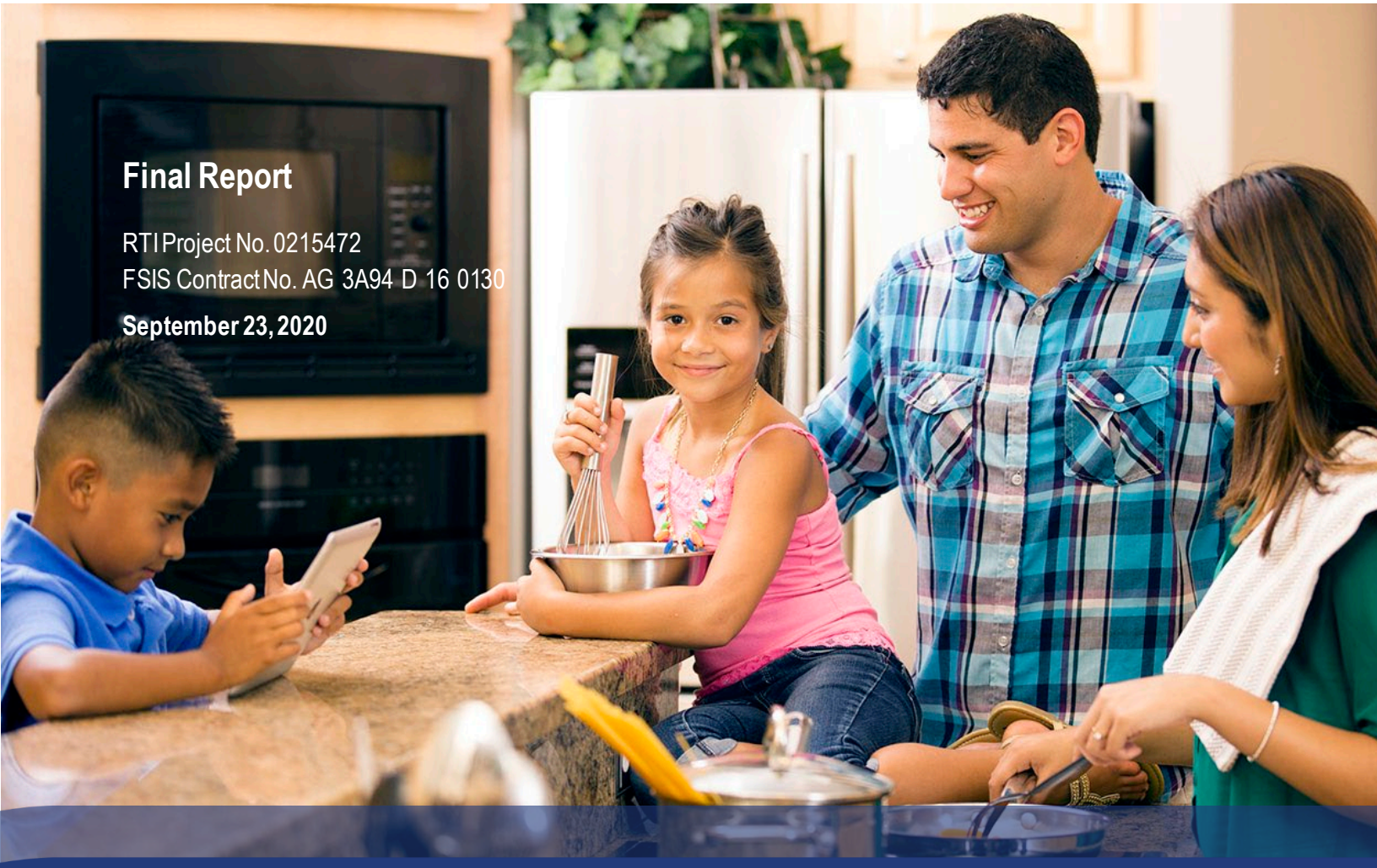

Final Report

RTI Project No. 0215472
FSIS Contract No. AG 3A94 D 16 0130

September 23, 2020

Food Safety Consumer Research Project: Web-based Survey on Food Safety Behaviors and Consumer Education

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Contents

Figures

List of Tables

Executive Summary

ES.1 Overview

The Food Safety and Inspection Service (FSIS) of the U.S. Department of Agriculture (USDA) contracted with RTI International and its subcontractor North Carolina State University (NCSU) to conduct consumer behavior research to understand specific consumer food safety behaviors, to inform FSIS' consumer outreach efforts, and to determine the effectiveness of behavior change interventions. The 5-year study comprises meal preparation experiments (five iterations), focus groups (two iterations), and web surveys (two iterations). This report describes the results of the first iteration of the web survey. The web-based survey of U.S. adults collected information on a variety of topics, including consumer use and satisfaction with the USDA Meat and Poultry Hotline, awareness of and response to food recalls, awareness of and understanding of foodborne illness outbreaks, and food safety behaviors related to grilling and serving food buffet style.

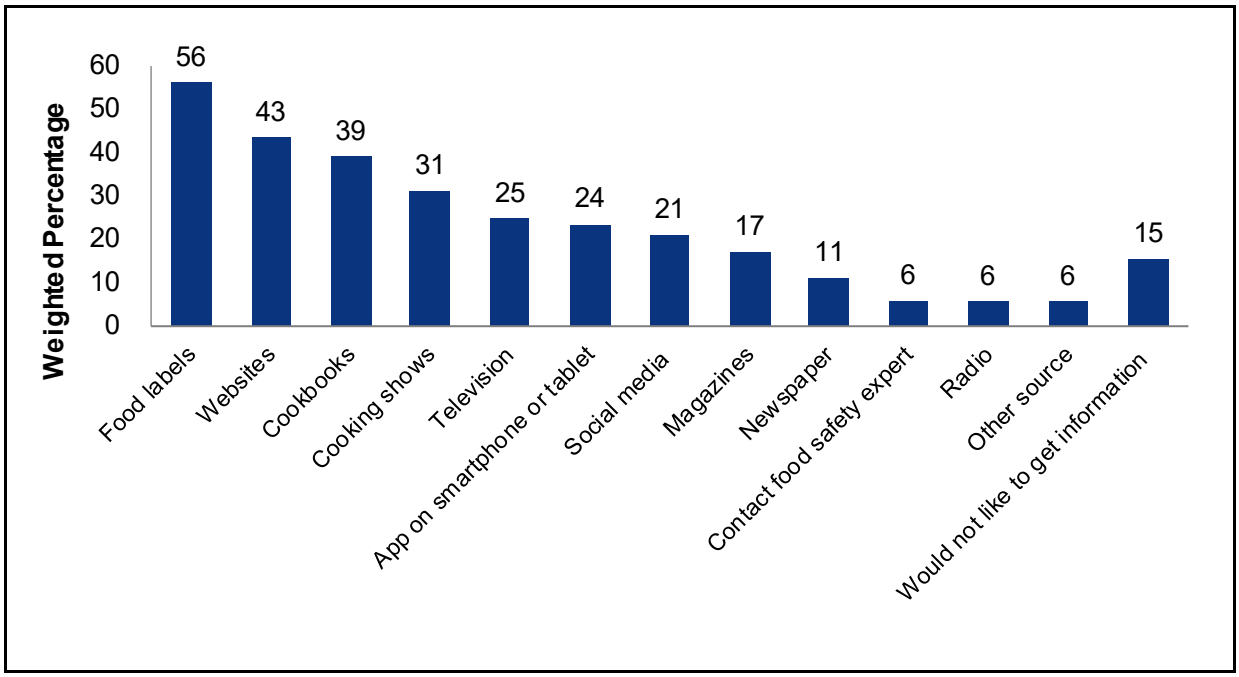
The population for the study was the U.S. general population of adults who are members of the KnowledgePanel, a probability-based panel designed to be nationally representative. Data collection took place over a 2-week period in November and December 2019. Analysis weights were developed and applied to develop weighted survey estimates so that the results are representative of the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

ES.2 Key Findings

Respondents' Preferences for Receiving Information on Food Safety. Respondents would like to receive food safety information from food labels, websites (excluding social media), cookbooks, television, and apps on smartphones or tablets (see Figure ES-1).

Respondents' Response to the USDA Meat and Poultry Hotline. About 12% of respondents were aware of the USDA Meat and Poultry Hotline. Among respondents who had contacted the hotline, most did so for questions related to food preparation or about a food recall and reported being satisfied with the information they received. The majority of respondents were unaware of the hotline (88%). Among those unaware, 30% reported that they would be likely to contact the hotline with questions on food preparation. Preferred methods for contacting the hotline were by phone, followed by email and online chat. The most convenient times to contact the hotline were between 4:00 and 8:00 PM ET.

Figure ES-1. Preferences for Receiving Information on Food Safety[a]



[a] Responses may sum to more than 100%; question indicated "select all that apply."

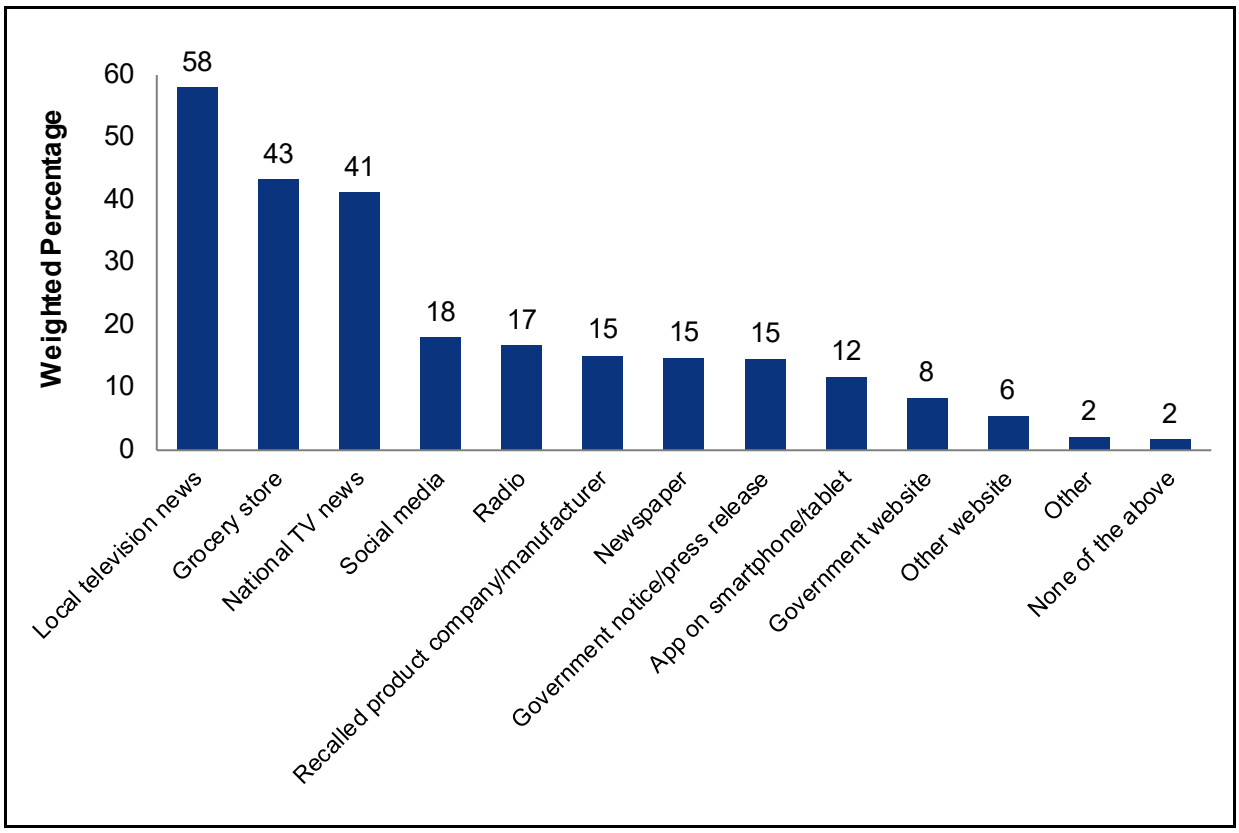
Respondents' Experience with and Response to Food Recalls. About 78% of respondents recalled hearing about 10 or fewer recalls in the past 6 months, which is much lower than the actual number of recalls (around 200), suggesting that respondents do not have recall fatigue. Respondents' sources for learning about the last recall were local television or radio news, national television or radio news, and social media. Few respondents heard about a recall through government alerts or press releases. In response to a recall, respondents most often checked to see if the food was in their home. If respondents had the recalled food, 94% followed the correct call to action to discard or return the recalled food to the store.

