

# SCIENCE BEHIND THE MESSAGES

## Go 40 or BELOW

A COLD FRIDGE HELPS KEEP FOOD SAFE

Every year, nearly 48 million people in the United States—1 in 6—get sick from eating food contaminated with germs. While *Salmonella*, *Campylobacter* and Norovirus cause the most illnesses, *Listeria monocytogenes* is a less-common but often deadly foodborne bacteria.

Safe food handling is especially important for older adults, pregnant women and persons with immune-compromising conditions. Almost all cases of listeriosis occur among these three groups.

**Below, you'll find useful information** to help you discuss with consumers the importance of maintaining a refrigerator temperature of 40 °F or below to reduce the risks of foodborne illness at home.

### High-Risk Groups



**OLDER ADULTS:** After age 75, many adults have weakened immune systems, increasing the risk of contracting foodborne illness.

**MOTHERS-TO-BE:** Pregnant women are 10 times more likely to contract listeriosis than other healthy adults.

### Thermometers Are Important

#### THE FACT:

Refrigerator thermometers are tools that stay in the refrigerator and display the actual temps (separate from temperature control dial).

#### THE SCIENCE:

- Almost half (43%) of observed homes had a refrigerator that was too warm (>41 °F)<sup>1</sup>
- Just 4–9% of domestic refrigerators were observed to have a thermometer (that tells the temperature in degrees).<sup>1,2</sup>
- Bacteria that can cause illness grow rapidly in the “danger zone” between 40 °F and 140 °F.
- The predicted number of cases of listeriosis would be reduced by more than 70% if all home refrigerator temperatures stayed at 40 °F or below.<sup>3</sup>

#### THE ACTIONS:

- Keep home refrigerator at or below 40 °F as measured with a thermometer.
- See Go 40 °F or Below brochures for more on the importance of refrigeration to food safety.

### Storing Food

#### THE FACT:

Proper storing of food in a refrigerator at 40 °F or below helps to reduce the risk of food poisoning.

#### THE SCIENCE:

- Compared to other food-handling behaviors, consumers consider adhering to recommended time/temperature for food storage as least likely to contribute to risk of illness.
- 25% of people surveyed said they had stored refrigerated leftovers for 4 days or longer.<sup>4</sup>
- Up to 99% of consumers observed stored raw meat, fish or poultry above or next to ready-to-eat foods.<sup>5</sup>

#### THE ACTIONS:

- To prevent cross-contamination, foods should be completely covered and securely wrapped in the refrigerator.
- Consume or freeze refrigerated leftovers within 3-4 days. Toss after 4 days.
- See Go 40 °F or Below brochures for more consumer food storage safety tips.

The CDC estimates that listeriosis causes about 1,600 illnesses and 260 deaths in the U.S. annually.



## Smart Thawing

### THE FACT:

Thawing and marinating foods in the refrigerator is the safest way.

### THE SCIENCE:

- 50–65% of consumers thaw raw meat, fish or poultry incorrectly (at room temperature and/or in stagnant water).<sup>5</sup>
- On average, consumers thaw raw meat at room temperature for 5 hours.<sup>5</sup>

### THE ACTIONS:

- According to the USDA, planning ahead for safe thawing is key. Even small foods can take up to a day to thaw in the refrigerator.
- See Go 40 °F or Below brochures for smart thawing tips.



## Refrigerator Cleanliness

### THE FACT:

Frequent refrigerator cleaning and sanitizing can help to minimize the likelihood of bacterial cross-contamination.

### THE SCIENCE:

- 12% of consumers report cleaning their refrigerators once a year or less.<sup>6</sup>
- 34% of consumers report cleaning their refrigerators only 2–3 times per year.<sup>6</sup>
- Consumers report cleaning their fridges with substances that do not adequately clean/sanitize, including:
  - 2–14% plain water<sup>5</sup>
  - 10% vinegar<sup>5</sup>
  - 16–35% baking soda<sup>5</sup>

### THE ACTIONS:

- Regularly clean the inside walls and shelves. Sanitize surfaces and bins in your refrigerator using a spray solution of one tablespoon liquid chlorine bleach to one gallon of hot water.
- See Go 40 °F or Below brochures for more refrigerator cleaning tips.

## Average Home Refrigerator

In observational research, average home refrigerator temperature was > 40 °F in:

9%  
OF TOP  
SHELVES<sup>2</sup>

21%  
OF BOTTOM  
SHELVES<sup>2</sup>

55%  
OF REFRIGERATOR  
DOORS<sup>2</sup>



1 Borrusso, P.A., S.C. Henley, and J.J. Quinlan. 2015. Visual Audit of Food Safety Hazards Present in Homes in an Urban Environment. Food Protection Trends. V35, No. 4: 290-301

2 Godwin, S.L., F.C. Chen, E. Chambers, R. Coppings, and D. Chambers. 2007. A Comprehensive Evaluation of Temperatures within Home Refrigerators. Food Protection Trends. 27: 168-173

3 USDA/FDA joint risk assessment September, 2003

4 Personal communication: S Godwin in-person survey of 551 respondents

5 P. Borrusso: results compiled from 33 studies that investigated consumer knowledge, attitudes and behavior.

6 Li-Cohen, A. E. and C. M. Bruhn. 2002. Safety of consumer handling of fresh produce from the time of purchase to the plate: A comprehensive consumer survey. Journal of Food Protection. 65:1287-1296.



For more information, visit [fightbac.org](http://fightbac.org).