case management is the use of follow-up contacts to monitor case progress and medical outcome. US PCs made 2,680,625 follow-up contacts in 2017. Follow-

up was performed in 47.0% of human exposure cases. One follow-up contact was made in 21.8% of human exposure cases and multiple follow-ups (range 2-160) were performed in 25.2% of cases. For human exposure cases in which follow-up contacts were documented, an average of 2.62 contacts per case were done.

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

Tables 22A (Nonpharmaceuticals) and 22B (Pharmaceuticals) (in Appendix E) provide summary demographic data on patient age, reason for exposure, medical outcome, and use of an HCF for all 2,115,186 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 (Alternate Names). 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.

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 detail 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 E) 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

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	218,481	22.83	22,520	17.00	33,558	19.59	95,998	12.81	671	15.16	7819	8.97	1,723	12.5	380,770	18.00
Minor effect	78,521	8.21	19,712	14.88	49,175	28.71	176,228	23.52	409	9.24	11,452	13.14	1,998	14.5	337,495	15.96
Moderate effect	9,585	1.00	4,428	3.34	28,969	16.91	121,567	16.23	49	1.11	2,358	2.71	398	2.9	167,354	7.91
Major effect	891	0.09	320	0.24	3,149	1.84	22,382	2.99	4	0.09	161	0.18	42	0.3	26,949	1.27
Death	19	0.00	19	0.01	53	0.03	1,725	0.23	0	0.00	12	0.01	4	0.0	1,832	0.09
No follow-up, nontoxic	159,281	16.65	18,824	14.21	7,069	4.13	40,396	5.39	704	15.90	10,944	12.56	942	6.8	238,160	11.26
No follow-up, minimal toxicity	460,242	48.10	60,567	45.73	34,971	20.41	220,719	29.46	1,930	43.60	40,835	46.86	4,348	31.4	823,612	38.94
No follow-up, potentially toxic	17,213	1.80	3,087	2.33	10,137	5.92	38,490	5.14	545	12.31	9,906	11.37	3,948	28.6	83,326	3.94
Unrelated effect	12,632	1.32	2,970	2.24	4,182	2.44	30,349	4.05	115	2.60	3,648	4.19	416	3.0	54,312	2.57
Death, indirect report	6	0.00	4	0.00	40	0.02	1,305	0.17	0	0.00	12	0.01	9	0.1	1,376	0.07
Total	956,871	100.00	132,451	100.0	171,303	100.00	749,159	100.00	4,427	100.00	87,147	100.00	13,828	100.00	2,115,186	100.00

^aTotal number of cases where Death was an outcome (1,832 + 1,376) is greater than the number of fatalities (1,388) 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	305,267	18.74	70,448	17.60	1,858	11.49	1,793	3.48	1,404	7.81	380,770	18.00
Minor effect	200,242	12.29	118,824	29.69	3,092	19.12	12,532	24.34	2,805	15.60	337,495	15.96
Moderate effect	43,298	2.66	110,868	27.71	1,270	7.85	7,248	14.08	4,670	25.96	167,354	7.91
Major effect	2,996	0.18	21,179	5.29	169	1.04	874	1.70	1,731	9.62	26,949	1.27
Death	181	0.01	1,290	0.32	14	0.09	72	0.14	275	1.53	1,832	0.09
Death, indirect report	44	0.00	1,191	0.30	1	0.01	5	0.01	135	0.75	1,376	0.07
No follow-up, nontoxic	231,302	14.20	4,112	1.03	1,172	7.25	1,326	2.58	248	1.38	238,160	11.26
No follow-up, minimal toxicity	769,023	47.20	30,149	7.53	5,845	36.14	16,507	32.06	2,088	11.61	823,612	38.94
No follow-up, potentially toxic	42,552	2.61	33,203	8.30	1,500	9.27	3,143	6.10	2,928	16.28	83,326	3.94
Unrelated effect	34,471	2.12	8,897	2.22	1,252	7.74	7,990	15.52	1,702	9.46	54,312	2.57
Total	1,629,376	100.00	400,161	100.00	16,173	100.00	51,490	100.00	17,986	100.00	2,115,186	100.00

^aTotal number of cases where Death was an outcome (1832 + 1376) is greater than the number of fatalities (1388) 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	99,733	29.55	7140	4.27	864	3.21
>2 hours, <=8 hours	97,644	28.93	33,495	20.01	1,786	6.63
>8 hours, <=24 hours	65,138	19.30	61,298	36.63	5,897	21.88
>24 hours, <=3 days	20,725	6.14	34,855	20.83	9,171	34.03
>3 days, <=1 week	3,915	1.16	8,236	4.92	5,019	18.62
>1 week, <=1 month	1,134	0.34	1,548	0.92	1,393	5.17
>1 month	332	0.10	352	0.21	147	0.55
Anticipated permanent	422	0.13	166	0.10	453	1.68
Unknown	48,452	14.36	20,264	12.11	2,219	8.23
Total	337,495	100.00	167,354	100.00	26,949	100.00

Table 14. Decontamination and therapeutic interventions.

Therapy	N	%
Decontamination Only	1,012,714	47.9
Therapeutic Intervention Only	265,267	12.5
Decontamination and Therapeutic Intervention	118,881	5.6
Not Coded	718,324	34.0
Total	2,115,186	100.0

column when, for example, the death was attributed to an antidepressant, opioid, or cyanide. This subtlety was not always appreciated by the user of this table. The restriction of the breakdowns to single-substance exposures should increase precision and reduce misrepresentation of the results in this unique by-substance table. Single substance cases reflect the majority (87.9%) of all exposures. In contrast, only 43.1% of fatalities are single substance exposures (Table 5).

Tables 22A and 22B (Appendix E) tabulate 2,541,728 substance-exposures, of which 1,858,385 were single-substance exposures, including 954,802 (51.4%) non-pharmaceuticals and 903,583 (48.6 %) pharmaceuticals. In 23.2% of single-substance exposures that involved pharmaceutical substances, the reason for exposure was intentional, compared to only 4.14% when the exposure involved a nonpharmaceutical substance. Correspondingly, treatment in an HCF was provided in a higher percentage of exposures that involved pharmaceutical substances (34.2%) compared with nonpharmaceutical substances (17.4%). Exposures to pharmaceuticals also had more severe outcomes. Of single-substance exposure-related fatal cases, 1,009 (76.2%) were pharmaceuticals compared with 315 (23.8%) 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 33.6% of exposures and children ≤5 years accounted for approximately half of all human exposures (45.2%). 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 exposures reported to PCs is 660/100,000 population (Table 3B). The highest rates of poison exposures are in 1-year-old children (8,083/100,000 population) and

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	327	132	1,690	2,966	0	16	3	5,134
Charcoal, multiple doses	55	13	293	626	0	0	0	987
Charcoal, single dose	5,688	914	11,944	20,346	4	83	19	38,998
Dilute/irrigate/wash	460,162	50,594	28,327	180,026	1,344	29,540	2,884	752,877
Food/snack	128,455	12,002	6,599	31,919	303	4,857	366	184,501
Fresh air	6,639	3,978	4,378	41,293	605	11,378	1,599	69,870
Ipecac	12	2	17	31	0	2	0	64
Lavage	26	11	239	774	0	6	1	1,057
Other emetic	6,727	630	1,354	5,328	14	427	54	14,534
Whole bowel irrigation	60	14	298	1,265	0	3	0	1,640
Other Therapies								
2-PAM	2	1	4	30	0	0	0	37
Alkalinization	143	108	2,340	9,714	0	22	4	12,331
Amyl nitrite	0	0	0	4	0	0	0	4
Antiarrhythmic	15	22	344	2,006	0	8	0	2,395
Antibiotics	1,723	775	1,303	14,273	9	449	46	18,578
Anticonvulsants ^a	88	24	222	1,323	1	4	0	1,662
Antiemetics	1,280	727	8,577	16,473	2	76	9	27,144
Antihistamines	1,673	1,207	1,651	9,151	18	789	82	14,571
Antihypertensives	18	16	164	2,909	0	7	1	3,115
Antivenin (fab fragment)	248	217	162	1,662	0	8	2	2,299
Antivenin/antitoxin ^b	31	25	34	272	0	1	0	363
Atropine	100	33	191	1,427	0	7	1	1,759
BAL	9	0	2	7	0	0	0	18
Benzodiazepines	1,131	610	7,469	32,721	0	151	33	42,115
Bronchodilators	381	234	352	4,657	10	146	13	5,793
Calcium	6,251	435	327	3,275	6	67	12	10,373
Cardioversion	7	3	20	284	0	1	0	315
CPR	54	20	129	1,592	0	13	3	1,811
Deferoxamine	8	0	37	38	0	1	0	84
ECMO	4	3	16	50	0	0	0	73
EDTA	22	3	2	11	0	0	0	38
Ethanol	1	0	2	40	0	2	0	45
Extracorp. procedure (other)	2	1	8	143	0	0	0	154
Fab fragments	6	13	20	523	0	0	0	562
Fluids, IV	6,163	2,908	36,870	130,084	7	476	110	176,618
Flumazenil	82	16	168	1,184	0	3	1	1,454
Folate	10	4	39	1,618	0	3	3	1,677
Fomepizole	94	19	86	1,836	2	4	3	2,044
Glucagon	28	8	132	2,122	0	7	0	2,297
Glucose, > 5%	452	49	436	4,325	0	17	4	5,283
Hemodialysis	4	6	125	2,487	2	5	0	2,629
Hemoperfusion	0	1	1	36	0	0	0	38
Hydroxocobalamin	4	9	3	102	0	0	0	118
Hyperbaric oxygen	19	39	31	282	0	11	2	384
Insulin	8	8	159	2,374	0	5	1	2,555
Intubation	499	173	2,077	20,633	3	96	30	23,511
Methylene blue	21	3	12	164	0	0	0	200
NAC, IV	196	287	6,228	16,021	2	47	12	22,793
NAC, PO	30	36	928	2,092	0	4	3	3,093
Nalmefene	0	1	2	22	0	1	0	26
Naloxone	1,152	209	2,135	22,718	1	136	42	26,393
Neuromuscular blocker	51	16	202	1,745	0	5	2	2,021
Ocreotide	112	9	48	379	0	1	0	549
Other	24,774	6,394	12,106	72,554	98	3,100	576	119,602
Oxygen	1,416	736	3,875	43,859	12	288	119	50,305
Pacemaker	0	0	0	206	0	1	0	207
Penicillamine	0	0	0	2	0	0	0	2
Physostigmine	5	14	135	263	0	4	0	421
Phytonadione	18	3	76	612	0	2	0	711
Pyridoxine	4	6	32	524	0	0	0	566
Sedation (other)	529	242	2,518	21,426	3	84	22	24,824
Sodium nitrite	1	0	1	24	0	0	0	26
Sodium thiosulfate	0	1	1	31	0	0	0	33
Steroids	608	334	447	4,682	8	286	42	6,407
Succimer	105	14	6	61	2	1	0	189
Transplantation	0	1	4	8	0	0	0	13
Vasopressors	85	53	473	7,073	1	24	4	7,713
Ventilator	468	163	1,937	19,546	3	87	32	22,236

^aExcludes benzodiazepines.^bExcludes Fab fragments.

Table 16A. Decontamination trends (1985–2017).

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 (0.010)	13,930 (1.22)
2012	2,275,141	193 (0.0100)	57,888 (2.5)	1,102,307 (48.5)	83 (0.010)	11,284 (1.02)
2013	2,188,013	134 (0.0100)	50,459 (2.3)	1,049,475 (48.0)	42 (0.000)	9,334 (0.89)
2014	2,165,142	132 (0.0061)	46,030 (2.1)	1,031,927 (47.7)	41 (0.004)	7,977 (0.77)
2015	2,168,371	105 (0.0048)	42,712 (2.0)	1,017,369 (46.9)	29 (0.003)	6,965 (0.68)
2016	2,159,032	88 (0.0041)	40,633 (1.9)	1,002,344 (46.4)	22 (0.002)	6,333 (0.63)
2017	2,115,186	64 (0.0030)	39,985 (1.9)	956,871 (45.2)	12 (0.001)	5,743 (0.60)

Table 16B. Decontamination trends: Total human and pediatric exposures ≤5 years^a.

Therapy	Human exposures		Exposures children <=5 y	
	N	%	N	%
Activated charcoal administered	39,985	1.89	5,743	0.60
Cathartic	5,134	0.24	327	0.03
Ipecac administered	64	0.00	12	0.00
Lavage	1,057	0.05	26	0.00
Other Emetic	14,534	0.69	6,727	0.70
Whole Bowel Irrigation	1,640	0.08	60	0.01
Total	62,414	2.95	12,895	1.35

^aHuman exposures = 2,115,186; Pediatric exposures = 956,871.

2-year-old children (7,675/100,000 population). Rates declined with age from 448/100,000 population in children 6–12 to 345/100,000 population in adults ≥20 years.

Caller site and exposure site

As shown in Table 2, of the 2,115,186 human exposures reported, 67.5% of these encounters originated from a residence (own or other) but 92.7% actually occurred at a residence (own or other). Another 24.4% were made from an HCF. Beyond residences, exposures occurred in the workplace (1.84% of cases), schools (1.45%), HCF (0.335%), and restaurants or food services (0.174%).

Exposures in pregnancy

Exposure during pregnancy occurred in 6,795 women (0.321% of all human exposures). Of those with known

pregnancy duration (n = 6,331), 37.1% occurred in the first trimester, 34.9% in the second trimester, and 28.0% in the third trimester. Most (72.5%) were unintentional exposures and 21.0% were intentional exposures. There were 2 deaths in pregnant females in 2017.

Chronicity

Most human exposures, 1,825,251 (86.3%), were acute cases (single, repeated or continuous exposure occurring over 8 hours or less) compared to 1,018 (31.7%) acute cases among the 3,208 fatalities. Chronic exposures (continuous or repeated exposures occurring over >8 hours) comprised 2.20% (46,611) 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 209,778 (9.92%).

Reason for exposure

The reason category for most human exposures was unintentional (77.0%), including: unintentional general (50.7%), therapeutic error (12.8%), and unintentional misuse (6.68%) (Table 6A).

Scenarios

Of the total 271,112 therapeutic errors, the most common scenarios for all ages included: inadvertent double-dosing

Table 16C. Human exposures to drugs of abuse by generic code.

Drug of Abuse Generic Code	Increase (%/year)	Exposures (last 52 weeks)	Increase (Exposures/year)	95% confidence interval
Synthetic Tryptamines, Analogs and Precursors	316%	20	1.22	[0.578, 1.86]*
Synthetic Cathinones, Analogs and Precursors	312%	105	6.30	[4.38, 8.21]*
Synthetic Opioids, Analogs and Precursors	242%	25	1.17	[0.509, 1.82]*
Kratom	63.3%	529	6.44	[2.91, 9.98]*
Hallucinogenic Amphetamines	26.4%	828	4.20	[-0.195, 8.60]
Heroin	20.9%	4186	16.8	[4.05, 29.57]*
Methamphetamines	13.1%	3766	9.49	[-12.6, 31.5]
Cocaine	0.817%	1371	0.215	[-5.60, 6.03]

**P*-value for slope <0.05.

Table 17A. Substance categories most frequently involved in human exposures (Top 25).

Substance (Major Generic Category)	All substances	% ^a	Single substance exposures	% ^b
Analgesics	283,784	11.08	178,069	9.58
Cleaning Substances (Household)	190,319	7.43	170,676	9.18
Cosmetics/Personal Care Products	172,968	6.76	166,145	8.94
Sedative/Hypnotics/Antipsychotics	146,943	5.74	53,419	2.87
Antidepressants	128,546	5.02	53,934	2.90
Antihistamines	111,181	4.34	76,152	4.10
Cardiovascular Drugs	108,614	4.24	46,207	2.49
Foreign Bodies/Toys/Miscellaneous	89,368	3.49	86,290	4.64
Pesticides	84,031	3.28	77,999	4.20
Alcohols	72,090	2.82	22,239	1.20
Stimulants and Street Drugs	69,979	2.73	38,148	2.05
Topical Preparations	66,702	2.61	64,886	3.49
Anticonvulsants	65,941	2.58	26,066	1.40
Vitamins	59,761	2.33	49,937	2.69
Cold and Cough Preparations	56,757	2.22	38,457	2.07
Hormones and Hormone Antagonists	56,673	2.21	36,962	1.99
Antimicrobials	53,667	2.10	42,882	2.31
Dietary Supplements/Herbals/Homeopathic	51,653	2.02	42,645	2.29
Gastrointestinal Preparations	48,714	1.90	35,117	1.89
Plants	46,782	1.83	44,089	2.37
Bites and Envenomations	46,513	1.82	45,688	2.46
Chemicals	43,688	1.71	37,406	2.01
Fumes/Gases/Vapors	33,615	1.31	30,829	1.66
Electrolytes and Minerals	30,446	1.19	24,641	1.33
Other/Unknown Nondrug Substances	30,102	1.18	27,657	1.49

^aPercentages are based on the total number of substances reported in all exposures (N = 2,560,308).

^bPercentages are based on the total number of single substance exposures (N = 1,858,385).

(30.6%), wrong medication taken or given (16.7%), other incorrect dose (14.6%), doses given/taken too close together (11.2%), and inadvertent exposure to someone else's medication (9.03%). The types of therapeutic errors observed are different for each age group and are summarized in [Table 6B](#).

Reason by age

Intentional exposures accounted for 18.9% of human exposures. Suicidal intent was suspected in 13.0% of cases, intentional misuse in 2.70%, and intentional abuse in 2.33%. Unintentional exposures outnumbered intentional exposures in all age groups with the exception of ages 13–19 years ([Table 7](#)). In contrast, of the 1,388 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 83.4% of cases ([Table 9](#)), followed in frequency by dermal (7.23%), inhalation/nasal (6.33%), and ocular routes (4.22%). For the 1,388 exposure-related

fatalities, ingestion (76.7%), unknown (12.6%), inhalation/nasal (8.65%), and parenteral (7.20%) 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 131 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 813,794 (38.5%) cases (17.7% had 1 effect, 9.88% had 2 effects, 5.32% had 3 effects, 2.56% had 4 effects, 1.26% had 5 effects, and 1.75% had >5 effects coded). Of clinical effects coded, 77.3% were deemed related to the exposure, 9.94% were considered not related, and 12.8% were coded as unknown if related.

Case management site

The majority of cases reported to PCs were managed outside of a HCF (65.5%), usually at the site of exposure, primarily the patient's own residence ([Table 10](#)). Treatment in a HCF

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 substances in 2016
	Mean	95% CI ^b	
Sedative/Hypnotics/Antipsychotics	1,962	[1601, 2322]	50,933
Analgesics	1,785	[1528, 2041]	50,064
Antidepressants	1,367	[1230, 1503]	42,476
Cardiovascular Drugs	984	[948, 1020]	22,835
Alcohols	931	[872, 990]	25,003
Stimulants and Street Drugs	913	[660, 1167]	26,499
Anticonvulsants	721	[655, 786]	18,538
Antihistamines	657	[563, 751]	17,301
Muscle Relaxants	423	[365, 481]	10,409
Unknown Drug	405	[337, 473]	9,554
Hormones and Hormone Antagonists	253	[242, 265]	6,944
Cold and Cough Preparations	224	[166, 281]	7,813
Gastrointestinal Preparations	102	[83, 121]	3,495
Miscellaneous Drugs	78.1	[51, 105]	2,227
Diuretics	52.4	[44, 60]	1,546
Anticoagulants	49.3	[44, 55]	1,179
Electrolytes and Minerals	40.0	[35, 45]	1,090
Vitamins	36.3	[30, 42]	1,053
Anticholinergic Drugs	31.1	[23, 40]	1,017
Other/Unknown Nondrug Substances	25.3	[3, 48]	1,158
Weapons of Mass Destruction	19.2	[12, 27]	363
Antimicrobials	13.7	[-4, 31]	2,713
Narcotic Antagonists	11.9	[9, 15]	310
Tobacco/Nicotine/eCigarette Products	11.9	[6, 17]	355
Essential Oils	11.0	[9, 13]	236

^aSerious exposures have outcomes of Moderate, Major or Death..

^bIncrease and confidence intervals are based on least squares linear regression of the number of calls per year for 2000–2017..

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	125,838	12.59	123,019	13.26
Cleaning Substances (Household)	109,563	10.96	105,275	11.35
Analgesics	91,741	9.18	83,438	8.99
Foreign Bodies/Toys/Miscellaneous	63,916	6.39	62,266	6.71
Topical Preparations	48,342	4.84	47,367	5.11
Antihistamines	46,936	4.70	42,435	4.57
Vitamins	42,553	4.26	38,215	4.12
Pesticides	34,303	3.43	33,211	3.58
Dietary Supplements/Herbals/Homeopathic	34,265	3.43	32,000	3.45
Plants	28,029	2.80	26,889	2.90
Gastrointestinal Preparations	26,808	2.68	24,204	2.61
Antimicrobials	23,090	2.31	21,609	2.33
Cardiovascular Drugs	20,983	2.10	13,318	1.44
Cold and Cough Preparations	20,536	2.05	18,537	2.00
Arts/Crafts/Office Supplies	20,449	2.05	19,779	2.13
Electrolytes and Minerals	18,785	1.88	16,994	1.83
Hormones and Hormone Antagonists	17,646	1.77	13,830	1.49
Deodorizers	17,214	1.72	16,985	1.83
Essential Oils	16,142	1.61	15,249	1.64
Other/Unknown Nondrug Substances	12,524	1.25	11,865	1.28
Antidepressants	11,667	1.17	8,459	0.91
Tobacco/Nicotine/eCigarette Products	11,207	1.12	11,119	1.20
Chemicals	11,026	1.10	10,023	1.08
Sedative/Hypnotics/Antipsychotics	9,825	0.98	7,525	0.81
Alcohols	9,402	0.94	9,153	0.99

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

^bPercentages are based on the total number of substances reported in pediatric exposures (N = 999,529).

^cPercentages are based on the total number of single substance pediatric exposures (N = 927,844).

was rendered in 31.0% of cases. Only 1.2% of cases were referred to a HCF but refused referral.

Of the 656,235 cases managed in a HCF, 309,330 (47.1%) were treated and released, 101,849 (15.5%) were admitted to a critical care unit, 76,979 (11.7%) were admitted to a noncritical unit, and 85,629 (13.0%) were admitted directly to a psychiatric facility.

The percentage of patients treated in a HCF varied considerably with age. Only 12.9% of children ≤ 5 years and 18.4%

of children between 6 and 12 years were managed in a HCF compared to 66.7% of teenagers (13–19 years) and 50.2% of adults (age ≥ 20 years).

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

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	129,917	11.18	58,799	8.95
Sedative/Hypnotics/Antipsychotics	114,212	9.83	35,663	5.43
Antidepressants	83,753	7.21	29,034	4.42
Cardiovascular Drugs	74,293	6.40	26,036	3.96
Cleaning Substances (Household)	63,329	5.45	50,384	7.67
Alcohols	55,752	4.80	10,449	1.59
Anticonvulsants	49,298	4.24	16,881	2.57
Pesticides	41,807	3.60	37,492	5.71
Stimulants and Street Drugs	41,266	3.55	18,872	2.87
Antihistamines	38,228	3.29	17,761	2.70
Hormones and Hormone Antagonists	33,006	2.84	19,369	2.95
Bites and Envenomations	31,090	2.68	30,547	4.65
Cosmetics/Personal Care Products	30,454	2.62	27,662	4.21
Chemicals	25,213	2.17	20,840	3.17
Fumes/Gases/Vapors	24,378	2.10	22,260	3.39
Antimicrobials	21,769	1.87	15,364	2.34
Cold and Cough Preparations	20,913	1.80	11,171	1.70
Muscle Relaxants	20,550	1.77	7370	1.12
Hydrocarbons	17,304	1.49	15,868	2.42
Gastrointestinal Preparations	16,570	1.43	7,744	1.18
Unknown Drug	15,129	1.30	9,340	1.42
Topical Preparations	14,179	1.22	13,557	2.06
Other/Unknown Nondrug Substances	13,038	1.12	11,604	1.77
Foreign Bodies/Toys/Miscellaneous	12,256	1.06	11,222	1.71
Miscellaneous Drugs	12,235	1.05	6,219	0.95

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

^bPercentages are based on the total number of substances reported in adult exposures (N = 1,161,585).

^cPercentages are based on the total number of single substance adult exposures (N = 656,790).

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	7	20.59	5	26.32
Unknown Drug	4	11.76	4	21.05
Antihistamines	3	8.82	0	0.00
Fumes/Gases/Vapors	3	8.82	1	5.26
Alcohols	2	5.88	1	5.26
Stimulants and Street Drugs	2	5.88	0	0.00
Anesthetics	1	2.94	0	0.00
Antidepressants	1	2.94	0	0.00
Batteries	1	2.94	1	5.26
Cardiovascular Drugs	1	2.94	1	5.26
Cosmetics/Personal Care Products	1	2.94	1	5.26
Deodorizers	1	2.94	1	5.26
Dietary Supplements/Herbals/Homeopathic	1	2.94	1	5.26
Electrolytes and Minerals	1	2.94	1	5.26
Gastrointestinal Preparations	1	2.94	0	0.00
Hydrocarbons	1	2.94	0	0.00
Pesticides	1	2.94	1	5.26
Sedative/Hypnotics/Antipsychotics	1	2.94	0	0.00
Weapons of Mass Destruction	1	2.94	1	5.26
Total	34	100.00	19	100.00

^aIncludes 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.

^bPercentages are based on the total number of substances reported in pediatric fatalities (N = 34).

^cPercentages are based on the total number of single substance pediatric fatalities (N = 19).

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 = 531,798; 25.1% of exposures). Table 13 demonstrates an increasing duration of the clinical effects observed with more severe outcomes.

Decontamination procedures and specific antidotes

Tables 14 and 15 outline the use of 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 telephone data gathering.

Ipecac-induced emesis for poisoning continues to decline as shown in Tables 16A and 16B. Ipecac was administered in only 12 (0.00125%) pediatric exposures in 2017. The continued decrease in ipecac syrup use over the last 2 decades was likely a result of ipecac use guidelines issued in 1997 by the American Academy of Clinical Toxicology and the European Association of Poisons Centres and Clinical Toxicologists and updated in 2004 [5,6]. In a separate report,

Table 17F. Substance categories most frequently identified in drug identification calls (Top 25).

Substance (Major Generic Category)	All substances	% ^a
Analgesics	38,765	33.78
Sedative/Hypnotics/Antipsychotics	20,449	17.82
Unknown Drug	8,271	7.21
Cardiovascular Drugs	6,916	6.03
Antidepressants	5,704	4.97
Muscle Relaxants	5,069	4.42
Anticonvulsants	4,919	4.29
Stimulants and Street Drugs	4,271	3.72
Antihistamines	4,251	3.70
Antimicrobials	4,028	3.51
Hormones and Hormone Antagonists	2,593	2.26
Information Calls	2,514	2.19
Gastrointestinal Preparations	2,349	2.05
Diuretics	1,351	1.18
Miscellaneous Drugs	927	0.81
Cold and Cough Preparations	525	0.46
Anticholinergic Drugs	293	0.26
Vitamins	267	0.23
Anticoagulants	262	0.23
Asthma Therapies	261	0.23
Electrolytes and Minerals	249	0.22
Dietary Supplements/Herbals/Homeopathic	70	0.06
Other/Unknown Nondrug Substances	69	0.06
Narcotic Antagonists	56	0.05
Antineoplastics	55	0.05

^aPercentages are based on the total number of substances reported in all drug identification calls (N = 114,760).

the American Academy of Pediatrics concluded not only that ipecac should no longer be used routinely as a home treatment strategy, but also recommended disposal of home ipecac stocks [7]. 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 0.600% in 2017.

Top substances in human exposures

Table 17A presents the 25 most common substance categories, listed by frequency of human exposure for cases with more serious outcomes (moderate, severe, and death). This ranking provides an indication where prevention efforts might be focused, as well as the types of serious exposures PCs regularly manage. 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 17 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 34, static for 5, and decreasing for 29 of the 68 categories with data for the entire time period. The change over time for the 17 yearly values was statistically significant ($p < 0.05$) for 48 of the 68 categories with data for the entire time period. Table 17B shows the 25 categories which were increasing the most rapidly. 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 1 of the 25 categories. Figure 4 shows

the change over time and linear regressions for the top 4 increasing categories in Table 17B.

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 25 categories of substances most frequently involved in pediatric (≤ 5 years) fatalities in 2015.

Table 17F reports the 25 Drug ID categories most frequently queried in 2017, highlighting the value of Drug ID information to the AAPCC, 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 and drugs with widespread use and abuse potential, such as opioids and benzodiazepines.

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

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 3.79% from 2,710,042 in 2016 to 2,607,413 in 2017. Information contacts decreased by 11.2% from 490,215 in 2016 to 435,540 in 2017, with a 30.2% decrease in drug identification contacts and a 0.264% decrease in HCF information contacts. Human exposures decreased by 2.03% from 2,159,032 to 2,115,186 cases over the same time period.

Figure 5 shows the year-to-year change through 2017 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 4.44% (95% CI [4.15%, 4.73%]) per year from 108,148 cases in 2000 to 196,135 cases in 2017. However, cases with less serious outcomes have decreased since 2008 by 2.48% (95% CI [-2.96%, -1.99%]) per year from 2,339,460 in 2008 to 1,917,675 cases in 2017. This decrease in less serious exposures has driven the overall decrease in human exposures since 2008. Thus we see a consistent increase in exposure cases from HCFs (Figure 3) and for more severe exposures (Figure 5), despite a decrease in cases involving less severe exposures.

Emerging trends – drugs of abuse

Cocaine-related mortality is increasing in the US. The same appears true for methamphetamine and other stimulants (Figure 6). Likewise, data from NPDS show the recent steady rise in poison center contacts leading up to and throughout 2017 (Figure 7).

Documented exposures to heroin continue to rise in NPDS data. Methamphetamine exposures steadily increased

in recent years, while cocaine dropped quickly and then plateaued. Other hallucinogenic amphetamine exposures appear to be downtrending. Interestingly, despite the creation of an active generic code in March, 2017 the Historical GC search strategy revealed that kratom shows steady activity preceding a marked increase in the number of cases late in this 10-year period. Synthetic cathinones showed early peaks, likely reflecting emergence as abused drugs with secondary peaks during outbreaks involving novel compounds with unique toxicities. Synthetic tryptamines show a very small presence in the NPDS database while synthetic opioids show a subtle increase toward the end of the period (Figure 7).

Table 16C details the increase in exposures for the 52-week period ending 30 Jul 2018 by linear regression. Of the 8 GC's examined over these 52 weeks, all were increasing (5 of 8 with $p < 0.05$), 3 of 8 at $>100\%$ /year. Trends in these data do not seem to reflect the timing of activation of GCs. Rather, peaks appear to reflect the emergence of new classes of abused drugs directly resulting in the development of new GCs. This highlights the value and timeliness of utilizing NPDS data to identify new trends as they emerge.

Moving forward, the Historical GC search should facilitate the identification of new, potentially harmful substances.

Distribution of suicides

Table 19A shows a 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 29.7 to 50.5% and the percent of pediatric cases has ranged from 0.8 to 3.18%. The relatively large changes seen for 2011, 2012 and 2017 reflects the large increase in indirect death reports in those years (e.g. 1,376 in 2017). Analyses of suicides and pediatric deaths for Direct and Indirect reports are shown in Table 19B.

Plant exposures

Table 20 provides the number of times a specific plant was reported to NPDS (N=46,782). The 25 most commonly involved plant species and categories account for 40.6% of all reported plant exposures. Three of the top 5 categories in the table are essentially synonymous for unknown plant and comprise 10.6% (4,951/46,782) 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): *Cherry* (species unspecified), *Phytolacca americana*, *Spathiphyllum* species, *Ilex* species, *Malus* species, *Solanum nigrum*, and *Caladium* species.

Deaths and exposure-related fatalities

A listing of cases (Table 21, Appendix D) and summary of cases (Tables 4, 5, 8, 9, 18, and 22) are provided for fatal cases with reasonable confidence that the death was a result

Table	Fatalities Included	RCF	N
4	Death only	1,2,3	1,388
5	Death only	1,2,3	1,388
8	Death only	1,2,3	1,388
9	Death only	1,2,3	1,388
11	Death and Death (indirect report)	All	3,208
12	Death and Death (indirect report)	All	3,208
17E	Pediatric Death and Death (indirect report)	All	25
18	Death only	1,2,3	1,388
19A	Death and Death (indirect report)	All	3,208
19B	Death and Death (indirect report)	All	3,208
21	Death and Death (indirect report)	1,2,3	2,682
22	Death and Death (indirect report) - Single substance deaths only	All	1,324

of the exposure (exposure-related fatalities). Tables 11, 12, and 19 consider all deaths, irrespective of the RCF. Beginning in 2010, deaths recorded as Indirect Report were no longer reviewed by the AAPCC fatality review team and the RCF was determined by the reporting PC.

There were 1,376 deaths, indirect and 1,832 deaths. Of these 3,208 cases, 2,682 were judged exposure-related fatalities (RCF = 1 - Undoubtedly responsible, 2 - Probably responsible, or 3 - Contributory). The remaining 526 cases were judged as follows: 122 as RCF = 4 - Probably not responsible, 70 as RCF = 5 - Clearly not responsible, and 334 as RCF = 6 - Unknown.

Deaths are sorted in Table 21 (Appendix D) 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 87.9% of reported human exposures, and 12.1% of patients were exposed to 2 or more drugs or products. The exposure-related fatalities involved a single substance in 598 cases (43.1%), 2 substances in 327 cases (23.6%), 3 in 214 cases (15.4%), and 4 or more in the balance of cases.

In Table 21 (Appendix D), 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 1,294, 48.25% of cases), p = prehospital cardiac and/or respiratory arrest (occurred in 560, 20.9% of cases), h = hospital records reviewed (occurred in 1,007, 37.6% of cases), a = autopsy report reviewed (occurred in 1,690, 63.0% of cases). The distribution of NPDS RCF was: 1 = Undoubtedly responsible in 1,397 cases (52.1%), 2 = Probably responsible in 982 cases (36.6%), 3 = Contributory in 303 cases (11.3%). The denominator for these Table 21 percentages is 2,682.

All fatalities – all ages

Table 4 presents the age and gender distribution for the 1,388 exposure-related fatalities (excluding death, indirect). The age distribution of reported fatalities showed a slight decrease in deaths among children (<20 years old)

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	846	10.84	514	8.50
Cleaning Substances (Household)	660	8.46	485	8.02
Fumes/Gases/Vapors	539	6.91	503	8.32
Pesticides	505	6.47	479	7.92
Bites and Envenomations	375	4.80	337	5.57
Sedative/Hypnotics/Antipsychotics	296	3.79	139	2.30
Antidepressants	284	3.64	160	2.65
Antihistamines	282	3.61	181	2.99
Vitamins	275	3.52	217	3.59
Cosmetics/Personal Care Products	214	2.74	202	3.34
Chemicals	203	2.60	164	2.71
Foreign Bodies/Toys/Miscellaneous	203	2.60	191	3.16
Antimicrobials	199	2.55	157	2.60
Infectious and Toxin-Mediated Diseases	191	2.45	152	2.51
Hydrocarbons	180	2.31	174	2.88
Stimulants and Street Drugs	174	2.23	96	1.59
Hormones and Hormone Antagonists	155	1.99	139	2.30
Alcohols	132	1.69	53	0.88
Plants	131	1.68	117	1.93
Electrolytes and Minerals	122	1.56	88	1.46
Cold and Cough Preparations	117	1.50	79	1.31
Cardiovascular Drugs	115	1.47	66	1.09
Other/Unknown Nondrug Substances	114	1.46	103	1.70
Gastrointestinal Preparations	105	1.35	79	1.31
Paints and Stripping Agents	97	1.24	93	1.54

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

^bPercentages are based on the total number of substances reported in pregnant exposures (N = 7,805).

^cPercentages are based on the total number of single substance pregnant exposures (N = 6,047).

compared to 2016, with 71 cases representing 5.1% of fatalities. This was an absolute decrease of 2 fatalities (2.74% decrease) in that age group. The age distribution of reported fatalities in adults (≥ 20 years) was similar to prior years with 1,315 of 1,388 (94.7%) fatal cases occurring in that age group actual percent 2 (0.144%) occurring in Unknown Age patients. While children ≤ 5 years old were involved in 45.2% of exposures, the 12 deaths in this group comprised just 0.865% of the exposure-related fatalities. The number of deaths in this age group decreased by 12 from 2016. Most (67.9%) of the fatalities occurred in 20 to 59-year-old individuals, a slightly increased percentage from prior years.

Table 21 (Appendix D) lists each of the 2,682 human fatalities (including death, indirect) along with all of the substances involved for each case. Please note, the substance listed in column 3 of Table 21 (alternate name) was chosen to be the most specific generic name based upon the Micromedex 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 AAPCC generic categories used in the summary tables (including Appendix E (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. Miscellaneous sedative/hypnotics/antipsychotics, opioids, miscellaneous stimulants and street drugs, and miscellaneous alcohols lead this list, followed by calcium antagonists, acetaminophen combinations, acetaminophen alone, beta blockers, miscellaneous antidepressants, miscellaneous unknown drug and selective serotonin reuptake inhibitors

(SSRIs). 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 D, Table 21) was a pharmaceutical in 2,314 (86.3%) of the 2,682 fatalities. These 2,314 first ranked pharmaceuticals included:

788 stimulants/street drugs (345 methamphetamine, 290 heroin, 90 cocaine, 25 amphetamine, 10 methylenedioxymethamphetamine (MDMA))

778 analgesics (215 fentanyl, 116 acetaminophen, 94 oxycodone, 58 morphine, 56 methadone, 42 acetaminophen/hydrocodone, 30 salicylate, 27 acetaminophen/oxycodone, 25 narcotic, other/unknown, 21 tramadol, 14 carfentanil, 13 acetaminophen/diphenhydramine, 10 hydrocodone, 10 hydromorphone)

254 cardiovascular drugs (80 amlodipine, 28 metoprolol, 21 diltiazem, 17 digoxin, 17 verapamil, 12 diltiazem [extended release], 12 propranolol, 9 calcium antagonist, 8 flecainide)

153 antidepressants (32 amitriptyline, 27 bupropion, 20 bupropion [extended release], 11 doxepin, 8 citalopram, 8 lithium, 8 venlafaxine, 7 nortriptyline)

97 sedative/hypnotic/antipsychotics (33 alprazolam, 15 quetiapine, 6 clonazepam, 6 zolpidem, 5 benzodiazepine, 5 diazepam)

The exposure was acute (A) in 783 (29.2%), acute or chronic (A/C) in 339 (12.6%), chronic (C) in 149 (5.56%), and unknown (U) in 1,411 (52.6%) of fatalities.

A total of 1,596 tissue concentrations for 1 or more related analytes were reported in 713 cases. Most of these (1,488) involved fatalities with RCF of 1-3, and are listed in Appendix D (Table 21). Of note, all tissue concentrations are available to the PCs through the NPDS Enterprise Reports. These 1,488 analytes included: 231 acetaminophen, 162 ethanol, 68 fentanyl,

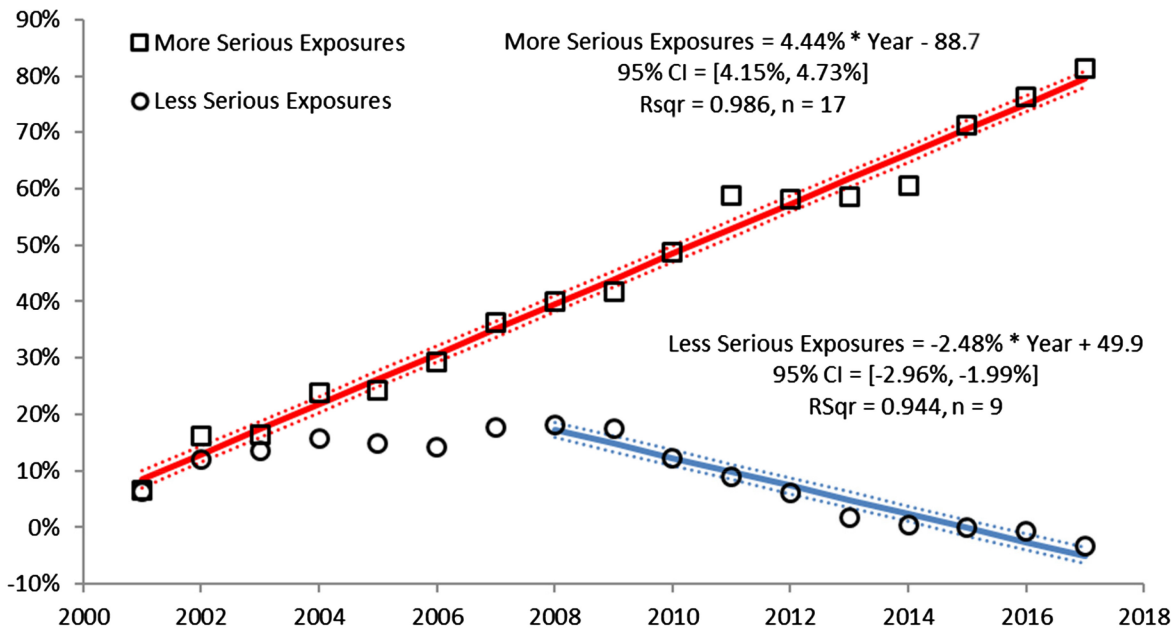


Figure 5. Change in encounters by outcome from Year 2000.

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.

Table 18. Categories associated with largest number of fatalities (Top 25)^a.

Substance (Minor Generic Category)	All substances	% ^b	Single substance exposures	% ^c
Miscellaneous Sedative/Hypnotics/Antipsychotics	404	12.38	14	2.34
Opioids	315	9.65	48	8.03
Miscellaneous Stimulants and Street Drugs	299	9.16	71	11.87
Miscellaneous Alcohols	202	6.19	15	2.51
Calcium Antagonist	170	5.21	31	5.18
Acetaminophen Combinations	142	4.35	28	4.68
Acetaminophen Alone	140	4.29	61	10.20
Beta Blockers	118	3.62	12	2.01
Miscellaneous Antidepressants	87	2.67	9	1.51
Miscellaneous Unknown Drug	87	2.67	26	4.35
Selective Serotonin Reuptake Inhibitors (SSRI)	84	2.57	1	0.17
Miscellaneous Antihistamines	82	2.51	14	2.34
Hypoglycemic, Single Agent	74	2.27	14	2.34
Tricyclic Antidepressants (TCA)	73	2.24	9	1.51
Miscellaneous Muscle Relaxants	72	2.21	11	1.84
Anticonvulsants: Gamma Aminobutyric Acid and Analogs	64	1.96	3	0.50
Miscellaneous Cardiovascular Drugs	60	1.84	17	2.84
Miscellaneous Fumes/Gases/Vapors	53	1.62	32	5.35
Acetylsalicylic Acid Alone	47	1.44	20	3.34
Miscellaneous Anticonvulsants	45	1.38	3	0.50
Nonsteroidal Antiinflammatory Drugs	42	1.29	6	1.00
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)	40	1.23	2	0.33
Angiotensin Converting Enzyme Inhibitor	38	1.16	1	0.17
Cannabinoids and Analogs	37	1.13	2	0.33
Miscellaneous Chemicals	35	1.07	20	3.34

^aNumbers represent total exposures associated with 1,388 fatalities (with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory); each fatality may have had exposure to more than one substance.

^bPercentages are based on the total number of substances reported in fatal exposures (N = 3,263).

^cPercentages are based on the total number of single substance fatal exposures (N = 598).

54 salicylate, 39 alprazolam, 37 benzoylcegonine, 35 methamphetamine, 32 methadone, 31 morphine (free), 27 amphetamine, 26 carboxyhemoglobin, 25 oxycodone, 24 amlodipine, 21 7-aminoclonazepam, 20 morphine, 19 gabapentin, 19 ethylene glycol, 18 cocaine, 18 bupropion, 17 diphenhydramine, 17 methanol, 16 nortriptyline, 16 digoxin, and 16 clonazepam.

Route of exposure was: Ingestion only in 1,030 cases (38.4%), Inhalation/nasal in 118 cases (4.40%), and Parenteral in 97 cases (3.62%). Parenteral only cases increased by 22.8% from 2016. Most other exposures recorded a combination of routes or an unknown route.

The Intentional exposure reason was: Abuse in 1206 cases (45.0%), Suspected suicide in 829 cases (30.9%), Misuse

in 97 cases (3.62%), and Unknown in 89 cases (3.32%). Unintentional exposure reasons were: Environmental in 44 cases (1.64%), General in 30 cases (1.12%), Therapeutic error in 28 cases (1.04%), and Misuse in 27 cases (1.01%). Adverse drug reaction was the reason in 45 cases (1.68%).

Table 19A. Comparisons of death data (1985–2017)^a.

Year	Total fatalities		Suicides		Pediatric deaths ^b	
	N	% of cases	N	% of deaths	N	% of deaths
1985	328	0.036	174	53.0	20	6.1
1986	406	0.037	223	54.9	15	3.7
1987	398	0.034	227	57.0	22	5.5
1988	544	0.040	296	54.4	30	5.5
1989	590	0.037	323	54.7	24	4.1
1990	553	0.032	320	57.9	21	3.8
1991	764	0.042	408	53.4	44	5.8
1992	705	0.038	395	56.0	29	4.1
1993	626	0.036	338	54.0	27	4.3
1994	766	0.040	410	53.5	26	3.4
1995	724	0.036	405	55.9	20	2.8
1996	726	0.034	358	49.3	29	4.0
1997	786	0.036	418	53.2	25	3.2
1998	775	0.035	421	54.3	16	2.1
1999	873	0.040	472	54.1	24	2.7
2000	921	0.042	477	51.8	20	2.2
2001	1,085	0.048	553	51.0	27	2.5
2002	1,170	0.049	635	54.3	27	2.3
2003	1,109	0.046	592	53.4	35	3.2
2004	1,190	0.049	642	53.9	27	2.3
2005	1,438	0.059	674	46.9	32	2.2
2006	1,515	0.063	705	46.5	39	2.6
2007	1,597	0.064	737	46.1	47	2.9
2008	1,756	0.070	797	45.4	39	2.2
2009	1,544	0.062	779	50.5	37	2.4
2010	1,730	0.072	779	45.0	55	3.2
2011	2,765	0.118	865	31.3	42	1.5
2012	2,937	0.129	890	30.3	46	1.6
2013	2,477	0.113	785	31.7	51	2.1
2014	1,835	0.085	790	43.1	34	1.9
2015	1,831	0.084	814	44.5	42	2.3
2016	1,977	0.091	906	45.8	44	2.2
2017	3,208	0.151	954	29.7	25	0.8

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

^bIncludes 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.

Pediatric fatalities – age ≤ 5 years

Although children younger than 6 years were involved in 45.2% of exposures, they comprised only 25 (0.779%) of the 3,208 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 12/956,871 (0.00125%). By comparison, 1,315/836,306 (0.157%) of all adult exposures involved a fatality. Of the 12 pediatric fatalities in which reason for exposure was documented, 9 (75.0%) were reported as unintentional, 1 (8.3%) as unknown, 1 (8.3%) as other – malicious, and 1 was coded as other – contamination/tampering (8.3%) (Table 8).

The 14 fatalities in children ≤ 5 years detailed in Appendix D (Table 21) (includes death, indirect reports and RCF 1-3) included 10 pharmaceuticals and 4 nonpharmaceuticals. The first ranked substances associated with these fatalities included: analgesics (4), fumes/gases/vapors (2), batteries (disc/button; 1), deodorizers (1), antihistamines (1), cardiovascular drugs (1), electrolytes and minerals (1), sedative/hypnotics/antipsychotics (1), stimulants and street drugs (1), and unknown drug (1).

Pediatric fatalities – ages 6–12 years

In the age range 6 to 12 years, 16 fatalities are listed in Appendix D (Table 21) (includes death, indirect reports and RCF 1-3) included: fumes/gases/vapors (7), pesticides (3), antidepressants (2), analgesics (1), anesthetics (1), cardiovascular drugs (1) and sedative/hypnotics/antipsychotics (1). For those in whom reason for exposure was recorded, there were 13 cases: 7 were unintentional – environmental, 3 were intentional – suspected suicide, 2 were unknown reason, and 1 was unintentional – therapeutic error (Table 8).

Adolescent fatalities – ages 13–19 years

In the age range 13 to 19 years, there were 46 reported fatalities with documented reason for exposure, an increase

Table 19B. Comparisons of direct and indirect death data (2000–2017)^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

^aHuman 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	AAPCC Generic Code Name	N
1	Cherry (Species unspecified)	Amygdalin and/or Cyanogenic Glycosides	2,006
2	Plants-general-unknown	Unknown Toxic Types or Unknown if Toxic	1,986
3	Unknown Botanical Name	Unknown Toxic Types or Unknown if Toxic	1,627
4	BOTANICAL TERMS	Unknown Toxic Types or Unknown if Toxic	1,338
5	<i>Phytolacca americana</i> (L.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	1,300
6	Plants-toxicodendrol	Skin Irritants (Excluding Oxalate Containing Plants)	1,131
7	<i>Spathiphyllum</i> spp.	Oxalates	862
8	Plants-pokeweed	Other Toxic Types	856
9	Plants-cardiac glycosides	Cardiac Glycosides (Excluding Drugs)	832
10	<i>Ilex</i> spp. (not otherwise specified)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	745
11	Berry (not otherwise specified)	Unknown Toxic Types or Unknown if Toxic	572
12	<i>Malus</i> spp.	Amygdalin and/or Cyanogenic Glycosides	524
13	<i>Solanum nigrum</i>	Solanine	503
14	Plants-oxalates	Oxalates	472
15	<i>Caladium</i> spp.	Oxalates	461
16	<i>Euphorbia tirucalli</i> (L.)	Skin Irritants (Excluding Oxalate Containing Plants)	458
17	<i>Zantedeschia aethiopica</i>	Oxalates	444
18	<i>Philodendron</i> spp.	Oxalates	433
19	Unknown Botanical Name	Non-Toxic	417
20	<i>Solanum dulcamara</i>	Solanine	405
21	Mold, food related	Unknown Toxic Types or Unknown if Toxic	384
22	<i>Epipremnum areum</i>	Oxalates	381
23	<i>Solanum tuberosum</i>	Solanine	300
24	<i>Crassula argentea</i>	Unknown Toxic Types or Unknown if Toxic	276
25	<i>Taxus canadensis</i>	Other Toxic Types	265

^aNumber 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 = 46,782.

of 4 (9.52%) from 2016, and included 38 intentional, 3 unintentional, 3 unknown reason, 1 other, and 1 adverse reaction (Table 8). The 84 fatalities listed in Appendix D (Table 21) (includes death, indirect reports and RCF 1-3) included 72 pharmaceuticals and 12 nonpharmaceuticals. The first ranked pharmaceuticals associated with these fatalities included: analgesics (32), stimulants and street drugs (12), antidepressants (9), antihistamines (4), cardiovascular drugs (4), cold and cough preparations (2), hormones and hormone antagonists (2), sedative/hypnotics/antipsychotics (2), antimicrobials (1), dietary supplements/herbals/homeopathic (1), gastrointestinal preparations (1), narcotic antagonists (1) and unknown drug (1). The first ranked nonpharmaceutical associated with these fatalities included: fumes/gases/vapors (4), hydrocarbons (2), pesticides (2), alcohols (1), chemicals (1), plants (1), and tobacco/nicotine/e-cigarette products (1).

Pregnancy and fatalities

There were 2 deaths in pregnant women reported to NPDS in 2017. A total of 45 deaths of pregnant women have been reported between 2000 and 2017. The majority (37 of 45, 82.2%) were intentional exposures (misuse, abuse or suspected suicide).

AAPCC surveillance results

Key components of the NPDS surveillance system include the automated monitoring tools available to the NPDS user community. In addition to AAPCC national surveillance definitions, 30 PCs utilize NPDS as part of their surveillance programs. The CDC, FDA, 6 state health departments, 1 county health department and 1 state police department run surveillance definitions in NPDS. Since Surveillance Anomaly

1, generated at 2:00 pm EDT on 17 September 2006, over 330,000 anomalies have been detected and reported. Close to 2,300 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, 583 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 PCs, health departments, the AAPCC, 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 [8]. 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 and resilience during and after a public health event. Situational awareness is undoubtedly beneficial to public health surveillance.

Discussion

The exposure cases and information requests reported by PCs in 2017 do not reflect the full extent of PC efforts, which

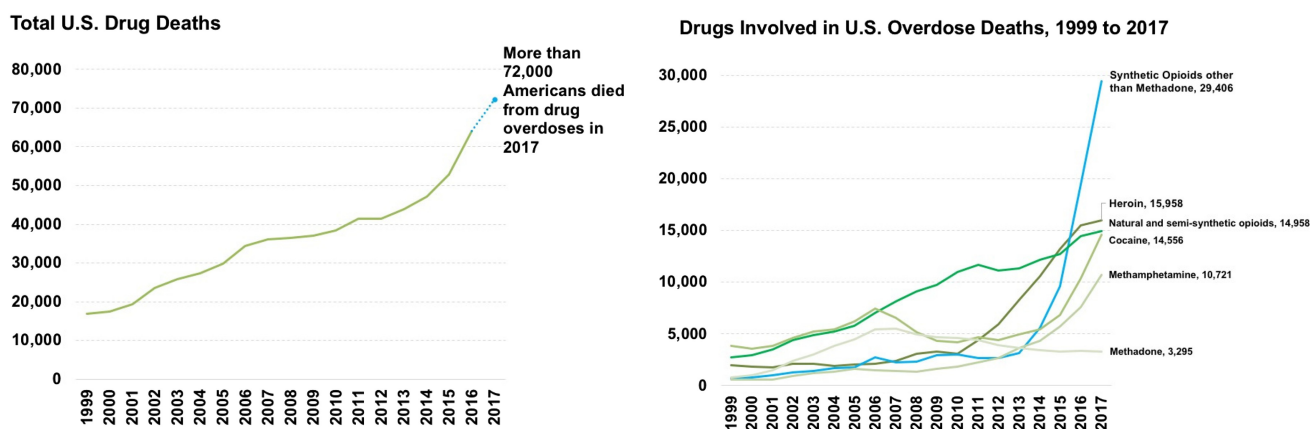


Figure 6. Deaths over time in the United States related to illicit use of drugs of abuse. Source: CDC WONDER [7].

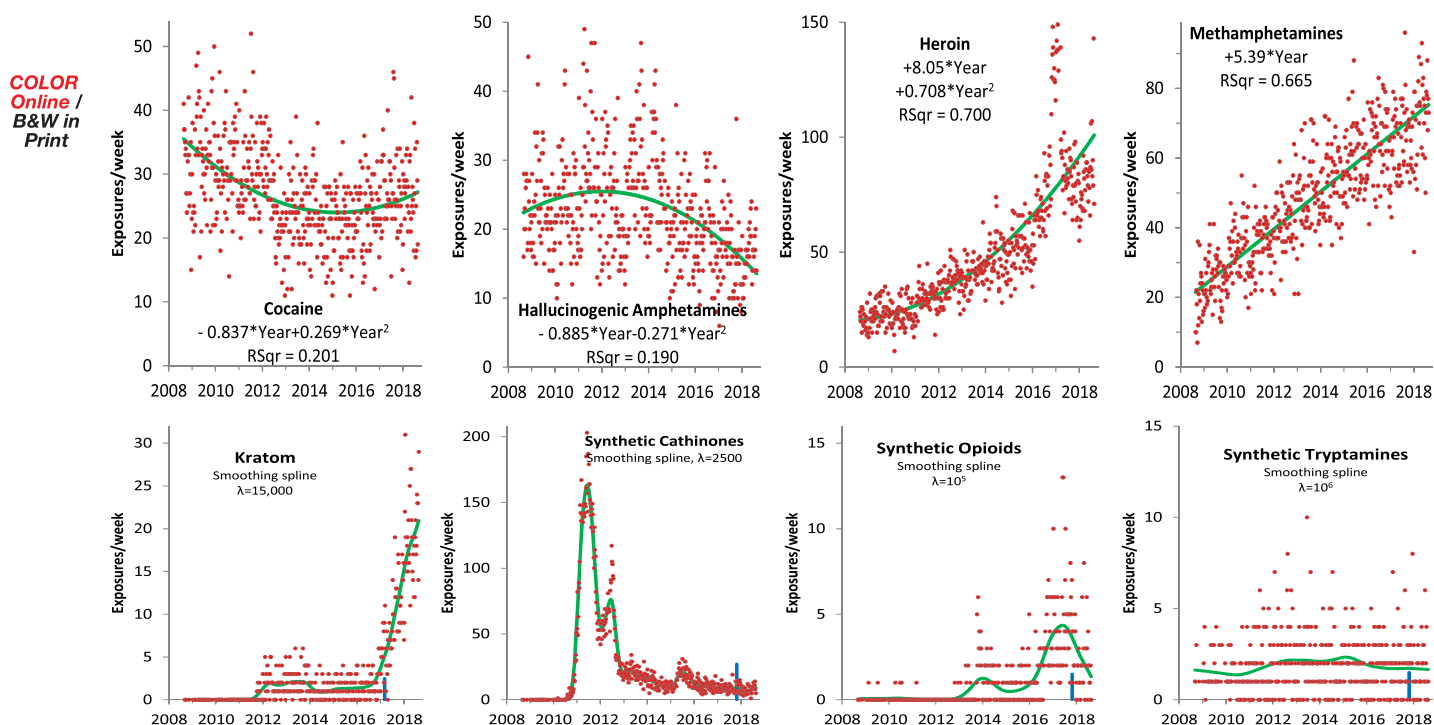


Figure 7. NPDS selected drugs of abuse over time.

Cocaine, hallucinogenic amphetamines and heroin were fit to second order (quadratic) regressions and methamphetamines with first order (linear) regression – all parameters had associated $p < 0.0001$. Kratom, synthetic cathinones, synthetic opioids, and synthetic tryptamines were fit to smoothing splines. The vertical blue mark indicates the date of the GC establishment for this substance.

also include poison prevention activities 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 which are reported to PCs since poison exposures and poisoning deaths are not currently reportable events.

NPDS 2000–2017 encounter volume data clearly demonstrate a continuing decrease in exposure cases. This decline has been apparent and increasing 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 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, 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 retro-shift 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.

NPDS statistical analyses indicate that all analgesic exposures, including opioids, and sedatives are increasing year over year. This trend is shown in [Table 17B](#) and [Figure 4](#). NPDS data mirrors CDC data that demonstrates similar findings [9]. Thus NPDS provides a near real-time view of these public health issues without the need for data source extrapolations.

One of the limitations of NPDS data has been the perceived lack of fatality cases 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 can 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 contacts.

Changes in 2017 encounters are shown in [Figures 1, 3, and 4](#), and include:

- Total encounters (all exposure and information contacts) decreased by 3.79%.
- All information contacts decreased 11.2%, Drug ID contacts decreased 30.2%, and human exposures decreased 2.03%.
- HCF information requests decreased 0.264% although managed exposure cases reported from an HCF increased 3.06%, consistent with the steady increase since 2000.
- Human exposures with less serious outcomes decreased 2.57% while those with more serious outcomes (moderate, major or death) increased 2.87% compared to an overall 4.44% yearly increase since 2000.
- The categories of substance exposures, resulting in more serious outcomes, most rapidly increasing was sedative/hypnotics/antipsychotics, followed by analgesics, antidepressants, and cardiovascular drugs.
- All 8 of the drugs of abuse examined under emerging trends (cocaine, hallucinogenic amphetamines, heroin, kratom, synthetic cathinones, synthetic opioids, and synthetic tryptamines) showed increases over for the last 52 weeks (ending 30-Jul-2018).

- The Historical GC search, a newly available NPDS tool, should facilitate the identification of new, potentially harmful products.

These data support the continued value of PC expertise and need for specialized medical toxicology information to manage the more severe exposures, despite a decrease in cases involving less severe 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 nationwide 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

The American Association of Poison Control Centers (AAPCC; <http://www.aapcc.org>) maintains the national database of information logged by the country's regional Poison Centers (PCs) serving all 50 United States, Puerto Rico, 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. The AAPCC 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 the AAPCC should not be construed to represent the complete incidence of national exposures to any substance(s).

Declaration of interest

The authors report no declarations of interest.

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Appendix A: Acknowledgments

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Poison centers (PCs)

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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:

Arizona Poison and Drug Information Center

Keith J. Boesen, PharmD, CSPI, FAzPA
F. Mazda Shirazi, MS, MD, PhD, FACEP, FAMCT
Nicholas B. Hurst, MD, MS
Denise Holzman, PharmD, CSPI
Matthew Andrews, PharmD
Steven Dudley, PharmD

Arkansas Poison & Drug Information Center

Henry F. Simmons, Jr., MD
Pamala R. Rossi, PharmD
Howell Foster, PharmD, DABAT

Banner Poison & Drug Information Center

Daniel Brooks, MD
Rebecca Hilder, RN, CSPI
Maureen Roland, RN, CSPI
Belinda Sawyers, RN, CSPI
Kim Schmid, MSN, CSPI
Daniel Thole RN, CSPI

Blue Ridge Poison Center

Christopher P. Holstege, MD
Jennifer R Horn, BSN

California Poison Control System – Fresno/Madera Division

Richard J. Geller, MD, MPH
Rais Vohra, MD

California Poison Control System – Sacramento Division

Timothy Albertson, MD, PhD
Justin Lewis, PharmD, DABAT
Kelly Owen, MD
Jonathan Ford, MD
Daniel Colby, MD
James Chenoweth, MD

California Poison Control System – San Diego Division

Richard F. Clark, MD
Lee Cantrell, PharmD, DABAT
Adam Koch, MD
Cliff Masom, MD
Alicia Minns, MD
Matt Riddle, MD
Christie Sun, MD

California Poison Control System – San Francisco

Raymond Ho, PharmD, DABAT
Robert Goodnough, MD
Susan Kim-Katz, PharmD
Kai Li, MD
Anita Ma, PharmD
Beth Manning, PharmD
Kathryn Meier, PharmD, DABAT
Freda Rowley, PharmD
Craig Smollin, MD
Ben Tsutaoka, PharmD, DABAT

Carolinas Poison Center

Michael C. Beuhler, MD
Anna Rouse Dulaney, PharmD
Dalia Alwasayah, MD
Christine M. Murphy, MD
Sara K. Lookabill, PharmD
Matt Stripp, MD
Kathy Kopec, DO
William Kerns II, MD

Central Ohio Poison Center

Hannah L. Hays, MD, FACEP
Jason Russell, DO
Marcel J. Casavant, MD, FACEP, FACMT, FAACT
Henry Spiller, MS, DABAT, FAACT
Kimberly Smitley

Central Texas Poison Center

Ryan Morrissey, MD
S. David Baker, PharmD, DABAT

Children's Hospital of MI Regional Poison Center

Cynthia Aaron, MD
Lydia Baltarowich, MD
Mirjana Dimovska, MD
Bram Dolcourt, MD
Matthew Hedge, MD
Andrew King, MD
Denise Kolakowski
Keenan Bora, MD
Eric Malone, MD
Luke Bisoski, MD

Cincinnati Drug and Poison Information Center

Shan Yin, MD, MPH
Sara Pinkston, RN, CSPI
Deborah Donald, RN, CSPI
Shannon Staton-Growcock, RN, CSPI

Connecticut Poison Center

Suzanne Doyon, MD, MPH
Dana Bartlett, MSN, MA, CSPI

Florida/USVI Poison Information Center – Jacksonville

Thomas Kunisaki, MD, FACEP, ACMT

Florida Poison Information Center – Miami

Jeffrey N. Bernstein, MD
Richard S. Weisman, PharmD

Florida Poison Information Center – Tampa

Tamas Peredy, MD, FAACT, FACMT
 Alfred Aleguas, PharmD, DABAT, FAACT
 Szilvia Boos, PharmD, CSPI
 Kiet Ngo, PharmD, CSPI
 Maria T Reyes, RN, CSPI
 Judy Turner, RN, CSPI
 Charisse Webb, RN, CSPI

Georgia Poison Center

Brent W. Morgan, MD
 Robert J. Geller, MD
 Ziad Kazzi, MD
 Gaylord P. Lopez, PharmD
 Stephanie Hon, PharmD
 Alaina Steck, MD
 Ezaldeen Numur, MD
 Jessica Weiland, MD
 Cynthia Santos, MD
 Lindsay Schaack, PharmD
 Sara Miller, PharmD
 Alexandra King, PharmD
 Diane Hindman, MD
 Tharwat El-Zahran, MD
 Samuel A. Ralston, DO
 Joseph Carpenter, MD
 Brian P. Murray, DO
 Camille Dunkley, MD

Illinois Poison Center

Michael Wahl, MD
 Sean Bryant, MD

Indiana Poison Center

Gwenn Christianson, MSN, CSPI
 Adam Overberg, PharmD
 Daniel E. Rusyniak, MD
 Blake Froberg, MD
 James B. Mowry, PharmD

Iowa Poison Control Center

Sue Ringling, RN, CSPI
 Linda B. Kalin, RN, CSPI
 Edward Bottei, MD

Kentucky Regional Poison Control Center

George M. Bosse, MD
 Ashley N. Webb, MSc, PharmD, DABAT

Louisiana Poison Center

Mark Ryan, PharmD
 Thomas Arnold, MD

Maryland Poison Center

Hong Kim, MD
 Lisa Booze, PharmD, CSPI
 Jacquelyn Goodrich, BSN, CSPI
 Angel Bivens, RPh, CSPI
 Kevin Simmons, BSN, CSPI
 Eric Schuetz, BSPHarm, CSPI
 Lisa Aukland, PharmD, CSPI
 Michael Hiotis, BSPHarm, CSPI
 Michael Joines, BSPHarm, CSPI
 Randall Goldberg, RN, CSPI
 Denise Couch, BSN, CSPI
 Jeanne Wunderer, RPh, CSPI
 Jennifer Malloy, PharmD, CSPI
 Laura Hignutt, PharmD, CSPI
 Christopher Wolff, PharmD, CSPI
 Elizabeth Millwee, RN, CSPI

Minnesota Poison Control System

Deborah L. Anderson, PharmD
 Jon B. Cole, MD
 Samantha Lee, PharmD, DABAT
 Ben Orozco, MD
 Jill Topeff, PharmD, CSPI
 Laurie Willhite, PharmD, CSPI

Mississippi Poison Control Center

Tanya Calcote, RN, CSPI
 Robert Cox MD, PhD, DABT, FACMT

Missouri Poison Center at SSM Health

Cardinal Glennon Children's Hospital
 Rebecca Tominack, MD
 Theresa Matoushek, PharmD, CSPI

National Capital Poison Center

Cathleen Clancy, MD, FACMT
 Nicole Reid, BSN, MEd, CSPI, DABAT

Nebraska Regional Poison Center

Ronald I. Kirschner, MD

New Jersey Poison Information and Education System

Bruce Ruck, PharmD
 Diane P. Calello, MD

New Mexico Poison and Drug Information Center

Steven A. Seifert, MD, FAACT, FACMT
 Brandon J. Warrick, MD
 Susan C. Smolinske, PharmD, DABAT, FAAC

New York City Poison Control Center

Maria Mercurio-Zappala, MS, RPh
 Mark K Su, MD, MPH
 Stephen Alex Harding, MD
 Jonathan De Olano, MD
 Elie Harmouche, MD
 Madeline Renny, MD

North Texas Poison Center

Kelly Hogue, RN, MSN
 Brett Roth MD, ACMT, FACMT
 Donna Abron, RN, BSN, CSPI
 Anelle Menendez, CSPI
 Melody Gardner, MSN, MHA

Northern New England Poison Center

Karen E. Simone, PharmD, DABAT, FAACT
 Tammi H. Schaeffer, DO, FACEP, FACMT

Oklahoma Poison Control Center

William Banner, Jr., MD, PhD, ABMT
 Scott Schaeffer, RPh, DABAT

Oregon Poison Center

Zane Horowitz, MD
 Sandra L. Giffin, RN, MS

Palmetto Poison Center

William H. Richardson, MD
 Jill E. Michels, PharmD
 Lewis S. Hardison, DO

Pittsburgh Poison Center

Michael Lynch, MD
 Amanda Korenoski, PharmD, MHA

Puerto Rico Poison Center

José Eric Díaz-Alcalá, MD
 Andrés Britt, MD
 Elba Hernández, RN

Regional Center for Poison Control and Prevention Serving Massachusetts and Rhode Island

Michele M. Burns, MD, MPH
 Rebecca E. Bruccoleri, MD
 Takuyo Chiba, MD

Regional Poison Control Center – Children's of Alabama

Justin Arnold, DO, MPH
 Sherrel Kirkland, RN, CSPI
 LaDonna Gaines, RN, CSPI
 Janet Fowler, RN, CSPI

Rocky Mountain Poison & Drug Center

Shireen Banerji, PharmD, DABAT
 Christopher Hoyte, MD
 Carol Hesse RN, CSPI

Regina R. Padilla
 Caitlin Bonney, MD
 Nick Brandehoff, MD
 Keith Baker, MD
 Michael Marlin, MD
 Thomas Nappe, MD
 Patrick Ng, MD
 Jonathan Schimmel, MD

South Texas Poison Center

Veronica Stoller, MPA
 Rick Hernandez, MD, RN, CSPI
 Alfredo Gonzalez, DNP, MSN, RN, CSPI
 Darelle Hinson, MSN, RN, CSPI
 Maria Hinojosa, PharmD, CSPI
 Robert Miller, PharmD, CSPI
 Vivian Rivera, RN, CSPI
 Cynthia Teter, PharmD, CSPI
 Douglas Cobb, RPh, CSPI
 George Layton, MD, CSPI
 Shawn Varney, MD, FACEP, FACMT

Southeast Texas Poison Center

Wayne R. Snodgrass, MD, PhD, FACMT
 Jean L. Cleary, PharmD, CSPI

Tennessee Poison Center

Donna Seger, MD
 Nena Bowman, PharmD, DABAT
 Denese Britt, MS, BSN, CSPI
 Justin Loden, PharmD, CSPI

Texas Panhandle Poison Center

Cristie Johnston, RN, CSPI
 Thomas Martin, MD
 Jeanie E. Jaramillo, PharmD

The Poison Control Center at the Children's Hospital of Philadelphia

Fred Henretig, MD
 Kevin Osterhoudt, MD, MSCE, FAAP, FAACT, FACMT
 Jeanette Trella, PharmD, BCPPS

The University of Kansas Health System Poison Control Center

Tama Sawyer, PharmD, DABAT
 Stephen Thornton, MD

Upstate NY Poison Center

Brett Cherrington, MD
 Jeanna M. Marraffa, PharmD
 Christine M. Stork, PharmD
 William Eggleston, PharmD

Utah Poison Control Center

B. Zane Horowitz, MD

Virginia Poison Center

S. Rutherford Rose, PharmD
 Kirk Cumpston, DO
 Brandon Wills, DO
 Michelle Troendle, MD

Washington Poison Center

Erica L. Liebelt MD
 Curtis Elko PharmD
 David Serafin

West Texas Regional Poison Center

Hector L. Rivera, RPh, CSPI
 Stephen W. Borron, MD, MS, FACEP, FACMT
 Salvador H. Baeza, PharmD, DABAT

West Virginia Poison Center

Mike Abesamis, MD, ABEM-MT
 Elizabeth J. Scharman, PharmD, DABAT, BCPS, FAACT

Wisconsin Poison Center

David D. Gummin, MD
 Jillian L. Theobald, MD, PhD
 Amy E. Zosel, MD

AAPCC fatality review team

The Lead and Peer review of the 2017 fatalities was carried out by the 47 individuals listed here including 6 who reviewed the pediatric cases [Peds]. The authors and the AAPCC wish to express our appreciation for their volunteerism, dedication, hard work and good will in completing this task in a limited time.

Alexandra King, PharmD, DABAT, Georgia Poison Center, Atlanta, GA
 Alfred Aleguas Jr†, PharmD, DABAT, FAACT, Florida Poison Information Center, Tampa, FL
 Alice Lugo, PharmD, CSPI, California Poison Control System-Sacramento, Sacramento, CA
 Amberly R. Johnson*, PharmD, DABAT, Utah Poison Control Center, Salt Lake City, UT
 Anna Rouse Dulaney*, PharmD, DABAT, FAACT, Carolinas Poison Center, Charlotte, NC [Peds]
 Annette Lopez, MD, Oregon Poison Center, Portland, OR
 Ann-Jeannette Geib*, MD, FACEP, FACMT, Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ
 Bernard C Sangalli, MS, DABAT, Connecticut Poison Center, Farmington, CT
 Christine Murphy, MD, Carolinas Medical Center, Charlotte, NC [Peds]
 Curtis Elko†, PharmD, CSPI, Washington Poison Center, Seattle, WA
 Denese Britt*†, MS, BSN, CSPI, Tennessee Poison Center, Nashville, TN
 Diane Calello, MD, FAAP, FACMT, New Jersey Poison Information and Education System, Newark, NJ [Peds]
 Ed Bottei*, MD, Iowa Statewide Poison Control Center, Sioux City, IA
 Elizabeth Hines, MD, Clinical Fellow, Medical Toxicology, NYU School of Medicine, NY, NY
 Elizabeth J Scharman, PharmD, DABAT, BCPS, FAACT, West Virginia Poison Center, Charleston, WV
 Frank LoVecchio, DO, Banner Poison and Drug and Information Center, Phoenix, AZ
 Gar Chan, MD, FACEM, Calvary Hospital, Lenah Valley, Tasmania, Australia
 Hannah Hays, MD, FACEP, Central Ohio Poison Center, Columbus, OH
 Henry Spiller, MS, DABAT, FAACT, Central Ohio Poison Center, Columbus OH
 Jan Scaglione*, PharmD, DABAT, Cincinnati Drug and Poison Information Center, Cincinnati, OH
 Jeffrey S Fine, MD, NYU School of Medicine/Perelman Emergency Department/Bellevue Hospital Center, New York, NY [Peds]
 Jennifer Lowry, MD, Division of Clinical Pharmacology, Toxicology, and Therapeutic Innovations, Children's Mercy Hospital, Kansas City, MO [Peds]
 Jill E Michels, PharmD, DABAT, Palmetto Poison Center, Columbia, SC
 Justin Lewis, PharmD, DABAT, California Poison Control System-Sacramento, Sacramento, CA
 Justin Loden, PharmD, CSPI, Tennessee Poison Center, Vanderbilt University Medical Center, Nashville, TN
 Kaitlyn Brown, PharmD, DABAT, Utah Poison Control Center, Salt Lake City, UT
 Lindsay Schaack Rothstein, PharmD, DABAT, Georgia Poison Center, Atlanta, GA
 Maria Mercurio-Zappala*, RPh, MS, DABAT, FAACT, New York City Poison Control Center, New York, NY
 Mark J. Neavyn, MD, Division of Medical Toxicology, UMass Memorial Medical Center, Worcester, MA
 Mark Su, MD, MPH, FACEP, FACMT, New York City Poison Control Center, New York, NY
 Michael Levine*, MD, Banner Good Samaritan Medical Center, Phoenix, AZ; University of Southern California, Los Angeles, CA
 Nathanael McKeown*†, DO, Oregon Poison Center, Portland, OR
 Nena Bowman, PharmD, DABAT, Tennessee Poison Center
 Nima Majlesi, DO, Staten Island University Hospital, NY
 Paul Starr, PharmD, DABAT, Sykesville, MD
 Rachel Gorodetsky, PharmD, DABAT, Upstate New York Poison Center, Syracuse, NY
 Rachel Schult, PharmD, DABAT, Upstate New York Poison Center, Syracuse, NY

Robert Goetz, PharmD, DABAT, Cincinnati Drug and Poison Information Center, Cincinnati, OH
 Ron Kirschner*, MD, Nebraska Regional Poison Center, Omaha, NE
 Salvador Baeza, PharmD, DABAT, West Texas Regional Poison Center, El Paso, TX
 Sara Miller, PharmD, DABAT, Grady Health System, Atlanta, GA
 Serena Huntington, PharmD, CSPI, California Poison Control System-Madera, Madera, CA
 Sophia Sheikh, MD, Department of Emergency Medicine, University of Florida College of Medicine-Jacksonville, Jacksonville, FL
 Stephanie Hon, PharmD, DABAT, Georgia Poison Center, Atlanta, GA
 Steven M Marcus, MD, Newark, NJ [Peds]
 Susan Smolinske*†, PharmD, New Mexico Poison Center, Albuquerque, NM
 Timothy Wiegand, MD, University of Rochester, Medical Center and Strong Memorial Hospital; SUNY Upstate Poison Center

† These reviewers served as associate managers during final review wrap up.

* These reviewers further volunteered to read the top ranked 200 abstracts and judged to publish or not publish each.

AAPCC NPDS steering committee

Chair: David D. Gummin, MD
 James B. Mowry, PharmD, DABAT, FAACT, DPNAP
 Elizabeth J. Scharman, PharmD, DABAT, BCPS, FAACT
 Jonathan Colvin, MS, BSN, CSPI
 Alvin C. Bronstein, MD, FACEP, FACMT

AAPCC micromedex joint coding group

Chair: Elizabeth J. Scharman, PharmD, DABAT, BCPS, FAACT
 Alvin C. Bronstein, MD, FACEP, FACMT
 Anna Rouse Dulaney, PharmD, DABAT, FAACT
 Sandy Giffin, RN, MS
 Susan C. Smolinske, PharmD, DABAT, FAACT

AAPCC rapid coding team

Chair: Alvin C. Bronstein, MD, FACEP, FACMT
 Elizabeth J. Scharman, PharmD, DABAT, BCPS, FAACT
 Jay L. Schauben, PharmD, DABAT, FAACT
 Susan C. Smolinske, PharmD, DABAT, FAACT

AAPCC surveillance team

NPDS surveillance anomalies are analyzed daily by a team of 10 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:

Alvin C. Bronstein, MD, FACEP, FACMT - Director
 Alfred Aleguas, PharmD, DABAT
 Douglas J. Borys, PharmD, DABAT
 John Fisher, PharmD, DABAT, FAACT
 Jeanna M. Marraffa, PharmD, DABAT
 Maria Mercurio-Zappala, RPh, MS, DABAT, FAACT
 Henry A. Spiller, MS, DABAT, FAACT
 Richard G. Thomas, PharmD, DABAT

Regional poison center fatality awards

Each year the AAPCC 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 (12/15/17, 21 cases): Utah Poison Control Center (Salt Lake City)
 Largest Number with Autopsy Reports (52 of 72 cases; 72%): Carolinas Poison Center (Charlotte)
 Highest Percentage with Autopsy Reports (79% of 39 cases): Banner Poison Control Center (Phoenix)
 Largest Number of Indirect cases (n = 1226; 96% of all Indirect cases): Banner Poison Control Center (Phoenix)
 Highest Overall Quality of Reports (5.38 out of possible 12 for 29 cases): Wisconsin Poison Center (Milwaukee)
 Greatest improvement in Overall Quality of Reports (1.69 increase from last year): West Virginia Poison Center (Charleston)
 Most Abstracts Published in the 2017 Annual report (5 of the 57 published narratives): Carolinas Poison Center (Charlotte)
 Most Helpful Regional Poison Center Staff (based on survey of AAPCC review team): Washington Poison Center (Seattle)
 Honorable mention: Wisconsin Poison Center (Milwaukee)
 Endurance Award (consistently great cases with the most autopsies and most published abstracts for the last 6 years): Carolinas Poison Center (Charlotte)

Appendix B: Data definitions

Reason for exposure

NPDS classifies all encounters as either EXPOSURE (concern about an exposure to a substance) or INFORMATION (no exposed human or animal). A contact may provide information about one or more exposed person or animal (receptors).

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 pursuit of a 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 mucus 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 prolonged, 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 AAPCC 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.

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).

$$FCW = f[1/(num\ substances\ in\ this\ case),\ WCS,\ 1/Age\ (years),\ 1/(num\ cases\ in\ that\ generic\ code\ this\ year)]$$

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 AAPCC 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 A) and the 2 managers (DAS and DEB). Each reader judged each abstract as "publish" or "omit" and all abstracts receiving 8 or more of 12 publish votes were selected, further edited, cross-reviewed by the 2 managers and JBM, 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 2017. 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 133. Acute hydrofluoric acid ingestion: undoubtedly responsible

Scenario/Substances: A 53y/o developmentally delayed male was doing glass etching in a workshop when he swallowed ~3 oz of glass etching cream containing ammonium bifluoride and hydrofluoric acid. He vomited within 15 min and was transported to the ED.

Past Medical History: Developmental delay, deaf, mute, history of pica, seizures, hypothyroidism.

Physical Exam: In the ED he was alert but vomiting; BP 126/91, HR 86, RR 18, T 37°C, O₂ sat 94% (RA).

Laboratory/Diagnostic Findings: Na 146/K 5.2/Cl 112/CO₂ 17/BUN 12/ Cr 1.68/Glu 215, AG 217. ABG- pH 7.09. Mg 1.7, Ca 6.9, Ca (ionized) 2.1, troponin 2.67 (peak 89.5). ECHO: severely reduced RV systolic function; LV ejection fraction was 25-30%. ECG: new RBBB and prolonged QTc.

Clinical Course: Attempt to place an NG failed due to patient agitation. One h later he was sedated with haloperidol, lorazepam and diphenhydramine and an NGT was placed with clear aspirate obtained. He was then intubated for respiratory distress and became hypotensive. EKG: QRS widening with a new RBBB. He received Ca (4 g) and Mg (4 g), sodium bicarbonate and norepinephrine drips; BP 73/56, HR 111. Endoscopy was not performed because of concern for esophageal perforation and hemodynamic instability. Ceftriaxone and omeprazole were administered. CT chest: negative for perforation, airspace disease and multiple air fluid levels in the gut. Patient remained hypotensive at 60/40, HR 122. Ca <5 despite ~12g of Ca. He had a VF cardiac arrest and died, despite resuscitation efforts, 10 h after ED arrival.

Autopsy Findings: Cause of death: alkalizing (barium-containing) toxicity; manner of death: accidental. Esophageal and gastric hemorrhage and perforations; barium staining of the peritoneum and mediastinum; microscopic evidence of myocardial infarction. Toxicologic report: barium in gastric contents and peripheral blood. [MSDS: product contained 1-2% hydrofluoric acid, 21-27% ammonium bifluoride and a small amount of barium sulfate. The PCC contacted the ME office and provided product information and that the death was likely due to hydrofluoric acid/ammonium bifluoride toxicity; their report was not edited.]

Case 136. Acute methanol ingestion: undoubtedly responsible

Scenario/Substances: A 35 y/o male ingested 1 gallon of windshield deicer over the course of the day.

Past Medical History: Alcoholism.

Physical Exam: Unresponsive; SBP 170s, HR 120s, T 101 °F.

Laboratory/Diagnostic Findings: ABG- pH 7.1/pCO₂ 13/pO₂ 227. Na 140/K 4.9/Cl 100/CO₂ < 5/BUN 19/Cr 1.27/Glu 132/AG >35. AST 192, ALT 200, INR 1.0; WBC 4.8/Hgb 16.5. Serum osmolality >500, methanol: 620 mg/dL. Serum ethylene glycol, APAP, ethanol and salicylate not detected. UDS was negative.

Clinical Course: He was intubated in the ED, given metoprolol and started on fomepizole. HD was initiated within 4 h; repeat methanol levels were 57, 19 and then 11 mg/dL. CT head showed infarcted basal ganglia and diffuse cerebral edema. EEG showed suppressed brainwave activity. Diabetes insipidus with polyuria developed with hypotension requiring multiple vasopressors. Cerebral perfusion scan showed absent intracranial blood flow. Based on the prognosis, the family opted for institution of comfort measures and he died on Day 7.

Autopsy Findings: No autopsy results were provided.

Case 150. Acute Disc battery, ingestion: undoubtedly responsible

Scenario/Substances: A 2 y/o female ingested a button battery ~36 h prior.

Clinical Course: She presented at the ED following an episode of hematemesis at home. CxR: battery was in the esophagus. Endoscopic retrieval was unsuccessful, the child exsanguinated and died.

Autopsy Findings: No autopsy results were provided.

Case 151. Acute *Crotalinae* envenomation: undoubtedly responsible

Scenario/Substances: A 29 y/o male was bitten on the forearm by an unknown snake.

Physical Exam: 2 noticeable puncture wounds were visible on the forearm with edema to his axilla. He complained of abdominal pain.

Clinical Course: At Day 2 he developed rhabdomyolysis and hemoconcentration; INR 1.4, CK 30,000, WBC 50/Hgb 21/PLT 162. Swelling did not improve with the initial 6 vials of Fab antivenom, INR increased to 1.7. Pulses were only detectable on Doppler. Extremity was elevated, corticosteroids and another 6 vials of antivenom were given but the edema progressed into his torso and back. Urine output decreased. WBC 56/Hgb 22/Hct 65.1/PLT 15, CK 6,604, INR 2.3, PTT 38.9, lactate 3.48. CxR: pulmonary edema. The patient was intubated, 12 more vials of antivenom were given and CRRT was initiated. On Day 2: PT 13.3, PTT 43.5, fibrinogen 159, PLT 100, BUN 24, Cr 3.3; FFP was given. On Day 3: INR 2.1, PTT >200, PLT 92, ABG- pH 6.93/pCO₂ 23/HCO₃ 5. He continued to deteriorate and died on Day 3.

Autopsy Findings: No autopsy results were provided.

Case 152. Acute *Crotalinae* envenomation: undoubtedly responsible

Scenario/Substances: 31 y/o male was hiking when he was bitten by a rattlesnake on his left leg. He rapidly developed dyspnea with throat swelling and then became unresponsive. Bystander CPR was performed; EMS arrived ~30 min later. He had intermittent ROSC during ED transport.

Clinical Course: He arrived at the ED in cardiac arrest, was intubated and ACLS was continued. Ultrasound showed no cardiac activity and he was pronounced dead ~2 h after being envenomated.

Autopsy Findings: Two puncture wounds on the left lower leg with marked hemorrhage and edema. Diffuse petechiae and hemorrhage of epicardium and endocardium, visceral pleurae of the lungs, intercostal muscles and diffuse tissues. Cause of death: complications following rattlesnake envenomation.

Case 154. Acute fire ant bite/sting: contributory

Scenario/substance: A 53 y/o male was bitten by fire ants and collapsed soon after. He was given a dose of epinephrine via auto-injector but lost consciousness. EMS found the patient in PEA cardiac arrest; ~40 min resuscitation before ROSC.

Past Medical History: *Hymenoptera* (fire ant) hypersensitivity, last reaction 8 y prior.

Physical Exam: Unresponsive; bloody NGT fluids. Foot lesions consistent with ant bites. 91/77, HR 104, RR 24, O₂ sat 92%.

Laboratory/Diagnostic Findings: ABG- pH 7.04/pCO₂ 62/pO₂ 86/CO₂ 16/BE -13. Na 143/K 3.9/Cl 104/CO₂ 17/BUN 16/Cr 1.48/Glu 254, AG 22, AST 374 (12,700 peak), ALT 237 (5,600 peak), bilirubin 0.8 (peak 3.1). INR 1.9, CK (peak) 6,472, troponin (peak) 14.75. WBC 14.8 (peak 40.8)/Hgb 17.7/Hct 55/PLT 226. CT chest: bilateral aspiration; ECG: HR 117, QRS 84, QTc 477.

Clinical Course: In the ED he was intubated, cooled, placed on norepinephrine, vasopressin and epinephrine drips with fentanyl and midazolam for sedation. He had a second cardiac arrest after ICU arrival; antibiotics, bicarbonate, hydrocortisone and albumin were given. On Day 2, CRRT was started for acidosis and renal failure (Cr peaked at 4.46 on Day 6). He developed coagulopathy (fibrinogen <60, INR 2.5) and was given cryoprecipitate and vitamin K. MRI brain (Day 5) was consistent with severe hypoxic injury; he was unresponsive off sedation. Based on the prognosis, comfort measures were instituted and he died on Day 6.

Autopsy Findings: No autopsy results were provided.

Case 155. Acute calcium hydroxide dermal: undoubtedly responsible

Scenario/Substances: 59 y/o male sustained 50% TBSA chemical burn after falling into pit filled with fresh cement. He was extricated 2 h later;

he was confused and combative. EMS decontaminated him prior to ED transfer.

Past Medical History: Alcoholism.