Communicating Information on Food Recalls to Consumers. Trusted sources for information on food recalls include local television or radio news; government website, alert, or press release; grocery stores; and national television or radio news. Respondents have less trust in social media and nongovernment websites. Respondents viewed a mock FSIS-issued news release and were asked to identify which information is most important in helping them respond to the recall (half saw a news release about foreign object contamination, and half saw a news release about pathogen contamination). Across both recall alerts, the most important items of information respondents selected were type of food, where food was distributed, brands affected, and date and establishment or lot

number on the packaging. The items of information that were selected the least often were total amount of food recalled and how the contamination happened.

Figure ES-2 shows respondents' preferred sources for receiving information on food recalls, with the local television news being the preferred source. Few respondents identified government notices or press releases or government websites as preferred sources. About a third of respondents were somewhat or very likely to sign up to receive government food recall emails or text messages. Nearly two-thirds of respondents wanted to know about the recall immediately after it occurred, and almost half were interested in receiving information for only the state in which they resided. Respondents expressed interest in receiving food recall alerts for all types of food, with raw meat and poultry most often selected.

Figure ES-2. Preferred Sources for Receiving Information on Food Recall Alerts[a]



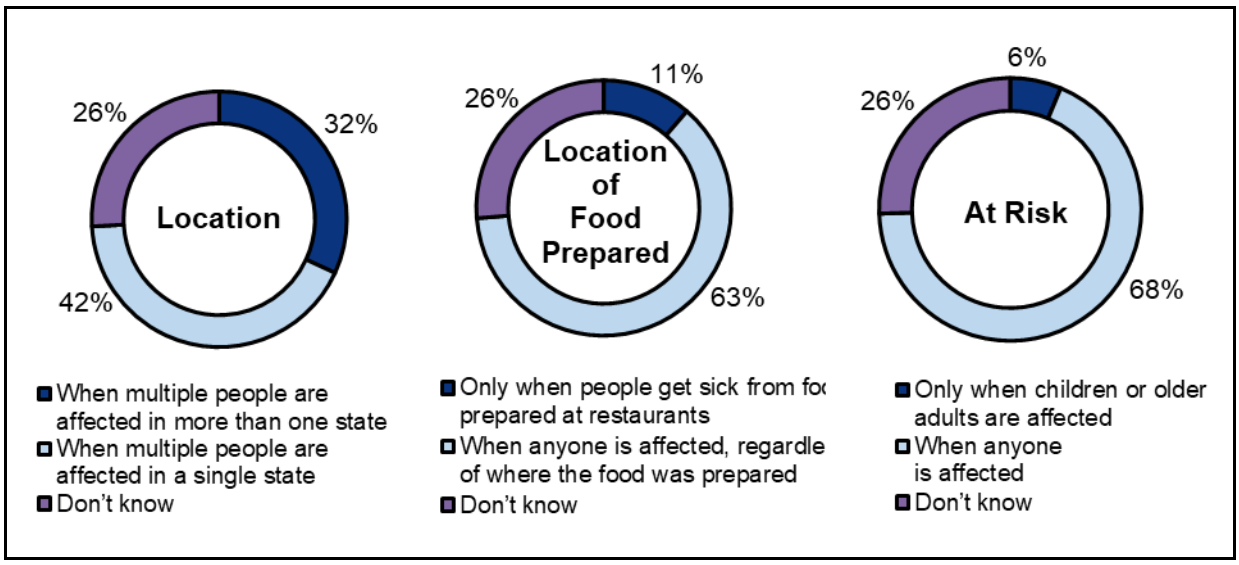
[a] Responses may sum to more than 100%; question indicated "select up to 3 responses."

Respondents' Awareness and Understanding of Foodborne Illness Outbreaks. When asked about the number of foodborne illness outbreaks they heard about in the past 6 months, most respondents (73%) had not heard about any or had heard about one or two. The actual number of foodborne illness outbreaks reported by the Centers for Disease

Control and Prevention during the 6 months before the survey was 13, suggesting respondents did not hear about many of the outbreaks announced by CDC.

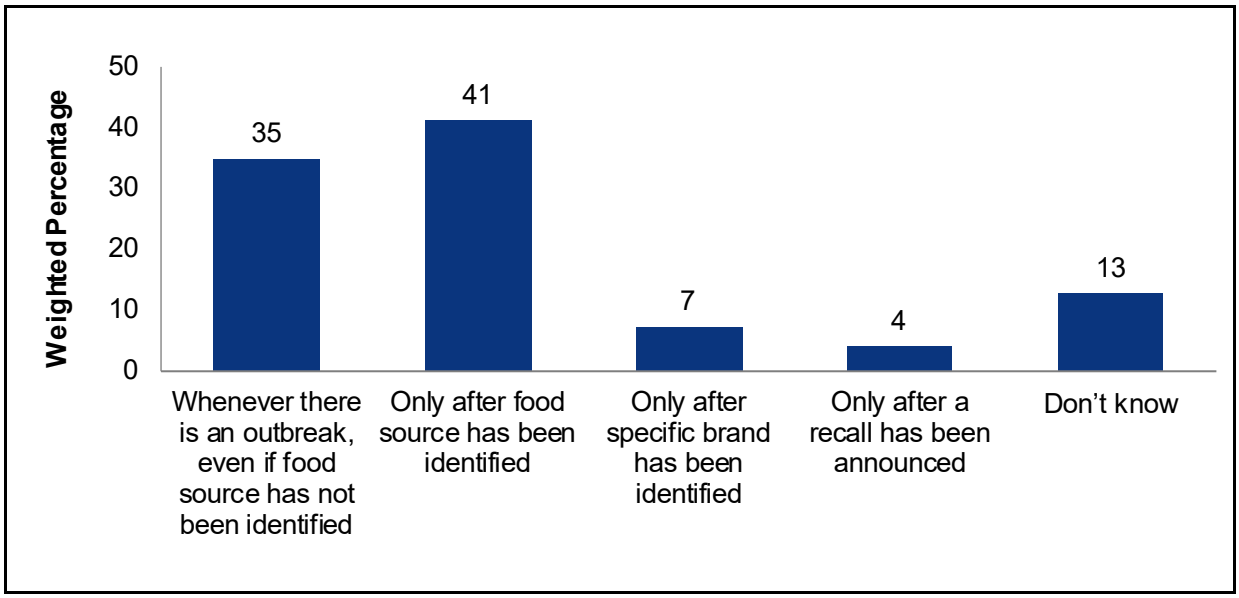
To assess respondents' understanding of foodborne illness outbreaks, we asked respondents three separate questions about when they believe the government announces a foodborne illness outbreak (see Figure ES-3). In response to these three questions, about 26% of respondents indicated they do not know when the government makes an announcement. About two-thirds knew that the government announces a foodborne illness outbreak regardless of where the food was prepared and when anyone is affected, not just children and older adults.

Figure ES-3. Belief About When the Government Announces a Foodborne Illness Outbreak: Location of Outbreak, Location Food Prepared, and Whether At-Risk (Children and Older Adults) Population



Respondents were asked their opinion on when the government should announce a foodborne illness outbreak (see Figure ES-4). Most respondents think it should be only after the food source has been identified (41%) or whenever there is an outbreak even if the food source has not been identified (35%).

Figure ES-4. Opinion on When the Government Should Announce a Foodborne Illness Outbreak



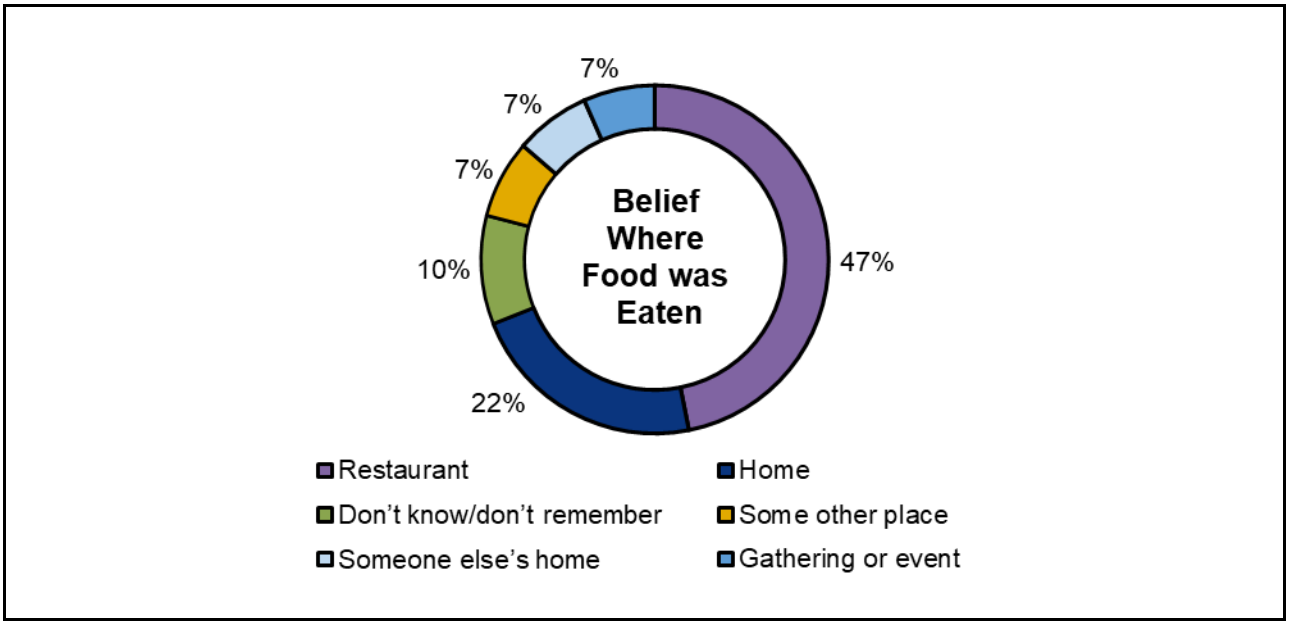
Respondents' Self-reported Food Handling Practices for Grilling and Serving Food Buffet Style. About 72% of respondents cooked meat, poultry, or fish on an outdoor grill in the past year. Most respondents reported following one of the recommended practices for removing the cooked food from the grill the last time they grilled meat, poultry, or fish (98%). When taking the cooked food off of the grill using a utensil, 73% of respondents reported following one of the recommended practices. The recommended practices are to use a different plate or utensil, or if using the same plate or utensil to wash or wash and then sanitize it before reusing.

Nearly 60% of respondents hosted a buffet-style gathering in the past year. When serving hot foods, 34% of respondents indicated they followed the recommended practice—serve hot food in a container with a heat source. For serving cold perishable foods, about 16% of respondents said they followed the recommended practice—serve the food in a container or plate nested in a bowl of ice and store or discard the leftovers after 2 hours.