Physical Exam: HR 100, RR 18, T 36°C; alert but confused, GCS 14. Full thickness burns to back and all extremities.

Laboratory/Diagnostic Findings: WBC 7.4/Hgb 13.9/Hct 41.5%/PLT 117. CT head: unremarkable.

Clinical Course: On Day 2 he developed alcohol withdrawal and was treated with benzodiazepines and oral alcohol. Nutrition and burn care were initiated; skin grafts were performed. On Day 14 he developed tachydysrhythmias (ST, AF, SVT) and was treated with adenosine, metoprolol and amiodarone. On Day 29 he required intubation and norepinephrine for presumed sepsis. Based on the prognosis, comfort measures were instituted and he died on Day 40.

Autopsy Findings: Not performed.

Case 156. Acute silicone parenteral: undoubtedly responsible

Scenario/substance: A 19 y/o female injected silicone into her buttocks 3 d prior to hospital admission.

Past Medical History: Cocaine abuse, transgender on estrogen therapy.

Physical Exam: Palpable injection sites. BP 73/46, HR 132, RR 40s.

Laboratory/Diagnostic Findings: Na 146/K 4.2/Cl 104/CO₂ 15/BUN 14/Cr 1.7, AST 3,317, ALT 2,741. ECG: HR 136, QRS 79, QTc 440.

Clinical Course: Patient was admitted for possible alcohol withdrawal but then had 'bleeding' and two cardiac arrests. She was intubated and developed right ventricular strain, ARDS, diffuse alveolar hemorrhage and multiple seizures. She was treated with levetiracetam and albumin and started on norepinephrine, vasopressin and sodium bicarbonate drips. She remained hypotensive; aminocaproic acid was given for pulmonary hemorrhage. Based on her prognosis, comfort measures were initiated, and she died on Day 2.

Autopsy Findings: No autopsy results were provided.

Case 158. Acute parenteral cyanide exposure: undoubtedly responsible

Scenario/Substances: A 35 y/o female was reportedly injected into her gluteal area by her estranged husband. She was flaccid and unresponsive when EMS arrived.

Physical Exam: Upon ED arrival she was unresponsive, BP 130/83, HR 102.

Laboratory/Diagnostic Findings: ABG- pH 6.95, lactate 7.7.

Clinical Course: She was immediately intubated, repeat VS: SBP 72, HR 40s. Norepinephrine, hydroxocobalamin and sodium thiosulfate were given. Repeat ABG- pH 7.37/PCO₂ 25/PO₂ 357/HCO₃ 15.5, lactate 3.3. Vasopressin, sodium bicarbonate drips and CRRT were started. On Day 2 she remained unresponsive with no corneal reflexes. She was declared brain dead and died.

Autopsy Findings: Examination revealed dermal puncture in the gluteal area, cerebral ischemia with edema and uncal herniation. Blood cyanide was 3.4 mg/L.

Case 166. Acute tetramethyl ammonium hydroxide inhalation/nasal, ocular: undoubtedly responsible

Scenario/Substances: A 39 y/o male contractor was working on a job site when a pipe containing tetramethyl ammonium hydroxide burst and sprayed on him for 20 sec. He showered immediately but then collapsed with cardiac arrest; he was noted to be apneic in PEA. On site CPR was performed for 5 min. He was intubated and received epinephrine by EMS, with ROSC, and was then transported to the ED.

Past Medical History: Healthy, no medical problems.

Physical Exam: HR 90, SBP 110, O₂ sats 90%. Pt was initially combative and given midazolam. Skin was slightly red with petechiae and superficial erythema (partial thickness burns) but no blisters. Pupils were minimally reactive without corneal injury.

Laboratory Data: Electrolytes, Cr, INR and ABG 'normal.' Lactate 1.2, transaminases in the 100s. EKG: inferior ischemia. CxR: "fluffy" with pulmonary congestion.

Clinical Course: The patient was transferred to a tertiary care center and started on cooling protocol for post cardiac arrest. HR varied from 46 to

62, BP 98/60 then 124/88. 24 h later he was rewarmed, and sedation was weaned. He developed jerking motions which raised concern about anoxic brain injury. Patient developed seizures without neurological improvement on Day 12, placed on comfort care, and died on Day 13.

Autopsy Findings: Cause of death: anoxic encephalopathy, hydroxide exposure, burn exposure 16% TBSA. Manner of death: accident; tetra-methyl ammonium hydroxide exposure.

Case 174. Acute ethyl methacrylate ingestion: undoubtedly responsible

Scenario/Substances: A 52 y/o male, owner of a nail salon, was found unresponsive in his yard with an empty liter bottle of ethyl methacrylate. He was intubated by EMS prior to transport to an ED. Of note, he was recently arrested for a felony charge.

Physical Exam: BP 73/49, HR 84, RR 14, O₂sat 86% (100% FiO₂). Pupils were fixed and dilated, he had no brainstem reflexes.

Laboratory/Diagnostic Findings: ABG- pH 6.74/pCO₂ 51/pO₂ 71/HCO₃ 6/BE -35. Lactate 4.7, Ca 4.3, Na 141/K 5.7/Cl 120/CO₂ 9/BUN 9/Cr 1.2/Glu 197/AG 12. UDS was negative. WBC 22.4; CxR: bilateral infiltrates.

Clinical Course: He was treated with IV boluses of lactated ringers and drips of norepinephrine, vasopressin and sodium acetate, but died within 4 h of presentation. Prior to cardiac arrest his BP 30/14, HR 40 and O₂ sat <70% on 100% FiO₂.

Autopsy Findings: No autopsy results were provided.

Case 190. Acute hydrochloric acid ingestion: undoubtedly responsible

Scenario/Substances: A 68 y/o female intentionally ingested 16 oz of hydrochloric acid-containing toilet bowl cleaner. She arrived in the ED 2 h later with hematemesis and respiratory distress.

Past Medical History: Anxiety, bipolar disorder, chronic pain.

Physical Exam: In the ED: BP 185/86, HR 71, T 36°C, RR 30 (NRB). She was alert and oriented with bloody secretions in oropharynx. There were coarse wet rales throughout all lung fields; abdomen was diffusely tender.

Laboratory/Diagnostic Findings: ABG- pH 6.92/pO₂ 184/pCO₂ 43/HCO₃ 8. Na 143/K 5.1/Cl 118/CO₂ 15/BUN 14/Cr 0.95/Glu 221, AG 22. AST 173, ALT 57, bilirubin 1.6, INR 1.5, WBC 26/Hgb 16.2/Hct 50.7/PLT 186. Serum APAP, ethanol and salicylate not detected. CxR: right lung opacification. ECG: sinus rhythm at 82.

Clinical Course: She was intubated in the ED and had dark-brown aspirate from the ETT and NGT. Antibiotics were given. Upper endoscopy demonstrated ulceration in hypopharynx, severe esophagitis with necrosis, diffuse gastric necrosis. She received IVFs, vasopressors and CRRT but died 12 h after admission.

Autopsy Findings: Cause of death: complications from cleaning chemical ingestion; manner of death: suicide. Findings included hemorrhage and necrosis of esophagus, stomach and small intestine. Toxicology screens were negative for drugs of abuse.

Case 218. Acute deodorizer ingestion: probably responsible

Scenario/Substances: A 4 w/o 4 kg male was fed a bottle containing formula accidentally mixed with an industrial deodorizer (containing lemon verbena). He reportedly only took 1 drink and then started crying. MSDS lists nonyl phenol and propylene glycol ether.

Physical Exam: In the ED he was lethargic, HR 70s, O₂ sat 70% (RA).

Laboratory/Diagnostic Findings: ABG- pH <6.8/pCO₂ 92/pO₂ 31/HCO₃ 2. Na 153/K 5.4/Cl 124/BUN 7/Cr 0.26/Glu 45, AST 137, ALT 45, bilirubin 0.2. WBC 12.9/Hgb 8.5/Hct 30/PLT 118. CxR: atelectasis and lung opacities.

Clinical Course: Within 1 h he developed lethargy, hypoxia and periods of apnea. He was intubated and received CPR, epinephrine and atropine with initial improvement. He was reintubated at the tertiary care center and placed on an epinephrine drip but had cardiac arrest and died.

Autopsy Findings: No autopsy results were provided.

Case 220. Acute carbon monoxide inhalation/nasal: undoubtedly responsible

Scenario/Substances: A 4 y/o male was found in cardiac arrest after being extricated from a house fire. He had ROSC after 40 min of ACLS on scene but arrested again prior to ED arrival.

Physical Exam: Unresponsive in cardiac arrest. Soot in mouth and nasal passages, coarse lung sounds. Cyanosis of hands and feet; 53% TBSA (35% partial, 18% full thickness burns). After ROSC: BP 75/40, HR 120, RR 30.

Laboratory/Diagnostic Findings: Glu 262, lactate 22.8, CO₂ 10, ALT 885, AST 1285, lipase 244, CK 16,091. VBG-pH <6.8, COHb 26%. CxR: extensive lung opacities, left > right. EKG: NSR with septal ST depression. CT head: diffuse cerebral and cerebellar edema.

Clinical Course: ROSC was obtained after 20 min of CPR, intubation, epinephrine and sodium bicarbonate. Sodium thiosulfate was given. On burn center arrival (on epinephrine and norepinephrine) BP 103/91, HR 8, O₂ sat 86%. Escharotomy was performed for pulseless left leg with circumferential burn. His BP and oxygenation decreased, acidosis increased. Based on the prognosis, comfort measures were instituted and he died 7 h after arrival.

Autopsy Findings: 50% TBSA burns, cerebral edema, bilateral pulmonary consolidation, airway inhalation injuries. Cause of death: medical complications of thermal and inhalation injuries. COHb 24%.

Case 230. Acute carbon monoxide inhalation: undoubtedly responsible

Scenario/Substances: A 16 y/o male was found in cardiac arrest inside a mobile home that had a generator running for heat. CPR was initiated with ROSC and he was transported to the ED. Two other adults were also found unconscious but survived.

Physical Exam: His pupils fixed and dilated; GCS 3.

Laboratory/Diagnostic Findings: Initial COHb 32.6% (then 7.5%), O₂ sat 64.8%. Na 146/K 3.4/Cl 103/CO₂ 14.8/BUN 12/Cr 1.8/Glu 414, AG 28, Ca 9.7, bilirubin 0.4, ALP 105, AST 235, ALT 228, lactate 25.2, troponin 86 (then 30.6), CK 2,700. WBC 17.8/Hgb 15.4/Hct 47.1/PLT 233, PTT 37.1, INR 1.3. Serum APAP, ethanol and salicylate not detected. ABG- (after 6 amps of sodium bicarbonate) pH 7.25/pCO₂ 60.2/HCO₃ 26.2.

Clinical Course: He was intubated and placed on 100% FiO₂, started on norepinephrine, epinephrine (and then amiodarone) drips for hypotension and a hypothermia protocol. He was transferred to a tertiary care center for HBO therapy, but the chamber was malfunctioning. He remained unresponsive with fixed and dilated pupils on Day 1. HR 106, BP 104/67 on vasopressors that were slowly weaned. On Day 2 his pupils were 8 mm fixed; VS with re-warming: HR 83, BP 106/39, RR 29 (breathing slightly over the ventilator rate), O₂ sat 88%. He died on the evening of Day 2.

Autopsy Findings: No autopsy results were provided.

Case 268. Acute sulfur dioxide inhalation and ocular exposure: undoubtedly responsible

Scenario/Substances: 64 y/o male became trapped in a smelting area with high concentrations of sulfur dioxide. He became disoriented, took off his protective mask and was exposed for ~10 min.

Physical Exam: In the ED he complained on bilateral eye pain. BP 125/53, HR 82, RR 20, T 36.3°C, O₂ sat 89% (RA).

Laboratory/Diagnostic Findings: ABG- pH 7.26/pCO₂ 47. Na 145/K 3.9/Cl 112/CO₂ 22. CxR: mild infiltrate.

Clinical Course: In the ED his eyes were irrigated with 2 L NSS; conjunctival pH after irrigation was 7.0. Eye exam showed mild corneal haziness with diffuse fluorescein uptake. He became progressively short of breath and deteriorated despite albuterol. He was intubated and transported to a burn unit. Bronchoscopy showed friable, edematous and erythematous bronchopulmonary segments. CxR: diffuse patchy consolidation in all lung fields. BP 95/55, HR 120, T 37.4°C, BUN 32, Cr 3.47, lactate 4.0. He was started on veno-venous ECMO and CRRT, received sodium bicarbonate and an esmolol drip. Bedside ECHO showed normal ejection fraction. On Day 2 he developed severe acidosis, hematemesis, and abdominal distension with concern for ischemic bowel; Cr 4.26, BUN 38, lactate 12.7. He developed hypoxia and hypotension; repeat ECHO showed cardiogenic shock. Dobutamine was added. INR 2.1, PTT >150. Based on the prognosis, the family opted for institution of comfort measures and he died on Day 3.

Autopsy Findings: Pathologic findings: diffuse alveolar damages, corneal burns bilateral, peritoneal effusion, occlusive CAD 60 - 90% RCA/LAD/L circumflex. Toxicology (premortem blood): amphetamine

0.146 mcg/mL, ketamine 0.144 mcg/mL (ketamine presumed from hospitial anesthetic).

Case 285. Acute arsenic and ethanol ingestion: probably responsible

Scenario/Substance: A 36 y/o male was brought to the ED after drinking alcohol and an unlabeled bottle with “the appearance of an antique bottle of Clorox.” EMS found him confused, vomiting and incontinent of urine and feces. His blood glucose was 60 and he received D50.

Past Medical History: Drug abuse, recent suicidal ideation.

Physical Exam: BP 56/27, HR 126, RR 40 O₂ sats 72% (on 94% NRB), T 35.1 °C rectal. He was lethargic, pupils 3 mm and sluggishly reactive bilaterally.

Laboratory/Diagnostic Findings: ABG- pH 7.21/pCO₂ 24/pO₂ 185/HCO₃ 9/BE -17, Na 140/K 2.6/Cl 106/CO₂ 13/BUN 26/Cr 1.75/Glu 255/AG 22. Lactate 8.9, Ca 9.4. Serum ethanol 10 mg/dL. Serum salicylate and APAP not detected. Serum osmolality 312, CK 246, ammonia 190, troponin 0.26, Hgb 14.9, PLT 130. EKG: ST at 125, QRS 109, QTc 485, inferolateral ST depression.

Clinical Course: On arrival to the ED he was drowsy but arousable, complained of feeling cold. He was transiently responsive to IVFs and oxygen but remained tachypneic and tachycardic. He was started on norepinephrine and received both bolus doses and drip of sodium bicarbonate. His mental status declined. During intubation, he vomited and went into VF requiring defibrillation and ACLS. Electrolytes (Mg, K Ca) were replaced but he died ~3.5 h after presentation.

Autopsy Findings: Not performed. Of note: after death the antique bottle was obtained. Testing of a chalky gray residue, via water distillation and mass spectrometry, revealed 6,755 ppm arsenic.

Case 288. Acute arsenic, benzene and toluene ingestion: undoubtedly responsible.

Scenario/Substances: A 59 y/o male presented to the ED 19 h after ingesting 4 oz of an arsenic solution in either benzene or toluene. He was reportedly working with chemicals (which he had access to via employment) in his basement and confused the liquid with his orange juice.

Past Medical History: No reported depression but admitted to being stressed from caring for his father-in-law.

Physical Exam: Anxious with profuse vomiting, flank pain and dizziness. BP 90/73, HR 111, RR 24, O₂ sat 94% (RA), T 36 °C.

Laboratory/Diagnostic Findings: ABG- pH 7.24/pCO₂ 35/pO₂ 85/HCO₃ 14.9/BE -11.04, Na 134/K 3.8/Cl 93/BUN 44/Cr 3.6/Glu 236, AG 21. AST 52, ALT 43, bilirubin 0.6, INR 0.9, WBC 17.7/Hgb 16.8/Hct 48.3/PLT 321, troponin 0.465. Serum APAP 2, salicylate 1.7. UDS was positive for opiates. ECG: HR 100, QRS 84, QT/QTc 400/516. CxR: unremarkable. Specimens sent on Day 1 showed a 24 h urine arsenic of 19,418 ng/mL and a serum arsenic of 160 ng/mL.

Clinical Course: He presented with muscle cramps and emesis, he vomited 1.5 L and had no urine output. On Day 2 he developed 1st degree heart block. DMSA was initiated at 500 mg for arsenic poisoning, but the patient was switched to BAL on Day 3 as his condition continued to deteriorate. NAC was added when AST and ALT increased (378 and 201, respectively). On Day 3 he had several episodes of bloody diarrhea that tested positive for *C. difficile*. The patient developed sepsis with multiple organ dysfunction. His lactate was 5.9 (increasing to 17), troponin 1.22, AST 854, ALT 408. He was given IV metronidazole and vancomycin for suspected abdominal infection. He underwent an emergent open colectomy and acute blood loss post-surgery required treatment with packed RBCs. He developed renal failure, sepsis, GI bleeding and coagulopathy (INR 4.4). He received phenylephrine, norepinephrine, epinephrine and vasopressin. On Day 5 he developed asystole, with ROSC after 1 h of CPR. Based on the prognosis, the family opted for comfort measures and he died on Day 5.

Autopsy Findings: No autopsy results were provided.

Case 311. Acute fluorinated hydrocarbon inhalation: undoubtedly responsible

Scenario/Substances: A 36 y/o female was in a car when there was an explosion. Police found 8 cans of (fluorinated hydrocarbon-containing) keyboard duster, 1 of which exploded, at the scene.

Past Medical History: Illicit drug abuse including huffing.

Physical Exam: Presented with respiratory difficulty and 30% TBSA burns, including full thickness burns to face. SBP 110, HR 130s.

Laboratory/Diagnostic Findings: Arterial pH 7.1. ECG: ST with depressions in inferior leads, QTc 525.

Clinical Course: Pt was intubated in the ED and transferred to a burn unit. She had VF arrest during debridement; ACLS was initiated, including defibrillation, with intermittent ROSC. She received epinephrine, amiodarone, esmolol and overdrive pacing. Her QTc remained prolonged (506 ms). She died shortly after burn unit arrival.

Autopsy Findings: Postmortem blood toxicology: 1,1-difluoroethane, 35 mcg/ml; hydromorphone free 4.3 ng/ml; COHb 2%. No evidence of thermal injury or acute inflammation to upper and lower airway. Cause of death: complications of inhalant toxicity (cardiac arrhythmia) due to “huffing.” Manner of death: accidental.

Case 323. Acute hydrocarbon, amphetamine, and methylenedioxy-methamphetamine (MDMA) ingestion: undoubtedly responsible

Scenario/Substances: A 27 y/o male was found unconscious next to a truck with a hose inside the fuel tank (apparently siphoning fuel into a container). There was fuel on and around the patient. He was transported to the ED with CNS and respiratory depression.

Physical Exam: On arrival in ED: BP 45/33, HR 124, RR 20, O₂ Sat 85% (RA), T 37 °C. Pupils 3 mm and reactive, gasping respirations, GCS 7, superficial burns to abdomen and hip.

Laboratory/Diagnostic Findings: Na 143/K 3.9/Cl 108/CO₂ 27/BUN 13/ Cr 1.4/Glu 185. ABG- pH 7.17/pCO₂ 72.4/pO₂ 62/BE -4.6, COHb 0.3%. AST 25, ALT 27, WBC 12.9/Hgb 14.9/Hct 43.8/PLT 341. Serum APAP, ethanol and salicylate not detected. UDS was positive for amphetamines, MDMA and THC. ECG: unremarkable. CxR: bilateral opacities. CT head: unremarkable.

Clinical Course: On arrival in the ED he was intubated and admitted to the ICU. He developed hypotension, acidosis and hypoxia requiring multiple vasopressors, then became difficult to oxygenate (PEEP 24, FIO₂ 1.0) and was paralyzed. His condition deteriorated and he developed renal failure and shock liver. He was started on CRRT. Despite these interventions, he became more hypoxic, went into cardiac arrest and died on Day 2.

Autopsy Findings: Postmortem lungs showed evidence of pneumonitis with red-brown parenchyma and copious amounts of blood tinged fluid. Antemortem blood testing: d-methamphetamine 0.30 mg/L and d-amphetamine 0.03 mg/L. Tolmetin was detected. Cause of death: chemical pneumonitis due to inhalation of gasoline

Case 325. Acute-on-chronic botulism parenteral: contributory

Scenario/Substances: A 52 y/o male developed wound botulism after skin-popping. His initial symptoms included dysphagia, double vision and generalized weakness.

Past Medical History: Drug abuse.

Physical Exam: Generalized weakness; scab on chest; nodules under skin.

Clinical Course: The patient was intubated and admitted to the ICU. He received botulism antitoxin, propofol, fentanyl, benzodiazepines, antibiotics, n-acetylcysteine tablets and corticosteroids. On Day 12, he became agitated, extubated himself and was put on BiPAP. On Day 13, the patient died from respiratory arrest.

Autopsy Findings: No autopsy results were provided.

Case 333. Acute-on-chronic aluminum phosphide exposure: undoubtedly responsible

Scenario/Substances: [See case 10] A 9 y/o male involved in a mass casualty incident after her father placed large quantity of aluminum phosphide tablets under their home as a pesticide. Most household members had developed adverse GI effects and had been scene previously at a local hospital (history of chemical exposure was not provided) and the family members were diagnosed with gastroenteritis. That night the father attempted to get rid of the tablets by dissolving them with water from a garden hose.

Physical Exam: He presented to the ED awake but lethargic, initial VS: BP 112/80, HR 90.

Laboratory/Diagnostic Findings: ABG- pH of 6.8/pCO₂ 62/pO₂ 25/HCO₃ 10/BE -24. CO₂ 8, Mg 3.5, Glu 405, BUN 30, Cr. 1.64, CPK 48, AST 92, ALT 130, AG 36, troponin 0.14, BNP 196. CxR: (1 h after PICU admission) air bronchograms and densities in both lungs.

Clinical Course: In the ED he patient quickly became obtunded and hypotensive (BP 72/60). He was intubated but developed atrial flutter and lost pulses. He received CPR, IVFs and sodium bicarbonate with ROSC. In the PICU, he developed frothy pulmonary secretions and required increased ventilatory support. He developed acidosis (pH <6.5), hypercarbia (pCO₂> 130), hypoxemia (pO₂<21) and shock. Despite aggressive resuscitation efforts (IVFs, multiple doses of epinephrine, sodium bicarbonate, Ca, vasopressors and CPR) he died 2h after PICU admission.

Autopsy Findings: Pulmonary edema with pleural effusions. Cause of death: accidental phosphine gas poisoning.

Case 335. Acute-on-chronic aluminum phosphide inhalation: undoubtedly responsible

Scenario/Substances: A17 y/o female was involved in a mass casualty incident after her father placed large quantity of aluminum phosphide tablets under their home as a pesticide. Most household members developed adverse GI effects and had been seen previously at the ED (history of chemical exposure was not provided) and the family members were diagnosed with gastroenteritis. That night the father attempted to get rid of the tablets by dissolving them with water from a garden hose. Early the next morning, an older sibling awoke and found some family members to be quite ill. EMS was called and found 2 children in cardiac arrest. One was declared dead at the scene; the second failed to respond to ACLS interventions and was pronounced in the ED. A third sibling died 2 h after PICU arrival.

Physical Exam: In the ED she was lethargic with nausea, abdominal pain and dyspnea. BP 77/55, HR 107, RR 16, T 36°C, O₂ sat 100% (on oxygen).

Laboratory/Diagnostic Findings: K 3.1, CO₂ 14, AG 25, Mg 2.0, PO₄ 7.5, BUN 20, Cr 1.33, bilirubin 1.4, WBC 3.1, BNPT 161, troponin 0.05, ABG- pH 7.22/CO₂ 25/O₂ 49, COHb 0.8%, MetHgb 0.7%. Subsequent ABG- pH 7.0/CO₂ 29.8/O₂ 83 (intubated on 100% FiO₂).

Clinical Course: Ondansetron and IVFs were given, then norepinephrine, phenylephrine and dopamine for hypotension. She was intubated and received potassium, sodium bicarbonate and Mg. CxR: pulmonary edema. EKG: ST at 108, mild ST depression in inferior lateral leads. She went into cardiac arrest and died 3.5 h after arrival.

Autopsy Findings: Gastric mucosal hemorrhage and superficial ulceration, focal cerebral subarachnoid hemorrhages, pericardial, pleural and peritoneal effusions.

Case 345. Acute sulfuryl fluoride inhalation: undoubtedly responsible

Scenario/Substances: A 36 y/o male was found altered inside a residential structure which had been tented and fumigated with sulfuryl fluoride. Estimated time of exposure was 1-2 h.

Past Medical History: Polysubstance abuse.

Physical Exam: In the ED, he was alert and conversant; BP 128/9, HR 115-120, RR 29, T 36°C.

Laboratory/Diagnostic Findings: Cr 1.24, BUN 13. Ca 4.0, WBC 19.3, Hgb and Hct 'normal.' UDS was positive for methamphetamine.

Clinical Course: He gradually developed shortness of breath, was diagnosed with pulmonary edema and treated with BiPAP; he also received calcium. On Day 3, he was intubated after developing pneumonia and ARDS; liver function tests increased. He developed hypotension requiring vasopressors and died on Day 8.

Autopsy Findings: Cause of death: complications of ARDS secondary to sulfuryl fluoride fumigation exposure; manner of death: accidental.

Case 347. Acute dinitrophenol ingestion: undoubtedly responsible

Scenario/Substances: 42 y/o male took ~30 dinitrophenol (200 mg) tablets. He was found unresponsive by EMS.

Physical Exam: In the ED ~3 h after ingestion he was disoriented, anxious, diaphoretic, and became rigid. Initial BP 120/58, HR 117, RR 32, O₂ sat 98% (2L/min O₂), T 36.8°C.

Laboratory/Diagnostic Findings: Initial blood pH 6.7, K 5, CK 600s.

Clinical Course: In the ED he was intubated, developed rigor and hyperthermia (T 38°C), then went into asystole. He received epinephrine, sodium bicarbonate and Ca. Bedside echo showed no cardiac activity; he died 2 h after presentation.

Autopsy Findings: Blood 2, 4 dinitrophenol 91mg/L. Death classified as suicide.

Case 356. Acute paraquat ingestion: undoubtedly responsible

Scenario/Substances: A71 y/o male brought paraquat home from work in a drink bottle to spray on his flower. He left the paraquat in his refrigerator and accidentally drank it, vomited and immediately presented to the ED.

Laboratory/Diagnostic Findings: In the ICU: Cr 1.7, BUN 11, CO₂ 22. CxR was unremarkable. Repeat labs on Day 2: AST increased from 30 to 175, Cr 3.5, lactate 3.1, CO₂ 19. Solution was confirmed as being 30% paraquat.

Clinical Course: In the ED he was diaphoretic with blue/green emesis. He refused activated charcoal or NG tube placement. He was transferred to a tertiary care HCF; cyclophosphamide, methylprednisolone and IV NAC were started. On Day 2 he was alert and oriented; BP 123/62, HR 93, RR 21, O₂ sat >92%. CRRT was started for worsening renal function but complicated by clotting issues. He complained of odynophagia, and became agitated, uncooperative and hypoxic (O₂ sat 85%) He was intubated on Day 3 and started on vasopressin, norepinephrine and phenylephrine drips. Based on the prognosis, the family opted for comfort measures and he died on Day 5.

Autopsy Findings: Not performed.

Case 360. Acute Curcuma domestica parenteral: undoubtedly responsible

Scenario/Substances: A 30 y/o female received an infusion of turmeric in her naturopathic doctor's office. Within minutes she was unresponsive. The infusion was stopped, CPR was initiated and epinephrine IM administered while awaiting EMS.

Past Medical History: Eczema, hypothyroidism, obesity, pre-diabetes, and food allergies to soy protein, lactose and gluten.

Physical Exam: In the ED: BP 119/83, HR 58, O₂ sat 100% (intubated), T 35°C.

Laboratory/Diagnostic Findings: BMP 'normal', Phos 1.8, Mg 1.8.

Clinical Course: In the ED she was intubated with ROSC and placed her on a hypothermia protocol. CT head: edema. In the ICU she exhibited decerebrate posturing. Based on the prognosis, comfort measures were instituted and she died on Day 5.

Autopsy Findings: Toxicology (antemortem blood): diphenhydramine 0.22 mg/L, presumptive positive for cannabinoids. Cause of death: anoxic encephalopathy due to prolonged cardiopulmonary arrest due to adverse reaction to tumeric solution. Manner of death: accidental. No turmeric testing was performed on her blood or urine.

Case 361. Acute plant (cardiac glycoside) ingestion: undoubtedly responsible

Scenario/Substances: A 33 y/o female ingested an herbal supplement ("pong-pong" a nut from the *Cerbera odollam* tree) purchased on the internet for weight loss. She developed AMS and vomiting, and was transported to the ED.

Past Medical History: Depression, eating disorder, no reported suicidal ideation.

Physical Exam: In the ED she was diaphoretic and pale with continued nausea and vomiting. She soon became agitated and required restraints. SBP ~90, HR 30-40.

Laboratory/Diagnostic Findings: K 8.9, ECG: wide complexes with no p waves. Serum digoxin was 3.1 ng/mL.

Clinical Course: She was resuscitated with IVFs and vasopressors, was intubated and receive 10 vials of digoxin Fab fragments. Despite these efforts she died 3 h after presentation.

Autopsy Findings: Cause of death: "cardiac glycoside toxicity (cerberin and neriifolin); manner of death: accidental. Post mortem toxicology screening was positive for neriifolin and cerberin (2 cardiac glycosides) but negative for drugs of abuse. "Plants which contain these glycosides include *Cerbera odollam* and *Cerbera manghas*." Liver tissue extract showed 3 peaks on LC/MS suggestive of cardiac glycosides; neriifolin and cerberin were confirmed but no quantification data were reported.

Case 364. Acute-on-chronic nicotine inhalation/undoubtedly responsible

Scenario/Substances: A 19 y/o male was vaping at a mall using a 0.3% nicotine solution when he lost consciousness. EMS found patient in VF arrest. He received ACLS with ROSC after a 40-min downtime.

Physical Exam: In the ED he was intubated, cyanotic with pupils that were 6mm and sluggish; HR 160, T 38°C.

Laboratory/Diagnostic Findings: Na 143/K 3.7/Cl 100/CO₂ 19/BUN 15/ Cr 1.4/Glu 274, Mg 2.4, AST 245, ALT 348. ABG- pH 6.93/pCO₂ 69/pO₂ 98. Lactate 8.9, WBC 5.5/Hct47.9/PLT 223. Serum APAP, ethanol and salicylate not detected. UDS was negative. CxR: right mainstem intubation, complete opacification of left lung, areas of patchy infiltrates. ECG: ST at 124, right axis deviation, possible anterolateral infarct, QRS 96, QTc 459. CT head: anoxic injury. CT chest: ground glass consolidations and patchy infiltrates bilaterally. ECHO: moderate hypokinesis of LV.

Clinical Course: Patient was resuscitated and started on pressors and cooling protocol. He rapidly developed evidence of pulmonary edema with difficulty oxygenating; a chest tube was placed. He was resuscitated after a PEA arrest. Metoprolol was given for persistent tachycardia in the 160s. Nitric oxide inhalation was started and he was transferred for ECMO. On arrival at the tertiary care center a bronchoscopy showed inflamed lung with bloody irritation of the mainstem bronchi and sloughed mucosa. He was unresponsive off sedation. On Day 3, CT head: cerebral edema with loss of grey-white matter distinction. On Day 5, he was declared brain dead, died and underwent organ donation.

Autopsy Findings: Cause of death: sudden cardiac death while vaping nicotine, acute aspiration pneumonia, pulmonary thrombosis with infarction, splenic infarction; manner of death: accidental. The vaping liquid was analyzed and found to have nicotine and carrier oils. MSDS stated that ingredients were nicotine 0.3%, glycerin and propylene glycol. Excipients for scent and taste were not listed. Because of public health concerns, state public health agency and police were notified.

Case 365. Acute nicotine parenteral: undoubtedly responsible

Scenario/Substances: 20 y/o female was found by EMS in cardiac arrest after reportedly injecting a liquid nicotine product 50 min prior. She was intubated and received CPR, naloxone (no response) and IVFs prior to ED arrival.

Past Medical History: Asthma, thyroid disease, depression.

Physical Exam: Unresponsive; incontinent of stool. Pupils fixed and dilated. SBP 112, HR 190.

Laboratory/Diagnostic Findings: ABG- pH 7.09/pCO₂ 38/pO₂ 114/HCO₃ 11.2. Na 142/K 3.7/Cl 104/CO₂ 12/BUN 14/Cr 1.6/Glu 129. Mg 2.2, Phos 4.3, AST 140, ALT 102, bilirubin 1.0, INR 1.2, WBC 19/Hgb12.7/Hct 39.2/PLT 400. Serum APAP, ethanol and salicylate not detected. UDS was positive for amphetamine metabolites. Lactate 13.2, CK 200, troponin <0.015. CT brain: unremarkable. Day 3 blood: nicotine 1,000 ng/mL, cotinine 510 ng/mL.

Clinical Course: The patient's HR decreased to 109 after more IVFs, she remained unresponsive with posturing and myoclonic jerks. She began cooling protocol. On Day 2 she remained unresponsive with mydriasis and increased muscle tone. Off sedation her pupils were 2mm and unreactive, she received antibiotics for presumed pneumonia. On Day 6 she received benzodiazepines, valproate, levetiracetam and lacosamide for repeated seizures. On Day 8, MRI showed diffuse hypoxia brain injury. Based on the prognosis, the family opted for of comfort measures and she died on Day 20.

Autopsy Findings: No autopsy results were provided.

Case 368. Acute methadone, chlorpheniramine and diphenhydramine ingestion: undoubtedly responsible

Scenario/Substances: A 2 y/o male was put down for a nap and then found unresponsive 5.5 h later. Medications found in the home included: metoprolol, lisinopril, meloxicam, amlodipine, promethazine, tizanidine and baclofen.

Physical Exam: Lethargic in respiratory distress at ED arrival.

Laboratory/Diagnostic Findings: UDS was positive for methadone. Serum APAP, salicylate and ethanol not detected.

Clinical Course: Minimal response to naloxone; he was intubated, then started on IVFs and antibiotics. On Day 2 he became hypotensive (40/20) and started on a naloxone drip. He had multiple episodes of cardiac arrest, received IVF boluses, and dopamine and epinephrine drips. Pupils became fixed and dilated. An exterior ventricular drain was placed and he received 3% saline for cerebral edema, but died on Day 2.

Autopsy Findings: Toxicology report: naloxone positive; antemortem peripheral blood: methadone 400 ng/mL, EDDP 83 ng/mL, chlorpheniramine 41 ng/mL, diphenhydramine 180 ng/mL. Cause of Death: diffuse anoxic encephalopathy with diffuse cerebral edema and herniation due to combined effects of methadone, chlorpheniramine and diphenhydramine; manner of death: homicide.

Case 371. Acute ibuprofen ingestion: undoubtedly responsible

Scenario/Substances: A 13 y/o female intentionally ingested an unknown amount of ibuprofen. She was discovered unresponsive with emesis and bloody stool, ~ 10 h after last being seen at baseline. EMS administered naloxone, without effect, and transported her to the ED

Physical Exam: BP 101/32, HR 91, RR 10.

Laboratory/Diagnostic Findings: Arterial pH 7.3, lactate >20, Cr 1.9, Ca <2, K 6.4, HCO₃ 8, AG 30, BUN 22, Cr 1.8, Glu 82, WBC 38, AST 198, ALT 62. Post-transfusion Hgb 9.8/Hct 30. Serum APAP and salicylate not were detected. Repeat labs on Day 2: Na 173/K 2.6/Cl 110/CO₂ 31/BUN 39/Cr 2.3, lactate 15.4. ABG- pH 7.55/pCO₂ 38/pO₂ 43/HCO₃ 33.8/BE 12, Ca (ionized) 2.0, CPK 23,000. Day 3: Arterial pH 7.35, K 4.8, Cr 3.5, AST 999, ALT 240, INR 3.0, PTT 42, CPK 43,123.

Clinical Course: In the ED she was intubated and received sodium bicarbonate, calcium, antibiotics and NAC. CT head: unremarkable. She was transferred to a tertiary care center where she became hypotensive, bradycardic and then developed asystole. CPR was performed, and she received dopamine, norepinephrine and epinephrine drips. She received 2 units of FFP and 1 unit of PRBCs for rectal bleeding; BP 90/50, HR 137. On Day 2 she remained unresponsive; BP 99/47 and HR 86 on 3 vasopressors. She was cooled for hyperthermia. On Day 3 she had no purposeful movements, BP 80/30, HR 120, O₂ sat 80%. She died on Day 4 from a reported anoxic brain injury.

Autopsy Findings: Cause of death: ibuprofen intoxication; manner of death: suicide. Hospital blood ibuprofen level was 500 mcg/mL. The pulmonary parenchyma was erythematous and congested, brain showed hypoxic ischemia.

Case 1038. Unknown salicylate ingestion: undoubtedly responsible

Scenario/Substances: A 65 y/o male was brought to the ED by family for altered mental status.

Past Medical History: COPD, bipolar disorder, alcohol abuse, and chronic liver disease. Home medications: alprazolam, baclofen, fluticasone, lamotrigine, meloxicam, tamsulosin, tiotropium and zolpidem.

Physical Exam: BP 135/75, HR 92, RR 34, O₂ sat 99% (RA), T 37°C. Alert and oriented but was diaphoretic and appeared distressed.

Laboratory/Diagnostic Findings: Na 145/K 5.5/Cl 117/CO₂ 15/BUN 25/ Cr 1.43/Glu 117, AG 13, VBG-pH 7.41/pCO₂ 31.8/pO₂ 22/HCO₃ 26.2/BE -4. CK 175, lactate 0.7, AST 29, ALT 11, bilirubin 0.2. WBC 23.4/Hgb 16.7/Hct 50.1/PLT 289. Serum ethanol not detected. UDS was positive for benzodiazepines. CxR: left lower lobe opacity and effusion. CT head: unremarkable. ECG: HR 90, QRS 80, QTc 555.

Clinical Course: In the ED the suspected sepsis was treated with broad spectrum antibiotics. After 5 h with RR 30 to 34 he became obtunded and was intubated, then became bradycardic and hypotensive. ~ 45 min later he had a cardiac arrest; resuscitation efforts (CPR, atropine, epinephrine and naloxone) were unsuccessful and he died within 8 h after ED arrival.

Autopsy Findings: Premortem serum lamotrigine from the ED was subtherapeutic (1.5 mcg/mL), salicylate was 112 mg/dL. Cause of death: salicylate toxicity with intra-alveolar hemorrhage.

Case 1063. Acute-on-chronic colchicine ingestion: undoubtedly responsible

Scenario/Substances: A 68 y/o female ingested 86 tabs of colchicine in a suicide attempt. When EMS arrived she was lethargic, vomiting and incontinent.

Past Medical History: Anxiety and depression, asthma and HTN. Medications: colchicine, meloxicam, escitalopram, omeprazole, metoprolol, quetiapine, furosemide and fluticasone.

Physical Exam: In the ED 4 h after ingestion she was lethargic but arousable. BP 112/100, HR 118, RR 16, O₂ sat 100% (RA), T 37°C.

Laboratory/Diagnostic Findings: ABG- pH 7.09/pO₂ 20.8/HCO₃ 9.1/BE -20.3. Na 149/K 3.3/Cl 105/CO₂ 21/BUN 17/Cr 1.5/Glu 172. AST 464, ALT 131; WBC 29.5/Hgb 15.7/Hct 49.6/PLT 256. Serum APAP, salicylate and ethanol not detected. UDS was negative.

Clinical Course: In the ED she received activated charcoal and IVFs. Her BP dropped to 96/52 then 49/29, HR 110. ECG: accelerated junctional rhythm, QRS 82, QT 652. She was intubated and started on norepinephrine, and sodium bicarbonate drips. She developed renal dysfunction (Cr 3.5) and worsening hypotension; she died ~24 h after admission.

Autopsy Findings: Cardiomegaly, pulmonary edema, hepatomegaly, and nephrosclerosis. Cause of death: colchicine intoxication; manner of death: suicide.

Case 1091. Acute salicylate ingestion: undoubtedly responsible

Scenario/Substances: A 71 y/o female presented to an ED after taking handfuls of ASA, intermittently, for ~3 h.

Past Medical History: Hypertension, diabetes.

Physical Exam: In the ED: BP 179/103, HR 107, RR 23, O₂ sat 92% (RA), T 36.3°C.

Laboratory/Diagnostic Findings: Initial salicylate level was 70 mg/dL. ABG- pH 7.40/pCO₂ 33/pO₂ 182/HCO₃ 22.2. Na 138/K 4.8/Cl 166/CO₂ 15/BUN 18/Cr 0.9/Glu 186, AG 43, AST 116, ALT 172, bilirubin 0.2, CK 150, WBC 19.9/Hgb 15.8/Hct 47.6. Serum APAP and ethanol not detected. ECG: HR 108, QRS 114, QTc 479. CxR: atelectasis.

Clinical Course: In the ED she was alert and diaphoretic, complaining of nausea (with emesis) and fuzzy vision. Within several hours she developed tinnitus and her QTc prolonged to 500; she received IV Mag and K. Salicylate level increased to 105 mg/dL and CRRT was started. Repeat ABG- pH 7.64/pCO₂ 23/pO₂ 91/HCO₃ 28.9, bicarbonate drip was discontinued. ASA level decreased to 75 mg/dL and CRRT was stopped. BP 135/75, HR 121, RR 28, O₂ sat 95% (2 LPM). 4 h after stopping HD: Salicylate was 102, CO₂ 21, Cr 1.34, AG 29. She had increased agitation, confusion, diaphoresis and dry mucus membranes. ASA increased to 104 and HD was resumed; 1 h later she had a ventricular arrhythmia then asystole. She was intubated with CPR (achieved ROSC) and received sodium bicarbonate (boluses and drip), epinephrine, calcium, vasopressin, norepinephrine and mannitol for unequal pupils. CT head: no acute changes, K 5.9, CO₂ 19, Cr 1.81, Ca 7.2, and Glu 212. She was given sodium polystyrene sulfonate. HD was performed 2 more times which decreased salicylate level to 18. She received antibiotics for hyperthermia (T 41.3°C) and pantoprazole for coffee-ground emesis. EEG: no seizure activity. Repeat CT head: diffuse anoxic injury. Based on the prognosis, comfort measures were instituted and she died on Day 3.

Autopsy Findings: No autopsy results were provided.

Case 1148. Acute lidocaine, cleaner (cationic): undoubtedly responsible

Scenario/Substance: An 11 y/o male did not have his usual solution to flush his cecal port, so his father asked the pharmacist for a saline solution that was not in stock. The father asked for a wound wash and was referred to topical solutions. He purchased a solution (2.5% lidocaine, 0.013% benzalkonium chloride) and instilled 177 mL into the port. He rapidly developed a seizure; EMS arrived, transported him to the ED, he developed cardiac arrest enroute and they intubated him.

Past Medical History: Spina bifida with chronic constipation, with a right lower quadrant cecal port (flushed daily with a combination saline and glycerin solution). Prescribed amphetamines.

Clinical Course: He was in cardiac arrest upon ED arrival. PALS was performed, he received naloxone and ILE without response. He was pronounced dead shortly after arrival.

Autopsy Findings: Femoral blood contained amphetamine 0.13 mg/L, lidocaine 15 mg/L, MEGX 2.7 mg/L. The cause of death: lidocaine toxicity; manner of death: accidental.

Case 1151. Acute lidocaine inhalation: undoubtedly responsible

Scenario/Substances: A 33 y/o male was inhaling lidocaine powder (imported from China) to treat GERD. He was found unresponsive surrounded by white powder.

Past Medical History: GERD.

Physical Exam: He was in cardiac arrest upon ED arrival, pupils 8mm and unresponsive.

Laboratory/Diagnostic Findings: ABG- pH < 6.8/pCO₂ 98/pO₂ 181/HCO₃ 8.9. Na 143/K 4.4/Cl 106/CO₂ 14/BUN 17/Cr 1.3/Glu 375. AG 28, AST 334, ALT 204, bilirubin 3.0. INR 0.9. WBC 9.4/Hgb 11.6/Hct 40.1/PLT 205. Serum APAP, ethanol and salicylate not detected. UDS was positive for benzodiazepines. EKG: NSR, QRS 148, QTc 485. CxR: widened mediastinum, distended stomach.

Clinical Course: After ROSC: BP 64/34, HR 73, RR 14, O₂ sat 92%. He was intubated and started on norepinephrine and dopamine drips for hypotension. He received sodium bicarbonate for QRS prolongation and ILE. The patient's BP stabilized to 104/52 and QRS narrowed to 120 ms, but he remained unresponsive with fixed and dilated pupils. CT head showed anoxic brain injury with edema and herniation. He was declared brain dead and died on Day 2. The product involved tested positive for lidocaine (via gas chromatography/mass spectroscopy). Serum lidocaine was >12 mcg/mL.

Autopsy Findings: Cause of death: lidocaine toxicity; manner of death: accidental. Antemortem blood sample: lidocaine 18 mcg/mL; monoethylglycinexylidide (MEGX): 11 mcg/mL.

Case 1174. Acute pregabalin and topiramate ingestion: undoubtedly responsible

Scenario/Substances: A 63 y/o male who had been taking extra pregabalin to sleep (per family) was found in cardiac arrest and transported to the ED. 90 pregabalin tablets were later found to be missing.

Past Medical History: Seizure disorder. Medications: topiramate, pregabalin.

Physical Exam: Intubated, sedated, unresponsive. BP 117/70, HR 120, T 37°C.

Laboratory/Diagnostic Findings: UDS was positive for opioids. EKG: incomplete RBBB, QRS 98, QTc 407. Day 2: Na 131/K 4.9/Cl 112/CO₂ 19/BUN 13/Cr 0.63/Glu 134, ABG-pH 7.45/pCO₂ 27/pO₂ 124/HCO₃ 18.

Clinical Course: BP 105/92, HR 88, RR 20, T 32°C (on hypothermia protocol). Remained intubated in the ICU, opened eyes to external rub and had myoclonic jerking without seizure activity. Day 2: BP 140/84, HR 113, RR 23, T 36.1°C, patient was being rewarmed. Patient went into cardiac arrest and died on Day 3.

Autopsy Findings: Cause of death: acute mixed drug intoxication (pregabalin and topiramate). Blood toxicology: pregabalin 43 mcg/mL, topiramate 6,300 ng/mL.

Case 1343. Acute diphenhydramine ingestion: undoubtedly responsible

Scenario/Substances: A 29 y/o female texted friends saying she wanted to harm herself and was then found unconscious in a car with a bottle diphenhydramine. There were 64 (50 mg) tablets missing. EMS found her to be tachycardic with seizure-like activity. She developed PEA enroute to the ED but had ROSC after CPR and epinephrine.

Laboratory/Diagnostic Findings: Glu 274, ABG- pH 6.7 (then 7.4 after 7 amps of sodium bicarbonate); pO₂ 350, Na 130, Hgb 14.4 PLT 326. UDS was negative. Serum salicylate, APAP and ethanol not detected. EKG: QRS 240, QTc 520.

Clinical Course: She was intubated upon ED arrival; BP 116/60, HR 120 (then 180). She received calcium and sodium bicarbonate and was

then apparently hallucinating and picking at things in the air. QTC increased from 520 to 615. She received a total of 10 amps of sodium bicarbonate, 3 gm MgSO₄ and 280 ml 3% saline; Na 158, 3 h later BP 112/82, HR 99. EKG: QRS 40, QTc 601. Patient received piperacillin/tazobactam, albumin and potassium replacement. Day 2 her pupils were 6 mm and nonreactive. She was weaned from sedation for several hours and her exam became notable for gaze deviation up and to the left, no cough, gag or corneal reflexes, and pupils fixed and dilated. EEG was negative for seizures. Day 3 she was hypertensive, tachycardic and completely flaccid. Day 4 cerebral perfusion study confirmed brain death. She died on Day 5 and underwent organ donation.

Autopsy Findings: Cause of death: complications of acute diphenhydramine toxicity. Antemortem blood toxicology: diphenhydramine level: 5400 mcg/L.

Case 1369. Acute tilimicosin parenteral: undoubtedly responsible

Scenario/Substances: A 54 y/o female injected herself with tilimicosin in a suicide attempt. A coworker at a bovine facility reported a dispute with the woman and the saw her holding a syringe and applying a tourniquet on her arm, stating she was going to kill herself. The woman was soon found unresponsive and bystander CPR was started. She was transported to an ED by EMS, but was pronounced dead. Police found bottles of tilimicosin and syringes at the scene.

Past Medical History: Depression with suicidal ideation.

Physical Exam (postmortem): Tourniquet on right arm with bruising and marks on arm, not consistent with IV attempts by EMS. EMS rhythm strip showed 'dysrhythmia.'

Autopsy: Blood positive for tilimicosin (qualitative analysis only); cause of death: Intentional overdose of tilimicosin.

Case 1379. Chronic: methotrexate ingestion: contributory

Scenario/Substances: A 96 y/o female mistakenly received 1 tab (2.5mg) of methotrexate daily for 27 days (instead of 5 tablets once a week) at her nursing home.

Past Medical History: Rheumatoid arthritis, Alzheimer's disease, atrial fibrillation, cardiovascular disease.

Physical Exam: She presented with generalized weakness, nausea and confusion. Stomatitis with large wounds on her lips and buttocks. HR 62, RR 16, O₂ sat 96% (RA), afebrile.

Laboratory/Diagnostic Findings: Glomerular filtration rate 23 ml/min, AST 30, ALT 20, ALP 44, WBC 1.5/Hct 34/PLT 99. Initial methotrexate level 0.08 mmol/L.

Clinical Course: Patient received leucovorin, renal support and sodium bicarbonate. MTX level decreased to <0.04 mmol/L over 72 h; WBC nadir was 0.6. Her renal function improved over the next 4 d; bicarbonate drip was stopped, leucovorin was continued. She received antibiotics for a UTI. On Day 6 her WBC increased to 0.8 and PLT 31. She received blood and platelet transfusions. Patient died on Day 16. The chronic MTX toxicity was thought to have contributed to her death along with her pre-existing medical conditions.

Autopsy Findings: Per forensic pathologist, clinical symptoms, laboratory findings (myelosuppression) and underlying co-morbidities, the dosing error of methotrexate played a contributing role in the decedent's death. No post-mortem toxicology testing was performed.

Case 1439. Acute-on-chronic: flecainide ingestion: undoubtedly responsible

Scenario/Substances: A 47 y/o female was found with an empty bottle of flecainide. EMS performed cardioversion enroute to the ED.

Past Medical History: Atrial fibrillation, mitral valve prolapse and psychiatric disorder (NOS). Medications: flecainide, metoprolol, cyanocobalamin, oxycodone and ranitidine

Laboratory/Diagnostic Findings: Na 156/K 2.8/CO₂ 36/BUN 11/Cr 0.9, AG 18, Ca 7.1, AST 416, ALT 195. Serum ethanol 170. Serum APAP and salicylate not were detected. UDS was negative. ECG: multiple PVCs.

Clinical Course: In the ED she was responsive to verbal stimuli; SBP 90s, HR 130s with multiple PVCs. She was given multiple amps of sodium bicarbonate, atropine, magnesium, vasopressors, ILE and was transcutaneously paced. She had repeated cardiac arrests. EKG: HR 75,

QRS 152 and QTC 625. She was taken to the catheterization lab for pacemaker placement and transferred to the ICU. She continued to have VF/VT and died early on Day 2.

Autopsy Findings: Cause of death: flecainide and ethanol intoxication. Hospital blood flecainide 3.82 mcg/mL.

Case 1456. Acute-on-chronic amlodipine ingestion: undoubtedly responsible

Scenario/Substances: A 50 y/o female took 90 (5 mg) tablets of amlodipine over several hours in a suicide attempt. She vomited multiple times and then presented to an ED 45 min later.

Past Medical History: Hypertension. Medications: amlodipine 5 mg.

Physical Exam: In the ED she was alert, oriented x 3. BP 80/40, HR 110, RR 20, O₂ sat 96% (RA).

Laboratory/Diagnostic Findings: Na 133/K 3.4/Cl 98/CO₂ 10/BUN 10/Cr 1.6/Glu 355, AG 25, Ca 9.6, ABG- pH 7.2/pCO₂ 20/pO₂ 64/HCO₃ 8. Lactate 8.6, INR 1.02, WBC 54. Serum APAP, ethanol and salicylate not detected. UDS was negative. CxR: left lower lobe infiltrate, ECG: HR 100, QRS 83, QTc 369. CT head: unremarkable.

Clinical Course: ~ 5 h after ED arrival she was started on an epinephrine drip and HIE (D10 and insulin at 104 U/h) for an MAP of 51. Epinephrine and insulin were increased, she developed respiratory distress 15 h after arrival and was intubated. She had persistent lactic acidosis, decreasing urine output, and hypotension (BP 75/39, HR 102). Pulmonary embolus was suspected and heparin was started. Ca, sodium bicarbonate and norepinephrine were administered. On Day 2 CRRT was started for oliguric renal failure and fluid overload; BP 98/59, HR 83. She became hypoglycemic (Glu69) and was started on D50 with HIE. Day 3: BP 95/49, HR 92, lactate ~10, on insulin and D50 drips. She remained unresponsive. Day 10: surgery evaluated her for a possible bowel perforation but due to critical illness did not recommend surgery. Based on the prognosis, comfort measures were instituted and she died on Day 10.

Autopsy Findings: Cause of death: amlodipine overdose; manner of death: suicide. Toxicology: amlodipine 840 ng/mL.

Case 1632. Acute nifedipine ingestion: undoubtedly responsible

Scenario/Substances: An 11 m/o female was found with an open bottle of nifedipine (30 mg tabs; at least one partially dissolved pill in her mouth) 1 h prior to ED arrival.

Clinical Course: The patient was given a dose of activated charcoal but subsequently vomited (including 1 intact pill). She was asymptomatic for 2 h but then developed atrial block, bradycardia and cardiac arrest. 50 min of resuscitation efforts were unsuccessful and she died.

Autopsy Findings: Peripheral blood: nifedipine concentration: 870 ng/mL. Visible pill residue within the stomach, duodenum, and proximal jejunum; petechial hemorrhages of the gastrointestinal mucosa. Cause of death: acute nifedipine toxicity; manner of death: accidental.

Case 1634. Acute benzonatate and meclizine ingestion: undoubtedly responsible

Scenario/Substances: A 17 y/o female was found seizing, several minutes after locking herself in a bathroom. EMS found her drowsy and shaking; benzonatate and meclizine bottles were found at the scene.

Laboratory/Diagnostic Findings: K 2.4, HCO₃ 15.6, BUN 11, Cr 1.35, Glu 367, AST 400, ALT 376, bilirubin 0.8.

Clinical Course: The patient was pulseless and apneic upon ED arrival; pupils were fixed and dilated. She was intubated, and resuscitated with CPR, defibrillation X 5, and sodium bicarbonate boluses with ROSC. BP 81/47, HR 85, O₂ sat 100% (100% FiO₂). ILE was given; gastric lavage returned pill fragments and she received activated charcoal and placed on hypothermic protocol. NAC was started for elevated LFTs. On Day 2 hepatic function improved but she remained comatose with decerebrate posturing. Levetiracetam was given for seizure activity on EEG. On Day 3 she received phenobarbital for increased seizure activity but then again showed decerebrate posturing. Based on the poor prognosis, comfort measures and organ donation were instituted, and she died on Day 10.

Autopsy Findings: Cause of death: complications of meclizine and benzonatate toxicity; manner of death: suicide. Blood toxicology

(premortem, 2.2 h post ingestion): benzonatate 680 mcg/L; meclizine 150 mcg/L.

Case 1643. Acute iron ingestion: undoubtedly responsible

Scenario/Substances: A 47 y/o female ingested a large (unknown) number of iron tablets in a suicide attempt. She began vomiting and presented to the ED.

Physical Exam: Initial BP 133/94, HR 102, RR 20, O₂ sat 98% (RA).

Laboratory/Diagnostic Findings: Na 138/K 3.9/Cl 103/CO₂ 18.4/BUN 11/Cr 0.68/Glu 98. ABG- pH 7.07/pCO₂ 20/pO₂ 127. WBC 9.2. Serum iron 562 mcg/dL (then >6,000 on Day 2).

Clinical Course: She was vomiting on ED arrival. Abdominal radiograph showed a radio-opaque mass but individual tablets were not visualized. She was treated with a sodium bicarbonate drip and deferoxamine (1 g IV then 1.5 g 5 h later). She developed shortness of breath, tachypnea and generalized body pain. The patient unwilling to drink PEG solution for WBI. She became hypotensive, was started on vasopressors, deferoxamine (2 g/h) and WBI. CRRT was initiated for worsening liver and kidney failure. She developed asystole requiring CPR with ROSC. Iron levels were decreasing but lactic acidosis increased and hypotension persisted despite vasopressors. She died in the ICU on Day 3.

Autopsy Findings: No autopsy results were provided.

Case 1646. Acute iron ingestion: undoubtedly responsible

Scenario/Substances: A 10 m/o male was taken by his mother to urgent care after a suspected ingestion of ferrous sulfate tablets; maximum exposure was 79 tablets of 325 mg.

Physical Exam: Lethargic, withdrawing to pain. BP 96/72, HR 136, RR 42, O₂ sat 98% (RA), T 35.8°C.

Laboratory/Diagnostic Findings: VBG- pH 7.27/pCO₂ 36/pO₂ 70. Glu 199, fibrinogen 60, INR 4.3. Serum ethanol, APAP and salicylate not detected.

Clinical Course: The child was immediately transferred to a PICU where he was intubated. Abdominal x-ray showed 55 visible pills. An NGT was placed for WBI; IV deferoxamine was started at 15 mg/kg/hr. The child was taken for emergent endoscopy; 26 tablets were removed (4 from the esophagus, 22 from the stomach). His pH dropped to 6.81; a central line was placed for fluid resuscitation. ECG showed a bundle branch block. The deferoxamine drip was increased to 45 mg/kg/hr; he was started on exchange transfusion. The first serum iron concentration returned at 931 mcg/mL, repeated level was 7,739 mcg/mL. While preparing for ECMO the child went into cardiac arrest. He was resuscitated with CPR and ACLS, then cooled and started on dopamine (20 mcg/kg/min) and epinephrine (0.4 mcg/min) drips. ECMO was started along with CRRT for anuria; deferoxamine was continued. WBI was stopped due to oral secretions and decreased bowel sounds. He developed coagulopathy (d-dimer 69,000, PTT 70.8, fibrinogen 78) and acidosis (lactate 4.8). Serum iron concentration decreased to 1,175 mcg/mL, and then 475 mcg/mL (after 80 % exchange transfusion). He developed abdominal compartment syndrome and underwent abdominal fasciotomy. On Day 3 his repeat serum iron concentration was 246 mcg/mL; BP 75/40 and HR 145. Visual inspection of bowel and liver showed edema; arterial pH was 6.096. Based on his poor prognosis the family opted for comfort measure and he died.

Autopsy Findings: Not performed.

Case 1649. Acute loperamide, atropine/diphenoxylate, trazodone ingestion: undoubtedly responsible

Scenario/Substances: A 23 y/o female was found unresponsive and cyanotic by her mother who started CPR and called 911. EMS transported to the ED.

Past Medical History: Anxiety, depression, hypertension. Patient was in the ED the day before for using high quantities of loperamide and diphenoxylate/atropine for opioid dependency. She was discharged home with clonidine patches.

Laboratory/Diagnostic Findings: Na 140/K 4.5/Cl 104/CO₂ 13/Cr 0.9, AG 23, Mg 2.4, ALT 82, bilirubin 0.3. Serum APAP and salicylate not detected. CxR: pulmonary edema. CT head: diffuse ischemic injury with edema. Repeat labs: AST 227, ALT 1188, ALP 169, K 2.5.

Clinical Course: She arrived in the ED with a wide complex tachycardia (HR 100s, QRS 120) and "good" BP. She was intubated and received naloxone (no response), 2 amps of sodium bicarbonate, magnesium and amiodarone. She became hypotensive (72/39). Almost 15h later she remained unstable on epinephrine, norepinephrine and vasopressin drips; she was unresponsive off sedation. On Day 3 the patient was declared brain dead and she was transferred to the OR for organ donation.

Autopsy Findings: Cause of death: mixed drug toxicity. Post-mortem blood toxicology: desmethylloperamide 58 ng/ml, mCPP 65 ng/ml, trazodone 2.4 mcg/ml. Post-mortem urine toxicology positive for trazodone. Autopsy: acute transmural myocardial infarction, global hypoxic-ischemic brain injury, acute bronchopneumonia with diffused alveolar damage, bilateral, intrapulmonary arterial thromboembolism; recent organ/tissue procurement.

Case 1657. Acute loperamide ingestion: undoubtedly responsible

Scenario/Substances: A 41 y/o female presented to the ED with weakness, dizziness and dyspnea.

Past Medical History: Depression, anxiety, opioid and cocaine abuse. Medications: mirtazapine, buspirone and gabapentin.

Physical Exam: Unresponsive, pupils 2 mm and sluggish, myoclonus in extremities. BP 97/61, HR 90, RR 20, O₂ sat 94% (100% FiO₂), T 37°C.

Laboratory/Diagnostic Findings: ABG- pH 7.39/pCO₂ 53/pO₂ 61/HCO₃ 31. Na 144/ K 4.0/Cl 105/CO₂ 31/BUN 23/Cr 1.6/Glu 151. AST 308, ALT 340, CK 11,112, lactate 8.5. Serum APAP, ethanol and salicylate not detected. ECG: HR 108, QRS 176, QTc 477.

Clinical Course: She went into cardiac arrest in the ED, had ROSC with ACLS but then lost pulses again, several times, over the next half hour. Thrombolytic was administered for presumptive pulmonary embolus. LE U/S was negative for deep vein thrombosis. Myoclonic jerking was noted, EEG revealed burst suppression. Bicarbonate drip was initiated (for QRS of 214 ms) and antibiotics were started. Her brother then reported that she was recently using 'a laxative' to get high, mother reportedly found empty loperamide boxes at home; a loperamide level was ordered (send out). On Day 2, myoclonus continued, QRS 120, QTc 594. On Day 3 MRI revealed diffuse ischemic injury and cerebral edema. Based on the prognosis, the family opted for comfort measures and she died on Day 11.

Autopsy Findings: Cause of death: anoxic encephalopathy due to loperamide intoxication. Loperamide and metabolite concentrations returned 'elevated.'

Case 1739. Acute diazepam, gabapentin, citalopram ingestion: undoubtedly responsible

Scenario/substance: A 12 y/o female was found unresponsive by family after last being seen normal the previous evening. She received 4 mg naloxone by EMS without response and was intubated on scene. Medications available at home: lorazepam, tramadol, gabapentin, losartan, hydrochlorothiazide, APAP, ibuprofen, atomoxetine, fluoxetine, montelukast and eszopiclone.

Physical Exam: BP 68/28, HR 98, RR 21, O₂ sat 31% on BVM, T 36.3°C. She was unresponsive, pupils were 2 mm and sluggish. She had clonus in lower extremities with normal reflexes.

Laboratory/Diagnostic Findings: ABG- pH 7.11/pCO₂ 53/pO₂ 92/HCO₃ 17/BE -13. Na 141/K 3.4/Cl 107/CO₂ 19/BUN 19/Cr 1.72/Glu 243, AG 15. Lactate 7.3, AST 34, ALT 27, bilirubin 1.2. INR 1.3, ammonia 74. WBC 27.7/Hgb 12.5/Hct 37/PLT 424. Serum APAP, ethanol and salicylate not detected, UDS was positive for benzodiazepines. CxR and CT head were unremarkable. ECG: HR 120 with peaked T waves, QRS 84, QTc 497.

Clinical Course: The patient presented to the ED unresponsive and hypotensive with the ETT in her esophagus. She was re-intubated and started on vasopressors and IVFs, then transferred to a PICU. On arrival, the patient's HR was in the 140s; she was given sodium bicarbonate and antibiotics and placed on an EEG monitor. On Day 3, she developed episodes of bigeminy, increased oxygen requirements, fevers, acute kidney injury. The EEG was initially abnormal and then showed no brain activity. Brain MRI revealed severe anoxic brain injury. She was declared brain dead and died on Day 4.

Autopsy Findings: Urine collected in the ED showed diazepam 20 ng/ml, nordiazepam 68 ng/ml, oxazepam 32 ng/ml and temazepam 410 ng/ml. ED blood demonstrated gabapentin 1.5 mcg/ml. Antemortem peripheral blood drawn ~2h from being found demonstrated citalopram 0.42 mg/L, diazepam 0.98 mg/L, gabapentin 24 mg/L, nordiazepam 0.067 mg/L; urine demonstrated benzodiazepines, caffeine, citalopram, gabapentin/pregabalin and ondansetron. Autopsy demonstrated cerebral edema with herniation, pulmonary edema and acute pneumonia. Cause of death: hypoxic ischemic encephalopathy due to respiratory failure due to diazepam and gabapentin toxicity.

Case 1879. Acute U-47700, para-fluorobutyryl fentanyl and psychoactive benzodiazepines ingestion: undoubtedly responsible

Scenario/Substances: A 23 y/o male was seen somnolent and intermittently snoring. Later that day he was found apneic and cyanotic. CPR was started; EMS found him to be in PEA arrest. He was intubated, successfully resuscitated, and transported to the ED.

Past Medical History: 2 recent ED visits for headaches and back pain; he was discharged with prescriptions for hydrocodone and cyclobenzaprine.

Physical Exam: In the ED he was unresponsive, pupils were fixed and dilated. He had a frontal abrasion and hematoma. BP 60/40, HR 84, O₂ sat 100% (intubated), T 34°C.

Laboratory/Diagnostic Findings: VBG- pH 7.12/pCO₂ 58/pO₂ 67. Lactate 9.4, NA 146/K 6.7/CL 107/CO₂ 25/BUN 22/Cr 3.14/Glu 85, AG 14, AST 1,192, ALT 1,348, bilirubin 0.4, WBC 12.7/Hgb 11.6/Hct 39.4/PLT 225, troponin 1.9. UDS was positive for opiates, benzodiazepines and tricyclic antidepressants. CxR: aspiration pneumonia. CT head: cerebral edema with herniation.

Clinical Course: He was admitted to the ICU and required aggressive fluid resuscitation and vasopressors for hypotension. He was placed on a hypothermia protocol; his brainstem reflexes remained absent and he was declared brain dead. Based on the prognosis, comfort measures were instituted and he died on Day 2.

Autopsy Findings: Antemortem blood analysis: U-47700 5.2 ng/mL, flubromazepam 450 ng/mL, etizolam 29 ng/mL, delorazepam 82 ng/mL, diclazepam 33 ng/mL, para-fluorobutyryl fentanyl/fluoroisobutyryl fentanyl 5.8 ng/mL, oxycodone (free) 15 ng/mL. Cause of death: "U-47700 and para-fluorobutyryl fentanyl/FIBF intoxication [and] psycho-active benzodiazepines."

Case 1943. Unknown carfentanil, alprazolam and cocaine exposure: probably responsible

Scenario/ Substances: A 26 y/o female was found in asystole by EMS. CPR, naloxone, epinephrine and bicarbonate were administered with ROSC prior to ED transport.

Past Medical History: Bipolar disorder, drug abuse.

Physical Exam: She was intubated with no spontaneous activity. Initial VS in the ICU: BP 105/92, HR 83, RR 22, O₂ Sat 100%, (FIO₂ 30%), T 31°C (prior to cooling).

Laboratory/ Diagnostic Findings: ABG- pH 7.22/pO₂ 291/pCO₂ 35/HCO₃ 14. Na 142/K 4.8/Cl 97/CO₂ 15/BUN 16/Cr 1.7/Glu 478, AG 30, AST 320, ALT 220, WBC 39/Hgb 10.8/Hct 35/PLT 348. Serum APAP, ethanol and salicylate not detected. UDS was negative. ECG: HR 99, QRS 90, QTc 439. CxR: bilateral pleural effusions and perihilar opacities.

Clinical Course: The patient was intubated upon arrival and started on a hypothermia protocol in the ICU. She received IVFs, sodium bicarbonate, analgesics, antibiotics and vasopressors. On Day 3 rewarming was completed. A brain perfusion scan was consistent with brain death. Based on the prognosis, comfort measures were instituted and she died on Day 4.

Autopsy Findings: Cause of death: anoxic encephalopathy from carfentanil intoxication; manner of death: accidental. Antemortem urine was positive for alpha-hydroxyalprazolam, benzoylcegonine and carfentanil. Antemortem blood testing was positive for alprazolam 15 ng/ml.

Case 2034. Acute mitragyna speciosa korthals exposure: undoubtedly responsible

Scenario/Substances: A 31 y/o male reportedly purchased Kratom capsules and poured the powder into cups. He was found dead by Sheriff's deputies.

Autopsy Findings: Post-mortem toxicology found: mitragynine: 990 ng/mL; positive for cyclobenzaprine, tramadol, quetiapine, 7-aminoclonazepam, morphine/codeine/laudanoside.

Case 2060. Acute methamphetamine ingestion: probably responsible

Scenario/Substances: A 33 y/o male swallowed 3 g of methamphetamine to evade police detection. 2 d later he presented to the ED.

Past Medical History: Chronic substance abuse, prior overdose.

Physical Exam: He presented with paranoid ideation and agitated delirium. BP 128/86, HR 126, RR 24, T 37°C.

Laboratory/Diagnostic Findings: WBC 15, lactate 2.9, CK 215. UDS was positive for amphetamines, methamphetamines and benzodiazepines. Serum ethanol, salicylate and APAP were not detected. Subsequent labs: lactate 9.6, troponin 4.87, Cr 3.54, AST 815, ALT 326, CK 45,219, PLTs 43, fibrinogen <60, PTT >250, PT >120. EKG: ST at 128, QTc 580. CT head: negative. CxR: RUL infiltrate.

Clinical Course: He was treated with lorazepam 2 mg, haloperidol 8 mg and labetalol 20 mg IV. Just prior to transfer he was intubated with etomidate and rocuronium; received dextrose for a Glu of 7. He was transferred to a tertiary care center where he arrived with T 38.3°C, BP 84/50, HR 148 on norepinephrine drip at 4 mcg/h after 3L NS. He also received activated charcoal, high dose insulin, methylene blue, Ca, sodium bicarbonate, vasopressin, epinephrine and phenylephrine, cryoprecipitate, fresh frozen plasma, PLTs and antibiotics. He developed acute respiratory failure with persistent hypotension, anuria, rhabdomyolysis and DIC. He was resuscitated from 2 cardiac arrests. Based on the prognosis, the family opted for institution of comfort measures and he died after a third cardiac arrest.

Autopsy Findings: A small (empty) plastic bag was found in the stomach. Cerebral and pulmonary edema were noted. Post mortem blood: methamphetamine 5.29 mg/L, amphetamines and etomidate detected, alprazolam 0.016 mg/L, midazolam 0.017 mg/L. Cause of death: methamphetamine toxicity.

Case 2131. Acute-on-chronic: cocaine rectal: undoubtedly responsible

Scenario/Substances: A 37-year-old male placed a bag containing ~1 g of cocaine into his rectum to evade police discovery. 6 h later, he tore the bag upon attempted removal and reported the event to authorities.

Past Medical History: Substance abuse.

Physical Exam: He was alert, calm and following commands upon ED arrival, with a surgery scar over his abdomen. Initial VS: BP 166/90, HR 86, RR 18, O₂ sat 96%, T 37°C.

Laboratory/Diagnostic Findings: Na 146/K 5.0/Cl 100/CO₂ 22/BUN 14/ Cr 1.57/Glu 71 /AG 24, AST 187, ALT 117.

Clinical Course: He initially refusal a rectal exam; received Mg citrate and remained asymptomatic. He was sleeping with normal VS 5 h later; no bowel movement. 2 h later, while on the commode, he was noted to be agitated with mumbling speech and spastic movements. He fell, striking his head, and developed repetitive seizures; he was treated with lorazepam. He developed wide complex PEA. He was intubated, received CPR, amiodarone, dextrose, calcium, bicarbonate and epinephrine, with ROSC after 20 minutes. He remained in status epilepticus and was treated with propofol, fosphenytoin and lorazepam. Numerous pieces of white chunky substance was removed from his rectum. He developed pulseless VT and died, ~15 h after insertion, despite resuscitation efforts.

Autopsy Findings: Two plastic bag fragments in lower bowel with white material adherent to rectal mucosa were found. Post mortem heart blood demonstrated benzodiazepines, cocaine metabolite, and levamisole. Post mortem iliac vein blood showed cocaine >2 mg/L, benzoylcegonine >4.0 mg/L, and lorazepam 0.067 mg/L. Cause of death: cocaine toxicity; manner of death: accidental.

Case 2141. Unknown methamphetamine ingestion: undoubtedly responsible

Scenario/Substances: A 37 y/o male ingested a large amount of methamphetamine for unknown reasons. Friends called EMS, who found him combative, diaphoretic and hyperthermic.

Past Medical History: Bipolar disorder, substance abuse, pancreatitis, GI bleed.

Physical Exam: BP 96/57, HR 180, RR 30, O₂ sat 90% (nasal catheter, 4L/min), T 40°C.

Laboratory/Diagnostic Findings: ABG- pH 7.24/pCO₂ 50/pO₂ 64/HCO₃ 22. K 7.3, CO₂ 18, BUN 23, Cr 2.88, AST 437, ALT 206, CK >22,000. UDS was positive for amphetamines and benzodiazepines.

Clinical Course: In the ED he was intubated and sedated with benzodiazepines, paralyzed and actively cooled, and received IVFs and empiric antibiotics. He developed multiple organ failure, rhabdomyolysis and shock liver (transaminases >1,000) and hypotension requiring vasopressors. CRRT was initiated for renal failure. Brain imaging demonstrated herniation and he died on Day 6.

Autopsy Findings: Blood analyses revealed the following: methamphetamine 4,600 ng/mL, amphetamine 170 ng/mL, lorazepam 22 ng/mL and lamotrigine 1.2 mcg/mL. Cause of death: "complications of methamphetamine abuse."

Case 2615. Acute methamphetamine/amphetamine and hydrocarbon ingestion and aspiration: undoubtedly responsible

Scenario/Substances: A 13 m/o male (7.7 kg) was found agitated and crying, with liquid on his face. Parents reported that he ingested aftershave.

Physical Exam: He presented to the ED somnolent with his eyes rolled back into his head. Initial VS: HR 132, RR 20, O₂ sat 98% (RA), T 36°C.

Laboratory/Diagnostic Findings: Na 133/K 4/CO₂ 20/BUN 6/Cr 0.2/Glu 194, AST 38, ALT 13, ALP 320. WBC 15/Hgb 11/Hct 33. Serum ethanol not detected. CxR: bilateral infiltrates.

Clinical Course: Upon arrival to the ED, he was tachypneic, foaming from his mouth, and developed multiple seizures unresponsive to lorazepam. He was intubated but became hypotensive and then went into cardiac arrest. He received CPR, IVFs, sodium bicarbonate and vasopressors. Resuscitation was unsuccessful and the patient died on Day 1.

Autopsy Findings: Blood toxicology: amphetamine 590 ng/mL, methamphetamine >1,000 ng/mL, lorazepam positive. No history of amphetamine prescription or exposure was reported by the parents.

Abbreviations & normal ranges for narratives. 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 [10], Goldfrank [11] or Dart [12].

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 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 [±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 ± 4 mEq/L or mmol/L]
AICD	automatic implanted cardiofibrillator
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] mcmol/L

amp	ampoule
amphetamines (hallucinogenic)	one or more of the products (6-APB, bath salts, plant food, Bliss, Ivory Wave, Purple Wave, Vanilla Sky, et al) or chemicals (3,4 methylenedioxypropylvalerone [MDPV], 6-(2-aminopropyl)benzofuran [6-APB], butylone, desoxypipradrol [2-DPMP], ethylone, flephedrone, naphyrone, mephedrone, methylenedioxypropylvalerone, methylone, methcathinone, et al)
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
BE	base excess, = base excess [±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
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] Fraction of total CK activity [0–0.04 = 0–4.0%]
Cl	chloride [102–109] mEq/L
CMV	cytomegalovirus
CNS	central nervous system
COHb	carboxyhemoglobin (RR < 3%)
COPD	chronic obstructive pulmonary disease
CPAP	continuous positive airway pressure
CPR	cardio pulmonary resuscitation
Cr	creatinine [0.5–0.9] mg/dL females, [0.6–1.2] males,
CRRT	continuous renal replacement therapy
CSF	cerebrospinal fluid
CT	computed tomography (CAT scan)
CVA	cerebrovascular accident
CVWH	continuous venovenous hemodiafiltration
CxR	chest radiograph, chest xray
D10W	10% dextrose in water
D50W	50% dextrose in water
D5NS	5% dextrose in normal saline
D5W	5% dextrose in water
Day	when capitalized, Day = hospital day, i.e., days since admission to the initial hospital admission for this exposure

DIC	disseminated intravascular coagulation	mcg/min	micrograms per minute
DM	diabetes mellitus	mcg/mL	micrograms per milliliter
DNI	do not intubate	mcmol/L	micromoles per liter
DNR	do not resuscitate	MDA	3,4-methylenedioxyamphetamine
drip	intravenous infusion	MDMA	methylenedioxymethamphetamine (ecstasy, molly)
Dx	diagnosis	ME	medical examiner
ECG	electrocardiogram (EKG), leads = I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6	MetHgb	methemoglobin (RR <1%)
ECHO	echocardiogram	Mg	magnesium [1.5–2.3] mg/dL
ECMO	extracorporeal membrane oxygenation	mg	milligrams
ED	emergency department, in these abstracts refers to the initial health care facility	mg/dL	milligrams per deciliter
EDDP	principal methadone metabolite, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine	mg/kg	milligrams per kilogram
EEG	electroencephalogram	mg/L	milligrams per Liter
EGD	esophagogastroduodenoscopy	min	minutes
ELISA	enzyme-linked immunosorbent assay	ml	milliliter
EMS	emergency medical services, paramedics, the first responders	mmol	millimoles
ER	extended release medication	mmol/L	millimoles per Liter (previously mEq/L)
ETT	endotracheal tube	mmol/L	millimoles per Liter
FFP	fresh frozen plasma	mosm/kg	milliosmoles per kilogram
FiO ₂	fraction of inspired oxygen (%)	mosm/L	milliosmoles per Liter
g	grams	MRI	Magnetic Resonance Imaging
g/dL	grams per deciliter	MRSA	Methicillin-resistant Staphylococcus aureus
GCS	Glasgow Coma Score, ranges from 3 to 15	ms	milliseconds
GERD	gastroesophageal reflux disease	MSDS	material safety data sheet
GI	gastrointestinal	Na	sodium [136–146] mEq/L
Glu	glucose, fasting [75–110] mg/dL	NAC	n-acetyl cysteine
h	hours	Narrative	
HBO	hyperbaric oxygen treatment/therapy	Headers:	Scenario/Substances: concise narrative of EMS & pre-HCF events
HCF	health care facility		Past Medical History: available relevant past medical history
HCG	human chorionic gonadotropin test for pregnancy		Physical Exam: initial physical exam if available
HCO ₃	bicarbonate [22–28 mEq/L]		Laboratory/Diagnostic Findings: initial results, give units except for units given in abbreviations
HCP	health care provider		Clinical Course: concise narrative of HCF & beyond with outcome
Hct	hematocrit [35.4–44.4] females, [38.8–46.4] males	NG	Autopsy Findings medical examiner and/or autopsy results
HD	hemodialysis	ng/mL	nasogastric
Hgb	hemoglobin [12.0–15.8] g/dL females, [13.3–16.2] g/dL males	NOS	nanograms per milliliter
HIE	hyperinsulinemia-euglycemia therapy	not detected	not otherwise specified
HIV	human immunodeficiency virus	NPO	anlyte below the level of quantitation, negative
Hour	when capitalized, Hour = hours since admission or since exposure as specified in the narrative	NRB	nil per os, nothing by mouth
HR	HR, beats per min	NS	non rebreathing mask for O ₂ delivery
IABP	intraortic balloon pump	NSTEMI	normal saline
ICP	intracranial pressure	O ₂ sat	non-ST segment elevation myocardial infarction
ICU	intensive care unit	OG	oxygen percent saturation [94–100]% at sea level
IDDM	insulin dependent diabetes mellitus	OR	serum osmol gap = measured serum osmolality – calculated serum osmolality [0 ± 10 mOsmol/kg]
IgE	immunoglobulin E	Osm	operating room
ILE	intravenous lipid emulsion (20%)	PALS	osmole
IM	intramuscular	PC	pediatric advanced life support
INR	international normalized ratio (PT to control) [0.8–1–2]	PCC	poison center (=PCC, or Poison Control Center)
IO	intraosseous	PCP	prothrombin complex concentrate
IU/L	international units per Liter	PEA	primary care provider
IV	intravenous	PEEP	pulseless electrical activity
IVF	intravenous fluid(s)	Phos	positive end expiratory pressure
K	potassium [3.5–5] mEq/L	PICU	phosphate (phosphorous) [2.5–4.5] mg/dL
kg	kilogram	PLT	pediatric intensive care unit
L	Liter	PO	platelet count [150–400] × 10 ⁹ /L
lactate	lactic acid [4.5–14.4] mg/dL arterial, [4.5–19.8] mg/dL venous	Ppm	per os (“by mouth” in Latin)
	[0.5–1.6] mmol/L arterial, [0.5–2.2] mmol/L venous	PR	parts per million
LBBB	left bundle branch block on ECG	PRN	P-R interval [120–200] msec on the ECG as needed
LFT	liver function tests	PT	prothrombin time, INR is preferred, but PT may be used if INR is not available
LVEF	left ventricular ejection fraction	PTA	Prior to admission
m/o	months old	PTSD	post-traumatic stress disorder
MAP	mean arterial pressure	PTT	partial thromboplastin time [26.3–39.4] sec
mcg/dL	micrograms per deciliter	PVC	premature ventricular contraction
mcg/L	micrograms per Liter	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	TPN	total parenteral nutrition
RBBB	right bundle branch block on ECG	Tprot	total protein
RBC	red blood cell(s)	troponin	troponin I, normal range [0–0.08] ng/mL, Cut-off for MI >0.04 ng/mL
ROSC	return of spontaneous circulation	TTE	transthoracic echocardiogram
RPC	regional poison center	U	units
RR	respiratory rate, breaths per minute	U/dL	units per deciliter
s/p	status post	U/L	units per liter
salicylate	aspirin, acetylsalicylic acid, therapeutic [15–30] mg/dL	U/mL	units per milliliter
SBP	systolic blood pressure	UA	urinalysis
sec	seconds	UDS	urine drug screen
SL	sublingual	Urea nitrogen (BUN)	[6–17] mg/dL
SVT	supraventricular tachycardia	VBG	venous blood gases
T (oral)	Temperature (oral) [36.4, 37.2]°C or	VF	ventricular fibrillation
T (rectal)	Temperature (rectal) [36.4, 37.2]°C or	VSD	ventricular septal defect
T (tympanic)	Temperature (tympanic) [36.4, 37.2]°C	VT	ventricular tachycardia
TBSA	total body surface area	WBC	white blood cell (leukocyte) count [3.54–9.06] $10^3/mm^3$
THC	tetrahydrocannabinol	WBI	whole bowel irrigation
THC Homolog	one or more of the products (Blaze, Dawn, herbal incense, K2, Red X, spice, et al) or chemicals (cannabicyclohexanol, CP-47,497, JWH-018, JWH-073, JWH-200, et al)	WNL	within normal limits
		y/o	year old

APPENDIX D

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	18 y M	ethanol	1	1	U	Unk	Int-A	1		
2ai	23 y M	ethanol	1	1	U	Unk	Int-A	2		
3ha	24 y F	methanol	1	1	A	Ingst	Int-U	1		
4ai	24 y M	ethanol	1	1	U	Ingst	Int-A	3		
5ha	25 y M	methanol	1	1	U	Ingst + Par	Int-S	1	methanol	132 mg/dL In Plasma @ 33 h (pe)
		methanol	1	1					methanol	172 mg/dL In Plasma @ 24 h (pe)
		methanol	1	1					methanol	500 mg/dL In Plasma @ Unknown
		propofol	2	2						
6ai	25 y M	ethanol	1	1	C	Ingst + Unk	Int-A	1		
		caffeine	2	2						
7ai	26 y M	ethanol	1	1	U	Unk	Int-A	1		
		THC homolog, 5F-AMB-PICA	2	2						
8ai	27 y F	ethanol	1	1	U	Ingst + Unk	Int-A	3		
		methanol	2	2						
		diphenhydramine	3	3						
9ai	27 y F	ethanol	1	1	U	Ingst + Unk	Unk	2		
		oxycodone	2	2						
		hydrocodone	3	3						
10ai	28 y M	ethanol	1	1	U	Ingst + Unk	Int-A	1		
		oxycodone	2	2						
		oxymorphone	3	3						
11h	30 y F	ethanol	1	1	A	Ingst	Int-S	3	ethanol	511 mg/dL In Blood (unspecified) @ Unknown
		drug, unknown	2	2						
12h	31 y F	methanol	1	1	A	Oth	Int-S	1	methanol	11 mg/dL In Blood (unspecified) @ 3 d (pe)
		methanol	1	1					methanol	119 mg/dL In Blood (unspecified) @ 1 d (pe)
		methanol	1	1					methanol	190 mg/dL In Blood (unspecified) @ 26 h (pe)
		methanol	1	1					methanol	573 mg/dL In Blood (unspecified) @ 9 h (pe)
13ph	31 y M	ethanol	1	1	U	Unk	Unk	3		
14h	32 y M	ethanol	1	1	A	Ingst	Unk	3	ethanol	164 mg/dL In Serum @ 1 h (pe)
		drug, unknown	2	2						
15ai	32 y M	ethanol	1	1	U	Unk	Int-A	2		
16ai	32 y F	ethanol	1	1	U	Unk	Int-S	1		
		gabapentin	2	2						
		hydroxyzine	3	3						
17ai	34 y F	ethanol	1	1	U	Unk	Unk	2		
		fluoxetine	2	2						
		dextromethorphan	3	3						
18ai	35 y M	ethanol	1	1	U	Ingst + Unk	Int-A	2		
		methamphetamine	2	2						
		amphetamine	3	3						
21ai	36 y M	ethanol	1	1	U	Unk	Int-A	2		
		sertraline	2	2						
		oxycodone	3	3						
20ai	36 y F	ethanol	1	1	C	Ingst + Unk	Int-A	3		
		diphenhydramine	2	2						
		ibuprofen	3	3						
19ai	36 y F	ethanol	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
		clonidine	3	3						
22ha	37 y M	methanol	1	1	A	Ingst	Int-S	1	methanol	152 mg/dL In Blood (unspecified) @ 10 h (pe)
		methanol	1	1					methanol	32 mg/dL In Blood (unspecified) @ 29 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
23ai	37 y M				U	Unk	Int-A	2		
24ai	37 y M	ethanol	1	1		Unk	Int-A	1		
		ethanol	1	1						
		cocaine	2	2						
		fentanyl	3	3						
25h	38 y M				C	Ingst	Unk	3		
26h	39 y M	ethanol	1	1		Ingst	Int-S	1		
		methanol	1	1					methanol	566 mg/dL In Blood (unspecified) @ Unknown
27ph	39 y M	ethanol (non-beverage)	2	2						
		ethanol	1	1	U	Ingst	Int-A	2	ethanol	228 mg/dL In Blood (unspecified) @ 30 m (pe)
28h	39 y F	narcotic, other/unknown	2	2						
		ethanol	1	1	A	Ingst	Int-A	2	ethanol	416 mg/dL In Blood (unspecified) @ Unknown
		hair spray	2	2						
		ethanol (non-beverage)	3	3						
29ai	39 y M				U	Unk	Int-A	2		
		ethanol	1	1						
30ai	40 y M				U	Unk	Int-A	2		
		ethanol	1	1						
31ai	40 y M				U	Ingst	Int-A	3		
		ethanol	1	1						
32ai	40 y M				U	Unk	Int-A	2		
		ethanol	1	1						
33pha	41 y F				A/C	Ingst	Unk	2		
		ethanol	1	1					ethanol	0.117 g/dL In Blood (unspecified) @ Autopsy
		ethanol	1	1					ethanol	165 mg/dL In Vitreous @ Autopsy
		ethanol	1	1					ethanol	372 mg/dL In Blood (unspecified) @ 1 h (pe)
34	42 y M	acetaminophen	2	2						
		ethanol	1	1	A	Ingst + Inhal	Int-M	2		
		cocaine	2	2						
35ai	43 y M				C	Ingst + Unk	Int-A	2		
		ethanol	1	1						
		chlordiazepoxide	2	2						
		diazepam	3	3						
36ai	43 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		bupropion	2	2						
		carbamazepine	3	3						
38ai	43 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		heroin	2	2						
		oxycodone	3	3						
39ai	43 y M				U	Unk	Int-A	2		
		ethanol	1	1						
		chlordiazepoxide	2	2						
40ai	43 y M				U	Unk	Int-A	1		
		ethanol	1	1						
37ai	43 y M				U	Unk	Int-M	3		
		ethanol	1	1						
41ai	44 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		fentanyl	2	2						
		morphine	3	3						
42i	44 y F				C	Ingst	Int-A	2		
		ethanol	1	1						
43ai	44 y M				U	Unk	Int-A	1		
		ethanol (non-beverage)	1	1						
		oxycodone	2	2						
44ai	45 y F				U	Unk	Int-A	2		
		ethanol	1	1						
		hydrocarbon (fluorinated)	2	2						
46ai	45 y M				U	Unk	Int-A	2		
		ethanol	1	1						
		hydroxyzine	2	2						
		trazodone	3	3						
45ai	45 y M				U	Unk	Int-A	3		
		ethanol	1	1						
47ai	46 y F				U	Unk	Int-M	1		
		ethanol	1	1						
		alprazolam	2	2						
		morphine	3	3						
48ai	46 y M				C	Unk	Int-A	2		
		ethanol	1	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
49ai	47 y M	ethanol	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
50pha	47 y F	ethanol	1	1	A	Ingst	Int-A	1	ethanol	380 mg/dL In Blood (unspecified) @ Autopsy
		ethanol	1	1					ethanol	552 mg/dL In Serum @ 5 m (pe)
51ha	48 y M	ethanol	1	1	A	Ingst	Int-U	2	ethanol	498 mcg/dL In Blood (unspecified) @ Unknown
		ethylene glycol	2	1						
52h	48 y M	ethanol	1	1	C	Ingst	Int-A	3	ethanol	150 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2						
53ai	48 y M	ethanol	1	1	U	Ingst	Int-A	2		
54ai	48 y M	alcohol, unknown	1	1	U	Ingst	Int-A	1		
55ai	48 y M	ethanol	1	1	U	Unk	Int-A	1		
		hydrocodone	2	2						
		alprazolam	3	3						
56ai	48 y M	ethanol	1	1	U	Unk	Int-A	1		
		heroin	2	2						
57ph	49 y F	ethanol	1	1	A/C	Oth	AR-D	3		
60ai	49 y F	ethanol	1	1	U	Unk	Int-S	1		
		alprazolam	2	2						
59ai	49 y M	ethanol	1	1	C	Unk	Int-A	3		
61ai	49 y M	ethanol	1	1	U	Unk	Int-A	2		
		diphenhydramine	2	2						
62ai	49 y F	ethanol	1	1	U	Unk	Int-A	3		
		acetaminophen	2	2						
58ai	49 y M	ethanol	1	1	U	Unk	Int-A	2		
63ai	50 y M	ethanol	1	1	U	Unk	Int-A	3		
64ai	51 y F	methanol	1	1						
		ethanol	2	2						
		fentanyl	3	3						
65ai	51 y M	ethanol	1	1	U	Unk	Int-A	2		
		diphenhydramine	2	2						
		promethazine	3	3						
66ai	51 y M	ethanol	1	1	C	Unk	Int-A	3		
67ai	51 y M	ethanol	1	1	U	Unk	Int-A	1		
		benzodiazepine	2	2						
68ai	51 y F	ethanol	1	1	A	Ingst + Unk	Int-A	1		
		fentanyl	2	2						
		oxycodone	3	3						
69pi	52 y M	ethanol	1	1	A	Ingst	Unk	2	ethanol	412 mg/dL In Serum @ Unknown
70ai	52 y M	alcohol, unknown	1	1	C	Ingst + Unk	Int-A	3		
		alprazolam	2	2						
		morphine	3	3						
71ai	52 y M	ethanol	1	1	U	Ingst	Unt-U	2		
72ai	52 y F	ethanol	1	1	A	Ingst	Int-A	3		
73ai	52 y M	isopropanol	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
74h	52 y F	ethanol	1	1	A/C	Ingst	Int-S	3	ethanol	173 mg/dL In Serum @ Unknown
75h	53 y M	ethanol	1	1	A	Ingst	Int-S	2	ethanol	201 mg/dL In Blood (unspecified) @ Unknown
76ai	53 y M	ethanol	1	1	U	Unk	Int-A	3		
77a	53 y F	ethanol	1	1	A/C	Ingst	Int-S	3	ethanol	135 mg/dL In Blood (unspecified) @ 30 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
78ai	53 y F				C	Ingst	Int-A	2		
		ethanol	1	1						
80ai	53 y F	ethanol	1	1	U	Unk	Int-A	2		
79ai	53 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		fentanyl	2	2						
		cocaine	3	3						
81ai	53 y M				C	Unk	Int-A	2		
		ethanol	1	1						
82h	54 y M				U	Ingst	Int-S	2		
		methanol	1	1						
84ai	54 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		oxycodone	2	2						
83ai	54 y M				U	Unk	Int-A	2		
		ethanol	1	1						
85h	55 y M				A	Ingst	Int-U	1		
		methanol	1	1					methanol	72 mg/dL In Blood (unspecified) @ Unknown
86ai	55 y M				U	Unk	Int-A	3		
		ethanol	1	1						
87ai	55 y M				U	Unk	Int-A	2		
		ethanol	1	1						
		fentanyl	2	2						
		oxycodone	3	3						
88ai	56 y M				U	Ingst	Int-A	1		
		alcohol, unknown	1	1						
89ph	57 y F				A	Ingst	Unk	1		
		methanol	1	1					methanol	432 mg/dL In Blood (unspecified) @ Unknown
		metformin	2	2						
90h	57 y F				U	Ingst	Int-A	2		
		ethanol	1	1						
		acetaminophen	2	2						
91ai	57 y M				U	Unk	Int-A	2		
		ethanol	1	1						
		alprazolam	2	2						
		diazepam	3	3						
94ai	58 y F				C	Unk	Int-A	2		
		ethanol	1	1						
93ai	58 y M				U	Unk	Int-A	2		
		ethanol	1	1						
		oxycodone	2	2						
		methadone	3	3						
92hai	58 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		fentanyl	2	2						
95ai	58 y F				U	Unk	Int-A	3		
		ethanol	1	1						
96ai	58 y M				U	Unk	Int-S	2		
		ethanol	1	1						
		oxycodone	2	2						
		methamphetamine	3	3						
97ai	58 y M				U	Unk	Int-A	3		
		ethanol	1	1						
		alprazolam	2	2						
		trazodone	3	3						
98ai	59 y M				U	Unk	Int-A	3		
		ethanol	1	1						
99ai	59 y M				U	Unk	Int-A	3		
		ethanol	1	1						
		methamphetamine	2	2						
100ai	59 y F				U	Ingst	Int-A	1		
		ethanol	1	1						
101	60 y M				A	Ingst	Unk	1		
		methanol	1	1					methanol	19 mg/dL In Blood (unspecified) @ 24 h (pe)
		methanol	1	1					methanol	191 mg/dL In Blood (unspecified) @ Unknown
		methanol	1	1					methanol	32 mg/dL In Blood (unspecified) @ 12 h (pe)
102ha	60 y M				A	Ingst	Int-A	3		
		ethanol	1	1					ethanol	40 mg/dL In Blood (unspecified) @ Unknown
103ph	60 y M				C	Unk	Unk	2		
		ethanol	1	1						
104ai	60 y F				U	Unk	Int-A	2		
		ethanol	1	1						
		methamphetamine	2	2						
105ai	61 y M				U	Ingst + Unk	Int-A	2		
		ethanol	1	1						
		cocaine	2	2						
		tramadol	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
107ai	61 y M	ethanol	1	1	U	Ingst + Unk	Int-A	3		
		hydromorphone	2	2						
		gabapentin	3	3						
106ai	61 y M	ethanol	1	1	C	Ingst	Int-A	3		
108h	62 y M	ethanol	1	1	U	Unk	Unk	2		
		narcotic, other/unknown	2	2						
109ai	62 y M	ethanol	1	1	U	Unk	Int-A	3		
110ai	62 y F	ethanol	1	1	U	Ingst	Int-A	3		
111ai	62 y F	ethanol	1	1	U	Unk	Int-M	3		
112ha	62 y M	ethanol	1	1	U	Ingst	Unk	3		
		ethanol (denatured)	1	1						
		isopropanol	2	2						
113ai	62 y M	ethanol	1	1	C	Unk	Unk	3		
114ha	63 y F	ethanol	1	1	U	Ingst	Unk	3		
		alcohol, unknown	1	1					ethanol	45 mg/dL In Blood (unspecified) Ⓐ Unknown
		alcohol, unknown	1	1					ethanol	56 mg/dL In Blood (unspecified) Ⓐ Unknown
		propofol	2	2						
		drug, anticholinergic	3	3						
115ai	63 y F	ethanol	1	1	U	Unk	Int-A	1		
116ai	63 y M	ethanol	1	1	U	Ingst	Int-A	2		
117ha	64 y M	ethanol	1	1	C	Ingst + Aspir	Int-A	3		
		hand sanitizer (ethanol)	2	2						
118ai	64 y F	ethanol	1	1	U	Unk	Int-S	2		
		drug, unknown	2	2						
120ai	65 y M	ethanol	1	1	C	Unk	Int-A	2		
		hydromorphone	2	2						
		carisoprodol	3	3						
121ai	65 y M	ethanol	1	1	U	Unk	Int-A	2		
		citalopram	2	2						
119ai	65 y F	ethanol	1	1	U	Unk	Unk	2		
		diazepam	2	2						
122ai	66 y M	methanol	1	1	U	Ingst + Unk	Int-A	2		
		isopropanol	2	2						
		amphetamine	3	3						
123ai	66 y M	ethanol	1	1	C	Ingst	Int-A	3		
124ai	69 y F	ethanol	1	1	U	Unk	Int-A	3		
		citalopram	2	2						
125ai	70 y F	ethanol	1	1	U	Ingst + Unk	Int-S	1		
		morphine	2	2						
127ai	71 y M	ethanol	1	1	U	Unk	Int-M	3		
126ai	71 y F	ethanol	1	1	C	Unk	Int-A	3		
128ai	73 y F	ethanol	1	1	U	Unk	Int-A	2		
		cyclobenzaprine	2	2						
		butalbital	3	3						
129ai	73 y M	ethanol	1	1	C	Ingst	Int-A	3		
131ai	75 y M	ethanol	1	1	U	Unk	Int-A	3		
130ai	75 y M	ethanol	1	1	C	Unk	Int-A	3		
132i	Unknown age F	ethanol	1	1	U	Ingst	Oth-M	2		
		methanol	1	1						

See Also case 135, 144, 147, 157, 178, 258, 260, 261, 263, 285, 286, 302, 329, 346, 355, 358, 363, 375, 386, 388, 402, 415, 418, 419, 429, 441, 461, 462, 476, 485, 487, 491, 492, 496, 508, 515, 516, 526, 533, 535, 539, 543, 548, 550, 566, 570, 579, 588, 589, 590, 591, 598, 606, 610, 632, 635, 641, 646, 648, 650, 661, 662, 668, 672, 673, 674, 676, 677, 682, 685, 686, 690, 697, 698, 712, 721, 723, 730, 735, 738, 740, 741, 746, 748, 750, 757, 764, 772, 774, 779, 792, 799, 805, 810, 819, 823, 824, 845, 850, 853, 863, 864, 868, 876, 879, 886, 889, 891, 897, 899, 914, 925, 932, 938, 941, 942, 947, 954, 957, 967, 969, 971, 974, 988, 989, 990, 992, 1025, 1043, 1052, 1056, 1057, 1062, 1068, 1076, 1077, 1084, 1090, 1106, 1145, 1153, 1160, 1161, 1162, 1163, 1164, 1191, 1204, 1207, 1215, 1217, 1220, 1227, 1228, 1231, 1235, 1240, 1247, 1252, 1254, 1255, 1257, 1259, 1261, 1274, 1276, 1277, 1279, 1283, 1288, 1293, 1301, 1305, 1312, 1314, 1327, 1335, 1336, 1347, 1354, 1362, 1364, 1365, 1371, 1386, 1389, 1390, 1400, 1412, 1417, 1418, 1423, 1424, 1428, 1435, 1438, 1439, 1443, 1446, 1458, 1462, 1486, 1489, 1494, 1497, 1498, 1499, 1500, 1504, 1507, 1512, 1513, 1530, 1533, 1534, 1536, 1559, 1629, 1642, 1648, 1651, 1654, 1664, 1669, 1686, 1687, 1706, 1711, 1714, 1721, 1723, 1725, 1742, 1744, 1753, 1757, 1759, 1763, 1764, 1767, 1770, 1780, 1783, 1794, 1803, 1808, 1809, 1854, 1855, 1859, 1885, 1890, 1893, 1894, 1898, 1901, 1918, 1920, 1923, 1932, 1937, 1952, 1971, 1972, 1974, 1984, 1999, 2014, 2015, 2032, 2035, 2045, 2046, 2051, 2061, 2081, 2085, 2096, 2097, 2105, 2108, 2111, 2121, 2123, 2126, 2135, 2137, 2146, 2156, 2164, 2166, 2171, 2172, 2182, 2184, 2187, 2190, 2193, 2200, 2202, 2204, 2208, 2215, 2226, 2234, 2236, 2240, 2256, 2259, 2261, 2264, 2266, 2278, 2286, 2287, 2298, 2308, 2314, 2326, 2327, 2329, 2330, 2332, 2336, 2337, 2340, 2351, 2359, 2375, 2389, 2390, 2393, 2396, 2399, 2404, 2405, 2407, 2412, 2414, 2420, 2425, 2430, 2440, 2441, 2444, 2466, 2479, 2487, 2502, 2525, 2529, 2530, 2535, 2537, 2542, 2551, 2558, 2567, 2570, 2587, 2593, 2595, 2596, 2606, 2609, 2611, 2640, 2644, 2647, 2653, 2659, 2662

(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
Arts/Crafts/Office Supplies										
[133ha]	53 y M	hydrofluoric acid	1	1	A	Ingst	Unt-G	1		
Automotive/Aircraft/Boat Products										
134h	28 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	1408 mg/L In Serum @ Unknown
135	32 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	1000 mg/dL In Blood (unspecified) @ 34 h (pe)
		ethanol	2	2						
[136h]	35 y M	ethylene glycol/methanol	1	1	A	Ingst	Int-A	1	methanol	620 mg/dL In Blood (unspecified) @ Unknown
137pa	36 y M	ethylene glycol (antifreeze)	1	1	U	Ingst	Unk	1	ethylene glycol	0 mg/dL In Blood (unspecified) @ 1 h (pe)
138h	44 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	2		
139pai	48 y F	ethylene glycol (antifreeze)	1	1	U	Ingst	Int-S	1		
140ph	50 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	2		
141h	53 y M	ethylene glycol (antifreeze)	1	1	A/C	Ingst	Unk	3	ethylene glycol	13 mg/dL In Serum @ Unknown
		acetaminophen	2	2						
142	54 y F	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	36 mg/dL In Blood (unspecified) @ Unknown
143ha	55 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-M	1	ethylene glycol	72 mg/dL In Blood (unspecified) @ Unknown
		methanol	2	2					methanol	289 mg/dL In Blood (unspecified) @ Unknown
144	57 y M	methanol	1	1	C	Ingst	Int-S	2		
		ethanol (non-beverage)	2	2						
145	65 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Unk	2		
146ha	68 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	2		
147	68 y M	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	2		
		venlafaxine	2	2						
		ethanol	3	3					ethanol	236 mg/dL In Serum @ Unknown
		glyphosate	4	4						
		drain cleaner (alkali)	5	5						
148h	69 y F	ethylene glycol (antifreeze)	1	1	A	Ingst	Int-S	1	ethylene glycol	225 mg/dL In Blood (unspecified) @ Unknown
149h	91 y F	ethylene glycol (antifreeze)	1	1	A	Ingst	Unt-G	3	ethylene glycol	11 mg/dL In Blood (unspecified) @ 1 h (pe)
See Also case 305										
Batteries										
[150h]	2 y F	battery, disc	1	1	A	Ingst	Unt-G	1		
Bites and Envenomations										
[151h]	29 y M	envenomation (crotalinae)	1	1	A	B-S	Unt-B	1		
[152pha]	31 y M	envenomation (crotalinae)	1	1	A	B-S	Unt-B	1		
153p	35 y M	sting (hymenoptera)	1	1	A	B-S	Unt-B	1		
[154ph]	53 y M	ant, fire ant	1	1	A	B-S	Unt-B	3		
Building and Construction Products										
[155h]	59 y M	calcium hydroxide	1	1	A	Derm	Unt-E	1		
Chemicals										
[156ha]	19 y M	silicone	1	1	A	Par + Oth	Int-M	1		
157	31 y F	ethylene glycol	1	1	A	Ingst	Int-S	2		
		ethanol	2	2						
[158a]	35 y F	cyanide	1	1	A	Par	Oth-M	1	cyanide	3.4 mcg/mL In Blood (unspecified) @ 1 h (pe)
		cyanide	1	1					cyanide	4.053 mg/L In Blood (unspecified) @ 4 h (pe)
159ai	35 y M	sodium azide	1	1	U	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
160h	36 y M				A	Ingst	Int-S	1		
		sulfuric acid	1	1						
161pi	37 y M				U	Ingst	Int-S	2		
		sodium azide	1	1						
162ha	37 y M				A	Ingst	Int-S	1		
		sodium azide	1	1						
163ph	37 y M				A	Inhal	Int-A	2		
		ethyl chloride	1	1						
164h	38 y M				U	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	19 mg/dL In Serum @ Unknown
		acetaminophen/hydrocodone	2	2					hydrocodone	1000 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	20.7 mcg/mL In Serum @ Unknown
		lorazepam	3	3						
		alprazolam	4	4						
		drug, unknown	5	5						
165h	39 y M				A	Ingst	Int-S	1		
		sodium hydroxide	1	1						
[166pha]	39 y M				A	Inhal + Oc	Unt-O	1		
		tetramethyl ammonium hydroxide	1	1						
167ph	42 y M				A	Inhal	Unt-E	2		
		cyanide	1	1						
168h	42 y F				A	Ingst	Int-S	1		
		acid, other	1	1						
169ai	44 y M				U	Unk	Int-S	1		
		ethylene glycol	1	1						
170h	44 y F				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	142 mg/dL In Serum @ Unknown
171ph	47 y M				U	Inhal	Unt-O	2		
		methylene chloride	1	1						
172ai	48 y F				U	Unk	Int-S	1		
		chemical, unknown	1	1						
173h	49 y M				A	Ingst	Int-S	1		
		ethylene glycol	1	1						
[174]	52 y M				A	Ingst	Int-S	1		
		ethyl methacrylate	1	1						
175h	53 y M				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	108 mg/dL In Blood (unspecified) @ Unknown
		barbiturate (short acting)	2	2						
		acetaminophen/butalbital/caffeine	3	3						
176ai	54 y M				U	Inhal	Int-M	1		
		ethyl chloride	1	1						
177ha	55 y M				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	180 mg/dL In Blood (unspecified) @ Unknown
178	58 y M				U	Ingst	Int-S	2		
		ethylene glycol	1	1						
		methanol	2	2						
179h	58 y M				A	Ingst	Int-S	1		
		hydrochloric acid	1	1						
180ph	59 y F				A	Inhal	Unt-E	3		
		cyanide	1	1						
181ha	60 y F				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	66 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2					hydrocodone	1000 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	110 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					hydromorphone	66 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	69.4 mcg/mL In Blood (unspecified) @ Unknown
182ph	60 y M				A	Ingst	Int-S	2		
		ethylene glycol	1	1					ethylene glycol	112 mg/dL In Blood (unspecified) @ Unknown
183h	62 y M					Ingst	Unk	1		
		ethylene glycol	1	1						
		alprazolam	2	2						
		buprenorphine/naloxone (sublingual film)	3	3						
184h	62 y F				U	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	73.5 mg/dL In Serum @ Unknown
185h	64 y M				U	Derm + Unk	Unk	3		
		acid, unknown	1	1						
186h	65 y F				U	Ingst	Unk	1		
		ethylene glycol	1	1					ethylene glycol	42 mg/dL In Blood (unspecified) @ 2 d (pe)
		non-powder, unknown	2	2						
187	66 y M				A	Inhal	Unt-G	2		
		sulfuric acid	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
188ph	66 y F				A	Inhal	Unt-E	1		
		cyanide	1	1						
		carbon monoxide	2	2						
		carbon monoxide	3	3						
189p	67 y F	oxalic acid	1	1	A	Ingst	Int-S	1		
[190ha]	68 y F	hydrochloric acid	1	1	A	Ingst	Int-S	1		
191h	68 y M	ethylene glycol	1	1	A	Ingst	Int-S	1	ethylene glycol	290 mg/dL In Blood (unspecified) @ Unknown
192h	73 y M	hydrochloric acid	1	1	A	Ingst	Int-S	1		
193ha	78 y M	propylene glycol borate	1	1	A	Ingst	Int-S	1		
		borate	2	2						
194	79 y M	ethylene glycol	1	1	U	Ingst	Unk	1	ethylene glycol	65 mg/dL In Blood (unspecified) @ Unknown
195	80 y F	hydrofluoric acid	1	1	A	Ingst	Unt-M	2		
196ha	82 y M	ethylene glycol	1	1	U	Unk	Unk	1	ethylene glycol	678 mg/dL In Serum @ Unknown
197h	89 y F	sodium hydroxide	1	1	A	Ingst	Unt-G	1		
See Also case 51, 279, 2035, 2061, 2098, 2102, 2614 Cleaning Substances (Household)										
198ha	26 y M	hypochlorite	1	1	A	Ingst + Derm	Oth-M	1		
199	46 y F	drain cleaner (sodium hydroxide/sodium hypochlorite/sodium silicate)	1	1	A	Ingst	Int-S	1		
200ha	50 y M	cleaner (cationic)	1	1	A	Ingst	Unt-G	2		
201h	58 y M	drain cleaner	1	1	A	Ingst	Int-S	1		
202h	59 y F	drain cleaner (sulfuric acid)	1	1	A	Ingst	Int-S	1		
203ha	65 y F	drain cleaner (alkali)	1	1	A	Ingst	Int-S	1		
204p	67 y F	cleaner (anionic/nonionic)	1	1	A	Inhal	Unt-M	1		
		Hypochlorite	2	2						
205pha	69 y M	hypochlorite	1	1	A	Inhal	Unt-M	2		
206ha	71 y F	drain cleaner (sodium hydroxide/sodium hypochlorite/sodium silicate)	1	1	A	Ingst	Int-S	1		
207h	72 y F	hypochlorite	1	1	A	Ingst	Int-U	1		
208h	77 y M	laundry detergent (pods)	1	1	A	Ingst	Unt-G	1		
209h	78 y F	drain cleaner (aluminum dust/sodium chloride/sodium hydroxide/sodium nitrate)	1	1	A	Ingst	Unt-T	1		
210h	82 y M	drain cleaner (sodium hydroxide/sodium hypochlorite/sodium silicate)	1	1	A	Ingst	Int-U	1		
211h	84 y F	toilet bowl cleaner (acid)	1	1	A	Ingst	Int-S	1		
		cleaner (anionic/nonionic)	2	2						
		salicylate	3	3						
212	89 y F	cleaner (cationic)	1	1	A	Ingst	Unt-G	2		
213h	91 y F	drain cleaner (sulfuric acid)	1	1	A	Derm	Unt-M	1		
214	93 y M	laundry detergent	1	1	A	Ingst	Unt-G	2		
See Also case 147, 363, 751, 1148, 1452, 2664 Cosmetics/Personal Care Products										
215h	44 y M	hand sanitizer (ethanol)	1	1	U	Ingst	Int-U	3		
216	74 y F	anionic/nonionic/citric acid/oxone/sodium carbonate/sodium percarbonate/sodium sulfate,	1	1	A	Ingst	AR-O	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
217ha	92 y F	acetone	1	1	A	Ingst	Unt-G	3		
See Also case 26, 28, 117, 1355										
Deodorizers										
[218h]	1 m M	deodorizer, unknown	1	1	A	Ingst	Oth-C	2		
Fumes/Gases/Vapors										
219pha	4 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
		carbon monoxide	2	1					ethanol	0 mg/dL In Blood (unspecified) @ Autopsy
[220pha]	4 y M	carbon monoxide	2	1	A	Inhal	Unt-E	1	carboxyhemoglobin	46 % In Blood (unspecified) @ Autopsy
221pha	6 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
		carbon monoxide	1	1					ethanol	0 mg/dL In Blood (unspecified) @ Autopsy
		carbon monoxide	1	1					carboxyhemoglobin	49 % In Blood (unspecified) @ Autopsy
		carbon monoxide	2	2					carboxyhemoglobin	49 % In Blood (unspecified) @ Autopsy
222pi	6 y M	carbon monoxide	1	1	A	Inhal	Unt-G	2		
223ph	7 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
224p	7 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
225p	7 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	20 % In Whole Blood @ Unknown
226pa	8 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	27 % In Blood (unspecified) @ Unknown
227pi	10 y F	carbon monoxide	1	1	C	Inhal	Unt-E	1		
228pi	13 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
229pi	16 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
[230ph]	16 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	0.3 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1					carboxyhemoglobin	32.6 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1					carboxyhemoglobin	7.5 % In Blood (unspecified) @ Unknown
231pa	19 y F	carbon monoxide	1	1	A	Inhal	Oth-M	1		
		carbon monoxide	1	1					carboxyhemoglobin	60.001 % In Blood (unspecified) @ Autopsy
232pa	21 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
233pi	21 y M	carbon monoxide	1	1	A	Inhal	Unt-G	2	carboxyhemoglobin	43 % In Blood (unspecified) @ Autopsy
234pa	23 y M	nitrogen	1	1	A	Ingst	Int-S	1		
		clonazepam	2	2					clonazepam	0.1 mg/L In Blood (unspecified) @ Autopsy
235pi	24 y M	hydrogen sulfide	1	1	A	Inhal	Unt-O	1		
		methane	2	2						
236pha	24 y M	propane	1	1	A	Inhal	Int-S	1		
237p	24 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
238p	24 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1		
		hurricane related	2	2						
239pa	25 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
240pi	27 y F	carbon monoxide	1	1	A	Inhal	Unt-G	2	carboxyhemoglobin	54 % In Blood (unspecified) @ Autopsy
241ph	28 y M	carbon monoxide	1	1	A	Inhal	Unk	2		
242pi	29 y M	carbon monoxide	1	1	U	Inhal	Unt-E	1		
243pi	34 y M	carbon monoxide	1	1	A	Inhal	Unt-O	1	carboxyhemoglobin	47 % In Blood (unspecified) @ Autopsy
		hydrogen sulfide	1	1						
		methane	2	2						
244pi	34 y F	carbon monoxide	1	1	A	Inhal	Unt-E	2		
245pi	34 y F	carbon monoxide	1	1	U	Inhal	Unt-E	1		
246p	35 y M	helium	1	1	A	Inhal	Int-S	1		
247ph	37 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	75.4 % 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
248pa	40 y M	carbon monoxide	1	1	A	Inhal	Oth-M	1	carboxyhemoglobin	60.001 % In Blood (unspecified) @ Autopsy
249pa	40 y M	hydrogen sulfide	1	1	A	Inhal	Unt-O	1		
250pa	45 y M	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	50 % In Blood (unspecified) @ Autopsy
251ph	46 y F	carbon monoxide	1	1	A	Inhal + Par	Unt-E	1	carboxyhemoglobin	49.8 % In Blood (unspecified) @ Unknown
252pi	46 y M	sodium chloride	2	2	A	Inhal	Unt-E	2		
253p	47 y F	carbon monoxide	1	1	A	Inhal	Int-S	1	carboxyhemoglobin	46 % In Blood (unspecified) @ Unknown
254pa	48 y F	carbon monoxide	1	1	A	Ingst + Inhal	Int-S	1	carboxyhemoglobin	45 % In Blood (unspecified) @ Autopsy
255pi	49 y M	hydrocodone	2	2	A	Inhal	Unt-O	1		
256pa	49 y F	hydrogen sulfide	1	1	A	Inhal	Oth-M	1		
257p	49 y F	methane	2	2	A	Inhal	Unt-E	2		
258ai	51 y F	carbon monoxide	1	1	A	Ingst + Inhal	Int-S	1		
259pha	53 y F	ethanol	2	2	A	Ingst	Int-S	1		
261ai	55 y M	carbon monoxide	1	1	A	Ingst + Inhal	Int-S	1		
260i	55 y M	ethanol	2	2	A	Inhal + Unk	Unk	1		
262pa	55 y M	carbon monoxide	1	1	A	Unk	Unk	1		
		clonazepam	2	2						
		ethanol	3	3						
		chlorine gas	1	1					methamphetamine	1182 ng/mL In Blood (unspecified) @ Autopsy
		carbon monoxide	2	2					amphetamine	154 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	3	3					pseudoephedrine	53.2 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	3	3					buprenorphine	2.9 ng/mL In Blood (unspecified) @ Autopsy
		pseudoephedrine	4	4					norbuprenorphine	3.4 ng/mL In Blood (unspecified) @ Autopsy
		buprenorphine	5	5					gabapentin	0.7 mcg/mL In Blood (unspecified) @ Autopsy
		buprenorphine	5	5						
		gabapentin	6	6						
263ai	58 y F	carbon monoxide	1	1	A	Ingst + Inhal	Int-S	1		
264pa	59 y M	ethanol	2	2	A	Inhal	Unt-E	3	carboxyhemoglobin	14 % In Blood (unspecified) @ Autopsy
265ph	60 y F	carbon monoxide	1	1	A	Inhal	Unk	3		
266h	61 y M	carbon monoxide	1	1	A/C	Inhal + Derm	Unt-O	3		
267ai	62 y F	propane	1	1	U	Inhal + Unk	Int-S	1		
268ha	64 y M	carbon monoxide	1	1	A	Inhal + Oc	Unt-O	1	ketamine	0.144 mcg/mL In Blood (unspecified) @ Unknown
		cyclobenzaprine	2	2					amphetamine	0.146 mcg/mL In Blood (unspecified) @ Unknown
		sulfur dioxide	1	1						
		sulfur dioxide	1	1						
269h	64 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3		
270p	66 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2		
271hi	67 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3		
272h	69 y M	carbon monoxide	1	1	A	Ingst + Inhal	Int-S	2	carboxyhemoglobin	19.4 % In Blood (unspecified) @ 1 h (pe)
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	1 mcg/mL In Serum @ 8 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
273h	70 y F	carbon monoxide	1	1	A	Inhal	Unt-E	3	carboxyhemoglobin	16 % In Whole Blood @ 1 h (pe)
		carbon monoxide	2	2						
274pha	73 y M	carbon monoxide	1	1	A	Inhal	Unt-E	3	carboxyhemoglobin	4 % In Blood (unspecified) @ Autopsy
275pa	75 y F	carbon monoxide	1	1	A	Inhal	Oth-M	1	carboxyhemoglobin	60.001 % In Blood (unspecified) @ Autopsy
276h	79 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1		
277ph	81 y F	carbon monoxide	1	1	A	Inhal	Unt-E	3	carboxyhemoglobin	58 % In Blood (unspecified) @ Unknown
278ai	83 y M	helium	1	1	U	Unk	Int-S	1		
		diazepam	2	2						
		temazepam	3	3						
279h	85 y M	carbon monoxide	1	1	A	Inhal	Unt-E	2	carboxyhemoglobin	16.8 % In Blood (unspecified) @ 1 h (pe)
		carbon monoxide	2	2						
		cyanide	3	3						
280pa	96 y F	carbon monoxide	1	1	A	Inhal	Unt-E	1	carboxyhemoglobin	60 % In Blood (unspecified) @ Autopsy
281pi	Unknown age M	carbon monoxide	1	1	A	Inhal	Unt-O	1		
282p	Unknown age F	carbon monoxide	1	1	A	Inhal	Int-S	1		
See Also case 188, 295, 1233, 1783, 1958, 2347 Heavy Metals										
283ha	26 y F	potassium chloride	1	1	U	Ingst	Int-U	1	potassium	7.6 mmol/L In Blood (unspecified) @ 1 h (pe)
		amitriptyline	2	2					amitriptyline	1400 ng/mL In Blood (unspecified) @ 1 h (pe)
		amitriptyline	2	2					nortriptyline	900 ng/mL In Blood (unspecified) @ 1 h (pe)
284	33 y F	lead	1	1	C	Unk	Unt-E	2	lead	123 mcg/dL In Serum @ Unknown
[285ha]	35 y M	arsenic	1	1	A	Ingst + Unk	Int-S	2		
		ethanol	2	2						
286p	40 y F	magnesium	1	1	C	Ingst	Unt-M	1		
		ethanol	2	2						
287h	55 y M	chromium	1	1	A	Inhal	Unt-O	2		
		nickel	2	2						
[288h]	59 y M	arsenic	1	1	A	Ingst	Int-S	1		
		benzene	2	2						
		toluene	3	3						
Hydrocarbons										
289ai	17 y M	hydrocarbon (fluorinated)	1	1	U	Inhal	Int-A	1		
290i	17 y M	hydrocarbon (fluorinated)	1	1	U	Unk	Unt-U	2		
291ai	20 y M	hydrocarbon (fluorinated)	1	1	C	Inhal	Int-A	3		
292h	23 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Unk	2		
293pha	25 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
294ha	26 y M	hydrocarbon (fluorinated)	1	1	C	Inhal	Int-A	1		
295pha	27 y M	hydrocarbon (fluorinated)	1	1	A/C	Unk	Int-S	1	1,1-difluoroethane	19 mcg/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2						
		nitric oxide	3	3						
		alprazolam	4	4						
		acetaminophen/hydrocodone	5	5						
296ph	27 y F	hydrocarbon (fluorinated)	1	1	A/C	Inhal	Int-A	1		
297	30 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-M	1		
298	31 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1		
299pa	32 y M	hydrocarbon (fluorinated)	1	1	C	Inhal	Int-A	1	1,1-difluoroethane	51 mcg/mL In Blood (unspecified) @ Unknown
		hydrocarbon (inhalation)	2	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
300ph	32 y M				A	Inhal	Int-A	1		
301	32 y M	hydrocarbon (fluorinated)	1	1	U	Inhal	Int-A	1		
302	32 y F	hydrocarbon (fluorinated)	1	1	A	Ingst + Inhal	Int-S	2		
303ai	33 y M	hydrocarbon (fluorinated) ethanol	1 2	1 2	U	Unk	Unk	1		
304	33 y M	hydrocarbon (fluorinated) diphenhydramine	1 2	1 2	U	Inhal	Int-A	2		
305pa	34 y M	hydrocarbon hydrocarbon (fluorinated)	1 1	1 1	A	Inhal	Int-S	1	1,1-difluoroethane	2.6 mcg/L In Blood (unspecified) ⓐ Autopsy
306	34 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	2		
307ph	34 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Unt-G	1		
308ai	35 y M	toluene	1	1	U	Unk	Unk	1		
309pha	36 y M	hydrocarbon (fluorinated) clonazepam clonazepam codeine	1 2 2 3	1 2 2 3	A	Inhal	Int-S	1	1,1-difluoroethane 7-aminoclonazepam clonazepam	4.3 mcg/mL In Blood (unspecified) ⓐ Unknown 150 ng/mL In Blood (unspecified) ⓐ Unknown 28 ng/mL In Blood (unspecified) ⓐ Unknown
310p	36 y F	hydrocarbon (fluorinated)	1	1	A/C	Inhal	Int-A	1		
[311ha]	36 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1	1,1-difluoroethane	35 mcg/mL In Blood (unspecified) ⓐ Autopsy
312ha	37 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-S	1	1,1-difluoroethane	0.33 mcg/mL In Blood (unspecified) ⓐ Autopsy
313ai	37 y M	hydrocarbon (fluorinated) oxycodone sertraline	1 2 3	1 2 3	U	Inhal + Unk	Int-A	1		
314ai	39 y M	hydrocarbon (fluorinated)	1	1	U	Inhal	Int-A	1		
315ph	40 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1		
316ai	41 y F	hydrocarbon (fluorinated) chlorpheniramine clonazepam	1 2 3	1 2 3	U	Inhal + Unk	Int-A	2		
317p	42 y F	hydrocarbon (fluorinated)	1	1	U	Inhal	Int-M	1		
318ph	45 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Unk	1		
319ph	49 y M	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1		
320ph	51 y F	hydrocarbon (fluorinated)	1	1	A	Inhal	Int-A	1		
321	59 y F	hydrocarbon (fluorinated)	1	1	A/C	Inhal	Int-A	2		
322ha	59 y M	hydrocarbon (fluorinated)	1	1	U	Ingst	Int-A	3		
[323ha]	Unknown adult (>=20 yrs) M	hydrocarbon amphetamine amphetamine	1 2 2	1 2 2	A	Ingst + Aspir	Unt-G	1	amphetamine methamphetamine	0.03 mg/L In Blood (unspecified) ⓐ Unknown 0.3 mg/L In Blood (unspecified) ⓐ Unknown methylenedioxymethamphetamine (MDMA)
See Also case 44, 288, 453, 627, 1326, 2285, 2615 Industrial Cleaners			3	3						
324a	37 y M	hydrofluoric acid	1	1	A	Ingst	Unt-M	1		
Infectious and Toxin-Mediated Diseases										
[325h]	52 y M				A/C	Par	AR-O	3		
326h	64 y F	botulism prion disease melaleuca oil	1 1 2	1 1 2	C	Ingst + Inhal	Unt-F	1		
Mushrooms										
327ha	72 y F	mushroom (unknown)	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
See Also case 2143										
Other/Unknown Nondrug Substances										
328ph	49 y F	fluorescein	1	1	A	Unk	AR-D	3		
329ha	50 y M	substance (non-drug), unknown	1	1	U	Unk	Unk	3		
330	72 y M	ethanol	2	2	A	Ingst	Int-S	1	ethanol	97 mg/dL In Serum @ 0.25 h (pe)
		substance (non-drug), unknown	1	1						
See Also case 238, 553, 1923, 2566										
Paints and Stripping Agents										
331h	88 y M	paint-Varnish-lacquer	1	1	A	Ingst + Derm	Int-S	2		
Pesticides										
332pa	7 y M	aluminum phosphide	1	1	C	Inhal	Unt-E	1		
[333ha]	9 y M	aluminum phosphide	1	1	U	Unk	Unk	1		
334pha	11 y U	aluminum phosphide	1	1	C	Inhal	Unt-E	1		
[335ha]	17 y F	aluminum phosphide	1	1	C	Inhal	Unt-E	1		
336ha	19 y M	aluminum phosphide	1	1	A	Ingst	Int-A	1		
337h	20 y M	dinitrophenol	1	1	A	Ingst	Int-S	1		
338p	22 y M	dinitrophenol	1	1	A	Ingst	Int-S	1		
339ha	26 y M	phosphine	1	1	A	Ingst	Int-S	1		
340pha	27 y M	dinitrophenol	1	1	A	Ingst	Int-S	1		
341h	27 y M	dinitrophenol	1	1	U	Ingst	Int-S	2		
342h	30 y M	dinitrophenol	1	1	A	Ingst + Unk	Unk	2		
		glyphosate	1	1						
		methamphetamine	2	2						
343h	31 y M	methyl bromide	1	1	A	Inhal	Unt-O	2		
344ha	35 y M	glyphosate	1	1	A	Ingst	Int-S	1		
[345ha]	36 y M	sulfuryl fluoride	1	1	A	Inhal	Unt-E	1		
346h	42 y M	sulfuryl fluoride	1	1	A	Ingst	Int-S	2		
		chlorfenapyr	1	1						
		ethanol	2	2					ethanol	238 mg/dL In Blood (unspecified) @ Unknown
[347ha]	42 y M	dinitrophenol	1	1	A	Ingst	Int-S	1		
348p	47 y M	pesticide, unknown	1	1	C	Inhal + Derm	Unt-E	2		
349h	47 y M	organophosphate	1	1	A	Ingst	Int-S	1		
350pa	50 y M	organophosphate	1	1	A	Ingst	Int-U	3		
		glyphosate	1	1					amphetamine	31 ng/mL In Serum @ Autopsy
		glyphosate	1	1					methamphetamine	407 ng/mL In Serum @ Autopsy
351	55 y M	organophosphate	1	1	A	Ingst	Int-S	2		
352h	59 y M	rodenticide (antocoagulant) drug, unknown	1	1	U	Ingst	Int-S	2		
			2	2						
353pha	63 y M	cyhalothrin/prallethrin	1	1	A	Ingst	Int-U	3		
354h	69 y M	pesticide, unknown	1	1	A	Ingst	Int-S	2		
355h	70 y M	pesticide, unknown	1	1	A	Ingst	Int-S	2		
		glyphosate	1	1						
		ethanol	2	2						
[356h]	71 y M	paraquat	1	1	A	Ingst	Unt-M	1		
357h	84 y M	paraquat	1	1	A	Inhal	Unt-E	3		
		organophosphate	1	1						
		phosmet	2	2						
		captan	3	3						
See Also case 147										
Plants										
358a	18 y M	plant, cardiac glycoside	1	1	U	Ingst	Int-S	1		
		ethanol	3	2						
		methamphetamine	2	2						
359h	22 y F	plant, cardiac glycoside	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
[360pha]	30 y F				A	Par	AR-D	1		
[361ha]	33 y F	Curcuma domestica	1	1						
		plant, cardiac glycoside	1	1	A	Ingst	Unk	1		
362hai	56 y F				A	Ingst	AR-O	1		
		aconite	1	1					aconitine	5.6 ng/mL In Serum @ Unknown
363pha	75 y F				A	Ingst	Int-S	1		
		Conium maculatum	1	1						
		morphine	2	2					morphine	0.23 mg/L In Blood (unspecified) @ Autopsy
		benzodiazepine	3	3						
		ibuprofen	4	4						
		ethanol	5	5						
		drain cleaner (sodium hydroxide/sodium hypochlorite/sodium silicate)	6	6						
		citalopram	7	7					citalopram	0.11 mg/L In Blood (unspecified) @ Autopsy
		gabapentin	8	8					gabapentin	2.6 mg/L In Blood (unspecified) @ Autopsy
		nortriptyline	9	9					nortriptyline	0.01 mg/L In Blood (unspecified) @ Autopsy
See Also case 984, 1863, 2262 Tobacco/Nicotine/eCigarette Products										
[364pha]	19 y M				A/C	Inhal	Unt-U	1		
		nicotine	1	1						
[365ph]	20 y F				A	Par	Int-S	1		
		nicotine	1	1					nicotine	1000 ng/mL In Blood (unspecified) @ 3 d (pe)
		nicotine	1	1					cotinine	509.9 ng/mL In Blood (unspecified) @ 3 d (pe)
See Also case 2128 Weapons of Mass Destruction										
366ph	33 y F-Pregnant				A	Inhal	Int-S	2		
		non-powder, unknown	1	1						
367ha	51 y M				U	Unk	Unk	3		
		non-powder, unknown	1	1						
See Also case 186 Pharmaceutical Exposures Analgesics										
[368h]	2 y M				A	Ingst	Unt-G	1		
		methadone	1	1					methadone	400 ng/mL In Serum @ Unknown
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine)	83 ng/mL In Serum @ Unknown
		chlorpheniramine	2	2					chlorpheniramine	41 ng/mL In Serum @ Unknown
		diphenhydramine	3	3					diphenhydramine	180 ng/mL In Serum @ Unknown
369p	2 y M				A	Ingst	Unt-G	1		
		methadone	1	1					methadone	0.2 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.5 mg/kg In Liver @ Autopsy
370pai	12 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	3.6 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2						
		amphetamine	3	3					amphetamine	47 ng/mL In Blood (unspecified) @ Autopsy
[371ha]	13 y F				A	Ingst + Aspir	Int-S	1		
		ibuprofen	1	1						
372ph	14 y M				A	Unk	Int-U	2		
		narcotic, other/unknown	1	1						
373ph	15 y F				A	Ingst	Int-A	1		
		narcotic, other/unknown	1	1						
374ph	16 y F				A	Ingst	Int-S	2		
		oxycodone	1	1						
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	66.7 mcg/mL In Serum @ Unknown
		diazepam	3	3						
375pa	16 y F				U	Inhal	Int-A	1		
		fentanyl	1	1					fentanyl	0.17 mcg/g In Liver @ Autopsy
		fentanyl	1	1					fentanyl	12 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.054 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaehtylene	0.13 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	2.3 mg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	60 mg/dL In Blood (unspecified) @ Autopsy
376ai	16 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
377ai	16 y M				U	Unk	Int-A	1		
		fentanyl	1	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
378pha	17 y F	tramadol	1	1	A	Ingst	Int-S	1		
379h	17 y F	acetaminophen	1	1	A	Ingst	Int-S	1		
380pai	17 y M	fentanyl	1	1	A	Par	Int-A	1		
381pha	17 y F	acetaminophen/oxycodone	1	1	A	Ingst + Unk	Int-S	1	oxycodone	162 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	2 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	146 ng/mL In Blood (unspecified) @ Unknown
		marijuana	3	3						
382ai	17 y M	fentanyl	1	1	A	Unk	Int-A	1		
383ai	17 y M	oxycodone	1	1	U	Unk	Int-S	1		
		alprazolam	2	2						
		marijuana	3	3						
384h	17 y F	acetaminophen	1	1	U	Ingst	Int-A	1		
385ai	18 y M	fentanyl	1	1	A/C	Unk	Int-A	1		
		alprazolam	2	2						
		cocaine	3	3						
386ai	18 y M	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
388ai	18 y F	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
389ai	18 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		dextromethorphan	3	3						
387ai	18 y M	fentanyl	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
393ai	18 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
391ai	18 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
394ai	18 y M	fentanyl	1	1	U	Unk	Int-A	1		
		tramadol	2	2						
		clonazepam	3	3						
392ai	18 y M	fentanyl	1	1	A	Unk	Int-A	1		
		cocaine	2	2						
		alprazolam	3	3						
390ai	18 y M	fentanyl	1	1	A	Unk	Int-A	1		
395ai	18 y M	morphine	1	1	U	Unk	Unk	1		
		diphenhydramine	2	2						
		doxylamine	3	3						
396ph	19 y F	fentanyl	1	1	A	Ingst + Unk	Int-S	1		
		heroin	2	2						
		cocaine	3	3						
		alprazolam	4	4						
		codeine	5	5						
397p	19 y M	carfentanil	1	1	A	Unk	Unk	2		
398a	19 y F	acetaminophen	1	1	A	Ingst	Unk	1		
399pha	19 y M	fentanyl analog (alpha-methylfentanyl)	1	1	U	Unk	Int-A	2		
		marijuana	2	2						
402ai	19 y M	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
401ai	19 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		diazepam	3	3						
400ai	19 y M	fentanyl	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		levetiracetam	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
403h	20 y F	salicylate drug, unknown	1 2	1 2	A	Ingst	Int-S	2	salicylate	87 mg/dL In Serum @ Unknown
404ai	20 y F	oxycodone	1	1	U	Unk	Int-A	1		
405ai	20 y M	alprazolam	2	2	U	Unk	Int-A	1		
406ai	20 y M	fentanyl cocaine tramadol	1 2 3	1 2 3	U	Unk	Int-A	1		
408ai	20 y M	fentanyl alprazolam hydrocodone	1 2 3	1 2 3	U	Unk	Int-A	1		
407ai	20 y M	sertraline alprazolam	2 3	2 3	U	Unk	Int-A	1		
409ai	20 y F	fentanyl heroin methamphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
410ai	20 y M	fentanyl cocaine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
411pa	21 y F	methadone methamphetamine	1 2	1 2	A	Unk	Int-A	1	fentanyl	0.023 mg/L In Blood (unspecified) @ Autopsy
412pa	21 y M	morphine	1	1	A	Unk	Int-A	1	morphine (free)	29 mcg/L In Whole Blood @ Unknown
413pa	21 y F	fentanyl	1	1	A	Inhal	Int-A	1	fentanyl	0.001 mg/L In Blood (unspecified) @ Autopsy
414pha	21 y F	fentanyl benzodiazepine	1 2	1 2	A	Ingst	Int-A	1		
415p	21 y M	methadone ethanol	1 2	1 2	A	Unk	Unk	2	ethanol	134 mg/dL In Serum @ 1 h (pe)
416pai	21 y M	fentanyl	1	1	A	Par	Int-A	1	fentanyl	13 ng/mL In Blood (unspecified) @ Autopsy
417ai	21 y M	fentanyl cocaine alprazolam	1 2 3	1 2 3	U	Unk	Int-A	1		
418ai	21 y M	fentanyl alprazolam ethanol	1 2 3	1 2 3	U	Ingst + Unk	Int-A	3		
419ai	21 y F	morphine ethanol	1 2	1 2	U	Unk	Int-S	1		
420pha	22 y M	acetaminophen/oxycodone antipsychotic (atypical) hydrocodone	1 2 3	1 2 3	A/C	Ingst	Int-U	1	hydrocodone	0.045 mg/L In Urine (quantitative only) @ Autopsy
		hydromorphone	4	4					hydromorphone	0.031 mg/L In Urine (quantitative only) @ Autopsy
421pi	22 y M	morphine	5	5	A	Par	Int-A	1	morphine (free)	0.131 mg/L In Whole Blood @ Autopsy
422p	22 y M	carfentanil	1	1	A	Par	Int-A	1		
		fentanyl analog (acrylfentanyl)	1	1					acetyl fentanyl	0.84 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	2	2					norfentanyl	0.76 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	2.7 ng/mL In Blood (unspecified) @ Autopsy
		heroin	3	3					6-mam (6-monoacetylmorphine)	1.3 ng/mL In Blood (unspecified) @ Autopsy
		heroin	3	3					morphine	120 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	4	4					diphenhydramine	450 ng/mL In Blood (unspecified) @ Autopsy
423pa	22 y F	fentanyl fentanyl	1 1	1 1	A	Par + Unk	Int-A	1	fentanyl fentanyl	0.062 mcg/g In Liver @ Autopsy 5.6 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
		fentanyl analog (furanylfentanyl)	2	2					furanyl fentanyl	0.37 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (furanylfentanyl)	2	2					furanyl fentanyl	0.53 ng/mL In Blood (unspecified) @ Autopsy
		heroin	3	2					morphine	0.016 mcg/mL In Blood (unspecified) @ Autopsy
		oxycodone	4	4					oxycodone	0.095 mcg/mL In Blood (unspecified) @ Autopsy
424i	22 y M				U	Unk	Int-U	1		
		fentanyl	1	1						
		oxycodone	2	2						
		oxymorphone	3	3						
425ai	22 y M				U	Unk	Int-A	1		
		fentanyl analog (furanylfentanyl)	1	1						
		oxycodone	2	2						
426ph	22 y F	narcotic, other/unknown	1	1	A	Par	Int-A	2		
427pa	22 y F				U	Ingst + Par	Int-A	1		
		fentanyl	1	1					norfentanyl	0.4 ng/mL In Blood (unspecified) @ Unknown
		fentanyl	1	1					fentanyl	1.2 ng/mL In Blood (unspecified) @ Unknown
		clozapine	2	2					clozapine	150 ng/mL In Blood (unspecified) @ Unknown
428	22 y M				A	Ingst	Unt-G	2		
		salicylate	1	1					salicylate	49 mg/dL In Whole Blood @ Unknown
429pa	22 y F				A	Ingst + Unk	Int-A	1		
		fentanyl	1	1					fentanyl	8.2 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2					alprazolam	0.038 mg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	140 mg/dL In Blood (unspecified) @ Autopsy
431ai	22 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		heroin	2	2						
430ai	22 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		heroin	2	2						
432h	22 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	54 mcg/mL In Blood (unspecified) @ Unknown
433pha	23 y F	diphenhydramine	2	2						
		fentanyl	1	1	U	Unk	Int-A	1	norfentanyl	1.2 ng/mL In Blood (unspecified) @ Unknown
		fentanyl	1	1					fentanyl	2.8 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	2					clonazepam	19 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	2					7-aminoclonazepam	56 ng/mL In Blood (unspecified) @ Unknown
		levetiracetam	3	3					levetiracetam	4.4 mcg/mL In Blood (unspecified) @ Unknown
434h	23 y F				U	Ingst + Par	Unk	2		
		acetaminophen	1	1						
		hydrocodone	2	2						
435ph	23 y M	narcotic, other/unknown	1	1	A	Unk	Int-M	1	morphine	612 ng/mL In Urine (quantitative only) @ 4 h (pe)
436h	23 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	735 mcg/mL In Blood (unspecified) @ Unknown
437pi	23 y M	carfentanil	1	1	A	Unk	Int-A	1		
438pai	23 y M				A	Par	Int-A	1		
		fentanyl	1	1					norfentanyl	1.2 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	24 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylcognine	1000 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	107 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaethylene	152 ng/mL In Blood (unspecified) @ Autopsy
439pai	23 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	40 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	2	2						
440p	23 y F				A/C	Unk	Int-A	1		
		fentanyl analog (furanylfentanyl)	1	1					furanyl fentanyl	0.34 ng/mL In Blood (unspecified) @ Autopsy
		U-47700	2	2					u-47700	6.7 ng/mL In Blood (unspecified) @ Autopsy
		ketamine	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		
441pa	23 y M	alprazolam	4	4	U	Unk	Int-A	1				
		clonazepam	5	5								
		fentanyl	1	1							fentanyl	0.006 mcg/g In Blood (unspecified) @ Autopsy
		cocaine	2	2							cocaine	0.033 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2							cocaethylene	0.083 mg/L In Blood (unspecified) @ Autopsy
cocaine	2	2	benzoylcocaine	1.3 mg/L In Blood (unspecified) @ Autopsy								
ethanol	3	3	ethanol	140 mg/dL In Blood (unspecified) @ Autopsy								
442pa	23 y F				U	Unk	Int-U	1				
		fentanyl	1	1					fentanyl	0.001 mg/L In Blood (unspecified) @ Autopsy		
443p	23 y F				A	Par	Int-A	1				
									fentanyl	0.003 mg/L In Serum @ Autopsy		
		fentanyl analog (furanylfentanyl) U-47700	1	1					furanyl fentanyl	0.34 ng/mL In Blood (unspecified) @ Autopsy		
			2	2					u-47700	6.7 ng/mL In Blood (unspecified) @ Autopsy		
444ai	23 y M				U	Unk	Int-A	1				
									fentanyl			
									morphine			
									midazolam			
445ai	23 y M				U	Unk	Int-A	1				
									oxycodone			
									alprazolam			
446pha	23 y F				A	Ingst	Int-S	1				
									fentanyl	6.4 ng/mL In Blood (unspecified) @ Unknown		
452ai	23 y F				U	Ingst + Unk	Int-A	1				
									fentanyl			
453ai	23 y M				U	Unk	Int-S	2				
									alprazolam			
									fentanyl			
									hydrocodone			
450ai	23 y M				U	Unk	Int-A	1				
									temazepam			
									gasoline			
									fentanyl			
451ai	23 y M				U	Unk	Int-A	1				
									oxycodone			
									alprazolam			
449ai	23 y M				U	Unk	Int-A	1				
									fentanyl			
447ai	23 y M				U	Ingst + Unk	Int-A	2				
									fentanyl			
448ai	23 y F				U	Unk	Int-A	1				
									alprazolam			
									fentanyl			
456ai	23 y F				U	Unk	Int-A	3				
									morphine			
									oxycodone			
457ai	23 y F				U	Unk	Int-A	2				
									bupropion			
									butalbital			
455ai	23 y F				U	Unk	Int-A	1				
									oxycodone			
									oxycodone			
454ai	23 y F				U	Unk	Int-A	2				
									oxycodone			
458	23 y F				C	Ingst	Int-S	1				
									acetaminophen/diphenhydramine			
459pa	24 y F				A	Ingst + Unk	Int-A	1				
									fentanyl	14 ng/mL In Blood (unspecified) @ Autopsy		
									heroin			
460pha	24 y M				U	Ingst + Inhal	Int-A	1				
									alprazolam			
									fentanyl	1.6 ng/mL In Blood (unspecified) @ Unknown		
									marijuana	8.9 ng/mL In Blood (unspecified) @ Unknown		
461a	24 y M				A/C	Ingst + Par	Int-A	1				
									alprazolam	73.6 ng/mL In Blood (unspecified) @ Unknown		
									fentanyl	13 ng/mL In Blood (unspecified) @ 4 h (pe)		
			2	2				ethanol	40 mg/dL 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
462pha	24 y M	oxycodone	1	1	U	Ingst	Int-A	2	oxycodone (free)	310 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoyllecognine	210 ng/mL In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	337 mg/dL In Blood (unspecified) @ Unknown
463ai	24 y M	fentanyl	1	1	U	Unk	Int-A	1		
464ai	24 y M	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
465ph	24 y F	fentanyl analog (acrylfentanyl)	1	1	A	Par	Unk	1		
		heroin	2	2						
466	24 y F	acetaminophen/oxycodone	1	1	C	Ingst	Unk	3		
467ha	24 y M	salicylate	1	1	A	Ingst	Int-A	1	salicylate	110 ng/mL In Serum @ 7 d (pe)
468ai	24 y M	fentanyl	1	1	U	Ingst + Unk	Int-A	1		
		alprazolam	2	2						
		diphenhydramine	3	3						
469ai	24 y M	fentanyl	1	1	U	Unk	Int-A	1		
		marijuana	2	2						
470pha	25 y M	poppy seeds	1	1	A	Ingst	Int-S	2		
471h	25 y M	acetaminophen/ diphenhydramine	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	18.9 mcg/mL In Blood (unspecified) @ Unknown
472ha	25 y F	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	131 mcg/mL In Serum @ 15 m (pe)
473ph	25 y M	narcotic, other/unknown	1	1	U	Unk	Unk	1		
474pai	25 y M	fentanyl	1	1	A/C	Ingst + Inhal + Par	Int-A	1		
		oxycodone	2	2						
		cocaine	3	3						
475ai	25 y M	fentanyl	1	1	U	Unk	Int-A	1		methylenedioxymethamphetamine (MDMA)
		cocaine	2	2						
		cocaine	3	3						
476	25 y F	salicylate	1	1	A	Ingst	Int-S	1	salicylate	118 mg/dL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	141 mg/dL In Blood (unspecified) @ Unknown
479ai	25 y M	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
		THC homolog	4	4						
477ai	25 y F	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
478ai	25 y F	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		lorazepam	3	3						
480ph	26 y M	methadone	1	1	A/C	Ingst	Int-M	2		
481h	26 y M	acetaminophen	1	1	A/C	Ingst	Unk	3		
482ph	26 y M	fentanyl	1	1	A	Inhal	Int-A	1		
		alprazolam	2	2						
484ai	26 y M	fentanyl	1	1	U	Unk	Int-M	1		
483ai	26 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
485pai	26 y M	fentanyl	1	1	A	Inhal	Int-A	1	fentanyl	0.028 mg/L In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.05 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.08 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		ethanol	2	2					ethanol	0.08 % (wt/Vol) In Vitreous @ 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
486pa	26 y M	fentanyl	1	1	A	Par	Int-A	1	fentanyl	0.044 mg/L In Blood (unspecified) @ Autopsy
		narcotic, other/unknown	2	2						
		cocaine	3	3					cocaine	0.2 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					benzoyllecognine	2.4 mg/L In Blood (unspecified) @ Autopsy
487pai	26 y M	alprazolam	4	4					alprazolam	0.1 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1	A	Unk	Int-A	1	fentanyl	0.004 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analog (4-fluoroisobutyrfentanyl)	2	2						
		morphine	3	3					morphine (free)	21 mcg/L In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.14 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.18 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	4	4					ethanol	0.21 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		cocaine	5	5					cocaine	0.3 mg/L In Blood (unspecified) @ Autopsy
cocaine	5	5					benzoyllecognine	1.9 mg/L In Blood (unspecified) @ Autopsy		
489ai	26 y M	fentanyl	1	1	U	Unk	Unk	1		
		alprazolam	2	2						
490ai	26 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
491ai	26 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol	3	3						
488ai	26 y M	fentanyl	1	1	A/C	Unk	Int-A	1		
492ai	26 y M	fentanyl	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		ethanol	3	3						
493ai	26 y M	hydromorphone	1	1	U	Unk	Unk	1		
		oxycodone	2	2						
494ai	26 y M	morphine	1	1	U	Unk	Unk	1		
		bupropion	2	2						
		benzodiazepine	3	3						
495ai	26 y M	oxycodone	1	1	U	Unk	Int-S	1		
496ai	26 y M	diazepam	3	3	U	Unk	Unk	3		
		oxycodone	1	1						
		ethanol	2	2						
497p	27 y M	carfentanil	1	1	A	Inhal + Par	Int-A	1	carfentanil	0.16 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	2	2					diphenhydramine	100 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	3	3					amphetamine	6.9 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	3	3					methamphetamine	7.8 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	4	4					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	1 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	4	4					delta-9-carboxy-thc	10 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	5	5					7-aminoclonazepam	20 ng/mL In Blood (unspecified) @ Autopsy
498ph	27 y F	buprenorphine	1	1	U	Ingst + Unk	Int-A	1	buprenorphine	0.81 ng/mL In Serum @ 18 h (pe)
		buprenorphine	1	1					norbuprenorphine	3.15 ng/mL In Serum @ 18 h (pe)
		bupropion	2	2					hydroxybupropion	916 ng/mL In Serum @ 18 h (pe)
499h	27 y M	acetaminophen	1	1	A	Ingst	Int-S	2		
		diphenhydramine	2	2						
500pa	27 y M	carfentanil	1	1	U	Par + Unk	Int-A	1	carfentanil	517 pg/mL In Blood (unspecified) @ Autopsy
501pa	27 y M	heroin	2	1	A	Unk	Int-A	1		
		morphine	1	1					morphine (free)	26 mcg/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
502pai	27 y M	cocaine	2	2	A	Par	Int-A	1	cocaine	0.05 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylcognine	2.4 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	5.6 ng/mL In Blood (unspecified) @ Autopsy
503	27 y M	fentanyl analog (acetylfentanyl)	2	2	U	Ingst + Unk	Int-A	2		
		fentanyl analog (despropionyl fentanyl)	2	1						
		narcotic, other/unknown	3	1						
		U-47700	1	1						
		drug, unknown stimulant or street drug	4	2						
504h	27 y M				C	Ingst	Int-M	1		
		salicylate	1	1					salicylate	110.4 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	153 mg/dL In Serum @ Unknown
506ai	27 y M				U	Unk	Int-A	1	salicylate	77 mg/dL In Serum @ Unknown
		fentanyl	1	1						
		heroin	2	2						
505ai	27 y M	methamphetamine	3	3	U	Unk	Int-A	1		
		alprazolam	4	4						
		fentanyl	1	1						
507	27 y F	alprazolam	2	2	A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	218 mcg/mL In Serum @ 0 m (pe)
508ai	27 y M	acetaminophen/diphenhydramine	1	1	U	Ingst + Unk	Int-A	1	acetaminophen (apap)	24 mcg/mL In Serum @ 73 h (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	64 mcg/mL In Serum @ 15 h (pe)
		acetaminophen/diphenhydramine	1	1						
		diphenhydramine	2	2						
		diphenhydramine	3	3						
510ai	27 y M	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
		heroin	2	2						
511ai	27 y F	cocaine	3	3	U	Unk	Int-A	1		
		fentanyl	1	1						
		heroin	2	2						
512ai	27 y M	fentanyl	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
509ai	27 y M				U	Unk	Int-A	1		
513ai	27 y F	fentanyl	1	1	U	Unk	Int-A	1		
		methadone	1	1						
		tramadol	2	2						
514h	28 y F	clonazepam	3	3	A	Par + Vag	Int-A	1		
		hydromorphone	1	1					hydromorphone	0.037 mg/L In Blood (unspecified) @ Autopsy
		hydromorphone	1	1					hydromorphone	0.12 mg/L In Vitreous @ Autopsy
515pa	28 y M	diphenhydramine	2	2	A	Unk	Int-A	1		
		morphine	1	1					morphine (free)	13 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl analog	2	2						
		ethanol	3	3					ethanol	0.12 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.12 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.15 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	3	3					ethanol	0.17 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		promethazine	4	4					promethazine	0.1 mg/L In Blood (unspecified) @ Autopsy
516pa	28 y F			U	Unk	Int-A	1			
		fentanyl	1					1	fentanyl	39.3 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2					2	morphine	138 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2					2	6-mam (6-monoacetylmorphine)	7.9 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	3					3	ethanol	111 mg/dL In Vitreous @ Autopsy
		ethanol	3					3	ethanol	92 mg/dL In Blood (unspecified) @ Autopsy
517pha	28 y M			A	Ingst	Int-A	1			
		fentanyl	1					1	norfentanyl	1.6 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
		fentanyl	1	1					fentanyl	8.4 ng/mL In Blood (unspecified) ⓐ Unknown
		fentanyl analog (acetyl fentanyl)	2	2					acetyl fentanyl	2.8 ng/mL In Blood (unspecified) ⓐ Unknown
		cocaine	3	3					benzoylcognine	197 ng/mL In Blood (unspecified) ⓐ Autopsy
518p	28 y F	buprenorphine/naloxone (sublingual film)	1	1	A	Par	Int-U	1		
520ai	28 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
		buspirone	3	3						
519ai	28 y F				U	Unk	Int-A	1		
521i	28 y F	fentanyl	1	1	U	Ingst + Unk	Int-A	2		
		morphine	1	1						
		acetaminophen/oxycodone	2	2						
		diphenhydramine	3	3						
522ai	28 y M				U	Unk	Int-S	1		
		salicylate	1	1						
		paroxetine	2	2						
		methamphetamine	3	3						
523ph	28 y F				A	Unk	Int-U	2		
524pai	28 y M	narcotic, other/unknown	1	1	A	Inhal	Int-A	1		
		fentanyl	1	1					fentanyl	0.079 mg/L In Blood (unspecified) ⓐ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2					acetyl fentanyl	0.006 mg/L In Blood (unspecified) ⓐ Autopsy
525pa	28 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	0.004 mg/L In Blood (unspecified) ⓐ Autopsy
		heroin	2	2						
		dextromethorphan	3	3					dextromethorphan	1 mg/L In Blood (unspecified) ⓐ Autopsy
		dextromethorphan	3	3					dextromethorphan	1.3 mg/L In Blood (unspecified) ⓐ Autopsy
527ai	28 y M				U	Unk	Int-A	1		
526ai	28 y M	fentanyl	1	1	U	Ingst + Unk	Int-A	1		
		fentanyl	1	1						
		phencyclidine	2	2						
		ethanol	3	3						
528ai	28 y F				U	Unk	Int-A	1		
529ai	28 y M	morphine	1	1	U	Unk	Int-S	1		
		oxycodone	1	1						
		diazepam	2	2						
530i	29 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
		heroin	2	2						
531pha	29 y M				A	Ingst	Int-S	3		
		acetaminophen/hydrocodone	1	1						
		benzodiazepine	2	2						
532ha	29 y M				C	Ingst + Par	Int-M	3		
		acetaminophen drug, unknown	2	1						
			1	1						
533pha	29 y F				A/C	Ingst	Int-S	2		
		methadone	1	1						
		ethanol	2	2						
		barbiturate (short acting)	3	3						
		amphetamine	4	4						
		benzodiazepine	5	5						
534pai	29 y M				A	Par	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
535ha	29 y F				U	Ingst	Unk	1		
		acetaminophen/oxycodone	1	1					oxycodone	133 ng/mL In Blood (unspecified) ⓐ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	18 mcg/mL In Blood (unspecified) ⓐ Unknown
		acetaminophen/oxycodone	1	1					oxymorphone	6 ng/mL In Blood (unspecified) ⓐ Unknown
		ethanol	2	2					ethanol	305 mg/dL In Blood (unspecified) ⓐ Unknown
		cyclic antidepressant, unknown	3	3						
538ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
536ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		oxycodone	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
537ai	29 y M	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
539h	29 y M	salicylate	1	1	A	Ingst	Int-S	2		
		ethanol	2	2						
540ph	29 y M	hydrocodone	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		diphenhydramine	3	3						
541pa	29 y F	fentanyl analog	1	1	A	Par	Int-A	2		
		methadone	2	2						
542p	29 y F	oxycodone (extended release)	1	1	A	Ingst	Int-S	3		
543h	29 y F	acetaminophen	1	1	A	Ingst	Int-S	1		
		ethanol	2	2						
544h	29 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	2		
		acetaminophen/hydrocodone	2	2						
		quetiapine	3	3						
		lisdexamfetamine	4	4						
		zolpidem	5	5						
		alprazolam	6	6						
545h	29 y M	colchicine	1	1	A	Ingst	Int-S	1		
		amlodipine	2	2						
		atenolol	3	3						
		warfarin	4	4						
		lisinopril	5	5						
		benazepril/ hydrochlorothiazide	6	6						
		prednisone	7	7						
		simvastatin	8	8						
		lovastatin	9	9						
548ai	29 y M	fentanyl	1	1	U	Ingst + Unk	Int-A	2		
		methamphetamine	2	2						
		ethanol	3	3						
546ai	29 y M	fentanyl	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
547ai	29 y F	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
549ai	29 y M	ibuprofen	1	1	U	Unk	Int-S	1		
550ai	29 y F	oxycodone	1	1	U	Unk	Int-M	1		
		ethanol	2	2						
		cyclobenzaprine	3	3						
551a	30 y M	methadone	1	1	A	Ingst	Int-S	1	methadone	0.06 mg/L In Blood (unspecified) ⓐ Autopsy
		methadone	1	1					methadone	0.1 mg/L In Blood (unspecified) ⓐ Autopsy
		fentanyl	2	2					fentanyl	0.005 mg/L In Blood (unspecified) ⓐ Autopsy
		diazepam	3	3					nordiazepam	0.4 mg/L In Blood (unspecified) ⓐ Autopsy
552h	30 y F	acetaminophen/ diphenhydramine	1	1	U	Ingst	Int-S	1	diphenhydramine	1.1 mg/L In Blood (unspecified) ⓐ Unknown
		acetaminophen/ diphenhydramine	1	1					acetaminophen (apap)	28 mg/dL In Blood (unspecified) ⓐ Unknown
553pa	30 y F	acetaminophen/oxycodone	1	1	A	Ingst	Int-S	1	oxycodone	1891 ng/mL In Blood (unspecified) ⓐ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	220 mcg/mL In Blood (unspecified) ⓐ Unknown
		clonazepam	2	2					7-aminoclonazepam	21.6 mcg/mL In Blood (unspecified) ⓐ Unknown
		clonazepam	2	2					clonazepam	91.1 ng/mL In Blood (unspecified) ⓐ Unknown
		trazodone	3	3					trazodone	15.9 mcg/mL In Blood (unspecified) ⓐ Unknown
		ziprasidone	4	4						
		lamotrigine	5	5					lamotrigine	1.3 mcg/mL In Blood (unspecified) ⓐ Unknown
		omeprazole buspirone olanzapine	6 7 8	6 7 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		
554a	30 y F	lorazepam	9	9	A	Par	Unk	1				
		substance (non-drug), unknown	10	10								
		oxycodone	1	1							oxycodone	0.5 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	1	1							oxycodone	0.6 mg/L In Blood (unspecified) @ Autopsy
		methadone	2	2							methadone	0.1 mg/L In Blood (unspecified) @ Autopsy
		methadone	2	2							methadone	0.2 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	3	3							fentanyl	0.002 mg/L In Blood (unspecified) @ Autopsy
alprazolam	4	4	alprazolam	0.036 mg/L In Blood (unspecified) @ Autopsy								
tramadol	5	5	tramadol	0.3 mg/L In Blood (unspecified) @ Autopsy								
555h	30 y M	narcotic, other/unknown	1	1	A	Ingst	Int-A	1				
556pa	30 y M	lorazepam	2	2	A	Ingst	Int-A	1				
		alprazolam	3	3								
		fentanyl	1	1								
557ai	30 y M	fentanyl	1	1	U	Unk	Int-A	1				
558ai	30 y M	cocaine	2	2	U	Unk	Int-A	2				
		alprazolam	3	3								
		morphine	1	1								
559ai	30 y M	diazepam	2	2	U	Unk	Int-M	1				
		dextromethorphan	3	3								
		oxycodone	1	1								
560p	30 y M	trazodone	2	2	A	Unk	Int-M	2				
		sertraline	3	3								
		narcotic, other/unknown	1	1								
561ph	30 y M	narcotic, other/unknown	1	1	A	Par	Int-A	1				
562ai	30 y M	fentanyl	1	1	U	Unk	Int-A	1				
		heroin	2	2								
563ai	30 y M	acetaminophen	1	1	U	Unk	Int-A	1				
		methamphetamine	2	2								
		cocaine	3	3								
564ph	31 y M	fentanyl	1	1	A	Ingst	Int-S	2				
		cocaine	2	2								
565pha	31 y M	acetaminophen/diphenhydramine	1	1	U	Ingst + Unk	Unk	1				
		fentanyl	1	1							norfentanyl	18.6 ng/mL In Blood (unspecified) @ 30 m (pe)
		fentanyl	1	1							fentanyl	6.74 ng/mL In Blood (unspecified) @ 30 m (pe)
		Mitragyna speciosa korthals	2	2							mitragynine	21 ng/mL In Blood (unspecified) @ 30 m (pe)
		clonazepam	3	3							clonazepam	12 ng/mL In Blood (unspecified) @ 30 m (pe)
		clonazepam	3	3							7-aminoclonazepam	83 ng/mL In Blood (unspecified) @ 30 m (pe)
		alprazolam	4	4							alprazolam	0.25 mg/L In Blood (unspecified) @ 30 m (pe)
		cocaine	5	5							ecgonine methyl ester	0.07 mg/L In Blood (unspecified) @ 30 m (pe)
		cocaine	5	5							benzoylecgonine	0.31 mg/L In Blood (unspecified) @ 30 m (pe)
		diphenhydramine	6	6								
566pai	31 y M	diphenhydramine	6	6	A	Ingst + Unk	Int-A	1				
567ha	31 y F	carfentanil	1	1	C	Ingst	Int-M	1				
		ethanol	2	2								
568pa	31 y M	acetaminophen	1	1	A	Unk	Int-U	1				
569ai	31 y M	methadone	1	1	U	Unk	Int-A	1				
		morphine	2	2							methadone	0.4 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	3	3							morphine (free)	21 mcg/L In Blood (unspecified) @ Autopsy
											alprazolam	0.05 mg/L In Blood (unspecified) @ Autopsy
570pa	32 y M	fentanyl	1	1	A	Unk	Int-A	1				
		alprazolam	2	2								
		oxycodone	1	1					oxycodone	0.1 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
		ethanol	2	2					ethanol	0.07 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.09 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.12 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	2	2					ethanol	0.16 % (wt/Vol) In Urine (quantitative only) @ Autopsy
571ph	32 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	1		
		benzodiazepine	2	2						
572pha	32 y M	U-47700	1	1	C	Unk	Unk	1	u-47700	0.37 mg/L In Blood (unspecified) @ 1 h (pe)
		alprazolam	2	2					alprazolam	0.025 mg/L In Blood (unspecified) @ 1 h (pe)
		clonazepam	3	3					clonazepam	0.003 mg/L In Blood (unspecified) @ 1 h (pe)
		clonazepam	3	3					7-aminoclonazepam	0.012 mg/L In Blood (unspecified) @ 1 h (pe)
		human chorionic gonadotrophin	4	4						
573	32 y F	acetaminophen	1	1	A	Ingst	Int-S	1		
574pa	32 y F	fentanyl	1	1	A	Unk	Int-A	1	fentanyl	0.007 mg/L In Blood (unspecified) @ Autopsy
575p	32 y M	narcotic, other/unknown	1	1	A	Ingst + Aspir + Par	Int-A	1		
576h	32 y F	carfentanil	1	1	A	Unk	Int-A	2		
577ai	32 y M	fentanyl	1	1	U	Unk	Int-M	2		
		alprazolam	2	2						
578ai	32 y M	methadone	1	1	U	Unk	Int-A	2		
		citalopram	2	2						
579ph	32 y M	methadone	1	1	A	Ingst	Int-A	1		
		ethanol	2	2					ethanol	210 mg/dL In Blood (unspecified) @ Autopsy
580pha	32 y F	carfentanil	1	1	A	Unk	Int-A	1	carfentanil	0.1 ng/mL In Blood (unspecified) @ 1 h (pe)
		fentanyl analog (furanylfentanyl)	2	2					furanyl fentanyl	0.12 ng/mL In Blood (unspecified) @ 1 h (pe)
		narcotic, other/unknown	3	3					despropionyl fentanyl (4-anpp)	0.57 ng/mL In Blood (unspecified) @ 1 h (pe)
		cocaine	4	4					cocaine	0.12 mg/L In Blood (unspecified) @ 1 h (pe)
		cocaine	4	4					benzoylcognine	2.84 mg/L In Blood (unspecified) @ 1 h (pe)
		trazodone	5	5					trazodone	0.1 mcg/mL In Blood (unspecified) @ 1 h (pe)
581h	32 y F-Pregnant	narcotic, other/unknown	1	1	A/C	Par	Int-S	2		
		alprazolam	2	2						
582ai	32 y M	fentanyl	1	1	U	Unk	Int-A	1		
583ai	32 y M	methadone	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
585ai	32 y M	methadone	1	1	U	Unk	Int-A	1		
		clonazepam	2	2						
		buprenorphine	3	3						
586ai	32 y M	methadone	1	1	U	Unk	Int-A	1		
584ai	32 y F	methadone	1	1	U	Unk	Int-A	1		
587h	32 y F	acetaminophen	1	1	C	Ingst	Unt-U	2	acetaminophen (apap)	64 mcg/mL In Serum @ 24 h (pe)
588p	33 y M	fentanyl	1	1	A/C	Unk	Int-A	1		
		heroin	2	2						
		ethanol	3	3						
589pai	33 y F	carfentanil	1	1	A	Ingst + Unk	Int-A	1		
		ethanol	2	2						
590pa	33 y M	fentanyl	1	1	U	Unk	Int-A	1	fentanyl	0.024 mg/L In Blood (unspecified) @ Autopsy
		fentanyl analog (4-fluoroisobutyrfentanyl)	2	2						
		ethanol	3	3					ethanol	0.18 % (wt/Vol) 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
591ai	33 y M	ethanol	3	3	U	Ingst + Unk	Int-A	1	ethanol	0.19 % (wt/Vol) In Vitreous @ Autopsy 0.24 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		ethanol	3	3					ethanol	
		fentanyl	1	1						
592ai	33 y M	alprazolam	2	2	U	Unk	Int-A	2		
		ethanol	3	3						
		fentanyl	1	1						
593pai	33 y M	oxycodone	2	2	A	Unk	Int-A	1		
		cocaine	3	3						
		fentanyl analog	1	1						
594h	33 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	76 mg/L In Blood (unspecified) @ 30 m (pe)
595ai	33 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		diazepam	2	2						
597ai	33 y M	cocaine	3	3	U	Unk	Int-A	1		
		fentanyl	1	1						
		heroin	2	2						
596ai	33 y M	methamphetamine	3	3	U	Unk	Int-A	2		
		fentanyl	1	1						
598ph	33 y M				A/C	Ingst	Int-A	2		
		narcotic, other/unknown drug, unknown	1	1						
		ethanol	2	2						
599pai	34 y M				A	Unk	Int-A	3	ethanol	370 mg/dL In Blood (unspecified) @ Unknown
		methadone	1	1					methadone	0.7 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.8 mg/L In Blood (unspecified) @ Autopsy
600h	34 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	142.8 mcg/mL In Blood (unspecified) @ Unknown
601h	34 y M	warfarin	2	2	U	Ingst	Int-S	2		
		drug, unknown	3	3						
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	26 mcg/mL In Serum @ Unknown
602pha	34 y F				A/C	Unk	Int-U	1		
603pha	34 y M	fentanyl	1	1	A	Ingst	Int-S	1		
		alprazolam	2	2						
		acetaminophen	1	1					acetaminophen (apap)	699 mcg/mL In Blood (unspecified) @ Unknown
604pai	34 y F	venlafaxine	2	2	A	Unk	Int-A	1		
		trazodone	3	3						
		beta blocker	4	4						
		calcium antagonist	5	5						
		phenytoin	6	6						
605ph	34 y M	carfentanil	1	1	U	Ingst + Unk	Int-A	2		
		narcotic, other/unknown	2	2						
		methamphetamine	3	3						
606ai	34 y M	drug, unknown stimulant or street drug	3	3	U	Unk	Int-A	1		
		marijuana	4	4						
		fentanyl	1	1						
		heroin	2	2						
607ai	34 y F	ethanol	3	3	U	Unk	Int-A	1		
		oxycodone	1	1						
		trazodone	2	2						
608pha	34 y F	gabapentin	3	3	A	Ingst	Int-S	2		
		promethazine	4	4						
		methadone	1	1					nordiazepam	0.056 mg/L In Plasma @ Autopsy
		diazepam	2	2					oxazepam	0.559 mg/L In Urine (quantitative only) @ Autopsy
		diazepam	2	2					tramadol	0.077 mg/L In Blood (unspecified) @ Autopsy
609h	34 y F	temazepam	4	4	A	Ingst	Int-S	1	temazepam	0.102 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	168 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
611ai	34 y M	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
610ai	34 y M	fentanyl	1	1	U	Ingst + Unk	Int-A	1		
		tramadol	2	2						
		ethanol	3	3						
612ai	34 y F	morphine	1	1	U	Unk	Int-A	2		
		fluoxetine	2	2						
		promethazine	3	3						
613ai	34 y M	oxycodone	1	1	U	Unk	Unk	2		
		hydrocodone	2	2						
		alprazolam	3	3						
614pa	35 y F	tramadol	1	1	U	Ingst	Int-S	2	tramadol	2900 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	2	2					gabapentin	11.8 mcg/mL In Blood (unspecified) @ Autopsy
		methadone	3	3						
		pregabalin	4	4						
615ha	35 y M	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2	hydrocodone	0.12 mcg/mL In Blood (unspecified) @ 3 d (pe)
		benzodiazepine	2	2						
		cyclic antidepressant, unknown	3	3						
616h	35 y F	acetaminophen	1	1	A/C	Ingst	Unt-M	1	acetaminophen (apap)	118 mcg/mL In Blood (unspecified) @ Unknown
617ha	35 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	143 mg/L In Plasma @ Unknown
618	35 y F	tramadol	1	1	A/C	Ingst	Int-S	2		
		sodium oxybate	2	2						
619ai	35 y F	fentanyl	1	1	U	Unk	Int-M	1		
		clonazepam	2	2						
620ai	35 y M	fentanyl	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
			3	3						methylenedioxymethamphetamine (MDMA)
621ai	35 y M	fentanyl	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		amphetamine	3	3						
622ai	35 y F	morphine	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		clonazepam	3	3						
623ai	35 y M	salicylate	1	1	U	Unk	Int-U	1		
		sertraline	2	2						
624pai	35 y M	oxycodone	1	1	A	Unk	Int-A	1	oxycodone	0.9 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	1	1					oxycodone	1.1 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	2	2						
		fentanyl analog (4-fluoroisobutyrfentanyl)	3	3						
		amphetamine	4	4					amphetamine	0.2 mg/L In Blood (unspecified) @ Autopsy
		cyclobenzaprine	5	5					cyclobenzaprine	0.1 mg/L In Blood (unspecified) @ Autopsy
625pi	35 y M	fentanyl	1	1	A	Par	Int-A	1		
626ai	35 y M	fentanyl	1	1	A	Unk	Int-A	1		
		oxycodone	2	2						
		alprazolam	3	3						
627ai	35 y M	methadone	1	1	U	Unk	Int-A	2		
		hydrocarbon (fluorinated)	2	2						
628ai	35 y F	morphine	1	1	U	Unk	Unk	2		
		gabapentin	2	2						
		cyclobenzaprine	3	3						
629ai	35 y F	oxycodone	1	1	U	Unk	Int-A	2		
		THC homolog	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
630ai	35 y M	oxycodone	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		lorazepam	3	3						
631ai	35 y F	salicylate	1	1	U	Unk	Unt-M	2		
		diphenhydramine	2	2						
		trimethoprim	3	3						
632ai	35 y M	tramadol	1	1	U	Ingst + Unk	Int-A	1		
		oxycodone	2	2						
		ethanol	3	3						
633p	36 y F	tramadol	1	1	A	Ingst	Int-S	2	tramadol	251 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	3	2					clonazepam	13 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	3	2					7-aminoclonazepam	87 ng/mL In Blood (unspecified) @ Autopsy
		trazodone	2	2					trazodone	971 ng/mL In Blood (unspecified) @ Autopsy
		lorazepam	4	3						
		buprenorphine	5	4						
634pi	36 y M	fentanyl	1	1	A	Par	Int-A	2		
635ph	36 y M	fentanyl (transdermal)	1	1	A	Ingst	Int-U	1		
		ethanol	2	2					ethanol	245 mg/dL In Serum @ Unknown
636a	36 y M	fentanyl	1	1	A	Unk	Int-A	1	fentanyl	0.001 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.002 mg/L In Blood (unspecified) @ Unknown
		diphenhydramine	2	2					diphenhydramine	0.07 mg/L In Blood (unspecified) @ Autopsy
637pha	36 y M	acetaminophen/ butalbital/caffeine	1	1	U	Ingst	Unk	3	acetaminophen (apap)	16 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/ butalbital/caffeine	1	1					butalbital	6.3 mcg/mL In Blood (unspecified) @ Unknown
		buprenorphine/naloxone (sublingual tablet)	2	2						
		marijuana	3	3					delta-9-thc	4.3 ng/mL In Blood (unspecified) @ Unknown
638	36 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	33 mcg/mL In Blood (unspecified) @ Unknown
		bupropion	2	2						
639	36 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	48 mcg/mL In Blood (unspecified) @ Unknown
640ai	36 y M	fentanyl	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		alprazolam	3	3						
641ai	36 y M	methadone	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
642ai	36 y M	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		amitriptyline	3	3						
643h	36 y F	acetaminophen/ diphenhydramine	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	72 mg/L In Serum @ 1 h (pe)
		drug, unknown	2	2						
644ai	36 y M	fentanyl	1	1	U	Unk	Int-A	2		
		diazepam	2	2						
645ai	36 y M	fentanyl	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		zolpidem	3	3						
646ai	36 y M	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
647ai	36 y M	hydromorphone	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
648ai	36 y F	salicylate	1	1	U	Unk	Unk	1		
		isopropanol	2	2						
649ai	36 y F	salicylate	1	1	U	Unk	Unk	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
650h	37 y M	ibuprofen ethanol	1 2	1 2	A	Ingst	Int-S	2		
									ethanol	13.3 mg/dL In Blood (unspecified) @ Unknown
651	37 y M	acetaminophen/ diphenhydramine	1	1	A	Ingst	Int-S	2		
652h	37 y M	acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/oxycodone acetaminophen/hydrocodone	1 1 1 1 1 1 1 1 2	1 1 1 1 1 1 1 1 2	C	Ingst	Int-U	3	acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap) acetaminophen (apap)	20 mg/dL In Serum @ 26.5 h (pe) 21 mg/dL In Serum @ 32.5 h (pe) 27 mg/dL In Serum @ 22 h (pe) 41 mg/dL In Serum @ 17 h (pe) 44 mg/dL In Serum @ 15 h (pe) 49 mg/dL In Serum @ 12 h (pe) 89 mg/dL In Serum @ 5 m (pe)
653ai	37 y F	oxycodone diazepam baclofen fentanyl	1 2 3 4	1 2 3 4	U	Unk	Int-M	1		
654	37 y M	acetaminophen acetaminophen ibuprofen diphenhydramine	1 1 2 3	1 1 2 3	A	Ingst	Int-S	2	acetaminophen (apap) acetaminophen (apap)	39.5 mcg/mL In Blood (unspecified) @ 16 h (pe) 53 mcg/mL In Blood (unspecified) @ 1 h (pe)
655	37 y F	acetaminophen	1	1	A	Ingst	Int-S	1		
656	37 y F	acetaminophen	1	1	U	Ingst	Int-M	2	acetaminophen (apap)	116 mcg/mL In Blood (unspecified) @ Unknown
657ai	37 y M	fentanyl alprazolam	1 2	1 2	U	Unk	Int-A	1		
658ai	37 y F	methadone dextromethorphan doxylamine	1 2 3	1 2 3	U	Unk	Unk	3		
659ai	37 y F	methadone	1	1	U	Unk	Int-A	1		
660ai	37 y M	oxycodone alprazolam bupropion	1 2 3	1 2 3	U	Unk	Int-A	2		
661h	38 y M	acetaminophen ethanol	1 2	1 2	C	Ingst	Int-M	1	acetaminophen (apap)	64 mcg/mL In Serum @ Unknown
662h	38 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	54 mcg/mL In Blood (unspecified) @ Unknown
663pa	38 y M	ethanol methadone	2 1	2 1	A	Unk	Unk	2	methadone	0.3 mg/L In Blood (unspecified) @ Autopsy
665ai	38 y M	fentanyl oxycodone gabapentin	1 2 3	1 2 3	U	Ingst + Unk	Int-U	2		
664ai	38 y M	fentanyl	1	1	U	Unk	Int-A	1		
666ai	38 y F	methadone sertraline	1 2	1 2	U	Unk	Int-A	1		
667	38 y F	acetaminophen	1	1	U	Ingst + Unk	Int-U	3	acetaminophen (apap)	28 mcg/mL In Blood (unspecified) @ Unknown
668ai	38 y M	acetaminophen ethanol hydrocodone	1 2 3	1 2 3	U	Unk	Int-A	1		
673ai	38 y M	fentanyl oxycodone ethanol	1 2 3	1 2 3	U	Unk	Int-A	2		
669ai	38 y M	fentanyl heroin	1 2	1 2	U	Unk	Int-A	1		
671ai	38 y F	fentanyl oxycodone dextromethorphan	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
672ai	38 y M				U	Ingst + Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
		alcohol, unknown	3	3						
670ai	38 y M				U	Unk	Int-A	2		
		fentanyl	1	1						
		oxycodone	2	2						
674ai	38 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		benzodiazepine	2	2						
		ethanol	3	3						
675ai	38 y F				U	Unk	Unk	2		
		narcotic, other/unknown	1	1						
		benzodiazepine	2	2						
		skeletal muscle relaxant	3	3						
676ha	39 y M				A	Ingst	Int-S	2		
		tramadol	1	1						
		acetaminophen/hydrocodone	2	2						
		eszopiclone	3	3						
		alprazolam	4	4						
		ethanol	5	5						
677pha	39 y F				A	Ingst	Int-S	1		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	247 mcg/mL In Serum @ Unknown
		brompheniramine/ phenylpropanolamine	2	2						
		ethanol	3	3					ethanol	105 mg/dL In Blood (unspecified) @ Autopsy
678ph	39 y F				A	Ingst	Unk	2		
		acetaminophen/oxycodone	1	1						
		acetaminophen/hydrocodone	2	2						
		alprazolam	3	3						
		diphenhydramine	4	4						
		diphenhydramine	5	5						
679pha	39 y F				A	Ingst	Int-U	2		
		morphine	1	1					morphine	0.455 mcg/mL In Urine (quantitative only) @ Autopsy
		oxycodone	2	2					oxycodone	0.991 mcg/mL In Urine (quantitative only) @ Autopsy
		oxymorphone	3	3					oxymorphone	0.265 mcg/mL In Urine (quantitative only) @ Autopsy
		cocaine	4	4						
		cyclic antidepressant, unknown	5	5						
		benzodiazepine	6	6						
		vortioxetine	7	7						
684ai	39 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		baclofen	2	2						
		cyclobenzaprine	3	3						
680ai	39 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
683ai	39 y M				U	Unk	Int-S	2		
		fentanyl	1	1						
		bupropion	2	2						
		ketamine	3	2						
		propofol	4	3						
681ai	39 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
682ai	39 y M				U	Unk	Unk	1		
		fentanyl	1	1						
		oxycodone	2	2						
		ethanol	3	3						
685ai	39 y M				U	Ingst + Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
		ethanol	3	3						
686h	39 y M				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	120 mcg/mL In Serum @ Unknown
		ethanol	2	2						
687pha	40 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	9.2 mcg/mL In Blood (unspecified) @ 1 h (pe)
		morphine	2	2					morphine (free)	0.05 mg/L In Blood (unspecified) @ 1 h (pe)
		morphine	2	2					morphine	0.62 mg/L In Blood (unspecified) @ 1 h (pe)
		codeine	3	3					codeine	0.04 mg/L In Blood (unspecified) @ 1 h (pe)
688pa	40 y M				A	Unk	Int-U	1		
		morphine	1	1					morphine (free)	380 mcg/L In Blood (unspecified) @ Autopsy
		alprazolam	2	2					alprazolam	0.09 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
689pai	40 y M	fentanyl	1	1	A	Par	Int-A	1	fentanyl	0.034 mg/L In Blood (unspecified) @ Autopsy
690h	40 y F	acetaminophen	1	1	U	Ingst	Int-U	2		
691ai	40 y M	ethanol	2	2	U	Unk	Int-A	1		
692i	40 y F	fentanyl	1	1	U	Unk	Int-U	1		
		oxycodone	2	2						
		alprazolam	3	3						
693ai	40 y F	oxycodone	1	1	U	Unk	Int-S	1		
		oxymorphone	2	2						
		quetiapine	3	3						
694ai	40 y F	oxycodone	1	1	U	Unk	Unk	2		
		gabapentin	2	2						
		cyclobenzaprine	3	3						
		bupropion	4	4						
695ai	40 y F	oxymorphone	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
		lorazepam	3	3						
696ai	40 y F	oxycodone	1	1	U	Unk	Int-S	1		
		gabapentin	2	2						
		cyclobenzaprine	3	3						
697ha	41 y M	acetaminophen	2	1	C	Ingst	Int-A	1	acetaminophen (apap)	59 mcg/mL In Serum @ 1 h (pe)
		ethanol	1	1					ethanol	110 mg/dL In Blood (unspecified) @ Autopsy
		ethanol	1	1					ethanol	173 mg/dL In Serum @ 1 h (pe)
		salicylate	3	3					salicylate	9.3 mg/dL In Serum @ 1 h (pe)
698h	41 y M	acetaminophen	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	145 mcg/mL In Serum @ 2 d (pe)
		salicylate	2	2						
		ethanol	3	3						
699pai	41 y F	fentanyl	1	1	A	Par	Int-A	1		
		heroin	2	2						
700pai	41 y M	fentanyl	1	1	A	Par	Int-A	1		
701ai	41 y M	fentanyl	1	1	U	Unk	Int-A	1		
702ai	41 y M	fentanyl	1	1	U	Unk	Int-A	1		
		methadone	1	1						
		diazepam	2	2						
		oxycodone	3	3						
703pa	41 y M	fentanyl	1	1	A	Par	Int-A	1	fentanyl	8 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	2					6-mam (6-monoacetylmorphine)	4.3 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	2					morphine	47.6 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	3	3					gabapentin	10.8 mcg/mL In Blood (unspecified) @ Autopsy
704	41 y M	acetaminophen	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	194 mcg/mL In Blood (unspecified) @ 1 d (pe)
		venlafaxine	2	2						
705	41 y F	salicylate	1	1	U	Unk	Int-S	2	salicylate	58 mg/dL In Blood (unspecified) @ Unknown
706ai	41 y F	fentanyl	1	1	U	Unk	Int-S	1		
		bupropion	2	2						
		fluoxetine	3	3						
707ai	41 y M	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		methamphetamine	3	3						
708ai	41 y F	methadone	1	1	U	Unk	Int-A	2		
710ai	41 y F	methadone	1	1	U	Unk	Int-A	1		
		morphine	1	1						
		hydromorphone	2	2						
		butalbital	3	3						
711ai	41 y M	morphine	1	1	A	Unk	Unk	1		
		oxycodone	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
709ai	41 y F	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		oxymorphone	3	3						
712h	41 y F	acetaminophen/hydrocodone	1	1	C	Ingst	Int-U	1	acetaminophen (apap)	10.1 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	41 mcg/mL In Blood (unspecified) @ 5.5 h (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	54 mcg/mL In Blood (unspecified) @ 15 m (pe)
		ethanol	2	2					ethanol	94 mg/dL In Blood (unspecified) @ Unknown
		salicylate	3	3					salicylate	12.4 mg/dL In Blood (unspecified) @ Unknown
713ha	42 y F	acetaminophen	1	1	C	Ingst	Unt-M	1	acetaminophen (apap)	16 mcg/mL In Blood (unspecified) @ Unknown
714	42 y M	salicylate	1	1	A	Ingst	Int-S	1		
715h	42 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	2		
		diazepam	2	2						
716	42 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	3.1 mcg/mL In Blood (unspecified) @ Unknown
		warfarin	2	2						
717	42 y M	tramadol	1	1	U	Ingst	Int-S	2		
		oxcarbazepine	2	2						
718ai	42 y M	oxycodone	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
		alprazolam	3	3						
719ai	42 y M	oxycodone	1	1	U	Unk	Int-M	1		
		clonazepam	2	2						
		quetiapine	3	3						
720ha	42 y F	acetaminophen/hydrocodone	1	1	C	Ingst	Unk	3	hydrocodone	24 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	290 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	323 mcg/mL In Blood (unspecified) @ Unknown
721ha	42 y F	tramadol	1	1	A/C	Ingst	Int-S	1		
		propranolol	2	2						
		escitalopram	3	3						
		gabapentin	4	4						
		ethanol	5	5						
722	42 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	20 mcg/mL In Serum @ Unknown
		sumatriptan	2	2						
		diphenhydramine	3	3						
		benzodiazepine	4	4						
723ai	42 y F	fentanyl	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol	3	3						
724	43 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	21.8 mcg/mL In Blood (unspecified) @ 3 d (pe)
725h	43 y F	oxycodone	1	1	A/C	Ingst	Int-A	2		
726pi	43 y F	carfentanil	1	1	A	Unk	Int-A	1		
727ai	43 y M	methadone	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
		diazepam	3	3						
728ai	43 y M	fentanyl	1	1	U	Unk	Int-A	2		
729ai	43 y M	fentanyl	1	1	U	Unk	Int-A	1		
730ai	43 y M	morphine	1	1	U	Ingst + Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol	3	3						
731pi	44 y F	fentanyl	1	1	A	Par	Int-A	2		
732pai	44 y M	fentanyl	1	1	A	Ingst + Par	Int-A	1	fentanyl	18.5 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					diazepam	0.47 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
733pa	44 y M	methadone	1	1	A	Unk	Unk	1	methadone	1.7 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	4.5 mg/L In Blood (unspecified) @ Autopsy
734h	44 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	0 mcg/mL In Blood (unspecified) @ Unknown
735ph	44 y F	oxycodone	1	1	A	Ingst	Int-S	2		
		methadone	2	2						
		zolpidem	3	3						
		ethanol	4	4						
736ai	44 y M	fentanyl	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		acetaminophen/hydrocodone	3	3						
737pa	44 y F	methadone	1	1	A	Unk	Int-A	1	methadone	0.4 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.7 mg/L In Blood (unspecified) @ Autopsy
		hydroxyzine	2	2					hydroxyzine	2.1 mg/L In Blood (unspecified) @ Autopsy
		hydroxyzine	2	2					hydroxyzine	3.3 mg/L In Blood (unspecified) @ Autopsy
		trazodone	3	3					trazodone	3.3 mg/L In Blood (unspecified) @ Autopsy
		trazodone	3	3					trazodone	3.8 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	4	4					alprazolam	0.1 mg/L In Blood (unspecified) @ Autopsy
738h	44 y M	narcotic, other/unknown	1	1	U	Ingst	Int-S	2		
		ethanol	2	2					ethanol	100 mg/dL In Serum @ 30 m (pe)
739h	44 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	614 mcg/mL In Blood (unspecified) @ Unknown
		temazepam	2	2						
740ai	44 y M	fentanyl	1	1	U	Ingst + Unk	Int-A	1		
		alprazolam	2	2						
		ethanol	3	3						
741ai	44 y F	morphine	1	1	U	Ingst + Unk	Unk	2		
		hydromorphone	2	2						
		ethanol	3	3						
742ai	44 y M	oxycodone	1	1	U	Unk	Unk	1		
		nortriptyline	2	2						
		morphine	3	3						
743ph	45 y M	narcotic, other/unknown	1	1	C	Par	Int-A	1		
744ai	45 y F	codeine	1	1	U	Unk	Int-S	1		
		acetaminophen	2	2						
		alprazolam	3	3						
745ai	45 y M	fentanyl	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		methamphetamine	3	3						
746ai	45 y M	oxycodone	1	1	U	Unk	Unk	2		
		oxymorphone	2	2						
		ethanol	3	3						
747ai	45 y M	acetaminophen	1	1	U	Unk	Unk	2		
		citalopram	2	2						
		diphenhydramine	3	3						
748ai	45 y M	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
749ai	45 y F	methadone	1	1	U	Unk	Unk	2		
		fluoxetine	2	2						
		paroxetine	3	3						
750ai	45 y M	oxycodone	1	1	U	Ingst + Unk	Int-A	1		
		alcohol, unknown	2	2						
751a	46 y F	acetaminophen	1	1	U	Ingst + Par	Int-S	1	acetaminophen (apap)	66 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	80 mcg/mL In Blood (unspecified) @ 1 d (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
		venlafaxine	2	2					o-desmethyl-venlafaxine	0.21 mcg/mL In Blood (unspecified) @ 1 d (pe)
		venlafaxine	2	2					venlafaxine	0.87 mcg/mL In Blood (unspecified) @ 1 d (pe)
		olanzapine	3	3					olanzapine	0.066 mcg/mL In Blood (unspecified) @ 1 d (pe)
		drain cleaner	4	4						
		insulin	5	5						
752pha	46 y F				U	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1						
		oxycodone	2	2						
753pha	46 y F				U	Ingst	Int-S	1		
		butalbital/caffeine/ codeine/salicylate	1	1					salicylate	17 mg/dL In Serum @ Unknown
		butalbital/caffeine/ codeine/salicylate	1	1					butalbital	2.6 mcg/mL In Serum @ Unknown
		clonazepam	2	2						
		drug, unknown	3	3						
754p	46 y F				A/C	Par	Int-A	1		
		carfentanil	1	1					carfentanil	1.2 ng/mL In Blood (unspecified) @ Autopsy
		methadone	2	2					methadone	110 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	3	3						
		methamphetamine	4	4						
755h	46 y M				A	Ingst	Unk	3		
		acetaminophen	1	1						
756pa	46 y F				A	Unk	Unk	1		
		fentanyl	1	1					fentanyl	0.017 mg/L In Blood (unspecified) @ Autopsy
757	46 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	95.2 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	2	2					salicylate	13.2 mg/dL In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	26 mg/dL In Blood (unspecified) @ Unknown
758ai	46 y F				U	Unk	Int-A	1		
		acetaminophen	1	1						
		methamphetamine	2	2						
		methadone	3	3						
760ai	46 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		tramadol	2	2						
		lorazepam	3	3						
761ai	46 y M				U	Unk	Int-A	2		
		fentanyl	1	1						
		cocaine	2	2						
		alprazolam	3	3						
759ai	46 y F				U	Ingst + Unk	Int-M	2		
		fentanyl	1	1						
		oxycodone	2	2						
		nortriptyline	3	3						
762ai	46 y M				U	Unk	Int-A	2		
		hydrocodone	1	1						
		diazepam	2	2						
		hydromorphone	3	3						
763ai	46 y M				U	Unk	Int-A	1		
		oxycodone	1	1						
		alprazolam	2	2						
		carisoprodol	3	3						
765ai	46 y M				U	Unk	Int-A	2		
		oxycodone	1	1						
		alprazolam	2	2						
		diazepam	3	3						
764ai	46 y F				U	Ingst + Unk	Int-A	1		
		oxycodone	1	1						
		diazepam	2	2						
		alcohol, unknown	3	3						
766h	47 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	252 mcg/mL In Serum @ Unknown
		clonazepam	2	2						
767h	47 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	44.4 mcg/mL In Blood (unspecified) @ Unknown
768	47 y F				A	Ingst	Int-U	2		
		acetaminophen	1	1						
769ph	47 y F				U	Unk	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	108 mcg/mL In Blood (unspecified) @ Unknown
		oxycodone	2	2						
770	47 y F				C	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen (apap)	166 mcg/mL In Serum @ Unknown
771pa	47 y F				A	Ingst + Unk	Int-A	1		
		methadone	1	1					methadone	0.5 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
		methadone	1	1					methadone	0.6 mg/L In Blood (unspecified) ⓐ Autopsy
		cocaine	2	2					benzoyllecognine	1.2 mg/L In Blood (unspecified) ⓐ Autopsy
		cyclobenzaprine	3	3					cyclobenzaprine	0.09 mg/L In Blood (unspecified) ⓐ Autopsy
772	47 y F	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	770 mcg/mL In Serum ⓐ Unknown
		ethanol (non-beverage)	2	2						
773h	47 y F	oxycodone	1	1	U	Ingst	Int-S	2		
		lorazepam	2	2						
774pai	47 y M	fentanyl	1	1	A/C	Ingst + Inhal + Par	Int-A	1		
		cocaine	2	2						
		chlordiazepoxide	3	3						
		ethanol	4	4						
775ai	47 y F	oxycodone	1	1	U	Unk	Int-M	2		
		diltiazem	2	2						
776ai	47 y F	oxycodone	1	1	U	Unk	Unt-U	3		
		diphenhydramine	2	2						
		dicyclomine	3	3						
777	47 y F	acetaminophen	1	1	A/C	Ingst	Unt-T	3		
		nonsteroidal antiinflammatory drug	2	2						
778h	47 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-U	2	acetaminophen (apap)	37.9 mcg/mL In Plasma ⓐ Unknown
		acetaminophen/hydrocodone	1	1					hydrocodone	81 ng/mL In Whole Blood ⓐ 9 h (pe)
		lorazepam	2	2						
		trazodone	3	3						
782ai	47 y M	fentanyl	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		methamphetamine	3	3						
779ai	47 y M	fentanyl	1	1	U	Ingst + Unk	Unk	1		
		oxycodone	2	2						
		sertraline	3	3						
		ethanol	4	4						
781ai	47 y M	fentanyl	1	1	U	Unk	Int-A	2		
		alprazolam	2	2						
780ai	47 y M	fentanyl	1	1	A	Unk	Int-A	1		
		dipyrrone	2	2						
783ai	47 y M	methadone	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
784ai	47 y F	morphine	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
		lorazepam	3	3						
785ai	47 y F	oxycodone	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
		trazodone	3	3						
786ph	47 y M	tramadol	1	1	U	Unk	Int-A	2		
787h	48 y F	acetaminophen	1	1	C	Ingst	Int-M	1		
		methadone	2	2						
788ha	48 y M	salicylate	1	1	U	Ingst	Int-S	1		
789ha	48 y M	salicylate	1	1	U	Ingst	Int-S	1	salicylate	107 mg/dL In Blood (unspecified) ⓐ Unknown
790	48 y F	morphine (extended release)	1	1	A/C	Ingst	Int-S	2		
791	48 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	17.7 mcg/mL In Serum ⓐ Unknown
792ha	48 y F	acetaminophen	1	1	C	Ingst	Int-M	3		
		ethanol	2	2						
793pi	48 y F	carfentanil	1	1	A	Par	Int-A	2	nortriptyline	147 ng/mL In Blood (unspecified) ⓐ Autopsy
		amitriptyline	2	2					amitriptyline	321 ng/mL In Blood (unspecified) ⓐ Autopsy
		amitriptyline	2	2						
794pai	48 y F	fentanyl	1	1	A	Par	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
795ai	48 y M	methadone	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		methamphetamine	3	3						
796ai	48 y M	morphine	1	1	A	Unk	Int-S	1		
		oxycodone	2	2						
		clonazepam	3	3						
797h	48 y M	acetaminophen	1	1	C	Ingst	Unt-T	2	acetaminophen (apap)	45 mcg/mL In Serum @ Unknown
		nitroglycerin	2	2						
798ph	48 y M	acetaminophen/hydrocodone drug, unknown	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	28 mcg/mL In Serum @ 30 m (pe)
			2	2						
799h	48 y M	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	30 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ethanol	2	2					ethanol	192.2 mg/dL In Blood (unspecified) @ 1 h (pe)
800ai	48 y F	methadone	1	1	U	Unk	Int-A	2		
		sertraline	2	2						
		methamphetamine	3	3						
801ai	48 y M	morphine	1	1	U	Unk	Int-U	2		
802ai	48 y F	oxycodone	1	1	U	Unk	Unk	1		
		venlafaxine	2	2						
		clonazepam	3	3						
803pha	49 y M	fentanyl	1	1	A	Ingst	Int-U	1	fentanyl	18 ng/mL In Bile @ Autopsy
		fentanyl	1	1					fentanyl	3.9 ng/mL In Whole Blood @ Autopsy
		fentanyl	1	1					fentanyl	6.5 ng/mL In Whole Blood @ Autopsy
		hydrocodone	2	2					hydrocodone (free)	60 ng/mL In Bile @ Autopsy
		methamphetamine	3	3					methamphetamine	110 ng/mL In Bile @ Autopsy
804pai	49 y F	fentanyl	1	1	A	Par	Int-A	1	fentanyl	1.9 ng/mL In Blood (unspecified) @ Autopsy
805h	49 y M	acetaminophen	1	1	A/C	Ingst	Int-M	1	acetaminophen (apap)	68 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	80 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
806ph	49 y F	oxycodone	1	1	A/C	Ingst	Int-S	2		
807ai	49 y M	methadone	1	1	U	Unk	Int-M	1		
		alprazolam	2	2						
		venlafaxine	3	3						
808ai	49 y F	morphine	1	1	U	Unk	Unk	1		
		oxycodone	2	2						
		gabapentin	3	3						
809ai	49 y M	oxycodone	1	1	U	Unk	Int-A	1		
810ha	49 y F	acetaminophen	1	1	A	Ingst	Unt-M	1	acetaminophen (apap)	22 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	27 mg/L In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	48 mg/dL In Blood (unspecified) @ Unknown
		salicylate	3	3					salicylate	7.4 mg/dL In Blood (unspecified) @ Unknown
811pha	49 y M	narcotic, other/unknown	1	1	U	Unk	Int-A	1		
812pa	49 y F	methadone	1	1	A/C	Ingst	Int-S	1	methadone	130 ng/mL In Serum @ Unknown
		clonazepam	2	2					7-aminoclonazepam	5.5 ng/mL In Serum @ Unknown
		clozapine	3	3					clozapine	800 ng/mL In Serum @ Unknown
		zolpidem	4	4					zolpidem	92 ng/mL In Serum @ Unknown
		mirtazapine	5	5						
		propranolol	6	6						
		benztropine	7	7						
		lithium	8	8						
		loratadine	9	9						
		thiamine	10	10						
		melatonin	11	11						
813ph	49 y F	tramadol	1	1	A/C	Ingst	Int-S	2		
814ai	49 y F	hydromorphone	1	1	U	Unk	Unk	1		
		diphenhydramine	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
815ai	49 y F	narcotic, other/unknown	1	1	U	Unk	Unk	2		
		benzodiazepine	2	2						
		cyclic antidepressant, unknown	3	3						
816ai	49 y F				U	Unk	Int-A	1		
		narcotic, other/unknown	1	1						
		benzodiazepine	2	2						
		cyclic antidepressant, unknown	3	3						
818ai	49 y M				U	Unk	Int-A	2		
		oxycodone	1	1						
		cocaine	2	2						
817ai	49 y F				U	Unk	Int-A	2		
		oxycodone	1	1						
819h	50 y M				A/C	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	52.4 mg/L In Serum @ 1 h (pe)
		diazepam	2	2						
		ethanol	3	3					ethanol	207 mg/dL In Serum @ 1 h (pe)
820pa	50 y F				U	Ingst	Int-S	2		
		fentanyl	1	1						
		methamphetamine	2	2						
		citalopram	3	3						
		promethazine	4	4						
821	50 y F				U	Ingst	Int-U	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	83 mcg/mL In Blood (unspecified) @ Unknown
		cyclobenzaprine	2	2						
822h	50 y F				A	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1						
		zolpidem	2	2						
		benzodiazepine	3	3						
823	50 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	35.8 mg/dL In Blood (unspecified) @ 1 h (pe)
		salicylate	1	1					salicylate	58 mg/dL In Blood (unspecified) @ 6 h (pe)
		salicylate	1	1					salicylate	61.9 mg/dL In Blood (unspecified) @ 10 h (pe)
		salicylate	1	1					salicylate	68.2 mg/dL In Blood (unspecified) @ 3 h (pe)
		ibuprofen	2	2						
		ethanol	3	3					ethanol	53 mg/dL In Blood (unspecified) @ 1 h (pe)
824ha	50 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	189 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
825	50 y M				A	Ingst	Int-S	1		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	88 mcg/mL In Blood (unspecified) @ 30 m (pe)
826pha	50 y F				A	Ingst	Int-S	2		
		oxycodone	1	1						
		lorazepam	2	2						
		alprazolam	3	3						
		acetaminophen	4	4					acetaminophen (apap)	74 mcg/mL In Serum @ Unknown
827ai	50 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		hydrocodone	2	2						
		diphenhydramine	3	3						
828ai	50 y M				U	Unk	Int-S	1		
		tramadol	1	1						
		methamphetamine	2	2						
829ha	50 y F				A	Ingst	Int-S	3		
		acetaminophen/oxycodone	1	1					oxymorphone	4 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					clonazepam	4.1 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					7-aminoclonazepam	44 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					oxycodone (free)	440 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					nortriptyline	45 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	52 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					pseudoephedrine	680 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	2						
		nortriptyline	3	3						
830h	50 y F				A	Ingst	Int-S	2		
		tramadol	1	1						
		acetaminophen/hydrocodone	2	2						
		baclofen	3	3						
831a	50 y F				U	Unk	Unk	2		
		morphine	1	1					morphine	28.1 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
		gabapentin	2	2					gabapentin	44.2 mcg/mL In Blood (unspecified) @ Autopsy
		alprazolam	3	3					alprazolam	8.9 ng/mL In Blood (unspecified) @ Autopsy
832h	50 y M				C	Ingst	Unt-T	3		
		acetaminophen	1	1					acetaminophen (apap)	105.6 mcg/mL In Serum @ 15 m (pe)
833h	50 y F	acetaminophen	1	1		Ingst	Int-S	1	acetaminophen (apap)	624 mcg/mL In Blood (unspecified) @ Unknown
836ai	50 y M				U	Unk	Unk	1		
		fentanyl	1	1						
		diazepam	2	2						
835ai	50 y M	citalopram	3	3		Unk	Unk	1		
		fentanyl	1	1						
		hydrocodone	2	2						
834ai	50 y M	oxycodone	3	3		Unk	Int-A	2		
		fentanyl	1	1						
		methamphetamine	2	2						
837ai	50 y F	alprazolam	3	3		Unk	Unk	2		
		oxycodone	1	1						
		hydrocodone	2	2						
838ai	50 y M	gabapentin	3	3		Unk	Int-S	1		
		tramadol	1	1						
		methamphetamine	2	2						
839p	51 y M	ranolazine	3	3		Unk	Int-S	1		
		fentanyl	1	1					fentanyl	0.8 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	1						
		methamphetamine	3	2					methamphetamine	459 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	4	3					gabapentin	16 mcg/mL In Blood (unspecified) @ Autopsy
		marijuana	5	4					delta-9-carboxy-thc	3.7 ng/mL In Blood (unspecified) @ Autopsy
840h	51 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	201 mcg/mL In Blood (unspecified) @ Unknown
		escitalopram	2	2						
		doxepin	3	3						
841ha	51 y F	cough and cold preparation	4	4		Unk	Unk	2		
		oxycodone	1	1						
		buprenorphine	2	2						
		potassium chloride	3	3						
		narcotic, other/unknown	4	4						
842h	51 y F	amphetamine	5	5		Ingst	Unt-T	2	acetaminophen (apap)	56 mcg/mL In Blood (unspecified) @ Unknown
843ha	51 y M	acetaminophen	1	1	A	Ingst	Int-S	1	salicylate	42 mg/dL In Blood (unspecified) @ 1 h (pe)
		salicylate	1	1					salicylate	96.6 mg/dL In Blood (unspecified) @ 7 h (pe)
		salicylate	1	1					salicylate	99.6 mg/dL In Blood (unspecified) @ 10 h (pe)
844h	51 y M	oxycodone	1	1	A/C	Ingst	Int-S	3		
845h	51 y F	buprenorphine/naloxone (sublingual tablet)	1	1		Ingst	Int-A	2	ethanol	11 mg/dL In Serum @ Unknown
		cocaine	2	2						
846h	51 y F	ethanol	3	3		Ingst	Int-M	1	salicylate	23 mg/mL In Serum @ Unknown
847ai	51 y F	salicylate	1	1	U	Unk	Int-A	1		
		morphine	1	1						
		oxycodone	2	2						
848h	51 y F	clonazepam	3	3		Unk	Unk	2		
849	51 y M	narcotic, other/unknown	1	1		A/C	Ingst	3	acetaminophen (apap)	204 mcg/mL In Blood (unspecified) @ Unknown
850ai	51 y M	acetaminophen	1	1	U	Unk	Int-A	1		
		narcotic, other/unknown	1	1						
		ethanol	2	2						
851ai	51 y M	oxycodone	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
852ai	51 y M	tapentadol	1	1	U	Unk	Unk	2		
		cyclobenzaprine	2	2						
		gabapentin	3	3						
853	51 y F	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	33 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	33 mg/dL In Blood (unspecified) @ Unknown
854ph	52 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	2		
855p	52 y F	oxycodone	1	1	A	Ingst	Int-S	3		
		morphine	2	2						
		tizanidine	3	3						
		quetiapine	4	4						
		acetaminophen/oxycodone	5	5						
		amphetamine	6	6						
		benzodiazepine	7	7						
		tramadol	8	8						
856	52 y F	acetaminophen/ diphenhydramine	1	1	A	Ingst	Int-M	2		
		naproxen	2	2						
		drug, unknown	3	3						
857ph	52 y F	acetaminophen/ diphenhydramine	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	569 mcg/mL In Serum @ Unknown
858h	52 y M	acetaminophen	1	1	C	Ingst	Int-M	3	acetaminophen (apap)	29.1 mcg/mL In Serum @ Unknown
		ibuprofen	2	2						
859h	52 y F	acetaminophen/ diphenhydramine	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	53 mcg/mL In Blood (unspecified) @ 21 h (pe)
		acetaminophen/ diphenhydramine	1	1					acetaminophen (apap)	82.3 mcg/mL In Blood (unspecified) @ Unknown
860ha	52 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2		
		acetaminophen/ dextromethorphan/ doxylamine	2	2						
		amitriptyline	3	3						
		alprazolam	4	4						
861ai	52 y M	oxycodone	1	1	U	Unk	Int-A	1		
		oxymorphone	2	2						
		quetiapine	3	3						
862h	52 y F	acetaminophen	1	1	C	Ingst	Int-S	3		
863ai	52 y M	methadone	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
864ai	52 y M	fentanyl	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
865ai	52 y M	methadone	1	1	U	Unk	Int-A	2		
		oxymorphone	2	2						
		alprazolam	3	3						
866ai	52 y F	oxycodone	1	1	U	Unk	Unk	1		
		methadone	2	2						
		clonazepam	3	3						
867	52 y F	acetaminophen/ butalbital/caffeine	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	155.3 mcg/mL In Blood (unspecified) @ Unknown
868ai	52 y M	fentanyl	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol	3	3						
869p	53 y F	morphine	1	1	A	Ingst	Int-S	2		
870	53 y M	acetaminophen	1	1	A/C	Ingst	Int-M	3	acetaminophen (apap)	103 mcg/mL In Serum @ 6 h (pe)
871a	53 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	140 mcg/mL In Blood (unspecified) @ Unknown
872ph	53 y F	oxycodone	1	1	A	Ingst	Int-U	1		
		tramadol	2	2						
		morphine	3	3						
873pai	53 y M	fentanyl	1	1	C	Par	Int-A	1		
		heroin	2	2						
		fentanyl analog (acetyl fentanyl)	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
874ph	53 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	343 mcg/mL In Blood (unspecified) @ 10.5 h (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	92 mcg/mL In Blood (unspecified) @ 6.5 h (pe)
		morphine (extended release)	2	2						
		clonazepam	3	3						
		cyclobenzaprine	4	4						
875ai	53 y F	fentanyl	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hydroxyzine	3	3						
		clonazepam	4	4						
876ai	53 y F	oxycodone	1	1	U	Ingst + Unk	Int-A	1		
		oxymorphone	2	2						
		ethanol	3	3						
877h	54 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	171 mcg/mL In Blood (unspecified) @ 17 h (pe)
		tramadol	2	2						
878	54 y M	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	118 mcg/mL In Serum @ Unknown
879	54 y M	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	164 mcg/mL In Blood (unspecified) @ 4 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	195 mcg/mL In Blood (unspecified) @ 3 d (pe)
		ethanol	2	2					ethanol	61 mg/dL In Blood (unspecified) @ 1 d (pe)
		salicylate	3	3						
		acetaminophen/oxycodone	4	4						
880ph	54 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	162 mcg/mL In Serum @ Unknown
881h	54 y F	salicylate	1	1	A/C	Ingst	Int-S	2	salicylate	65.3 mg/dL In Blood (unspecified) @ 1 h (pe)
		acetaminophen	2	2						
882h	54 y F	tramadol	1	1	A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	30 mg/L In Serum @ 30 m (pe)
883	54 y F	colchicine	1	1	A/C	Ingst	Int-S	1		
884ai	54 y F	fentanyl	1	1	U	Unk	Int-S	2		
		hydrocodone	2	2						
		phenobarbital	3	3						
885ai	54 y M	methadone	1	1	U	Unk	Int-S	1		
		morphine	2	2						
		hydrocodone	3	3						
886ai	54 y F	oxycodone	1	1	U	Unk	Int-A	2		
		quetiapine	2	2						
		ethanol	3	3						
887ai	54 y F	tramadol	1	1	U	Unk	Int-S	1		
		hydromorphone	2	2						
		oxycodone	3	3						
888p	55 y F	fentanyl	1	1	C	Ingst	Int-S	1		
		drug, unknown	2	2						
889pa	55 y M	morphine	1	1	A	Unk	Int-A	1	morphine (free)	78 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl analog	2	2						
		ethanol	3	3					ethanol	0.06 % (wt/Vol) In Serum @ Unknown
890pha	55 y M	acetaminophen/oxycodone	1	1	U	Ingst	Int-M	2		
		benzodiazepine	2	2						
891pa	55 y F	fentanyl	1	1	A	Unk	Unk	1		
		morphine	2	2					morphine (free)	44 mcg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.4 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.7 mg/L In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.01 mg/L In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.02 % (wt/Vol) In Blood (unspecified) @ Autopsy
		cyclobenzaprine	5	5					cyclobenzaprine	0.09 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
		amitriptyline	6	6					amitriptyline	1.8 mg/L In Blood (unspecified) @ Autopsy
		amitriptyline	6	6					amitriptyline	2.1 mg/L In Blood (unspecified) @ Autopsy
		nortriptyline	7	7					nortriptyline	0.4 mg/L In Blood (unspecified) @ Autopsy
		nortriptyline	7	7					nortriptyline	0.8 mg/L In Blood (unspecified) @ Autopsy
892	55 y F				A	Ingst	Int-S	1		
		acetaminophen/codeine	1	1					acetaminophen (apap)	140 mcg/mL In Serum @ 10 h (pe)
		acetaminophen/codeine	1	1					acetaminophen (apap)	27 mcg/mL In Serum @ 36 h (pe)
		clonazepam	2	2						
893pa	55 y F				A	Ingst	Int-S	1		
		methadone	1	1					methadone	0.3 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.8 mg/L In Blood (unspecified) @ Autopsy
		benzodiazepine	2	2					7-aminoclonazepam	0.18 mg/L In Blood (unspecified) @ Autopsy
894ai	55 y F				U	Unk	Int-M	2		
		hydrocodone	1	1						
		fluoxetine	2	2						
		alprazolam	3	3						
895ai	55 y M				U	Unk	Unk	2		
		morphine	1	1						
		oxycodone	2	2						
		cyclobenzaprine	3	3						
896h	55 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	507 mcg/mL In Blood (unspecified) @ Unknown
897	55 y F				A	Ingst	Int-A	2		
		acetaminophen	1	1					ethanol	355 mg/dL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	6 mcg/mL In Serum @ Unknown
		ethanol	2	2					ethanol	355 mg/dL In Serum @ Unknown
898pa	55 y M				U	Derm	Int-S	2		
		fentanyl (transdermal)	1	1						
899ai	55 y M				U	Unk	Int-A	1		
		hydromorphone	1	1						
		oxycodone	2	2						
		ethanol	3	3						
900ai	55 y F				U	Unk	Int-A	1		
		methadone	1	1						
		methamphetamine	2	2						
		cocaine	3	3						
901ai	55 y F				U	Unk	Unk	2		
		morphine	1	1						
		alprazolam	2	2						
		citalopram	3	3						
902ai	55 y F				U	Unk	Int-A	2		
		opium	1	1						
903ai	55 y M				U	Unk	Unk	2		
		oxycodone	1	1						
		fluoxetine	2	2						
		cyclobenzaprine	3	3						
904ai	55 y M				U	Unk	Int-M	2		
		oxycodone	1	1						
		morphine	2	2						
		diazepam	3	3						
905ai	55 y F				U	Unk	Unk	1		
		oxycodone	1	1						
		butalbital	2	2						
		gabapentin	3	3						
906ai	55 y F				U	Unk	Unk	2		
		oxycodone	1	1						
		alprazolam	2	2						
		diphenhydramine	3	3						
907ai	56 y M				U	Ingst + Unk	Int-M	3		
		morphine	1	1						
		diazepam	2	2						
		carisoprodol	3	3						
908h	56 y F				U	Ingst	Unt-M	1		
		acetaminophen	1	1					acetaminophen (apap)	43.9 mcg/mL In Blood (unspecified) @ Unknown
909h	56 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	128 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	144 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	177.8 mg/dL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
		diphenhydramine/naproxen	3	3						
910i	56 y M				U	Unk	Unk	2		
		narcotic, other/unknown	1	1						
		clonazepam	2	2						
		quetiapine	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
911ai	56 y M	oxycodone	1	1	U	Unk	Int-M	1		
		hydromorphone	2	2						
		venlafaxine	3	3						
912pha	56 y M	acetaminophen/ diphenhydramine/ salicylate	1	1	A	Ingst	Unt-U	1	acetaminophen (apap)	247 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/ diphenhydramine/ salicylate	1	1					salicylate	75 mg/dL In Blood (unspecified) @ Unknown
		hydrocodone	2	2						
913h	56 y M	alprazolam	3	3	A	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	114 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	53 mcg/mL In Serum @ Unknown
		narcotic, other/unknown	2	2						
914pa	56 y M				A	Ingst + Unk	Int-A	1		
		fentanyl analog	1	1						
		ethanol (non-beverage)	2	2					ethanol	0.13 % (wt/Vol) In Blood (unspecified) @ Autopsy
915ha	56 y F	acetaminophen	1	1	U	Ingst	Unk	2	acetaminophen (apap)	127 mcg/mL In Serum @ 30 m (pe)
916h	56 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	102 mcg/mL In Blood (unspecified) @ 21.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	130.5 mcg/mL In Blood (unspecified) @ 18.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	149.7 mcg/mL In Blood (unspecified) @ 15.5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	34.6 mcg/mL In Blood (unspecified) @ 51 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	80.6 mcg/mL In Blood (unspecified) @ 24 h (pe)
917h	56 y M				A	Ingst	Int-S	1		
		acetaminophen/oxycodone	1	1						
		alprazolam	2	2						
		drug, unknown	3	3						
918h	56 y F	acetaminophen	1	1	U	Ingst	Int-U	1	acetaminophen (apap)	600 mcg/mL In Blood (unspecified) @ Unknown
		benzodiazepine	2	2						
		narcotic, other/unknown	3	3						
921ai	56 y M	fentanyl	1	1	U	Unk	Int-A	1		
920ai	56 y M				U	Unk	Unk	2		
		fentanyl	1	1						
		methadone	2	2						
		oxycodone	3	3						
919ai	56 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
		clonazepam	3	3						
922ai	56 y F				U	Unk	Int-A	1		
		methadone	1	1						
		diazepam	2	2						
		oxycodone	3	3						
923ai	56 y F				U	Unk	Int-S	1		
		tramadol	1	1						
		alprazolam	2	2						
		gabapentin	3	3						
924pha	57 y F				U	Ingst + Unk	Int-S	1		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	315 mcg/mL In Serum @ Unknown
		sertraline	2	2						
		diphenhydramine	3	3						
		diazepam	4	4						
		hydroxyzine	5	5						
925ha	57 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	71 mcg/mL In Blood (unspecified) @ 1 h (pe)
		alprazolam	2	2						
		ethanol	3	3					ethanol	92 mg/dL In Blood (unspecified) @ 1 h (pe)
926ha	57 y F				U	Unk	Unk	2		
		oxycodone	1	1					oxycodone	39 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	140 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	3	3					amphetamine	16 ng/mL In Blood (unspecified) @ Unknown
		amitriptyline	4	4					amitriptyline	80 ng/mL In Blood (unspecified) @ Unknown
		amitriptyline	4	4					nortriptyline	91 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
927ha	57 y F	duloxetine	5	5					duloxetine	140 ng/mL In Blood (unspecified) @ Unknown
		aripiprazole	6	6					aripiprazole	140 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	1	1	U	Unk	Unk	1	acetaminophen (apap)	128 mcg/mL In Blood (unspecified) @ Unknown
928ph	57 y M	acetaminophen/hydrocodone	1	1					acetaminophen (apap)	132.3 mg/L In Serum @ Unknown
		acetaminophen/hydrocodone	1	1					hydromorphone	2 ng/mL In Serum @ Unknown
		acetaminophen/hydrocodone	1	1					hydrocodone	213 ng/mL In Serum @ Unknown
		acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	51 mcg/mL In Blood (unspecified) @ Unknown
929pai	57 y M	benzodiazepine	2	2						
		fentanyl	1	1	A	Par	Int-A	1	fentanyl	12 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					norfentanyl	4.4 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	2	2						
		cocaine	3	3					benzoyllecognine	1000 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	3	3					cocaine	154 ng/mL In Blood (unspecified) @ Autopsy
930h	57 y M				A/C	Ingst + Par	Int-S	1		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	16 mcg/mL In Serum @ Unknown
		spironolactone	2	2						
		insulin (detemir)	3	3						
931phi	57 y F	insulin (aspart)	4	4						
		narcotic, other/unknown	1	1	U	Ingst + Unk	Int-S	2		
		temazepam	2	2						
932pha	57 y M	acetaminophen/ chlorpheniramine/ dextromethorphan	3	3					acetaminophen (apap)	60.3 mg/L In Blood (unspecified) @ 35 m (pe)
		fentanyl	1	1	U	Ingst + Par	Int-A	1	fentanyl	1.2 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	138 mg/dL In Blood (unspecified) @ Autopsy
		heroin	3	3						
933ai	57 y F	disulfram	4	4						
		acetaminophen/hydrocodone	1	1	U	Unk	Unk	1		
934ai	57 y M				U	Unk	Int-A	2		
		fentanyl	1	1						
		cocaine	2	2						
935ai	57 y F	clonazepam	3	3						
		fentanyl	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
937ai	57 y M	oxycodone	3	3						
		morphine	1	1	U	Unk	Unk	3		
		oxycodone	2	2						
936ai	57 y M	hydrocodone	3	3						
		morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
938ai	57 y M	trazodone	3	3						
		narcotic, other/unknown	1	1	U	Ingst + Unk	Int-A	2		
		ethanol	2	2						
939ai	57 y F	oxycodone	1	1	U	Unk	Unk	2		
		cyclobenzaprine	2	2						
		duloxetine	3	3						
940h	57 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	149.6 mcg/mL In Serum @ Unknown
941pha	58 y F				A/C	Ingst	Int-S	1		
		oxycodone	1	1						
942ha	58 y M	ethanol	2	2					ethanol	11 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	1	1	U	Ingst	Unt-M	1	acetaminophen (apap)	49 mcg/mL In Serum @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	76 mcg/mL In Serum @ 0.5 h (pe)
943h	58 y F				A/C	Ingst	Unt-T	3		
		acetaminophen	1	1						
944pai	58 y F				A	Par	Int-A	1		
		fentanyl	1	1					norfentanyl	1 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	3.2 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
945ha	58 y M	cocaine	2	2					benzoyllecognine	1000 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	78 ng/mL In Blood (unspecified) @ Autopsy
		hydromorphone	1	1	A	Ingst	Unt-G	3	hydromorphone	340 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2					dihydrocodeine/hydrocodol (free)	25 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	28 mcg/mL In Blood (unspecified) @ Autopsy
		antihistamine	3	3					hydroxyzine	540 ng/mL In Blood (unspecified) @ Autopsy
		levetiracetam	4	4					levetiracetam	7.1 mcg/mL In Blood (unspecified) @ Unknown
946ha	58 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	119 mcg/mL In Serum @ Unknown
		zolpidem	2	2						
		tizanidine	3	3						
		clonazepam	4	4						
947ai	58 y M				U	Unk	Int-S	1		
		oxycodone	1	1						
		alprazolam	2	2						
948ha	58 y M	ethanol	3	3						
		salicylate	1	1	C	Ingst	Unk	1	salicylate	930 mg/L In Blood (unspecified) @ Autopsy
949pa	58 y M				A	Inhal	Int-A	1		
		fentanyl	1	1					fentanyl	0.009 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.05 mg/L In Blood (unspecified) @ Autopsy
950ai	58 y F	cocaine	2	2					benzoyllecognine	2.4 mg/L In Blood (unspecified) @ Autopsy
					U	Unk	Unk	1		
		fentanyl	1	1						
951ai	58 y F	oxycodone	2	2						
		alprazolam	3	3						
					U	Unk	Int-S	1		
952ai	58 y M	hydromorphone	1	1						
		cyclobenzaprine	2	2						
		gabapentin	3	3						
953ai	58 y F				U	Unk	Int-A	1		
		morphine	1	1						
		hydrocodone	2	2						
954pa	59 y M	amitriptyline	3	3						
					U	Unk	Int-A	1		
		oxycodone	1	1						
954pa	59 y M	morphine	2	2						
		diazepam	3	3						
					A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.01 mg/L In Blood (unspecified) @ Autopsy
		morphine	2	2					morphine (free)	31 mcg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.04 % (wt/Vol) In Blood (unspecified) @ Autopsy
955	59 y F	ethanol	3	3					ethanol	0.05 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	3	3					ethanol	0.06 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		lamotrigine	4	4					lamotrigine	5.4 mg/L In Blood (unspecified) @ Autopsy
					A	Ingst	Int-S	3		
		acetaminophen	1	1					acetaminophen (apap)	23.1 mcg/mL In Blood (unspecified) @ Unknown
					A	Unk	Int-A	1		
956pa	59 y M	methadone	1	1					methadone	0.7 mg/L In Blood (unspecified) @ Autopsy
					A	Unk	Int-A	1		
957ph	59 y M				A/C	Ingst	Int-U	3		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	3 mcg/mL In Blood (unspecified) @ 10 h (pe)
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	8 mcg/mL In Blood (unspecified) @ 1 h (pe)
958ai	59 y F	ethanol	2	2						
					U	Unk	Int-M	1		
		hydromorphone	1	1						
959ai	59 y F	hydrocodone	2	2						
		alprazolam	3	3						
					U	Unk	Unk	2		
961ai	59 y F	morphine	1	1						
		bupropion	2	2						
		diazepam	3	3						
961ai	59 y F				U	Unk	Int-M	1		
		oxycodone	1	1						
		alprazolam	2	2						
			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
960ai	59 y M	oxycodone	1	1	U	Unk	Unk	3		
		bupropion	2	2						
		acetaminophen	3	3						
962p	59 y M	methadone	1	1	A	Ingst	Int-M	3	methadone	117.2 ng/mL In Blood (unspecified) @ Autopsy
963	59 y F	acetaminophen/oxycodone	1	1	C	Ingst	Unk	3		
964h	59 y F	oxycodone	1	1	C	Ingst	Int-A	3		
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	0 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	3	3						
965h	59 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	25 mg/L In Serum @ 1 h (pe)
966ph	59 y M	methadone	1	1	A/C	Ingst	Int-A	2		
		doxepin	2	2						
967	59 y M	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	111 mcg/mL In Serum @ Unknown
		drug, unknown	3	2						
		ethanol	2	2					ethanol	90 mg/dL In Serum @ Unknown
968ai	59 y M	fentanyl	1	1	A/C	Unk	Int-A	1		
		methamphetamine	2	2						
970ai	59 y F	hydrocodone	1	1	U	Unk	Unk	2		
		hydromorphone	2	2						
		benzodiazepine	3	3						
969ai	59 y M	hydrocodone	1	1	U	Ingst + Unk	Int-A	1		
		alcohol, unknown	2	2						
		isopropanol	3	3						
971ai	59 y F	methadone	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
972ai	59 y F	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
973ai	59 y F	oxycodone	1	1	U	Unk	Int-M	1		
		diazepam	2	2						
		temazepam	3	3						
974h	59 y M	acetaminophen	1	1	C	Ingst	Int-M	2		
		salicylate	2	2						
		ethanol	3	3						
975h	60 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-U	3		
976h	60 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	44 mcg/mL In Whole Blood @ Unknown
		salicylate	2	2					salicylate	44 mg/dL In Whole Blood @ Unknown
977	60 y F	acetaminophen/opioid	1	1	C	Ingst	Int-M	1		
978h	60 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	69 mcg/mL In Serum @ Unknown
979pha	60 y M	fentanyl	1	1	A	Par	AR-D	2		
		propofol	2	2						
		epinephrine/lidocaine	3	3						
980h	60 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	59.1 mcg/mL In Blood (unspecified) @ 1111.11 m (pe)
981h	60 y F	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	47 mcg/mL In Serum @ Unknown
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	95 mcg/mL In Serum @ Unknown
		alprazolam	2	2						
983ai	60 y F	fentanyl	1	1	U	Unk	Int-M	1		
		hydrocodone	2	2						
		gabapentin	3	3						
982ai	60 y M	fentanyl	1	1	U	Unk	Int-A	1		
		heroin	2	2						
985ai	60 y M	fentanyl	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		methamphetamine	3	3						
984ai	60 y F	fentanyl	1	1	U	Unk	Int-A	1		
		mitragyna	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
986ai	60 y M	morphine	1	1	U	Unk	Unk	2		
		trazodone	2	2						
		bupirone	3	3						
987ai	60 y F	morphine	1	1	U	Unk	Int-M	2		
		hydromorphone	2	2						
		cyclobenzaprine	3	3						
988ai	60 y F	oxycodone	1	1	U	Unk	Int-S	1		
		ethanol	2	2						
989h	61 y F	oxycodone	1	1	A	Ingst	Int-A	3		
		benzodiazepine	3	2						
		ethanol	2	2						
990h	61 y F	acetaminophen	1	1	U	Ingst	Unk	3	acetaminophen (apap)	0 mmol/L In Blood (unspecified) @ Unknown
		ethanol	2	2						
991ai	61 y F	morphine	1	1	U	Unk	Unk	3		
		cyclobenzaprine	2	2						
		diphenhydramine	3	3						
992ai	61 y M	oxycodone	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
		ethanol	3	3						
993	61 y M	salicylate	1	1	A/C	Ingst	Int-S	1	salicylate	116.1 mg/dL In Serum @ 2.5 h (pe)
		salicylate	1	1					salicylate	120.7 mg/dL In Serum @ 6.5 h (pe)
		salicylate	1	1					salicylate	122 mg/dL In Serum @ 7.333 h (pe)
		sertraline	2	2						
		amphetamine/ dextroamphetamine	3	3						
994ha	62 y F	acetaminophen	1	1	C	Ingst	Unt-U	1	acetaminophen (apap)	22.8 mg/L In Serum @ 3 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	317 mg/L In Serum @ Unknown
995h	62 y F	methadone	1	1	A/C	Ingst	Unk	2		
		zolpidem	2	2						
		iron	3	3						
996ai	62 y M	fentanyl	1	1	U	Unk	Int-A	2		
		amitriptyline	2	2						
		oxycodone	3	3						
997ai	62 y M	morphine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		diltiazem	3	3						
998ai	62 y M	codeine	1	1	U	Unk	Unk	1		
		dextromethorphan	2	2						
		diphenhydramine	3	3						
999ai	62 y F	methadone	1	1	U	Unk	Int-A	2		
1000ai	62 y M	methadone	1	1	A	Unk	Int-A	2		
		diphenhydramine	2	2						
		cyclobenzaprine	3	3						
1001ai	62 y F	methadone	1	1	U	Unk	Unk	2		
		diazepam	2	2						
		diphenhydramine	3	3						
1002ai	62 y F	oxycodone	1	1	U	Unk	Unk	1		
		oxymorphone	2	2						
		carisoprodol	3	3						
1004ai	62 y F	oxycodone	1	1	U	Unk	Int-A	2		
		hydrocodone	2	2						
1003ai	62 y F	oxycodone	1	1	U	Unk	Unk	2		
		alprazolam	2	2						
1005ai	62 y F	oxymorphone	1	1	U	Unk	Int-A	2		
		paroxetine	2	2						
		tramadol	3	3						
1006ha	63 y F	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	2		
		alprazolam	2	2						
1007ph	63 y M	hydromorphone	1	1	C	Par	Int-A	2		
1008	63 y F	oxycodone	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
1009pi	63 y M	carfentanil	1	1	A	Unk	Int-A	1		
		trazodone	2	2						
1010h	63 y M	ibuprofen	1	1	U	Ingst	Int-M	3		
1011ai	63 y M	acetaminophen/oxycodone	1	1	U	Unk	Int-S	1		
		lisinopril	2	2						
1012ha	63 y F	acetaminophen	1	1	C	Ingst	Unk	2	acetaminophen (apap)	214 mmol/L In Blood (unspecified) @ Unknown
		beta blocker	2	1						
		lamotrigine	3	3						
		lithium	4	4						
1013hi	63 y M	methadone	1	1	U	Ingst + Aspir	Int-U	3		
1014ai	63 y F	fentanyl	1	1	U	Unk	Int-A	2		
1015ai	63 y M	methadone	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1016ai	63 y F	methadone	1	1	U	Unk	Unk	1		
		morphine	2	2						
		oxycodone	3	3						
1018ai	63 y F	oxycodone	1	1	U	Unk	Int-S	1		
		fluoxetine	2	2						
		clonazepam	3	3						
1017ai	63 y F	oxycodone	1	1	U	Unk	Int-S	1		
		fluoxetine	2	2						
		benzodiazepine	3	3						
1019ha	64 y F	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-U	1		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	15 mcg/mL In Serum @ 4 h (pe)
		salicylate	2	2					acetaminophen (apap)	17.9 mcg/mL In Serum @ 1 h (pe)
		salicylate	2	2					salicylate	17 mg/dL In Serum @ Unknown
		salicylate	2	2					salicylate	33 mg/dL In Serum @ 4 h (pe)
		salicylate	2	2					salicylate	35.3 mg/dL In Serum @ 1 h (pe)
1020h	64 y F	acetaminophen	1	1	C	Ingst	Int-M	3	acetaminophen (apap)	35 mcg/mL In Blood (unspecified) @ Unknown
1021h	64 y F	acetaminophen	1	1	A	Ingst	Int-M	1	acetaminophen (apap)	163.9 mcg/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	28.5 mcg/mL In Blood (unspecified) @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	37.9 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	72.9 mcg/mL In Blood (unspecified) @ 12 h (pe)
1022ai	64 y F	fentanyl	1	1	U	Unk	Unk	1		
		oxycodone	2	2						
1023ai	64 y F	fentanyl	1	1	U	Ingst + Unk	Int-A	2		
		oxycodone	2	2						
		diazepam	3	3						
1026ai	64 y F	hydrocodone	1	1	U	Unk	Int-S	1		
		alprazolam	2	2						
		temazepam	3	3						
1024ai	64 y M	hydrocodone	1	1	A	Unk	Int-M	2		
		quetiapine	2	2						
1025ai	64 y F	hydrocodone	1	1	U	Unk	Int-M	2		
		methocarbamol	2	2						
		ethanol	3	3						
1027ai	64 y M	methadone	1	1	U	Unk	Int-A	2		
1028ai	64 y F	oxycodone	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		fluoxetine	3	3						
1029ai	64 y M	oxycodone	1	1	A	Unk	Int-M	3		
1030ha	65 y F	acetaminophen	1	1	A	Ingst	Int-S	2		
1031h	65 y F	acetaminophen	1	1	U	Ingst	Unk	1	acetaminophen (apap)	195.4 mcg/mL In Serum @ Unknown
1032h	65 y F	colchicine	1	1	C	Ingst	Int-T	2	colchicine	1.1 ng/mL In Other @ 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
1033h	65 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	148 mg/dL In Serum @ Unknown
1034	65 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	11 mcg/mL In Blood (unspecified) @ Unknown
1035	65 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	47.8 mcg/mL In Blood (unspecified) @ 9.5 h (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	67.8 mcg/mL In Blood (unspecified) @ 10 m (pe)
		metoprolol	2	2						
		clonazepam	3	3						
1036h	65 y F	acetaminophen/opioid	1	1	A/C	Ingst	Unk	1	acetaminophen (apap)	39 mcg/mL In Blood (unspecified) @ Unknown
1037	65 y F	acetaminophen/oxycodone	1	1	C	Ingst	Int-S	1		
		clonazepam	2	2						
		diphenhydramine	3	3						
		prednisone	4	4						
[1038ha]	65 y M	salicylate	1	1	U	Ingst	Unk	1		
1039ph	65 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	123 mcg/mL In Blood (unspecified) @ Unknown
1040ai	65 y F	mirtazapine	2	2	U	Unk	Unk	3		
		hydrocodone	1	1						
1041a	66 y F	salicylate	1	1	A	Ingst	Int-S	1	salicylate	113.4 mg/dL In Blood (unspecified) @ 1 h (pe)
		salicylate	1	1					salicylate	880 mcg/mL In Whole Blood @ Unknown
1042h	66 y F	acetaminophen/oxycodone	1	1	U	Ingst + Inhal	Int-U	3		
		cocaine	2	2						
1043ai	66 y M	methadone	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
1044ha	66 y F	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	170 mcg/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen/hydrocodone	1	1					hydrocodone (free)	300 ng/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen/hydrocodone	1	1					dihydrocodeine/hydrocodol (free)	78 ng/mL In Blood (unspecified) @ 30 m (pe)
		oxycodone	2	2					hydromorphone	3.5 ng/mL In Blood (unspecified) @ 30 m (pe)
		methadone	3	3					methadone	340 ng/mL In Blood (unspecified) @ 30 m (pe)
		methadone	3	3					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine)	50 ng/mL In Blood (unspecified) @ 30 m (pe)
1045a	66 y F	morphine	1	1	U	Ingst	Int-S	1	morphine	122 ng/mL In Blood (unspecified) @ 2 h (pe)
1046ai	66 y M	morphine	1	1	U	Unk	Unk	1		
		codeine	2	2						
		hydromorphone	3	3						
1047ha	67 y M	acetaminophen	1	1	A	Ingst	Unk	1	acetaminophen (apap)	237 mcg/mL In Blood (unspecified) @ Unknown
1048h	67 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	34 mcg/mL In Blood (unspecified) @ Unknown
1049	67 y F	acetaminophen	1	1	C	Ingst	Unt-T	1	acetaminophen (apap)	68 mcg/mL In Blood (unspecified) @ Unknown
1050p	67 y M	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	86 mcg/mL In Blood (unspecified) @ Unknown
		cyclobenzaprine	2	2						
1051i	67 y M	fentanyl	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
		methamphetamine	3	3						
1052ai	67 y M	methadone	1	1	U	Unk	Int-M	2		
		fluoxetine	2	2						
		ethanol	3	3						
1053h	67 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	221 mcg/mL In Blood (unspecified) @ Unknown
		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
1054h	67 y F	acetaminophen	1	1	C	Ingst	Int-M	2	acetaminophen (apap)	53 mcg/mL In Blood (unspecified) @ Unknown
1055h	67 y F	oxycodone	1	1	A/C	Ingst	Int-S	2		
		baclofen	2	2						
		clonazepam	3	3						
		piroxicam	4	4						
1056ai	67 y M	codeine	1	1	U	Ingst + Unk	Int-A	2		
		hydrocodone	2	2						
		lorazepam	3	3						
		ethanol	4	4						
1057ai	67 y M	fentanyl	1	1	U	Ingst + Unk	Int-A	1		
		codeine	2	2						
		ethanol	3	3						
1058ai	67 y F	fentanyl	1	1	U	Unk	Unk	2		
		amitriptyline	2	2						
		duloxetine	3	3						
1059ai	67 y M	methadone	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		temazepam	3	3						
1061ai	67 y F	morphine	1	1	U	Unk	Int-A	2		
1060ai	67 y F	morphine	1	1	U	Unk	Int-A	2		
1062ai	67 y F	oxycodone	1	1	C	Ingst + Unk	Int-A	3		
		diazepam	2	2						
		ethanol	3	3						
[1063ha]	68 y F	colchicine	1	1	A/C	Ingst	Int-S	1		
1064h	68 y M	acetaminophen/tramadol	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	361 mcg/mL In Blood (unspecified) @ 17 h (pe)
		acetaminophen/tramadol	1	1					acetaminophen (apap)	500 mcg/mL In Blood (unspecified) @ 30 m (pe)
1065h	68 y M	tramadol	1	1	A/C	Ingst + Aspir	Int-S	3		
		acetaminophen/hydrocodone	2	2						
		clonazepam	3	3						
1066	68 y F	morphine	1	1	U	Ingst	Int-S	2		
		alprazolam	2	2						
		misoprostol	3	3						
		levothyroxine	4	4						
1067	68 y M	acetaminophen	1	1	C	Ingst	Unt-M	3	acetaminophen (apap)	32 mcg/mL In Serum @ Unknown
1068ha	68 y M	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	1	acetaminophen (apap)	145 mcg/mL In Serum @ 1 h (pe)
		metoprolol	2	2						
		ethanol	3	3					ethanol	258 mg/dL In Serum @ 1 h (pe)
1069ph	68 y M	acetaminophen/codeine	1	1	A/C	Ingst + Aspir	Int-S	1		
		clonazepam	2	2						
		lisinopril	3	3						
		hydrochlorothiazide/triamterene	4	4						
1070ai	68 y F	fentanyl	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		diazepam	3	3						
1071h	68 y F	acetaminophen	1	1	A	Ingst	Unk	2	acetaminophen (apap)	83 mcg/mL In Blood (unspecified) @ Unknown
1072h	69 y M	acetaminophen	1	1	U	Ingst	Unt-M	2		
1073ai	69 y F	fentanyl	1	1	U	Unk	Unt-M	3		
		diphenhydramine	2	2						
		oxycodone	3	3						
1074h	69 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	39 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2						
		ondansetron	3	3						
		ibuprofen	4	4						
1075h	69 y M	fentanyl	1	1	A	Par	Unt-T	3		
1076ai	69 y M	morphine	1	1	U	Unk	Int-S	1		
		codeine	2	2						
		ethanol	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
1077ai	69 y F	oxycodone	1	1	U	Unk	Int-S	1		
		citalopram	2	2						
		ethanol	3	3						
1078ai	69 y F	oxycodone	1	1	U	Unk	Int-S	1		
		baclofen	2	2						
		citalopram	3	3						
1079ai	69 y F	oxycodone	1	1	U	Unk	Unt-M	1		
		oxymorphone	2	2						
		hydrocodone	3	3						
1080h	69 y M	acetaminophen/oxycodone	1	1	A/C	Ingst	Unk	3		
1081h	70 y F	acetaminophen	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	342 mcg/mL In Serum @ Unknown
1082	70 y M	acetaminophen	1	1	C	Ingst	Int-M	3	acetaminophen (apap)	43 mcg/mL In Serum @ Unknown
1083ha	70 y F	acetaminophen	1	1	C	Ingst	Unt-T	2	acetaminophen (apap)	140 mcg/mL In Serum @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	181 mg/L In Blood (unspecified) @ Unknown
1084h	70 y M	acetaminophen	1	1	C	Ingst	Int-M	1	acetaminophen (apap)	45 mcg/mL In Blood (unspecified) @ 1 h (pe)
1085ai	70 y M	ethanol	2	2	U	Unk	Int-A	3		
1086ph	70 y F	hydromorphone	1	1	A	Ingst	Int-S	2		
		tramadol	1	1						
		acetaminophen/hydrocodone	2	2						
1087	70 y F	acetaminophen	1	1	U	Ingst	Int-S	1	acetaminophen (apap)	326.6 mcg/mL In Blood (unspecified) @ Unknown
1088ha	70 y F	narcotic, other/unknown	1	1	A	Ingst	Int-S	2		
		acetaminophen/diphenhydramine	2	2						
		acetaminophen	3	3					acetaminophen (apap)	29.9 mcg/mL In Serum @ 30 m (pe)
		ibuprofen	4	4						
1089ai	70 y F	acetaminophen	1	1	U	Unk	Int-S	1		
		benzodiazepine	2	2						
		oxycodone	3	3						
1090ph	71 y M	oxycodone	1	1	A/C	Ingst	Int-S	2		
		diazepam	2	2					acetaminophen (apap)	48 mcg/mL In Serum @ Unknown
		acetaminophen	3	3						
		baclofen	4	4						
		ethanol	5	5					ethanol	8 mg/dL In Serum @ Unknown
[1091h]	71 y F	salicylate	1	1	A	Ingst	Int-S	1	salicylate	104 mg/dL In Serum @ 22 h (pe)
1092p	71 y F	acetaminophen/hydrocodone	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	285 mcg/mL In Serum @ Unknown
		lorazepam	2	2						
1093ha	71 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Unt-T	2		
		acetaminophen	2	2						
1094h	71 y F	acetaminophen/hydrocodone	1	1	C	Ingst	AR-D	2		
1095ai	71 y F	acetaminophen	1	1	U	Unk	Unk	2		
1096pa	72 y M	acetaminophen/hydrocodone	1	1	U	Ingst	Int-U	1	hydrocodone	82.5 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/diphenhydramine	2	2						
		tizanidine	3	3						
		meloxicam	4	4					nordiazepam	369 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	5	5					diazepam	524 ng/mL In Blood (unspecified) @ Autopsy
1097	72 y F	acetaminophen	1	1	U	Unk	Int-S	2	acetaminophen (apap)	156.6 mcg/mL In Blood (unspecified) @ Unknown
1098ai	72 y M	morphine	1	1	U	Unk	Int-S	1		
		alprazolam	2	2						
		lorazepam	3	3						
1099h	72 y M	salicylate	1	1	C	Ingst	Unk	1	salicylate	82.4 mg/dL In Blood (unspecified) @ 1 h (pe)
1100h	72 y F	acetaminophen	1	1	U	Ingst	Unk	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
1101ai	72 y M	morphine	1	1	U	Unk	Int-S	2		
		alprazolam	2	2						
		lorazepam	3	3						
		phenothiazine	4	4						
1102p	73 y M	morphine	1	1	A/C	Ingst	Int-S	2		
		oxycodone	2	2						
		alprazolam	3	3						
1103ai	73 y F	acetaminophen/oxycodone	1	1	U	Unk	Int-U	2		
		gabapentin	2	2						
		trazodone	3	3						
1104ai	73 y F	morphine	1	1	U	Ingst + Unk	Int-S	1		
		oxycodone	2	2						
		diazepam	3	3						
1105ph	73 y F	oxycodone	1	1	A	Ingst	Int-S	3		
1106ai	73 y F	oxycodone	1	1	U	Unk	Int-M	2		
		ethanol	2	2						
1107h	74 y F	tramadol	1	1	A	Ingst	Int-S	2		
		antiplatelet drug	2	2						
		ropinirole	3	3						
1108h	75 y F	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	1		
		venlafaxine	2	2						
		benzodiazepine	3	3						
1109h	75 y M	acetaminophen/hydrocodone	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	155.4 mcg/mL In Blood (unspecified) @ Unknown
		amitriptyline	2	2						
		tramadol	3	3						
		linezolid	4	4						
1110h	75 y M	morphine	1	1	A	Ingst	Int-S	1		
1111h	76 y F	acetaminophen	1	1	U	Ingst	Int-S	2	acetaminophen (apap)	123 mcg/mL In Blood (unspecified) @ Unknown
1112h	76 y F	acetaminophen	1	1	A	Ingst	Int-S	1		
1113ha	76 y M	salicylate	1	1	A	Ingst	Int-S	1	salicylate	1100 mg/L In Serum @ Autopsy
		salicylate	1	1					salicylate	137 mg/dL In Serum @ Unknown
1114	76 y M	oxycodone	1	1	A	Ingst	Int-S	2		
1115ai	76 y F	fentanyl	1	1	U	Unk	Int-U	2		
		acetaminophen/hydrocodone	2	2						
		baclofen	3	3						
1116ai	76 y F	morphine	1	1	U	Unk	Unk	2		
		cyclobenzaprine	2	2						
1117h	76 y F	tramadol	1	1	A	Ingst	Int-S	3		
		drug, unknown	2	2						
1118h	77 y F	acetaminophen	1	1	A	Ingst	Int-S	3	acetaminophen (apap)	181 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	20 mcg/mL In Blood (unspecified) @ Unknown
		drug, unknown	2	2						
1119ai	77 y F	oxycodone	1	1	A	Unk	Int-S	1		
		zolpidem	2	2						
		lorazepam	3	3						
1120i	77 y F	acetaminophen/hydrocodone	1	1	A	Ingst	Int-S	2		
1121ha	78 y F	oxycodone	1	1	U	Ingst	Int-S	2	oxycodone	3225 ng/mL In Serum @ Unknown
		zolpidem	2	2						
		acetaminophen	3	3					acetaminophen (apap)	20 mcg/mL In Serum @ Unknown
1122ai	78 y F	acetaminophen/oxycodone	1	1	U	Ingst + Unk	Int-S	1		
		diazepam	2	2						
1123ha	79 y F	salicylate	1	1	A	Ingst	Int-S	1	salicylate	112 mg/dL In Plasma @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	308 mg/L In Plasma @ Unknown
1124	79 y F	salicylate	1	1	U	Ingst	Int-U	1	salicylate	78.8 mg/dL In Blood (unspecified) @ Unknown
1125ai	79 y F	acetaminophen/opioid	1	1	A	Ingst	Unt-M	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
1126h	80 y M	salicylate	1	1	C	Ingst	Int-M	3	salicylate	21.8 mg/dL In Serum @ 22 h (pe)
		salicylate	1	1					salicylate	30.5 mg/dL In Serum @ 7 h (pe)
		salicylate	1	1					salicylate	55.2 mg/dL In Serum @ 2 h (pe)
		salicylate	1	1					salicylate	65.4 mg/dL In Serum @ Unknown
1127h	80 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	870 mcg/mL In Serum @ Unknown
1128ai	81 y M	morphine	1	1	U	Ingst + Unk	Int-S	1		
		oxycodone	2	2						
		diazepam	3	3						
1129ai	81 y M	morphine	1	1	U	Unk	Unk	2		
1130	82 y F	naproxen	1	1	A	Ingst	Int-S	3		
1131ai	82 y M	morphine	1	1	U	Unk	Int-M	2		
1132h	82 y M	acetaminophen	1	1	C	Ingst	Unt-T	2		
		ibuprofen	2	2						
1133h	82 y F	acetaminophen	1	1	C	Ingst	Int-A	3	acetaminophen (apap)	25.7 mcg/mL In Plasma @ Unknown
1134ai	82 y M	morphine	1	1	U	Unk	Unk	2		
1135ai	83 y F	hydrocodone	1	1	U	Unk	Int-S	1		
		lorazepam	2	2						
1136ha	88 y M	tramadol	1	1	A	Ingst	Int-S	1	o-demethyl tramadol	200 ng/mL In Blood (unspecified) @ Unknown
		tramadol	1	1					tramadol	4400 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2						
1137pa	88 y M	morphine	1	1	A	Ingst	Int-S	1	morphine (free)	400 mcg/L In Blood (unspecified) @ Autopsy
		alprazolam	2	2					alprazolam	0.1 mg/L In Blood (unspecified) @ Autopsy
		amlodipine	3	3					amlodipine	0.05 mg/L In Blood (unspecified) @ Autopsy
1138h	89 y M	acetaminophen	1	1	A	Ingst	Int-S	1	acetaminophen (apap)	136 mcg/mL In Serum @ 21 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	201 mcg/mL In Serum @ 8 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	250 mcg/mL In Serum @ 4 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	282 mcg/mL In Serum @ 1 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	85 mcg/mL In Serum @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	95 mcg/mL In Serum @ 1 d (pe)
		beta blocker	2	2						
1139a	90 y F	salicylate	1	1	A/C	Ingst	Int-S	3		
1140h	91 y M	salicylate (extended release)	1	1	U	Ingst	Unt-G	3		
1141ai	92 y F	acetaminophen	1	1	U	Unk	Int-S	1		
1142h	94 y M	acetaminophen/oxycodone	1	1	A/C	Ingst	Int-S	2	acetaminophen (apap)	212 mg/dL In Blood (unspecified) @ 15 h (pe)
1143ai	9 m M	morphine	1	1	U	Unk	Unk	2		
1144ha	11 m F	oxycodone	1	1	U	Ingst	Unk	1		
1145pha	30+ y M	fentanyl	1	1	A	Unk	Int-A	1	fentanyl	55 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2						
		buprenorphine	3	3						
1146p	Unknown adult (>=20 yrs) M	droperidol/fentanyl	1	1	A	Inhal	Int-A	2		
		alprazolam	2	2						
1147p	Unknown age U	narcotic, other/unknown	1	1	A	Unk	Int-A	1		