Respondents' or Households' Experience with Foodborne Illness. Nine percent of respondents reported that they or someone else in the household had foodborne illness in the past year. Of these, 14% visited a healthcare provider because of the illness, and about two-thirds were diagnosed with foodborne illness. Nearly half (47%) of respondents believed they got sick from eating food at restaurants, and 22% believed they got sick from

food prepared at home (Figure ES-5). Among those who believed they got sick from food prepared at home, 61% said they did not make changes to how they prepare or handle food at home. Of those who did make changes, the most common self-reported changes included cooking food longer or to very well done, no longer buying that product, and checking for spoilage sooner for stored foods.

Figure ES-5. Belief About Where Food Was Eaten That Caused Foodborne Illness for Respondents or Household Members Who Had Foodborne Illness



1. Introduction

This report describes the study methods and presents the results from a web-based survey of U.S. adults that collected information on a variety of topics including consumer use and satisfaction with the U.S. Department of Agriculture (USDA) Meat and Poultry Hotline, awareness of and response to food recalls, awareness and understanding of foodborne illness outbreaks, and food safety behaviors related to grilling and serving food buffet style. The survey was conducted as part of the Food Safety Consumer Research Project. This survey is one of two iterations; the second iteration will be conducted in 2021. The Food Safety and Inspection Service (FSIS) can use the survey results to enhance its communication programs and materials with the goal of improving consumers' food safety behaviors and helping to prevent foodborne illness. This report details the study design, data collection procedures, and data analysis approach and presents the results of the survey. The rest of this section provides an overview of the Food Safety Consumer Research Project, describes the purpose of the first iteration of the survey, and details the organization of the report.

1.1 Background and Project Overview

USDA FSIS' Office of Public Affairs and Consumer Education (OPACE) ensures that all segments of the farm-to-table chain receive valuable food safety information. The consumer education programs developed by OPACE's Food Safety Education Staff inform the public on how to safely handle, prepare, and store meat, poultry, and egg products to minimize incidence of foodborne illness.

OPACE strives to continuously increase consumer awareness of recommended food safety practices with the intent to improve food handling behaviors at home. OPACE shares its messages through the *Food Safe Families* campaign; social media; the USDA Meat and Poultry Hotline and Ask USDA; the FSIS website; FoodSafety.gov; and various publications, media releases, blogs, and events. These messages are focused on the four core food safety behaviors: clean, separate, cook, and chill.

By testing new consumer messaging and tailoring existing messaging, FSIS can help ensure that it is effectively communicating with the public and working to improve consumer food safety practices. FSIS contracted with RTI International to conduct consumer research over a 5-year period, fiscal year 2017 through fiscal year 2022. RTI partnered with researchers at North Carolina State University (NCSU) to conduct the project. This behavioral research will include web surveys (two iterations), observational studies of meal preparation in test kitchens using an experimental design (five iterations), and focus group studies (two iterations). Each iteration of each data collection activity will address different research

questions and use a different sample of consumers. This research will provide insight into the effect FSIS consumer outreach campaigns have on consumers' food safety behaviors. FSIS will use the results of this research to enhance its messaging and accompanying materials to improve the food safety behaviors of consumers.

1.2 Objectives of the Web-Based Survey

The objective of the web-based survey was to collect information from consumers on the following topics:

- preferences for receiving information on food safety
- awareness, use, and satisfaction with the USDA Meat and Poultry Hotline
- experience with and response to food recalls
- communicating information to consumers on food recalls
- awareness and understanding of foodborne illness outbreaks
- adherence to recommended food safety practices when grilling meat, poultry, and fish at home
- adherence to recommended food safety practices when serving food buffet style at gatherings and parties
- personal or household experience with foodborne illness

1.3 Organization of the Report

Section 2 of the report describes instrument development and testing, the data collection procedures, and the analysis approach, and Section 3 presents and discusses the results of the survey. Appendix A provides the questionnaire for the web-based survey; Appendix B contains additional information on the KnowledgePanel, the web panel used to administer the survey; and Appendix C provides weighted percentages for each of the survey questions.

2. Methods

This section describes instrument development and testing, sample selection and data collection, and the analysis procedures for the web-based survey. The Office of Management and Budget (OMB) (OMB control number 0583-0178, expiration date 10/31/2020) approved the study. RTI's Institutional Review Board (IRB) reviewed the study protocol and determined that the protocol met the criteria for exemption from IRB review. RTI subcontracted with Ipsos (https://www.ipsos.com/en-us/solutions/public-affairs/knowledgepanel), the provider of the KnowledgePanel, to administer the survey. The KnowledgePanel is the largest probability-based online panel in the United States with about 55,000 members.

2.1 Instrument Development and Testing

The survey instrument (see Appendix A) collected information on the topics shown in Table 2-1. The survey was designed with an estimated participant burden of 20 minutes per response and was available in English.

Table 2-1. Information Collected in the Web-Based Survey on Food Safety Behaviors and Consumer Education

▪ Preferences for receiving information on food safety – Preferred sources – Suggestions on specific magazines, websites, and cooking shows to disseminate food safety information
▪ Awareness of, use of, and satisfaction with the USDA Meat and Poultry Hotline – Awareness of hotline – Ever contacted hotline – Reason for contacting hotline – Satisfaction with hotline – Likelihood of contacting hotline – Mode for contacting hotline – Most convenient time for contacting hotline
▪ Experience with and response to food recalls – Number of food recalls heard about in past 6 months – Information source for most recent recall heard about for a food eaten by family – Response to most recent food recall – If stopped purchasing type of food/specific brand of food, for how long – If recalled food was at home, what was done with food

(continued)

Table 2-1. Information Collected in the Web-Based Survey on Food Safety Behaviors and Consumer Education (continued)

- Communicating information to consumers on food recalls
  - Level of trust for different sources of information on food recalls
  - Preferred way to hear about food recalls
  - Information in FSIS news release that are most important in helping to respond to food recall
  - Currently receive email/text messages from government about food recalls
  - Likelihood to sign up to receive email/text messages from government about food recalls
  - Types of food recalls for which would like to receive information (e.g., specific allergens, foods, or types of recalls)
  - Frequency and location (i.e., states) for which would like to receive information on food recalls
- Awareness and understanding of foodborne illness outbreaks
  - Situations under which government announces a foodborne illness outbreak (number of states, where food prepared, at-risk populations)
  - Number of foodborne illness outbreaks heard about in past 6 months
  - Preference for when government announces foodborne illness outbreak to the public
- Adherence to recommended food safety practices when grilling meat, poultry, and fish at home
  - How served food (e.g., same plate, different plate with rinsing, different plate with washing)
  - How removed food from grill
- Adherence to recommended food safety practices when serving food buffet style at gatherings and parties
  - How serve cold food (e.g., whether served on ice)
  - How serve hot food (e.g., whether served with heat source)
  - How long let perishable foods sit out before refrigerating or discarding
- Personal or household experience with foodborne illness
  - Respondent/household member experienced foodborne illness in past month
  - Respondent/household member experienced foodborne illness in past year
  - Symptoms
  - Source of food (e.g., home, restaurant)
  - Made changes in how handle food after having foodborne illness
  - Respondent/household member is an at-risk population for foodborne illness

We conducted cognitive interviews using the programmed instrument with nine target audience members to determine if any of the questions or response items were confusing or difficult to understand. Based on the cognitive interview findings, we revised the programmed instrument to improve understanding and readability. The cognitive interviews also confirmed the estimated burden of 20 minutes (the average time to complete the survey was 15 minutes).

Before the administration of the full-scale survey, Ipsos conducted a pretest with a sample of 80 randomly selected panelists from its online consumer panel, KnowledgePanel. The

purpose of the pretest was to ensure that the programming logic, sample distribution and fulfillment, and data compilation procedures worked as intended.

2.2 Sample Selection

The population for the study was the U.S. general population of adults (18 years or older) who are members of the Ipsos Public Affairs' (Ipsos') online consumer panel, KnowledgePanel. The KnowledgePanel consists of approximately 55,000 members who were randomly selected and invited to participate as panelists. Unlike opt-in web-based panels that use convenience sampling, the KnowledgePanel is a probability-based panel that is designed to be representative of the U.S. adult population. This representation is achieved through address-based sampling (ABS), where every U.S. adult with an address (including those who do not have a landline phone number) has an equal probability of being selected for participation on the panel. With ABS methodology, households are randomly selected based on mailing address, including post office boxes and rural route addresses. Selected panelists without Internet access are provided with free Internet access and a tablet computer, if needed.

For selection of general population samples (i.e., adults aged 18 or older) from the panel, Ipsos uses a patented methodology to ensure the resulting sample represents what is referred to as an equal probability of selection method sample, and the entire panel (i.e., the sampling frame) is weighted to the latest Current Population Survey (CPS). For this survey, Ipsos selected an equal probability of selection method sample of 9,911 panel members with the goal of achieving 2,400 completed surveys. Appendix B provides additional information on panel construction, sample selection, and calculation of the final analysis weights.

Selected panelists received an email invitation to invite them to participate in the survey. The email invitation contained a unique link, specifically for that panelist, to the survey. After clicking on the link in the email invitation, panelists were directed to the online instrument. On the first several screens, panelists were provided information on informed consent, OMB approval, and the Privacy Act Notice. If panelists proceeded with the survey, they were asked two questions to determine eligibility: (1) do they cook and prepare meals at home at least 4 times a week and (2) have they prepared a meal using raw meat or poultry within the past 30 days.

2.3 Data Collection and Survey Response

Data collection took place over the 2-week period, November 21 through December 3, 2019. The median completion time for the survey was 14 minutes (OMB-approved burden was 20 minutes). As standard with KnowledgePanel surveys, Ipsos sent email reminders to

nonresponders on Day 3 of the field period. An additional reminder was sent to remaining nonresponders on Day 7 of the field period. Of the 9,911 selected panelists who received the email invitation, 5,542 responded to the invitation and completed the screening questions for a completion rate of 56%. Among these, 2,784 qualified (i.e., they prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days) and completed the survey for a qualification rate of 50%. Ipsos dropped 198 cases during data cleaning because of quality concerns, such as respondents who sped through the survey, yielding a total of 2,586 completed surveys, thus exceeding the target of 2,400 completed surveys.

2.4 Analysis Procedures

We conducted univariate analysis for all the survey questions. Because of the complex nature of the sample design, analysis weights were developed (as described in Appendix B) and applied to develop weighted survey estimates. By applying these weights in the analysis of the survey data, we can make inferences to the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

We computed weighted proportions for questions in which respondents could select one or more responses from a list of responses (i.e., categorical variables). Respondents who did not answer the question (i.e., missing values) were not included in the calculations.

3. Results

This section presents and discusses the results of the survey. The survey explored respondents' preferences for receiving food safety information, their responses to the USDA Meat and Poultry Hotline, their experience with and responses to food recalls and preferences for receiving information on food recalls, and their understanding of foodborne illness outbreaks. Additionally, the survey collected self-reported information on two food handling practices—grilling and serving food buffet style and respondents' experience with foodborne illness. Appendix C provides weighted percentages for each of the survey questions.

3.1 Study Sample

Table 3-1 summarizes the demographic characteristics of the survey respondents (n = 2,586). About 60% of the respondents were female, reflecting the fact that more females than males identified as meal preparers. Nearly 80% of the respondents were 35 or older; 33% had a college degree or higher; and 68% were White, non-Hispanic. Most respondents (80%) had two or more people living in their household, and 34% of respondents lived in households with children (≤17 years). About 53% of respondents had at least one individual in the household at risk for foodborne illness (i.e., adult aged 65 years or older; child aged 5 years or younger; pregnant woman; or individual diagnosed with diabetes, kidney disease, or another condition that weakens the immune system).