See Also case 9, 10, 20, 21, 24, 27, 33, 38, 41, 43, 47, 52, 55, 62, 64, 68, 70, 79, 84, 87, 90, 92, 93, 96, 105, 107, 108, 120, 125, 141, 164, 175, 181, 183, 211, 254, 259, 262, 272, 295, 309, 313, 363, 1149, 1153, 1161, 1173, 1178, 1182, 1185, 1201, 1202, 1206, 1207, 1222, 1227, 1229, 1232, 1241, 1247, 1249, 1260, 1264, 1265, 1266, 1270, 1272, 1273, 1280, 1284, 1298, 1299, 1300, 1301, 1306, 1307, 1310, 1311, 1315, 1317, 1326, 1355, 1356, 1359, 1370, 1389, 1396, 1406, 1411, 1414, 1419, 1425, 1430, 1431, 1432, 1435, 1438, 1446, 1448, 1465, 1466, 1467, 1479, 1482, 1489, 1490, 1492, 1499, 1503, 1505, 1518, 1521, 1522, 1526, 1530, 1536, 1540, 1542, 1545, 1551, 1552, 1553, 1555, 1578, 1583, 1588, 1591, 1592, 1610, 1620, 1638, 1641, 1642, 1659, 1660, 1662, 1663, 1674, 1675, 1680, 1683, 1686, 1689, 1691, 1698, 1699, 1700, 1704, 1708, 1712, 1714, 1717, 1718, 1722, 1723, 1733, 1735, 1740, 1741, 1742, 1743, 1747, 1750, 1751, 1752, 1760, 1761, 1762, 1765, 1766, 1768, 1769, 1776, 1780, 1785, 1786, 1787, 1788, 1789, 1790, 1792, 1802, 1803, 1806, 1811, 1817, 1818, 1820, 1828, 1831, 1832, 1838, 1851, 1852, 1853, 1857, 1860, 1861, 1863, 1869, 1871, 1872, 1874, 1878, 1879, 1887, 1888, 1889, 1901, 1902, 1903, 1909, 1912, 1914, 1921, 1924, 1925, 1926, 1928, 1942, 1948, 1950, 1956, 1957, 1962, 1969, 1971, 1972, 1974, 1976, 1978, 1984, 1992, 1993, 1996, 1998, 1999, 2002, 2009, 2011, 2021, 2022, 2044, 2046, 2051, 2052, 2053, 2054, 2055, 2061, 2063, 2065, 2070, 2072, 2074, 2075, 2076, 2078, 2079, 2080, 2081, 2091, 2093, 2103, 2104, 2107, 2113, 2114, 2128, 2129, 2133, 2137, 2138, 2140, 2144, 2145, 2146, 2148, 2163, 2166, 2167, 2175, 2176, 2181, 2183, 2185, 2188, 2189, 2198, 2199, 2205, 2206, 2207, 2212, 2213, 2217, 2218, 2219, 2231, 2232, 2234, 2235, 2253, 2254, 2262, 2268, 2281, 2283, 2288, 2291, 2292, 2301, 2310, 2311, 2312, 2313, 2314, 2316, 2318, 2320, 2321, 2322, 2343, 2344, 2345, 2372, 2375, 2376, 2377, 2378, 2379, 2380, 2386, 2387, 2388, 2390, 2394, 2395, 2401, 2422, 2424, 2425, 2432, 2433, 2453, 2458, 2492, 2495, 2503, 2506, 2508, 2513, 2520, 2528, 2531, 2532, 2534, 2540, 2544, 2550, 2552, 2556, 2559, 2560, 2561, 2575, 2577, 2580, 2581, 2583, 2586, 2593, 2598, 2608, 2621, 2641, 2643, 2662, 2667, 2670, 2672, 2676

(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										
[1148pha]	11 y M	lidocaine	1	1	A	Oth	Unt-T	1	lidocaine	15 mg/L In Blood (unspecified) @ Autopsy
		lidocaine	1	1					megx (monoethylglycinexylidide)	2.7 mg/L In Blood (unspecified) @ Autopsy
		cleaner (cationic)	2	2						
1149ph	22 y M	nitrous oxide	1	1	A	Ingst + Inhal	Int-A	3		
		codeine	2	2						
		acetaminophen	3	3						
		ibuprofen	4	4						
1150ph	29 y M	sevoflurane	1	1	A	Inhal	Int-S	1		
[1151pha]	33 y M	lidocaine	1	1	A	Inhal	Int-U	1	megx (monoethylglycinexylidide)	11 mcg/mL In Blood (unspecified) @ Unknown
		lidocaine	1	1					lidocaine	18 mcg/mL In Blood (unspecified) @ Unknown
See Also case 440, 683, 979, 1333, 1531, 2345										
Anticholinergic Drugs										
1152h	59 y M	benztropine	1	1	A	Ingst	Int-S	2		
		THC homolog	2	2						
		phencyclidine	3	3						
See Also case 114, 812, 1211, 1496, 1599, 2027, 2040, 2110, 2120, 2178, 2180, 2279										
Anticoagulants										
1153ha	48 y F	warfarin	1	1	A/C	Ingst	Int-S	1		
		quetiapine	2	2						
		diltiazem	3	3						
		ethanol	4	4					ethanol	30 mg/dL In Serum @ Unknown
		salicylate	5	5					salicylate	1.7 mg/dL In Serum @ Unknown
See Also case 545, 600, 716, 1107, 1280, 1293, 1310, 1411, 1464, 1500, 1509, 1545, 1553, 1563, 1574, 1596, 1610, 1701, 1706, 1722, 1724										
Anticonvulsants										
1154h	21 y M				A/C	Ingst	Int-S	1		
		valproic acid	1	1					valproic acid	300.001 mcg/mL In Serum @ Unknown
		quetiapine	2	2						
		risperidone	3	3						
1155h	22 y M	valproic acid	1	1	A	Ingst	Int-S	1	valproic acid	147 mcg/mL In Blood (unspecified) @ 4 d (pe)
		valproic acid	1	1					valproic acid	172.4 mcg/mL In Blood (unspecified) @ 3 h (pe)
		valproic acid	1	1					valproic acid	190.3 mcg/mL In Blood (unspecified) @ 7 h (pe)
		valproic acid	1	1					valproic acid	214 mcg/mL In Blood (unspecified) @ 3 d (pe)
		valproic acid	1	1					valproic acid	589 mcg/mL In Blood (unspecified) @ 36 h (pe)
		valproic acid	1	1					valproic acid	69.9 mcg/mL In Blood (unspecified) @ 15 m (pe)
		lacosamide	2	2						
		sertraline	3	3						
		oxcarbazepine	4	4						
		mirtazapine	5	5						
1156ha	25 y M	lamotrigine	1	1	A	Ingst	Int-S	1	lamotrigine	41 mcg/mL In Plasma @ Unknown
		citalopram	2	2					citalopram	0.63 ng/mL In Plasma @ Unknown
		diphenhydramine	3	3					diphenhydramine	0.12 ng/mL In Plasma @ Unknown
1157ph	26 y M	carbamazepine	1	1	A	Ingst	Int-S	1	carbamazepine	31 mcg/mL In Blood (unspecified) @ Unknown
1158ph	28 y F	oxcarbazepine	1	1	A	Ingst	Int-S	2		
		bupropion	2	2						
		ziprasidone	3	3						
1159	33 y F	lamotrigine	1	1	A/C	Ingst	Int-S	2		
1160ph	34 y F	gabapentin	1	1	A	Ingst	Unk	2		
		ethanol	2	2						
1161ph	36 y M	gabapentin	1	1	A	Ingst	Int-A	2		
		ethanol	2	2						
		narcotic, other/unknown	3	3						
		amphetamine	4	4						
		cocaine	5	5						
1162ai	37 y F	gabapentin	1	1	U	Ingst + Unk	Unk	1		
		ethanol	2	2						
1163hai	39 y F	gabapentin	1	1	U	Ingst + Unk	Unk	2		
		doxepin	2	2						
		ethanol	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
1164ai	40 y F	valproic acid	1	1	U	Unk	Int-S	1		
		ethanol	2	2						
		methamphetamine	3	3						
1165sp	41 y F	gabapentin	1	1	A	Ingst	Int-U	2		
1166	45 y F	gabapentin	1	1	A	Ingst	Int-S	3		
		marijuana	2	2						
		amphetamine	3	3						
1167ai	52 y F	topiramate	1	1	U	Unk	Int-S	1		
		quetiapine	2	2						
		clonazepam	3	3						
1168	54 y M	gabapentin	1	1	U	Ingst	Unk	2		
		baclofen	2	2						
1169ha	55 y F	valproic acid	1	1	A/C	Ingst	Int-S	2	valproic acid	300 mcg/mL In Blood (unspecified) @ Unknown
1170ai	56 y F	gabapentin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		quetiapine	3	3						
1171h	61 y M	gabapentin	1	1	U	Ingst	Int-M	3		
1172ph	61 y M	gabapentin	1	1	A/C	Ingst	Int-S	2		
1173ha	62 y F	gabapentin	1	1	A/C	Ingst + Unk	Int-S	1	gabapentin	58 mg/L In Blood (unspecified) @ Unknown
		oxycodone	2	2						
		acetaminophen/ diphenhydramine	3	3					acetaminophen (apap)	110 mg/L In Blood (unspecified) @ Unknown
		acetaminophen/ diphenhydramine	3	3					butalbital	45 mg/L In Blood (unspecified) @ Unknown
[1174pha]	63 y M	pregabalin	1	1	A	Ingst	Int-M	1	pregabalin	43 mcg/mL In Blood (unspecified) @ Unknown
		topiramate	2	2					topiramate	6300 ng/mL In Blood (unspecified) @ Unknown
1175pha	63 y F	gabapentin	1	1	A/C	Ingst	Int-S	2		
		antipsychotic (atypical)	2	2						
1176h	69 y F	phenytoin	1	1	A	Ingst	AR-D	3	phenytoin	55 mcg/mL In Whole Blood @ Unknown
1177	70 y F	lacosamide	1	1	U	Ingst	Int-M	2		
		gabapentin	2	2						
1178h	72 y F	valproic acid	1	1	A	Ingst	Unk	2		
		acetaminophen	2	2						
1179p	82 y F	valproic acid	1	1	A/C	Ingst	Unk	1	valproic acid	152 mcg/mL In Blood (unspecified) @ 48 h (pe)
		valproic acid	1	1					valproic acid	192 mcg/mL In Blood (unspecified) @ 24 h (pe)
		valproic acid	1	1					valproic acid	898 mcg/mL In Blood (unspecified) @ 1 h (pe)
See Also case 16, 36, 107, 259, 262, 363, 400, 433, 553, 603, 607, 614, 628, 665, 693, 696, 703, 717, 721, 808, 831, 833, 837, 839, 852, 905, 923, 945, 951, 954, 983, 1012, 1038, 1103, 1191, 1193, 1200, 1202, 1203, 1206, 1210, 1220, 1222, 1236, 1244, 1252, 1257, 1260, 1268, 1275, 1282, 1289, 1290, 1299, 1301, 1310, 1321, 1330, 1357, 1358, 1359, 1382, 1383, 1391, 1394, 1396, 1397, 1406, 1411, 1412, 1419, 1424, 1425, 1433, 1435, 1440, 1455, 1461, 1474, 1479, 1483, 1502, 1503, 1510, 1578, 1591, 1615, 1651, 1677, 1708, 1716, 1717, 1718, 1722, 1739, 1760, 1769, 1771, 1778, 1783, 1790, 1793, 1795, 1797, 1802, 1810, 1845, 1902, 1919, 2035, 2049, 2180, 2205, 2206, 2232, 2241, 2319, 2358, 2370, 2417, 2456, 2492, 2676										
Antidepressants										
1180h	12 y M	bupropion	1	1	A	Ingst	Int-S	1		
1181pha	12 y F	amitriptyline	1	1	U	Ingst	Int-S	1	nortriptyline	1.4 mcg/mL In Blood (unspecified) @ 1 h (pe)
		amitriptyline	1	1					amitriptyline	2.2 mcg/mL In Blood (unspecified) @ 1 h (pe)
1182ph	13 y F	escitalopram	1	1	A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	2	2						
		acetaminophen/oxycodone	3	3						
		alprazolam	4	4						
1183ph	14 y F	bupropion	1	1	A/C	Ingst	Int-S	1		
		fluoxetine	2	2						
1184ha	15 y M	bupropion (extended release)	1	1	A/C	Ingst	Int-S	1	bupropion	184 ng/mL In Serum @ Unknown
		quetiapine	2	2					quetiapine	1237 ng/mL In Serum @ Unknown
1185	16 y F	duloxetine	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
		cyclic antidepressant, unknown acetaminophen	2 3	2 3						
1186h	17 y F				A/C	Ingst	Int-S	1	acetaminophen (apap)	343.9 mcg/mL In Serum @ Unknown
		bupropion (extended release) cyanoacrylate	1 2	1 2						
1187ph	18 y M				A/C	Ingst	Int-S	1		
		bupropion (extended release) bupropion	1 2	1 2						
1188ai	18 y M				U	Unk	Int-S	1		
		bupropion citalopram	1 2	1 2						
1189h	19 y F				A/C	Ingst	Int-S	1		
		venlafaxine (extended release) escitalopram	1 2	1 2						
1190ph	19 y M				A/C	Ingst	Int-S	1		
		bupropion (extended release) venlafaxine (extended release) clonidine paliperidone trazodone	1 2 3 4 5	1 2 3 4 5						
1191ha	20 y F				A/C	Ingst	Int-S	1		
		bupropion	1	1					bupropion	10.001 mg/L In Blood (unspecified) @ Autopsy
		bupropion	1	1					threobupropion	10.001 mg/L In Blood (unspecified) @ Autopsy
		topiramate lisdexamfetamine	2 3	2 3					amphetamine	2.1 mg/L In Blood (unspecified) @ Autopsy
		alprazolam ethanol	4 5	4 5						
1192pa	20 y M				U	Ingst	Unk	1		
		bupropion (extended release)	1	1					bupropion	5865 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine venlafaxine	2 3	2 3					venlafaxine	107 ng/mL In Blood (unspecified) @ Autopsy
		citalopram	4	4					citalopram	42.2 ng/mL In Blood (unspecified) @ Autopsy
1193ha	22 y M				A	Ingst	Int-S	1		
		bupropion	1	1					bupropion	608 ng/mL In Blood (unspecified) @ Unknown
		dextromethorphan	2	2					dextromethorphan	1186 ng/mL In Blood (unspecified) @ Unknown
		chlorpheniramine	3	3					chlorpheniramine	203 ng/mL In Blood (unspecified) @ Unknown
		lamotrigine	4	4					lamotrigine	27.2 mcg/mL In Blood (unspecified) @ Unknown
		marijuana	5	5					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	7.6 ng/mL In Blood (unspecified) @ Unknown
1194h	22 y M				A	Ingst	Int-S	2		
		amitriptyline	1	1						
1195ph	23 y F				U	Ingst	Int-S	2		
		perphenazine	2	2						
		doxepin ziprasidone paroxetine alprazolam hydrochlorothiazide fluoxetine olanzapine zolpidem methocarbamol	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9						
1196ph	23 y M				A/C	Ingst	Int-U	2		
		bupropion (extended release)	1	1						
1197h	23 y M				A/C	Ingst	Int-S	2		
		bupropion (extended release) escitalopram methylphenidate	1 2 3	1 2 3						
1198ph	23 y F				U	Ingst	Int-U	2		
		doxepin quetiapine sertraline	1 2 3	1 2 3						
1199h	24 y F				A	Ingst	Int-S	2		
		bupropion (extended release)	1	1						
1200ai	25 y F				U	Unk	Int-M	2		
		fluoxetine gabapentin bupropion	1 2 3	1 2 3						
1201pa	25 y F				U	Ingst	Int-S	1		
		lithium	1	1					lithium	1.1 mEq/L In Blood (unspecified) @ 1 h (pe)
		oxycodone	2	2					oxymorphone	18 ng/mL In Blood (unspecified) @ 1 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
		oxycodone	2	2					oxycodone (free)	480 ng/mL In Blood (unspecified) @ 1 h (pe)
		trazodone	3	3					trazodone	1 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ondansetron	4	4						
		olanzapine	5	5					olanzapine	130 ng/mL In Blood (unspecified) @ 1 h (pe)
		amphetamine/ dextroamphetamine	6	6					amphetamine	1300 ng/mL In Blood (unspecified) @ 1 h (pe)
		ibuprofen	7	7						
		acetaminophen/ antihistamine/ decongestant/ dextromethorphan	8	8					chlorpheniramine	19 ng/mL In Blood (unspecified) @ 1 h (pe)
		sertraline	9	9					sertraline	280 ng/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/salicylate	10	10					acetaminophen (apap)	390 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/salicylate	10	10					salicylate	430 mcg/mL In Blood (unspecified) @ 1 h (pe)
1202	25 y F	food coloring	11	11						
		fluoxetine	1	1	A/C	Ingst	Unk	1	norfluoxetine	10000 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	1	1					fluoxetine	13000 ng/mL In Blood (unspecified) @ Autopsy
		morphine	2	2					morphine (free)	200 ng/mL In Blood (unspecified) @ Autopsy
		levothyroxine	3	3						
		lamotrigine	4	4					lamotrigine	13 ng/mL In Blood (unspecified) @ Autopsy
		levetiracetam	5	5					levetiracetam	70 mcg/mL In Blood (unspecified) @ Autopsy
		risperidone	6	6						
		omeprazole	7	7						
		albuterol	8	8						
1203ph	26 y F				A/C	Ingst	Int-S	2		
		citalopram	1	1						
		olanzapine	2	2						
		lacosamide	3	3						
		alprazolam	4	4						
		temazepam	5	5						
		ondansetron	6	6						
1204pha	27 y M				A/C	Ingst	Int-S	1		
		doxepin	1	1					doxepin	410 ng/mL In Blood (unspecified) @ Unknown
		bupropion	2	2					bupropion	3200 ng/mL In Blood (unspecified) @ Unknown
		citalopram	3	3					citalopram	160 ng/mL In Blood (unspecified) @ Unknown
		ethanol	4	4					ethanol	94 mg/dL In Blood (unspecified) @ Unknown
1205h	28 y M				A	Ingst	Int-S	3		
		bupropion (extended release)	1	1						
1206h	29 y F				A	Ingst	Int-S	1		
		lithium	1	1					lithium	10 mEq/L In Blood (unspecified) @ Unknown
		lithium	1	1					lithium	8 mEq/L In Blood (unspecified) @ 30 m (pe)
		alprazolam	2	2						
		lorazepam	3	3						
		acetaminophen	4	4						
		gabapentin	5	5						
1207	30 y M				A	Ingst	Int-S	1		
		bupropion	1	1						
		ethanol	2	2					ethanol	115 mg/dL In Serum @ 4 h (pe)
		salicylate	3	3					salicylate	4.6 mg/dL In Serum @ 4 h (pe)
1208h	30 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
1209ai	30 y F				U	Unk	Int-S	1		
		amitriptyline	1	1						
		trazodone	2	2						
		citalopram	3	3						
1210ph	32 y F				U	Ingst	Unk	2		
		cyclic antidepressant, unknown	1	1					tca (total tricyclic concentration)	2003 ng/mL In Serum @ Unknown
		valproic acid	2	2						
1211ha	32 y M				A/C	Ingst + Unk	Int-S	1		
		bupropion	1	1					amphetamine	90 ng/mL In Unknown @ Unknown
		methamphetamine	2	2					methamphetamine	790 ng/mL In Unknown @ Unknown
		buspirone	3	3						
		haloperidol	4	4						
		benztropine	5	5						
1212phi	32 y F				A	Ingst	Int-S	1		
		amitriptyline	1	1						
		cyclobenzaprine	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
1213ai	33 y F	doxepin	1	1	U	Unk	Int-S	1		
		bupropion	2	2						
		trazodone	3	3						
1214ph	33 y F	bupropion (extended release) drug, unknown	1	1	A	Ingst	Int-S	2		
		trazodone	2	2						
			3	3						
1215a	34 y M	bupropion	1	1	A/C	Ingst	Int-S	1	bupropion	0.2 mcg/mL In Blood (unspecified) @ 1 h (pe)
		bupropion	1	1					hydroxybupropion	0.53 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ethanol	2	2					ethanol	0.061 g/dL In Blood (unspecified) @ 1 h (pe)
		risperidone	3	3					risperidone	0.014 mcg/mL In Blood (unspecified) @ 1 h (pe)
		risperidone	3	3					9-hydroxyrisperidone	0.034 mcg/dL In Blood (unspecified) @ 1 h (pe)
		duloxetine	4	4					duloxetine	0.078 mcg/mL In Blood (unspecified) @ 1 h (pe)
1216h	35 y M	bupropion	1	1	U	Ingst	Int-S	1		
		escitalopram	2	2						
1217ha	35 y F	bupropion (extended release)	1	1	A/C	Ingst	Int-S	1	hydroxybupropion	10 mcg/mL In Blood (unspecified) @ Autopsy
		bupropion (extended release)	1	1					bupropion	8 mcg/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	254 mg/dL In Blood (unspecified) @ Unknown
1218ai	35 y F	imipramine	1	1	U	Unk	Unk	1		
		trazodone	2	2						
		clonazepam	3	3						
1219ha	37 y F	imipramine	1	1	A	Ingst	Int-S	2		
		risperidone	2	2						
1220pha	37 y F	doxepin	1	1	A/C	Ingst	Int-S	1	doxepin	2.3 mg/L In Blood (unspecified) @ 4 h (pe)
		clonazepam	2	2					clonazepam	0.011 mg/L In Serum @ 4 h (pe)
		clonazepam	2	2					clonazepam	0.04 mg/L In Blood (unspecified) @ 4 h (pe)
		clonazepam	2	2					7-aminoclonazepam	0.066 mg/L In Serum @ 4 h (pe)
		clonazepam	2	2					7-aminoclonazepam	0.16 mg/L In Blood (unspecified) @ 4 h (pe)
		ethanol	3	2					ethanol	136 mg/dL In Serum @ Unknown
		alprazolam	4	4					alprazolam	0.01 mg/L In Blood (unspecified) @ 4 h (pe)
		alprazolam	4	4					alprazolam	0.01 mg/L In Serum @ 4 h (pe)
		gabapentin	5	5					gabapentin	12 mg/L In Blood (unspecified) @ 4 h (pe)
		gabapentin	5	5					gabapentin	15 mg/L In Serum @ 4 h (pe)
1221h	38 y M	lithium	1	1	A/C	Ingst	Int-S	1	lithium	1 mEq/L In Blood (unspecified) @ 11 h (pe)
		lithium	1	1					lithium	1.5 mEq/L In Blood (unspecified) @ 8 h (pe)
		lithium	1	1					lithium	2.3 mEq/L In Blood (unspecified) @ Unknown
1222i	38 y F	venlafaxine	1	1	U	Ingst	Unk	2		
		lamotrigine	2	2						
		phencyclidine	3	3						
		diclofenac	4	4						
1223phi	39 y M	amitriptyline	1	1	U	Ingst	Int-S	2		
1224h	40 y M	lithium	1	1	A	Ingst	Int-S	1		
		quetiapine	2	2						
		lorazepam	3	3						
		zolpidem	4	4						
1225h	40 y F	nortriptyline	1	1	A/C	Ingst	Int-S	2		
		cyclobenzaprine	2	2						
		acetutolol	3	3						
1226h	41 y M	cyclic antidepressant, unknown	1	1	A/C	Ingst	Int-S	1		
1227pha	41 y F	citalopram	1	1	A/C	Ingst	Int-S	2	ethanol	0.276 g/dL In Blood (unspecified) @ 3 h (pe)
		citalopram	1	1					morphine (free)	140 mcg/L In Blood (unspecified) @ 3 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		
1228h	41 y F	citalopram	1	1	A/C	Ingst	Int-S	2	benzoyllecognine	300 mcg/L In Blood (unspecified) @ 3 h (pe)		
		cocaine	2	2								
		ethanol	3	3							ethanol	316 mg/dL In Serum @ Unknown
		morphine	4	4								
		lithium	1	1								
1229	41 y F	lithium	1	1	U	Ingst	Int-S	2	ethanol	227 mg/dL In Serum @ 4 h (pe)		
		lithium	1	1								
		lithium	2	2								
		quetiapine	3	3								
		ethanol	4	4								
1230pha	41 y F	nortriptyline	1	1	U	Ingst	Int-S	2				
		acetaminophen/ butalbital/caffeine	2	2								
1231ph	41 y M	cyclic antidepressant, unknown	1	1	U	Ingst	Int-S	2	nortriptyline	268 ng/mL In Blood (unspecified) @ Unknown		
		cyclic antidepressant, unknown	1	1							amitriptyline	652 ng/mL In Blood (unspecified) @ Unknown
1232ph	41 y F	venlafaxine	1	1	A/C	Ingst	Int-S	2				
		quetiapine	2	2								
		diphenhydramine	3	3								
		ethanol	4	4								
1233h	42 y F	trazodone	1	1	A	Ingst	Int-S	2				
		zolpidem	2	2								
		acetaminophen/oxycodone	3	3								
		clonazepam	4	4								
1234h	42 y M	amitriptyline	2	1	A	Ingst	Int-S	2				
		tizanidine	1	1								
		famotidine	3	3								
		prednisone	4	4								
		natural gas	5	5								
1235ph	42 y M	amitriptyline	1	1	U	Ingst	Int-U	2				
1236ha	42 y M	bupropion (extended release)	1	1	A/C	Ingst	Int-S	1	venlafaxine	4000 mcg/L In Blood (unspecified) @ Autopsy		
		citalopram	2	2							norvenlafaxine	4000 mcg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3								
1237ai	43 y F	venlafaxine	1	1	U	Ingst + Unk	Int-S	1				
		metoprolol (extended release)	2	2								
		gabapentin	3	3								
		atorvastatin	4	4								
1238pha	43 y M	bupropion	1	1	U	Ingst	Int-S	2	venlafaxine	7.3 mg/L In Whole Blood @ 30 m (pe)		
		citalopram	2	2								
		trazodone	3	3							alprazolam	93 ng/mL In Plasma @ 30 m (pe)
		zolidem	4	4								
1239ai	43 y M	bupropion	1	1	U	Unk	Int-M	1				
		doxylamine	2	2								
1240	44 y F	amitriptyline	1	1	U	Ingst	Int-S	3				
1241a	44 y F	ethanol	2	2	A	Ingst	Int-S	1	ethanol	51 mg/dL In Blood (unspecified) @ Unknown		
		sertraline	3	3								
		doxepin	1	1							desmethyldoxepin	230 ng/mL In Blood (unspecified) @ Unknown
		doxepin	1	1								
		quetiapine	2	2							quetiapine	270 ng/mL In Blood (unspecified) @ Unknown
		sertraline	3	3								
		sertraline	3	3							desmethylsertraline	81 ng/mL In Blood (unspecified) @ Unknown
		mirtazapine	4	4								
		methamphetamine	5	5							methamphetamine	810 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	6	6								
		hydrocodone	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
1242ph	44 y M	acetaminophen/ butalbital/caffeine	8	8	A/C	Ingst	Int-S	2	acetaminophen (apap)	20 mcg/mL In Blood (unspecified) ⓐ Unknown
		acetaminophen/ butalbital/caffeine	8	8					butalbital	3.4 mcg/mL In Blood (unspecified) ⓐ Unknown
		desvenlafaxine	9	9						
		bupropion	10	10						
		lisinopril	11	11						
		alprazolam metoprolol	12 13	12 13						
1243h	44 y M	cyclic antidepressant, unknown	1	1	A/C	Ingst	Int-S	2		
		sertraline	1	1						
1244h	45 y F	tizanidine	2	2	A	Ingst	Int-S	1		
		amitriptyline	1	1						
1245ai	45 y F	lithium	2	2	U	Unk	Int-S	1		
		gabapentin	3	3						
		melatonin	4	4						
		topiramate	5	5						
1246h	46 y F	amitriptyline	1	1	U	Ingst	Int-S	2		
		citalopram	2	2						
		duloxetine	3	3						
1247pha	46 y F	bupropion	1	1	A	Ingst	Int-S	2		
		clonazepam	2	2						
		venlafaxine	1	1						
		acetaminophen/ diphenhydramine	2	2					diphenhydramine	2100 ng/mL In Blood (unspecified) ⓐ 30 m (pe)
1248h	46 y F	acetaminophen/ diphenhydramine	2	2	A/C	Ingst	Int-S	2	acetaminophen (apap)	235 mcg/mL In Blood (unspecified) ⓐ 30 m (pe)
		acetaminophen/ diphenhydramine	2	2					ethanol	325 mg/dL In Whole Blood ⓐ 30 m (pe)
		ethanol	3	3						
1249ai	46 y F	trazodone	1	1	U	Ingst + Unk	Unk	1		
1250a	47 y F	amitriptyline	1	1	A/C	Ingst	Int-S	1		
		buprenorphine	2	2						
		diphenhydramine	3	3						
1251ai	47 y M	venlafaxine (extended release)	1	1	U	Unk	Int-A	1	venlafaxine	110 mg/L In Blood (unspecified) ⓐ Autopsy
		venlafaxine (extended release)	1	1					venlafaxine	120 mg/L In Blood (unspecified) ⓐ Autopsy
1252h	48 y F	bupropion	1	1	A/C	Ingst	Int-S	1		
		hydroxyzine	2	2						
		ethanol	3	3					ethanol	170 mg/dL In Blood (unspecified) ⓐ Unknown
1253h	48 y F	lamotrigine	2	2	U	Ingst	Unk	2		
		ethanol	3	3						
1254ha	48 y F	venlafaxine	1	1	A	Ingst	Int-S	2		
		doxepin	1	1						
		escitalopram	2	2						
		hydroxyzine	3	3						
1255ai	48 y F	ethanol	4	4	U	Ingst + Unk	Unk	1	ethanol	130 mg/dL In Blood (unspecified) ⓐ Unknown
		amitriptyline	1	1						
		ethanol	2	2						
1256ai	48 y M	diazepam	3	3	U	Unk	Unk	2		
		citalopram	1	1						
		propranolol	2	2						
1257h	48 y M	doxepin	1	1	A/C	Ingst + Par	Int-S	1		
		haloperidol	2	2						
		clonazepam	3	3						
		insulin (glargine)	4	4						
		glipizide	5	5						
		metformin	6	6						
		ziprasidone	7	7						
		ethanol	8	8						
		vortioxetine	9	9						
		pregabalin	10	10						
1258	48 y F	bupropion (extended release)	1	1	A/C	Ingst	Int-S	2		
		carvedilol	2	2						
		clonazepam	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
1259pai	49 y F	venlafaxine	1	1	A	Ingst	Int-A	1	venlafaxine	20 mg/L In Blood (unspecified) @ Autopsy
		venlafaxine	1	1					venlafaxine	45 mg/kg In Liver @ Autopsy
		ethanol (non-beverage)	2	2					ethanol	0.02 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol (non-beverage)	2	2					ethanol	0.04 % (wt/Vol) In Vitreous @ Autopsy
		ethanol (non-beverage)	2	2					ethanol	0.12 % (wt/Vol) In Urine (quantitative only) @ Autopsy
1260pha	49 y F	bupropion (extended release)	1	1	A/C	Ingst	Int-S	1	bupropion	2300 ng/mL In Whole Blood @ Unknown
		trazodone	2	1						
		lurasidone	3	2						
		cyclobenzaprine	4	3						
		aripiprazole	5	4						
		gabapentin	6	5						
		amphetamine/ dextroamphetamine (extended release)	7	6						
		acetaminophen/hydrocodone	8	7						
		fluoxetine	9	8						
		cephalexin	10	9						
1261ha	49 y F	bupropion	1	1	A/C	Ingst	Int-S	1	bupropion	12.2 mcg/mL In Blood (unspecified) @ Autopsy
		verapamil	2	2					verapamil	2.3 mcg/mL In Blood (unspecified) @ 1 h (pe)
		escitalopram	3	3						
		ethanol	4	4						
		diphenhydramine	5	5						
		hydrochlorothiazide	6	6						
		lisinopril	7	7						
1262h	49 y M	amitriptyline	1	1	A/C	Ingst	Int-S	3		
		cyclobenzaprine	2	2						
1263pha	49 y F	amitriptyline	1	1	A/C	Ingst + Unk	Int-S	1	amitriptyline	10.001 mg/L In Blood (unspecified) @ Autopsy
		amitriptyline	1	1					nortriptyline	100 mg/kg In Liver @ Autopsy
		amitriptyline	1	1					amitriptyline	160.001 mg/kg In Liver @ Autopsy
		amitriptyline	1	1					nortriptyline	5.7 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoyllecognine	0.029 mg/L In Blood (unspecified) @ Autopsy
1264ai	49 y F	amitriptyline	1	1	U	Unk	Unk	3		
		methadone	2	2						
		diphenhydramine	3	3						
1265ai	49 y M	flvoxamine	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		oxymorphone	3	3						
1266ai	49 y M	trazodone	1	1	U	Unk	Unk	1		
		tramadol	2	2						
		morphine	3	3						
1267	50 y F	doxepin	1	1	U	Ingst	Int-S	2		
		hydroxyzine	2	2						
1268h	50 y F	fluoxetine	1	1	U	Ingst	Unk	3		
		trazodone	2	2						
		topiramate	3	3						
		alprazolam	4	4						
1269ph	50 y F	bupropion	1	1	A	Ingst	Int-S	1		
		antidepressant (SNRI)	2	2						
1270ai	50 y F	amitriptyline	1	1	U	Unk	Int-M	2		
		tramadol	2	2						
		bupropion	3	3						
1271p	51 y M	amitriptyline	1	1	A/C	Ingst	Int-S	2		
1272ai	51 y F	amitriptyline	1	1	U	Unk	Unk	1		
		fentanyl	2	2						
		morphine	3	3						
1273p	51 y F	doxepin	1	1	A	Ingst	Int-S	2		
		narcotic, other/unknown	2	2						
		benzodiazepine	3	3						
		cocaine	4	4						
1274a	51 y F	bupropion (extended release)	1	1	A/C	Ingst	Int-S	1	bupropion	13 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
1275h	52 y F	bupropion (extended release)	1	1	A	Ingst	Unk	2	bupropion	20 mg/L In Blood (unspecified) ⓐ Autopsy
		ethanol	2	2					ethanol	239 mg/dL In Blood (unspecified) ⓐ Unknown
		nortriptyline	1	1						
		topiramate	2	2						
		gabapentin	3	3						
		clonazepam	4	4						
1276ai	52 y F	lamotrigine	5	5	U	Unk	Unt-M	1		
		quetiapine	6	6						
		citalopram	1	1						
1277ph	52 y F	ethanol	2	2	U	Ingst	Int-S	2		
		quetiapine	3	3						
		bupropion	1	1						
1278	52 y F	clonazepam	2	2	A/C	Ingst	Int-S	2	ethanol	267 mg/dL In Blood (unspecified) ⓐ Unknown
		alcohol, unknown	3	3						
		amitriptyline	1	1						
1279ai	52 y F	trazodone	1	1	U	Ingst + Unk	Int-S	2		
		diphenhydramine	2	2						
		alcohol, unknown	3	3						
1280	53 y F	lithium	1	1	U	Ingst	Int-S	3		
		sodium citrate	2	2						
		salicylate	3	3					salicylate	6.6 mg/dL In Blood (unspecified) ⓐ Unknown
1281pha	54 y F				A/C	Ingst	Int-S	1		
		bupropion	1	1						
		duloxetine	2	2						
1282ph	54 y F	clonazepam	3	3	A/C	Ingst	Int-U	2		
		amitriptyline	1	1						
		pregabalin	2	2						
1283ai	54 y M	diazepam	3	3	U	Ingst + Unk	Int-A	1		
		amitriptyline	1	1						
		ethanol	2	2						
1284ai	54 y F	bupropion	1	1	U	Unk	Int-M	3		
		oxycodone	2	2						
		trazodone	3	3						
1285h	54 y M				A/C	Ingst	Int-S	1		
		doxepin	1	1						
1286ha	55 y F	zolpidem	2	2	A	Ingst	Int-S	2		
		cyclic antidepressant, unknown	1	1						
1287h	55 y F	lorazepam	2	2	U	Ingst	Unk	3		
		lithium	1	1					lithium	2.39 mEq/L In Serum ⓐ Unknown
1288ha	55 y F	drug, unknown	2	2	A	Ingst	Int-S	2		
		bupropion (extended release)	1	1					bupropion	49 ng/mL In Blood (unspecified) ⓐ Autopsy
1289pi	56 y F	clonazepam	2	2	A/C	Ingst	Int-S	1	7-aminoclonazepam	100 ng/mL In Blood (unspecified) ⓐ Autopsy
		clonazepam	2	2					clonazepam	810 ng/mL In Blood (unspecified) ⓐ Autopsy
		ethanol	3	3					ethanol	190 mg/dL In Serum ⓐ Unknown
		bupropion	1	1						
		valproic acid	2	2						
		oxybutynin	3	3						
1290ai	56 y F	clonazepam	4	4	U	Unk	Int-M	1		
		bupropion	1	1						
1291h	56 y F	gabapentin	2	2	A	Ingst	Int-S	2		
		venlafaxine	1	1						
1292ai	57 y M				U	Unk	Int-S	1		
		citalopram	1	1						
		trazodone	2	2						
1293h	58 y F	alprazolam	3	3	A/C	Ingst	Int-S	2		
		bupropion	1	1						
		metoprolol	2	2						
		citalopram	3	3						
		lisinopril	4	4						
		antiplatelet drug	5	5						
ethanol	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	
1294h	59 y F				U	Ingst	Int-S	2			
1295ha	59 y F	nortriptyline	1	1							
		venlafaxine	1	1	A	Ingst	Int-S	2			
		clonazepam	2	2							
		atenolol	3	3							
1296ai	59 y M	atenolol/chlorthalidone	4	4							
		clomipramine	1	1	U	Unk	Unk	2			
		bupirone	2	2							
		dextromethorphan	3	3							
1297ha	59 y M				A/C	Ingst	Int-S	3			
		amitriptyline	1	1							
1298	59 y F	clonidine	2	2							
					A/C	Ingst	Int-S	2			
		mirtazapine	1	1							
		citalopram	2	2							
1299ha	59 y M	oxycodone	3	3							
		clonazepam	4	4							
					U	Ingst	Int-U	2			
		nortriptyline	1	1							
1300ai	59 y F	morphine	2	2							
		tizanidine	3	3							
		lisinopril	4	4							
		gabapentin	5	5						gabapentin	74 mg/L In Blood (unspecified) @ 2 h (pe)
		alprazolam	6	6						alprazolam	0.037 mg/L In Blood (unspecified) @ 2 h (pe)
		pravastatin	7	7							
					U	Unk	Int-S	1			
		nortriptyline	1	1							
		fluoxetine	2	2							
		morphine	3	3							
		clonazepam	4	4							
1301ha	60 y F				A/C	Ingst	Int-S	1			
		amitriptyline	1	1					nortriptyline	180 ng/mL In Gastric (stomach content) @ Autopsy	
		amitriptyline	1	1					amitriptyline	71 ng/mL In Gastric (stomach content) @ Autopsy	
		bupropion	2	2							
		ethanol	3	3							
		duloxetine	4	4							
		metformin	5	5							
		gabapentin	6	6							
		levothyroxine	7	7							
		zolpidem	8	8							
		salicylate	9	9							
insulin	10	10									
marijuana	11	11						delta-9-carboxy-thc	5.9 ng/mL In Gastric (stomach content) @ Autopsy		
1302ai	60 y F				U	Unk	Unk	3			
1303	61 y F	citalopram	1	1							
					A	Ingst	Int-S	2			
1304a	61 y M	bupropion (extended release)	1	1							
		lorazepam	2	2							
1305ph	61 y M				A/C	Ingst	Int-S	2			
		bupropion	1	1					bupropion	710 ng/mL In Blood (unspecified) @ Autopsy	
		bupropion	1	1					bupropion	800 ng/mL In Serum @ Unknown	
1306ai	61 y F	trazodone	2	2							
					A/C	Ingst	Int-S	2			
		amitriptyline	1	1							
		lisinopril	2	2							
1307i	62 y F	alprazolam	3	3							
		ethanol	4	4					ethanol	100 mg/dL In Serum @ Unknown	
					U	Unk	Int-A	1			
1308h	62 y F	amitriptyline	1	1							
		tramadol	2	2							
		lorazepam	3	3							
1309ai	63 y F				A	Ingst	Int-S	2			
		bupropion	1	1							
					U	Unk	Unk	2			
1310h	64 y M	fluoxetine	1	1							
		bupropion	2	2							
		diazepam	3	3							
					A	Ingst	Int-S	2			
		sertraline	1	1							
		sumatriptan	2	2							
		mercaptopurine	3	3							
		adalimumab	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
1311p	64 y F	cyclobenzaprine	5	5	A	Ingst	Int-S	2		
		lamotrigine	6	6						
		lisinopril	7	7						
		lorazepam	8	8						
		pregabalin	9	9						
		metoprolol	10	10						
		temazepam	11	11						
		rivaroxaban	12	12						
		omeprazole	13	13						
		corticosteroids	14	14						
		diuretic, unknown	15	15						
		venlafaxine	1	1						
		acetaminophen/oxycodone	2	2						
		salicylate	3	3						
		meloxicam	4	4						
naproxen	5	5								
ibuprofen	6	6								
calcium	7	7								
1312ai	64 y M	sertraline	1	1	U	Unk	Int-A	3		
		ethanol	2	2						
		isopropanol	3	3						
1313ai	64 y F	venlafaxine	1	1	U	Unk	Int-S	2		
		mirtazapine	2	2						
		metoprolol	3	3						
1314h	66 y F	amitriptyline	1	1	A	Ingst	Int-S	1		
		ethanol	2	2						
1315ai	66 y M				U	Unk	Int-S	1		
		citalopram	1	1						
		carisoprodol	2	2						
		oxycodone	3	3						
1316h	67 y M	hydrocodone	4	4	A/C	Ingst	Int-S	1		
		bupropion (extended release)	1	1						
		risperidone	2	2						
		cyclobenzaprine	3	3						
1317h	67 y F	temazepam	4	4	A	Ingst	Int-S	2		
		fluorquinolone	5	5						
		amitriptyline	1	1						
		acetaminophen/hydrocodone	2	2						
		diazepam	3	3						
1318ai	67 y F				U	Unk	Int-S	1		
		amitriptyline	1	1						
		verapamil	2	2						
1319ai	67 y F	lorazepam	3	3	U	Unk	Unk	3		
		bupropion	1	1						
1320h	67 y F				A	Ingst	Int-U	2		
1321ha	68 y F	amitriptyline	1	1	A/C	Ingst	Int-S	2		
		cyclobenzaprine	2	2						
1322pha	68 y M	nortriptyline	1	1	A	Ingst	Int-S	3		
		olmesartan	2	2						
		eszopiclone	3	3						
		gabapentin	4	4						
		sertraline	5	5						
		pantoprazole	6	6						
		bupirone	7	7						
		metformin	8	8						
		lisinopril	9	9						
bupropion	1	1								
alprazolam	2	2								
1323h	69 y M				A	Ingst	Unk	3		
		bupropion	1	1						
		bethanechol	2	2						
		risperidone	3	3						
		levothyroxine	4	4						
		drug, unknown	5	5						
vitamin D	6	6								
1324h	70 y F				A/C	Ingst	Int-S	3		
1325ai	70 y F	bupropion (extended release)	1	1	U	Unk	Int-S	1		
		fluoxetine	1	1						
1326ai	70 y F				U	Unk	Int-S	1		
		trazodone	1	1						
		hydrocodone	2	2						
		toluene	3	3						
benzene	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
1327ai	75 y F	citalopram	1	1	U	Unk	Int-M	2		
		diazepam	2	2						
		ethanol	3	3						
1328ai	75 y M	cyclic antidepressant, unknown	1	1	U	Unk	Unk	3		
		cocaine	2	2						
		amphetamine	3	3						
1329pa	78 y F	amitriptyline	1	1	A/C	Ingst	Int-S	1	nortriptyline	3.3 mg/L In Blood (unspecified) @ Autopsy
		amitriptyline	1	1					nortriptyline	3.6 mg/L In Blood (unspecified) @ Autopsy
		amitriptyline	1	1					amitriptyline	4.9 mg/L In Blood (unspecified) @ Autopsy
		amitriptyline	1	1					amitriptyline	6.2 mg/L In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	0.4 mg/L In Blood (unspecified) @ Autopsy
		diazepam	2	2					diazepam	0.7 mg/L In Blood (unspecified) @ Autopsy
1330	80 y F	lithium	1	1	A	Ingst	Unt-G	2	lithium	2.45 mEq/L In Serum @ 1 h (pe)
		valproic acid	2	2						
1331a	84 y M	bupropion (extended release)	1	1	A/C	Ingst	Int-S	1	bupropion	1.2 mcg/mL In Blood (unspecified) @ Unknown
1332h	84 y M	sertraline	1	1	A/C	Ingst	Unt-T	3		
See Also case 17, 21, 36, 46, 48, 97, 121, 124, 147, 283, 313, 363, 408, 456, 494, 498, 522, 535, 553, 559, 578, 580, 603, 607, 612, 615, 623, 633, 638, 642, 660, 666, 679, 683, 693, 704, 706, 721, 737, 742, 747, 749, 751, 759, 778, 779, 785, 793, 800, 802, 807, 812, 815, 816, 820, 829, 836, 840, 860, 891, 894, 901, 903, 911, 924, 926, 936, 939, 952, 959, 960, 961, 966, 986, 993, 996, 1005, 1009, 1012, 1017, 1018, 1028, 1052, 1058, 1077, 1078, 1103, 1108, 1109, 1155, 1156, 1158, 1163, 1344, 1357, 1359, 1382, 1384, 1385, 1394, 1396, 1400, 1406, 1409, 1411, 1412, 1413, 1419, 1420, 1423, 1424, 1425, 1426, 1427, 1428, 1432, 1433, 1440, 1443, 1452, 1453, 1455, 1461, 1465, 1468, 1473, 1474, 1479, 1481, 1483, 1489, 1490, 1491, 1501, 1503, 1512, 1514, 1517, 1518, 1524, 1525, 1526, 1531, 1546, 1551, 1552, 1559, 1561, 1566, 1568, 1569, 1571, 1573, 1580, 1591, 1610, 1616, 1622, 1636, 1649, 1660, 1661, 1665, 1667, 1674, 1679, 1680, 1681, 1683, 1710, 1712, 1717, 1720, 1723, 1738, 1739, 1746, 1757, 1758, 1760, 1763, 1768, 1770, 1782, 1786, 1789, 1793, 1799, 1801, 1805, 1806, 1811, 1815, 1832, 1845, 1858, 1879, 1914, 1946, 1972, 2027, 2037, 2050, 2110, 2120, 2135, 2149, 2180, 2221, 2232, 2237, 2296, 2297, 2331, 2358, 2363, 2370, 2374, 2379, 2412, 2452, 2489, 2492, 2517, 2525, 2544, 2546, 2556, 2561, 2599, 2676										
Antihistamines										
1333p	3 y M	hydroxyzine	1	1	A			2	Ingst + Inhal + Derm	Unt-G
		lidocaine	2	2						
1334	18 y M	diphenhydramine	1	1	A	Ingst	Int-S	1		
1335ai	18 y M	diphenhydramine	1	1	U	Unk	Int-S	1		
		ethanol	2	2						
1336ai	18 y M	diphenhydramine	1	1	U	Ingst	Int-S	1		
		ethanol	2	2						
1337h	19 y F	diphenhydramine	1	1	A	Ingst	Int-S	1		
1338ph	23 y F	diphenhydramine	1	1	A	Ingst	Int-S	1		
1339pha	26 y F	diphenhydramine	1	1	A	Ingst	Int-S	1		
1340h	27 y M	diphenhydramine	1	1	A/C	Par	Int-U	2		
1341pha	29 y F	hydroxyzine	1	1	A	Ingst	Int-S	2	hydroxyzine	9.3 mcg/mL In Blood (unspecified) @ Unknown
1342ha	29 y F	diphenhydramine	1	1	A	Ingst	Int-S	1		
[1343pha]	29 y F	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	5400 mcg/L In Blood (unspecified) @ 3 h (pe)
1344ha	30 y F	diphenhydramine	1	1	A	Ingst	Unk	1	diphenhydramine	26 mcg/mL In Whole Blood @ Autopsy
		diphenhydramine	1	1					diphenhydramine	38 mcg/mL In Whole Blood @ Autopsy
		quetiapine	2	2					quetiapine	2.3 mcg/mL In Whole Blood @ Autopsy
		quetiapine	2	2					quetiapine	2.4 mcg/mL In Whole Blood @ Autopsy
		fluoxetine	3	3					norfluoxetine	0.69 mcg/mL In Whole Blood @ Autopsy
		fluoxetine	3	3					norfluoxetine	0.94 mcg/mL In Whole Blood @ Autopsy
		bupropion	4	4					bupropion	0.32 mcg/mL In Whole Blood @ Autopsy
1345ai	31 y M	diphenhydramine	1	1	U	Unk	Int-S	1		
1346	33 y F	diphenhydramine	1	1	A	Ingst	Int-S	1		
1347ai	33 y F	diphenhydramine	1	1	U	Ingst + Unk	Int-S	1		
		alprazolam	2	2						
		ethanol	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
1348h	34 y F	hydroxyzine metoprolol atorvastatin	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
1349h	36 y M	diphenhydramine	1	1	A	Ingst	Int-S	2		
1350hi	37 y M	diphenhydramine	1	1	U	Ingst	Int-S	2		
1351ph	38 y M	diphenhydramine	1	1	A	Ingst	Int-S	1		
1352ai	38 y M	chlorpheniramine methamphetamine	2 1	1 1	U	Unk	Int-A	2		
1353h	39 y F	diphenhydramine	1	1	A	Ingst	Int-S	1	diphenhydramine	2.2 mg/L In Blood (unspecified) ⓐ Unknown
1354pai	42 y M	diphenhydramine ethanol	1 2	1 2	A	Ingst	Int-S	3	diphenhydramine ethanol	6500 ng/mL In Blood (unspecified) ⓐ Autopsy 440 mg/dL In Blood (unspecified) ⓐ Autopsy
1355pa	45 y M	diphenhydramine acetaminophen/ caffeine/salicylate zolpidem naproxen ethanol (non-beverage)	1 2 3 4 5	1 2 3 4 5	A	Ingst	Int-S	1	diphenhydramine ethanol	7084 ng/mL In Blood (unspecified) ⓐ Autopsy 180 mg/dL In Blood (unspecified) ⓐ Unknown
1356ai	45 y F	diphenhydramine acetaminophen diazepam salicylate	1 2 3 4	1 2 3 4	U	Unk	Unk	2		
1357ai	46 y M	diphenhydramine fluoxetine lamotrigine	1 2 3	1 2 3	U	Unk	Int-S	1		
1358ai	47 y M	hydroxyzine cetirizine lamotrigine	1 2 3	1 2 3	U	Ingst	Int-S	1		
1359ha	48 y F	diphenhydramine amitriptyline gabapentin hydromorphone	1 2 3 4	1 2 3 4	A	Par	Int-A	1	diphenhydramine amitriptyline gabapentin hydromorphone	555 ng/mL In Blood (unspecified) ⓐ Autopsy 58.6 ng/mL In Blood (unspecified) ⓐ Autopsy 1.9 mcg/mL In Blood (unspecified) ⓐ Autopsy 2.8 ng/mL In Blood (unspecified) ⓐ Autopsy
1360h	51 y F	diphenhydramine	1	1	A	Ingst	Int-S	2		
1361ai	55 y M	diphenhydramine	1	1	U	Unk	Unk	3		
1362ai	57 y M	diphenhydramine ethanol	1 2	1 2	U	Ingst + Unk	Int-S	1		
1363h	58 y M	diphenhydramine	1	1	A	Ingst	Int-S	2		
1364	61 y F	diphenhydramine ethanol	1 2	1 2	U	Ingst	Unk	2	ethanol	381 mg/dL In Whole Blood ⓐ 30 m (pe)
1365h	66 y F	hydroxyzine alcohol, unknown drug, unknown	1 2 3	1 2 3	A/C	Ingst + Unk	Int-S	2		
See Also case 8, 16, 20, 46, 61, 65, 303, 316, 368, 395, 422, 432, 468, 497, 499, 507, 514, 515, 521, 540, 565, 607, 612, 631, 636, 654, 678, 711, 722, 737, 747, 776, 812, 814, 820, 827, 875, 906, 924, 945, 991, 998, 1000, 1001, 1037, 1059, 1073, 1156, 1193, 1231, 1233, 1249, 1251, 1254, 1261, 1264, 1267, 1279, 1380, 1401, 1410, 1411, 1424, 1432, 1440, 1443, 1444, 1465, 1474, 1484, 1489, 1492, 1580, 1634, 1635, 1658, 1660, 1717, 1721, 1776, 1797, 1808, 1816, 1820, 1919, 1972, 2040, 2098, 2128, 2157, 2232, 2246, 2296, 2357, 2404, 2448, 2450, 2492, 2507, 2598, 2599, 2606										
Antimicrobials										
1366h	17 y F	hydroxychloroquine	1	1	C	Ingst	AR-D	2		
1367h	25 y F	sulfamethoxazole/ trimethoprim	1	1	A/C	Ingst	AR-D	2		
1368i	34 y F	cephalexin	1	1	U	Ingst	AR-D	2		
[1369pa]	47 y F	tilmicosin	1	1	A	Par	Unt-O	1		
1370h	52 y F	isoniazid acetaminophen	1 2	1 2	A	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
1371pha	59 y M	hydroxychloroquine	1	1	A	Ingst	Int-S	1		
		ethanol	2	2						
		isoniazid	3	3						
1372h	75 y M	sulfamethoxazole/ trimethoprim	1	1	A/C	Ingst	Unt-M	2		
		pomalidomide	2	2						
		daratumumab	3	3						
		metformin	4	4						
		thyroxine	5	5						
		furosemide	6	6						
		atorvastatin	7	7						
		acyclovir	8	8						
		pantoprazole	9	9						
See Also case 631, 1109, 1260, 1316, 1413, 1463, 1503, 1661, 1722, 1868, 2260, 2535										
Antineoplastics										
1373h	46 y F	methotrexate	1	1	A	Par	Unt-T	1		
1374h	65 y F	methotrexate	1	1	A	Ingst	Int-M	2		
1375h	74 y F	methotrexate	1	1	A/C	Ingst	Unt-T	2	methotrexate	0.1 mmol/L In Blood (unspecified) @ 6 d (pe)
1376	74 y F	methotrexate	1	1	A/C	Ingst	Unk	2		
		metoprolol	2	2						
		drug, unknown	3	3						
1377	80 y F	methotrexate	1	1	C	Ingst	AR-D	1	methotrexate	0 mg/mL In Blood (unspecified) @ Unknown
1378h	82 y M	methotrexate	1	1	C	Ingst	Unt-T	1		
[1379ha]	96 y F	methotrexate	1	1	C	Ingst	Unt-T	3	methotrexate	0.04 mmol/L In Blood (unspecified) @ 36 h (pe)
		methotrexate	1	1					methotrexate	0.08 mmol/L In Blood (unspecified) @ 2 h (pe)
See Also case 1310, 1372										
Cardiovascular Drugs										
1380h	10 y F	flecainide	1	1	A	Ingst	Int-S	2		
		diphenhydramine	2	2						
1381	16 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		hydrochlorothiazide	2	2						
1382ha	17 y M	clonidine	1	1	A	Ingst	Int-S	2	clonidine	13 ng/mL In Serum @ Unknown
		topiramate	2	2					topiramate	34000 ng/mL In Serum @ Unknown
		lamotrigine	3	3					lamotrigine	8.4 mcg/mL In Serum @ Unknown
		citalopram	4	4					citalopram	3600 ng/mL In Serum @ Unknown
		olanzapine	5	5					olanzapine	870 ng/mL In Serum @ Unknown
		atomoxetine	6	6						
1383ha	19 y F	verapamil	1	1	U	Ingst	Int-S	1	verapamil	1300 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	2	2						
		lorazepam	3	3						
1384	19 y M	metoprolol	1	1	A	Ingst	Int-S	2		
		duloxetine	2	2						
		zolpidem	3	3						
1385ha	20 y M	amlodipine/benazpril	1	1	A/C	Ingst	Int-S	1	amlodipine	190 ng/mL In Blood (unspecified) @ 17 h (pe)
		amlodipine/benazpril	1	1					amlodipine	36 ng/mL In Blood (unspecified) @ 24 h (pe)
		amlodipine/benazpril	1	1					amlodipine	40 ng/mL In Blood (unspecified) @ 19 h (pe)
		bupropion (extended release)	2	2						
		citalopram	3	3					citalopram	549 ng/mL In Blood (unspecified) @ Unknown
		citalopram	3	3					citalopram	635 ng/mL In Blood (unspecified) @ Unknown
		citalopram	3	3					citalopram	657 ng/mL In Blood (unspecified) @ Unknown
		duloxetine	4	4						
1386	24 y F	flecainide	1	1	A	Ingst	Int-S	1		
		beta blocker	2	2						
		ethanol	3	3						
1387h	26 y M	carvedilol	1	1	A	Ingst	Int-S	2		
		furosemide	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
1388h	26 y M	neбиволol hydrochlorothiazide/losartan	1 2	1 2	A	Ingst	Int-S	1		
1389ph	28 y F	beta blocker acetaminophen/ caffeine/salicylate ibuprofen ethanol	1 2 3 4	1 2 3 4	U	Ingst	Int-S	2		
1390ph	29 y F	flecainide alprazolam ethanol	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
1391h	31 y F	amlodipine clonidine gabapentin lisinopril	1 2 3 4	1 2 3 4	A	Ingst	Int-S	1		
1392h	32 y M	metoprolol drug, unknown	1 2	1 2	A/C	Ingst	Int-S	2		
1393a	33 y M	propranolol propranolol propranolol propranolol propranolol propranolol propranolol	1 1 1 1 1 1 1	1 1 1 1 1 1 1	U	Ingst	Int-S	1	delta-9-carboxy-thc aripiprazole delta-9-thc propranolol paroxetine midazolam amphetamine	18 ng/mL In Blood (unspecified) @ 1 m (pe) 280 ng/mL In Blood (unspecified) @ 1 m (pe) 3 ng/mL In Blood (unspecified) @ 1 m (pe) 3100 ng/mL In Blood (unspecified) @ 1 m (pe) 38 ng/mL In Blood (unspecified) @ 1 m (pe) 70 ng/mL In Blood (unspecified) @ 1 m (pe) 76 ng/mL In Blood (unspecified) @ 1 m (pe)
1394h	33 y F	propranolol escitaopram methylphenidate (extended release) lamotrigine diazepam melatonin olanzapine	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A	Ingst	Int-S	2		
1395h	35 y M	diltiazem methamphetamine	1 2	1 2	A	Ingst + Par	Int-S	1	diltiazem methamphetamine	0.041 mg/L In Blood (unspecified) @ 1 h (pe) 0.29 mg/L In Blood (unspecified) @ 1 h (pe)
1396ha	35 y F	verapamil quetiapine lamotrigine cyclobenzaprine tizanidine fluoxetine fluoxetine trazodone methocarbamol hydrocodone	1 2 3 4 5 6 6 7 8 9	1 2 3 4 5 6 6 7 8 9	A	Ingst	Int-S	1	verapamil quetiapine cyclobenzaprine fluoxetine norfluoxetine lamotrigine hydrocodone	160 ng/mL In Whole Blood @ Unknown 380 ng/mL In Whole Blood @ Unknown 168 ng/mL In Whole Blood @ Unknown 1100 ng/mL In Whole Blood @ Unknown 520 ng/mL In Whole Blood @ Unknown 2.4 ng/mL In Whole Blood @ Unknown 28 ng/mL In Whole Blood @ Unknown
1397a	35 y F	verapamil gabapentin	1 2	1 2	A	Ingst	Int-S	1		
1398h	35 y F	amlodipine	1	1	A	Ingst	Int-S	2		
1399a	36 y F	propranolol clonazepam	1 2	1 2	U	Ingst	Int-S	1	7-aminoclonazepam	23.1 ng/mL In Blood (unspecified) @ Autopsy
1400pha	37 y F	propranolol ethanol fluoxetine	1 2 3	1 2 3	A/C	Ingst	Int-S	1	propranolol ethanol fluoxetine	9800 ng/mL In Whole Blood @ Unknown 129 mg/dL In Whole Blood @ Unknown 1000 ng/mL In Whole Blood @ Unknown
1401ha	37 y M	fluoxetine amlodipine hydroxyzine meclizine estradiol loratadine	3 1 2 3 4 5	3 1 2 3 4 5	U	Ingst	Int-S	2	norfluoxetine	900 ng/mL In Whole Blood @ Unknown
1402ha	37 y F	flecainide	1	1	A/C	Ingst	Int-S	2	flecainide	6.3 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
1403h	37 y F				A	Ingst	Int-S	1		
1404	38 y M	verapamil	1	1						
1405ph	38 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
1406h	38 y F	calcium antagonist	1	1	U	Ingst	Unk	2		
		propranolol	1	1						
		levetiracetam	2	2						
		escitalopram	3	3						
		gabapentin	4	4						
		acetaminophen/chlorzoxazone	5	5						
1407ha	39 y F				A	Ingst	Unk	1		
		diltiazem	1	1						
		lisinopril	2	2						
1408	39 y F				A/C	Ingst	Int-S	2		
		metoprolol (extended release)	1	1						
1409h	39 y F				A	Ingst	Int-S	2		
		metoprolol (extended release)	1	1						
		amlodipine	2	2						
		hydrochlorothiazide	3	3						
		quetiapine	4	4						
		potassium chloride	5	5						
		escitalopram	6	6						
1410h	40 y F				A	Ingst	Int-S	2		
		carvedilol	1	1						
		amlodipine	2	2						
		bumetanide	3	3						
		diphenhydramine	4	4						
		omeprazole	5	5						
1411ph	40 y M				A	Ingst	Int-S	2		
		carvedilol	1	1						
		bupropion	2	2						
		lamotrigine	3	3						
		cyclobenzaprine	4	4						
		hydroxyzine	5	5						
		haloperidol	6	6						
		lisinopril	7	7						
		acetaminophen/codeine	8	8						
		atorvastatin	9	9						
		rivaroxaban	10	10						
		omeprazole	11	11						
		metformin	12	12						
		lorazepam	13	13						
		lovastatin	14	14						
		levothyroxine	15	15						
1412ha	40 y F				U	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	0.069 mg/L In Serum @ Unknown
		amlodipine	1	1					amlodipine	0.99 mg/L In Blood (unspecified) @ Autopsy
		cyclobenzaprine	2	2					cyclobenzaprine	0.71 mg/L In Blood (unspecified) @ Autopsy
		duloxetine	3	3					duloxetine	0.22 mg/L In Blood (unspecified) @ Autopsy
		duloxetine	3	3					duloxetine	3.7 mg/kg In Liver @ Autopsy
		hydrochlorothiazide	4	4						
		ethanol	5	5					ethanol	224 mg/dL In Serum @ 15 m (pe)
		clonazepam	6	6						
		gabapentin	7	7					gabapentin	3.9 mg/L In Blood (unspecified) @ Autopsy
1413ph	40 y M				U	Unk	Int-S	3		
		amlodipine	1	1					amlodipine	45 ng/mL In Blood (unspecified) @ Unknown
		antimalarial (chloroquine type)	2	2						
		antidepressant (SSRI)	3	3						
1414h	40 y M				A/C	Ingst	Int-S	2		
		atenolol	1	1						
		acetaminophen/hydrocodone	2	2						
		clonazepam	3	3						
		zolpidem	4	4						
1415	41 y M				A/C	Ingst	Int-S	2		
		verapamil	1	1						
		amlodipine	2	2						
		glipizide	3	3						
		glipizide	4	4						
		lisinopril	5	5						
		carvedilol	6	6						
1416h	41 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
1417ph	41 y F				A/C	Ingst	Int-S	1		
		drotaverine	1	1						
		ethanol	2	2					ethanol	275 mg/dL In Blood (unspecified) @ 30 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
1418ph	42 y M	propafenone	1	1	A/C		Int-S	1		
		ethanol	2	2						
1419ph	42 y F	amlodipine	1	1	A	Ingst + Aspir	Int-S	2		
		methadone	2	2						
		bupropion	3	3						
		gabapentin	4	4						
		salicylate	5	5						
1420ha	42 y M	diltiazem (extended release)	1	1	A	Ingst	Int-S	1		
		hydralazine	2	2						
		citalopram	3	3						
		mycophenolate mofetil	4	4						
		tacrolimus	5	5						
		prednisone	6	6						
1421h	42 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		metoprolol	2	2						
1422	43 y F	metoprolol	1	1	A	Ingst	Int-S	2		
1423	43 y F	amlodipine	1	1	A/C	Ingst	Int-S	1		
		trazodone	2	2						
		venlafaxine	3	3						
		alprazolam	4	4						
		ethanol	5	5						
1424a	44 y F	amlodipine	1	1	A/C	Ingst	Int-S	1	amlodipine	428 ng/mL In Blood (unspecified) @ 10 m (pe)
		duloxetine	2	2					duloxetine	671 ng/mL In Blood (unspecified) @ 10 s (pa)
		ethanol	3	3					ethanol	163 mg/dL In Blood (unspecified) @ 10 m (pe)
		lamotrigine	4	4					lamotrigine	3.5 mcg/mL In Blood (unspecified) @ 10 m (pe)
		hydroxyzine	5	5					hydroxyzine	109 ng/mL In Blood (unspecified) @ 10 m (pe)
1425pi	44 y F	metoprolol (extended release)	1	1	A	Ingst	Int-S	2		
		doxepin	2	2						
		antipsychotic (atypical)	3	3						
		alprazolam	4	4						
		bupropion (extended release)	5	5						
		desvenlafaxine	6	6						
		acetaminophen/ butalbital/caffeine	7	7					acetaminophen (apap)	17 mcg/mL In Blood (unspecified) @ Unknown
		gabapentin	8	8						
		sertraline	9	9						
		lisinopril	10	10						
		mirtazapine	11	11						
		ibuprofen	12	12						
		pantoprazole	13	13						
1426hi	44 y M	beta blocker	1	1	A/C	Ingst	Int-S	2		
		amitriptyline	2	2						
		bupirone	3	3						
1427a	44 y F	diltiazem	1	1	A	Ingst	Int-S	1	diltiazem	64 mg/L In Blood (unspecified) @ Autopsy
		diltiazem	1	1					diltiazem	88 mg/L In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	1 mg/L In Blood (unspecified) @ Autopsy
		diazepam	2	2					diazepam	1.4 mg/L In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	1.6 mg/L In Blood (unspecified) @ Autopsy
		carisoprodol	3	3					meprobamate	11 mg/L In Blood (unspecified) @ Autopsy
		carisoprodol	3	3					carisoprodol	22 mg/L In Blood (unspecified) @ Autopsy
		venlafaxine	4	4					venlafaxine	2.7 mg/L In Blood (unspecified) @ Autopsy
		venlafaxine	4	4					venlafaxine	3.1 mg/L In Blood (unspecified) @ Autopsy
		fluoxetine	5	5					fluoxetine	1.7 mg/L In Blood (unspecified) @ Autopsy
		fluoxetine	5	5					fluoxetine	2 mg/L In Blood (unspecified) @ Autopsy
1428a	45 y M	amlodipine	1	1	A	Ingst	Int-S	1	amlodipine	0.6 mg/L In Blood (unspecified) @ Autopsy
		metoprolol	2	2					metoprolol	0.7 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
		sertraline	3	3					sertraline	0.4 mg/L In Blood (unspecified) @ Autopsy
		sertraline	3	3					desmethylsertraline	0.4 mg/L In Blood (unspecified) @ Autopsy
		lovastatin	4	4						
		ethanol (non-beverage)	5	5					ethanol	0.09 % (wt/Vol) In Blood (unspecified) @ Unknown
		ethanol (non-beverage)	5	5					ethanol	134 mg/dL In Blood (unspecified) @ Unknown
1429h	45 y F	metoprolol	1	1	U	Ingst	Int-S	1		
		lorazepam	2	2						
1430ha	45 y F	metoprolol	1	1	A/C	Ingst + Oth + Unk	Int-S	1	metoprolol	3 ng/mL In Blood (unspecified) @ Unknown
		hydrocodone	2	2					hydrocodone	67 ng/mL In Blood (unspecified) @ Unknown
		insulin	3	3						
		lorazepam	4	4						
		angiotensin converting enzyme inhibitor	5	5						
1431ai	45 y F	metoprolol	1	1	U	Unk	Unk	2		
		hydrocodone	2	2						
		lorazepam	3	3						
1432h	46 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		hydromorphone	2	2						
		ondansetron	3	3						
		hydroxyzine	4	4						
		tamsulosin	5	5						
		venlafaxine	6	6						
1433ha	46 y F	felodipine	1	1	A/C	Ingst	Int-S	2		
		metformin	2	2						
		fluoxetine	3	3						
		gabapentin	4	4						
		allopurinol	5	5						
1434ha	46 y M	metoprolol	1	1	A	Ingst	Int-S	1	metoprolol	5800 ng/mL In Blood (unspecified) @ Unknown
		calcium antagonist	2	2					nifedipine	420 ng/mL In Blood (unspecified) @ Unknown
1435pa	46 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		cyclobenzaprine	2	2					cyclobenzaprine	23 ng/mL In Blood (unspecified) @ 1 h (pe)
		cyclobenzaprine	2	2					cyclobenzaprine	92 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	3	3						
		oxycodone	4	4					oxycodone (free)	100 ng/mL In Blood (unspecified) @ 1 h (pe)
		oxycodone	4	4					morphine (free)	140 ng/mL In Blood (unspecified) @ Autopsy
		oxycodone	4	4					oxycodone (free)	5.5 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	5	5					ethanol	191 mg/dL In Blood (unspecified) @ 1 h (pe)
1436h	46 y F	amlodipine	1	1	A	Ingst	Int-S	1		
		atenolol	2	2						
1437h	46 y M	beta blocker	1	1	A	Ingst	AR-D	3		
1438h	46 y F	diltiazem	1	1	A/C	Ingst	Int-S	1		
		clonidine	2	2						
		acetaminophen/hydrocodone	3	3						
		clonazepam	4	4						
		ethanol	5	5						
		marijuana	6	6						
[1439ha]	47 y F	flecainide	1	1	A/C	Ingst	Int-S	1	flecainide	3.82 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	170 mg/dL In Blood (unspecified) @ Unknown
1440ha	47 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		trazodone	2	2					trazodone	0.93 mcg/mL In Blood (unspecified) @ Autopsy
		olanzapine	3	3					olanzapine	330 ng/mL In Blood (unspecified) @ Autopsy
		hydroxyzine	4	4					hydroxyzine	630 ng/mL In Blood (unspecified) @ Autopsy
		valproic acid	5	5					valproic acid	181 mcg/mL In Serum @ Unknown
		fluoxetine	6	6					norfluoxetine	180 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	6	6					fluoxetine	790 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
1441h	47 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		metoprolol (extended release)	2	2						
1442h	48 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		atenolol	2	2						
		lisinopril	3	3						
		simvastatin	4	4						
1443h	48 y M	amlodipine	1	1	U	Ingst	Int-S	2		
		hydrochlorothiazide/losartan	2	2						
		mirtazapine	3	3						
		ethanol	4	4						
		famotidine	5	5						
		vitamin B-1	6	6						
		folic acid	7	7						
1444h	48 y F	amlodipine	1	1	U	Ingst	Int-S	1		
		cyclobenzaprine	2	2						
		promethazine	3	3						
1445ai	48 y M	propranolol	1	1	U	Unk	Int-S	1		
		lorazepam	2	2						
		caffeine	3	3						
1446p	49 y F	metoprolol	1	1	U	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	2	2						
		ethanol	3	3						
1447h	49 y M	diltiazem	1	1	A	Ingst	Int-S	2		
1448a	49 y M	cardiac glycoside	1	1	A	Ingst	Int-S	1	digoxin	0.009 ng/mL In Blood (unspecified) @ Unknown
		butalbital/caffeine/ codeine/salicylate	2	2					codeine	0.1 mg/L In Blood (unspecified) @ Autopsy
		butalbital/caffeine/ codeine/salicylate	2	2					morphine (free)	15 mcg/L In Blood (unspecified) @ Autopsy
		butalbital/caffeine/ codeine/salicylate	2	2					salicylate	28.6 mg/dL In Blood (unspecified) @ Unknown
		butalbital/caffeine/ codeine/salicylate	2	2					butalbital	8.7 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	3	3						
1449	49 y M	nifedipine	1	1	U	Ingst	Int-S	2		
		metoprolol	2	2						
1450ha	49 y M	metoprolol	1	1	U	Ingst	Int-U	1		
1451a	49 y F	metoprolol	1	1	A/C	Ingst	Int-S	1	metoprolol	3.1 mg/L In Serum @ Autopsy
		metoprolol	1	1					metoprolol	130 mg/L In Blood (unspecified) @ Autopsy
		metoprolol	1	1	A	Ingst	Int-S	2	metoprolol	440 mg/kg In Liver @ Autopsy
1452a	49 y F	metoprolol	1	1					metoprolol	4523 ng/mL In Blood (unspecified) @ Autopsy
		toilet bowl cleaner (anionic/ borates/nonionic)	2	2						
		quetiapine	3	3					quetiapine	28213 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	4	4					fluoxetine	4778 ng/mL In Blood (unspecified) @ Autopsy
		zolpidem	5	5					zolpidem	1000 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	6	6					diazepam	1990 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	6	6					nordiazepam	347 ng/mL In Blood (unspecified) @ Autopsy
		buspirone	7	7						
1453ph	49 y F	propranolol	1	1	A/C	Ingst	Int-S	2		
		amitriptyline	2	2						
		benzodiazepine	3	3						
1454ai	49 y M	metoprolol	1	1	U	Ingst	Int-S	1		
1455ha	50 y F	amlodipine	1	1	A/C	Ingst	Int-S	2	amlodipine	610 ng/mL In Blood (unspecified) @ Autopsy
		metoprolol	2	2						
		venlafaxine	3	3						
		clonazepam	4	4						
		zolpidem	5	5						
		gabapentin	6	6						
		levothyroxine	7	7						
		Medroxyprogesterone acetate	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
[1456ha]	50 y F	amlodipine	1	1	C	Ingst	Int-S	1	amlodipine	840 ng/mL In Blood (unspecified) @ Autopsy
1457ph	50 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
1458	50 y M	drug, unknown	2	2	A	Ingst	Int-S	2		
		diltiazem	1	1						
		clonidine	2	2						
		ethanol	3	3					ethanol	25 mg/dL In Blood (unspecified) @ 1 h (pe)
1459p	50 y F	diltiazem	1	1	A/C	Ingst + Aspir	Int-S	1		
		amlodipine	2	2						
		losartan	3	3						
1460ai	50 y M	clonidine	1	1	U	Unk	Int-A	3		
		metoprolol	2	2						
1461h	51 y M	propranolol	1	1	A/C	Ingst	Int-U	2		
		amlodipine	2	2						
		quetiapine	3	3						
		primidone	4	4						
		trazodone	5	5						
		escitaopram	6	6						
1462ph	51 y M	propranolol	1	1	A/C	Ingst	Int-S	1		
		ethanol	2	2						
1463ha	51 y F	amlodipine	1	1	A	Ingst	Int-S	1	amlodipine	730 ng/mL In Blood (unspecified) @ Unknown
1464h	51 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		clopidogrel	2	2						
1465ha	52 y F	calcium antagonist	1	1	A/C	Ingst	Int-S	1	amlodipine	890 ng/mL In Whole Blood @ Autopsy
		atenolol	2	2					atenolol	4500 ng/mL In Blood (unspecified) @ Autopsy
		amlodipine	3	3					amlodipine	890 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	4	4					alprazolam	34 ng/mL In Blood (unspecified) @ Autopsy
		tramadol	5	5					tramadol	1100 ng/mL In Blood (unspecified) @ Autopsy
		tramadol	5	5					o-demethyl tramadol	64 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	6	6					norfluoxetine	72 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	6	6					fluoxetine	77 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	7	7					diphenhydramine	230 ng/mL In Blood (unspecified) @ Autopsy
1466p	52 y M	verapamil	1	1	A/C	Ingst	Int-S	2		
		acetaminophen/oxycodone	2	2						
		oxycodone	3	3						
		zolpidem (extended release)	4	4						
1467	52 y F	beta blocker	1	1	A	Ingst	Int-S	2		
		oxycodone	2	2						
1468h	52 y M	diltiazem (extended release)	1	1	A	Ingst	Int-S	2		
		glipizide	2	2						
		desipramine	3	3						
		metformin	4	4						
		ramipril	5	5						
		hydrochlorothiazide	6	6						
		temazepam	7	7						
		lorazepam	8	8						
1469ha	52 y F	labetolol	1	1	A	Ingst	Int-S	1		
		amlodipine	2	2						
		alprazolam	3	3					alprazolam	160 ng/mL In Blood (unspecified) @ Unknown
1470h	52 y M	verapamil	1	1	A/C	Ingst	Int-S	1		
1471	52 y M	amlodipine	1	1	A	Ingst	Int-S	3		
		clonazepam	2	2						
1472h	52 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
1473ha	52 y F	calcium antagonist	1	1	A	Ingst + Unk	Int-S	1		
		risperidone	2	2					risperidone	75 ng/mL In Blood (unspecified) @ Unknown
		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
1474	53 y F	amlodipine asenapine valproic acid antidepressant hydroxyzine omeprazole alprazolam	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A/C	Ingst	Int-S	2	valproic acid	122 mcg/mL In Blood (unspecified) @ Unknown
1475	53 y F	metoprolol clonidine cyclobenzaprine benzodiazepine zolpidem	1 2 3 4 5	1 2 3 4 5	A	Ingst	Int-S	2		
1476	53 y F	amlodipine	1	1	A	Ingst	Int-S	2		
1477ai	53 y M	metoprolol	1	1	U	Unk	Int-S	1		
1478h	53 y F	digoxin	1	1	C	Ingst	AR-D	3		
1479h	53 y M	calcium antagonist amitriptyline lisinopril acetaminophen/oxycodone gabapentin	1 2 3 4 5	1 2 3 4 5	U	Ingst	Int-S	1		
1480	53 y M	hydralazine prednisone amlodipine minoxidil spironolactone	1 2 3 4 5	1 2 3 4 5	A/C	Ingst	Int-S	2		
1481h	53 y M	carvedilol fluoxetine sacubitril/valsartan	1 2 3	1 2 3	A/C	Ingst	Int-S	1		
1482h	54 y M	beta blocker benzodiazepine narcotic, other/unknown acetaminophen	1 2 3 4	1 2 3 4	A/C	Ingst	Int-S	2	acetaminophen (apap)	378 mcg/mL In Blood (unspecified) @ Unknown
1483ha	54 y F	diltiazem insulin (aspart) bupropion lithium lithium gabapentin	1 2 3 4 4 5	1 2 3 4 4 5	A	Par	Int-S	2	bupropion lithium lithium	0.65 mcg/mL In Blood (unspecified) @ Unknown 2.3 mEq/L In Serum @ Unknown 3.2 mEq/L In Serum @ Unknown
1484ha	54 y M	verapamil diphenhydramine	1 2	1 2	A/C	Ingst	Int-S	1		
1485h	54 y M	amlodipine carvedilol	1 2	1 2	A/C	Ingst	Int-S	2		
1486h	54 y M	labetalol lisinopril ethanol	1 2 3	1 2 3	A/C	Ingst	Int-S	2	ethanol	248 mg/dL In Serum @ Unknown
1487ha	55 y M	metoprolol amlodipine	1 2	1 2	A/C	Ingst	Int-S	2		
1488h	55 y M	diltiazem	1	1	A/C	Ingst	Int-S	1		
1489ha	55 y F	amlodipine quetiapine hydroxyzine cyclobenzaprine ethanol acetaminophen/hydrocodone duloxetine (extended release)	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A/C	Ingst	Int-S	1	amlodipine quetiapine hydroxyzine cyclobenzaprine ethanol	1000 ng/mL In Whole Blood @ Autopsy 1000 ng/mL In Whole Blood @ Autopsy 250 ng/mL In Whole Blood @ Autopsy 57 ng/mL In Whole Blood @ Autopsy 166 mg/dL In Blood (unspecified) @ Unknown
1490	55 y F	diltiazem (extended release) amitriptyline buprenorphine/naloxone (sublingual film)	1 2 3	1 2 3	A	Ingst	Int-S	2	duloxetine	49 ng/mL In Whole Blood @ Autopsy
1491ha	56 y F	amlodipine	1	1	A	Ingst	Int-S	1	amlodipine	110 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
1492h	56 y M	bupropion	2	2	A/C	Ingst	Int-S	2	hydroxybupropion	570 ng/mL In Blood (unspecified) @ Unknown
		bupropion	2	2					bupropion	66 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					oxazepam	0.01 mg/L In Blood (unspecified) @ Unknown
		diazepam	3	3					diazepam	0.077 mg/L In Blood (unspecified) @ Unknown
		diazepam	3	3					nordiazepam	0.092 mg/L In Blood (unspecified) @ Unknown
		amlodipine/ hydrochlorothiazide/ valsartan	1	1					1493ha	56 y M
amlodipine	2	2								
metoprolol (extended release)	3	3								
diphenhydramine	4	4								
acetaminophen/hydrocodone	5	5								
atorvastatin	6	6								
1494h	56 y M	propranolol	1	1	A/C	Ingst	Int-S	2	ethanol	166 mg/dL In Blood (unspecified) @ 30 m (pe)
		drug, unknown	2	2						
		ethanol	3	3						
1495h	56 y F	diltiazem (extended release)	1	1	A/C	Ingst	Int-S	1		
1496h	56 y M	amlodipine	1	1	A/C	Ingst	Unt-G	1		
		benztropine	2	2						
1497h	57 y M	amlodipine	1	1	A	Ingst	Int-S	2		
		ethanol	2	2						
1498h	57 y F	metoprolol	1	1	U	Ingst	Int-S	1		
		nifedipine	2	2						
		amlodipine	3	3						
		clonidine	4	4						
		ethanol	5	5						
1499h	57 y F	amlodipine	1	1	A	Ingst	Int-S	1	ethanol	260 mg/dL In Blood (unspecified) @ Unknown
		butalbital/caffeine/salicylate	2	2						
		ethanol	3	3						
1500h	57 y F	diltiazem (extended release)	1	1	A	Ingst	Int-S	1		
		sotalol	2	2						
		apixaban	3	3						
		losartan	4	4						
		cholecalciferol	5	5						
		folic acid	6	6						
		ethanol	7	7						
1501ha	57 y F	amlodipine	1	1	U	Ingst	Int-S	1	amlodipine	990 ng/mL In Whole Blood @ 1 h (pe)
		mirtazapine	2	2					mirtazapine	630 ng/mL In Whole Blood @ 1 h (pe)
		temazepam	3	3					temazepam	930 ng/mL In Whole Blood @ 1 h (pe)
		cyclobenzaprine	4	4						
1502ha	58 y F	propranolol	1	1	A/C	Ingst	Int-S	1	propranolol	33 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	2	2					gabapentin	47 mcg/mL In Blood (unspecified) @ Unknown
		quetiapine	3	3					quetiapine	340 ng/mL In Blood (unspecified) @ Unknown
1503h	58 y M	amlodipine	1	1	A/C	Ingst	Int-U	2		
		lisinopril	2	2						
		hydralazine	3	3						
		tramadol	4	4						
		acetaminophen/oxycodone	5	5						
		gabapentin	6	6						
		mirtazapine	7	7						
		atorvastatin	8	8						
		ibuprofen	9	9						
		ritonavir	10	10						
		emtricitabine/tenofovir	11	11						
1504h	58 y M	amlodipine	1	1	A/C	Ingst	Int-S	1	ethanol	190 mg/dL In Serum @ Unknown
		ethanol	2	2						
1505h	58 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		salicylate	2	2						
		drug, unknown	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
1506ha	58 y F	amlodipine	1	1	A	Ingst	Int-S	1	amlodipine	770 ng/mL In Blood (unspecified) @ 1 h (pe)
1507h	59 y M	diltiazem (extended release)	1	1			Int-S	1		
1508h	59 y F	ethanol	2	2						
		digoxin	1	1	C	Ingst + Unk	AR-D	3	digoxin	2.9 ng/mL In Serum @ Unknown
		metoprolol	2	2						
1509h	59 y M	metoprolol	1	1	A/C	Ingst	Int-S	1		
		dabigatran	2	2						
1510ha	59 y M	amlodipine	1	1	A/C	Ingst	Int-S	1		
		carvedilol	2	2						
		hydralazine	4	3						
		lamotrigine	3	3						
1511ai	59 y F	amlodipine	1	1	U	Unk	Unk	1		
		cyclobenzaprine	2	2						
1512	60 y F	diltiazem (extended release)	1	1	A	Ingst	Int-S	1		
		citalopram	2	2						
		ethanol	3	3						
1513	60 y F	carvedilol	1	1	A/C	Ingst	Int-S	1		
		ethanol	2	2					ethanol	258 mg/dL In Serum @ Unknown
1514ph	60 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		amitriptyline	2	2						
1515	60 y F	verapamil	1	1	A/C	Ingst	Int-S	2		
		drug, unknown	2	2						
1516h	60 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		drug, unknown	2	2						
		lisinopril	3	3						
1517	60 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		metoprolol	2	2						
		hydrochlorothiazide	3	3						
		clonazepam	4	4						
		escitalopram	5	5						
1518	60 y M	amlodipine	1	1	U	Ingst	Int-S	2		
		escitalopram	2	2						
		zolpidem	3	3						
		naproxen	4	4						
1519h	60 y F	digoxin	1	1	C	Ingst	AR-D	2	digoxin	3 ng/mL In Blood (unspecified) @ Unknown
1520hai	60 y M	amlodipine	1	1	A	Ingst	Int-S	1		
1521h	60 y F	amlodipine	1	1	U	Ingst	Int-S	2		
		amphetamine	2	2						
		alprazolam	3	3						
		narcotic, other/unknown	4	4						
1522ha	61 y F	diltiazem (extended release)	1	1	A/C	Ingst	Int-S	1	diltiazem	950 ng/mL In Whole Blood @ Autopsy
		methadone	2	2					methadone	1500 ng/mL In Whole Blood @ Autopsy
		methadone	2	2					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	450 ng/mL In Whole Blood @ Autopsy
1523h	61 y M	diltiazem	1	1	A/C	Ingst	Int-S	1		
		alprazolam	2	2						
1524h	61 y F	diltiazem	1	1	A/C	Ingst	Int-S	1		
		fluoxetine	2	2						
1525h	61 y M	verapamil	1	1	A/C	Ingst	Int-S	2		
		beta blocker	2	2						
		clonidine	3	3						
		fluoxetine	4	3						
1526ai	61 y M	diltiazem	1	1	U	Unk	Int-S	1		
		bupropion	2	2						
		hydromorphone	3	3						
1527h	61 y M	amlodipine	1	1	A/C	Ingst	Unk	2		
		benzodiazepine	2	2						
		lisinopril	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
1528h	61 y M				C	Ingst	AR-D	2		
1529h	62 y M	metoprolol	1	1						
		verapamil	1	1	A/C	Ingst	Int-S	1		
		metoprolol	2	2						
		lorazepam	3	3						
1530ha	62 y F				A/C	Ingst	Int-S	1		
		digoxin	1	1					digoxin	68 ng/mL In Serum @ Unknown
		ethanol	2	2					ethanol	310 g/dL In Blood (unspecified) @ 3.5 h (pe)
		salicylate	3	3					salicylate	5.6 mg/dL In Blood (unspecified) @ 3.5 h (pe)
1531ha	62 y F				A/C	Ingst	Int-S	1		
		flecainide	1	1					flecainide	24.27 mcg/mL In Blood (unspecified) @ Autopsy
		citalopram	2	2						
		diazepam	3	3						
		furosemide	4	4						
		lidocaine	5	5						
1532h	62 y F				U	Ingst	Int-S	1		
		diltiazem (extended release)	1	1						
		lisinopril	2	2						
1533h	62 y M				A/C	Ingst	Unt-T	2		
		amlodipine	1	1						
		metoprolol	2	2						
		ethanol	3	3					ethanol	190 mg/dL In Serum @ Unknown
1534ai	62 y F				U	Unk	Int-S	1		
		digoxin	1	1						
		ethanol	2	2						
1535ha	62 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		carvedilol	2	2						
1536ai	62 y F				U	Ingst + Unk	Int-S	1		
		digoxin	1	1						
		ethanol	2	2						
		salicylate	3	3						
1537h	63 y F				A/C	Ingst	Int-S	1		
		calcium antagonist	1	1						
1538ha	63 y F				A	Ingst	Unt-T	1		
		carvedilol	1	1						
		lisinopril	2	2						
		furosemide	3	3						
1539h	63 y F				A	Ingst	Int-S	1		
		amlodipine	1	1						
		levothyroxine	2	2						
		benzodiazepine	3	3						
1540ha	63 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	0.047 mg/L In Blood (unspecified) @ 24 h (pe)
		acetaminophen/hydrocodone	2	2					hydrocodone	2.4 mg/L In Blood (unspecified) @ 27 h (pe)
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	258 mg/L In Serum @ Unknown
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	380 mg/L In Blood (unspecified) @ 24 h (pe)
1541	63 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
1542ai	63 y M				U	Ingst + Unk	Int-S	1		
		angiotensin converting enzyme inhibitor	1	1						
		acetaminophen/oxycodone	2	2						
1543h	63 y F				A/C	Ingst	Int-S	2		
		verapamil	1	1						
1544ha	63 y F				A/C	Ingst	Int-S	1		
		diltiazem	1	1					diltiazem	870 ng/mL In Blood (unspecified) @ Unknown
1545h	63 y F				A/C	Ingst + Derm	Int-S	1		
		amlodipine	1	1						
		metoprolol	2	2						
		fentanyl	3	3						
		warfarin	4	4						
		clonazepam	5	5						
1546h	63 y F				A/C	Ingst	Int-S	1		
		nifedipine	1	1						
		clonidine	2	2						
		citalopram	3	3						
1547h	64 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		glipizide	2	2						
		metformin/sitagliptin	3	3						
		losartan	4	4						
1548a	64 y F				U	Ingst	Int-S	1		
		verapamil	1	1					verapamil	2200 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
1549h	65 y F	verapamil (extended release)	1	1	A	Ingst	Int-S	2		
		spironolactone	2	2						
1550h	65 y M	digoxin	1	1	A/C	Ingst	Int-S	3	digoxin	3 ng/mL In Blood (unspecified) @ 1 d (pe)
1551ha	66 y F	diltiazem (extended release)	2	2	A/C	Ingst	Int-S	3		
		amlodipine	1	1						
		citalopram	2	2					citalopram	4000 mcg/L In Whole Blood @ 15 m (pe)
		solifenacin	3	3						
		lorazepam	4	4						
		cyclobenzaprine	5	5						
		meloxicam	6	6						
		levothyroxine	7	7						
1552ha	67 y F	verapamil	1	1	A	Ingst	Int-S	1		
		amitriptyline	2	2					nortriptyline	130 ng/mL In Blood (unspecified) @ Unknown
		amitriptyline	2	2					amitriptyline	740 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	3	3					lorazepam	52 mg/mL In Blood (unspecified) @ Unknown
		acetaminophen	4	4					acetaminophen (apap)	3 mcg/mL In Blood (unspecified) @ Unknown
1553ha	67 y M	diltiazem	1	1	A/C	Ingst	Int-S	1	diltiazem	0.2 mg/L In Serum @ 35 m (pe)
		rivaroxaban	2	2						
		foreign body	3	3						
		narcotic, other/unknown	4	4						
1554i	67 y M	amlodipine	1	1	A/C	Ingst	Unk	2		
		tizanidine	2	2						
		lisinopril	3	3						
		eszopiclone	4	4						
1555h	67 y F	metoprolol	1	1	U	Ingst	Int-S	3		
		tizanidine	2	2						
		acetaminophen/ ?show \$6#?>oxycodone	3	3						
		alprazolam	4	4						
1556h	68 y F	verapamil	1	1	A	Ingst	Unt-G	1		
1557h	68 y F	trandolapril/verapamil	1	1	A	Ingst	Unk	2		
1558ha	68 y F	calcium antagonist	1	1	A/C	Ingst	Int-S	2		
1559h	68 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		hydrochlorothiazide/lisinopril	2	2						
		sertraline	3	3						
		omeprazole	4	4						
		ethanol	5	5						
1560h	68 y F	diltiazem (extended release)	1	1	A	Ingst	Int-S	1		
1561	69 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
		amlodipine	2	2						
		venlafaxine	3	3						
1562a	69 y M	carvedilol	1	1	A	Ingst	Int-S	2		
1563h	69 y F	diltiazem (extended release)	1	1	A	Ingst	Int-S	1		
		warfarin	2	2						
1564ai	69 y M	amlodipine	1	1	U	Unk	Int-S	1		
1565	70 y F	diltiazem	1	1	A/C	Ingst	Int-S	1		
		digoxin	2	2					digoxin	4.501 ng/mL In Serum @ 1 h (pe)
1566h	70 y F	amlodipine	1	1	A	Ingst	Int-S	2		
		citalopram	2	2						
		lisinopril	3	3						
1567	70 y M	metoprolol (extended release)	1	1	A	Ingst	Int-S	2		
		olanzapine	2	2						
		clonazepam	3	3						
1568h	70 y F	amlodipine	1	1	A/C	Ingst	Int-S	1		
		diltiazem (extended release)	2	2						
		mirtazapine	3	3						
1569	70 y F	atenolol	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
1570ha	71 y F	quetiapine	2	2	A	Ingst	Int-S	1		
		duloxetine	3	3						
		buspirone	4	4						
		lorazepam	5	5						
		diltiazem	1	1						
1571	71 y M				A/C	Ingst	Int-S	1		
1572ha	71 y F	amlodipine	1	1	A	Ingst	Int-S	1		
		sertraline	2	2						
		mirtazapine	3	3						
		buspirone	4	4						
		calcium antagonist	1	1						
1573h	71 y F	risperidone	2	2	A/C	Ingst	Int-S	2		
		risperidone	2	2						
		risperidone	2	2						
1574ha	72 y M	amlodipine	1	1	A/C	Ingst	Int-S	2		
		citalopram	2	2						
		lorazepam	3	3						
1575	72 y F	tamsulosin	1	1	C	Ingst	Unt-U	2		
		cilostazol	2	2						
1576h	72 y M	digoxin	1	1	A	Ingst	Int-M	1		6 ng/mL In Blood (unspecified) @ Unknown
		digoxin	1	1						
1577ha	72 y F	diltiazem	1	1	A	Ingst	Int-S	1		
		diltiazem (extended release)	1	1						
		sitagliptin	2	2						
		allopurinol	3	3						
		alprazolam	4	4						
1578ph	72 y F	alprazolam	4	4	A/C	Ingst	Unt-U	2		18 ng/mL In Blood (unspecified) @ Unknown
		lorazepam	5	5						
		diltiazem	1	1						
		donepezil	2	2						
		morphine	3	3						
1579h	73 y M	lorazepam	4	4	A/C	Ingst	Int-M	3		
		gabapentin	5	5						
		amlodipine	1	1						
		carvedilol	2	2						
		amlodipine	1	1						
1580a	73 y F	metoprolol	1	1	A	Ingst	Int-S	1		1.8 mg/L In Blood (unspecified) @ Autopsy
		metoprolol	1	1						
		verapamil (extended release)	2	1						
		verapamil (extended release)	2	1						
		meclizine	3	2						
		fluoxetine	4	3						
		fluoxetine	4	3						
		dextromethorphan	5	5						
		promethazine	6	6						
		promethazine	6	6						
1581h	73 y F				U	Ingst	Int-S	1		
1582	74 y F	amlodipine	1	1	A/C	Ingst	Int-S	1		
		metoprolol	1	1						
1583h	74 y M	metoprolol	1	1	A	Ingst	Int-S	2		
		amlodipine	1	1						
		carvedilol	2	2						
		alprazolam	3	3						
		acetaminophen/hydrocodone	4	4						
1584h	74 y M				A	Ingst	Int-S	1		
1585h	75 y M	amlodipine	1	1	C	Ingst	AR-D	1		
		cardiac glycoside	1	1						
1586h	75 y F	metoprolol	1	1	A/C	Ingst	Int-S	2		
		metoprolol	1	1						
1587h	75 y M	metoprolol	1	1	A	Ingst	AR-D	3		
		diltiazem	1	1						
		metoprolol	2	2						
		amiodarone	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
1588ai	75 y M	amlodipine	1	1	U	Unk	Int-S	1		
		salicylate	2	2						
		metoprolol	3	3						
1589ha	75 y M	verapamil	1	1	A/C	Ingst	Int-U	3		
		pindolol	2	2						
1590h	76 y F	digoxin	1	1	A/C	Ingst	AR-D	3	digoxin	3.1 ng/mL In Blood (unspecified) @ Unknown
1591ha	76 y M	amlodipine	1	1	A/C	Ingst	Int-S	1	amlodipine	0.4 mg/L In Blood (unspecified) @ 5.5 h (pe)
		duloxetine	2	2						
		cyclobenzaprine	3	3						
		cocaine	4	4					benzoyllecognine	2.7 mg/L In Blood (unspecified) @ 5 m (pe)
		gabapentin	5	5						
		acetaminophen	6	6						
		oxybutynin	7	7						
		naproxen	8	8						
		atorvastatin	9	9						
		omeprazole	10	10						
		folic acid	11	11						
		cyanocobalamin	12	12						
1592h	76 y F	amlodipine	1	1	U	Ingst	Int-S	1		
		carvedilol	2	2						
		diazepam	3	3						
		acetaminophen/codeine	4	4						
1593h	77 y M	calcium antagonist	1	1	A	Ingst	Int-S	3		
1594h	77 y F	digoxin	1	1	C	Ingst	AR-D	3	digoxin	2.8 ng/mL In Blood (unspecified) @ Unknown
1595ha	78 y M				A	Ingst	Int-S	1		
		amlodipine	1	1						
		diazepam	2	2						
1596h	78 y F	calcium antagonist	1	1	A	Ingst	Int-S	2		
		warfarin	2	2						
1597	79 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		losartan	2	2						
1598	80 y F	digoxin	1	1	C	Ingst	AR-D	3	digoxin	4.4 mcg/mL In Blood (unspecified) @ 1 h (pe)
1599h	80 y M				A/C	Ingst	Unt-G	3		
		metoprolol	1	1						
		benztropine	2	2						
		quetiapine	3	3						
		donepezil/memantine	4	4						
		levothyroxine	5	5						
1600h	80 y F	amlodipine	1	1	U	Ingst	Unt-T	1		
		carvedilol	2	2						
1601i	81 y F	nifedipine (extended release)	1	1	A/C	Ingst	Unt-T	1		
		metoprolol	2	2						
		simvastatin	3	3						
1602h	82 y M	propranolol	1	1	C	Ingst	AR-D	3		
		metoprolol	2	2						
1603h	82 y M	metoprolol	1	1	A/C	Ingst	Int-S	2		
		lisinopril	2	2						
1604h	83 y F	flecainide	1	1	U	Ingst	Unk	3		
1605h	84 y F	clonidine	1	1	A/C	Ingst	Int-S	2		
1606h	84 y F	verapamil	1	1	A/C	Ingst	Int-M	2		
1607	84 y F	verapamil	1	1	A/C	Par	AR-D	3		
		flecainide	1	1						
		metoprolol	2	2						
		angiotensin receptor blocker	3	3						
1608ha	84 y M	amlodipine	1	1	A/C	Ingst	Unk	1	amlodipine	63 ng/mL In Blood (unspecified) @ Unknown
		carvedilol	2	2						
		triazolam	3	3					triazolam	46 ng/mL In Blood (unspecified) @ Unknown
1609	84 y F	atenolol	1	1	C	Ingst	AR-D	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
1610h	84 y F	amiodarone	1	1	A/C	Ingst	Unk	2		
		carvedilol	2	2						
		nifedipine	3	3						
		acetaminophen/tramadol	4	4						
		antiplatelet drug	5	5						
		clostrazol	6	6						
		mirtazapine	7	7						
		atorvastatin	8	8						
		hydrochlorothiazide	9	9						
1611h	85 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
1612h	85 y F	hydrochlorothiazide/lisinopril	2	2	A	Ingst	Unt-G	3		
		digoxin	1	1					digoxin	3.6 ng/mL In Blood (unspecified) @ Unknown
1613	85 y F	digoxin	1	1	C	Ingst	AR-D	3		
1614h	85 y F	beta blocker	1	1	A	Ingst	Int-S	2		
		calcium antagonist	2	2						
1615	85 y F	amlodipine	1	1	A	Ingst	Unk	2		
		metformin	2	2						
		losartan	3	3						
		gabapentin	4	4						
		atorvastatin	5	5						
1616p	86 y F	nifedipine (extended release)	1	1	A/C	Ingst	Int-S	2		
		diltiazem (extended release)	2	2						
		bupropion (extended release)	3	3						
		mirtazapine	4	4						
1617h	86 y F	metoprolol	1	1	C	Ingst	AR-D	3		
		carvedilol	2	2						
		amiodarone	3	3						
1618h	87 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		nebivolol	2	2						
		clonazepam	3	3						
		dicyclomine	4	4						
		donepezil	5	5						
		nitroglycerin	6	6						
		linaclotide	7	7						
		quetiapine	8	8						
		valsartan	9	9						
1619	87 y F	atenolol	1	1	A	Ingst	Unk	3		
1620a	87 y M	atenolol	1	1	A/C	Ingst	Int-S	1	atenolol	1800 ng/mL In Blood (unspecified) @ Autopsy
		amlodipine	2	2						
		acetaminophen	3	3					acetaminophen (apap)	324 mcg/mL In Plasma @ Unknown
1621h	87 y M	digoxin	1	1	A/C	Ingst	AR-D	3	digoxin	2.51 ng/mL In Blood (unspecified) @ Unknown
1622	88 y F	amlodipine	1	1	A/C	Ingst	Int-S	2		
		alprazolam	2	2						
		lisinopril	3	3						
		escitalopram	4	4						
1623	88 y M	diltiazem	1	1	U	Ingst	Unt-T	3		
		metoprolol	2	2						
		lisinopril	3	3						
1624hi	89 y M	digoxin	1	1	C	Ingst	AR-D	3	digoxin	3.9 ng/mL In Serum @ Unknown
1625h	89 y F	digoxin	1	1	C	Ingst	AR-D	3	digoxin	4.4 ng/mL In Serum @ 30 m (pe)
1626	90 y F	cardiac glycoside	1	1	C	Ingst	AR-D	3	digoxin	2.8 ng/mL In Blood (unspecified) @ Unknown
1627	91 y F	digoxin	1	1	C	Ingst	AR-D	3	digoxin	5 ng/mL In Serum @ Unknown
1628h	92 y F	diltiazem	1	1	A/C	Ingst	AR-D	1	diltiazem	100 ng/mL In Serum @ Unknown
		metoprolol	2	2					metoprolol	510 ng/mL In Serum @ Unknown
1629ha	93 y F	amlodipine	1	1	A	Ingst	Int-S	2	amlodipine	0.23 mg/L In Blood (unspecified) @ 2 h (pe)
		ethanol	2	2					ethanol	43 mg/dL In Blood (unspecified) @ 2 h (pe)
1630	94 y F	cardiac glycoside	1	1	C	Ingst	AR-D	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
1631	94 y M				A/C	Ingst	Int-S	3		
[1632ha]	11 m F	lisinopril	1	1						
		nifedipine	1	1	A	Ingst	Unt-G	1	nifedipine	870 ng/mL In Blood (unspecified) @ Autopsy
See Also case 19, 545, 603, 721, 775, 797, 812, 838, 997, 1011, 1012, 1035, 1068, 1069, 1137, 1138, 1153, 1190, 1225, 1236, 1241, 1256, 1258, 1261, 1293, 1295, 1297, 1299, 1305, 1310, 1313, 1318, 1321, 1348, 1372, 1376, 1658, 1661, 1665, 1671, 1672, 1675, 1691, 1700, 1716, 1725, 1732, 1782, 1788, 1793, 1799, 1805, 1826, 1835, 1941, 2180, 2221, 2232, 2286, 2392, 2492, 2590										
Cold and Cough Preparations										
1633pa	16 y F				A	Ingst	Int-S	2		
		benzonatate	1	1						
		caffeine	2	2						
[1634pha]	17 y F	benzonatate	1	1	A	Ingst	Int-S	1	benzonatate	680 mcg/L In Blood (unspecified) @ 2 h (pe)
		meclizine	2	2					meclizine	150 mcg/L In Blood (unspecified) @ 2 h (pe)
1635i	20 y M				A	Unk	Int-S	2		
		dextromethorphan	1	1						
		diphenhydramine	2	2						
1636h	43 y F				A/C	Ingst	Int-S	3		
		benzonatate	1	1						
		tizanidine	2	2						
		cyclic antidepressant, unknown	3	3						
1637h	47 y F	acetaminophen/antihistamine	1	1	A	Ingst	Int-A	3		
1638h	60 y F	acetaminophen/ dextromethorphan/ doxylamine	1	1	A	Ingst	Int-M	3		
		ibuprofen	2	2						
See Also case 17, 262, 389, 395, 525, 558, 658, 671, 677, 840, 860, 931, 998, 1193, 1201, 1239, 1296, 1401, 1580, 1797, 1805, 1831, 1869, 1946, 2159, 2175, 2196, 2361, 2413, 2455										
Dietary Supplements/Herbals/Homeopathic										
1639p	16 y M	energy drink	1	1	A	Ingst	Unk	2		
See Also case 812, 1244, 1394, 1799										
Diuretics										
1640	26 y M	diuretic, unknown	1	1	A	Ingst	Int-A	3		
See Also case 930, 1069, 1195, 1261, 1310, 1372, 1381, 1387, 1409, 1410, 1412, 1468, 1480, 1517, 1531, 1538, 1549, 1610, 1677, 1680, 1686										
Electrolytes and Minerals										
1641h	31 y M				A	Ingst	Int-S	1		
		iron	1	1					iron	356 mcg/dL In Serum @ 0 h (pe)
		iron	1	1					iron	4326 mcg/dL In Serum @ 11 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	231 mcg/mL In Serum @ 11 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	265.7 mcg/mL In Serum @ 255 m (pe)
		acetaminophen	2	2					acetaminophen (apap)	270 mcg/mL In Serum @ 0 m (pe)
1642ha	36 y M				A	Ingst	Int-S	1		
		iron	1	1					iron	671 mcg/dL In Plasma @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	82 mg/L In Plasma @ Unknown
		amphetamine	3	3						
		ethanol	4	4					ethanol	138 mg/dL In Serum @ Unknown
[1643h]	47 y F	iron	1	1	A	Ingst	Int-S	1		
1644h	63 y F	magnesium hydroxide	1	1	C	Ingst	Int-M	3	magnesium	7.2 mEq/L In Serum @ Unknown
1645h	73 y M	cesium chloride	1	1	A/C	Ingst	Unt-T	3		
[1646h]	10 m M				A	Ingst	Unt-G	1		
		iron	1	1					iron	1034 mcg/mL In Blood (unspecified) @ 3 h (pe)
		iron	1	1					iron	246 mcg/mL In Blood (unspecified) @ 72 h (pe)
		iron	1	1					iron	475 mcg/mL In Blood (unspecified) @ 24 h (pe)
		iron	1	1					iron	7739 mcg/mL In Blood (unspecified) @ 16 h (pe)
		iron	1	1					iron	931 mcg/mL In Blood (unspecified) @ 1 h (pe)
See Also case 251, 841, 995, 1112, 1311, 1409										
Eye/Ear/Nose/Throat Preparations										
1647	90 y M	atropine	1	1	A	Ingst	Unt-T	3		
Gastrointestinal Preparations										
1648ai	19 y M				U	Ingst + Unk	Int-A	1		
		loperamide	1	1						
		clonazepam	2	2						
		ethanol	3	3						
[1649pha]	23 y F	loperamide	1	1	A	Ingst	Int-U	1	desmethylloperamide	56 ng/mL In Blood (unspecified) @ Unknown
		atropine/diphenoxylate	2	2						
		trazodone	3	3					trazodone	2.4 mcg/mL In Blood (unspecified) @ Unknown
		trazodone	3	3					mcpp (meta-chlorophenylpiperazine)	65 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
1650ph	30 y F	loperamide	1	1	A	Ingst + Aspir	Int-A	1		
		loperamide	1	1					desmethylloperamide	160 ng/mL In Serum @ Unknown
1651h	30 y M	loperamide	1	1	A	Ingst	Int-S	1	loperamide	54 ng/mL In Serum @ Unknown
		loperamide	1	1						
		gabapentin	2	2						
		ethanol	3	3					ethanol	210 mg/dL In Serum @ 1 h (pe)
1652pha	31 y M	loperamide	1	1	A	Ingst	Int-S	2		
		alprazolam	2	2					alprazolam	0.143 mg/L In Blood (unspecified) @ Unknown
1653ai	34 y M				U	Unk	Unk	2		
		loperamide	1	1						
1654ai	36 y M				U	Unk	Int-A	3		
		loperamide	1	1						
		ethanol	2	2						
1655ph	39 y M	loperamide	1	1	A	Ingst	Int-U	2		
		dirt	2	2						
1656ph	40 y F	loperamide	1	1	U	Unk	Unk	2		
		drug, unknown	2	2						
[1657ha]	41 y F	loperamide	1	1	A	Ingst	Int-A	1	loperamide	170 ng/mL In Blood (unspecified) @ Unknown
		loperamide	1	1					desmethylloperamide	410 ng/mL In Blood (unspecified) @ Unknown
1658ph	57 y F				U	Ingst + Par	Unt-T	2		
		amiodarone	4	1						
		metoclopramide	1	1						
		ondansetron	2	1						
		promethazine	3	1						
1659h	66 y F	ondansetron	1	1	U	Ingst	Int-S	2		
		oxycodone	2	2						
See Also case 553, 776, 1074, 1201, 1202, 1203, 1289, 1310, 1321, 1323, 1372, 1410, 1411, 1425, 1432, 1463, 1474, 1551, 1559, 1591, 1618, 1660, 2098										
Hormones and Hormone Antagonists										
1660h	14 y F				A	Ingst	Int-S	2		
		metformin	1	1						
		acetaminophen	2	2						
		amitriptyline	3	3						
		naproxen	4	4						
		ranitidine	5	5						
		salicylate	6	6						
1661pha	16 y F				U	Ingst	Int-S	2		
		metformin	1	1						
		prazosin	3	1						
		quetiapine	2	1						
		sertraline	4	1						
		minocycline	5	2						
1662p	26 y F				A	Ingst + Par	Int-S	1		
		insulin	1	1						
		alprazolam	2	2						
		tramadol	3	3						
1663h	31 y F				A/C	Ingst	Int-S	2		
		metformin	1	1						
		ibuprofen	2	2						
1664h	33 y M				A	Ingst	Int-S	2		
		glipizide	1	1						
		ethanol	2	2						
1665ha	35 y F				A	Ingst + Par	Int-S	2		
		insulin	1	1						
		trazodone	2	2						
		lisinopril	3	3						
		sertraline	4	4						
		amphetamine	5	5						
1666ai	35 y F				U	Par	Int-S	1		
		insulin	1	1						
1667h	36 y F				A/C	Ingst	Int-S	1		
		metformin	1	1						
		trazodone	2	2					trazodone	2740 ng/mL In Whole Blood @ Unknown
1668h	38 y M				A	Ingst	Int-S	1		
		metformin	1	1					metformin	260 mcg/mL In Blood (unspecified) @ 1 d (pe)
		metformin	1	1					metformin	46 mcg/mL In Blood (unspecified) @ 3 d (pe)
		methylphenidate	2	2						
1669	39 y M				A	Ingst	Int-S	2		
		glipizide	1	1						
		metformin	2	2						
1670h	40 y F				A/C	Ingst	Int-S	2		
		metformin	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
1671h	41 y F	metformin	1	1	A/C	Ingst	Int-S	2		
		lisinopril	2	2						
1672ha	41 y F	metformin	2	1	A	Ingst	Int-S	1	metformin	100 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	506 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					amphetamine	63 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	3	3					alprazolam	14 ng/mL In Blood (unspecified) @ Unknown
		hydrochlorothiazide/lisinopril	4	4						
		marijuana	5	5						
1673h	46 y M	metformin	1	1	U	Ingst	Int-S	2		
1674	46 y M	metformin	1	1	A/C	Ingst	Int-S	2		
		lithium	2	2					lithium	1.6 mEq/L In Blood (unspecified) @ Unknown
		acetaminophen	3	3					acetaminophen (apap)	75 mcg/mL In Blood (unspecified) @ Unknown
1675ha	47 y M	metformin/sitagliptin	1	1	U	Ingst	Int-S	2		
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	14.3 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	38.2 mcg/mL In Blood (unspecified) @ Unknown
		lorazepam	3	3						
		losartan	4	4						
		probenecid	5	5						
		zolpidem	6	6						
		simvastatin	7	7						
1676ph	48 y M	insulin (glargine)	1	1	A	Par	Int-S	3		
		insulin (lispro)	2	2						
1677ha	49 y M	metformin	1	1	A	Ingst	Int-S	1	metformin	420 mcg/mL In Blood (unspecified) @ Unknown
		baclofen	2	2						
		gabapentin	3	3						
		hydrochlorothiazide	4	4						
1678hi	52 y F	insulin (glargine)	1	1	A	Par	Int-S	1		
1679h	52 y M	metformin	1	1	A/C	Ingst	Int-S	1		
		glipizide	2	2						
		imipramine	3	3						
		quetiapine	4	4						
		duloxetine	5	5						
		alprazolam	6	6						
		zolpidem	7	7						
1680h	53 y F	metformin	1	1	A	Ingst	Int-S	2		
		acetaminophen/salicylate	2	2					salicylate	11 mg/dL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/salicylate	2	2					acetaminophen (apap)	34 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ibuprofen	3	3						
		olanzapine	4	4						
		bupropion (extended release)	5	5						
		lorazepam	6	6						
		cyclobenzaprine	7	7						
		hydrochlorothiazide/ triamterene	8	8						
		chlorthalidone	9	9						
1681h	54 y M	metformin	1	1	A/C	Ingst	Int-S	1		
		trazodone	2	2						
1682h	56 y F	metformin	1	1	C	Ingst	AR-D	3		
1683h	56 y F	metformin	1	1	U	Ingst	Int-S	2		
		glipizide	1	1						
		metformin	2	2						
		drug, unknown	3	3						
		amitriptyline	4	4						
		aripiprazole	5	5						
		duloxetine (extended release)	6	6						
		acetaminophen/codeine	7	7						
1684	57 y F	metformin	1	1	U	Ingst	Unk	2		
1685	58 y F	metformin	1	1	A/C	Ingst	Int-S	2		
1686ha	58 y F	metformin	1	1	A	Ingst	Int-S	1		
		glipizide	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
1687a	59 y M	ibuprofen	3	3	A	Ingst	Int-S	2	metformin	44 mcg/mL In Blood (unspecified) ⓐ Unknown
		hydrochlorothiazide	4	4						
		ethanol	5	5						
1688h	61 y F	metformin	1	1	C	Ingst	Unk	2		
		methanol	2	2						
1689a	61 y M	metformin	1	1	A	Ingst	Int-S	2	acetaminophen (apap)	54 mcg/mL In Blood (unspecified) ⓐ Unknown
		metformin	1	1						
		acetaminophen	2	2						
1690hi	65 y M	drug, unknown	3	3	A/C	Ingst	Int-M	1		
1691h	67 y F	metformin	1	1	A/C	Ingst	Int-S	1		
		metformin	1	1						
		metoprolol	2	2						
1692h	68 y F	acetaminophen/hydrocodone	3	3	C	Ingst	AR-D	2	acetaminophen (apap)	45 mcg/mL In Serum @ 4 h (pe)
		metformin	1	1						
		metformin	1	1						
1693h	68 y M	metformin	1	1	C	Ingst	AR-D	3		
1694ph	70 y M	metformin	1	1	C	Ingst	AR-D	2		
1695h	70 y M	glimepiride	1	1	C	Ingst	AR-D	2		
1696ha	71 y F	metformin	1	1	A/C	Ingst	Int-S	3		
		metformin	1	1						
1697h	74 y F	metformin	1	1	C	Ingst	AR-D	3		
1698ha	74 y M	metformin	1	1	A	Ingst + Unk	Int-S	1		
		metformin	1	1						
		acetaminophen	2	2						
1699h	75 y F	metformin	1	1	U	Ingst	Int-U	2	acetaminophen (apap)	48 mg/dL In Serum @ 1 m (pe)
		acetaminophen	2	2						
		metformin	1	1						
1700h	76 y M	metformin	1	1	C	Ingst	Unt-T	3		
		colchicine	2	2						
		losartan	3	3						
1701h	78 y F	metformin	1	1	C	Ingst	Unk	3		
		warfarin	2	2						
		metformin	1	1						
1702h	79 y M	metformin	1	1	A/C	Ingst	Unt-G	3		
1703h	83 y M	metformin	1	1	A/C	Ingst	AR-D	2		
		metformin	1	1						
See Also case 89, 545, 572, 751, 930, 1037, 1039, 1066, 1202, 1233, 1257, 1301, 1310, 1321, 1323, 1372, 1401, 1411, 1415, 1420, 1430, 1433, 1455, 1468, 1480, 1483, 1539, 1547, 1551, 1577, 1599, 1615, 1744, 1776, 1793, 1825										
Miscellaneous Drugs										
1704h	28 y M	succinylcholine	1	1	A	Par	AR-D	1		
		methamphetamine	2	2						
		haloperidol	3	3						
		tramadol	4	4						
1705ai	40 y M	drug, unknown	1	1	U	Unk	Int-S	1		
1706ph	50 y F	ropinirole	1	1	A/C	Ingst	Int-S	1		
		clopidogrel	2	2						
		alprazolam	3	3						
		ethanol	4	4						
		ethanol	4	4						
1707h	68 y M	rasburicase	1	1	A	Par + Unk	AR-D	3		
		drug, unknown	2	2						
See Also case 932, 1066, 1107, 1310, 1382, 1420, 1433, 1577, 1578, 1599, 1618, 1675, 1793, 2180										
Muscle Relaxants										
1708pa	23 y M	baclofen	1	1	A	Ingst	Int-S	2		
		homatropine/hydrocodone	2	2						
		gabapentin	3	3						
1709ph	25 y M	carisoprodol	1	1	U	Ingst	Unk	2		
1710h	32 y F	carisoprodol	1	1	A	Ingst	Int-S	3		
		baclofen	1	1						
		clonazepam	2	2						
1711ai	33 y M	doxepin	3	3	U	Unk	Int-A	1		
		baclofen	1	1						
		ethanol	2	2						
1712p	34 y F	baclofen	1	1	U	Ingst	Int-S	2	baclofen	3777 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
		olanzapine	2	2						
		citalopram	3	3					citalopram	507 ng/mL In Blood (unspecified) @ Unknown
		lithium	4	4					lithium	0.5 mg/L In Blood (unspecified) @ Unknown
		methadone	5	5					methadone	756 ng/mL In Blood (unspecified) @ Unknown
		marijuana	6	6					delta-9-carboxy-thc	5 ng/mL In Blood (unspecified) @ Unknown
1713ph	35 y M				A	Ingst	Int-S	2		
		baclofen	1	1						
1714h	36 y F				A/C	Ingst	Int-S	2		
		cyclobenzaprine	1	1						
		ethanol	2	2					ethanol	48 mg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	3	3					acetaminophen (apap)	140 mcg/mL In Serum @ Unknown
1715p	39 y F				A	Ingst	Unk	2		
		baclofen	1	1						
1716ha	42 y M				A/C	Ingst	Int-S	2		
		baclofen	1	1						
		propranolol	2	2						
		topiramate	3	3						
		drug, unknown	4	4						
1717ha	47 y F				U	Ingst	Int-S	3		
		metaxalone	1	1					metaxalone	28 mcg/mL In Serum @ 1 h (pe)
		fluoxetine	2	2					norfluoxetine	210 ng/mL In Serum @ 1 h (pe)
		fluoxetine	2	2					fluoxetine	360 ng/mL In Serum @ 1 h (pe)
		trazodone	3	3					trazodone	0.65 mcg/mL In Serum @ 1 h (pe)
		sumatriptan	4	4						
		oxycodone	5	5						
		carbamazepine	6	6						
		loratadine	7	7						
		cimetidine	8	8						
1718h	48 y M				A	Ingst	Int-S	2		
		baclofen	1	1						
		gabapentin	2	2						
		nonsteroidal antiinflammatory	3	3						
1719h	49 y F				A	Ingst	Int-S	2		
		baclofen	1	1						
1720pha	49 y F				A	Ingst	Int-S	1		
		baclofen	1	1					baclofen	1373 ng/mL In Blood (unspecified) @ 1 d (pe)
		fluoxetine	2	2					norfluoxetine	262 ng/mL In Blood (unspecified) @ 2 d (pe)
		fluoxetine	2	2					fluoxetine	665 ng/mL In Blood (unspecified) @ 2 d (pe)
1721ai	50 y F				U	Unk	Unk	2		
		carisoprodol	1	1						
		diphenhydramine	2	2						
		ethanol	3	3						
1722	51 y M				A/C	Ingst	Int-S	2		
		cyclobenzaprine	1	1						
		tramadol	2	2						
		pregabalin	3	3						
		clopidogrel	4	4						
		acetaminophen/codeine	5	5					acetaminophen (apap)	44 mg/mL In Blood (unspecified) @ 4 h (pe)
		phenytoin	6	6					phenytoin	6.4 mcg/mL In Blood (unspecified) @ 4 h (pe)
		sulfamethoxazole/trimethoprim	7	7						
1723h	53 y F				U	Ingst	Int-S	2		
		baclofen	1	1						
		amitriptyline	2	2						
		ethanol	3	3						
		naproxen	4	4						
1724h	54 y F				A/C	Ingst	Int-S	3		
		cyclobenzaprine	1	1						
		warfarin	2	2						
1725pha	57 y F				A/C	Ingst	Int-S	1		
		baclofen	1	1						
		metoprolol	2	1					hydroxyzine	180 mcg/L In Blood (unspecified) @ Unknown
		metoprolol	2	1					10-hydroxycarbazepine	19 mcg/mL In Blood (unspecified) @ Unknown
		metoprolol	2	1					midazolam	27 mcg/L In Blood (unspecified) @ Unknown
		metoprolol	2	1					fluoxetine	440 mcg/L In Blood (unspecified) @ Unknown
		metoprolol	2	1					norfluoxetine	710 mcg/L In Blood (unspecified) @ Unknown
		metoprolol	2	1					baclofen	9500 mcg/L In Blood (unspecified) @ Unknown
		ethanol	3	2						
1726h	58 y F				A	Ingst + Aspir	Int-S	2		
		cyclobenzaprine	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
1727ha	61 y F	baclofen	1	1	C	Ingst	Int-S	1	baclofen	1189 ng/mL In Blood (unspecified) @ Unknown
		lorazepam	2	2					alprazolam	13.5 ng/mL In Blood (unspecified) @ Unknown
		zolpidem	3	3					zolpidem	114 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	4	4						
1728h	62 y F	baclofen	1	1	A/C	Ingst	Int-S	1	baclofen	11 mg/L In Blood (unspecified) @ Autopsy
1729h	63 y F	baclofen	1	1	A/C	Ingst	Int-S	2		
1730pha	65 y F	carisoprodol	1	1	A/C	Ingst	Int-S	2		
1731h	68 y F	baclofen	1	1	A/C	Ingst	Unk	3		
1732ph	69 y F	chlorthalidone	1	1	U	Ingst	Int-S	2		
		quetiapine	2	2						
		zolpidem	3	3						
		lisinopril	4	4						
1733h	70 y M	baclofen	1	1	A/C	Ingst	Oth-W	3		
		salicylate	2	2						
1734ha	71 y M	baclofen	1	1	A/C	Ingst	Int-S	1	baclofen	2.9 mg/L In Blood (unspecified) @ 30 m (pe)
1735h	83 y F	baclofen	1	1	A/C	Ingst + Derm	Int-U	3		
		tapentadol	2	2						
		carisoprodol	3	3						
		fentanyl	4	4						
1736a	90 y F	baclofen	1	1	C	Ingst	Int-M	1		
See Also case 120, 128, 267, 550, 624, 628, 653, 675, 684, 693, 696, 763, 771, 821, 830, 852, 855, 874, 891, 895, 903, 907, 939, 946, 951, 987, 991, 1000, 1002, 1025, 1050, 1055, 1078, 1090, 1096, 1115, 1116, 1168, 1195, 1212, 1225, 1233, 1243, 1260, 1262, 1299, 1310, 1315, 1316, 1320, 1396, 1411, 1412, 1427, 1435, 1444, 1475, 1489, 1501, 1511, 1551, 1554, 1555, 1591, 1636, 1677, 1680, 1760, 1804, 1807, 2117, 2219, 2347, 2355, 2376, 2433, 2492, 2507, 2534, 2538, 2663, 2676										
Narcotic Antagonists										
1737ai	19 y M	nalmexone	1	1	U	Unk	Int-A	1		
See Also case 1955, 2439										
Sedative/Hypnotics/Antipsychotics										
1738pa	4 y M	quetiapine	1	1	A	Ingst	Oth-M	1	quetiapine	0.7 mg/mL In Gastric (stomach content) @ Autopsy
		quetiapine	1	1					quetiapine	9.4 mg/L In Blood (unspecified) @ Autopsy
		quetiapine	1	1					quetiapine	9.7 mg/L In Blood (unspecified) @ Autopsy
		trazodone	2	2					trazodone	0.11 mg/mL In Gastric (stomach content) @ Autopsy
		trazodone	2	2					trazodone	4 mg/L In Blood (unspecified) @ Autopsy
[1739ha]	12 y F	diazepam	1	1	A	Ingst	Unk	1	nordiazepam	0.067 mg/L In Blood (unspecified) @ 2 h (pe)
		diazepam	1	1					diazepam	0.98 mg/L In Blood (unspecified) @ 2 h (pe)
		diazepam	1	1					diazepam	20 ng/mL In Urine (quantitative only) @ 1 m (pe)
		diazepam	1	1					oxazepam	32 ng/mL In Urine (quantitative only) @ 1 m (pe)
		diazepam	1	1					temazepam	410 ng/mL In Urine (quantitative only) @ 1 m (pe)
		diazepam	1	1					nordiazepam	68 ng/mL In Urine (quantitative only) @ 1 m (pe)
		gabapentin	2	2					gabapentin	1.5 mcg/mL In Blood (unspecified) @ 1 m (pe)
		gabapentin	2	2					gabapentin	24 mg/L In Blood (unspecified) @ 2 h (pe)
		citalopram	3	3					citalopram	0.42 mg/L In Blood (unspecified) @ 2 h (pe)
1740ai	18 y M	alprazolam	1	1	U	Unk	Int-U	1		
		oxycodone	2	2						
		methadone	3	3						
1741ai	19 y F	alprazolam	1	1	U	Unk	Unk	1		
		oxycodone	2	2						
		estazolam	3	3						
1742ai	22 y M	alprazolam	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
		oxycodone	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
1743ai	22 y M	alprazolam cocaine fentanyl	1 2 3	1 2 3	U	Unk	Int-A	1		
1744p	23 y F	benzodiazepine insulin (aspart) ethanol	1 2 3	1 2 3	A	Ingst	Int-S	1		
1745p	23 y F	clonazepam alprazolam	1 2	1 2	A/C	Ingst	Int-S	3		
1746	24 y F	quetiapine paroxetine lorazepam	1 2 3	1 2 3	A	Ingst	Int-S	2		
1747ai	24 y M	alprazolam fentanyl	1 2	1 2	U	Ingst + Unk	Int-A	1		
1748	25 y M	quetiapine	1	1	U	Ingst	Int-S	2		
1749ph	25 y M	alprazolam heroin	1 2	1 2	A	Inhal	Int-A	1		