Table 3-1. Demographic Characteristics of Survey Respondents

Characteristic	Number of Respondents	Weighted %
Gender		
Male	1,043	40.33
Female	1,543	59.67
Age		
18–25	167	6.44
26–35	397	15.34
35–54	871	33.69
55+	1,152	44.53
Education		
Less than high school	265	10.25
High school diploma or GED	745	28.82
Some college	710	27.47
4-year college degree	506	19.56
Graduate degree	360	13.90

(continued)

Table 3-1. Demographic Characteristics of Survey Respondents (continued)

Characteristic	Number of Respondents	Weighted %
Race/ethnicity		
White, non-Hispanic	1,751	67.72
Black, non-Hispanic	228	8.83
Other, non-Hispanic	160	6.17
Two or more races, non-Hispanic	34	1.30
Hispanic	413	15.97
Census region		
Northeast	446	17.25
Midwest	569	22.00
East	938	36.26
South	633	24.48
Metropolitan status		
Nonmetro	384	14.86
Metro	2,202	85.14
Number of individuals in household		
One	508	19.65
Two	1,004	38.83
Three to four	779	30.14
Five or more	294	11.38
Child(ren) in household (≤17 years)		
Yes	886	34.25
No	1,700	65.75
Respondent or household member at risk for foodborne illness[a]		
65 years of age or older	793	30.83
5 years of age or younger	345	13.42
Pregnant	51	1.99
Diagnosed with diabetes or kidney disease	303	11.77
Diagnosed with a condition that weakens the immune system	401	15.56
At least one household member at risk for foodborne illness		
Yes	1,375	53.43
No	1,198	46.57

(continued)

Table 3-1. Demographic Characteristics of Survey Respondents (continued)

Characteristic	Number of Respondents	Weighted %
Respondent or household member has doctor-diagnosed food allergy		
Yes	207	8.05
No	2,365	91.95

[a] Responses may sum to more than 100%; question indicated "select all that apply."

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Sources: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586 and profile data maintained on the KnowledgePanel.

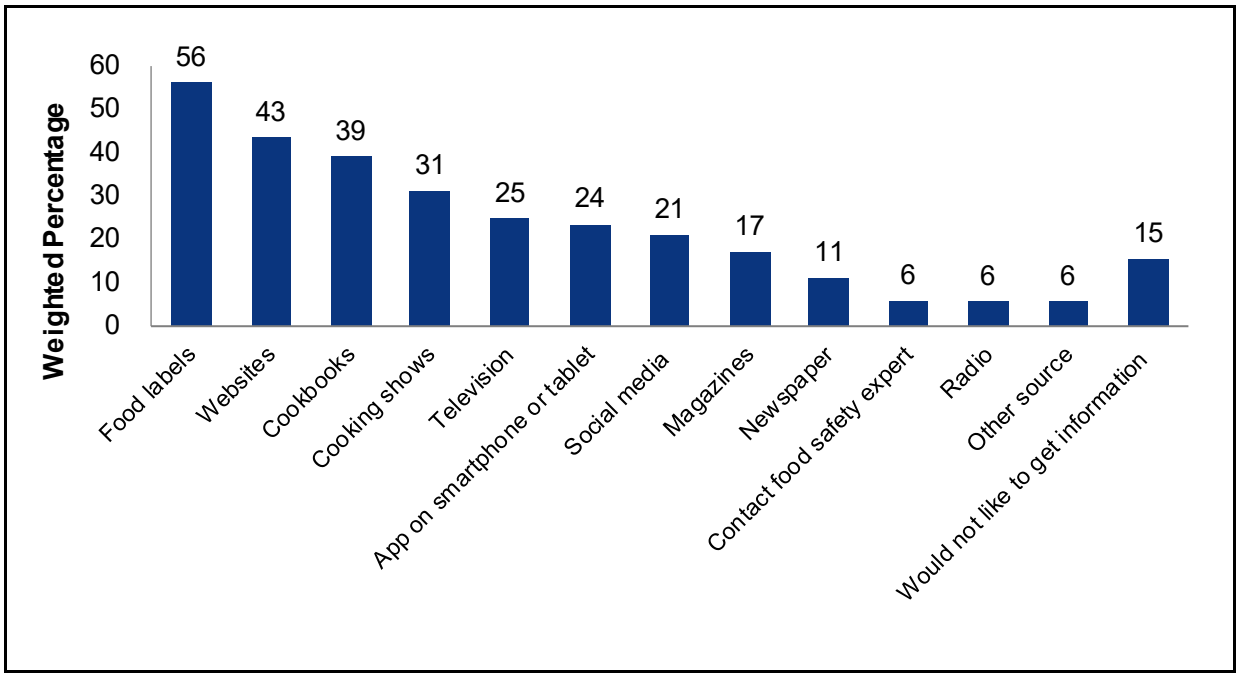
3.2 Respondents' Preferences for Receiving Information on Food Safety

To inform OPACE's consumer outreach efforts, we used the survey to collect information on respondents' preferred approaches for receiving information on how to safely handle, prepare, and store food. Respondents would like to receive food safety information from food labels (56%), websites (excluding social media) (43%), cookbooks (39%), television (25%), and apps on smartphones or tablets (24%) (see Figure 3-1 and Table C-1 in Appendix C).

Respondents who preferred to receive food safety information from magazines, websites, cooking shows, and other sources were asked a follow-up question for which they could write in a response to indicate their preferred source. Responses representing more than 5% of respondents were recoded (4% for cooking shows), and the results are shown in Table C-1 in Appendix C. For respondents who identified magazines as a preferred source (*n* = 443), some named specific magazines: the most frequently mentioned were *Good Housekeeping* (15%), *Better Homes and Gardens* (13%), *Food Network* (12%), and *Bon Appetite* (8%). Respondents also mentioned women's magazines (e.g., *Women's Day, Family Circle, Women's Health*) (18%) and other magazines about food or cooking or that contain recipes (e.g., *Taste of Home, Food and Wine, Rachel Ray*) (39%).[1]

[1] Fewer than 5% of respondents identified these specific magazines, so they were grouped into the same category.

Figure 3-1. Preferences for Receiving Information on Food Safety[a]



[a] Responses may sum to more than 100%; question indicated "select all that apply."

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

For respondents who identified websites (*n* = 1,120) as a preferred source, some named specific websites such as Foodnetwork.com (17%) and Allrecipes.com (7%). Some respondents specified government websites such as the Food and Drug Administration (FDA) website (10%), the USDA website (8%), the Centers for Disease Control and Prevention (CDC) website (4%), or some other government website (e.g., foodsafety.gov, nih.gov) (7%). Some respondents mentioned a news website such as ABC, Yahoo, and the New York Times (8%). Nearly a third of respondents (32%) mentioned other websites about food or cooking or that contain recipes (e.g., food manufacturers, grocery stores, Weight Watchers, Dr. Oz).[2]

Respondents who preferred receiving food safety information from cooking shows (*n* = 803) named specific cooking shows, such as *Rachel Ray* (19%), *Pioneer Woman* or Rhee Drummond (9%), *Chopped* (6%), and *Barefoot Contessa* or Ina Garten or (6%), and

[2] Fewer than 5% of respondents identified these specific websites, so they were grouped into the same category.

America's Test Kitchen (4%). Respondents also mentioned the Food Network or Cooking Channel (50%) or PBS (9%) specifically or other cooking shows on these channels.[3]

Respondents who preferred receiving food safety information from other sources (n = 145) most often mentioned friends and family (25%). Other ways in which respondents would like to get food safety information were food safety class(es) (10%), news sources (e.g., local news, media coverage) (9%), and emails (6%).

3.3 Respondents' Response to the USDA Meat and Poultry Hotline

The USDA Meat and Poultry Hotline

The toll-free USDA Meat and Poultry Hotline, which began July 1, 1985, receives more than 50,000 calls a year. The hotline is staffed by food safety specialists with backgrounds in home economics, nutrition, and food technology and answers questions about safe storage; handling; and preparation of meat, poultry, and egg products. The hotline operates year-round Monday through Friday from 10 AM to 6 PM ET (English or Spanish).

Source: https://www.fsis.usda.gov/wps/portal/fsis/programs-and-services/contact-centers/usda-meat-and-poultry-hotline (USDA, 2016b)

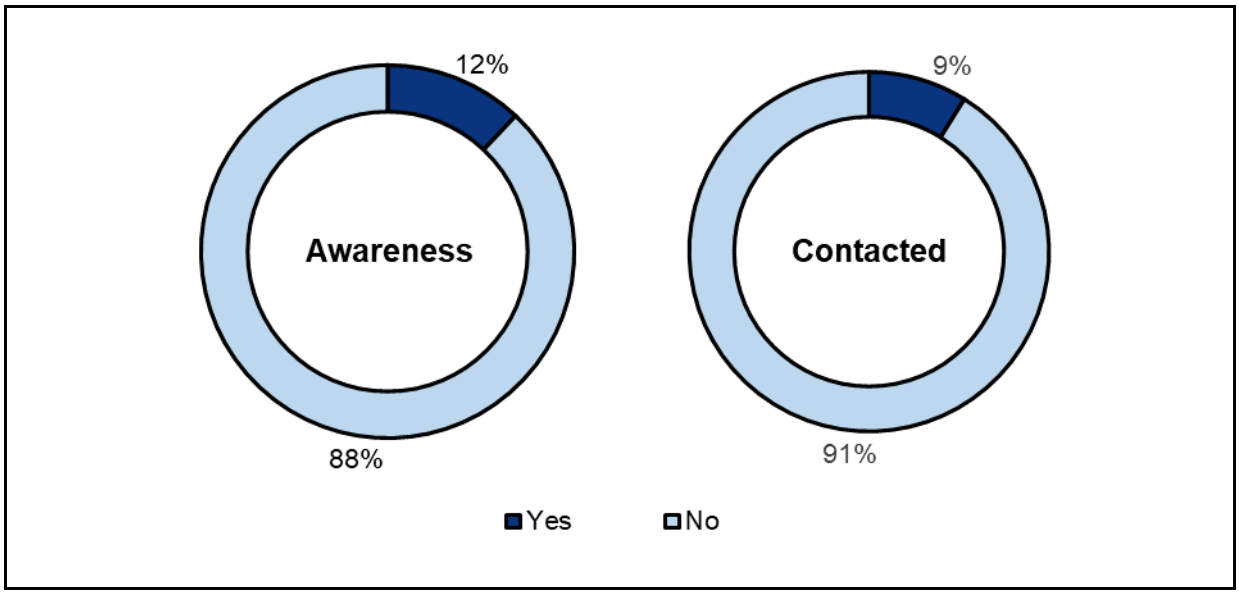
The survey collected information on respondents' awareness of, satisfaction with, and likelihood of contacting the USDA Meat and Poultry Hotline (see Figure 3-2).[4] About 12% of respondents (n = 311) were previously aware of the USDA Meat and Poultry Hotline, and among those aware respondents, 9% (n = 28) had contacted the hotline. The most common reasons for contacting the hotline were questions about food preparation (65%) or a food recall (36%). Most (60%) respondents reported being somewhat or very satisfied with the information they received when contacting the hotline. The majority of respondents were unaware of the hotline (n = 2,274). Among those unaware respondents, about 30% reported that they would be somewhat or very likely to contact the hotline if they had a question about food preparation (see Figure 3-3). Preferred methods for contacting the hotline were via phone call (45%), email (29%), and online chat (27%). Nearly a quarter of respondents indicated they would not contact the hotline (see Figure 3-4). Respondents' preferences for the most convenient times to contact the hotline (call, email, or online chat) were between 4:00 and 6:00 PM ET (18%) and 6:00 and 8:00 PM ET (25%) (see Figure 3-5).[5] Table C-2 in Appendix C provides responses to the questions that asked about the hotline.