1750ph	25 y M	quetiapine fentanyl heroin	1 2 3	1 2 3	A/C	Unk	Int-U	1		
1751ai	25 y F	alprazolam fentanyl	1 2	1 2	U	Ingst + Unk	Int-A	1		
1752ai	27 y M	alprazolam methadone oxycodone	1 2 3	1 2 3	U	Unk	Unk	1		
1753h	27 y F	quetiapine ethanol drug, unknown	1 2 3	1 2 3	A	Ingst	Int-S	1	ethanol	156 mg/dL In Blood (unspecified) @ 2 h (pe)
1754h	28 y F	quetiapine	1	1	A	Ingst	Int-S	2		
1755ai	28 y M	alprazolam methamphetamine diazepam	1 2 3	1 2 3	U	Unk	Int-A	1		
1756p	30 y M	clozapine	1	1	A	Ingst	Int-S	1		
1757	32 y M	quetiapine doxepin ethanol	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
1758phi	32 y M	asenapine quetiapine trazodone	1 2 3	1 2 3	A	Ingst	Unk	2		
1759ai	33 y M	chlordiazepoxide diazepam ethanol	1 2 3	1 2 3	U	Unk	Int-A	2		
1760a	37 y F	olanzapine metaxalone quetiapine lamotrigine vilazodone triazolam acetaminophen	1 2 3 4 5 6 7	1 2 3 4 5 6 7	A/C	Ingst	Int-S	2	olanzapine metaxalone lamotrigine acetaminophen (apap)	0.17 mcg/mL In Blood (unspecified) @ 1 h (pe) 0.54 mcg/mL In Blood (unspecified) @ 1 h (pe) 27 mcg/mL In Blood (unspecified) @ 1 h (pe) 22 mcg/mL In Blood (unspecified) @ 1 h (pe)
1761pha	37 y M	alprazolam narcotic, other/unknown	1 2	1 2	A	Ingst	Int-A	3		
1762ai	37 y M	alprazolam heroin fentanyl	1 2 3	1 2 3	U	Unk	Int-A	1		
1763ai	37 y F	alprazolam citalopram ethanol	1 2 3	1 2 3	U	Unk	Int-S	1		
1764	38 y M	quetiapine ethanol	1 2	1 2	A/C	Ingst	Int-S	3	ethanol	207 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
1765ai	39 y M				U	Unk	Int-A	1		
		alprazolam	1	1						
		fentanyl	2	2						
1766phi	40 y M				U	Ingst + Unk	Int-A	2		
		alprazolam	1	1						
		narcotic, other/unknown	2	2						
		acetaminophen	3	3					acetaminophen (apap)	23 mcg/mL In Serum @ Unknown
1767pha	44 y F				A	Ingst	Int-S	1		
		barbiturate (short or intermediate acting)	1	1					pentobarbital	59 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	69 mg/mL In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	18 mg/dL In Serum @ Unknown
1768ai	44 y M				U	Unk	Int-A	1		
		alprazolam	1	1						
		citalopram	2	2						
		methadone	3	3						
1769ph	44 y M				A/C	Ingst	Int-S	1		
		ziprasidone	1	1						
		valproic acid (extended release)	2	2						
		acetaminophen/hydrocodone	3	3						
1770ai	44 y M				U	Unk	Int-M	1		
		benzodiazepine	1	1						
		ethanol	2	2						
		citalopram	3	3						
1771ai	44 y F				U	Unk	Int-S	1		
		pentobarbital	1	1						
		phenytoin	2	2						
1772h	45 y M				A	Ingst	Int-S	1		
		quetiapine	1	1						
1773ha	45 y F				A/C	Ingst	Int-S	2		
		quetiapine (extended release)	1	1					quetiapine	6800 ng/mL In Blood (unspecified) @ Unknown
1774h	46 y M				A/C	Par	Unt-T	3		
		propofol	1	1						
1775h	46 y M				A	Ingst	Int-S	2		
		quetiapine (extended release)	1	1						
1776ha	48 y F				A/C	Ingst	Int-S	1		
		alprazolam	1	1					alprazolam	240 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/oxycodone	2	2					acetaminophen (apap)	15 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	2	2					oxycodone	170 ng/mL In Blood (unspecified) @ Autopsy
		zolpidem	3	3					zolpidem	640 ng/mL In Blood (unspecified) @ Autopsy
		hydroxyzine	4	4					hydroxyzine	18 ng/mL In Blood (unspecified) @ Autopsy
		insulin	5	5						
1777ha	48 y F				A/C	Ingst	Int-S	1		
		alprazolam	1	1					alprazolam	0.47 mg/L In Blood (unspecified) @ 7 h (pe)
		risperidone	2	2					9-hydroxyrisperidone	0.013 mg/L In Blood (unspecified) @ 21 h (pe)
		risperidone	2	2					risperidone	0.083 mg/L In Blood (unspecified) @ 21 h (pe)
		caffeine	3	3						
1778ai	48 y M				U	Unk	Int-A	1		
		alprazolam	1	1						
		diazepam	2	2						
		gabapentin	3	3						
1779p	48 y M				A	Ingst	Int-S	2		
		zolpidem	1	1						
1780ai	48 y M				U	Unk	Int-A	2		
		alprazolam	1	1						
		ethanol	2	2						
		oxycodone	3	3						
1781a	50 y M				A	Ingst	Int-S	1		
		midazolam	1	1					midazolam	170 ng/mL In Blood (unspecified) @ Autopsy
		buspirone	2	2						
1782a	51 y M				A	Ingst	Int-S	2		
		clonazepam	1	1					clonazepam	36 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	1	1					7-aminoclonazepam	890 ng/mL In Blood (unspecified) @ Autopsy
		clonidine	2	2					clonidine	73 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	3	3					fluoxetine	5000 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	3	3					norfluoxetine	73 ng/mL In Blood (unspecified) @ Autopsy
1783ph	51 y M				A/C	Ingst + Inhal	Int-S	2		
		diazepam	1	1						
		lorazepam	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
1784p	52 y F	temazepam	3	3	U	Unk	Int-U	2		
		gabapentin	4	4						
		chlordiazepoxide	5	5						
		ethanol	6	6						
		carbon monoxide	7	7						
1785ai	52 y M	alprazolam	1	1	U	Unk	Int-S	2		
1786ph	53 y F	alprazolam	1	1	A/C	Ingst	Unk	2		
		methylenedioxy-methamphetamine (MDMA)	2	2						
		oxycodone	3	3						
1787ph	53 y F	alprazolam	1	1	A	Unk	Unk	2		
		tramadol	2	2						
		fluoxetine	3	3						
1788ai	53 y M	temazepam	1	1	U	Unk	Unk	1		
		codeine	2	2						
		cocaine	3	3						
1789ai	53 y F	alprazolam	1	1	U	Unk	Int-S	1		
		methadone	2	2						
		propranolol	3	3						
1790pha	54 y M	benzodiazepine	1	1	C	Ingst	Unk	2		
		oxycodone	2	2						
		paroxetine	3	3						
1791h	54 y M	zolpidem	1	1	A/C	Ingst	Int-S	2		
		valproic acid	2	2						
		quetiapine	3	3						
		tramadol	4	4						
1792ha	55 y F	zolpidem	1	1	U	Ingst	Int-S	2		
		clonazepam	2	2						
1793h	55 y F	clonazepam	1	1	A/C	Ingst	Int-M	3		
		oxycodone	2	2						
		duloxetine (extended release)	2	2						
		propranolol	3	3						
		oxcarbazepine	4	4						
		quetiapine	5	5						
		dopamine agonist	6	6						
		topiramate	7	7						
		metformin	8	8						
		lisinopril	9	9						
levothyroxine	10	10								
1794ai	55 y M	clonazepam	1	1	U	Unk	Int-A	1		
1795ai	55 y F	alprazolam	1	1	U	Unk	Int-S	1		
		ethanol	2	2						
1796ai	55 y F	buspirone	1	1	U	Unk	Unk	3		
		gabapentin	2	2						
		lamotrigine	3	3						
		diazepam	4	4						
1797pha	56 y F	quetiapine	1	1	U	Ingst	Int-S	1		
1798ph	56 y M	clobazam	1	1	A	Ingst	Int-S	2		
		alprazolam	2	2						
		sedative-hypnotic-anxiety-antipsychotic drug	3	3						
		zolpidem	4	4						
		doxylamine	5	5						
		lacosamide	6	6						
		diphenhydramine	7	7						
1799ha	56 y F	quetiapine	1	1	U	Ingst	Int-S	1		
		lorazepam	2	2						
1800h	57 y M	alprazolam	2	1	A/C	Ingst	Int-S	2		
		sertraline	3	1						
		verapamil	1	1						
		melatonin	4	4						
1800h	57 y M	quetiapine	1	1						
		clonazepam	2	2						
		clonazepam	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
1801ai	57 y F	diazepam	1	1	U	Unk	Int-A	1		
		duloxetine (extended release)	2	2						
		heroin	3	3						
		paroxetine	4	4						
1802ai	58 y F	diazepam	1	1	U	Unk	Int-A	2		
		gabapentin	2	2						
		tramadol	3	3						
1803ai	59 y F	diazepam	1	1	U	Unk	Unk	1		
		ethanol	2	2						
		oxycodone	3	3						
1804h	60 y F	zolpidem	1	1	A/C	Ingst	Int-U	2		
		cyclobenzaprine	2	2						
		drug, unknown	3	3						
1805h	60 y M	clonazepam	1	1	A/C	Ingst	Int-S	3		
		hydrochlorothiazide/lisinopril	2	2						
		venlafaxine	3	3						
		loratidine (extended release)	4	4						
1806ha	61 y M	alprazolam	1	1	A/C	Ingst	Int-S	1	alprazolam	0.45 mg/L In Blood (unspecified) ⓐ Autopsy
		oxycodone	2	2					oxycodone	0.15 mg/L In Blood (unspecified) ⓐ Autopsy
		trazodone	3	2					trazodone	1.2 mg/L In Blood (unspecified) ⓐ Autopsy
1807ai	61 y M	zolpidem	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		cyclobenzaprine	3	3						
1808ai	63 y F	alprazolam	1	1	U	Ingst	Unt-M	1		
		ethanol	2	2						
		diphenhydramine	3	3						
1809	64 y M	alprazolam	1	1	C	Ingst	Int-M	3	alpha-oh-alprazolam	130 ng/mL In Urine (quantitative only) ⓐ Unknown
		alprazolam	1	1					alprazolam	230 ng/mL In Blood (unspecified) ⓐ Unknown
		alprazolam	1	1					alprazolam	230 ng/mL In Urine (quantitative only) ⓐ Unknown
		ethanol	2	2					ethanol	27 mg/dL In Blood (unspecified) ⓐ Unknown
		ethanol	2	2					ethanol	89 mg/dL In Urine (quantitative only) ⓐ Unknown
1810ha	65 y M	zopiclone	1	1	A	Ingst	Int-S	1	zopiclone	170 ng/mL In Blood (unspecified) ⓐ Unknown
		gabapentin	2	2					gabapentin	85 mg/L In Blood (unspecified) ⓐ Unknown
1811h	66 y F	zolpidem	1	1	U	Ingst	Int-S	3		
		lorazepam	2	2						
		marijuana	3	3						
		narcotic, other/unknown	4	4						
		phencyclidine	5	5						
		cyclic antidepressant, unknown	6	6						
		drug, unknown	7	7						
1812h	66 y M	haloperidol	1	1	A	Ingst	AR-D	3		
1813h	67 y M	lorazepam	1	1	A/C	Ingst	Int-S	3		
		amphetamine	2	2						
1814pha	69 y M	quetiapine	1	1	U	Ingst	Int-S	1	quetiapine	1.8 mg/L In Serum @ 5 h (pe)
1815ha	70 y M	clonazepam	1	1	U	Ingst	Int-S	1	clonazepam	0.043 mg/L In Blood (unspecified) @ 1.5 h (pe)
		clonazepam	1	1					7-aminoclonazepam	0.16 mg/L In Blood (unspecified) @ 1.5 h (pe)
		sertraline	2	2					sertraline	0.27 mg/L In Blood (unspecified) @ 30 m (pe)
		sertraline	2	2					norsertaline	0.28 mg/L In Blood (unspecified) @ 30 m (pe)
		drug, unknown	3	3						
1816p	70 y F	antipsychotic (atypical)	1	1	A/C	Ingst	Int-S	2		
		antihistamine	2	2						
1817ai	72 y F	lorazepam	1	1	U	Unk	Unk	2		
		morphine	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
1818ha	72 y F	quetiapine methadone benzodiazepine	1 2 3	1 2 3	A/C	Ingst	Int-S	2		
1819ha	74 y M	estazolam zolpidem	1 2	1 2	U	Ingst	Int-S	1	etizolam zolpidem	3500 ng/mL In Serum @ Unknown 420 ng/mL In Serum @ Unknown
1820i	74 y F	quetiapine diphenhydramine ibuprofen	1 2 3	1 2 3	U	Ingst	Int-S	1		
1821ai	74 y F	benzodiazepine barbiturate (long acting)	1 2	1 2	U	Unk	Unk	2		
1822ai	74 y F	benzodiazepine barbiturate (long acting)	1 2	1 2	U	Unk	Unk	2		
1823ai	75 y M	phenobarbital	1	1	U	Unk	Int-S	1		
1824ai	76 y M	zopiclone	1	1	U	Unk	Int-S	1		
1825h	78 y F	alprazolam metformin insulin (glargine)	1 2 3	1 2 3	A/C	Ingst + Unk	Int-S	2		
1826ha	81 y F	risperidone lisinopril metoprolol	1 2 3	1 2 3	A/C	Ingst	Int-S	1		
1827ai	84 y M	lorazepam	1	1	U	Unk	Int-S	1		
1828h	85 y F	lorazepam hydromorphone	1 2	1 2	A	Ingst	Unk	3		
1829a	87 y M	alprazolam alprazolam	1 1	1 1	A/C	Ingst	Int-S	2	alprazolam alpha-oh-alprazolam	6300 ng/mL In Urine (quantitative only) @ Unknown 6300 ng/mL In Urine (quantitative only) @ Unknown
1830h	87 y M	barbiturate (long acting)	1	1	A/C	Ingst	Int-U	2	phenobarbital	112 mg/L In Blood (unspecified) @ Unknown
1831ha	89 y F	eszopiclone morphine alprazolam pseudoephedrine	1 2 3 4	1 2 3 4	A	Ingst	Int-S	1	eszopiclone morphine alprazolam pseudoephedrine	320 ng/mL In Blood (unspecified) @ Autopsy 22.7 ng/mL In Blood (unspecified) @ Autopsy 12.9 ng/mL In Blood (unspecified) @ Autopsy 259 ng/mL In Blood (unspecified) @ Autopsy
1832pa	30 + y M	alprazolam alprazolam methadone clonazepam mirtazapine marijuana marijuana marijuana	1 1 2 3 4 5 5 5	1 1 2 3 4 5 5 5	A	Par	Int-A	1	alpha-oh-alprazolam alprazolam methadone 7-aminoclonazepam mirtazapine 11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol) delta-9-thc delta-9-carboxy-thc	14 ng/mL In Blood (unspecified) @ Autopsy 370 ng/mL In Whole Blood @ Autopsy 290 ng/mL In Whole Blood @ Autopsy 6.1 ng/mL In Whole Blood @ Autopsy 39 ng/mL In Whole Blood @ Autopsy 1 ng/mL In Whole Blood @ Autopsy 1.7 ng/mL In Whole Blood @ Autopsy 27 ng/mL In Whole Blood @ Autopsy
1833p	40 + y M	alprazolam	1	1	A	Ingst	Unk	3		
1834p	Unknown adult (>=20 yrs) F	alprazolam	1	1	U	Ingst	Int-S	2		
See Also case 5, 19, 35, 39, 47, 55, 60, 67, 70, 91, 97, 114, 119, 128, 164, 175, 183, 234, 259, 260, 278, 295, 309, 316, 363, 374, 381, 383, 385, 389, 391, 392, 393, 394, 396, 401, 404, 406, 408, 409, 414, 417, 418, 420, 427, 429, 433, 440, 444, 445, 447, 450, 452, 453, 456, 459, 460, 468, 478, 482, 483, 486, 489, 490, 491, 492, 494, 495, 497, 505, 506, 513, 520, 529, 531, 533, 536, 544, 551, 553, 554, 555, 557, 558, 565, 568, 569, 571, 572, 577, 581, 583, 585, 591, 595, 602, 605, 608, 613, 615, 619, 622, 626, 630, 633, 640, 644, 645, 653, 657, 660, 672, 674, 675, 676, 678, 679, 681, 683, 688, 691, 692, 694, 695, 702, 710, 715, 718, 719, 722, 727, 732, 735, 737, 739, 740, 744, 751, 753, 754, 760, 761, 762, 763, 764, 765, 766, 773, 774, 778, 781, 784, 785, 796, 802, 807, 812, 815, 816, 819, 822, 826, 829, 831, 834, 836, 847, 855, 860, 861, 865, 866, 874, 875, 884, 886, 890, 892, 893, 894, 901, 904, 905, 906, 907, 910, 912, 917, 918, 919, 922, 923, 924, 925, 926, 928, 931, 934, 935, 946, 947, 950, 953, 958, 959, 961, 970, 973, 979, 981, 986, 989, 992, 995, 1001, 1003, 1006, 1017, 1018, 1023, 1024, 1026, 1028, 1035, 1037, 1038, 1053, 1055, 1056, 1059, 1062, 1065, 1066, 1069, 1070, 1074, 1089, 1090, 1092, 1096, 1098, 1101, 1102, 1104, 1108, 1119, 1121, 1122, 1128, 1135, 1137, 1146, 1153, 1154, 1158, 1167, 1170, 1175, 1182, 1184, 1190, 1191, 1194, 1195, 1198, 1201, 1202, 1203, 1206, 1211, 1215, 1218, 1219, 1220, 1224, 1228, 1231, 1232, 1238, 1241, 1246, 1255, 1257, 1258, 1260, 1268, 1273, 1275, 1276, 1277, 1281, 1282, 1285, 1286, 1288, 1289, 1292, 1295, 1296, 1298, 1299, 1300, 1301, 1303, 1305, 1306, 1307, 1309, 1310, 1316, 1317, 1318, 1321, 1322, 1323, 1327, 1329, 1344, 1347, 1355, 1356, 1382, 1383, 1384, 1390, 1394, 1396, 1399, 1409, 1411, 1412, 1414, 1423, 1425, 1426, 1427, 1429, 1430, 1431, 1438, 1440, 1445, 1448, 1452, 1453, 1455, 1461, 1465, 1466, 1468, 1469, 1471, 1473, 1474, 1475, 1482, 1489, 1491, 1501, 1502, 1517, 1518, 1521, 1523, 1527, 1529, 1531, 1539, 1545, 1551, 1552, 1554, 1555, 1567, 1569, 1571, 1572, 1573, 1577, 1578, 1583, 1592, 1595, 1599, 1608, 1618, 1622, 1648, 1652, 1661, 1662, 1672, 1675, 1679, 1680, 1683, 1704, 1706, 1710, 1712, 1727, 1732, 1848, 1849, 1858, 1859, 1860, 1866, 1871, 1878, 1879, 1882, 1894, 1896, 1909, 1912, 1917, 1920, 1921, 1930, 1941, 1943, 1948, 1951, 1953, 1958, 1971, 1976, 2009, 2011, 2017, 2018, 2031, 2035, 2044, 2054, 2071, 2079, 2082, 2083, 2088, 2099, 2110, 2124, 2133, 2136, 2163, 2169, 2176, 2180, 2186, 2200, 2204, 2208, 2213, 2218, 2220, 2232, 2237, 2256, 2261, 2266, 2274, 2287, 2308, 2325, 2343, 2348, 2380, 2389, 2401, 2422, 2431, 2432, 2471, 2473, 2492, 2524, 2560, 2581, 2582, 2586, 2587, 2590, 2618, 2621, 2636, 2648, 2660, 2662										
Stimulants and Street Drugs										
1835ph	16 y M	heroin	1	1	A	Ingst + Par	Int-A	2	oxymorphone	149 ng/mL In Urine (quantitative only) @ 10 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
		heroin	1	1					codeine	48 ng/mL In Urine (quantitative only) @ 10 h (pe)
		heroin	1	1					morphine	551 ng/mL In Urine (quantitative only) @ 10 h (pe)
		methamphetamine	2	2					amphetamine	4934 ng/mL In Urine (quantitative only) @ 10 h (pe)
		methamphetamine	2	2					methamphetamine	56710 ng/mL In Urine (quantitative only) @ 10 h (pe)
1836ph	17 y F	clonidine	3	3	A	Inhal + Par	Int-A	2		
		heroin	1	1						
1837pha	17 y F	marijuana	2	2	U	Unk	Int-A	2		
1838pi	18 y M	heroin	1	1	A	Par	Int-A	2		
		heroin	1	1						
1839ph	18 y M	carfentanil	2	2	A	Unk	Int-A	2		
		methylenedioxy-methamphetamine (MDMA)	1	1						
1840ha	18 y F				A	Ingst	Int-A	1		
		methamphetamine	1	1						
		amphetamine/dextroamphetamine	2	2						
		cocaine	3	3						
1841ph	19 y M				A	Unk	Int-A	2		
		heroin	1	1						
1842ai	19 y M				U	Unk	Int-A	2		
		cocaine	1	1						
		heroin	2	2						
1845ai	19 y F				U	Unk	Int-A	1		
		heroin	1	1						
		sertraline	2	2						
		gabapentin	3	3						
1843ai	19 y M				U	Unk	Int-A	1		
		heroin	1	1						
1844ai	19 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
1846ai	19 y M				U	Unk	Int-A	2		
		lysergic acid diethylamide (LSD)	1	1						
1847ph	20 y M				A	Unk	Int-S	2		
		methylenedioxy-methamphetamine (MDMA)	1	1						
1848h	20 y F				A	Inhal	Int-A	1		
		heroin	1	1						
		cocaine	2	2						
		alprazolam	3	3						
1849ph	20 y M				U	Unk	Int-A	1		
		methamphetamine	1	1					methamphetamine	1600 ng/mL In Serum @ Unknown
		methamphetamine	1	1					amphetamine	95 ng/mL In Serum @ Unknown
		benzodiazepine	2	2						
1850ai	20 y M				U	Unk	Int-A	1		
		cocaine	1	1						
1851ai	20 y F				U	Unk	Int-A	1		
		cocaine	1	1						
		methamphetamine	2	2						
		fentanyl	3	3						
1853ai	20 y M				U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
1852ai	20 y M				A	Unk	Int-A	1		
		heroin	1	1						
		cocaine	2	2						
		fentanyl	3	3						
1854ai	20 y M				U	Unk	Int-A	1		
		methylenedioxy-methamphetamine (MDMA)	1	1						
		isopropanol	2	2						
1855ai	20 y M				U	Unk	Int-A	1		
		methylenedioxy-methamphetamine (MDMA)	1	1						
		isopropanol	2	2						
1856ph	21 y F				U	Unk	Int-A	2		
		heroin	1	1						
1857ai	21 y F				U	Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
		oxycodone	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
1858ai	21 y M	heroin	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		diazepam	3	3						
		amitriptyline	4	4						
1861ai	21 y M	heroin	1	1	U	Unk	Int-A	1		
		codeine	2	2						
1859ai	21 y M	heroin	1	1	U	Ingst + Unk	Int-A	1		
		alprazolam	2	2						
		ethanol	3	3						
1860i	21 y M	heroin	1	1	U	Unk	Int-A	1		
		hydromorphone	2	2						
		alprazolam	3	3						
1862ph	21 y M	3,4-methylenedioxy- amphetamine (MDA)	1	1	A	Ingst	Int-A	1		
1863ai	21 y M	fentanyl analog (carfentanil)	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		mitragyna	3	3						
1864ai	21 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1865h	21 y M	amphetamine (hallucinogenic)	1	1	A	Ingst	Int-M	2		
1866phi	22 y F	heroin	1	1	U	Unk	Int-A	2		
		alprazolam	2	2						
1867h	22 y M	methylenedioxy- thamphetamine (MDMA)	1	1	A	Ingst	Unk	2		
		amphetamine	2	2						
1868h	22 y F	heroin	1	1	C	Inhal + Par	Int-A	2		
		cocaine	2	2						
		levamisole	3	3						
1869ai	22 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		dextromethorphan	3	3						
1870h	22 y M	methamphetamine	1	1	A	Inhal	Int-A	2		
		marijuana	2	2						
		drug, unknown	3	3						
1871ai	22 y F	heroin	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		alprazolam	3	3						
1872ai	22 y M	heroin	1	1	U	Par	Int-S	1		
		narcotic, other/unknown	2	2						
1873ph	22 y M	heroin	1	1	A	Par	Int-A	1		
1878ai	22 y M	heroin	1	1	U	Unk	Int-A	1		
		heroin	1	1						
		fentanyl	2	2						
		alprazolam	3	3						
1877ai	22 y F	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1876ai	22 y F	heroin	1	1	A	Unk	Int-A	1		
1874ai	22 y F	heroin	1	1	U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
		hydromorphone	3	3						
1875ai	22 y F	heroin	1	1	U	Unk	Int-A	2		
[1879pha]	23 y M	U-47700	1	1	A	Ingst	Unk	1	u-47700	5.2 ng/mL In Blood (unspecified) ⓐ Unknown
		delorazepam	2	2					delorazepam	82 ng/mL In Blood (unspecified) ⓐ Unknown
		diclazepam	3	3					diclazepam	33 ng/mL In Blood (unspecified) ⓐ Unknown
		flubromazepam	4	4					flubromazepam	450 ng/mL In Blood (unspecified) ⓐ Unknown
		etizolam	5	5					etizolam	29 mg/mL In Blood (unspecified) ⓐ Unknown
		fentanyl analog (4- fluoroisobutyrylfentanyl)	6	6					fluoroisobutyryl fentanyl	5.8 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
		oxycodone	7	7					oxycodone (free)	15 ng/mL In Blood (unspecified) ⓐ Unknown
1880pi	23 y M	caffeine	8	8	U	Unk	Int-A	2		
		methylenedioxy- methamphetamine (MDMA)	1	1						
1881ha	23 y M				U	Unk	Int-A	1		
		methylenedioxy- methamphetamine (MDMA)	1	1					mdma (3,4-methylenedioxy- methamphetamine)	1900 ng/mL In Blood (unspecified) ⓐ Unknown
		methylenedioxy- methamphetamine (MDMA)	1	1					mda (3,4-methylenedioxy- amphetamine)	67 ng/mL In Blood (unspecified) ⓐ Unknown
		cocaine	2	2					benzoylecognine	620 ng/mL In Blood (unspecified) ⓐ Autopsy
1882pa	23 y M				A	Unk	Int-U	2		
		cocaine	1	1						
		benzodiazepine	2	2						
		drug, unknown	3	3						
1883h	23 y M				A	Ingst	Int-M	1		
		methamphetamine	1	1					methamphetamine	12000 ng/mL In Blood (unspecified) ⓐ Autopsy
		methamphetamine	1	1					amphetamine	150 ng/mL In Blood (unspecified) ⓐ Autopsy
		methamphetamine	1	1					benzoylecognine	86 ng/mL In Blood (unspecified) ⓐ Autopsy
		cocaine	2	2						
1884h	23 y M				A	Ingst	Int-A	1		
		methamphetamine	1	1						
1885ha	23 y M				A	Ingst	Int-A	2		
		methylenedioxy- methamphetamine (MDMA)	1	1						
		ethanol	2	2						
1886ai	23 y M				U	Unk	Int-A	3		
		amphetamine	1	1						
		methamphetamine	2	2						
1887ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		oxycodone	2	2						
		codeine	3	3						
1889ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
		morphine	3	3						
1888ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
1890ai	23 y F				U	Unk	Int-A	3		
		methamphetamine	1	1						
		ethanol	2	2						
1891pa	23 y M				A/C	Par	Int-A	1		
		heroin	1	1					codeine	0.007 mg/L In Blood (unspecified) ⓐ Autopsy
		heroin	1	1					morphine	0.13 mg/L In Blood (unspecified) ⓐ Autopsy
1892ai	23 y M				C	Par	Int-A	3		
		drug, unknown stimulant or street drug	1	1						
1899ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
1897ai	23 y F				U	Unk	Int-A	2		
		heroin	1	1						
		methamphetamine	2	2						
1898ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		ethanol	2	2						
1894ai	23 y M				U	Ingst + Unk	Int-A	1		
		heroin	1	1						
		alprazolam	2	2						
		ethanol	3	3						
1895ai	23 y M				A	Unk	Int-A	1		
		heroin	1	1						
		cocaine	2	2						
1893ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		ethanol	2	2						
1896ai	23 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		alprazolam	3	3						
1900ai	23 y M				U	Unk	Int-A	1		
		THC homolog	1	1						
1901ai	23 y M				U	Unk	Int-A	1		
		cocaine	1	1						
		ethanol	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
1902pa	24 y U	fentanyl	3	3	U	Ingst	Int-S	1		
		methamphetamine	1	1					methamphetamine	152 ng/mL In Blood (unspecified) @ 30 m (pe)
		heroin	2	2						
		fentanyl	3	3					fentanyl	5.9 ng/mL In Blood (unspecified) @ 30 s (pa)
1903pai	24 y F	gabapentin	4	4	U	Unk	Int-A	1	gabapentin	13.7 mcg/mL In Blood (unspecified) @ 30 s (pa)
		methamphetamine	1	1					methamphetamine	1244 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					amphetamine	159 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	10.6 ng/mL In Blood (unspecified) @ Autopsy
1904h	24 y M	heroin	3	3	A	Inhal + Unk	Int-A	2		
		methylenedioxy-methamphetamine (MDMA)	1	1					mdma (3,4-methylenedioxy-methamphetamine)	1200 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	120 ng/mL In Blood (unspecified) @ Unknown
		marijuana	3	3					delta-9-carboxy-thc	9.1 ng/mL In Blood (unspecified) @ Unknown
1905h	24 y M	cocaine	1	1	A	Ingst	Int-U	2		
1906	24 y F	drug, unknown	2	2	U	Unk	Unk	2		
		heroin	1	1						
1907ph	24 y F	heroin	1	1	A	Par	Int-A	1		
1908ai	24 y F	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1909ai	24 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		alprazolam	3	3						
1910	24 y M	cocaine	1	1	A	Ingst	Int-M	1		
1912ai	24 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		alprazolam	3	3						
1913ai	24 y M	cocaine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
1911ai	24 y M	cocaine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
1915ai	24 y M	cocaine	1	1	U	Unk	Int-S	1		
		heroin	1	1						
1914ai	24 y M	methamphetamine	2	2	U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
1918ai	24 y M	trazodone	3	3	U	Unk	Int-A	2		
		methamphetamine	1	1						
		ethanol	2	2						
1916ai	24 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
1917ai	24 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		risperidone	2	2						
1919ph	25 y M	heroin	1	1	A/C	Ingst + Inhal	Int-A	2		
		gabapentin	2	2						
		diphenhydramine	3	3						
1920ph	25 y M	heroin	1	1	U	Ingst	Int-A	1		
		benzodiazepine	2	2						
		marijuana	3	3						
		ethanol	4	4						
1921pha	25 y M	heroin	1	1	A	Unk	Int-A	1	morphine	0.063 mg/L In Plasma @ 45 m (pe)
		benzodiazepine	2	2						
		fentanyl	3	2						
1922ha	25 y M	methamphetamine	1	1	U	Ingst	Int-U	1	methamphetamine	1000 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					amphetamine	590 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
1923ha	25 y M	lysergic acid diethylamide (LSD)	1	1	U	Ingst + Oth + Unk	Int-A	1		
		methamphetamine	2	2						
		phencyclidine	3	3						
		hyperthermia	4	4						
		ethanol	5	5					ethanol	3 mg/dL In Blood (unspecified) ⓐ Unknown
1924ai	25 y M	heroin	1	1	U	Unk	Int-A	2		
		fentanyl	2	2						
		codeine	3	3						
1925ai	25 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		oxycodone	3	3						
1926ai	25 y M	heroin	1	1	U	Unk	Int-A	2		
		codeine	2	2						
1928ai	25 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
1927ai	25 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1929pha	25 y M	methamphetamine	1	1	A	Par	Int-A	1		
		heroin	2	2						
1930ph	25 y M	heroin	1	1	A	Ingst + Par	Int-A	2		
		alprazolam	2	2						
1931ai	25 y F	drug, unknown stimulant or street drug	1	1	C	Unk	Int-A	3		
1932ai	25 y M	heroin	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
1933ai	25 y F	heroin	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
1935ai	25 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1934ai	25 y M	heroin	1	1	U	Unk	Int-A	1		
1938ai	25 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
1936ai	25 y M	methamphetamine	1	1	U	Unk	Int-A	2		
1937ai	25 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
1939ai	25 y M	methamphetamine	1	1	U	Unk	Int-A	2		
1940ph	26 y M	heroin	1	1	A	Par	Int-A	2		
		methamphetamine	2	2						
1941pha	26 y M	heroin	1	1	U	Par	Int-A	1		
		alprazolam	2	2					alprazolam	0.05 mg/L In Blood (unspecified) ⓐ Autopsy
		cocaine	3	3						
1942pa	26 y M	heroin	1	1	A	Par	Int-A	1	morphine (free)	50 mcg/mL In Blood (unspecified) ⓐ Autopsy
		fentanyl analog	2	2						
[1943pha]	26 y F	fentanyl analog (carfentanil)	1	1	U	Unk	Int-U	2		
		alprazolam	2	2					alprazolam	15 ng/mL In Blood (unspecified) ⓐ Unknown
		cocaine	3	3						
1944h	26 y M	methamphetamine	1	1	A	Unk	Unk	2		
		amphetamine	2	2						
1945ai	26 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1946ai	26 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		dextromethorphan	2	2						
		fluoxetine	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
1947pha	26 y M				A	Par	Int-A	1		
1948pa	26 y M	heroin	1	1						
		cocaine	2	1	A/C	Ingst + Inhal + Par	Int-A	1	cocaine	0.023 mg/L In Blood (unspecified) ⓐ Autopsy
		cocaine	2	1					benzoyllecognine	1 mg/L In Blood (unspecified) ⓐ Autopsy
		fentanyl analog	1	1					4-fibf (4-fluoroisobutyryl fentanyl)	36 ng/mL In Blood (unspecified) ⓐ Autopsy
		alprazolam	3	2					alprazolam	0.05 mg/L In Blood (unspecified) ⓐ Autopsy
1951ai	26 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
1950ai	26 y M	alprazolam	3	3						
		heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1952ai	26 y M	codeine	3	3						
		heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1953ai	26 y F	ethanol	3	3						
		heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1949ai	26 y M	alprazolam	3	3						
		heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
1955ai	26 y M	nalmexone	2	2	U	Unk	Int-A	1		
		heroin	1	1						
1954ai	26 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	1	1						
1956ai	27 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
1957ai	27 y M	codeine	3	3						
		heroin	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
1958ai	27 y M	fentanyl	3	3						
		heroin	1	1	U	Inhal + Unk	Int-S	1		
		cocaine	1	1						
1960ai	27 y M	propane	2	2						
		diazepam	3	3						
		heroin	1	1	U	Unk	Int-A	1		
1959ai	27 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1963ai	27 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1964ai	27 y F	heroin	1	1	U	Unk	Int-A	1		
		heroin	1	1	U	Unk	Int-A	1		
1962ai	27 y F	heroin	1	1	U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
1961ai	27 y M	hydromorphone	3	3						
		heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1965ai	27 y M	heroin	1	1	U	Unk	Int-A	1		
		heroin	1	1						
1966ai	27 y F	methamphetamine	2	2	U	Unk	Int-A	2		
		heroin	1	1						
1969ai	27 y M	methamphetamine	2	2						
		heroin	1	1	A	Unk	Int-A	1		
1968ai	27 y M	methamphetamine	1	1						
		fentanyl	2	2	U	Unk	Int-A	1		
1967ai	27 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
1970pha	28 y F				U	Unk	Unk	3		
1971pa	28 y M	heroin	1	1	U	Inhal	Int-A	1	morphine	29.8 ng/mL In Blood (unspecified) ⓐ Autopsy
		cocaine	2	2						
		heroin	1	1						
		fentanyl	2	2					fentanyl	29.8 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
		clonazepam	3	3					7-aminoclonazepam	44.7 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	75 mg/dL In Blood (unspecified) @ Autopsy
		marijuana	5	5					thc (tetrahydrocannabinol)	2.3 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	5	5					carboxy-thc	38.1 ng/mL In Blood (unspecified) @ Autopsy
1972pai	28 y M	heroin	1	1	A	Par	Int-A	1	morphine (free)	80 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	0.007 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					benzoylecognine	0.2 mg/L In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.01 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.08 % (wt/Vol) In Blood (unspecified) @ Autopsy
		nortriptyline	5	5					nortriptyline	0.7 mg/L In Blood (unspecified) @ Autopsy
		sertraline	6	6					sertraline	0.1 mg/L In Blood (unspecified) @ Autopsy
		sertraline	6	6					desmethylsertraline	0.7 mg/L In Blood (unspecified) @ Autopsy
		hydroxyzine	7	7						
1973ai	28 y M	methamphetamine	1	1	U	Unk	Int-A	1		
1974pha	28 y M	synthetic cathinones	1	1	U	Unk	Int-A	2		
		ethanol	2	2					ethanol	64 mg/dL In Serum @ Unknown
		salicylate	3	3					salicylate	4.6 mg/dL In Serum @ Unknown
1975h	28 y M	methamphetamine	1	1	A	Ingst	Int-U	1		
1976ai	28 y M	cocaine	1	1	U	Unk	Unk	1		
		alprazolam	2	2						
		oxycodone	3	3						
1977ai	28 y M	heroin	1	1	U	Unk	Int-A	2		
1978ai	28 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
1979ph	28 y M	cocaine	1	1	U	Inhal	Int-A	2		
1980p	28 y M	methamphetamine	1	1	A	Unk	Int-M	2		
1981h	28 y M	cocaine	1	1	A	Par	Int-A	3		
1982ph	28 y M	cocaine	1	1	A	Ingst	Int-A	1		
		amphetamine (hallucinogenic)	2	2						
		drug, unknown	3	3						
1983ai	28 y M	cocaine	1	1	U	Unk	Int-A	2		
1984ai	28 y M	cocaine	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
		fentanyl	3	3						
1985ai	28 y M	methamphetamine	1	1	U	Unk	Int-A	2		
1986ph	29 y F	heroin	1	1	U	Par	Int-A	2		
1987ph	29 y M	heroin	1	1	A	Unk	Int-A	2		
1988h	29 y M	methamphetamine	1	1	U	Unk	Int-A	2		
1989ha	29 y M	methamphetamine	1	1	U	Par	Int-A	3	methamphetamine	0.18 mcg/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	0.22 mcg/mL In Blood (unspecified) @ Unknown
1990ph	29 y F	heroin	1	1	A	Inhal	Int-A	1		
1991ha	29 y M	methamphetamine	1	1	A	Ingst	Int-U	1	methamphetamine	170 mg/dL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					methamphetamine	1935 ng/mL In Urine (quantitative only) @ Unknown
1993ai	29 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		salicylate	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
1995ai	29 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1996i	29 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		codeine	3	3						
1994ai	29 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
1992ai	29 y M	heroin	1	1	U	Unk	Int-A	2		
		codeine	2	2						
		methamphetamine	3	3						
1997ai	29 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
1998ai	29 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
1999ai	29 y M	heroin	1	1	U	Ingst + Unk	Int-A	1		
		fentanyl	2	2						
		ethanol	3	3						
2000ai	29 y M	heroin	1	1	U	Unk	Int-A	1		
2002ai	29 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
		fentanyl	3	3						
2003ai	29 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2001ai	29 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2004ai	29 y M	heroin	1	1	U	Unk	Int-A	1		
2005ha	30 y M	amphetamine	1	1	A	Ingst	Int-U	3		
2006pa	30 y M	methamphetamine	1	1	A	Unk	Int-A	2		
2007pai	30 y F	heroin	1	1	A	Par	Int-A	1		
		cocaine	2	2						
2008ph	30 y M	cocaine	1	1	A	Ingst	Int-U	2		
2009ha	30 y F	cocaine	1	1	A	Ingst	Int-A	1	benzoylecognine	290 ng/mL In Blood (unspecified) ⓐ Unknown
		amphetamine	2	2					methamphetamine	24 ng/mL In Blood (unspecified) ⓐ Unknown
		marijuana	3	3					delta-9-carboxy-thc	24 ng/mL In Blood (unspecified) ⓐ Unknown
		narcotic, other/unknown	4	4					fentanyl	0.67 ng/mL In Blood (unspecified) ⓐ Unknown
		narcotic, other/unknown	4	4					norfentanyl	1 ng/mL In Blood (unspecified) ⓐ Unknown
		acetaminophen	5	5					acetaminophen (apap)	17 mcg/mL In Blood (unspecified) @ 8 h (pe)
		acetaminophen	5	5					acetaminophen (apap)	9 mcg/mL In Blood (unspecified) @ 30 m (pe)
		barbiturate	6	6					butalbital	0.74 mcg/mL In Blood (unspecified) ⓐ Unknown
2010ai	30 y M	cocaine	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
2012ai	30 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
2011ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		alprazolam	3	3						
2013p	30 y M	heroin	1	1	A	Unk	Int-A	1		
2014ai	30 y M	cocaine	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
2016ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2020ai	30 y M	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
2018ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		diazepam	2	2						
		oxazepam	3	3						
2019ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2015ai	30 y M	heroin	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		ethanol	3	3						
2017ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		butalbital	3	3						
2021ai	30 y M	heroin	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		fentanyl	3	3						
2022ai	30 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		codeine	3	3						
2025ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2026ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2024ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	2	2						
2027ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		benztropine	2	2						
		fluoxetine	3	3						
2028ai	30 y F	methamphetamine	1	1	U	Unk	Int-A	1		
2029ai	30 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2023ai	30 y F	methamphetamine	1	1	U	Unk	Int-A	1		
2030ph	31 y M	heroin	1	1	A	Par	Int-A	2		
2031ph	31 y F	heroin	1	1	A	Unk	Int-A	2		
		benzodiazepine	2	2						
		cocaine	3	3						
2032pi	31 y M	amphetamine (hallucinogenic)	1	1	A	Ingst	Int-A	2		
		ethanol	2	2						
2033h	31 y M	methamphetamine	1	1	U	Unk	Int-S	1		
[2034p]	31 y M	Mitragyna speciosa korthals	1	1	A	Unk	Int-A	1		
2035ha	31 y F	methamphetamine	1	1	U	Ingst + Unk	Int-A	2	acetone	990 ng/mL In Whole Blood ⓐ Autopsy
		methamphetamine	1	1					methamphetamine	490 ng/mL In Blood (unspecified) ⓐ Unknown
		methamphetamine	1	1					amphetamine	59 ng/mL In Blood (unspecified) ⓐ Unknown
		quetiapine	2	2						
		chemical, unknown	3	3						
		ethanol	4	4						
		gabapentin	5	5						
2036ai	31 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2038ai	31 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		amphetamine (hallucinogenic)	3	3						
2039ai	31 y M	heroin	1	1	U	Unk	Int-A	1		
2037ai	31 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		amitriptyline	3	3						
2040ai	31 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		benztropine	2	2						
		diphenhydramine	3	3						
2044ai	31 y F	methamphetamine	1	1	U	Unk	Int-S	1		
		methadone	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
2041ai	31 y M				U	Unk	Int-A	2		
2043ai	31 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2042ai	31 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2045ai	31 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	2		
2046pa	32 y M	methamphetamine	1	1	A	Unk	Int-A	1		
		THC homolog	2	2						
		ethanol	3	3						
		heroin	1	1					morphine (free)	300 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	0.029 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.05 mg/L In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.08 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.09 % (wt/Vol) In Blood (unspecified) @ Autopsy
ethanol	4	4	ethanol	0.1 % (wt/Vol) In Urine (quantitative only) @ Autopsy						
ethanol	4	4	ethanol	0.1 % (wt/Vol) In Vitreous @ Autopsy						
cocaine	5	5	benzoylcoignine	0.3 mg/L In Blood (unspecified) @ Autopsy						
2047pha	32 y F	heroin	1	1	C	Unk	Int-S	1		
		drug, unknown	2	2						
2048ph	32 y M	cocaine	1	1	A	Unk	Int-A	2		
2049ai	32 y M				U	Unk	Int-A	1		
2050pa	32 y M	amphetamine	1	1	A	Unk	Int-U	2		
		methamphetamine	2	2						
		oxcarbazepine	3	3						
		Mitragyna speciosa korthals	1	1					mitragynine	280 ng/mL In Blood (unspecified) @ Autopsy
		caffeine	2	2						
		mirtazapine	3	3					mirtazapine	72 ng/mL In Blood (unspecified) @ Autopsy
		citalopram	4	4					citalopram	140 ng/mL In Blood (unspecified) @ Autopsy
2052ai	32 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
2051ai	32 y F				U	Ingst + Unk	Int-A	1		
		cocaine	1	1						
		ethanol	2	2						
		fentanyl	3	3						
2055ai	32 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
2054ai	32 y M	heroin	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		alprazolam	3	3						
2053ai	32 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
2058ai	32 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2059ai	32 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2056ai	32 y F	methamphetamine	1	1	U	Unk	Int-A	1		
2057ai	32 y M	methamphetamine	1	1	U	Unk	Int-A	1		
[2060ha]	33 y M	methamphetamine	1	1	A	Ingst	Int-A	2	methamphetamine	5.29 mg/dL In Whole Blood @ Autopsy
2061pai	33 y M	heroin	1	1	A	Par	Int-A	1	morphine (free)	24 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl analog	2	2						
		ethanol	3	3					ethanol	0.27 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.29 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.35 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	3	3					ethanol	0.36 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		acetone	4	4					acetone	0.011 % (wt/Vol) 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
		acetone	4	4					acetone	0.012 % (wt/Vol) In Blood (unspecified) @ Autopsy
		acetone	4	4					acetone	0.016 % (wt/Vol) In Urine (quantitative only) @ Autopsy
		acetone	4	4					acetone	0.017 % (wt/Vol) In Vitreous @ Autopsy
2062pha	33 y M	methamphetamine	1	1	U	Ingst	Unk	1	amphetamine	200 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	8.71 mg/L In Serum @ Unknown
2063a	33 y M	cocaine	1	1	A	Ingst	Unk	2	benzoylecognine	1800 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	1	1					cocaine	22 ng/mL In Blood (unspecified) @ Autopsy
		morphine	2	2					morphine (free)	42 ng/mL In Blood (unspecified) @ Autopsy
		drug, unknown	3	3						
2064a	33 y M	amphetamine (hallucinogenic)	1	1	A	Ingst	Unk	2		
2065ai	33 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		hydrocodone	2	2						
		amphetamine	3	3						
2066i	33 y M	methamphetamine	1	1	U	Unk	Unk	2		
2067ai	33 y M	cocaine	1	1	U	Unk	Int-A	3		
2071ai	33 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
2068ai	33 y M	heroin	1	1	U	Unk	Int-A	2		
2070ai	33 y M	heroin	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		methamphetamine	3	3						
2069ai	33 y F	heroin	1	1	U	Unk	Int-A	2		
2072pha	34 y M	cocaine	1	1	A	Ingst	Int-S	2	benzoylecognine	1161 ng/mL In Blood (unspecified) @ Autopsy
		morphine	2	2					morphine	21.4 ng/mL In Blood (unspecified) @ Autopsy
		buprenorphine/naloxone (sublingual film)	3	3						
2073pha	34 y M	heroin	1	1	A	Par	Int-A	1		
2074ai	34 y M	amphetamine	1	1	U	Unk	Int-A	2		
		acetaminophen/opioid	2	2						
2075ai	34 y M	heroin	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		methamphetamine	3	3						
2076ai	34 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		morphine	3	3						
2077ai	34 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2079ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		oxycodone	3	3						
2078ai	34 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		morphine	2	2						
		oxycodone	3	3						
2080ai	34 y M	cocaine	1	1	U	Unk	Int-A	1		
		narcotic, other/unknown	2	2						
2082ai	34 y M	heroin	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
		clonazepam	3	3						
2083ai	34 y F	heroin	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		temazepam	3	3						
2081ai	34 y M	heroin	1	1	U	Ingst + Unk	Int-A	1		
		codeine	2	2						
		ethanol	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
2085ai	34 y M	methamphetamine ethanol	1 2	1 2	U	Ingst + Unk	Int-A	2		
2084ai	34 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2086ai	34 y M	methamphetamine heroin	1 2	1 2	U	Unk	Int-A	1		
2087ai	34 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2088pha	35 y M	methamphetamine	1	1	A	Par + Unk	Int-A	2		
2089h	35 y M	amphetamine benzodiazepine	1 2	1 2	U	Ingst	Int-S	2		
2090ph	35 y F	amphetamine (hallucinogenic) cocaine heroin	1 2 3	1 2 3	A	Par	Int-A	2		
2091pha	35 y F	heroin THC homolog oxycodone	1 2	1 2	U	Inhal + Unk	Int-A	2		oxycodone 37 ng/mL In Blood (unspecified) ⓐ Autopsy
2092p	35 y F	cocaine amphetamine	1 2	1 2	U	Unk	Int-S	2		
2095ai	35 y F	heroin methamphetamine	1 2	1 2	U	Unk	Int-A	1		
2096ai	35 y M	heroin ethanol	1 2	1 2	U	Unk	Int-A	1		
2094ai	35 y M	heroin	1	1	U	Unk	Int-A	1		
2093ai	35 y M	heroin codeine methamphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
2097ai	35 y F	heroin methamphetamine ethanol	1 2	1 2	U	Unk	Int-A	2		
2098ha	35 y M	heroin heroin methamphetamine nitrites choline bitartate diphenhydramine	1 1 2 3 4 5	1 1 2 3 4 5	U	Ingst + Unk	Unk	1	6-mam (6-monoacetylmorphine) morphine	1 ng/mL In Blood (unspecified) ⓐ Unknown 160 ng/mL In Blood (unspecified) ⓐ Unknown
2099h	35 y M	heroin benzodiazepine	1 2	1 2	U	Ingst	Unt-U	2		
2100p	35 y M	heroin	1	1	U	Par	Int-A	2		
2101h	35 y M	methamphetamine	1	1	A	Ingst	Int-U	1		
2103ai	35 y F	heroin hydrocodone methadone	1 2 3	1 2 3	U	Unk	Int-A	1		
2102ai	35 y M	heroin methamphetamine sodium nitrate	1 2 3	1 2 3	U	Unk	Int-A	1		
2105ai	35 y M	methamphetamine ethanol	1 2	1 2	U	Unk	Int-A	1		
2104ai	35 y M	methamphetamine heroin oxycodone	1 2 3	1 2 3	U	Unk	Int-A	1		
2106ai	35 y M	THC homolog, 5F-ADB	1	1	U	Unk	Int-A	2		
2108ai	36 y M	heroin cocaine ethanol	1 2 3	1 2 3	U	Ingst + Unk	Int-A	2		
2107ai	36 y M	heroin codeine amphetamine	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
2110ai	36 y M	methamphetamine	1	1	U	Unk	Int-S	1		
		bupropion	2	2						
		benztropine	3	3						
		buspirone	4	4						
2109ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		amphetamine	2	2						
2111ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
		amphetamine	3	3						
2112h	36 y M	methamphetamine	1	1	A	Unk	Int-A	3		
2113ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		amphetamine	1	1						
		methadone	2	2						
2114ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		narcotic, other/unknown	2	2						
2115ai	36 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2116ai	36 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
2117ai	36 y F	heroin	1	1	U	Unk	Int-S	1		
		methamphetamine	2	2						
		cyclobenzaprine	3	3						
2123ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2125ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2122ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2124ai	36 y M	methamphetamine	1	1	A/C	Unk	Int-A	1		
		benzodiazepine	2	2						
2120ai	36 y M	methamphetamine	1	1	U	Unk	Int-S	1		
		bupropion	2	2						
		benztropine	3	3						
2121ai	36 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2126ai	36 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2119ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2118ai	36 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2127p	37 y M	heroin	1	1	A	Inhal	Int-A	2		
2128pha	37 y F	heroin	1	1	A	Par + Unk	Int-A	1	morphine (free)	21 ng/mL In Blood (unspecified) ⓐ Autopsy
		fentanyl	2	2					fentanyl	2 ng/mL In Blood (unspecified) ⓐ Autopsy
		fentanyl	2	2					norfentanyl	2.1 ng/mL In Blood (unspecified) ⓐ Autopsy
		hydroxyzine	3	3					hydroxyzine	19 ng/mL In Blood (unspecified) ⓐ Autopsy
		nicotine	4	4						
		caffeine	5	5						
2129pai	37 y M	fentanyl analog (carfentanil)	1	1	A	Ingst + Par	Int-A	1		
		oxycodone	2	2					oxycodone	0.019 mg/L In Blood (unspecified) ⓐ Autopsy
2130pha	37 y M	cocaine	1	1	A	Ingst	Int-S	3		
		marijuana	2	2						
[2131ha]	37 y M	cocaine	1	1	A/C	Rec	Int-M	1	cocaine	2.001 mg/L In Blood (unspecified) ⓐ Autopsy
		cocaine	1	1					benzoylcognine	4.001 mg/L In Blood (unspecified) ⓐ Autopsy
2132h	37 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	2		
2133pa	37 y F	fentanyl analog (carfentanil)	1	1	A	Ingst + Par	Int-U	1		
		fentanyl	2	2					fentanyl	0.8 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
2134pai	37 y F	oxycodone	3	3	A	Par	Int-A	1	oxycodone	0.026 mg/L In Blood (unspecified) @ Autopsy
		hydrocodone	4	4					hydrocodone	0.02 mg/L In Blood (unspecified) @ Autopsy
		clonazepam	5	5					7-aminoclonazepam	0.01 mg/L In Blood (unspecified) @ Autopsy
		heroin	1	1					morphine	398 ng/mL In Blood (unspecified) @ Unknown
		heroin	1	1					codeine	48 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoyllecognine	2381 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	25 ng/mL In Blood (unspecified) @ Autopsy
2135ha	37 y M	heroin	1	1	U	Unk	Unk	1	morphine (free)	32 ng/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	62 mg/dL In Blood (unspecified) @ Unknown
		amitriptyline	3	3					amitriptyline	270 ng/mL In Blood (unspecified) @ Unknown
2136pa	37 y M	heroin	1	1	A	Par	Int-A	1	norfentanyl	0.63 ng/mL In Blood (unspecified) @ Unknown
		heroin	1	1					morphine (free)	12 ng/mL In Blood (unspecified) @ Unknown
		heroin	1	1					fentanyl	4.8 ng/mL In Blood (unspecified) @ Unknown
		heroin	1	1					codeine (free)	69 ng/mL In Blood (unspecified) @ Unknown
		marijuana	2	2					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	3.7 ng/mL In Blood (unspecified) @ Unknown
		marijuana	2	2					delta-9-thc	5.2 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	3	3					alprazolam	17 ng/mL In Blood (unspecified) @ Unknown
2137ai	37 y F	cocaine	1	1	U	Unk	Int-A	1		
tramadol	2	2								
ethanol	3	3								
2139ai	37 y M	heroin	1	1	U	Unk	Int-A	1		
2138ai	37 y F	heroin	1	1	U	Unk	Int-A	1		
codeine	2	2								
methamphetamine	3	3								
2140ai	37 y M	heroin	1	1	U	Unk	Int-A	1		
methadone	2	2								
methamphetamine	3	3								
[2141ha]	37 y M	methamphetamine	1	1	U	Ingst	Int-M	1	methamphetamine	4600 ng/mL In Blood (unspecified) @ 4 h (pe)
2142pha	37 y F	methamphetamine	1	1	U	Unk	Int-A	2	methamphetamine	1100 ng/mL In Blood (unspecified) @ 30 m (pe)
		methamphetamine	1	1					amphetamine	65 ng/mL In Blood (unspecified) @ 30 m (pe)
2143h	37 y M	amphetamine (hallucinogenic)	1	1	U	Ingst	Int-S	2		
		lysergic acid diethylamide (LSD)	2	2						
		mushroom (unknown)	3	3						
2144ai	37 y M	cocaine	1	1	U	Unk	Int-A	1		
hydromorphone	2	2								
2145ai	37 y F	cocaine	1	1	U	Unk	Int-A	1		
oxycodone	2	2								
2146ai	37 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		ethanol	3	3						
2147ai	37 y M	heroin	1	1	U	Unk	Int-A	1		
methamphetamine	2	2								
2148ai	37 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		methamphetamine	3	3						
2152ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2153ai	37 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
2157ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
2151ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2156ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2150ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2154ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2158i	37 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2155ai	37 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2149ai	37 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		bupropion	2	2						
2159pa	38 y M	heroin	1	1	A	Unk	Int-A	1	morphine (free)	88 mcg/L In Blood (unspecified) ⓐ Autopsy
		doxylamine	2	2					doxylamine	0.05 mg/L In Blood (unspecified) ⓐ Autopsy
2160p	38 y M	heroin	1	1	A	Par	Int-A	2		
2161h	38 y F	methamphetamine	1	1	A	Ingst	Int-A	1		
2162pa	38 y M	heroin	1	1	A	Unk	Int-A	1	morphine (free)	680 mg/L In Blood (unspecified) ⓐ Autopsy
2163ph	38 y M	cocaine	1	1	U	Unk	Unk	2		
		narcotic, other/unknown	2	2						
		methamphetamine	3	3						
		marijuana	4	4						
		benzodiazepine	5	5						
2164ai	38 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
		amphetamine	3	3						
2165ph	38 y M	heroin	1	1	A/C	Par	Int-A	3		
2166ph	38 y F	methamphetamine	1	1	A/C	Inhal	Int-A	1		
		amphetamine	2	2						
		cocaine	3	3						
		fentanyl	4	4						
		morphine	5	5						
		oxycodone	6	6						
		marijuana	7	7						
		ethanol	8	8					ethanol	74 mg/dL In Blood (unspecified) ⓐ Unknown
2167ai	38 y M	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		oxycodone	3	3						
2169ai	38 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
2168ai	38 y M	heroin	1	1	U	Unk	Int-A	3		
2173ai	38 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2171ai	38 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2170ai	38 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2172ai	38 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2174ai	38 y M	methamphetamine	1	1	A/C	Unk	Int-A	1		
2175pa	39 y F	heroin	1	1	A	Par	Int-A	1	morphine (free)	260 mcg/L In Blood (unspecified) ⓐ Autopsy
		fentanyl analog (furanylfentanyl)	2	2						
		fentanyl analog (4- fluoroisobutyrfentanyl)	3	3						
		methadone	4	4					methadone	0.1 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
		methadone	4	4					methadone	0.3 mg/L In Blood (unspecified) ⓐ Autopsy
		cocaine	5	5					cocaine	0.1 mg/L In Blood (unspecified) ⓐ Autopsy
		cocaine	5	5					benzoylceognine	2.4 mg/L In Blood (unspecified) ⓐ Autopsy
		dextromethorphan	6	6					dextromethorphan	0.07 mg/L In Blood (unspecified) ⓐ Autopsy
2176a	39 y M				A/C	Ingst	Int-S	2		
		amphetamine	1	1						
		alprazolam	2	2						
		acetaminophen/oxycodone	3	3						
2177p	39 y M	methamphetamine	1	1	C	Inhal	Int-A	2		
2178ai	39 y M				U	Unk	Int-A	2		
		amphetamine	1	1						
		methamphetamine	2	2						
		benztropine	3	3						
2179ai	39 y F				U	Unk	Int-A	2		
		heroin	1	1						
		methamphetamine	2	2						
2180h	39 y M				U	Ingst + Par + Unk	Unk	2		
		methamphetamine	1	1						
		trazodone	2	2						
		benztropine	3	3						
		haloperidol	4	4						
		bupropion	5	5						
		succinylcholine	6	6						
		oxcarbazepine	7	7						
		prazosin	8	8						
2181pa	39 y M				A	Par	Int-A	1		
		heroin	1	1					morphine	11.1 ng/mL In Blood (unspecified) ⓐ Autopsy
		fentanyl	2	2					fentanyl	2.9 ng/mL In Blood (unspecified) ⓐ Autopsy
		cocaine	3	3					benzoylceognine	1513 ng/mL In Blood (unspecified) ⓐ Autopsy
2182ai	39 y M				U	Ingst + Unk	Int-A	1		
		cocaine	1	1						
		ethanol	2	2						
2184ai	39 y M				U	Ingst + Unk	Int-A	1		
		heroin	1	1						
		ethanol	2	2						
2183ai	39 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		methadone	3	3						
2185ai	39 y M				U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
2188ai	39 y F				U	Unk	Int-A	1		
		heroin	1	1						
		oxycodone	2	2						
		methamphetamine	3	3						
2187ai	39 y F				U	Unk	Int-A	1		
		heroin	1	1						
		phentermine	2	2						
		ethanol	3	3						
2189ai	39 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		codeine	3	3						
2186ai	39 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		lorazepam	3	3						
2191ai	39 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
2192ai	39 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2193ai	39 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
2190ai	39 y M				U	Ingst + Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
2196ai	39 y F				C	Unk	Int-A	3		
		methamphetamine	1	1						
		doxylamine	2	2						
2194ai	39 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		caffeine	2	2						
2195ai	39 y M				U	Unk	Int-A	2		
		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
2197ph	40 y F				A	Par	Int-A	1		
2202ai	40 y M	heroin	1	1	U	Unk	Int-A	1		
2198ai	40 y M	heroin ethanol	1 2	1 2	U	Unk	Int-A	1		
2199ai	40 y M	heroin oxycodone tramadol	1 2 3	1 2 3	U	Unk	Int-A	2		
2201ai	40 y M	heroin codeine hydromorphone	1 2 3	1 2 3	U	Unk	Int-A	2		
2200ai	40 y M	heroin cocaine	1 2	1 2	U	Unk	Int-A	1		
2203ph	40 y F	heroin alprazolam ethanol	1 2 3	1 2 3	A	Ingst	Int-A	1		
2204ai	40 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
2205ai	40 y M	cocaine zolpidem alcohol, unknown	1 2 3	1 2 3	U	Unk	Int-A	2		
2206ai	40 y F	cocaine gabapentin oxycodone	1 2 3	1 2 3	U	Unk	Int-A	2		
2208ai	40 y F	cocaine oxycodone gabapentin	1 2 3	1 2 3	U	Unk	Int-A	1		
2207ai	40 y M	heroin diazepam ethanol	1 2 3	1 2 3	U	Unk	Int-A	2		
2211ai	40 y M	heroin oxycodone tramadol	1 2 3	1 2 3	U	Unk	Int-A	3		
2210ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2209ai	40 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2212ai	40 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2213a	41 y F	methamphetamine narcotic, other/unknown	1 2	1 2	U	Inhal + Unk	Int-A	2		
2215ai	41 y M	methamphetamine morphine cocaine alprazolam	2 1 3 4	1 1 3 4	U	Unk	Int-A	2		
2214ai	41 y M	methamphetamine ethanol isopropanol	1 2 3	1 2 3	U	Unk	Int-A	2		
2216ai	41 y F	methamphetamine	1	1	U	Unk	Int-A	1		
2217ai	41 y F	methamphetamine heroin	1 2	1 2	U	Unk	Int-A	1		
2218pa	42 y M	methamphetamine oxycodone	1 2	1 2	A/C	Ingst + Par	Int-A	1		
		heroin	1	1					morphine (total)	0.055 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylcognine	0.035 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	3	3					alprazolam	0.04 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	4	4					fentanyl	0.043 mcg/g In Liver @ Autopsy
		fentanyl	4	4					fentanyl	4.5 ng/mL In Blood (unspecified) @ Autopsy
2219i	42 y F	heroin	1	1	U	Unk	Int-A	1		
		oxycodone	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
2220ai	42 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		alprazolam	3	3						
2221ai	42 y F	methamphetamine	1	1	U	Unk	Int-S	1		
		clonidine	2	2						
		citalopram	3	3						
2222ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
2223ai	42 y F	amphetamine	1	1	U	Unk	Int-A	2		
2227ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2224ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2229ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		heroin	2	2						
2228ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2230ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2225ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2226ai	42 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2231ha	43 y M	methamphetamine	1	1	U	Unk	Int-U	3		
		oxycodone	2	1						
2232pa	43 y M	amphetamine	1	1	A	Ingst	Int-S	1		
		barbiturate (long acting)	2	2					phenobarbital	0.841 mg/L In Whole Blood @ Autopsy
		oxycodone	3	3					oxycodone	1.033 mg/L In Whole Blood @ Autopsy
		acetaminophen	4	4					acetaminophen (apap)	153 mg/L In Whole Blood @ Autopsy
		acetaminophen	4	4					acetaminophen (apap)	194 mcg/mL In Whole Blood @ Unknown
		clonazepam	5	5					clonazepam	0.011 mg/L In Whole Blood @ Autopsy
		carbamazepine	6	6					carbamazepine	36.8 mg/L In Whole Blood @ Autopsy
		gabapentin	7	7					gabapentin	178 mg/L In Whole Blood @ Autopsy
		diphenhydramine	8	8					diphenhydramine	6.193 mg/L In Whole Blood @ Autopsy
		amlodipine	9	9					amlodipine	0.145 mg/L In Whole Blood @ Autopsy
		paroxetine	10	10					paroxetine	1.49 mg/L In Whole Blood @ Autopsy
2233h	43 y M	phencyclidine	1	1	U	Ingst + Inhal	Int-A	2		
		methylenedioxy-methamphetamine (MDMA)	2	2						
		THC homolog	3	3						
		marijuana	4	4						
2234pa	43 y F	heroin	1	1	A	Unk	Int-A	1		
		fentanyl	2	2						
		ethanol	3	3					codeine	0.018 mg/L In Serum @ Unknown
		ethanol	3	3					morphine	0.21 mg/L In Serum @ Unknown
		ethanol	3	3					ethanol	125 mg/dL In Serum @ Unknown
		ethanol	3	3					fentanyl	2.1 mcg/L In Serum @ Unknown
2235ai	43 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
2236ai	43 y F	heroin	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2237ai	43 y M	heroin	1	1	U	Unk	Int-A	1		
		olanzapine	2	2						
		sertraline	3	3						
2238ai	43 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
2239ai	43 y M	amphetamine	1	1	U	Unk	Int-A	2		
2240ai	43 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol	3	3						
2241ai	43 y F	heroin	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
2243ai	43 y M	methamphetamine cocaine	1 2	1 2	U	Unk	Int-A	1		
2245ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2244ai	43 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2242ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2246ai	43 y F	methamphetamine diphenhydramine	1 2	1 2	U	Unk	Int-A	1		
2248ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2249ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2250ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2247ai	43 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2251ai	43 y F	heroin	1	1	U	Unk	Int-A	1		
2252ph	44 y M	THC homolog	1	1	A	Unk	Int-A	2		
2254ai	44 y M	heroin codeine	1 2	1 2	U	Unk	Int-A	1		
2253ai	44 y M	heroin codeine amphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
2256ai	44 y F	methamphetamine diazepam ethanol	1 2 3	1 2 3	U	Unk	Int-A	1		
2255ai	44 y M	methamphetamine cocaine	1 2	1 2	U	Unk	Int-A	1		
2257h	44 y M	capsicum/caffeine	1	1	A	Ingst	Int-U	3		
2258	44 y M	methamphetamine	1	1	U	Ingst	Int-M	2		
2260ai	44 y F	cocaine levamisole	1 2	1 2	U	Unk	Int-A	1		
2259ai	44 y M	cocaine ethanol	1 2	1 2	U	Unk	Int-A	1		
2262ai	44 y M	heroin mitragyna oxycodone	1 2 3	1 2 3	U	Unk	Int-A	2		
2261ai	44 y M	heroin diazepam ethanol	1 2 3	1 2 3	U	Unk	Int-A	1		
2263ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2264ai	44 y M	methamphetamine ethanol	1 2	1 2	U	Ingst + Unk	Int-A	2		
2265ai	44 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2267ai	44 y M	methamphetamine	1	1	U	Unk	Int-M	1		
2266ai	44 y M	methamphetamine ethanol benzodiazepine	1 2 3	1 2 3	U	Unk	Int-A	2		
2268a	45 y M	methamphetamine acetaminophen/hydrocodone amphetamine (hallucinogenic), alpha-PDP	1 2 3	1 2 3	U	Unk	Int-A	1	methamphetamine hydrocodone	251 ng/mL In Blood (unspecified) ⓐ Unknown 12.5 ng/mL In Blood (unspecified) ⓐ Unknown
2269pai	45 y M	heroin cocaine	1 2	1 2	A/C	Inhal + Par	Int-A	1		
2271ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2270ai	45 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
2273ai	45 y F	cocaine	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2272ai	45 y M	cocaine	1	1	U	Unk	Int-A	1		
2274ai	45 y M	heroin	1	1	U	Unk	Int-A	2		
		benzodiazepine	2	2						
2279ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
		benztropine	3	3						
2276ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2275ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2277ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2280ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2278ai	45 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
		ethanol	3	3						
2281h	46 y F	heroin	1	1	A/C	Ingst + Par	Int-A	3		
		buprenorphine	2	2						
2283ai	46 y M	heroin	1	1	U	Unk	Int-A	1		
		codeine	2	2						
		methamphetamine	3	3						
2282ai	46 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2284ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
2285ai	46 y M	methamphetamine	1	1	U	Inhal + Unk	Int-A	1		
		hydrocarbon (fluorinated)	2	2						
		amphetamine	3	3						
2286a	46 y M	cocaine	1	1	A/C	Ingst	Int-U	3	benzoylecognine	0.25 mg/L In Blood (unspecified) @ Unknown
		ethanol	2	2						
		metoprolol	3	3						
2287ai	46 y M	heroin	1	1	U	Ingst + Unk	Int-A	1		
		chlordiazepoxide	2	2						
		ethanol	3	3						
2288ai	46 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
2294ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2293ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2300ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2290ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2298ai	46 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	2		
		ethanol	2	2						
2299ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2296ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		amitriptyline	2	2						
		diphenhydramine	3	3						
2297ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		fluoxetine	2	2						
2295ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2289ai	46 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2291ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		tramadol	2	2						
2292ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		heroin	2	2						
		fentanyl	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
2301ai	46 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		amphetamine	2	2						
		naproxen	3	3						
2302ph	47 y M	heroin	1	1	A	Unk	Int-A	2		
2303ph	47 y M	heroin	1	1	U	Par	Int-A	2		
2304pha	47 y F	methamphetamine	1	1	U	Unk	Int-U	2	methamphetamine	0.19 mg/L In Blood (unspecified) @ Unknown
2305ph	47 y M	heroin	1	1	A	Par	Int-A	1		
2306ha	47 y F	heroin	1	1	U	Unk	Int-S	2	morphine	11 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	200 ng/mL In Blood (unspecified) @ Unknown
2307ai	47 y M	cocaine	1	1	U	Unk	Int-A	1		
2309ai	47 y M	cocaine	1	1	U	Unk	Int-A	1		
2308ai	47 y M	cocaine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
		alprazolam	3	3						
2311ai	47 y F	methamphetamine	1	1	C	Unk	Int-A	2		
		narcotic, other/unknown	2	2						
		marijuana	3	3						
2310ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		acetaminophen/opioid	2	2						
		THC homolog	3	3						
2313ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		narcotic, other/unknown	2	2						
		marijuana	3	3						
2312ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		tramadol	2	2						
2314pa	47 y M	heroin	1	1	A	Unk	Int-A	1	morphine (free)	150 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	0.036 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.05 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.06 mg/L In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.05 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.07 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	4	4					ethanol	0.09 % (wt/Vol) In Urine (quantitative only) @ Autopsy
2315pha	47 y M	cocaine	1	1	A	Inhal	Int-A	1	benzoylecognine	2684 ng/mL In Blood (unspecified) @ Unknown
		cocaine	1	1					cocaine	31 ng/mL In Blood (unspecified) @ Unknown
2316ai	47 y M	amphetamine	1	1	U	Unk	Int-A	1		
		methadone	2	2						
2320ai	47 y F	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		codeine	3	3						
2319ai	47 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		gabapentin	3	3						
2321ai	47 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	3	3						
2322ai	47 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		oxycodone	3	3						
2318ai	47 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		oxycodone	3	3						
2317ai	47 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
2327ai	47 y M	methamphetamine	2	2	U	Ingst + Unk	Int-A	1		
2326ai	47 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		ethanol	2	2						
2323ai	47 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2324ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2325ai	47 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
2328pha	48 y M	cocaine	1	1	U	Unk	Int-A	2	benzoyllecognine	524 ng/mL In Blood (unspecified) ⓐ Unknown
2329ai	48 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2330ai	48 y M	isopropanol	2	2	A	Ingst + Unk	Int-A	3		
		cocaine	1	1						
2331ai	48 y F	ethanol	2	2	U	Unk	Int-A	1		
		heroin	1	1						
2332ai	48 y M	methamphetamine	2	2	U	Unk	Int-A	1		
		fluoxetine	3	3						
		heroin	1	1						
2336ai	48 y F	ethanol	2	2	U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
2335ai	48 y M	ethanol	3	3	A/C	Unk	Int-A	2		
		heroin	1	1						
2333ai	48 y M	heroin	1	1	U	Unk	Int-A	1		
2334ai	48 y M	heroin	1	1	U	Unk	Int-A	2		
2339ai	48 y F	heroin	1	1	U	Unk	Int-A	3		
2337ai	48 y M	methamphetamine	1	1	A	Ingst + Unk	Int-A	3		
2338ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2340ai	48 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2341pha	49 y F	methamphetamine	1	1	A	Inhal	Int-A	1	cocaine	0.09 mg/L In Blood (unspecified) ⓐ Autopsy
		ethanol	2	2						
		cocaine	1	1					benzoyllecognine	2.1 mg/L In Blood (unspecified) ⓐ Autopsy
2342ph	49 y F	heroin	1	1	A	Par + Rec	Int-A	2		
2343ph	49 y M	heroin	1	1	A	Par + Unk	Int-U	2		
		fentanyl	2	2						
		benzodiazepine	3	3						
		marijuana	4	4						
2345ai	49 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		pramoxine	3	3						
2346ai	49 y M	heroin	1	1	U	Unk	Int-A	1		
2344ai	49 y M	methamphetamine	2	2	U	Unk	Int-A	1		
		heroin	1	1						
2347ai	49 y M	morphine	2	2	U	Unk	Int-A	2		
		amphetamine	3	3						
		methamphetamine	1	1						
2349ai	49 y F	carbon monoxide	2	2	U	Unk	Int-S	1		
		cyclobenzaprine	3	3						
		heroin	1	1						
2348ai	49 y M	methamphetamine	2	2	U	Unk	Int-A	2		
		heroin	1	1						
		diazepam	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
2352ai	49 y M				U	Unk	Int-A	2		
2353ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2351ai	49 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
2350ai	49 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2354pha	50 y M	methamphetamine	1	1	U	Unk	Unk	1		
		methamphetamine	1	1					methamphetamine	780 ng/mL In Serum @ Unknown
		amphetamine	2	2					amphetamine	60 ng/mL In Serum @ Unknown
2357ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		amphetamine	3	3						
2355ai	50 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
		cyclobenzaprine	3	3						
2356ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2358ph	50 y F	methamphetamine	1	1	A	Ingst + Unk	Int-S	2		
		cocaine	1	1						
		duloxetine	2	2						
		gabapentin	3	3						
2359ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		cocaine	2	2						
		ethanol	3	3						
2360ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
2361ai	50 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		phenylpropanolamine	2	2						
2362ai	50 y F	methamphetamine	1	1	C	Unk	Int-A	2		
2370ai	50 y F	methamphetamine	1	1	U	Unk	Int-M	2		
		methamphetamine	1	1						
		gabapentin	2	2						
		fluoxetine	3	3						
2371ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2363ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
		bupropion	2	2						
2364ai	50 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2365ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2367ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2366ai	50 y M	methamphetamine	1	1	C	Unk	Int-A	3		
2368ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2372ai	50 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		methamphetamine	1	1						
		hydrocodone	2	2						
		hydromorphone	3	3						
2369ai	50 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2373ph	50 y M	heroin	1	1	A	Unk	Int-A	2		
2374ai	51 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		nortriptyline	2	2						
2376ai	51 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		oxycodone	2	2						
		cyclobenzaprine	3	3						
2375ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	1	1						
		ethanol	2	2						
		fentanyl	3	3						
2379ai	51 y F	heroin	1	1	U	Unk	Int-A	1		
		methadone	2	2						
		methamphetamine	3	3						
		nortriptyline	4	4						
2378ai	51 y M	heroin	1	1	U	Unk	Int-A	1		
		codeine	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
2377ai	51 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		hydromorphone	3	3						
2386ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
2384ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2381ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2385ai	51 y F	methamphetamine	1	1	U	Unk	Int-A	2		
2380ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		quetiapine	2	2						
		hydrocodone	3	3						
2383ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2382ai	51 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2387ph	52 y M	cocaine	1	1	U	Unk	Int-A	2	benzoylcognine	626 ng/mL In Blood (unspecified) @ Unknown
		narcotic, other/unknown	2	2						
2388ha	52 y F	heroin	1	1	A	Unk	Unk	3		
		fentanyl	2	2					fentanyl	3.1 mcg/mL In Whole Blood @ Autopsy
		codeine	3	3					codeine	0.25 mg/L In Whole Blood @ Autopsy
2389ai	52 y M	cocaine	1	1	U	Ingst + Unk	Int-A	2		
		ethanol	2	2						
		zolpidem	3	3						
2392ai	52 y F	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		amphetamine	2	2						
		diltiazem	3	3						
2393ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		ethanol	2	2						
2391i	52 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
2390ai	52 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		ethanol	2	2						
		oxycodone	3	3						
2394ai	52 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		amphetamine	2	2						
		tramadol	3	3						
2395ai	52 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		oxycodone	3	3						
2396ai	52 y M	cocaine	1	1	U	Ingst + Unk	Int-A	2		
		ethanol	2	2						
2398ai	52 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2397ai	52 y M	heroin	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
2399ai	52 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		ethanol	3	3						
2401ai	52 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		oxycodone	2	2						
		diazepam	3	3						
2406ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2400ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2404ai	52 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
		diphenhydramine	3	3						
2402ai	52 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
2403ai	52 y M				U	Unk	Int-A	2		
2405ai	52 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2407ai	52 y M	methamphetamine ethanol	1 2	1 2	U	Ingst + Unk	Int-A	2		
2409ai	53 y M	methamphetamine amphetamine methamphetamine	1 2	1 2	U	Unk	Int-A	3		
2408ai	53 y F	amphetamine methamphetamine	1 2	1 2	U	Unk	Int-A	3		
2410ai	53 y F	heroin methamphetamine	1 2	1 2	U	Unk	Int-A	1		
2411ai	53 y F	heroin methamphetamine amphetamine	1 2 3	1 2 3	U	Unk	Int-A	1		
2412ai	53 y M	heroin bupropion ethanol	1 2 3	1 2 3	U	Ingst + Unk	Int-A	1		
2413ai	53 y F	methamphetamine amphetamine dextromethorphan	1 2 3	1 2 3	U	Unk	Int-A	2		
2414ph	53 y M	cocaine methylenedioxy- methamphetamine (MDMA) methamphetamine lysergic acid diethylamide (LSD) alcohol, unknown marijuana	1 2 3 4 5 6	1 2 3 4 5 6	U	Ingst + Unk	Int-A	3		
2415i	53 y F	heroin methamphetamine cocaine	1 2 3	1 2 3	U	Unk	Int-A	1		
2416ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2419ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2418ai	53 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2417ai	53 y M	methamphetamine gabapentin	1 2	1 2	U	Unk	Int-A	2		
2420p	53 y M	heroin ethanol	1 2	1 2	A	Ingst + Unk	Int-A	2	ethanol	269 mg/dL In Blood (unspecified) ⓐ Unknown
2421ph	54 y F	heroin	1	1	U	Par	Int-A	1		
2422ph	54 y F	heroin acetaminophen/codeine zolpidem (extended release) alprazolam tramadol	1 2 3 4 5	1 2 3 4 5	A/C	Ingst	Unt-M	2		
2423h	54 y M	methamphetamine amphetamine (hallucinogenic)	1 2	1 2	U	Ingst	Int-A	2		
2424pha	54 y M	heroin fentanyl	1 2	1 2	A	Par	Int-A	1	fentanyl	6.4 ng/mL In Blood (unspecified) ⓐ 30 m (pe)
2425ai	54 y M	methamphetamine heroin ethanol hydrocodone	1 2 3	1 2 3	U	Unk	Int-A	1		
2426a	54 y M	methamphetamine	1	1	C	Unk	Int-U	1		
2427p	54 y F	methamphetamine methylenedioxy- methamphetamine (MDMA)	1	1	A	Ingst	Int-S	3		
2428ai	54 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
2429ai	54 y M				U	Unk	Int-A	1		
2430ai	54 y F	methamphetamine	1	1	U	Ingst + Unk	Int-A	2		
		cocaine	1	1						
2431ai	54 y M	ethanol	2	2	U	Unk	Int-A	1		
		heroin	1	1						
2432ai	54 y M	methamphetamine	2	2	U	Unk	Int-A	1		
		diazepam	3	3						
		heroin	1	1						
2433ai	54 y M	alprazolam	2	2	A/C	Unk	Int-A	1		
		codeine	3	3						
		heroin	1	1						
2435ai	54 y M	methadone	2	2	U	Unk	Int-A	2		
		baclofen	3	3						
2437ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2438ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
		methamphetamine	1	1						
2439ai	54 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cocaine	3	3						
2440ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2441ai	54 y M	ethanol	2	2	U	Ingst + Unk	Int-A	2		
		methamphetamine	1	1						
2442ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		methamphetamine	1	1						
2443ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
2444ai	54 y M	ethanol	2	2	U	Unk	Int-A	1		
		methamphetamine	1	1						
2445ai	54 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
2446h	54 y M	methamphetamine	1	1	A	Ingst	Int-S	2		
		methamphetamine	1	1						
2447ai	54 y F	methamphetamine	1	1	C	Unk	Int-A	3		
2448ai	55 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		amphetamine	1	1						
		methamphetamine	2	2						
2450ai	55 y M	diphenhydramine	3	3	U	Unk	Int-A	2		
		amphetamine	1	1						
		methamphetamine	2	2						
2449ai	55 y M	hydroxyzine	3	3	U	Unk	Int-A	2		
		amphetamine	1	1						
2451ai	55 y M	methamphetamine	2	2	U	Unk	Int-A	1		
		methamphetamine	2	2						
2452ai	55 y F	cocaine	1	1	U	Ingst + Unk	Int-A	2		
		methamphetamine	2	2						
		fluoxetine	3	3						
2453i	55 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		oxycodone	3	3						
2454i	55 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		heroin	2	2						
2456ai	55 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		carbamazepine	2	2						
2455ai	55 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
		phenylpropanolamine	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
2457ai	55 y M				U	Unk	Int-A	3		
		cocaine	1	1						
2458ai	55 y M				U	Unk	Int-A	2		
		heroin	1	1						
		methadone	2	2						
2459ai	55 y M				U	Unk	Int-A	1		
		heroin	1	1						
2463ai	55 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2460ai	55 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2465ai	55 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
2462ai	55 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2461ai	55 y F				A	Unk	Int-A	1		
		methamphetamine	1	1						
		heroin	2	2						
2464ai	55 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
2466ai	55 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
2467ai	56 y M				U	Unk	Int-A	2		
		amphetamine	1	1						
		methamphetamine	2	2						
2468ai	56 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
2469ph	56 y M				A/C	Unk	Int-U	2		
		heroin	1	1						
2470ai	56 y M				U	Unk	Int-A	1		
		cocaine	1	1						
2471ai	56 y M				U	Unk	Int-A	1		
		heroin	1	1						
		diazepam	2	2						
2472ai	56 y F				U	Unk	Int-A	3		
		heroin	1	1						
		methamphetamine	2	2						
2473ai	56 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		alprazolam	3	3						
2477ai	56 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
2475ai	56 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
2480ai	56 y M				U	Unk	Int-A	3		
		methamphetamine	1	1						
2481ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2478ai	56 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
2482ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2483ai	56 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
2484ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
		THC homolog	2	2						
2485ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2476ai	56 y M				U	Unk	Int-A	3		
		methamphetamine	1	1						
		cocaine	2	2						
2479ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
		ethanol	2	2						
2474ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
2486ai	56 y F				U	Unk	Int-A	1		
		synthetic opiate	1	1						
2487pi	57 y M				A	Par	Int-A	2		
		heroin	1	1						
		ethanol	2	2					ethanol	160 mg/dL In Blood (unspecified) ⓐ Autopsy
2488ai	57 y M				U	Unk	Int-A	3		
		amphetamine	1	1						
		methamphetamine	2	2						
2489ai	57 y M				U	Unk	Int-A	1		
		heroin	1	1						
		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
2490ai	57 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		amphetamine	3	3						
2491ai	57 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2492h	57 y M	methamphetamine	1	1	A	Ingst + Unk	Int-S	2		
		alprazolam	2	2						
		duloxetine	3	3						
		imipramine	4	4						
		clonidine	5	5						
		hydroxyzine	6	6						
		cyclobenzaprine	7	7						
		gabapentin	8	8						
		zolpidem	9	9						
		tamsulosin	10	10						
		meloxicam	11	11						
2493h	57 y M	THC homolog	1	1	A	Ingst	Int-A	2		
2494ai	57 y M	cocaine	1	1	U	Unk	Int-A	1		
2495ai	57 y M	heroin	1	1	U	Unk	Int-A	2		
		methadone	2	2						
		hydrocodone	3	3						
2496ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2499ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2498ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		heroin	2	2						
2500ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2501ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2497ai	57 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2502pai	58 y M	heroin	1	1	A	Inhal	Int-A	1	morphine (free)	130 mcg/L In Serum @ Autopsy
		cocaine	2	2					ethanol	0.2 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.21 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.21 % (wt/Vol) In Vitreous @ Autopsy
		ethanol	3	3					ethanol	0.27 % (wt/Vol) In Urine (quantitative only) @ Autopsy
2503pi	58 y F	cocaine	1	1	A	Par	Int-A	2		
		fentanyl	2	2						
2504ai	58 y M	cocaine	1	1	U	Unk	Int-A	1		
		phencyclidine	2	2						
2505ai	58 y M	amphetamine	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
2506ai	58 y F	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		hydrocodone	3	3						
2508ai	58 y F	cocaine	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		hydrocodone	3	3						
2507ai	58 y F	cocaine	1	1	U	Unk	Int-A	1		
		diphenhydramine	2	2						
		cyclobenzaprine	3	3						
2509ai	58 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2511ai	58 y M	methamphetamine	1	1	C	Unk	Int-A	3		
2510ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2512ai	58 y F	cocaine	1	1	U	Unk	Int-A	2		
2513ai	58 y F	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		codeine	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
2514ai	58 y M	heroin	1	1	U	Unk	Int-A	1		
2515ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2518ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2517ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	1	1						
		venlafaxine	2	2						
		doxepin	3	3						
2516ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2523ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2519ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2522ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2520ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		methamphetamine	1	1						
		oxycodone	2	2						
		codeine	3	3						
2521ai	58 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2524ai	59 y M	heroin	1	1	U	Unk	Int-A	1		
		alprazolam	2	2						
2525ai	59 y F	methamphetamine	1	1	U	Unk	Int-A	1		
		ethanol	2	2						
		citalopram	3	3						
2526pa	59 y F	heroin	1	1	A	Par	Int-A	1	morphine (free)	21 ng/mL In Blood (unspecified) ⓐ Unknown
		methamphetamine	2	2					methamphetamine	110 ng/mL In Blood (unspecified) ⓐ Unknown
		methamphetamine	2	2					amphetamine	26 ng/mL In Blood (unspecified) ⓐ Unknown
2528ai	59 y M	heroin	1	1	U	Unk	Int-A	1		
		codeine	2	2						
2527ai	59 y F	heroin	1	1	U	Unk	Int-A	2		
2533ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2532ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
2530ai	59 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	2		
		alcohol, unknown	2	2						
2531ai	59 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		fentanyl	2	2						
		hydromorphone	3	3						
2529ai	59 y M	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2534ai	60 y F	cocaine	1	1	U	Unk	Int-A	1		
		cyclobenzaprine	2	2						
		oxycodone	3	3						
2535ai	60 y F	heroin	1	1	U	Unk	Int-A	1		
		hydroxychloroquine	2	2						
		ethanol	3	3						
2536i	60 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2537ai	60 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2538ai	60 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		cyclobenzaprine	3	3						
2539ai	60 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
		cocaine	3	3						
2541ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2540ai	60 y M	methamphetamine	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
2542ai	60 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2544ai	61 y M	heroin	1	1	U	Unk	Int-A	1		
		sertraline	2	2						
		codeine	3	3						
2543ai	61 y M	heroin	1	1	U	Unk	Int-A	1		
2545ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2546ai	61 y F	methamphetamine	1	1	U	Unk	Unk	2		
		duloxetine	2	2						
		amphetamine	3	3						
2547ai	61 y M	methamphetamine	1	1	C	Unk	Int-A	3		
		amphetamine	2	2						
2548pa	61 y F	heroin	1	1	A	Par	Int-A	1	morphine (free)	1000 mcg/L In Blood (unspecified) @ Autopsy
2549ai	61 y M	cocaine	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2552ai	61 y M	heroin	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
		hydrocodone	3	3						
2550ai	61 y M	heroin	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		methamphetamine	3	3						
2551ai	61 y F	heroin	1	1	U	Ingst + Unk	Int-S	1		
		methamphetamine	2	2						
		ethanol	3	3						
2556ai	61 y F	methamphetamine	1	1	U	Unk	Int-A	2		
		methadone	2	2						
		duloxetine	3	3						
2553ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2554ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2555ai	61 y F	methamphetamine	1	1	U	Unk	Int-A	1		
2558ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	3		
		ethanol	2	2						
2557ai	61 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		phencyclidine	3	3						
2559ai	62 y M	heroin	1	1	U	Unk	Int-S	1		
		codeine	2	2						
		amphetamine	3	3						
2560ai	62 y M	heroin	1	1	U	Unk	Int-A	1		
		fentanyl	2	2						
		alprazolam	3	3						
2561ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		hydrocodone	2	2						
		citalopram	3	3						
2562ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2563ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2564ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2565ai	62 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2566pha	63 y M	methamphetamine	1	1	A	Ingst + Unk	Unk	2	methamphetamine	1200 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					amphetamine	160 ng/mL In Blood (unspecified) @ Unknown
		gamma-hydroxybutyric acid	2	2					gamma-hydroxybutyric acid (ghb)	1800 mcg/mL In Blood (unspecified) @ Unknown
		nondrug, unknown	3	3						
		marijuana	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
2567ai	63 y M	cocaine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2569ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2568ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2570ai	63 y F	methamphetamine	1	1	U	Ingst + Unk	Int-A	1		
		ethanol	2	2						
2571ai	63 y M	amphetamine	1	1	U	Unk	Int-A	2		
		heroin	2	2						
2572ai	63 y M	cocaine	1	1	U	Unk	Int-A	2		
2574ai	63 y M	heroin	1	1	U	Unk	Int-A	2		
2573ai	63 y M	heroin	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
2576ai	63 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
2575ai	63 y M	heroin	1	1	U	Unk	Int-A	2		
		oxycodone	2	2						
		methamphetamine	3	3						
2577ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		methadone	2	2						
2578ai	63 y F	methamphetamine	1	1	C	Unk	Int-A	3		
2579ai	63 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2582ai	64 y M	heroin	1	1	U	Unk	Int-A	3		
		alprazolam	2	2						
2581ai	64 y F	heroin	1	1	U	Unk	Int-S	1		
		oxycodone	2	2						
		alprazolam	3	3						
2580ai	64 y M	heroin	1	1	U	Unk	Int-A	1		
		methadone	2	2						
2583ai	64 y F	amphetamine	1	1	U	Unk	Int-A	2		
		methylenedioxy-methamphetamine (MDMA)	2	2						
		narcotic, other/unknown	3	3						
2584ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2585ai	64 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2586ai	64 y M	methamphetamine	1	1	A	Unk	Int-A	1		
		oxymorphone	2	2						
		alprazolam	3	3						
2587ai	65 y M	cocaine	1	1	U	Ingst + Unk	Int-A	1		
		diazepam	2	2						
		ethanol	3	3						
2588ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	3		
2589ai	65 y M	cocaine	1	1	U	Unk	Int-A	2		
2590ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		benzodiazepine	2	2						
		flecainide	3	3						
2591ai	65 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2592ai	66 y M	amphetamine	1	1	U	Unk	Int-A	1		
		methamphetamine	2	2						
2593ai	66 y M	heroin	1	1	U	Unk	Int-A	1		
		codeine	2	2						
		ethanol	3	3						
2594ai	66 y M	methamphetamine	1	1	C	Unk	Int-A	3		
		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
2595ai	66 y M	methamphetamine	1	1	C	Unk	Int-A	2		
		amphetamine	2	2						
		isopropanol	3	3						
2596ai	66 y M	amphetamine	1	1	U	Unk	Int-A	3		
		methamphetamine	2	2						
		methanol	3	3						
2597ai	66 y M	heroin	1	1	U	Unk	Int-A	2		
		methamphetamine	2	2						
2598ai	66 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		diphenhydramine	2	2						
		acetaminophen	3	3						
2599ai	67 y F	heroin	1	1	U	Unk	Int-A	1		
		amitriptyline	2	2						
		diphenhydramine	3	3						
2601ai	67 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2600ai	67 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2602ai	67 y M	methamphetamine	1	1	U	Unk	Int-A	1		
2603ai	68 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		cocaine	1	1						
		methamphetamine	2	2						
2605ai	68 y M	cocaine	1	1	U	Unk	Int-A	2		
2604ai	68 y M	cocaine	1	1	U	Unk	Int-A	2		
		cocaine	1	1						
2606hai	68 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
		diphenhydramine	3	3						
2607ph	69 y M	heroin	1	1	U	Par	Int-A	1		
2608ph	69 y M	cocaine	1	1	U	Unk	Unk	2		
		narcotic, other/unknown	2	2						
2609ai	70 y M	methamphetamine	1	1	U	Unk	Int-A	1		
		cocaine	2	2						
		ethanol	3	3						
2610ai	71 y M	methamphetamine	1	1	U	Unk	Int-A	2		
2611ai	71 y M	cocaine	1	1	U	Unk	Int-A	2		
		ethanol	2	2						
2612ai	72 y M	methamphetamine	1	1	U	Unk	Int-A	2		
		amphetamine	2	2						
2613ai	73 y F	methamphetamine	1	1	U	Unk	Int-A	3		
		chlorophenylpi-perazine	2	2						
2614ha	82 y M	cocaine	1	1	A	Inhal	Int-A	1	benzoyllecognine	0.37 mg/L In Serum @ 1 d (pe)
		sulfur	2	2						
[2615ha]	13 m M	amphetamine	1	1	A	Ingst + Aspir	Unt-G	1	amphetamine	590 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					methamphetamine	1000 ng/mL In Blood (unspecified) @ Autopsy
		hydrocarbon	3	3						
2616ph	20 + y M	heroin	1	1	A	Unk	Int-A	2		
2617h	50 + y F	heroin	1	1	A/C	Par	Int-A	3		
		cocaine	2	2						
2618ha	Unknown adult (>=20 yrs) M	phencyclidine	1	1	A	Unk	Int-S	1		
		midazolam	2	2						
		marijuana	3	3						
2619pi	Unknown adult (>=20 yrs) U	heroin	1	1	U	Par	Int-A	1		
2620pi	Unknown age F	heroin	1	1	U	Par	Int-S	1		
2621i	Unknown age M				A/C	Ingst + Inhal	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
		methamphetamine	1	1						
		cocaine	2	2						
		acetaminophen/oxycodone	3	3						
		alprazolam	4	4						
See Also case 6, 7, 18, 24, 34, 38, 49, 56, 73, 79, 96, 99, 104, 105, 122, 262, 295, 323, 342, 358, 370, 375, 377, 381, 383, 385, 387, 392, 396, 399, 400, 405, 407, 409, 410, 417, 422, 423, 430, 431, 438, 441, 459, 460, 462, 464, 465, 469, 474, 475, 477, 479, 486, 487, 495, 497, 500, 501, 503, 506, 510, 511, 516, 517, 520, 522, 525, 526, 530, 533, 534, 537, 538, 540, 544, 546, 547, 548, 557, 561, 562, 563, 565, 580, 588, 592, 595, 597, 604, 605, 606, 611, 618, 620, 621, 624, 629, 637, 669, 679, 680, 685, 699, 703, 707, 723, 730, 736, 745, 754, 758, 761, 771, 774, 782, 783, 784, 795, 800, 803, 818, 820, 828, 834, 838, 839, 841, 845, 855, 868, 873, 875, 900, 919, 926, 929, 932, 934, 944, 949, 968, 982, 985, 993, 1015, 1042, 1051, 1147, 1152, 1161, 1164, 1166, 1170, 1191, 1192, 1193, 1197, 1201, 1211, 1222, 1227, 1241, 1260, 1263, 1273, 1301, 1328, 1352, 1394, 1395, 1438, 1445, 1521, 1591, 1633, 1642, 1665, 1668, 1672, 1704, 1712, 1743, 1749, 1750, 1755, 1762, 1777, 1785, 1787, 1801, 1811, 1813, 1832, 2625, 2626, 2641, 2647, 2652, 2654, 2669										
Unknown Drug										
2622ai	19 y F	drug, unknown	1	1	U	Unk	Int-A	2		
2623	20 y M	drug, unknown	1	1	U	Unk	Int-S	2		
2624ph	20 y M	drug, unknown	1	1	U	Unk	Unk	2		
2625ph	21 y F	drug, unknown	1	1	A	Inhal	Int-A	1		
		heroin	2	1						
2626pha	21 y M	drug, unknown	1	1	U	Unk	Unk	1		
		methamphetamine	2	2					methamphetamine	100 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					amphetamine	28 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	3	3					delta-9-thc	1.6 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	3	3					delta-9-carboxy-thc	28 ng/mL In Blood (unspecified) @ Autopsy
2627pha	22 y M	drug, unknown	1	1	U	Unk	Unk	2		
2628h	24 y F	drug, unknown	1	1	A	Ingst	Unk	2		
2629ph	25 y F	drug, unknown	1	1	A	Par	Int-A	2		
2630a	25 y M	drug, unknown	1	1	A	Unk	Int-A	2		
2631h	25 y M	drug, unknown	1	1	A	Ingst	Int-A	1		
2632p	26 y M	drug, unknown	1	1	A	Ingst	Int-A	2		
2633ai	27 y F	drug, unknown	1	1	U	Unk	Int-A	1		
2634pha	27 y F	drug, unknown	1	1	U	Ingst	Int-U	2		
2635h	28 y M	drug, unknown	1	1	A	Ingst	Int-A	2		
2636	28 y M	drug, unknown	1	1	U	Unk	Unt-U	2		
		benzodiazepine	2	2						
2637ai	29 y F	drug, unknown	1	1	U	Unk	Unk	3		
2638ph	30 y F	drug, unknown	1	1	U	Unk	Unk	2		
2639p	30 y M	drug, unknown	1	1	A	Ingst + Rec	Unk	2		
2640ph	30 y M	drug, unknown	1	1	U	Ingst + Par	Int-U	2		
		ethanol	2	2					ethanol	166 mg/dL In Serum @ 30 m (pe)
2641	31 y M	drug, unknown	1	1	U	Unk	Int-A	2		
		methylenedioxy-methamphetamine (MDMA)	2	2						
		cocaine	3	3						
		amphetamine	4	4						
		methadone	5	5						
2642ph	31 y M	drug, unknown	1	1	A	Par	Int-A	1		
2643p	31 y M	drug, unknown	1	1	U	Ingst	Int-S	2		
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	297 mcg/mL In Plasma @ Unknown
2644pha	32 y M	drug, unknown	1	1	U	Ingst	Unk	3		
		ethanol	2	2					ethanol	18 mg/dL In Serum @ Unknown
2645ha	33 y M	drug, unknown	1	1	A	Ingst	Int-S	2		
2646ph	33 y M	drug, unknown	1	1	A	Par	Int-A	2		
2647pai	34 y F	drug, unknown	1	1	U	Ingst	Int-S	2		
		drug, unknown	1	1					benzoyllecognine	1500 mcg/L In Blood (unspecified) @ Autopsy
		drug, unknown	1	1					cocaine	260 mcg/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
		drug, unknown	1	1					cocaethylene	40 mcg/L In Blood (unspecified) Ⓐ Autopsy
2648a	35 y F	cocaine	2	2	A	Ingst	Int-S	1		
		ethanol	3	3						
2649p	36 y M	drug, unknown	1	1	A	Ingst + Unk	Unk	2		
2650ai	36 y M	zopiclone	2	2						
2651ph	37 y M	drug, unknown	1	1	U	Unk	Int-A	3		
2652p	37 y F	drug, unknown	1	1	A	Par	Int-A	1		
2653p	38 y M	drug, unknown	1	1	A/C	Unk	Int-A	2		
		heroin	2	1						
2654p	38 y M	drug, unknown	1	1	A/C	Ingst + Unk	Int-A	2	ethanol	156 mg/dL In Blood (unspecified) Ⓐ 1 h (pe)
		ethanol	2	2						
2654p	38 y M	drug, unknown	1	1	A	Inhal	Int-A	2		
		marijuana	2	2						
2655ai	38 y F	drug, unknown	1	1	U	Unk	Int-A	3		
2656p	39 y M	drug, unknown	1	1	U	Par	Int-A	2		
2657pi	40 y F	drug, unknown	1	1	A/C	Ingst	Int-S	3		
2658i	40 y M	drug, unknown	1	1	A	Unk	Int-S	2		
2659ph	41 y M	drug, unknown	1	1	A	Ingst	Int-S	2		
2660p	44 y F	drug, unknown	1	1	U	Ingst	Int-S	2		
		ethanol	2	2						
2661h	49 y F	drug, unknown	1	1	A/C	Ingst	Int-S	2		
2662phi	50 y F	drug, unknown	1	1	U	Unk	Unk	2		
		drug, unknown	1	1						
		ethanol	2	2						
		morphine	3	3						
		benzodiazepine	4	4						
2663p	51 y M	drug, unknown	1	1	A	Ingst	Int-S	2		
		carisoprodol	2	2						
2664ha	52 y M	drug, unknown	1	1	A	Ingst	Int-S	3		
		hypochlorite	2	2						
2665i	52 y F	drug, unknown	1	1	U	Ingst	Unk	3		
2666	54 y M	drug, unknown	1	1	A	Ingst	Int-S	2		
2667pi	54 y M	drug, unknown	1	1	U	Ingst + Unk	Int-S	2		
		drug, unknown	1	1						
		salicylate	2	2						
2668p	55 y F	drug, unknown	1	1	A	Ingst	Int-S	2		
2669ph	57 y M	drug, unknown	1	1	U	Unk	Unk	3		
		drug, unknown	2	1						
		methamphetamine	1	1						
2670h	57 y F	drug, unknown	1	1	A	Ingst	Int-U	3		
		acetaminophen/ diphenhydramine	2	2					acetaminophen (apap)	35.2 mcg/mL In Blood (unspecified) Ⓐ Unknown
2671	58 y M	drug, unknown	1	1	A	Ingst	AR-D	1		
2672h	59 y M	drug, unknown	1	1	U	Unk	Int-A	3		
		drug, unknown	1	1						
		narcotic, other/unknown	2	2						
2673h	60 y M	drug, unknown	1	1	U	Ingst	Int-S	3		
2674ai	62 y M	drug, unknown	1	1	U	Unk	Int-A	3		
2675ai	62 y M	drug, unknown	1	1	C	Unk	Int-A	2		
2676p	62 y M	drug, unknown	1	1	A/C	Ingst	Int-A	2		
		drug, unknown	1	1						
		bupropion	2	2						
		gabapentin	3	3						
		oxycodone	4	4						
		meloxicam	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
		citalopram	6	6						
		cyclobenzaprine	7	7						
		naproxen	8	8						
2677p	63 y F	drug, unknown	1	1	A	Ingst	Int-S	2		
2678ha	66 y F	drug, unknown	1	1	A/C	Ingst	Int-S	3		
2679ai	66 y M	drug, unknown	1	1	U	Unk	Int-A	3		
2680ai	1 d M	drug, unknown	1	1	U	Unk	Unk	3		
2681h	30 + y F	drug, unknown	1	1	U	Unk	Int-S	2		
See Also case 11, 14, 118, 164, 352, 403, 532, 598, 600, 643, 753, 798, 856, 888, 917, 967, 1117, 1118, 1214, 1287, 1323, 1365, 1376, 1392, 1457, 1494, 1505, 1515, 1516, 1656, 1683, 1689, 1716, 1753, 1804, 1811, 1815, 1870, 1882, 1905, 1982, 2047, 2063										
Vitamins										
2682ha	66 y M	vitamin D	1	1	C	Ingst	AR-D	3		
See Also case 812, 1323, 1443, 1500, 1591										

Listing of 2,682 (1,388 Direct +1,294 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.

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 AAPCC Fatality Review Team for the direct (non-Indirect) cases.

APPENDIX E

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category.

No. of Case Mentions	No. of Single Exposure	Age										Reason				Outcome				
		≤20					≥20					Unint	Int	Other	Adv Rtn	Treated in Health Care Facility			Death	
		≤5	6-12	13-19	13-19	≥20	Unknown Child	Unknown Adult	Unknown Age	None	Minor					Moderate	Major			
Nonpharmaceuticals																				
Adhesives/Glues																				
Miscellaneous Adhesives/Glues	4,381	1,887	354	265	1,424	15	322	49	21	117	4,141	117	21	23	1,185	634	858	130	2	0
Cyanoacrylates (Superglues, etc)	630	164	14	18	317	2	62	6	4	8	556	8	4	12	182	87	141	55	1	0
Epoxy	1,224	560	247	70	60	4	21	3	6	63	890	63	6	3	48	95	51	5	0	0
Non-Toxic Adhesives/Glues (White Glue, Paper Glue, etc)	253	103	7	10	97	0	15	4	0	13	219	13	0	3	48	33	45	8	0	0
Toluene/Xylene (Adhesives Only)	4,248	1,603	407	205	1,207	8	394	44	34	163	3,605	163	34	52	583	585	556	101	7	0
Unknown Types of Adhesive, Glue, Cement or Paste	10,736	4,317	1,029	568	3,105	29	814	106	65	364	9,411	364	65	93	2,046	1,434	1,651	299	10	0
Alcohols																				
Miscellaneous Alcohols																				
Ethanol (Beverages)	54,446	1,976	196	941	4,513	13	418	94	328	4,850	2,628	4,850	328	159	4,449	979	2,059	1,300	253	66
Ethanol (Non-Beverage, Non-Rubbing)	3,067	1,442	119	94	520	2	55	12	33	14	1,922	259	33	14	326	402	243	62	14	0
Higher Alcohols (Butanol, Amyl Alcohol, Propanol, etc)	120	37	6	3	40	0	6	0	0	6	84	6	0	0	30	16	18	10	0	0
Isopropanol (Excluding Rubbing Alcohols and Cleaning Agents)	3,935	1,439	146	194	1,420	3	187	20	30	770	2,557	770	30	25	1,026	626	677	311	40	0
Methanol (Excluding Automotive Products and Cleaning Agents)	675	105	8	40	342	1	48	7	8	52	477	52	8	4	224	120	97	24	12	7
Other Types of Alcohol	189	107	7	7	40	0	5	2	0	9	156	9	0	3	31	46	15	4	1	0
Unknown Types of Alcohol	1,032	63	9	34	141	3	17	10	5	131	112	131	5	7	127	25	56	34	22	5
Rubbing Alcohols																				
Rubbing Alcohols: Ethanol with Methyl Salicylate	5	2	0	0	2	0	0	0	0	4	4	0	0	0	1	2	1	1	0	0
Rubbing Alcohols: Ethanol without Methyl Salicylate	181	105	6	8	48	0	2	0	1	154	11	1	1	2	20	43	26	3	0	0
Rubbing Alcohols: Isopropanol with Methyl Salicylate	204	148	9	2	36	0	3	0	3	179	15	3	1	1	66	65	37	4	0	0
Rubbing Alcohols: Isopropanol without Methyl Salicylate	7,624	3,703	261	327	2,257	14	314	32	64	1,094	5,692	1,094	64	22	1,578	1,389	1,121	371	28	0
Rubbing Alcohols: Unknown	87	26	1	6	31	0	4	0	0	50	16	16	0	0	30	10	14	7	2	0
Category Total:	71,565	9,153	768	1,656	9,390	36	1,059	177	472	7,213	14,015	7,213	472	237	7,908	3,723	4,364	2,131	372	78
Arts/Crafts/Office Supplies																				
Miscellaneous Arts/Crafts/Office Supplies																				
Artist Paints (Non-Water Color)	3,502	2,549	264	139	370	7	67	9	14	77	3,288	77	14	25	116	375	143	13	4	0
Artist Paints (Water Color)	1,578	1,281	141	41	59	5	9	2	5	36	1,494	36	5	2	24	160	26	4	0	0
Chalks	1,662	1,519	52	19	22	4	5	1	1	16	1,601	16	1	2	36	192	37	3	0	0
Clays	2,475	2,008	238	66	83	12	6	2	4	50	2,348	50	4	7	113	228	94	4	2	0
Crayons	1,811	1,464	137	32	81	11	6	2	1	40	1,691	40	1	0	47	137	42	1	0	0
Glazes	106	44	22	16	18	0	5	0	6	6	93	6	6	0	7	14	9	0	0	0
Office Supplies: Miscellaneous	87	48	12	4	18	0	2	0	0	3	81	3	0	0	7	13	8	1	0	0
Other Types of Arts/Crafts/Writing Products	6,702	4,499	766	249	583	44	139	20	36	227	6,001	227	36	25	284	826	265	21	2	1
Pencils	1,229	541	442	102	54	11	14	6	17	111	1,029	111	17	4	42	109	41	3	0	0
Pens or Inks	8,687	5,442	1,870	649	302	43	108	31	40	440	7,907	440	40	41	255	1,018	209	16	2	0
Typewriter Correction Fluids	530	319	71	45	64	2	9	6	6	468	39	39	6	1	50	111	34	5	0	0
Unknown Types of Arts/Crafts/Writing Products	113	65	31	6	6	0	1	0	0	106	3	3	0	0	8	20	8	0	0	0
Category Total:	28,482	19,779	4,046	1,368	1,660	139	371	79	130	1,048	26,107	1,048	130	107	989	3,203	916	71	10	1
Automotive/Aircraft/Boat Products																				
Automotive Products																				

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Outcome											
		≤5		6–12		13–19		≤20		Unknown	Unknown Adult	Unknown Child	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death	
922	844	209	10	51	489	3	73	9	784	47	6	1	306	139	240	37	5	1						
6,144	5,583	485	120	458	3,968	11	469	72	4,601	772	139	9	2,270	1,086	998	417	112	10						
137	127	33	6	6	71	0	9	2	116	8	1	0	37	35	19	4	1	1						
1,980	1,853	573	47	100	966	2	150	15	1,732	88	11	11	616	353	564	103	3	0						
1,220	1,149	173	32	91	709	2	130	12	1,054	75	13	0	359	286	233	34	7	0						
161	153	63	8	5	65	1	9	2	147	2	4	0	35	30	21	4	1	0						
13	10	5	0	0	4	0	1	0	9	0	1	0	3	2	1	0	0	0						
1,336	1,274	451	43	77	598	0	94	11	1,215	31	8	15	402	227	347	78	3	0						
194	175	35	8	21	89	0	17	5	161	8	4	1	82	29	51	16	1	0						
12,107	11,168	2,027	274	809	6,959	19	952	128	9,819	1,031	187	37	4,110	2,187	2,474	693	133	12						
480	466	266	51	25	101	1	19	3	443	12	2	8	329	221	56	16	0	0						
255	185	85	22	15	61	0	2	0	133	34	1	13	152	62	33	46	7	0						
4	4	3	0	0	1	0	0	0	4	0	0	0	3	4	0	0	0	0						
7	5	3	0	0	2	0	0	0	4	1	0	0	1	1	0	0	0	0						
9	7	4	1	1	1	0	0	0	7	0	0	0	5	4	0	0	0	0						
42	42	20	5	0	15	0	1	1	39	1	1	0	25	25	3	0	0	0						
2,398	2,331	1,487	299	67	424	14	35	5	2,231	72	15	5	1,791	1,101	148	42	7	1						
328	314	127	21	2	158	0	6	0	309	4	1	0	193	208	16	3	5	0						
565	556	30	16	32	392	2	76	8	540	8	3	4	208	65	156	52	1	0						
358	336	49	12	98	112	3	56	6	309	23	0	4	52	125	40	13	0	0						
5,176	4,989	2,914	494	278	1,014	19	244	26	4,487	414	62	11	1,000	1,233	500	91	2	0						
87	81	30	11	10	27	0	3	0	67	7	4	1	23	19	14	3	0	0						
9,709	9,316	5,018	932	528	2,308	39	442	49	8,573	576	89	46	3,782	3,068	966	266	22	1						
572	566	22	41	65	384	1	46	7	553	3	2	8	268	15	197	84	3	0						
189	188	25	46	28	70	1	17	1	187	0	0	1	43	3	66	18	0	0						
259	252	121	30	13	72	1	14	1	239	6	3	2	45	26	34	12	0	0						
1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0						
19	19	0	0	2	16	0	0	1	19	0	0	0	13	0	6	3	0	0						
54	50	2	1	4	39	0	3	1	50	0	0	0	35	3	10	17	2	0						
534	493	169	39	29	194	0	58	4	476	0	16	1	69	10	116	27	2	1						
3,629	3,542	592	342	169	2,018	11	358	52	3,535	3	3	1	628	29	1,172	261	8	1						
2,114	2,110	517	288	154	973	11	141	26	2,064	16	3	24	328	41	660	105	0	0						
497	492	120	31	25	277	0	33	6	491	0	1	0	75	18	160	28	0	0						
112	112	27	5	4	65	0	10	2	112	0	0	0	21	2	25	3	0	0						
4,810	4,648	1,039	311	246	2,448	16	531	57	4,524	18	73	23	890	157	999	290	2	0						
12,669	12,645	1,394	1,380	952	8,319	12	457	131	12,642	1	1	0	1,526	73	8,319	569	26	0						
871	837	210	88	35	367	15	115	7	831	2	1	1	158	36	115	18	2	0						

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Outcome						
		Age							Unint	Int	Other	Adv Rxn	Treated in Health Care Facility			Outcome			
		≤5	6–12	13–19	20	Unknown Child	Unknown Adult	Unknown Age					None	Minor	Moderate	Major	Death		
Mammals																			
685	675	83	81	65	361	5	73	7	672	1	0	0	0	441	116	83	11	0	0
687	681	56	60	53	431	3	64	14	680	0	0	0	1	479	4	306	34	0	0
2,472	2,461	336	467	274	1,229	9	111	35	2,459	1	0	0	1	1,965	19	1,223	181	6	0
21	21	1	1	2	15	0	1	1	21	0	0	0	0	13	2	9	0	0	0
24	24	4	2	1	11	0	6	0	2	0	2	0	1	13	0	7	1	0	0
641	636	65	74	46	344	4	84	19	611	6	5	5	5	359	65	169	14	0	0
120	120	9	8	16	71	0	6	10	118	2	0	0	0	74	14	37	2	0	0
925	907	232	132	79	351	11	90	12	841	4	57	3	283	58	179	26	1	0	0
Rodent or Lagomorph Bites (Squirrels, Rats, Mice, Gerbils, Hamsters, Rabbits, etc)																			
8	8	1	1	0	4	0	2	0	8	0	0	0	7	0	4	0	0	0	0
Skunk Bites																			
Miscellaneous Bites and Envenomations																			
248	246	35	30	13	127	2	34	5	237	2	0	6	102	6	84	20	0	0	0
315	311	108	54	29	93	3	18	6	295	11	0	2	68	25	86	12	0	0	0
1,902	1,842	463	122	97	940	4	179	37	1,819	3	12	4	364	53	427	89	4	0	0
Other or Unknown Reptile Bites																			
Other or Unknown Animal Bites																			
Unknown Types of Insect or Spider Bite and/or Envenomation																			
Miscellaneous Snake Bites and Envenomations																			
645	640	55	85	99	377	0	22	2	636	3	0	0	428	32	336	40	1	0	0
Unknown or Known Non-Poisonous Snake Bites																			
1,922	1,894	138	221	224	1,244	2	50	15	1,889	4	0	0	1,679	45	860	615	28	0	0
Unknown Types of Snake Envenomation																			
Snakes																			
2,035	2,008	67	159	185	1,571	1	22	3	2,003	5	0	0	1,947	16	584	1,214	46	0	0
80	79	2	6	13	53	1	2	2	78	1	0	0	70	5	41	15	2	0	0
255	251	7	11	22	209	0	2	0	251	0	0	0	242	4	85	122	10	0	0
753	739	31	39	45	604	0	15	5	732	4	1	1	698	13	199	370	56	1	1
1,028	998	51	78	102	753	0	14	0	994	1	2	1	958	15	237	560	79	1	1
Unknown Croalid Envenomations																			
Spiders																			
1,346	1,330	95	69	111	977	1	70	7	1,324	0	1	2	739	48	448	289	9	0	0
Black Widow Spider Bites and/or Envenomations																			
898	886	69	52	63	565	3	113	21	882	1	1	1	411	22	194	202	15	1	1
Brown Recluse Spider Bites and/or Envenomations																			
85	84	18	7	6	43	0	9	1	83	1	0	0	19	4	16	8	0	0	0
Other Necrotizing Spider Bites and/or Envenomations																			
2,906	2,873	319	173	195	1,843	6	302	35	2,858	7	3	4	652	53	707	183	3	0	0
20	19	0	2	1	14	0	2	0	19	0	0	0	8	0	8	0	0	0	0
46,491	45,688	6,483	4,536	3,467	27,473	123	3,074	532	45,255	106	187	92	16,119	1,032	18,208	5,444	305	5	5
Taratula Bites and/or Envenomations																			
Category Total: Building and Construction Products																			
Insulation																			
355	320	41	29	11	173	4	59	3	304	0	9	7	39	63	25	6	1	0	0
497	455	196	48	26	144	2	35	4	430	12	2	8	105	55	73	16	0	0	0
122	119	47	6	4	49	0	12	1	113	3	1	2	30	10	17	6	1	0	0
412	388	261	12	11	78	1	22	3	375	9	0	2	50	69	38	14	0	0	0
7	7	1	0	0	6	0	0	0	6	1	0	0	0	0	2	1	0	0	0
Unknown Types of Insulation																			
Urea or Formaldehyde Insulations																			
Miscellaneous Building and Construction Products																			
2,347	2,278	1,471	98	50	525	5	110	19	2,216	29	6	18	191	444	194	21	1	0	0
Caulking Compounds and Construction Putties																			
1,175	1,138	348	29	45	624	1	78	13	1,107	9	3	12	438	131	236	167	10	1	1
2,220	2,056	1,018	74	67	720	3	150	24	1,981	46	8	13	438	351	342	98	12	0	0
Cement or Concrete (Excluding Glues)																			
Other Types of Building or Construction Products																			
173	170	44	4	12	99	0	6	5	163	3	1	3	54	31	47	15	0	0	0
138	74	25	0	2	36	0	11	0	71	1	1	1	19	13	18	5	0	0	0
Soldering Flux																			
Unknown Types of Building or Construction Products																			

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

Category	No. of Case Mentions	No. of Single Exposure	Age					Reason					Outcome						
			≤5	6–12	13–19	20	≥20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major
Chemicals	7,446	7,005	3,452	300	228	2,454	16	483	72	6,766	113	31	66	1,364	1,167	992	349	25	1
Acids																			
Hydrochloric Acid	1,839	1,515	80	54	164	1,056	2	126	33	1,441	41	9	12	686	127	527	193	11	3
Hydrofluoric Acid	676	579	7	5	37	483	0	41	6	565	6	0	5	456	55	231	136	6	1
Other Types of Acid	4,678	3,920	577	244	272	2,321	15	432	59	3,647	165	36	38	1,491	458	1,173	391	26	3
Unknown Types of Acid	154	128	9	7	10	85	0	15	2	119	4	2	0	71	5	35	22	3	1
Miscellaneous Chemicals																			
Acetone (Excluding Nail Polish Removers)	1,352	1,160	400	46	82	550	1	68	13	1,049	70	15	11	336	159	298	49	7	0
Alkalis (Excluding Cleaning Agents, Bleaches, Batteries, and Detergents)	3,671	3,231	487	113	281	1,999	4	318	29	3,029	91	37	51	1,646	281	968	599	42	2
Ammonia (Excluding Cleaning Agents)	2,675	1,846	367	97	137	1,032	10	188	15	1,678	96	43	18	673	230	524	194	15	0
Borates or Boric Acid (Excluding Topicals and Pesticides)	7,333	6,832	2,448	1,247	535	2,113	27	405	57	6,380	214	138	75	862	1,122	639	54	2	1
Chlorates (Excluding Matches and Fireworks)	28	20	2	0	7	8	0	3	0	15	1	4	0	11	2	5	5	1	0
Cyanides (Excluding Rodenticides)	225	154	3	4	6	121	1	16	3	111	12	19	2	99	39	29	18	2	3
Dioxins	8	7	0	0	0	3	0	3	1	4	0	2	1	2	0	3	0	0	0
Ethylene Glycol (Excluding Automotive, Aircraft, or Boat Products)	798	626	52	29	38	454	1	43	9	385	178	19	2	381	117	91	92	61	15
Formaldehyde or Formalin	642	579	43	22	71	357	6	68	12	519	23	12	19	235	69	195	39	3	0
Ketones	333	286	69	3	11	176	1	25	1	276	5	1	2	135	49	97	38	1	0
Methylene Chloride (Excluding Paint Strippers)	164	138	20	3	4	89	0	19	3	134	2	0	1	56	12	34	14	0	1
Nitrates and Nitrites (Excluding Medications and Substances of Abuse)	1,011	934	272	216	107	264	12	56	7	733	166	13	14	222	204	130	36	9	0
Other Chemicals	12,469	10,704	4,125	827	678	4,039	41	818	176	9,765	418	146	332	2,503	1,635	1,927	485	36	9
Other Chemicals-Unknown If Toxic Aircraft, or Boat Products	743	573	215	37	33	250	1	34	3	507	28	11	24	152	97	105	19	2	1
Phenol or Cresolates (Excluding Disinfectants)	276	261	32	6	17	180	0	24	2	247	8	2	4	127	35	71	49	4	0
Strychnine (Excluding Rodenticides)	31	19	7	1	1	7	0	2	1	11	3	3	2	7	4	2	0	1	0
Toluene Diisocyanate	477	441	102	24	18	248	1	46	2	422	14	1	3	136	61	96	27	0	0
Unknown Chemicals	3,717	3,452	706	195	206	1,771	22	483	69	2,768	126	344	116	1,164	432	771	233	9	2
Category Total:	43,301	37,406	10,023	3,180	2,715	17,606	145	3,234	503	33,806	1,671	857	732	11,452	5,193	7,951	2,693	241	42
Cleaning Substances (Household)																			
Automatic Dishwasher Detergents	2,336	2,326	2,188	25	21	78	0	14	0	2,308	5	13	0	123	539	383	7	0	0
Automatic Dishwasher Detergents: Granules (Unit Dose)	2,082	2,044	1,679	33	26	230	7	64	5	2,007	14	17	6	129	363	246	15	2	0
Automatic Dishwasher Detergents: Granules with Liquids (Unit Dose)	6,663	6,624	6,247	55	46	228	4	38	6	6,597	9	14	0	412	1,402	1,092	34	0	0
Automatic Dishwasher Detergents: Liquids (Unit Dose)	465	458	408	11	4	29	1	5	0	454	1	1	0	45	114	68	10	0	0
Automatic Dishwasher Detergents: Liquids (Various Containers)	1,626	1,587	1,298	28	24	190	2	38	7	1,569	9	9	0	138	351	230	31	1	0
Automatic Dishwasher Detergents: Tablets	3,003	2,980	2,767	32	24	134	2	20	1	2,955	11	11	2	146	730	304	9	0	0
Automatic Dishwasher Rinse Agents	946	915	730	9	9	142	3	21	1	902	6	5	1	90	177	149	17	0	0
Other or Unknown Types of Automatic Dishwasher Detergent	1,695	1,656	1,385	21	26	184	2	33	5	1,626	11	16	3	98	254	190	11	1	0
Bleaches																			
Bleaches: Borates	592	467	191	20	33	183	0	30	10	407	43	9	6	131	82	114	16	0	0
Bleaches: Hypochlorite (Liquid and Dry)	40,302	33,446	12,699	1,375	2,814	13,857	81	2,274	346	29,493	2,903	566	315	9,364	4,822	9,538	1,169	50	3
Bleaches: Non-Hypochlorite	267	226	71	11	22	108	0	10	4	183	30	5	5	57	40	54	9	1	0
Bleaches: Other or Unknown (Household)	713	601	202	28	56	281	1	28	5	503	66	26	5	212	62	164	27	1	0

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age						Reason				Outcome							
		≤5	6–12	13–19	20	Unknown	Unknown	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death		
Cleaners																			
1,984	1,833	1,368	45	43	310	0	59	8	1,760	43	17	13	177	405	173	15	1	0	
2,827	2,522	1,536	78	105	659	5	127	12	2,344	98	51	16	475	426	377	60	2	0	
2,559	2,147	945	83	86	829	9	177	18	1,997	86	22	29	561	257	541	108	3	0	
6,007	5,622	3,177	349	250	1,508	7	283	48	5,242	219	61	81	696	1,091	1,054	99	2	1	
673	630	357	74	45	123	0	27	4	559	50	14	4	83	126	92	9	1	0	
3,786	3,251	1,666	120	137	1,140	10	155	23	3,015	152	47	20	596	747	626	55	2	0	
95	71	7	4	2	47	0	11	0	64	3	2	2	25	5	16	12	0	0	
2,882	2,403	387	57	83	1,532	6	296	42	2,210	143	13	29	770	312	626	246	34	5	
18	12	3	0	0	8	0	1	0	12	0	0	0	3	3	4	1	0	0	
933	691	122	16	27	414	1	100	11	632	39	10	5	208	93	150	62	4	1	
442	351	33	17	9	247	1	42	2	340	4	1	5	137	26	102	71	4	2	
29	24	22	0	0	2	0	0	0	24	0	0	0	2	6	1	0	0	0	
98	96	79	3	2	8	0	3	1	91	3	1	1	4	23	9	0	0	0	
11	9	9	0	0	0	0	0	0	9	0	0	0	0	2	1	0	0	0	
14	13	8	0	1	2	0	2	0	12	1	0	0	0	1	1	0	0	0	
10	8	6	0	1	1	0	0	0	7	1	0	0	1	2	2	0	0	0	
899	816	578	33	28	148	2	25	2	759	29	8	19	106	174	88	7	0	0	
2	2	1	0	1	0	0	0	0	2	0	0	0	1	0	1	0	0	0	
683	665	546	25	4	62	1	22	5	635	15	6	9	24	109	30	3	0	0	
Glass Cleaners																			
1,513	1,366	1,006	59	89	172	3	32	5	1,252	95	15	2	140	342	167	6	0	0	
92	79	49	3	1	20	0	6	0	73	4	2	0	6	7	6	1	0	0	
1,516	1,378	988	60	67	215	2	41	5	1,295	58	21	3	134	288	150	17	1	0	
1,524	1,350	888	63	98	238	6	51	6	1,199	123	24	1	186	308	186	19	0	0	
Hand Dishwashing																			
5,649	4,895	2,935	302	137	1,253	10	243	15	4,618	95	128	47	422	591	890	57	0	0	
2,233	1,903	1,106	101	75	514	3	94	10	1,815	23	55	7	151	198	263	17	1	0	
64	61	28	0	3	26	1	3	0	55	2	0	1	11	10	7	1	0	0	
23	22	12	2	1	4	0	3	0	22	0	0	0	4	6	3	0	0	0	
488	458	230	77	23	114	0	12	2	431	10	16	1	48	112	60	7	2	0	
1,292	1,226	1,041	39	29	93	1	17	6	1,194	19	6	5	119	257	125	16	0	0	
53	52	29	8	1	12	0	1	1	45	3	3	1	6	10	10	1	0	0	
338	326	234	17	5	57	1	12	0	318	6	1	1	61	67	71	8	0	0	
2,454	2,331	1,645	111	84	393	4	84	10	2,217	76	23	10	349	389	403	27	0	0	
233	231	207	7	1	11	1	4	0	228	3	0	0	86	42	80	11	1	0	

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age						Reason				Outcome						
		≤5	6–12	13–19	≤20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
12,286	12,091	10,431	632	196	652	24	139	17	11,913	132	17	20	4,361	2,332	5,060	664	23	1
6,677	6,287	4,335	269	222	1,228	4	205	24	5,992	219	56	9	1,018	1,047	1,170	124	3	2
248	227	125	12	17	59	1	12	1	208	11	3	5	67	47	41	15	0	0
176	151	107	8	7	27	0	2	0	142	5	1	2	29	34	33	5	0	0
178	169	145	7	0	14	0	2	1	167	1	0	1	18	28	33	1	0	0
240	227	192	4	5	19	1	5	1	219	7	0	1	23	37	35	4	0	0
1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
72	71	65	1	1	4	0	0	0	69	2	0	0	6	17	6	0	0	0
189	184	143	3	3	30	0	4	1	180	3	1	0	27	59	28	2	0	0
1,552	1,484	1,270	35	31	120	0	25	3	1,449	25	7	2	124	281	233	25	0	0
1,887	1,790	1,386	39	39	268	1	48	9	1,747	18	10	12	183	329	316	23	0	0
32	30	25	0	0	4	0	1	0	30	0	0	0	3	5	4	1	0	0
60	56	44	0	2	8	1	1	0	55	0	0	1	8	7	6	2	0	0
1,351	1,181	442	36	44	563	3	85	8	1,106	35	31	9	321	242	300	72	2	0
7,214	6,316	3,678	198	251	1,802	17	319	51	5,944	240	70	40	1,390	1,222	1,171	288	18	0
5,008	4,523	2,915	183	152	1,038	13	202	20	4,309	131	52	24	622	731	633	76	0	0
2,780	2,553	1,414	112	143	756	3	110	15	2,373	130	19	24	432	425	481	82	2	0
531	502	358	25	13	89	2	14	1	489	7	3	2	41	103	64	3	0	0
406	371	227	16	15	85	2	25	1	344	17	4	5	59	76	53	4	1	0
1,827	1,710	1,072	176	88	284	5	79	6	1,574	96	26	10	140	280	194	16	2	0
25	23	11	0	2	8	1	1	0	23	0	0	0	4	5	6	1	0	0
4,714	4,262	2,359	268	193	1,180	14	199	49	3,948	196	72	31	809	767	847	114	7	0
9	8	2	0	0	5	0	1	0	8	0	0	0	4	2	3	1	0	0
669	489	147	24	25	240	2	42	9	429	45	6	9	126	83	118	25	3	0
3,176	2,954	2,049	86	60	651	1	99	8	2,860	40	17	33	382	528	478	46	4	0
51	48	7	1	5	32	0	3	0	45	2	0	1	36	4	21	13	1	0
247	233	172	17	6	30	1	6	1	223	5	4	1	13	39	15	3	0	0
5	5	1	1	0	1	0	2	0	5	0	0	0	0	1	0	0	0	0
2,002	1,920	322	58	152	1,120	16	223	29	1,846	26	28	17	691	180	543	261	13	0
2	2	2	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0
296	265	53	5	19	150	2	30	6	245	5	10	4	85	19	71	26	0	0

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Outcome						
		≤5	6–12	13–19	≤20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death	
Rust Removers																			
Rust Removers: Acids Other Than Hydrofluoric Acid Types	315	271	80	6	9	147	0	26	3	255	8	4	4	51	51	60	10	0	0
Rust Removers: Alkalis	12	11	2	0	7	0	2	0	0	10	1	0	0	6	0	2	2	0	0
Rust Removers: Hydrofluoric Acid	216	209	33	2	144	0	24	0	198	7	4	0	0	106	47	58	23	0	0
Rust Removers: Other or Unknown	166	150	32	2	88	0	20	3	138	3	2	3	2	29	14	31	11	0	0
Spot Removers/Dry Cleaning Agents: Anionics or Nonionics	129	121	95	2	20	1	1	0	120	1	0	0	0	15	21	17	2	0	0
Spot Removers/Dry Cleaning Agents: Glycols	85	82	53	5	19	0	1	0	80	1	0	0	0	11	14	19	2	0	0
Spot Removers/Dry Cleaning Agents: Isopropanol	44	44	26	3	11	0	1	1	42	1	0	1	0	7	11	9	2	0	0
Spot Removers/Dry Cleaning Agents: Other Halogenated Hydrocarbon Containing Products	21	21	16	1	0	3	0	0	21	0	0	0	0	2	6	3	1	0	0
Spot Removers/Dry Cleaning Agents: Other Hydrocarbon and/or Non-Halogenated Containing	367	343	184	7	113	1	26	1	334	4	2	3	3	75	66	84	11	0	0
Spot Removers/Dry Cleaning Agents: Other or Unknown	112	107	76	3	2	19	0	7	102	3	1	1	1	16	16	21	0	0	0
Spot Removers/Dry Cleaning Agents: Perchloroethylene	5	5	4	0	0	1	0	0	5	0	0	0	0	2	1	1	0	0	0
Toilet Bowl Cleaners																			
Toilet Bowl Cleaners: Acids	2,658	2,195	1,262	51	67	677	4	122	12	2,089	83	8	12	440	597	517	82	12	0
Toilet Bowl Cleaners: Alkalis	3,979	3,687	3,036	55	77	427	9	72	11	3,589	77	5	14	517	1,043	524	51	1	0
Toilet Bowl Cleaners: Other or Unknown	3,941	3,632	3,151	59	49	300	5	64	4	3,573	46	4	8	335	915	284	37	2	0
Wall/Floor/Tile Cleaners	1,423	1,192	725	31	44	310	1	77	4	1,131	42	7	10	194	262	246	28	1	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Alkalis	6,650	5,923	3,769	210	223	1,434	15	238	34	5,586	219	49	56	1,144	1,158	1,416	206	6	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Anionics or Nonionics	8,195	7,265	4,502	251	289	1,928	12	255	28	6,854	301	61	22	1,301	1,493	1,104	115	4	1
Wall/Floor/Tile/All-Purpose Cleaning Agents: Cationics	2,377	2,119	1,433	96	76	429	1	79	5	2,001	84	22	5	289	407	362	44	0	2
Wall/Floor/Tile/All-Purpose Cleaning Agents: Ethanol	298	270	197	9	13	42	0	7	2	256	2	10	1	24	61	35	1	1	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Glycols	906	825	614	20	14	144	2	29	2	794	17	6	6	83	161	96	2	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Isopropanol	470	438	346	11	17	52	1	11	0	423	7	6	2	25	118	53	1	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Other or Unknown	1,605	1,459	1,027	42	40	292	2	50	6	1,396	49	3	8	225	320	241	29	2	0
Category Total:	189,999	170,676	105,275	6,484	7,184	42,880	345	7,504	1,004	160,422	6,865	1,870	1,074	32,456	31,084	35,994	4,848	222	18
Cosmetics/Personal Care Products																			
Dental Care Products	2,322	2,298	264	43	36	1,729	0	210	16	2,224	36	7	24	131	380	152	12	0	1
False Teeth Cleaning Agents	1,469	1,402	484	96	66	617	0	128	11	1,257	57	5	80	134	215	163	21	0	0
Other Dental Care Products (Excluding Fluoride Supplements)	15,030	14,636	12,704	445	286	936	18	227	20	14,211	203	51	155	268	2,343	712	16	1	0
Toothpastes (with Fluoride)	1,695	1,636	1,435	36	25	111	1	26	2	1,601	15	4	16	21	202	47	2	0	0
Toothpastes (without Fluoride)	42	38	33	0	2	3	0	0	0	36	1	0	1	9	10	6	2	0	0
Hair Care Products	2,078	1,994	958	48	114	711	5	140	18	1,735	40	7	205	390	302	389	89	1	0
Hair Coloring Agents (Excluding Peroxides)	572	561	490	12	8	38	4	9	0	554	4	1	1	65	115	51	5	1	0
Hair Oils	196	194	134	2	6	43	1	6	2	182	2	0	9	95	46	58	26	2	0
Hair Relaxers (with Other Alkalines)	38	35	26	3	1	4	0	1	0	35	0	0	0	12	5	8	2	0	0
Hair Relaxers (with Other Non-Alkalines)	335	332	233	7	7	69	0	12	4	315	3	0	13	158	48	99	36	1	0

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason				Outcome							
		≤5	6–12	13–19	≥20	Unknown	Child	Adult	Unknown	Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility			Death
															None	Minor	Moderate	
2,020	1,885	1,591	63	48	148	3	29	3	1,826	39	3	16	147	329	164	18	0	0
1,162	1,058	649	64	52	240	6	41	6	933	107	5	8	137	190	161	27	1	0
2,607	2,495	1,815	70	83	396	5	113	13	2,352	39	8	93	355	433	335	48	1	0
133	130	72	1	6	42	0	9	0	115	1	0	14	47	22	35	8	0	0
5,675	5,318	3,932	298	194	726	13	135	20	5,019	195	16	77	497	592	897	70	4	0
19,411	18,898	14,393	1,786	715	1,726	37	216	25	16,941	1,555	317	26	1,604	4,567	1,439	220	25	1
188	184	145	9	3	25	1	1	0	168	14	1	0	21	49	16	3	0	0
1,948	1,902	1,482	163	67	1,503	6	25	6	1,802	93	5	0	99	330	109	8	2	0
602	566	347	90	43	68	6	11	1	483	55	22	3	79	114	66	11	1	1
Miscellaneous Cosmetics/Personal Care Products																		
1,474	1,412	1,266	31	17	79	1	15	3	1,392	8	2	6	121	278	129	12	0	0
3,092	3,017	2,663	196	37	104	3	12	2	2,962	27	5	20	140	530	245	7	0	0
20,946	20,089	16,399	680	474	2,033	31	408	64	19,189	273	53	548	735	2,534	1,097	101	2	0
14,685	14,482	12,855	319	473	659	20	133	23	13,973	336	49	109	498	1,799	890	45	1	0
691	668	219	15	82	274	1	65	12	453	50	7	153	179	81	167	75	0	0
43	43	25	2	2	11	1	0	2	38	1	0	3	3	11	6	0	0	0
1,436	1,371	1,134	31	40	133	1	22	10	1,313	13	2	42	82	177	95	15	0	0
851	831	722	39	24	35	0	7	4	802	24	0	5	13	142	38	0	0	0
4,485	4,353	3,843	146	63	223	5	36	37	4,045	63	7	232	86	517	315	21	0	0
7,547	7,255	5,739	404	352	627	11	98	24	6,830	302	86	17	661	1,449	1,212	51	2	0
6,863	6,318	2,057	309	357	2,924	10	577	84	5,798	288	50	158	1,162	782	1,477	214	14	0
1,454	1,414	1,260	36	29	69	3	16	1	1,369	30	4	7	95	202	213	12	2	0
1,595	1,538	1,235	49	49	169	5	47	4	1,490	43	14	11	216	273	286	28	3	0
13,082	12,363	8,731	669	467	2,097	28	312	59	11,632	384	111	209	870	1,452	1,642	102	2	0
8,216	8,073	6,871	474	126	469	18	102	13	7,870	56	21	122	304	918	785	23	0	0
5,764	5,158	1,371	394	394	2,576	4	383	36	4,134	963	9	14	951	702	575	198	20	1
5,195	5,127	3,419	981	97	537	5	81	7	5,026	68	4	22	80	829	152	3	0	0
1,511	1,461	573	137	66	598	0	86	1	1,358	76	1	23	64	211	70	2	0	0
208	183	47	12	13	89	0	16	6	147	31	0	2	36	29	19	5	1	0
915	909	341	147	117	253	7	38	6	883	19	1	5	394	90	254	69	0	0
219	212	159	2	18	31	0	1	1	207	1	0	4	65	45	51	10	0	0
10	10	8	0	0	2	0	0	0	10	0	0	0	4	2	2	1	0	0
671	650	443	39	16	124	3	23	2	616	22	3	9	121	147	111	17	1	0
2,000	1,933	1,332	77	84	369	6	60	5	1,826	76	15	11	231	412	304	19	0	1
6,058	5,855	5,121	249	107	288	13	71	6	5,744	87	9	10	424	1,011	644	19	0	0
658	643	483	25	34	80	1	19	1	615	21	3	4	60	161	104	2	0	0
5,426	5,195	3,516	280	312	893	11	164	19	4,937	193	44	4	715	968	772	47	2	0
172,618	166,145	123,019	8,979	5,612	23,531	294	4,131	579	156,448	5,914	952	2,491	12,579	26,044	16,562	1,722	90	5
Category Total: Deodorizers																		
2,095	2,053	1,334	165	86	360	5	89	14	1,942	59	23	28	161	378	342	20	4	0
9,352	9,228	8,126	237	147	571	10	124	13	9,063	91	55	15	615	1,722	1,266	41	0	0
1,968	1,945	1,696	91	31	108	2	16	1	1,912	23	9	0	169	370	120	11	0	0
1,732	1,711	1,451	58	29	139	6	25	3	1,670	20	9	11	168	348	207	12	0	0
12	11	9	0	0	2	0	0	0	11	0	0	0	0	1	1	0	0	0
5,703	5,442	3,906	234	156	937	12	174	23	5,230	122	58	23	548	1,105	738	49	5	1
488	473	403	8	7	41	1	10	3	465	7	1	0	52	112	42	6	0	0

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason				Outcome							
		≤5	6–12	13–19	≥20	Unknown	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death		
80	79	60	4	1	11	0	3	0	76	2	1	0	0	19	9	0	0	0
21,430	20,942	16,985	797	457	2,169	36	441	57	20,369	324	156	77	1,721	4,055	2,725	139	9	1
Dyes																		
Miscellaneous Dyes																		
369	357	246	38	14	49	0	9	1	344	4	3	5	23	90	14	2	0	0
870	781	639	89	19	27	6	1	0	743	34	0	4	21	122	33	2	0	0
Dyes: Foods (Including Easter Egg)																		
70	67	44	4	4	9	0	5	1	65	1	0	0	5	17	2	0	0	0
Dyes: Leathers																		
488	455	200	90	90	4	2	15	4	423	20	3	8	35	73	23	4	0	0
Dyes: Other																		
53	45	30	4	5	5	0	1	0	40	4	0	1	7	11	3	1	0	0
Dyes: Unknown																		
1,850	1,705	1,159	225	132	144	8	31	6	1,615	63	6	18	91	313	75	9	0	0
Category Total:																		
Essential Oils																		
Miscellaneous Essential Oil																		
642	575	374	60	23	95	0	21	2	491	41	5	37	56	55	174	6	0	0
Cinnamon Oil																		
605	556	356	14	12	146	1	25	2	505	19	0	32	101	109	139	10	1	0
Clove Oil																		
1,502	1,341	864	54	27	325	6	56	9	1,274	35	6	18	254	286	207	19	1	0
Eucalyptus Oil																		
16,020	15,248	11,458	587	283	2,347	29	504	40	14,516	291	80	333	1,113	2,940	2,375	104	2	0
Miscellaneous Essential Oils																		
24	22	5	2	1	12	0	2	0	15	3	0	4	6	6	2	1	1	0
Pennyroyal Oil																		
4,597	4,326	2,192	136	207	1,478	3	283	27	3,980	208	22	90	530	983	453	38	1	0
Tea Tree Oil																		
23,390	22,068	15,249	853	553	4,403	39	891	80	20,781	597	113	514	2,060	4,379	3,350	178	6	0
Category Total:																		
Fertilizers																		
Miscellaneous Fertilizers																		
1,391	1,338	720	91	44	405	4	68	6	1,298	26	12	1	62	214	49	7	1	0
Household Plant Foods (Generally for Indoor Plants)																		
1,502	1,370	853	104	40	291	3	67	12	1,323	19	10	17	124	233	95	16	0	0
Other Types of Fertilizer																		
1,835	1,722	1,096	114	40	390	7	69	6	1,666	22	8	23	119	315	122	16	0	0
Outdoor Fertilizers																		
59	50	18	1	0	26	0	5	0	47	0	0	3	3	8	4	0	0	0
Plant Hormones																		
106	97	38	11	4	34	0	8	2	93	2	2	0	10	13	8	0	1	0
Unknown Types of Fertilizer																		
4,893	4,577	2,725	321	128	1,146	14	217	26	4,427	69	32	44	318	783	278	39	2	0
Category Total:																		
Fire Extinguishers																		
Miscellaneous Fire Extinguisher																		
2,772	2,701	239	395	325	1,040	95	313	294	2,406	65	195	15	639	562	726	121	0	0
Miscellaneous Fire Extinguishers																		
2,772	2,701	239	395	325	1,040	95	313	294	2,406	65	195	15	639	562	726	121	0	0
Category Total:																		
Foreign Bodies/Toys/Miscellaneous																		
Miscellaneous Foreign Bodies/Toys/Miscellaneous																		
323	293	236	11	2	31	0	12	1	286	3	2	2	15	45	17	2	0	0
Ashes																		
3,292	3,242	2,928	184	51	61	2	12	4	3,190	45	2	2	157	371	474	16	1	0
Bubble Blowing Solutions																		
738	616	417	29	30	108	0	24	8	556	21	4	30	53	79	38	10	0	0
Charcoals																		
269	265	207	13	5	25	2	13	0	258	6	0	1	19	50	16	1	0	0
Christmas ornaments																		
2,749	2,679	2,182	402	34	41	4	12	4	2,615	57	3	0	960	664	260	27	1	0
Coins																		
18,718	18,559	15,256	1,248	342	1,265	76	310	62	18,156	245	122	17	924	2,203	162	7	1	0
Desiccants																		
5,417	4,708	3,687	152	90	540	19	186	34	4,553	30	93	23	184	573	138	14	1	0
Feces/Urine																		
3,839	3,752	880	209	189	1,514	39	836	85	3,605	40	70	31	251	560	180	13	1	0
Glass																		
15,491	15,459	11,881	2,829	309	268	52	93	27	15,279	160	9	4	716	1,618	2,838	50	0	0
Glow Products																		
191	186	140	4	6	19	1	14	2	178	2	4	1	13	35	11	2	0	0
Incentive (Punk)																		
23,875	22,646	15,251	2,519	792	2,904	86	959	135	21,425	663	288	216	1,956	3,563	973	125	6	0
Other Types of Foreign Body, Toy, or Miscellaneous Substance																		
494	488	208	100	38	112	3	26	1	451	28	6	2	33	95	17	0	0	0
Oxygen Absorbers																		
2,325	2,060	1,379	134	37	398	2	99	11	1,982	27	11	36	176	229	139	24	0	1
Soil																		
8,214	8,122	6,213	1,434	201	176	18	68	12	7,845	190	34	47	538	1,226	506	24	1	0
Toys																		
1,462	1,418	959	224	61	136	4	32	2	1,348	47	9	7	100	179	69	11	3	0
Unknown Types of Foreign Body, Toy, or Miscellaneous Substance																		
Thermometers																		
1,032	1,020	211	127	74	330	17	232	29	996	9	7	4	75	170	14	1	0	0
Thermometers: Mercury																		
682	669	211	93	44	204	8	96	13	649	8	8	3	39	128	30	1	0	0
Thermometers: Other																		
108	108	20	10	10	48	0	18	2	107	0	1	0	9	12	1	0	0	0
Thermometers: Unknown																		

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason					Outcome						
		≤5	6–12	13–19	20	≥20	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death		
89,219	86,290	62,266	9,722	2,315	8,180	333	3,042	432	83,479	1,581	673	426	6,218	11,800	5,883	328	15	1
Fumes/Gases/Vapors																		
Miscellaneous Fumes/Gases/Vapors																		
425	403	32	34	55	212	3	56	11	367	24	2	7	96	69	101	26	0	0
12,846	11,508	1,479	917	852	6,425	148	1,418	269	11,003	341	46	29	5,751	2,273	3,166	1,237	203	44
2,230	2,115	80	40	2,230	1,529	7	316	24	2,000	96	7	11	370	241	664	152	4	0
4,305	4,039	328	286	275	2,544	36	525	45	3,869	114	10	37	1,130	355	1,331	488	9	1
2,284	2,166	102	68	123	1,561	7	293	12	2,074	85	0	3	479	313	816	236	5	0
Chlorine Gas (When Household Acid is Mixed with Hypochlorite)																		
739	646	45	29	26	411	3	116	16	632	7	2	2	283	61	197	81	7	1
4,738	4,467	895	361	266	2,129	50	681	85	4,430	15	13	0	973	1,171	804	134	3	3
1,551	1,426	174	62	83	826	11	249	21	1,325	62	11	22	364	245	307	104	6	1
5	5	0	1	0	2	1	1	0	5	0	0	0	1	0	1	0	0	0
2,618	2,357	221	279	201	1,298	23	305	30	2,104	209	15	13	810	376	615	182	12	3
1,776	1,697	96	56	65	917	21	446	96	1,618	15	34	12	471	154	352	123	5	0
33,517	30,829	3,452	2,133	2,065	17,854	310	4,406	609	29,427	968	140	136	10,728	5,258	8,354	2,763	254	53
Unknown Types of Fume, Gas or Vapor																		
Heavy Metals																		
Miscellaneous Heavy Metals																		
762	690	417	33	34	157	0	46	3	647	14	12	13	48	91	44	9	0	0
837	737	127	21	19	462	1	94	13	467	13	114	19	376	113	58	37	9	1
23	15	1	6	2	7	0	1	0	11	0	2	2	5	3	2	1	0	0
91	62	3	1	2	48	0	7	1	45	2	4	0	36	5	7	3	1	0
657	545	85	42	88	244	4	74	8	486	24	16	13	166	62	147	30	1	0
18	18	7	3	2	5	0	1	0	16	0	2	0	3	1	3	0	0	0
2	2	1	0	0	1	0	0	0	2	0	0	0	0	1	0	0	0	0
2,397	2,219	1,099	179	97	606	29	184	25	2,032	28	56	13	1,052	585	144	78	4	1
55	38	6	6	3	17	0	4	0	33	0	1	2	17	3	4	1	0	0
150	136	17	3	7	88	0	16	5	101	6	11	14	41	24	15	2	1	0
1,045	973	85	75	76	498	8	193	38	827	45	30	46	250	227	39	18	1	0
Mercury, Elemental (Excluding Thermometer)																		
307	279	16	3	16	217	0	25	2	252	11	1	15	112	13	78	36	0	0
3,527	2,297	910	143	100	920	5	195	24	1,847	175	51	196	407	335	193	65	6	0
27	18	0	1	0	11	0	6	0	5	0	9	0	10	1	3	1	0	0
62	59	7	5	5	29	0	36	11	36	2	8	6	36	4	1	7	0	0
9,960	8,088	2,782	516	455	3,310	47	857	121	6,807	320	317	339	2,559	1,468	738	288	23	2
Unknown Types of Heavy Metal																		
Hydrocarbons																		
Miscellaneous Hydrocarbons																		
66	46	3	1	4	29	0	9	0	39	3	4	0	23	9	6	5	0	0
38	36	1	0	1	24	0	9	1	35	0	0	0	13	11	7	0	0	0
696	649	120	8	37	399	2	74	9	608	31	6	0	183	103	178	38	0	0
4,671	4,437	308	219	338	2,917	21	550	84	3,382	969	49	12	1,762	687	1,035	549	39	26
9,331	8,891	1,711	531	725	4,941	23	879	81	8,090	640	99	29	2,132	1,192	2,742	352	13	0
719	663	299	31	26	242	2	56	7	626	18	11	4	428	140	193	47	4	1
1,123	1,096	749	48	26	223	2	44	4	1,055	22	13	4	426	262	263	109	10	0
2,191	2,038	1,049	58	98	693	11	117	12	1,877	95	48	8	723	387	547	129	10	0
3,494	3,267	1,780	161	133	1,023	5	150	15	3,107	90	60	5	625	833	513	79	4	0
24	24	11	0	3	6	0	3	1	22	1	1	0	5	4	1	0	0	0
1,546	1,428	398	35	84	789	4	107	11	1,327	59	27	12	533	233	407	108	7	0
219	187	32	13	117	117	0	19	1	167	13	3	4	81	21	64	13	2	0
3,984	3,625	1,674	164	146	1,375	12	233	21	3,451	117	30	16	1,010	696	764	178	13	1
620	525	75	11	16	351	0	46	26	489	21	5	7	230	73	170	49	3	1
Toluene and/or Xylene (Excluding Adhesives)																		
331	290	46	9	20	172	1	39	3	219	54	10	3	94	52	52	20	1	0
467	411	136	14	22	204	0	28	7	362	35	2	6	141	79	98	38	5	0
29,520	27,613	8,392	1,295	1,692	13,505	83	2,363	283	24,856	2,168	368	110	8,209	4,782	7,043	1,715	111	29
Unknown Types of Hydrocarbon																		