[3] Fewer than 4% of respondents identified these specific cooking shows, so they were grouped into the same category.

[4] Participants were provided with this description of the hotline: The U.S. Department of Agriculture offers a Meat and Poultry Hotline (1-888-MPHotline) that people can call, email, or live chat (e.g., Ask Karen) with and ask questions about safe storage, handling, and preparation of meat, poultry, and egg products.

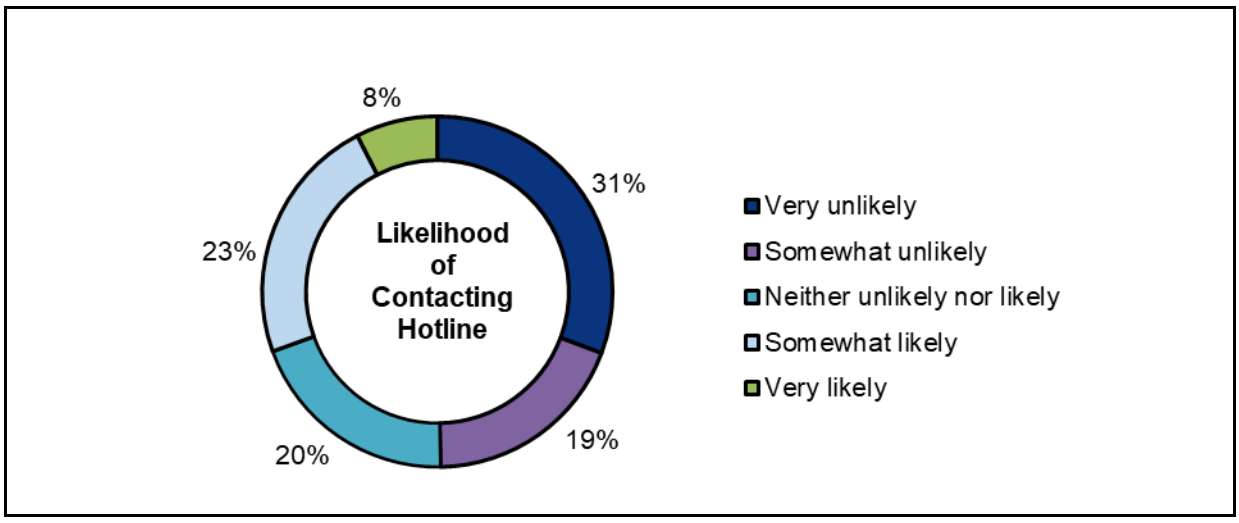
[5] Times were shown in the respondent's local time.

Figure 3-2. Awareness and Use of the USDA Meat and Poultry Hotline[a]



[a] Only respondents who were aware of the USDA Meat and Poultry Hotline answered "contacted" question (*n* = 311).

Figure 3-3. Likelihood of Contacting the USDA Meat and Poultry Hotline[a]



[a] Only respondents who were not aware of the USDA Meat and Poultry Hotline answered this question (*n* = 2,274).

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Figure 3-4. Likely Method of Contacting the USDA Meat and Poultry Hotline

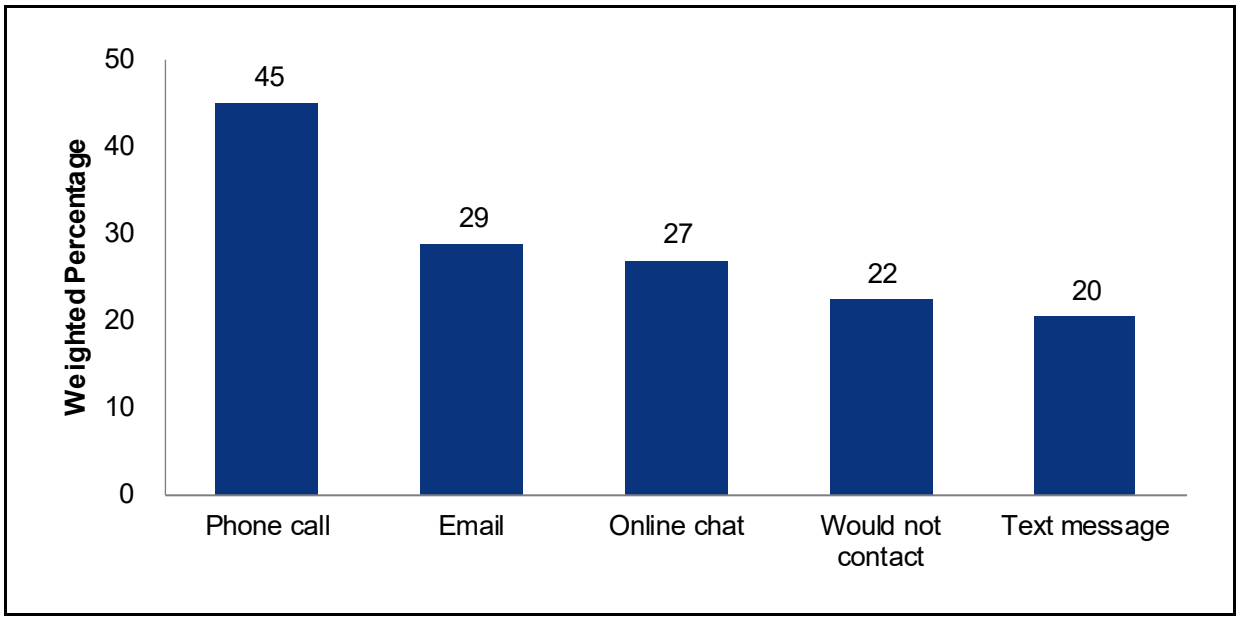
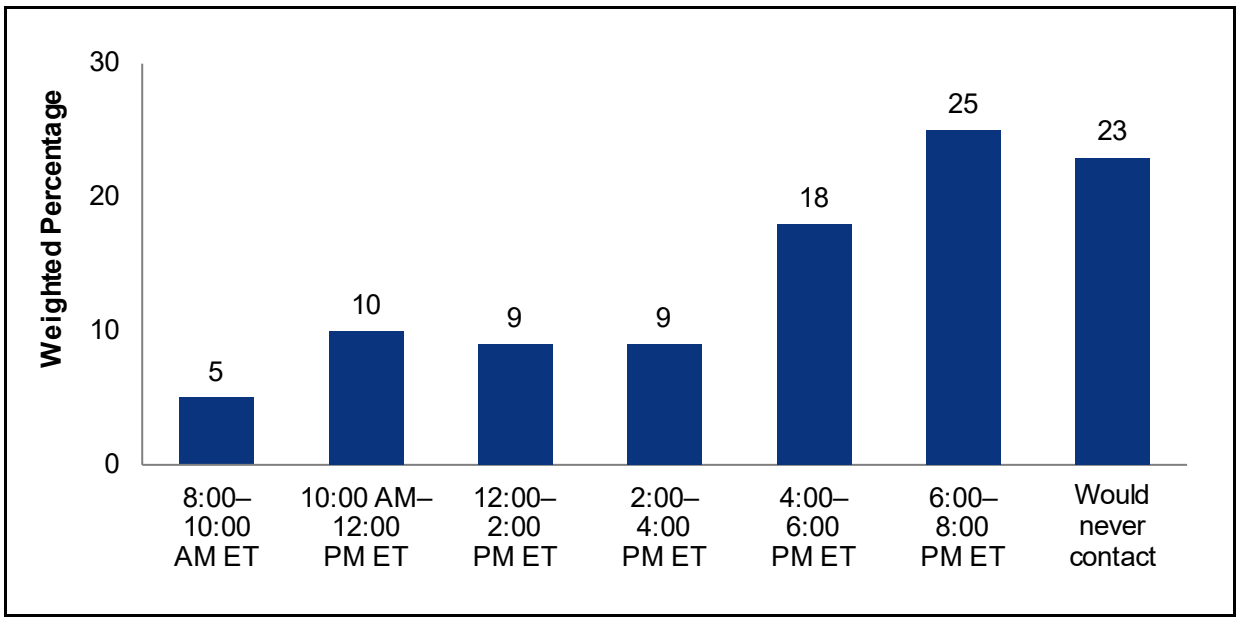


Figure 3-5. Convenient Time for Contacting the USDA Meat and Poultry Hotline[a]



[a] Times were shown in respondent's local time.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

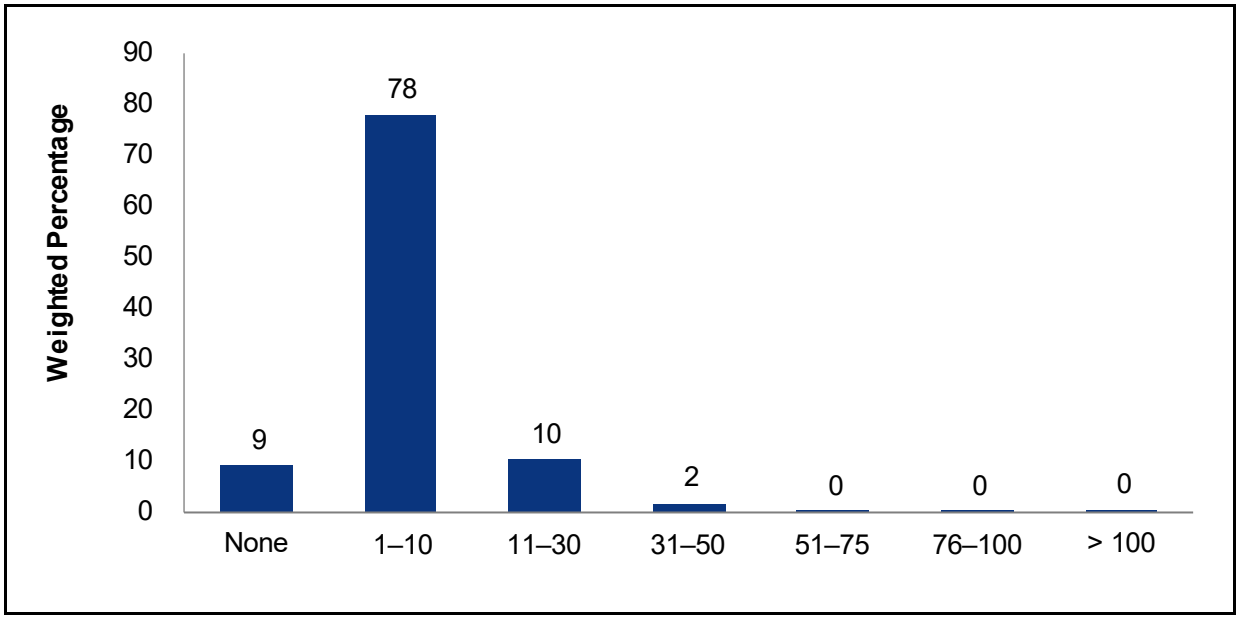
For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

3.4 Respondents' Experience with and Response to Food Recalls

FSIS is responsible for issuing recalls on meat, poultry, and egg products, while the FDA is responsible for issuing recalls on the other 80% of foods, including pet and animal feed (National Academy of Sciences, 2010). To assess whether consumers are aware and understand the number of recalls that take place each year and gauge recall fatigue, the survey asked about the number of food recalls that respondents had heard about in the past 6 months. Most participants (78%) reported hearing about between 1 and 10 recalls (see Figure 3-6). The actual number of recalls announced by FSIS and FDA during the 6-month period before the survey was 200 (USDA, n.d.; FDA, n.d.), so respondents' perception of the number of recalls is much lower than the actual number of recalls, suggesting lack of recall fatigue.