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason				Outcome								
		≤5	6–12	13–19	20	Unknown	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death			
Industrial Cleaners																			
Miscellaneous Industrial Cleaners																			
Industrial Cleaner: Disinfectants	2,164	142	81	159	1,306	3	265	35	1,802	149	17	16	634	194	643	171	7	0	
Industrial Cleaner: Other or Unknown	1,466	352	40	93	716	4	119	13	1,227	56	38	12	514	200	415	101	9	0	
Industrial Cleaners: Acids	1,819	357	28	65	915	2	130	24	1,443	44	22	8	501	188	438	124	9	1	
Industrial Cleaners: Alkalis	2,785	2,609	470	164	1,670	2	208	25	2,466	82	39	18	1,409	259	917	452	22	0	
Industrial Cleaners: Antionics or Nonionics	624	550	219	32	225	2	45	5	521	26	3	0	134	69	123	19	0	0	
Industrial Cleaners: Cationics	731	691	125	40	396	2	55	9	612	60	11	4	258	101	236	32	1	0	
Category Total:	9,589	1,665	281	577	5,228	15	822	111	8,071	417	130	58	3,450	1,011	2,772	899	48	1	
Infectious and Toxin-Mediated Diseases																			
Botulinum Toxins																			
Botulism	262	241	55	7	2	131	2	37	7	158	4	2	68	31	17	15	15	1	
Ichthyosarcotoxins																			
Ciguatera Poisoning	151	145	2	3	6	120	0	8	108	1	1	35	69	2	32	27	3	0	
Ciguatera Fish Poisoning	19	17	0	2	0	15	0	0	15	0	0	1	2	0	1	1	0	0	
Other Types of Seafood Poisoning	192	171	4	4	12	132	0	17	2	140	2	1	24	3	40	23	1	0	
Paralytic Shellfish Poisoning	114	109	4	8	8	75	0	11	86	1	0	21	32	11	17	20	3	0	
Scombroid Fish Poisoning	191	181	12	5	8	112	1	37	6	126	0	5	48	8	50	26	1	0	
Tetrodon Poisoning	135	130	23	27	9	62	0	7	118	7	1	3	17	17	14	4	1	0	
Infectious Diseases																			
Bacterial Diseases	397	376	93	27	23	154	3	70	6	317	1	17	35	66	30	51	26	3	
Fungal Diseases	2,445	2,370	674	229	153	1,043	10	240	21	2,076	8	150	135	42	275	87	7	0	
Other Types of Bacterial Food Poisoning (Salmonella, Shigella, Vibrio, Staphylococcus, Streptococcus, etc)	49	47	16	4	2	20	0	5	40	1	3	3	4	3	4	3	0	0	
Parasitic Diseases	17	13	1	1	0	8	0	3	0	12	1	0	0	2	0	0	0	0	
Prion Diseases	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unknown Types of Bacterial Food Poisoning	171	166	22	7	9	111	0	17	0	155	0	5	22	3	19	9	0	0	
Unknown Types of Suspected Food Poisoning	9,700	9,458	1,713	680	611	5,163	32	1,132	127	8,810	41	114	460	521	1,460	320	8	0	
Viral Diseases	309	160	16	10	4	95	0	27	8	136	1	11	7	7	7	4	0	0	
Category Total:	14,153	13,584	2,635	1,014	847	7,241	48	1,611	188	12,297	68	310	847	913	1,799	485	35	1	
Information Calls																			
Food Information Calls	7,485	5,485	2,774	416	257	1,518	25	451	44	4,510	275	309	357	732	703	80	5	0	
Information Calls About Food Products, Additives or Supplements	4,854	4,737	1,182	433	295	2,198	9	568	52	4,295	18	128	280	461	298	66	1	0	
Information Calls About Possibly Spoiled Foods	12,339	10,222	3,956	849	552	3,716	34	1,019	96	8,805	293	437	637	1,193	1,001	146	6	0	
Category Total:																			
Lacrimators																			
Miscellaneous Lacrimators	3,320	3,277	608	794	608	892	45	231	99	2,615	128	377	31	833	191	1,584	141	4	
Lacrimators: Capsicum Defense Sprays	497	488	95	104	106	147	3	26	7	381	19	65	9	125	13	226	31	0	
Lacrimators: CN (Chloroacetophenone)	12	12	2	0	0	10	0	0	9	9	0	2	0	11	0	9	1	0	
Lacrimators: CS (O-Chlorobenzylidene Malonitrile)	66	36	4	3	1	23	0	5	0	34	1	1	0	13	2	9	3	0	
Lacrimators: Other	112	102	22	12	12	46	0	7	3	75	7	11	3	33	3	48	10	0	
Lacrimators: Unknown	4,007	3,915	731	913	727	1,118	48	269	109	3,114	155	456	43	1,015	209	1,876	186	5	
Category Total:																			
Matches/Fireworks/Explosives																			
Miscellaneous Matches/Fireworks/Explosives	175	162	92	14	16	30	0	9	1	140	16	5	0	47	35	25	7	1	
Explosives	883	878	756	61	21	27	0	6	7	858	12	3	1	90	257	61	12	0	
Fireworks	436	433	380	12	6	26	1	23	1	425	7	0	1	23	72	8	1	0	
Other Types of Match, Firework, or Explosive	83	82	56	11	5	9	0	1	0	79	2	1	0	12	21	9	6	0	
Unknown Types of Match, Firework, or Explosive	10	10	6	0	0	3	0	0	1	9	1	0	0	1	4	0	1	0	

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

Category	No. of Case Mentions	Age							Reason				Outcome						
		No. of Single Exposure	≤5	6–12	13–19	≤20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Miscellaneous Foods	1,587	1,565	1,290	98	48	95	1	23	10	1,511	38	9	2	173	389	103	27	1	0
Foods																			
Capsicum Peppers	2,229	2,121	511	261	367	718	27	205	32	1,516	232	42	300	215	40	858	81	5	0
Food Additives	441	403	154	35	27	149	1	33	4	298	14	7	81	51	50	55	22	0	0
Food Products	8,553	7,890	3,723	663	342	2,194	48	781	139	6,210	238	247	1,159	831	668	132	1	0	0
Other Adverse Reactions to Food	1,153	1,078	183	95	84	511	6	177	22	446	18	44	554	182	49	235	93	2	0
Category Total: Mushrooms	12,376	11,492	4,571	1,054	820	3,572	82	1,196	197	8,470	502	340	2,094	1,018	970	1,816	328	8	0
Miscellaneous Mushrooms																			
Group 1 Mushrooms: Cyclopeptides	58	56	16	1	4	31	0	2	2	38	12	0	5	38	18	12	7	3	0
Group 2 Mushrooms: Muscimol (Ibotenic Acid)	34	31	9	0	3	19	0	0	0	17	12	1	1	23	4	5	12	2	0
Group 3 Mushrooms: Monomethylhydrazine (MMH) and Histamine	26	24	2	3	2	16	0	0	1	19	3	0	2	15	7	5	3	1	0
Group 4 Mushrooms: Muscarine	36	36	1	0	2	31	0	2	0	25	5	0	6	26	1	24	2	0	0
Group 5 Mushrooms: Coprine	10	9	5	1	0	3	0	0	0	8	1	0	0	5	2	2	0	0	0
Group 6 Mushrooms: Hallucinogenics (Psilocybin and Psilocin)	446	296	23	4	96	151	1	16	5	54	231	1	8	229	10	61	128	6	0
Group 7 Mushrooms: Gastrointestinal Irritants	189	178	64	6	13	90	0	5	0	131	36	1	10	84	36	54	30	0	0
Mushrooms: Miscellaneous, Non-Toxic	119	107	50	12	4	34	0	7	0	85	5	0	16	25	26	16	3	1	0
Mushrooms: Other Potentially Toxic	148	133	45	12	11	52	0	12	1	103	6	0	23	34	37	26	9	2	0
Mushrooms: Unknown	5,070	4,911	3,229	405	226	905	23	96	27	4,187	529	13	148	1,528	1,920	630	254	19	2
Category Total: Other/Unknown Nondrug Substances	6,136	5,781	3,444	444	361	1,332	24	140	36	4,667	840	16	219	2,007	2,061	835	448	34	2
Miscellaneous Other/Unknown Nondrug Substances																			
Nondrug Substances	23,732	21,666	10,724	2,035	892	5,937	127	1,569	382	19,542	736	645	506	3,180	4,128	3,282	523	32	3
Other Non-Drug Substances	6,243	5,991	1,141	272	230	3,334	30	764	220	4,453	167	858	177	1,577	561	670	250	54	8
Unknown Substances Unlikely to Be Drug Products	29,975	27,657	11,865	2,307	1,122	9,271	157	2,333	602	23,995	903	1,503	683	4,757	4,689	3,952	773	86	11
Paints and Stripping Agents																			
Miscellaneous Paints and Stripping Agents	435	416	176	19	17	158	4	37	5	391	5	1	19	80	74	74	14	1	1
Other Types of Paint, Varnish or Lacquer	4,894	4,615	3,018	219	151	922	19	254	32	4,445	79	29	50	543	670	319	67	3	0
Unknown Types of Paint, Varnish or Lacquer	869	811	212	26	31	402	4	128	8	778	8	6	17	156	96	190	46	1	0
Paints																			
Anti-Algae Paints	18	16	1	0	2	11	0	2	0	16	0	0	0	4	3	2	1	0	0
Anti-Corrosion Paints	49	42	6	1	2	31	0	2	0	42	0	0	0	12	3	16	2	0	0
Oil-Base Paints	1,977	1,852	484	153	118	878	10	175	34	1,724	63	13	45	379	253	406	80	3	1
Water Base Paints (Acrylic, Latex, etc)	2,608	2,534	1,865	84	70	403	7	86	19	2,466	32	4	32	190	373	194	21	0	0
Wood stains	725	681	302	15	21	270	3	68	2	645	10	7	18	101	135	122	17	0	0
Stripping Agents																			
Methylene Chloride Stripping Agents	350	340	51	14	13	231	0	31	0	319	12	2	6	152	24	126	46	5	0
Other Types of Stripping Agent	486	445	90	11	19	287	1	35	2	423	8	4	8	191	38	132	78	1	0
Unknown Types of Stripping Agent	64	59	7	1	8	41	0	2	0	59	0	0	0	24	3	22	9	0	0
Category Total: Pesticides	12,475	11,811	6,212	543	452	3,634	48	820	102	11,308	217	66	195	1,832	1,672	1,603	381	14	2
Fumigants																			
Aluminum Phosphide	81	74	3	3	9	49	0	10	0	67	3	1	1	55	7	27	7	3	6
Methyl Bromide	21	18	1	0	0	17	0	0	0	18	0	0	0	10	1	4	4	0	1
Other Fumigants	42	38	4	1	1	22	0	9	1	35	0	0	3	12	5	9	1	0	0
Sulfuryl Fluoride	308	278	31	33	16	163	0	28	7	260	1	9	8	38	27	34	4	0	1
Unknown Fumigants	112	109	16	2	6	73	0	12	0	97	6	1	3	40	10	29	10	0	0

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason				Outcome								
		≤5	6–12	13–19	≤20	Unknown	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Fungicides (Non-medical)																			
80	54	15	2	4	31	1	1	1	0	51	1	0	2	21	8	15	5	0	0
	81	6	3	2	59	0	11	0	0	80	1	0	0	12	13	17	1	0	0
1	1	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0
604	474	109	24	14	270	1	50	6	455	8	2	9	72	87	73	19	2	0	0
35	23	8	3	2	9	0	1	0	22	0	0	1	4	5	4	0	0	0	0
50	31	9	1	0	19	0	2	0	28	1	1	0	9	4	6	3	0	0	0
138	132	20	7	2	90	1	11	1	131	1	0	0	24	12	18	3	0	0	0
Herbicides (Including Algaecides; Defoliants, Desiccants; Plant Growth Regulators)																			
3	3	0	0	0	3	0	0	0	3	0	0	0	0	2	0	2	0	0	0
1,828	1,557	394	58	27	896	6	157	19	1,484	22	11	35	276	315	349	36	2	0	0
447	408	99	8	4	246	2	42	7	382	9	6	11	61	103	73	13	0	1	1
3,550	3,167	645	110	72	1,954	6	355	25	3,001	40	34	79	561	624	719	82	4	4	4
1,430	1,131	249	34	30	694	2	112	10	1,071	19	14	22	224	205	272	28	1	2	2
122	105	2	0	5	80	0	14	4	94	1	3	0	54	20	24	10	3	1	1
207	145	29	6	3	91	1	13	2	139	2	0	4	41	26	35	7	0	0	0
492	409	87	30	10	227	2	45	8	369	16	9	11	107	47	83	14	1	1	1
38	22	7	2	0	12	0	1	0	19	3	0	0	3	7	3	0	0	0	0
Insecticides (Including Insect Growth Regulators; Molluscicides; Nematicides)																			
1,485	1,378	425	84	47	654	9	140	19	1,263	63	27	21	310	292	221	50	2	0	0
189	181	27	6	9	106	0	26	7	173	2	1	3	27	22	30	6	0	0	0
163	147	55	4	2	64	0	19	3	130	10	1	5	44	27	23	2	2	0	0
188	183	42	5	10	95	0	27	4	165	3	0	15	37	21	52	11	0	0	0
182	91	34	3	1	37	0	13	3	86	2	0	3	12	12	12	1	0	0	0
42	41	17	0	1	22	0	1	0	39	0	2	0	6	12	7	1	0	0	0
32	32	27	14	0	6	0	4	0	24	0	0	0	4	3	7	0	0	0	0
2,326	2,126	623	96	65	1,089	19	208	26	1,954	88	14	50	585	524	374	109	24	4	4
35	28	7	0	0	14	0	6	1	26	0	0	2	5	9	3	1	0	0	0
493	472	85	21	17	287	3	53	6	448	13	3	6	87	69	125	17	0	0	0
Organophosphate Insecticides in Combination with Non-Carbamate Insecticides																			
9,717	9,019	4,659	379	205	2,943	22	672	139	8,667	108	42	179	902	1,679	930	95	6	4	4
2	2	0	0	1	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0
5,813	5,493	1,616	387	213	2,654	26	541	56	5,039	178	29	228	1,209	620	1,398	278	9	0	0
23,081	21,732	5,487	1,113	764	11,744	80	2,232	312	19,965	715	184	795	4,091	3,014	5,713	814	28	3	3
32	31	5	0	1	15	0	10	0	28	2	0	1	7	4	9	1	0	0	0
4,848	4,408	1,073	229	164	2,216	20	616	90	3,885	144	174	146	1,238	536	897	206	16	4	4
3	3	1	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Miscellaneous Pesticides																			
17	17	8	0	1	6	0	2	0	16	0	1	0	0	4	1	0	0	0	0
6,805	6,705	5,832	155	56	511	9	119	23	6,618	36	24	20	457	1,210	175	23	0	0	0
2	2	0	0	0	2	0	0	0	2	0	0	0	2	0	1	1	0	0	0
467	446	121	33	11	218	0	56	7	422	8	4	12	68	52	97	9	0	0	0
3,960	3,893	2,012	535	184	915	13	200	34	3,553	83	43	206	363	532	1,028	76	3	0	0
1,456	1,417	1,034	110	29	197	4	33	10	1,362	10	7	38	94	225	239	17	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 Exposure	Age					Reason				Outcome					
		≤5	6–12	13–19	≥20	Unknown	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
1,202	1,180	725	63	19	268	5	1,136	27	3	13	193	307	83	27	1	0
5	4	1	0	0	2	0	4	0	0	0	1	2	1	0	0	0
122	122	76	4	2	28	0	115	5	0	2	22	30	9	1	1	0
177	167	98	13	8	34	1	159	3	1	4	31	19	26	7	0	0
1,965	1,930	1,092	69	37	506	11	1,844	54	9	19	285	473	161	30	0	0
1,198	1,132	856	25	17	172	2	1,065	49	11	4	446	433	38	4	1	0
4	3	1	1	0	1	0	3	0	0	0	0	0	0	0	0	0
2	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
4,990	4,810	3,850	143	46	575	8	4,612	106	55	22	1,356	1,260	93	18	2	1
622	599	393	31	8	119	4	38	6	4	4	107	115	36	16	0	0
48	43	6	2	3	26	0	4	2	4	1	19	15	2	3	1	0
1,746	1,602	1,029	42	30	353	7	1,368	107	89	10	585	422	64	15	2	1
196	187	143	7	2	28	1	179	5	3	0	52	54	2	0	0	0
124	117	29	7	2	64	0	108	5	2	1	43	51	18	2	1	0
83,412	77,999	33,211	3,894	2,165	30,979	266	72,871	1,983	830	1,999	14,317	13,575	13,671	2,088	115	34
Photographic Products																
Miscellaneous Photographic Products																
93	83	23	0	25	30	0	78	3	0	2	16	15	14	2	0	0
274	252	164	25	7	43	0	243	8	0	1	16	47	21	3	0	0
6	6	4	1	0	1	0	6	0	0	0	1	0	1	0	0	0
2	2	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0
375	343	191	26	32	75	0	329	11	0	3	35	62	36	5	0	0
Category Total:																
Plants																
Miscellaneous Plants																
4,902	4,812	2,428	620	195	1,223	14	4,411	169	28	194	316	849	186	22	2	0
Plants: Amygdalin and/or Cyanogenic Glycosides																
563	528	290	43	23	143	3	431	63	12	19	107	137	53	38	4	0
1,691	1,642	854	204	68	423	5	1,489	105	2	35	270	397	112	26	7	3
Plants: Cardiac Glycosides (Excluding Drugs)																
20	17	7	3	0	6	0	13	2	0	2	5	4	4	1	0	0
225	174	113	9	8	38	0	131	20	2	19	36	43	15	4	0	0
6,629	6,335	4,531	608	170	814	12	5,867	247	14	194	506	1,231	542	56	4	0
Plants: Gastrointestinal Irritants (Excluding Oxalate-Containing Plants)																
447	351	66	20	70	159	2	157	146	6	36	159	33	81	68	5	0
Plants: Hallucinogenics (Code as Street Drug Unless Plant Part Involved)																
159	147	68	19	4	47	0	127	10	0	8	49	26	39	15	1	0
Tobacco Products																
4,551	4,166	2,697	600	105	558	21	3,746	165	14	233	254	525	325	33	4	0
4,744	4,394	2,767	549	127	781	12	3,840	340	19	174	640	829	360	147	24	1
4,921	4,844	3,557	563	146	467	9	4,508	277	5	48	398	882	960	46	0	0
5,286	4,865	1,893	442	245	1,788	31	4,379	159	22	288	852	474	807	238	3	1
Plants: Skin Irritants (Excluding Oxalate-Containing Plants)																
1,787	1,746	1,111	138	33	367	1	1,578	55	7	103	138	438	109	13	0	0
467	436	105	51	18	201	2	379	45	2	8	105	122	35	7	1	0
275	262	92	17	15	119	0	205	40	10	4	105	72	41	13	2	0
9,912	9,370	6,310	1,119	247	1,270	58	8,656	399	20	260	739	1,670	725	116	5	0
Plants: Unknown Toxic Types or Unknown if Toxic																
46,579	44,089	26,889	5,005	1,474	8,404	170	39,917	2,242	163	1,625	4,679	7,732	4,394	843	62	5
Category Total:																
Polishes and Waxes																
Miscellaneous Polishes and Waxes																
363	341	201	9	10	92	3	325	9	2	4	49	63	46	3	1	0
1,307	1,254	1,050	35	19	114	2	1,224	16	11	3	97	348	163	10	1	0
1,883	1,808	1,272	56	39	340	7	1,734	40	9	22	185	351	168	28	0	0
Category Total:																
Miscellaneous Polishes and Waxes (Excluding Mineral Seal Oils)																

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. - Continued.

	No. of Case Mentions	Age										Reason				Outcome			
		No. of Single Exposure					No. of					Unint	Int	Other	Adv Rxn	Treated in Health Care Facility			
		≤5	6-12	13-19	<20	Unknown Child	Unknown Adult	Unknown Age	None	Minor	Moderate					Major	Death		
Category Total:	3,553	2,523	100	68	546	12	129	25	3,283	65	22	29	331	762	377	41	2	0	
Radiation																			
Gamma Radiation	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	
Ionizing Radiation: Type Unknown	59	7	1	0	29	0	19	2	49	0	1	5	21	6	3	1	0	0	
Radon	93	9	8	1	38	1	15	4	70	0	1	15	14	3	0	0	0	0	
Specific Nonpharmaceutical Radionuclides	86	5	2	1	22	0	21	5	43	4	5	3	30	12	7	0	0	1	
X-ray Radiation	17	1	1	1	7	0	7	0	14	0	0	3	4	3	1	0	0	0	
Miscellaneous Radiation																			
Nonpharmaceutical Radiation:	3	0	0	0	1	0	1	1	3	0	0	0	2	0	0	0	0	0	
Type Unknown																			
Non-ionizing Radiation																			
Extremely Low-frequency Radiation	3	1	0	1	1	0	0	0	3	0	0	0	3	0	0	2	0	0	
Infrared Radiation	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
Microwave Radiation	21	0	0	0	16	0	3	2	18	3	0	0	4	1	0	0	0	0	
Non-ionizing Radiation: Type Unknown	14	0	0	0	12	0	1	1	12	0	0	1	9	3	0	0	0	0	
Radio Frequency Radiation	10	0	0	0	8	0	2	0	8	0	0	1	8	0	4	1	0	0	
Ultraviolet Radiation	12	1	1	1	8	0	2	0	10	0	1	6	6	4	1	0	0	0	
Visible Light Radiation (Lasers)	7	1	1	0	5	0	0	0	6	1	0	0	2	1	0	0	0	0	
Category Total:	327	26	13	4	148	1	67	15	238	8	7	15	100	44	25	5	0	1	
Sporting Equipment																			
Miscellaneous Sporting Equipment																			
Fishing Baits	50	36	5	4	5	0	0	0	46	3	1	0	0	8	0	0	0	0	
Fishing Products, Miscellaneous	25	14	4	3	24	0	1	0	21	2	1	0	0	1	1	1	0	0	
Golf Balls (Including Liquid Center of Golf Balls)	3	0	0	1	2	0	0	0	2	1	0	0	0	0	2	0	0	0	
Gun Bluing Compounds	14	6	1	0	5	0	1	0	12	0	1	0	3	4	2	0	0	0	
Hunting Products, Miscellaneous	284	150	22	16	69	2	10	3	238	16	12	3	81	76	34	4	0	0	
Other Types of Sporting Equipment	10	3	2	0	3	0	1	1	10	0	0	0	3	0	4	0	0	0	
Unknown Types of Sporting Equipment	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	
Category Total:	387	209	34	24	87	2	13	4	330	22	15	3	88	89	43	6	0	0	
Swimming Pool/Aquarium																			
Miscellaneous Swimming Pool/Aquarium																			
Algicides	1,073	300	122	57	458	1	77	11	988	20	3	15	220	116	332	67	0	0	
Aquarium Products, Miscellaneous	1,029	738	48	26	121	3	32	5	950	11	8	4	64	220	57	2	1	0	
Bromine Shock Treatments	52	19	8	2	15	0	3	0	45	1	0	1	6	10	17	1	0	0	
Chlorine Shock Treatments	2,608	490	339	158	1,273	14	188	14	2,379	47	5	42	772	148	880	299	8	0	
Other Types of Swimming Pool or Aquarium Product	1,293	357	152	70	508	3	78	25	1,119	20	3	51	267	171	427	58	4	0	
Swimming Pool and Aquarium Test Kits	118	53	5	14	31	0	3	1	103	2	2	0	13	21	18	2	0	0	
Category Total:	6,173	1,957	674	327	2,406	21	381	56	5,584	101	21	113	1,342	686	1,731	429	13	0	
Tobacco/Nicotine/eCigarette Products																			
eCigarettes: Nicotine Containing																			
eCigarettes: Nicotine Device	255	162	10	22	42	0	11	2	208	27	1	13	83	84	39	10	2	0	
eCigarettes: Nicotine Device With Added Flavors	105	76	3	9	15	0	0	0	94	7	0	1	28	37	21	4	0	0	
eCigarettes: Nicotine Device Without Added Flavors	1,029	685	46	93	140	0	23	8	885	75	5	28	374	343	188	37	1	0	
eCigarettes: Nicotine Liquid	628	408	14	48	118	2	18	3	551	43	7	10	271	211	142	17	0	0	
eCigarettes: Nicotine Liquid With Added Flavors	292	216	10	11	47	1	3	1	271	17	0	1	90	121	66	3	1	0	
eCigarettes: Nicotine Liquid Without Added Flavors	161	109	3	8	30	1	5	1	146	7	2	2	54	60	26	6	0	0	
Miscellaneous Tobacco Products																			
Chewing Tobacco	1,535	1,388	30	24	59	4	9	0	1,482	22	5	5	317	442	415	23	1	0	
Cigarettes	6,697	6,168	43	41	225	15	35	9	6,403	69	28	34	797	2,107	943	45	2	0	
Cigs	179	130	4	7	22	0	3	1	150	7	0	10	21	52	23	5	0	0	

(continued)

Table 22A. Demographic profile of SINGLE SUBSTANCE nonpharmaceuticals exposure cases by generic category. – Continued.

No. of Case Mentions	No. of Single Exposure	Age						Reason				Outcome				
		≤20		6–12	13–19	≥20	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
		Unknown Child	Unknown Adult	Unknown Age	Unknown											
9	7	0	0	0	0	7	0	0	0	0	0	2	1	0	0	0
63	56	2	2	0	0	60	0	0	0	0	0	5	4	0	0	0
152	137	32	8	1	113	15	0	0	9	0	0	37	30	10	0	0
509	498	44	6	0	471	18	1	1	7	88	150	133	6	0	0	0
1,902	1,198	346	78	15	1,567	136	9	9	78	589	492	357	85	6	2	2
13,516	11,119	1,122	201	41	12,408	443	58	198	198	2,756	4,154	2,388	251	13	2	2
Waterproofers/Sealants																
Miscellaneous Waterproofers/Sealants																
191	85	62	8	0	167	3	3	8	8	33	35	34	11	0	0	0
81	43	25	2	2	71	0	0	4	4	19	15	17	6	0	0	0
3	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
41	19	13	4	0	37	1	0	0	0	10	7	8	0	0	0	0
316	148	102	14	2	278	4	3	12	12	62	57	59	17	0	0	0
Weapons of Mass Destruction																
Miscellaneous Weapons of Mass Destruction																
6	5	4	1	0	4	0	1	0	0	2	1	0	0	0	0	0
3	2	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0
30	29	20	0	5	7	0	21	1	1	27	5	1	21	0	0	0
206	191	107	26	2	119	15	48	2	83	35	33	33	16	2	0	0
2,387	2,198	1,018	372	67	1,314	119	432	76	868	196	365	185	41	7	7	7
60	57	28	12	1	36	2	14	2	31	31	23	11	3	0	0	0
2,696	2,485	1,178	413	75	1,483	136	517	81	1,011	260	410	225	43	7	7	7
1,068,976	954,802	269,371	52,480	8,052	883,748	39,504	11,743	15,510	166,414	152,063	158,141	31,679	2,335	315	315	315

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category

No. of Case Mentions	No. of Single Exposure	Age						Reason				Treated in Health Care Facility			Outcome			
		≤5	6-12	13-19	≤20	Unknown		Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death		
						Child	Adult											
Analgesics																		
39,059	25,264	6,487	1,050	6,319	10,621	17	645	125	12,168	12,390	15	374	15,472	7,226	3,940	2,240	625	63
19,622	17,879	16,320	1,203	158	164	13	15	6	17,525	251	7	70	2,529	3,954	280	54	13	0
10,483	6,211	1,866	274	1,371	2,512	12	139	37	3,059	2,903	6	85	3,824	1,551	917	627	173	24
5,812	3,235	794	116	1,223	1,039	1	47	15	1,189	1,928	5	67	2,182	805	845	451	48	2
42	32	25	6	1	0	0	0	0	31	0	0	1	3	9	1	0	0	0
3,782	1,742	246	68	315	1,024	2	76	11	696	871	0	147	1,045	433	383	172	26	0
6,908	4,070	593	93	828	2,412	1	114	29	1,146	2,822	1	43	2,999	772	974	949	136	11
15,202	6,431	1,047	216	837	4,009	12	259	51	2,934	3,064	16	305	3,766	1,696	1,379	659	149	15
376	183	31	4	15	124	0	8	1	72	94	1	11	124	47	41	27	6	4
7,611	3,282	519	68	282	2,216	2	165	30	1,334	1,658	14	195	2,150	772	767	509	123	5
55	26	5	1	3	14	0	2	1	11	12	1	2	14	8	4	1	1	0
5,562	3,175	1,355	138	645	982	0	47	8	1,764	1,322	3	50	1,752	809	467	437	47	6
689	372	230	31	36	67	0	8	0	280	82	0	7	131	102	33	22	1	0
11,838	5,596	1,800	258	1,136	2,272	0	101	29	2,557	2,763	6	106	3,521	1,287	918	1,099	152	17
1,240	840	243	55	85	434	0	19	4	432	362	1	29	458	160	168	138	25	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0
49	25	7	0	1	17	0	0	0	7	15	0	2	17	5	3	4	3	0
1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
1	0	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	0	1	0	0	1	0	1	0	0	0
202	154	88	4	11	47	2	2	0	130	12	0	11	39	31	14	10	0	0
832	578	220	20	65	244	1	23	5	350	202	2	21	231	106	126	52	7	0
1,084	897	613	32	31	204	1	16	0	800	47	0	48	225	278	79	32	2	0
1	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0
179	75	14	1	21	27	0	7	5	24	42	1	6	44	16	12	12	0	1
356	245	50	2	8	168	1	16	0	185	30	1	24	124	61	41	31	3	3
772	382	124	9	18	195	1	32	3	341	28	0	12	62	93	13	6	0	0
81,129	61,547	41,138	3,481	8,069	7,924	49	687	199	49,029	11,862	20	490	14,318	14,024	4,258	1,007	88	4
2,737	1,706	374	43	327	898	0	57	7	844	835	0	16	897	347	335	239	22	0
86	46	7	5	8	22	1	2	1	25	18	0	2	2	11	12	5	1	0
416	230	68	10	19	117	0	14	2	148	56	0	24	82	65	29	5	0	0
39	16	7	1	5	3	0	0	0	11	5	0	0	8	8	2	0	0	0
13,321	7,501	2,361	270	1,866	2,635	8	309	52	4,326	2,928	2	211	3,092	2,019	1,073	245	9	1
7,392	3,913	1,362	180	306	1,814	7	215	29	3,168	576	3	148	902	970	319	54	4	0
8	6	5	0	0	1	0	0	0	5	0	0	1	2	2	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3,885	2,243	1,068	36	72	915	3	116	33	1,358	649	58	131	1,742	374	665	442	67	1

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age						Reason				Treated in Health Facility				Outcome			
		≤5	6–12	13–19	≤20	Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Care	None	Minor	Moderate	Major	Death	
54	34	8	0	2	20	0	3	1	24	9	0	1	19	3	8	3	0	0	
1,652	1,107	352	143	109	458	1	39	5	872	183	5	35	304	268	123	38	1	1	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1,780	793	58	6	32	648	0	45	4	225	496	12	38	588	96	116	193	121	41	
1,810	740	153	42	67	405	2	59	12	432	231	2	52	311	158	125	66	6	1	
1,205	468	41	11	17	358	0	36	5	244	182	3	30	275	90	102	72	16	2	
10	5	1	0	0	4	0	0	0	3	1	0	1	3	1	1	1	0	0	
85	34	10	0	1	19	0	4	0	17	12	0	5	22	8	8	3	2	0	
2,611	1,054	173	19	39	764	2	47	10	426	465	39	69	862	143	178	304	149	16	
2,959	1,352	173	11	54	996	0	106	12	755	493	9	66	838	310	211	207	66	16	
17	11	1	1	0	9	0	0	0	4	2	0	0	5	10	0	4	0	0	
2,525	1,014	65	2	40	815	2	72	18	179	660	72	37	866	72	143	333	215	25	
7,437	3,168	595	131	197	2,034	6	172	33	1,576	1,328	31	150	1,974	621	679	491	177	19	
387	164	16	2	6	123	1	15	1	57	94	2	9	111	29	37	33	11	0	
24	16	2	0	2	12	0	0	0	7	7	0	2	12	2	5	4	0	0	
15	2	1	0	1	0	0	0	0	0	0	0	0	2	0	1	1	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
274	146	13	5	7	114	0	7	0	81	44	2	13	89	33	32	17	2	0	
10,932	4,903	907	120	525	3,128	4	193	26	2,153	2,390	33	249	3,294	1,249	1,106	765	152	5	
6,729	4,345	1,547	169	1,162	1,346	3	91	27	2,211	2,000	1	110	2,253	1,030	913	464	18	0	
205	136	37	4	13	80	0	2	0	59	67	1	7	80	19	23	34	4	0	
338	167	64	18	19	60	0	6	0	130	21	0	15	58	50	26	8	0	0	
947	503	152	35	66	224	1	21	4	352	84	0	65	194	137	67	48	1	0	
282,784	178,069	83,438	8,394	26,441	54,740	156	4,059	841	115,759	56,598	375	3,598	73,949	42,362	22,006	12,618	2,672	283	
259	205	18	26	34	114	1	11	1	62	110	2	23	141	24	46	47	5	0	
98	81	8	2	4	50	1	15	1	70	8	0	3	43	8	23	9	1	1	
1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
31	26	23	1	0	2	0	0	0	24	0	0	2	7	10	0	0	0	0	
1,636	1,410	536	80	82	593	2	99	18	1,135	95	8	157	348	318	197	71	13	1	
3,450	3,232	1,991	152	112	822	8	137	10	2,838	130	13	244	487	828	362	81	27	0	
250	129	11	3	12	90	0	11	2	40	70	6	11	110	4	24	53	12	0	
27	20	7	0	0	9	0	4	0	17	0	0	3	3	7	3	0	0	0	
6	6	2	0	1	1	0	1	1	2	0	2	1	2	1	1	1	0	0	
5,758	5,110	2,597	264	245	1,681	12	278	33	4,188	413	31	445	1,141	1,200	656	262	58	2	
6,761	4,394	232	58	108	3,470	6	487	33	3,958	285	13	110	583	593	216	167	12	0	
6,761	4,394	232	58	108	3,470	6	487	33	3,958	285	13	110	583	593	216	167	12	0	
5	5	0	0	0	5	0	0	0	4	0	0	1	4	1	1	1	0	0	
245	195	29	7	3	132	1	21	2	165	13	1	15	78	35	10	22	3	0	

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age						Reason				Treated in Health Facility			Outcome				
		≤5	6–12	13–19	≤20	Child	Unknown	Unknown	Adult	Age	Unint	Int	Other	Adv Rxn	Care	None	Minor	Moderate	Major
2,831	1,051	242	14	13	697	1	81	3	972	48	0	29	198	252	26	16	5	0	0
3,965	2,150	356	13	12	1,602	4	147	16	1,923	132	2	81	449	439	52	55	11	0	0
12	9	3	0	1	4	0	1	0	4	2	1	1	4	1	0	0	0	0	0
2,604	1,251	214	9	24	921	2	78	3	1,052	153	0	31	383	206	58	99	12	2	2
9,662	4,661	844	43	53	3,361	8	328	24	4,120	348	4	158	1,116	934	147	194	31	2	2
Category Total:																			
Anticonvulsants																			
Anticonvulsants: Carbamazepine and Analogs																			
3,447	1,674	179	38	109	1,285	0	55	8	643	793	3	172	1,225	299	438	401	59	1	1
4,171	1,813	359	244	440	736	2	26	6	976	782	1	43	1,057	413	475	234	27	0	0
Anticonvulsants: Gamma Aminobutyric Acid and Analogs																			
22,088	7,574	1,239	153	528	5,282	2	305	65	3,317	3,860	32	229	4,520	1,929	1,823	726	83	7	7
3,280	1,262	269	18	89	821	1	53	11	601	579	17	41	751	297	289	184	21	0	0
Other Types of Gamma Aminobutyric Acid Anticonvulsant																			
Anticonvulsants: Hydantoins																			
7	5	1	1	0	3	0	0	0	4	0	0	1	4	1	0	2	1	0	0
2,225	1,456	67	10	23	1,306	2	38	10	527	351	1	472	1,198	181	438	414	59	2	2
Phenytoin																			
Miscellaneous Anticonvulsants																			
61	27	11	3	1	10	0	1	1	26	1	0	0	10	5	3	1	1	0	0
10,243	3,952	544	198	726	2,305	1	151	27	2,339	1,427	4	149	2,004	666	930	567	71	1	1
5,128	2,603	918	261	248	1,102	2	69	3	2,056	477	2	50	795	705	314	95	10	0	0
1,079	385	82	31	32	224	0	11	5	301	62	0	16	146	97	49	41	9	0	0
Other Types of Anticonvulsant (Excluding Barbiturates)																			
360	117	9	2	2	100	0	4	0	83	16	1	17	52	19	28	16	0	0	0
166	67	30	14	10	0	0	0	0	107	12	0	2	38	45	13	3	0	0	0
4,870	1,798	452	188	420	693	1	38	6	971	744	4	66	1,040	529	371	214	17	0	0
Unknown Types of Anticonvulsant (Excluding Barbiturates)																			
7,923	2,963	276	142	415	2,022	3	88	17	1,182	1,211	3	413	2,016	612	659	536	81	4	4
647	313	98	30	41	128	0	14	2	264	36	0	9	77	83	37	10	2	0	0
65,701	26,066	4,572	1,350	3,088	16,027	14	854	161	13,399	10,352	68	1,680	14,934	5,881	5,867	3,444	441	15	15
Category Total: Antidepressants																			
Lithium Salts																			
7,222	3,827	110	73	434	3,098	6	84	22	948	1,344	9	1,291	3,271	572	906	1,355	180	2	2
Lithium																			
Miscellaneous Antidepressants																			
68	15	2	0	6	4	0	0	3	3	9	0	1	12	5	4	1	0	0	0
14,204	6,531	774	183	1,211	4,078	2	250	33	3,421	2,893	6	155	4,382	1,284	1,042	1,619	442	8	8
365	142	6	3	29	103	0	1	0	27	100	8	4	121	25	46	36	5	1	1
21,330	8,027	589	230	1,767	5,187	2	204	48	1,842	5,998	8	102	6,358	1,644	2,786	1,625	73	1	1
Trazodone																			
Monoamine Oxidase Inhibitors (MAOI)																			
1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
87	39	2	0	0	33	0	3	1	34	2	0	3	10	12	1	5	1	0	0
Other Types of Monoamine Oxidase Inhibitor (MAOI)																			
27	12	1	0	0	10	0	1	0	6	3	0	3	9	2	3	3	0	0	0
35	15	0	0	0	14	0	1	0	5	5	0	4	6	1	5	0	1	0	0
44	19	1	0	0	16	0	2	0	7	0	0	3	14	1	2	8	0	0	0
Tranylcypromine																			
Selective Serotonin Reuptake Inhibitors (SSRI)																			
8,533	3,354	734	161	928	1,413	1	101	16	1,531	1,712	7	81	2,000	950	664	460	62	1	1
8,172	3,710	663	202	1,384	1,345	1	95	20	1,575	1,981	9	124	2,294	1,085	742	511	24	0	0
13,048	5,248	851	371	2,388	1,502	2	99	35	2,027	3,109	6	74	3,367	1,788	1,113	445	32	2	2
490	156	13	7	39	89	1	6	1	93	48	2	12	63	34	27	14	2	0	0
4,757	1,989	494	90	643	697	3	45	17	921	1,004	0	54	1,236	617	472	208	12	0	0
Other Types of Selective Serotonin Reuptake Inhibitor (SSRI)																			
3,514	1,417	317	49	275	709	1	53	13	697	654	11	43	811	368	307	169	4	0	0
18,740	8,945	2,115	477	3,128	2,960	6	208	51	3,974	4,656	13	242	5,436	2,376	2,217	1,082	31	2	2
Paroxetine																			
Serrtraline																			
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)																			
5,431	1,887	498	62	242	988	1	82	14	1,090	673	10	105	974	476	396	191	11	0	0
Duloxetine																			

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Treated in Health Facility		Outcome					
		≤5	6–12	13–19	≥20	Child	Adult	Unknown	Unknow	Unknow	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
30	13	2	0	0	10	0	1	0	3	8	3	0	1	1	1	2	1	0	0	
624	260	72	16	44	119	0	9	0	69	168	69	1	18	132	79	45	32	1	0	
6,611	2,543	519	64	431	1,423	2	85	19	1,313	1,107	13	96	1,582	667	522	396	54	4	0	
6	3	0	0	1	1	0	0	1	2	2	1	0	0	1	1	1	0	0	0	
4,842	1,462	190	52	238	922	1	47	12	500	890	1	54	1,020	323	452	229	13	0	0	
6,005	2,732	336	108	511	1,694	4	61	18	928	1,643	4	86	2,075	418	604	819	246	8	0	
11	7	0	0	1	6	0	0	0	2	5	0	0	5	0	2	2	1	0	0	
216	108	11	2	10	77	0	7	1	64	34	0	9	56	24	17	16	4	0	0	
50	23	3	1	2	16	0	1	0	12	2	0	16	5	5	3	0	0	0	0	
1,585	631	50	25	46	494	0	9	7	187	408	1	22	482	91	139	185	58	0	0	
245	116	29	16	19	47	0	4	1	66	35	1	11	66	26	28	17	3	0	0	
111	29	0	1	2	26	0	0	2	6	22	0	1	22	3	5	11	3	0	0	
1,192	482	58	11	66	326	0	19	2	223	224	1	26	295	77	110	91	26	1	0	
447	181	17	5	17	138	0	2	2	34	103	10	10	156	21	27	64	21	3	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	4	0	0	0	4	0	0	0	2	2	0	0	2	0	1	0	1	0	0	
15	2	1	0	0	1	0	0	0	1	1	0	0	2	1	1	0	0	0	0	
14	3	0	0	0	3	0	0	0	0	1	0	0	3	0	0	1	0	0	0	
3	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
128,088	53,954	8,459	2,209	13,862	27,554	33	1,480	337	21,718	28,758	121	2,637	36,282	12,977	12,695	9,600	1,314	33	0	
8,786	6,238	4,647	249	221	954	4	155	8	5,870	266	1	93	520	1,365	224	24	0	0	0	
26,550	19,152	10,459	1,249	2,466	4,619	18	276	65	13,147	5,568	18	275	7,532	4,052	2,759	2,353	262	5	0	
1,354	838	280	53	160	322	2	15	6	413	393	1	22	464	156	150	176	28	3	0	
17,526	11,746	5,427	755	1,950	3,373	5	185	51	7,070	4,381	9	183	5,488	2,390	1,966	1,909	240	10	0	
55,617	38,178	21,622	4,971	3,566	7,175	49	687	108	32,138	5,442	19	446	7,442	8,666	2,742	1,110	72	3	0	
109,833	76,152	42,435	7,277	8,363	16,443	78	1,318	238	58,638	16,050	48	1,019	21,446	16,629	7,841	5,572	602	21	0	
22	20	11	2	1	5	0	1	0	20	0	0	0	0	3	0	0	0	0	0	
30	17	0	0	1	13	1	1	1	8	6	0	0	11	1	5	2	1	0	0	
1,848	1,727	940	161	36	485	7	86	12	1,578	70	4	69	232	430	153	25	1	1	0	
188	176	113	11	3	40	0	8	1	165	9	0	2	20	47	14	1	0	0	0	
15	14	7	0	0	5	0	2	0	14	0	0	0	0	1	1	0	0	0	0	
30,569	24,109	11,034	2,323	1,612	7,794	33	1,179	134	20,384	1,426	14	2,220	3,345	3,894	1,770	324	22	5	0	
5,234	5,009	3,497	224	95	923	10	229	31	4,818	60	9	118	170	725	205	13	0	0	0	
276	193	91	14	14	51	0	18	5	150	14	0	28	24	20	19	1	0	0	0	
1,183	956	445	55	46	332	1	50	7	814	28	3	91	125	168	74	9	4	0	0	
6,875	6,540	4,312	224	112	1,504	16	341	31	6,283	60	14	170	405	948	435	34	0	0	0	
25	22	6	2	1	12	0	1	0	18	1	0	3	6	0	4	2	0	0	0	
850	499	122	51	43	261	1	19	2	398	57	0	43	197	128	62	50	8	1	0	
1,035	609	140	7	52	349	1	53	7	476	50	0	82	105	110	56	17	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 Exposure	Age							Unknown				Reason			Treated in Health Care Facility				Outcome				
		≤5	6–12	13–19	≤20	Child	Adult	Age	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death						
27	22	10	2	2	8	0	0	0	0	0	0	0	22	0	0	0	0	7	6	1	0	0	0	
135	93	13	9	19	50	0	1	1	1	42	21	0	25	59	8	6	20	17	0	0	0	0	0	
24	7	1	0	1	5	0	0	0	0	5	0	0	2	2	1	0	2	0	0	0	0	0	0	
71	47	11	0	2	30	0	4	0	0	34	4	0	8	14	8	9	2	1	0	0	0	0	0	
311	101	20	14	18	47	0	2	0	0	76	18	1	6	38	23	6	13	2	1	0	0	0	0	
793	433	58	4	22	296	0	48	5	5	339	77	0	16	132	69	47	21	1	0	0	0	0	0	
846	762	254	187	89	193	2	32	5	673	9	0	0	77	77	125	48	16	1	0	0	0	0	0	
1,335	956	262	22	45	550	2	65	10	812	78	0	0	62	166	199	72	24	4	0	0	0	0	0	
139	135	72	10	2	38	0	12	1	129	1	0	4	5	26	7	1	0	0	0	0	0	0	0	
496	314	111	15	20	151	1	16	0	265	33	0	16	58	62	21	2	0	0	0	0	0	0	0	
138	133	76	2	2	40	0	12	1	125	3	0	5	15	37	9	0	1	0	0	0	0	0	0	
13	8	3	0	1	2	0	0	2	5	1	0	2	2	2	0	1	0	0	0	0	0	0	0	
52,478	42,882	21,609	3,339	2,239	13,184	75	2,180	256	37,653	2,026	45	3,049	5,215	7,041	3,024	580	64	8	0	0	0	0	0	
2,252	1,704	296	50	56	1,136	2	144	20	1,536	57	3	101	581	357	176	69	18	6	0	0	0	0	0	
2,252	1,704	296	50	56	1,136	2	144	20	1,536	57	3	101	581	357	176	69	18	6	0	0	0	0	0	
4,218	3,781	2,037	627	292	697	5	105	18	3,143	440	8	177	537	712	481	224	5	0	0	0	0	0	0	
109	73	7	0	4	60	0	2	0	45	6	0	20	37	16	13	19	3	0	0	0	0	0	0	
6,557	4,758	3,258	802	190	429	3	71	5	4,519	211	0	17	527	1,070	98	9	1	0	0	0	0	0	0	
4,531	4,997	2,079	1,134	196	942	11	123	12	4,371	93	6	20	1,210	291	1,988	346	6	0	0	0	0	0	0	
316	223	63	22	6	118	0	13	1	178	14	0	29	65	43	26	17	5	0	0	0	0	0	0	
1,062	872	141	100	41	509	1	72	8	768	67	2	32	112	140	77	51	2	0	0	0	0	0	0	
3	2	0	1	1	1	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	
16,796	14,206	7,585	2,686	730	2,755	20	386	44	13,024	832	17	295	2,488	2,272	2,685	666	22	0	0	0	0	0	0	
1,283	699	277	43	31	331	0	15	2	624	66	0	9	221	236	38	15	0	0	0	0	0	0	0	
2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15,170	6,111	2,435	310	235	2,914	4	195	18	5,258	764	5	65	1,985	2,183	247	207	5	2	0	0	0	0	0	
1,102	605	128	17	24	407	0	26	3	571	27	0	5	110	170	33	7	0	0	0	0	0	0	0	
77	35	8	2	1	20	0	4	0	33	2	0	0	10	16	0	1	0	0	0	0	0	0	0	
7,850	3,547	862	105	88	2,305	3	172	12	3,249	253	0	42	798	1,062	163	64	2	0	0	0	0	0	0	
31	14	6	0	0	7	0	1	0	14	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
12,214	4,411	1,733	144	128	2,138	5	250	13	4,079	225	2	101	566	814	128	26	1	0	0	0	0	0	0	
4,946	2,757	782	1,144	494	302	1	28	6	2,235	434	4	63	1,505	867	414	484	19	1	0	0	0	0	0	
6	5	3	0	0	2	0	0	0	4	0	0	0	3	3	0	0	0	0	0	0	0	0	0	
205	101	23	7	2	61	0	8	0	96	5	0	0	25	36	3	5	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	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 Exposure	Age					Reason					Treated in Health Care Facility			Outcome		
		≤5	6–12	13–19	20–64	≥65	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death		
26,225	10,552	2,709	370	486	419	40	8,411	1,841	7	229	4,441	3,770	628	1,042	109	18	
217	101	16	9	6	67	0	95	6	0	0	35	37	7	4	1	0	
98	57	11	3	1	38	0	52	4	0	1	19	17	5	0	0	0	
19	9	4	0	0	4	0	7	1	0	1	2	3	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
58	31	2	1	0	27	0	29	2	0	0	10	9	2	0	0	0	
13,468	5,396	1,296	163	200	3,483	2	4,633	623	2	113	2,720	2,116	367	450	85	37	
5,219	1,568	249	31	177	1,016	3	1,003	497	0	62	668	401	241	140	5	0	
2,086	1,174	146	17	13	945	0	1,077	35	1	56	548	432	62	114	27	3	
1,851	1,234	69	14	9	1,124	0	482	47	0	631	1,010	136	104	519	126	25	
10,463	5,295	1,672	1,193	992	1,368	5	3,361	1,760	19	92	3,805	958	1,063	1,845	160	2	
1,332	468	113	9	27	308	1	362	91	0	11	225	149	59	55	1	0	
856	265	50	3	5	189	1	233	23	0	9	80	69	25	21	1	0	
969	582	317	18	12	207	1	482	79	2	14	224	237	42	17	1	0	
18	15	1	0	0	14	0	7	0	0	8	12	2	0	1	2	0	
563	244	56	6	8	158	0	219	19	0	6	76	63	16	16	1	0	
1,040	688	272	26	24	321	3	526	80	4	74	273	201	57	51	4	0	
46	12	2	0	0	8	0	5	5	1	0	9	3	0	0	0	0	
15	8	1	1	0	4	0	6	1	0	0	4	0	1	1	0	0	
262	222	75	37	12	86	0	203	8	0	10	87	18	77	29	2	0	
107,673	46,207	13,318	3,673	2,975	24,378	34	37,347	6,898	47	1,602	19,471	14,010	3,782	5,114	552	88	
Cold and Cough Preparations																	
Acetaminophen and Acetylsalicylic Acid with Decongestant and/or Antihistamine																	
17	8	2	1	3	1	0	2	5	0	1	5	1	0	3	0	0	
Acetaminophen and Acetylsalicylic Acid with Antihistamine without Opioids																	
22	18	6	2	5	5	0	12	4	0	2	8	4	1	1	1	0	
Acetaminophen and Acetylsalicylic Acid with Decongestant and Antihistamine without Opioids																	
6	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Antihistamine																	
17	11	9	1	0	1	0	8	2	0	1	5	4	0	1	0	0	
18	13	8	1	2	1	0	11	2	0	0	2	2	1	0	0	0	
9	7	5	2	0	0	0	6	1	0	0	1	1	0	0	0	0	
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Decongestant and Antihistamine																	
1	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	
Opioid with Decongestant																	
2	2	2	0	0	0	0	2	0	0	0	0	1	0	0	0	0	
Acetaminophen, Acetylsalicylic Acid, and Opioid with Decongestant and Antihistamine																	
4	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	
Obsolete: Acetaminophen and Acetylsalicylic Acid with Decongestant and/or Antihistamine combinations without Phenylpropanolamine or Opioids																	
5	3	0	2	1	0	0	3	0	0	0	0	0	0	0	0	0	
Obsolete: Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine																	
2	2	0	0	0	2	0	1	1	0	0	1	0	1	0	0	0	
Obsolete: Acetaminophen, Acetylsalicylic Acid, and Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine																	

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age						Reason				Treated in Health Care Facility			Outcome				
		≤5	6–12	13–19	≤20	Child	Adult	Unknown	Age	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death	
Acetaminophen with Decongestant and/or Antihistamine	5	4	3	0	0	1	0	0	0	0	3	1	0	0	1	0	0	0	0
Acetaminophen and Codeine with Antihistamine	2	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Acetaminophen and Codeine with Decongestant	12	3	1	0	1	1	0	0	0	2	1	0	0	2	2	0	1	0	0
Acetaminophen and Codeine with Decongestant and Antihistamine	4,869	2,313	797	152	465	821	2	58	18	1,235	986	1	72	1,075	468	408	212	13	0
Acetaminophen and Dextromethorphan with Antihistamine	4,199	2,220	1,173	175	291	506	2	64	9	1,719	366	1	116	531	514	230	72	7	0
Acetaminophen and Dextromethorphan with Decongestant	3,099	1,715	840	169	256	421	2	20	7	1,172	473	1	51	614	376	227	110	7	0
Acetaminophen and Other Opioid with Decongestant and Antihistamine	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acetaminophen and Other Opioid with Decongestant	3	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acetaminophen and Other Opioid with Decongestant and Antihistamine	608	423	92	21	111	190	1	6	2	146	262	1	7	286	77	91	99	3	1
Acetaminophen with Decongestant and Antihistamine without Opioids	1,135	709	411	68	77	141	1	10	1	557	112	0	30	187	157	80	43	8	0
Acetaminophen with Decongestant without Opioids	1,037	608	333	52	60	149	0	13	1	482	92	1	29	118	125	46	24	1	0
Obsolete: Acetaminophen and Codeine Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	7	5	3	1	0	1	0	0	0	4	0	0	1	1	1	0	0	0	0
Obsolete: Acetaminophen and Codeine Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	47	38	18	7	7	6	0	0	0	27	10	0	1	13	3	7	2	0	0
Obsolete: Acetaminophen and Other Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	4	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0
Obsolete: Acetaminophen with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids	13	7	4	0	0	3	0	0	0	5	0	0	1	2	1	0	0	0	0
Acetylsalicylic Acid with Decongestant and/or Antihistamine	1	1	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0
Acetylsalicylic Acid and Codeine with Antihistamine	1	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0
Acetylsalicylic Acid and Codeine with Decongestant and Antihistamine	4	2	2	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0
Acetylsalicylic Acid and Dextromethorphan with Antihistamine	9	8	5	2	1	0	0	0	0	7	1	0	0	1	0	1	0	0	0
Acetylsalicylic Acid and Dextromethorphan with Decongestant	31	19	15	0	1	3	0	0	0	18	0	0	1	1	6	1	0	0	0
Acetylsalicylic Acid and Dextromethorphan with Decongestant and Antihistamine	8	6	1	0	2	3	0	0	0	2	4	0	0	5	1	0	3	0	0
Acetylsalicylic Acid with Antihistamine without Opioids	143	101	67	13	6	10	0	4	1	88	1	0	10	3	22	8	0	0	0
Acetylsalicylic Acid with Decongestant and Antihistamine without Opioids	3	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid with Decongestant without Opioids	3	3	0	1	1	1	0	0	0	1	0	0	2	0	0	1	0	0	0
Obsolete: Acetylsalicylic Acid and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1	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 Exposure	Age					Unknown				Reason			Treated in Health Care Facility		Outcome				
		≤5	6–12	13–19	≥20	Child	Adult	Age	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Obsolete: Acetylsalicylic Acid with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids																				
84	65	29	9	5	21	0	1	0	11	0	2	51	0	2	21	17	15	2	1	0
3,040	2,569	1,878	405	99	159	3	18	7	2,400	114	1	2,400	1	49	389	601	261	58	4	0
15	9	1	1	0	7	0	0	0	7	1	0	7	1	1	2	1	1	0	0	0
4,141	3,308	2,155	417	181	509	1	40	5	3,058	175	1	65	1	65	535	746	293	80	8	0
614	441	123	40	53	207	0	16	2	314	105	1	16	1	16	141	103	84	32	1	0
3,924	3,051	685	204	867	1,249	2	37	7	1,087	1,892	4	39	4	39	1,989	434	686	927	49	1
172	135	31	10	9	78	1	6	0	99	28	0	7	42	7	42	33	27	5	2	0
1,799	1,060	590	44	112	293	1	17	3	762	267	2	18	437	2	18	327	148	74	12	2
46	31	11	4	3	11	0	2	0	25	2	1	3	3	3	5	3	0	0	0	0
1,882	1,471	970	233	71	184	2	10	1	1,295	129	2	33	238	362	103	48	1	0	0	0
25	14	7	1	3	3	0	0	0	11	2	0	0	8	4	1	2	0	0	0	0
4,321	2,900	1,509	202	267	810	2	104	6	2,531	254	1	109	427	646	219	75	5	0	0	0
4	3	1	1	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
108	90	22	6	15	45	0	2	0	32	56	0	0	66	21	25	24	0	0	0	0
Obsolete: Antihistamine and/or Decongestant with Dextromethorphan without Phenylpropanolamine																				
53	45	31	10	1	3	0	0	0	45	0	0	0	7	18	2	0	0	0	0	0
Obsolete: Antihistamine and/or Decongestant without Phenylpropanolamine and Opioid																				
Miscellaneous Cold and Cough Preparations																				
132	78	39	11	11	14	1	2	0	56	20	0	1	23	18	9	6	0	0	0	0
Acetaminophen in Combination with Dextromethorphan (Without Decongestants or Antihistamines)																				
3,269	2,263	1,623	116	152	319	1	43	9	1,845	331	5	65	478	425	194	103	9	0	0	0
Cough and Cold Preparations (Not Otherwise Classified)																				
11,931	8,986	3,351	1,177	1,274	2,969	5	186	24	5,869	2,743	9	285	3,364	1,457	1,506	1,219	61	0	0	0
Dextromethorphan Preparations (Not Otherwise Classified)																				
503	389	226	57	26	78	0	2	0	306	62	0	15	102	85	38	30	0	0	0	0
2,069	1,349	574	81	99	489	1	97	8	1,165	132	0	49	154	205	48	18	1	0	0	0
1,824	1,247	486	87	149	470	2	44	9	979	198	0	67	533	412	202	31	6	0	0	0
Non-Narcotic Antitussives Excluding Dextromethorphan																				
1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Obsolete: Acetylsalicylic Acid in Combination with Dextromethorphan																				
14	11	3	1	3	4	0	0	0	10	1	0	0	2	6	1	0	0	0	0	0
Obsolete: Expectorants or Antitussives (Without Narcotics or Narcotic Analogs)																				
1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Obsolete: Non-Acetylsalicylic Acid Salicylates in Combination with Dextromethorphan																				
244	99	31	5	23	34	0	3	3	40	53	0	4	66	18	23	13	2	0	0	0
Obsolete: Unknown Types of Cough and Cold Preparation																				
Non-Acetylsalicylic Acid Salicylates with Decongestant and/or Antihistamine																				
5	5	4	0	0	1	0	0	0	4	1	0	0	1	1	1	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Antihistamine																				
4	3	1	0	0	2	0	0	0	2	1	0	0	1	2	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Decongestant																				
1	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Decongestant and Antihistamine																				
1	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Opioid with Decongestant																				
1	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Opioid with Decongestant and Antihistamine																				

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Treated in Health Care Facility			Outcome		
		≤5	6–12	13–19	<20	Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
	4	3	1	0	0	0	0	0	4	0	0	0	0	3	0	0	0	0
	2	2	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0
	2	2	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
	25	12	2	5	6	0	0	0	14	10	0	1	11	7	3	3	1	0
	7	6	0	0	0	0	1	0	7	0	0	0	1	2	0	0	0	0
	18	7	4	1	6	0	0	0	13	2	0	3	6	3	1	0	0	0
	30	19	4	3	4	0	0	0	25	3	0	0	3	2	3	1	0	0
	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
	13	8	1	3	1	0	0	0	11	2	0	0	3	3	1	1	0	0
	4	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
	4	2	0	1	1	0	0	0	4	0	0	0	0	1	0	0	0	0
	131	89	21	5	16	0	0	0	117	11	0	3	22	20	11	2	0	0
	4	3	1	0	0	0	0	0	4	0	0	0	1	2	0	0	0	0
	129	88	21	11	8	0	1	0	114	14	0	0	38	41	11	2	0	0
	195	100	1	5	80	0	9	0	194	1	0	0	12	65	2	3	0	0
	38,457	18,537	3,848	4,748	10,353	30	818	123	28,042	8,948	32	1,160	11,994	7,869	5,027	3,330	203	4
	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	298	56	15	11	173	2	32	9	252	4	0	41	125	58	52	12	4	0
	4	0	0	1	3	0	0	0	2	0	0	2	3	0	1	0	0	0
	303	57	15	12	176	2	32	9	255	4	0	43	128	58	53	12	4	0
	124	75	5	12	30	0	2	0	98	7	0	19	38	29	11	10	1	0
	464	268	23	21	133	1	15	3	370	37	1	54	86	86	45	16	2	0
	19	8	1	2	6	0	2	0	16	2	0	1	3	2	2	0	0	0
	102	67	14	2	14	0	4	1	91	6	0	5	13	24	6	0	0	0
	52	23	5	2	18	0	4	0	38	8	0	6	9	10	4	3	0	0
	50	27	1	2	18	0	0	2	37	6	0	6	13	12	4	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 Exposure	Age					Reason				Treated in Health Facility		Outcome					
		≤5	6–12	13–19	≤20	Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
106	75	17	2	4	48	0	2	2	28	26	0	19	40	11	16	9	1	0
16	12	1	0	2	8	0	1	0	3	4	0	4	8	0	4	4	0	0
48	40	21	2	2	14	0	1	0	27	7	0	6	17	6	6	4	1	0
66	49	24	0	6	17	0	2	0	29	16	0	3	22	10	9	10	1	0
1,584	1,271	766	74	65	335	3	23	5	934	134	5	191	316	239	141	87	4	0
3,208	2,465	1,394	101	89	710	7	152	12	2,025	161	7	261	369	418	253	50	5	1
219	140	84	4	13	34	0	4	1	111	18	0	10	22	35	10	2	0	0
215	100	28	10	15	44	0	3	0	57	25	0	16	35	22	14	3	0	0
140	99	15	3	4	72	0	5	0	28	18	0	52	70	9	15	41	1	0
107	92	43	8	6	34	0	1	0	61	5	1	23	46	14	15	7	0	0
10	7	4	0	0	3	0	0	0	6	0	1	0	3	3	1	1	0	0
8	8	4	2	0	2	0	0	0	4	0	0	4	5	1	1	3	0	0
83	64	31	5	2	25	0	1	0	44	12	0	8	29	5	10	6	3	0
1,193	966	572	79	109	186	0	19	1	708	137	2	118	210	186	167	69	0	0
886	665	427	65	54	108	1	8	2	522	81	4	53	99	118	78	29	0	0
150	39	8	0	10	17	0	4	0	10	18	0	9	15	4	8	9	0	0
2	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
26	25	17	3	1	4	0	0	0	21	2	0	2	2	5	2	0	0	0
464	335	157	42	56	67	1	10	2	221	64	0	45	91	56	74	28	0	1
293	230	110	12	27	75	0	6	0	136	41	0	50	96	46	50	24	2	0
123	95	62	2	2	27	0	2	0	74	6	1	14	20	20	4	6	0	0
48	40	29	3	1	5	0	1	1	37	1	0	2	4	2	3	1	0	0
27,799	23,627	18,611	2,505	1,393	944	25	113	36	21,385	2,022	17	136	3,319	5,071	2,272	52	1	1
59	48	24	1	3	17	0	2	1	34	5	0	7	9	9	2	2	1	0
8,603	8,034	7,117	322	86	420	12	66	11	7,758	92	5	166	628	1,393	251	33	7	0
1,938	1,553	914	92	62	415	1	58	11	1,181	80	4	270	340	285	177	65	13	0
358	347	73	61	41	126	9	36	1	334	2	3	6	68	69	80	6	0	0
2	2	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
591	405	302	9	7	71	0	13	3	384	8	1	11	30	83	14	2	0	0
1,834	999	674	63	32	188	2	35	5	871	49	1	71	112	175	59	12	3	0
51,361	42,645	32,000	3,520	2,133	4,235	62	595	100	37,687	3,100	53	1,648	6,187	8,462	3,808	598	46	3
3,324	1,038	380	25	23	571	0	37	2	949	67	1	21	273	238	124	40	1	0
2,555	940	332	56	53	453	0	40	6	800	97	0	40	244	231	74	35	1	0
4,214	1,423	568	80	58	675	0	41	1	1,265	128	2	25	371	367	81	39	1	0
256	92	38	3	10	39	0	1	1	74	14	0	3	30	28	8	3	1	1
10,349	3,493	1,318	164	144	1,738	0	119	10	3,088	306	3	89	918	864	287	117	4	1

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Treated in Health Facility			Outcome		
		≤5	6–12	13–19	≤20	Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Care	None	Minor	Moderate	Major	Death
11,957	10,502	9,282	516	137	465	12	80	10	10,213	222	4	57	382	1,776	168	30	0	0
205	171	55	9	7	66	0	28	6	161	7	0	3	29	30	12	3	0	0
118	103	31	2	4	55	0	10	1	60	21	0	22	46	16	7	8	0	0
1,474	1,412	1,143	144	24	76	2	19	4	1,326	12	4	67	80	249	81	7	0	0
6,033	4,400	2,181	142	516	1,387	6	142	26	3,500	601	6	271	1,229	920	566	153	8	2
1,843	1,486	673	85	68	567	1	81	11	1,223	132	5	114	212	288	156	28	2	1
696	536	318	25	65	118	0	7	3	369	119	0	46	219	147	64	63	1	1
177	129	78	6	4	37	0	4	0	105	8	1	14	13	16	9	4	1	0
39	31	10	3	0	16	0	2	0	29	0	0	2	7	5	3	1	1	1
1,186	480	154	9	9	272	0	33	3	396	57	1	25	95	113	18	17	1	0
100	77	20	6	0	44	0	6	1	62	4	0	8	24	13	9	5	1	0
5,298	4,282	2,511	451	181	939	5	182	13	3,673	440	43	111	631	758	598	71	2	0
7	6	3	0	0	2	0	1	0	6	0	0	0	2	2	1	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,236	1,026	535	31	52	352	1	49	6	843	63	2	113	113	102	139	15	0	0
30,370	24,641	16,994	1,429	1,067	4,396	27	644	84	21,966	1,686	66	853	3,082	4,435	1,831	405	17	5
2,069	1,758	821	310	56	462	5	92	12	1,629	65	2	60	52	273	107	7	1	0
1,966	1,861	763	86	125	770	2	107	8	1,608	95	10	145	255	432	225	44	3	0
493	471	266	10	15	141	1	31	7	442	5	4	20	23	74	43	2	0	0
22	22	13	1	0	5	0	2	1	19	1	1	1	4	2	4	0	0	0
12	11	2	0	2	7	0	0	0	8	0	1	2	1	1	3	0	0	0
2,170	2,048	1,003	64	100	748	4	124	5	1,988	25	11	24	388	188	377	85	0	0
424	362	89	10	6	220	1	33	3	326	6	1	28	46	74	30	8	0	0
1,013	973	608	35	37	234	4	51	4	850	32	61	27	223	352	60	16	1	0
1,906	1,815	996	71	52	542	2	136	16	1,691	31	13	75	128	279	82	14	0	1
715	694	428	18	41	169	1	33	4	598	31	49	13	174	258	43	7	2	0
50	43	14	2	8	13	0	6	0	26	2	7	5	8	9	8	2	0	0
939	929	384	110	39	317	5	69	5	918	4	0	7	90	137	217	13	0	0
2,266	2,245	664	90	68	1,174	4	226	19	2,202	13	1	26	343	208	740	65	1	0
36	35	6	2	0	22	0	4	1	35	0	0	0	9	3	12	2	0	0
395	374	89	41	44	156	3	37	4	332	28	3	10	35	64	35	5	0	0
268	239	107	20	23	67	0	21	1	214	15	0	9	23	52	14	2	0	0
899	827	676	62	17	61	1	10	0	787	32	0	8	15	135	33	1	0	0
5	5	4	0	0	1	0	0	0	4	1	0	0	1	1	0	0	0	0
15,648	14,712	6,933	932	633	5,109	33	982	90	13,677	386	164	460	1,818	2,542	2,033	273	8	1
3,696	3,418	2,986	167	28	195	3	31	8	3,323	65	1	26	76	419	47	4	0	0
9,738	4,352	2,132	144	234	1,578	3	239	22	3,911	338	3	89	533	854	134	19	1	0
2,649	2,369	1,889	213	37	193	5	29	3	2,217	90	2	53	207	492	66	13	0	0
249	126	45	5	7	68	0	1	0	84	31	0	10	79	50	12	14	3	1
1,583	1,162	483	35	37	556	0	43	8	723	374	6	44	519	329	107	123	56	4

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason					Treated in Health Facility			Outcome				
		≤5	6–12	13–19	≥20	Unknown	Child	Adult	Age	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
33	23	17	1	1	4	0	0	0	23	0	0	0	0	1	3	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2,845	1,246	474	74	126	508	1	54	9	926	213	2	92	472	353	181	108	9	1	0
262	117	24	7	1	80	0	4	1	104	7	0	6	26	33	8	2	0	0	0
14,471	12,447	8,746	669	436	2,155	19	383	39	11,379	545	65	433	1,209	1,691	1,256	142	4	0	0
9,437	7,912	6,117	331	144	1,044	16	207	53	7,250	196	19	438	575	1,302	404	78	7	0	0
29	18	14	1	0	1	0	2	0	16	1	0	1	4	4	0	0	0	0	0
3,265	1,925	1,275	146	126	338	0	31	9	1,679	166	1	69	554	645	153	61	3	0	0
5	2	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
48,263	35,117	24,204	1,793	1,177	6,720	47	1,024	152	31,637	2,026	99	1,261	4,255	6,175	2,368	564	83	6	0
260	147	29	2	7	100	0	8	1	138	5	0	3	27	44	10	3	1	0	0
20	11	7	0	0	3	0	1	0	11	0	0	0	0	4	0	0	0	0	0
83	41	18	0	2	20	0	1	0	33	6	0	1	27	16	1	10	0	0	0
465	394	26	3	2	325	1	35	2	335	19	0	38	98	94	48	23	1	0	0
126	64	17	1	2	40	0	4	0	57	4	0	3	18	28	4	3	0	0	0
6,974	5,824	162	74	147	5,028	4	379	30	5,009	684	5	85	2,529	2,417	313	953	47	2	0
41	24	16	0	0	8	0	0	0	23	1	0	0	8	7	1	1	0	0	0
9,402	4,061	916	120	361	2,458	2	186	18	3,211	715	2	102	1,244	924	343	250	58	21	0
955	352	107	12	5	207	0	19	2	315	21	0	15	91	120	15	10	3	0	0
76	30	13	1	1	15	0	0	0	28	0	0	2	16	9	2	3	0	0	0
563	277	89	8	10	140	1	29	0	243	12	0	19	69	96	10	13	1	0	0
3,642	1,471	693	56	44	645	1	29	3	1,240	134	1	71	1,119	501	69	442	38	2	0
339	101	46	3	2	46	0	4	0	90	6	0	5	38	31	9	6	0	0	0
427	346	93	14	14	186	0	34	5	264	39	3	39	79	59	46	11	2	1	0
11,291	9,157	3,889	788	361	3,521	14	545	39	8,493	196	10	446	640	1,234	340	63	1	0	0
1,246	828	432	39	65	248	3	33	8	727	65	2	34	71	118	49	5	0	0	0
3,523	2,824	1,874	99	352	409	4	71	15	2,409	352	0	54	292	428	159	9	0	0	0
588	453	153	20	24	219	1	30	6	415	24	0	12	68	89	14	8	0	0	0
803	1,243	1,016	188	71	562	2	32	2	497	42	1	188	143	147	34	17	1	0	0
1,243	1,016	569	46	56	278	1	56	10	901	35	3	76	97	155	39	7	1	0	0
290	162	48	13	3	85	0	13	0	154	6	0	2	19	43	5	3	0	0	0
13,363	8,807	4,439	388	283	3,270	7	389	31	8,384	328	6	77	1,241	1,593	165	58	4	0	0
13	10	6	0	1	2	0	0	1	10	0	0	0	0	2	1	0	0	0	0
55,733	36,962	13,830	1,758	1,791	17,471	41	1,898	173	32,987	2,694	33	1,103	7,934	8,159	1,677	1,898	158	26	0
27	10	1	1	0	8	0	0	0	8	2	0	0	7	4	4	0	0	0	0
4	3	1	1	0	1	0	0	0	2	1	0	0	1	1	0	0	0	0	0
901	310	142	11	7	141	0	8	1	291	9	1	8	41	81	12	4	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 Exposure	Age					Reason				Treated in Health Care Facility			Outcome		
		≤5	6-12	13-19	≥20	Unknown	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
184	4	0	0	0	4	0	3	0	0	1	3	0	1	0	0	0
46	43	6	0	1	27	0	16	11	1	13	19	1	5	7	1	0
2	29	11	1	0	13	0	22	0	0	6	12	5	1	4	1	0
28	17	0	1	0	0	0	1	0	0	1	1	0	1	0	0	0
1,582	1,496	947	150	27	319	4	1,357	68	1	60	261	422	203	39	0	0
15,473	9,870	3,761	552	482	4,481	13	8,552	665	26	566	2,429	2,051	1,208	446	45	7
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,473	809	169	5	6	591	0	708	67	0	26	245	184	124	54	6	0
1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
19	8	4	0	0	4	0	6	1	0	1	2	1	2	0	0	0
19,745	12,602	5,043	722	523	5,603	17	10,979	824	31	684	3,032	2,754	1,562	554	57	7
5,200	2,200	270	55	213	1,613	0	652	1,301	24	114	1,792	290	457	736	241	12
2,236	901	49	3	43	785	0	145	713	1	12	794	82	347	252	50	2
10,429	4,248	1,008	219	472	2,381	4	2,089	2,034	1	66	2,642	929	1,040	731	97	1
412	205	27	3	21	135	1	113	84	0	6	104	37	48	30	3	0
2,253	904	116	13	130	610	0	403	464	0	27	550	214	267	100	8	0
574	228	35	5	20	158	0	102	110	0	13	141	48	59	31	4	0
4,577	1,889	274	44	125	1,356	2	829	921	16	92	1,288	274	413	584	74	0
219	30	5	0	3	18	0	6	22	0	2	22	2	9	5	2	0
25,900	10,605	1,784	342	1,027	7,056	7	4,339	5,649	42	330	7,333	1,876	2,640	2,469	479	15
991	410	31	14	18	294	1	203	72	21	105	188	51	74	64	6	2
991	410	31	14	18	294	1	203	72	21	105	188	51	74	64	6	2
47	38	6	3	2	21	0	29	0	0	9	15	4	5	1	0	0
47	38	6	3	2	21	0	29	0	0	9	15	4	5	1	0	0
1,462	850	214	30	32	532	2	631	172	1	25	303	191	119	67	24	2
152	61	3	3	3	43	0	34	22	0	4	34	6	13	10	3	0
31	8	1	0	2	4	0	1	5	0	0	7	0	0	2	0	0
44,251	17,121	1,713	895	3,151	10,781	9	5,399	10,697	47	724	13,258	2,921	5,001	4,192	547	9
69,506	25,070	3,990	652	3,346	15,898	13	7,438	16,429	336	395	18,884	4,958	8,929	3,519	416	14
6,218	1,914	329	67	369	1,072	0	749	1,071	1	74	1,228	597	517	159	6	1
13	9	7	0	1	1	0	5	1	1	2	6	2	4	1	0	0
2	2	0	0	0	2	0	1	1	0	0	2	0	1	1	0	0
1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
24	12	0	0	4	8	0	0	12	0	10	10	1	3	5	0	0
4	3	0	0	0	3	0	0	2	0	1	3	0	0	1	0	0
13,579	5,356	587	270	456	3,836	5	1,894	3,212	30	113	3,812	814	1,999	813	90	5
4,333	1,655	182	44	167	1,172	1	679	761	5	180	1,168	332	359	439	20	2
1,939	1,254	494	20	202	515	0	591	648	0	5	733	319	250	233	22	0
292	103	5	1	28	57	1	12	86	1	1	89	12	24	30	0	0
141,807	53,419	7,525	1,982	7,761	33,925	31	17,434	33,120	422	1,524	39,537	10,153	17,219	9,472	1,128	33

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age							Reason				Treated in Health Facility			Outcome		
		≤5	6-12	13-19	≤20	Child	Adult	Unknown	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
Senems, Toxoids, Vaccines																		
Miscellaneous Serums, Toxoids, Vaccines																		
1,562	1,389	241	89	108	791	128	25	1,104	3	1	277	458	114	302	83	2	0	
1,562	1,389	241	89	108	791	128	25	1,104	3	1	277	458	114	302	83	2	0	
Category Total:																		
Stimulants and Street Drugs																		
Cannabinoids and Analogs																		
15	14	2	0	4	6	0	0	6	8	0	0	8	2	7	0	0	0	
1	1	0	0	1	0	0	0	0	1	0	0	1	0	1	0	0	0	
1	1	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	
13	13	7	0	2	3	1	0	10	3	0	0	6	2	6	0	0	0	
2	2	2	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	
2	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	
292	216	31	7	65	98	0	14	58	105	16	34	149	16	80	54	7	0	
Marijuana: Concentrated Extract (Including Oils and Tinctures)																		
7,333	2,891	681	166	753	1,108	143	30	1,146	1,313	98	237	2,053	237	889	654	59	2	
714	624	202	75	99	217	0	22	357	182	16	60	417	73	244	107	7	0	
18	12	2	1	1	8	0	0	4	2	0	6	8	1	6	2	0	0	
214	80	18	3	18	37	1	2	23	48	1	5	70	4	32	30	1	0	
68	45	14	1	5	22	3	0	23	13	1	8	26	9	14	9	0	0	
6	5	2	0	0	3	0	0	4	1	0	0	2	2	0	0	0	0	
26	10	0	0	4	4	0	2	4	2	1	2	5	3	5	1	0	0	
1,959	1,295	13	12	269	961	2	28	60	1,151	19	18	1,183	63	418	500	103	5	
Synthetic Cannabinoids, Analogs and Precursors																		
Diet Aids																		
5	4	1	1	0	1	0	1	2	2	0	0	2	0	0	0	0	1	
Diet Aids: Phenylpropanolamine and Caffeine Combinations																		
4	2	0	0	0	2	0	0	2	0	0	0	1	0	0	1	0	0	
160	118	64	1	11	38	0	3	83	14	0	21	48	28	17	14	0	0	
Other Types of Diet Aid, Over the Counter Only																		
23	15	6	0	4	7	0	2	9	4	0	2	9	3	2	3	1	0	
47	30	14	1	5	8	0	2	17	9	0	4	13	7	2	3	1	0	
Miscellaneous Stimulants and Street Drugs																		
16,569	10,162	3,531	1,835	1,862	2,691	7	184	6,926	2,748	46	279	5,274	2,469	1,739	1,756	124	3	
154	130	24	3	4	95	0	3	61	68	0	0	63	20	25	21	2	1	
3,765	2,842	1,173	114	399	1,028	1	106	1,731	650	14	416	887	451	534	301	11	0	
6,008	1,427	74	15	73	1,130	2	93	1,521	1,191	27	10	1,229	224	241	426	94	30	
149	105	52	5	5	37	0	4	71	27	3	2	38	26	13	16	3	0	
519	323	6	3	18	270	0	16	56	208	26	7	273	21	55	123	66	0	
Amphetamines and Related Compounds																		
1,908	871	35	2	188	594	0	38	93	738	20	7	745	60	173	350	68	6	
8,784	4,923	23	6	141	4,583	0	119	158	4,564	124	18	4,419	377	819	1,828	1,087	66	
372	240	9	1	13	210	0	6	27	167	15	27	196	18	63	89	20	1	
1,018	594	10	5	343	208	1	18	51	513	14	3	518	27	112	323	29	1	
48	35	7	4	2	21	0	1	22	9	1	3	12	1	7	8	1	0	
7,519	3,503	239	50	163	2,779	4	206	5,262	2,770	87	32	2,904	324	645	1,199	256	191	
9,589	6,562	1,630	2,602	1,421	820	8	64	5,258	1,140	12	106	2,241	1,628	944	689	25	0	
102	70	0	0	25	43	0	2	5	61	1	2	62	2	11	41	4	0	
458	258	74	5	16	148	0	15	156	55	2	41	117	56	44	36	2	0	
509	294	18	3	27	225	1	15	30	243	11	1	248	10	36	137	29	3	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
540	220	11	3	14	172	0	12	32	160	5	4	193	11	43	101	16	1	
7	4	0	0	4	4	0	0	0	3	1	0	4	1	1	1	0	0	
10	3	0	0	0	3	0	0	1	2	0	0	2	0	0	0	2	1	
Phenylpropanolamine Only																		
1	1	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	
13	5	0	0	1	3	0	1	0	5	0	0	4	0	0	3	0	0	
197	197	3	4	31	139	0	17	12	160	9	7	176	8	29	65	38	5	

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

No. of Case Mentions	No. of Single Exposure	Age					Reason			Treated in Health Facility			Outcome						
		≤5	6-12	13-19	≤20	Unknown	Child	Adult	Age	Unint	Int	Other	Adv Rxn	Care Facility	None	Minor	Moderate	Major	Death
69,243	38,148	7,979	4,928	5,983	17,728	38	1,144	348	17,179	18,342	570	1,362	23,608	6,185	7,262	8,891	2,056	317	
Topical Preparations																			
Miscellaneous Topical Preparations																			
1,994	1,911	1,005	124	262	410	1	103	6	1,777	49	3	81	129	307	210	18	1	0	
120	115	27	3	6	70	0	7	2	105	1	0	9	11	24	10	1	0	0	
Acne Preparations																			
1,962	1,901	1,328	63	23	436	7	41	3	1,885	12	0	2	125	259	170	4	0	0	
10,211	9,975	8,252	229	159	1,107	12	199	17	9,742	135	20	67	1,142	2,635	1,089	65	8	0	
1,195	1,175	948	26	15	1,170	1	14	1	1,130	15	1	27	129	323	143	2	1	0	
21,969	21,562	20,475	208	142	585	39	100	13	21,490	19	12	31	472	2,703	591	15	0	0	
20	17	10	2	0	3	0	2	0	13	1	0	2	1	2	3	0	0	0	
5,879	5,612	1,906	302	272	2,667	7	425	33	5,342	174	32	47	545	575	905	71	0	0	
1,007	888	195	48	62	501	13	59	10	736	79	5	63	179	171	171	26	2	0	
33	28	14	1	0	10	0	3	0	23	1	0	4	7	5	6	0	0	0	
5,971	5,875	4,118	253	116	1,131	6	240	11	5,668	47	16	135	582	1,175	818	40	3	0	
166	159	59	2	2	85	0	11	0	141	7	2	8	41	30	12	7	1	0	
3,463	3,385	2,433	94	55	664	7	120	12	3,140	29	8	205	188	532	503	28	1	0	
Other Types of Rubefacient or Liniment (Excluding Camphor and Methyl Salicylate)																			
2,001	1,932	945	74	88	688	2	121	14	1,804	70	8	43	265	298	220	33	3	0	
46	41	12	5	0	22	0	2	0	34	2	0	5	7	3	5	0	0	0	
103	87	21	3	25	25	0	12	1	65	2	4	15	24	8	20	3	0	0	
8,515	8,285	4,573	639	180	2,364	13	481	35	8,159	38	2	82	177	1,002	285	9	1	0	
Topical Steroids (Including Otic, Ophthalmic, and Dermal Preparations)																			
798	774	364	55	16	285	4	46	4	738	6	2	27	56	103	120	2	0	0	
Topical Steroids in Combination with Antibiotics (Including Otic, Ophthalmic, and Dermal Preparations)																			
1,179	1,164	682	91	38	288	3	60	2	1,086	17	6	51	177	204	186	32	3	0	
66,632	64,886	47,367	2,222	1,461	11,511	115	2,046	164	63,078	704	121	904	4,257	10,359	5,467	356	24	0	
Wart Preparations and Other Keratolytics																			
Category Total:																			
Unknown Drug																			
Miscellaneous Unknown Drug																			
25,411	17,075	4,310	720	2,287	8,536	75	804	343	6,344	6,786	778	575	12,867	3,088	2,843	3,799	1,383	130	
25,411	17,075	4,310	720	2,287	8,536	75	804	343	6,344	6,786	778	575	12,867	3,088	2,843	3,799	1,383	130	
Miscellaneous Unknown Drug																			
Miscellaneous Veterinary Drugs																			
5,792	5,359	1,123	124	132	3,410	4	503	63	5,243	48	9	49	554	1,244	516	82	3	0	
5,792	5,359	1,123	124	132	3,410	4	503	63	5,243	48	9	49	554	1,244	516	82	3	0	
Miscellaneous Veterinary Drugs without Human Equivalent																			
Category Total:																			
Vitamins																			
Miscellaneous Vitamins																			
699	518	394	40	15	58	2	8	1	479	20	1	16	63	120	20	3	0	0	
700	491	358	63	18	41	3	6	2	451	28	0	10	48	96	19	3	0	0	
Other Types of Vitamin																			
Unknown Types of Vitamin																			
Multiple Vitamin Liquids: Adult Formulations																			
10	8	6	1	1	0	0	0	0	7	1	0	0	1	0	0	0	0	0	
Multiple Vitamin Liquids: Adult Formulations with Fluoride (No Iron)																			
172	133	79	7	4	38	0	5	0	116	8	0	9	15	27	11	0	0	0	
Multiple Vitamin Liquids: Adult Formulations with Iron (No Fluoride)																			
8	5	3	0	0	2	0	0	0	5	0	0	0	0	0	1	0	0	0	
Multiple Vitamin Liquids: Adult Formulations with Iron and Fluoride																			
444	349	254	43	10	38	0	2	2	310	31	0	8	34	57	9	3	0	0	
Multiple Vitamin Liquids: Adult Formulations without Iron or Fluoride																			
Multiple Vitamin Liquids: Pediatric Formulations																			
86	83	77	5	0	1	0	0	0	81	1	0	0	1	13	1	0	0	0	
Multiple Vitamin Liquids: Pediatric Formulations with Fluoride (No Iron)																			
431	410	387	16	2	4	0	1	0	397	5	2	6	27	81	19	0	0	0	
Multiple Vitamin Liquids: Pediatric Formulations with Iron (No Fluoride)																			
27	26	26	0	0	0	0	0	0	26	0	0	0	0	0	3	0	0	0	
Multiple Vitamin Liquids: Pediatric Formulations with Iron and Fluoride																			
808	771	632	116	8	10	1	3	1	742	25	2	1	35	120	19	1	0	0	
Multiple Vitamin Liquids: Pediatric Formulations without Iron or Fluoride																			

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