Figure 3-6. Number of Food Recalls Heard About in Past 6 Months



Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

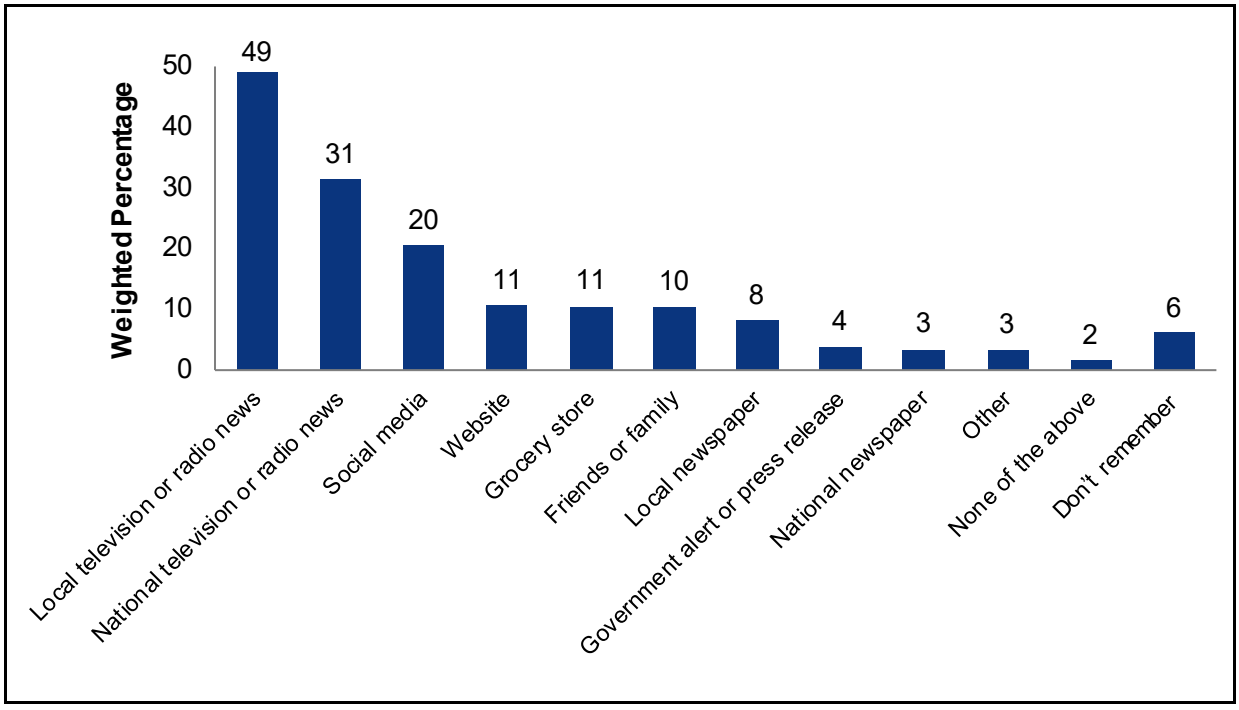
For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Respondents were asked to think about the last time they had heard about a food recall for a food that their household eats and then were asked a series of questions pertaining to that recall. The most commonly reported sources respondents reported for learning about the recall were from their local television or radio news (49%), national television or radio news (31%), social media (20%), and a website (excluding social media) (11%). For

respondents who heard about the recall from a website, most got this information from a news or media website (79%). Four percent of respondents heard about the last recall from a government alert or press release (see Figure 3-7).

Figure 3-7. How Respondents Heard About Most Recent Food Recall[a]



[a] Responses may sum to more than 100%; question indicated "select all that apply."

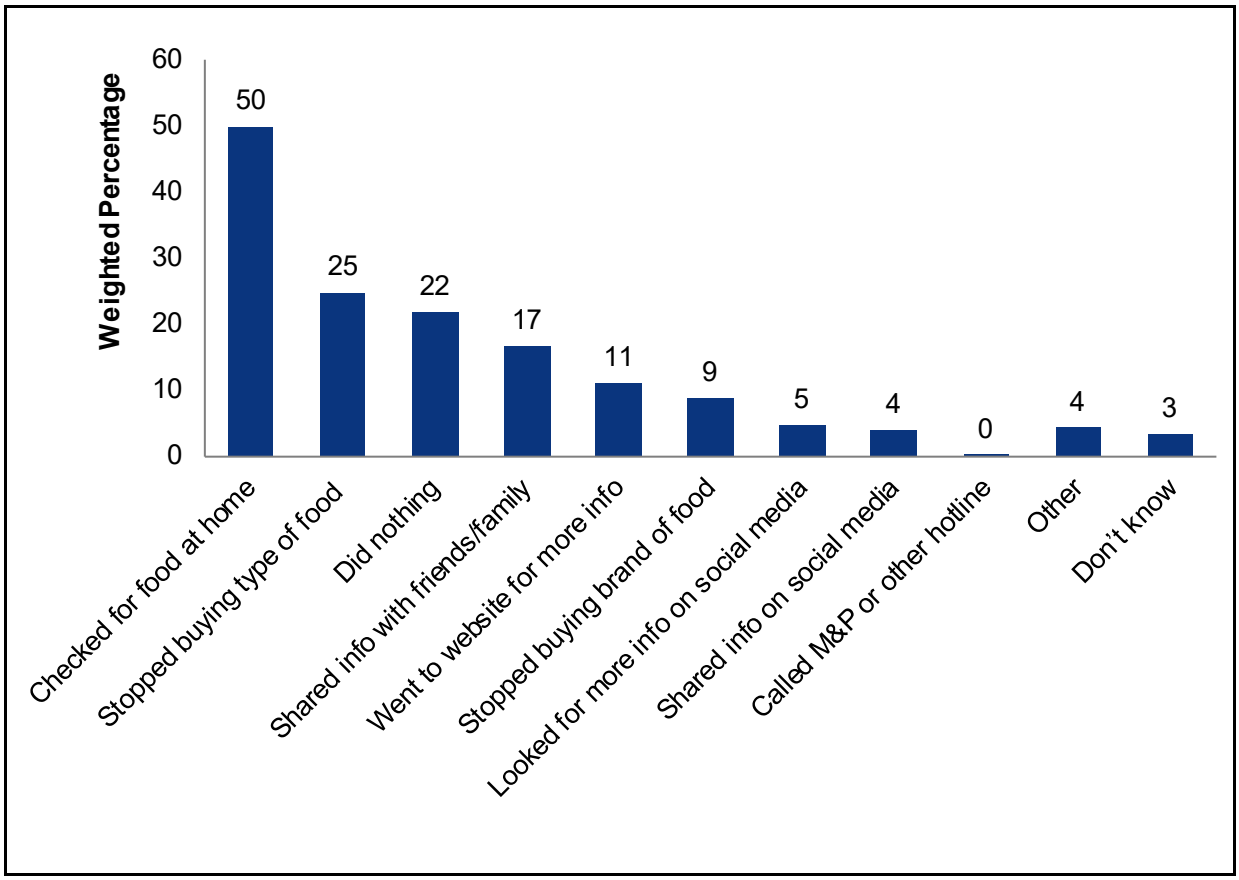
Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

In response to hearing about a recall, respondents most often checked to see if the food was in their home (50%), stopped buying that type of food (25%), or did nothing (22%) (see Figure 3-8). Respondents who went to a website for more information most often visited a news or media website (60%). Among participants who stopped buying the specific brand or type of food (*n* = 866), most stopped buying it for between 2 weeks and 1 month (35%) or between 2 and 3 months (19%).

Figure 3-8. Response to Most Recent Food Recall[a]



[a] Responses may sum to more than 100%; question indicated "select all that apply."

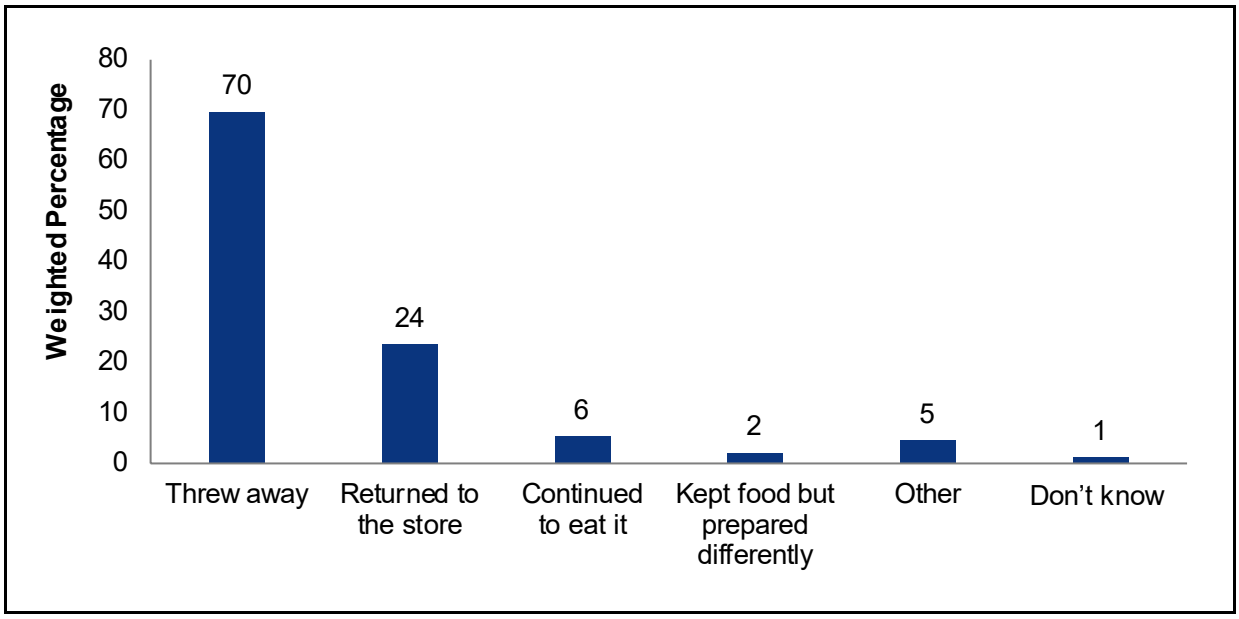
Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

To help prevent illness or injury, FSIS recommends that consumers discard the recalled food or return it to the store (i.e., the call to action). Among respondents who had the recalled food at home (*n* = 266), the majority followed these actions correctly: 70% discarded the recalled food and 24% returned it to the store (see Figure 3-9). Table C-3 in Appendix C summarizes respondents' responses to questions on their experience with and response to food recalls.

Figure 3-9. Actions Taken for Recalled Food at Home for Most Recent Food Recall[a]



[a] Responses may sum to more than 100%; question indicated "select all that apply." Only respondents who selected "yes, had recalled food at home" answered this question (*n* = 266).

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

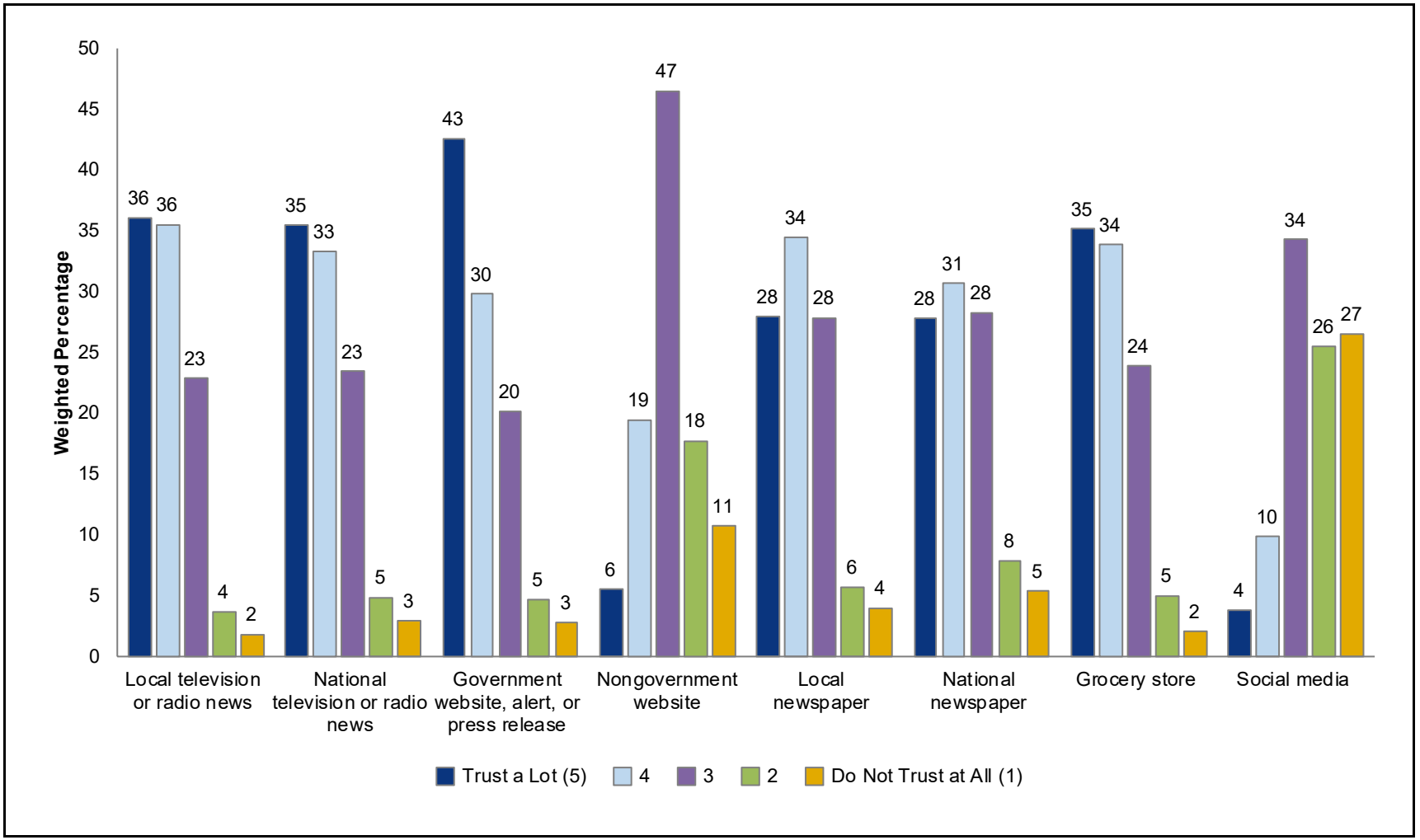
Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

3.5 Communicating Information on Food Recalls to Consumers

Respondents' level of trust about information on food recalls varied by the source. Trusted sources (rated a 4 or 5)[6] include local television or radio news (72%); government website, alert, or press release (72%); grocery stores (69%); and national television or radio news (69%). Respondents have less trust (rated a 1 or 2)[6] in social media (52%) and nongovernment websites (28%) (see Figure 3-10 and Table C-4 in Appendix C).

[6] Respondents were asked the following question: "On a 1-to-5 scale, with 1 = do not trust at all and 5 = trust a lot, how much do you trust the information that each of the following sources may provide on food recalls?"

Figure 3-10. Respondents' Level of Trust by Type of Source for Information on Food Recalls



Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

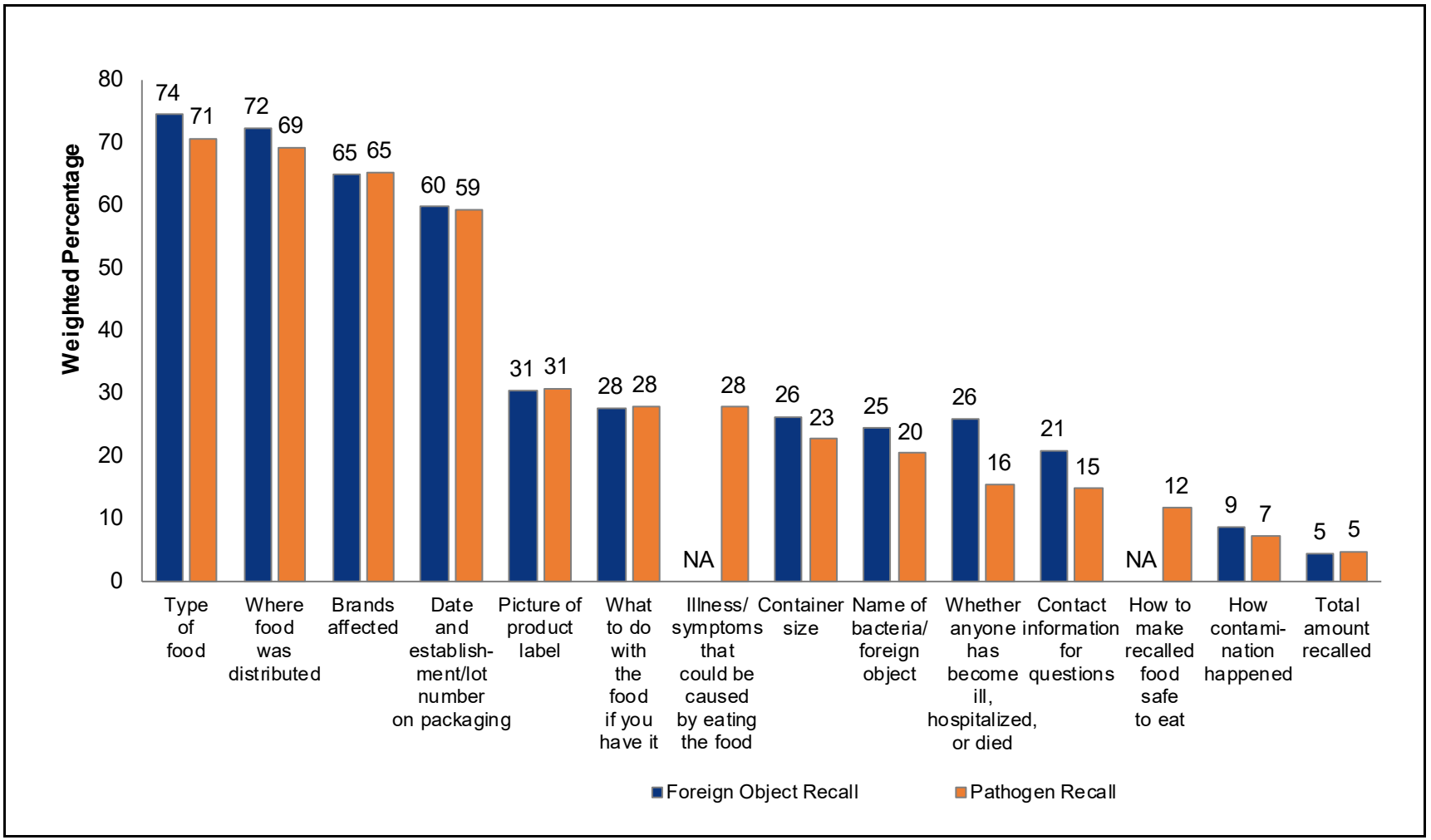
Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, n = 2,586

The survey instructed respondents to read a mock FSIS-issued news release of a recalled meat product to assess consumers' perceptions of the most important information to include in a food recall alert. Respondents were randomly assigned so that half saw an alert for recalled meat due to foreign object contamination (i.e., pieces of hard plastic), and half saw an alert for recalled meat due to pathogen contamination (i.e., *E. coli* O157:H7). Respondents were then asked to select up to five items of information that were most important in helping them respond to the recall. Across both recall alerts, the most important items of information respondents selected were type of food, where food was distributed, brands affected, and date and establishment or lot number on the packaging. The items of information that were selected the least often were total amount of food recalled and how the contamination happened. About 28% selected information on what to do with the recalled food (i.e., the call to action) as being important information (see Figure 3-11 and Table C-5 in Appendix C).

The survey also collected information on respondents' preferences for receiving information on food recalls. Respondents preferred receiving information on food recall alerts from local television news (58%), grocery stores (43%), and national television news (41%). Fifteen percent of respondents identified government notices or press releases as a preferred information source on food recalls (see Figure 3-12). About 13% of respondents reported that they have visited a government website for information on food recalls, and 3% currently receive government emails or text messages about food recalls.

About a third of respondents were somewhat or very likely to sign up to receive government food recall emails (33%) or text messages (27%). Among these respondents (n = 955), 93% wanted to receive recall alerts for foods that contained germs (i.e., pathogens) that could make consumers sick, 90% wanted to receive recall alerts for foods that contained chemicals that could make consumers sick, and 85% wanted to receive recall alerts for foods that contained foreign materials. Fewer respondents wanted to receive recall alerts for foods that contained an allergen that the manufacturer failed to include in the list of ingredients (i.e., undisclosed allergens) (47%) (see Figure 3-13). Among these respondents (n = 452), milk (56%), eggs (56%), tree nuts (54%), peanuts (54%), crustacean shellfish (53%), and fish (49%) were selected most often as allergen-related foods of interest.

Figure 3-11. Perceptions of the Most Important Information Needed in Responding to a Food Recall[a]



[a] Responses may sum to more than 100%; question indicated "select up to five responses." Respondents were randomized to each recall notice: *n* = 1,281 responded to the foreign objects recall, and *n* = 1,305 responded to the pathogen recall.

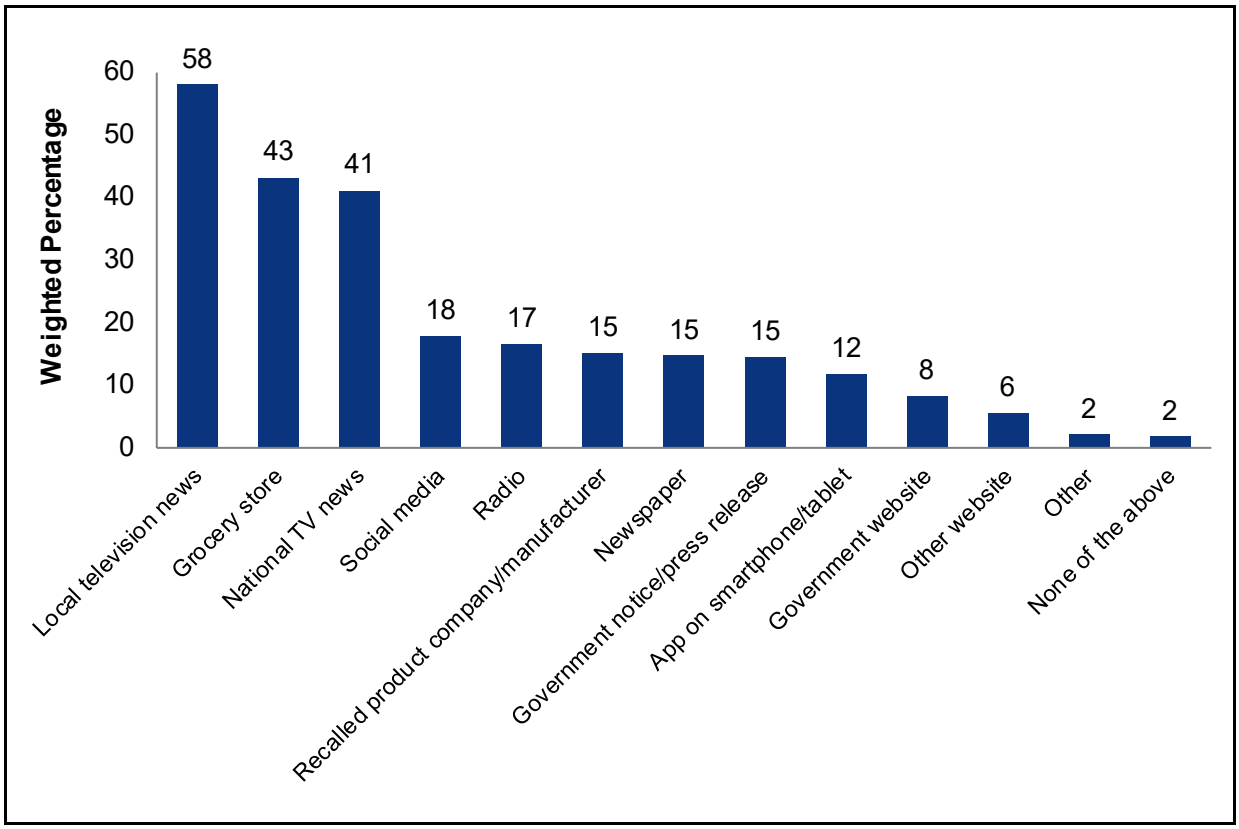
NA = Not applicable

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Figure 3-12. Preferred Sources for Receiving Information on Food Recall Alerts[a]



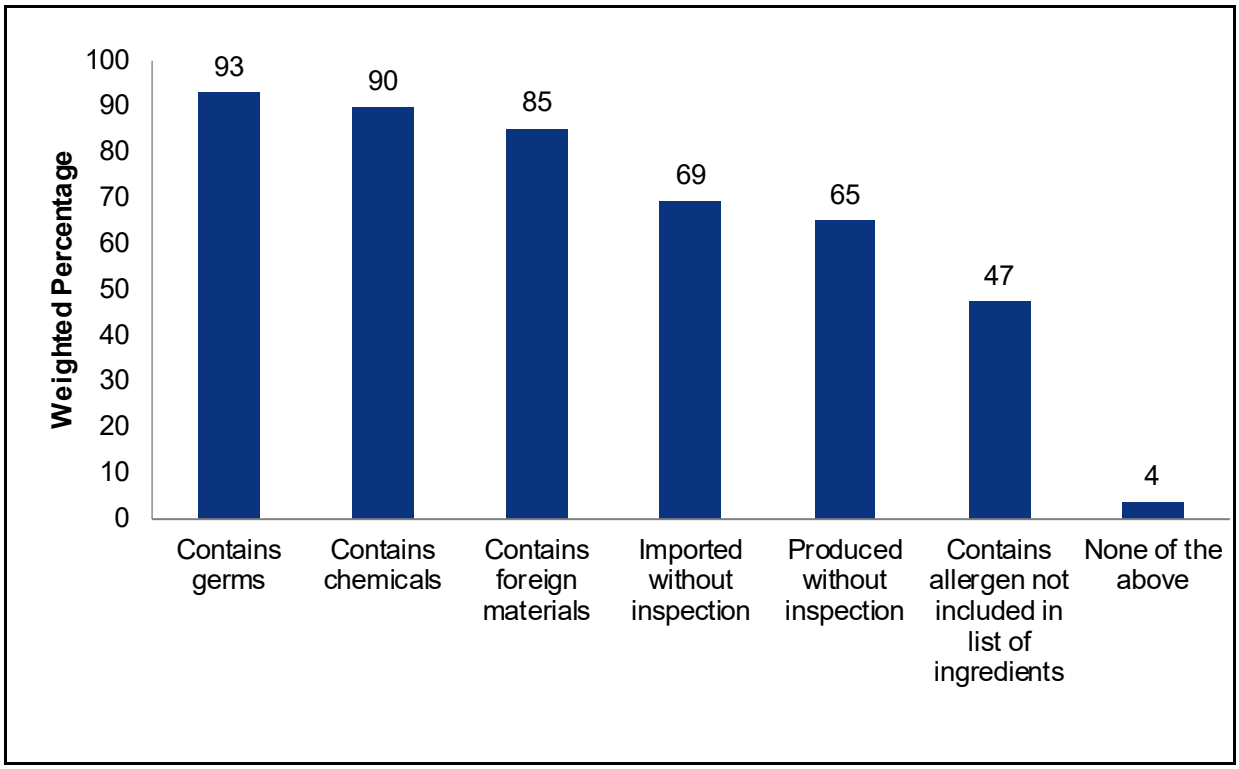
[a] Responses may sum to more than 100%; question indicated "select up to 3 responses."

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Figure 3-13. Preferences for Types of Food Recalls to Receive Information from the Government[a]



[a] Only respondents who selected "somewhat likely" or "very likely" to sign up to receive emails or text message alerts from the government answered this question (*n* = 955). Responses may sum to more than 100%; question indicated "select all that apply."

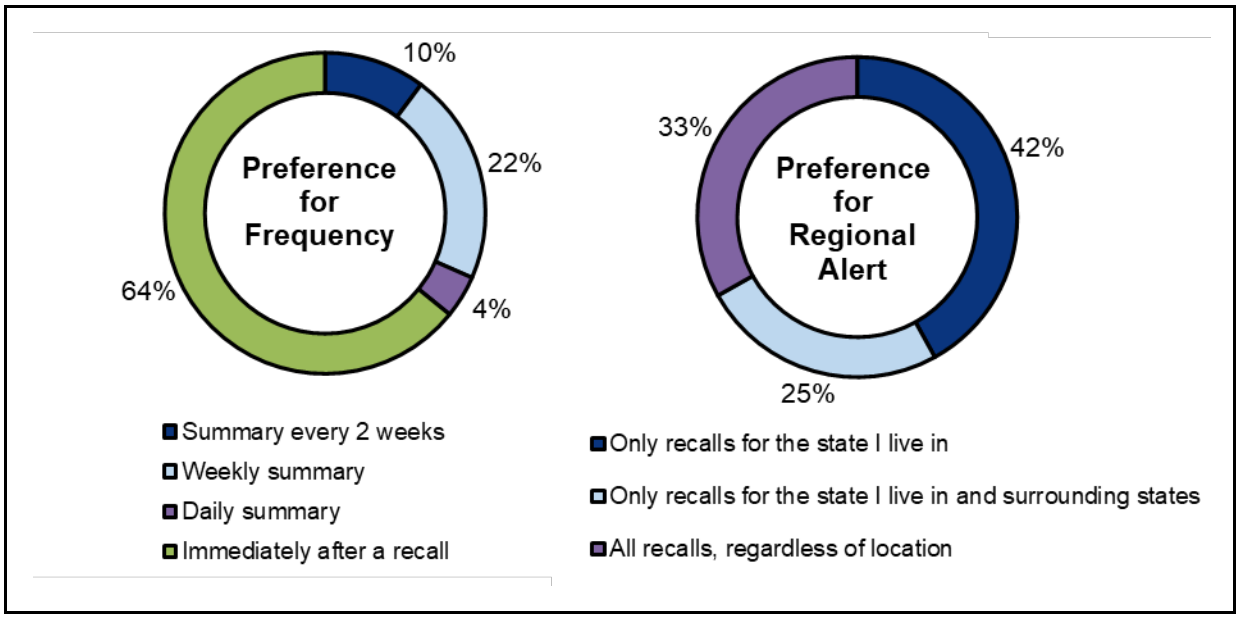
Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Among respondents who were somewhat or very likely to sign up to receive emails or text message alerts on food recalls from the government, nearly two-thirds (64%) wanted to know about the recall immediately after it occurred rather than receiving a periodic summary (i.e., daily, weekly, or bimonthly) (see Figure 3-14). About 42% were interested in receiving the information for only the state they resided in, while 25% were interested in receiving the information for their state and surrounding states, and nearly a third (33%) wanted the information regardless of location (see Figure 3-14). Respondents expressed interest in receiving food recall alerts for all types of food, with raw meat and poultry most often selected (98%). Table C-6 in Appendix C further summarizes respondents' responses to questions on preferences for receiving information on food recalls.

Figure 3-14. Preferences for Information to Receive from the Government on Food Recalls: Frequency of Email and Text Alerts and Preferences for Regional vs. National Alerts[a]



[a] Only respondents who selected "somewhat likely" or "very likely" to sign up to receive emails or text message alerts from the government answered this question (n = 955).

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

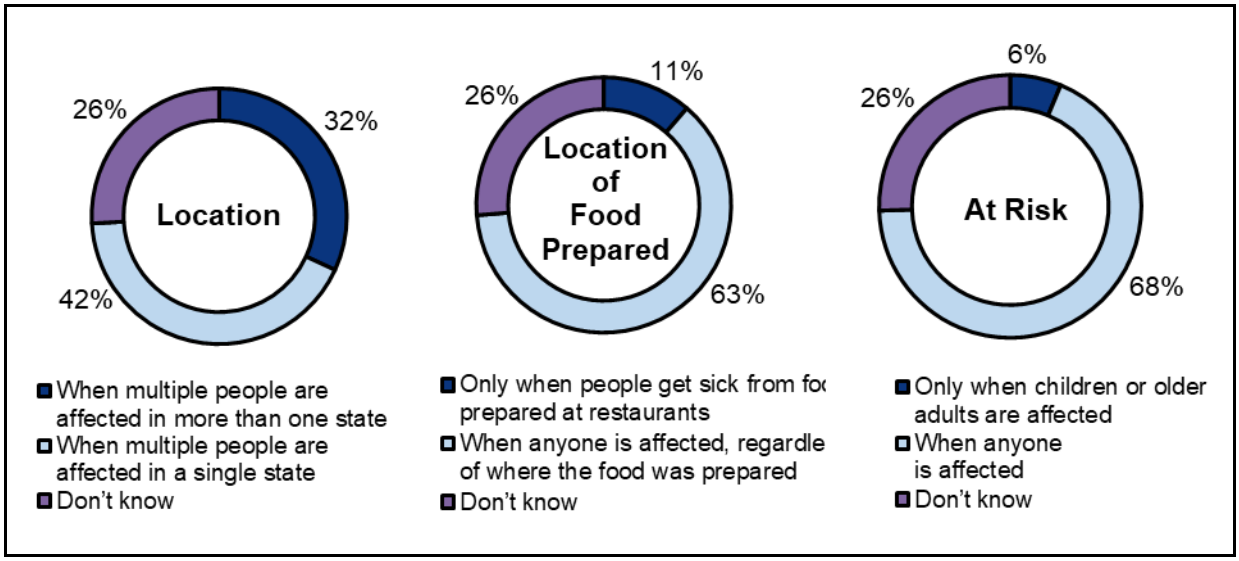
Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, n = 2,586

3.6 Respondents' Awareness and Understanding of Foodborne Illness Outbreaks

The survey collected information on respondents' awareness and understanding of foodborne illness outbreaks. Respondents were asked in three separate questions about their beliefs about when the government announces a foodborne illness outbreak to assess their understanding of foodborne illness outbreaks: location (one state vs. multiple states), location of food prepared (only restaurants vs. any location), and type of individuals affected (only if child or older adults vs. anyone). About one-fourth of respondents responded "don't know" to each of these questions. About 42% of respondents believed that outbreaks are announced when multiple people are affected in a single state, and 32% believed that outbreaks are announced when multiple people are sick in more than one state. When outbreaks are actually announced varies. In general, when people are affected in more than one state, CDC is involved. When people are affected in a single state, the state health department might be the one leading the communication efforts. FSIS considers communication in either scenario if an FSIS-regulated product is involved.

About 63% of respondents knew that the government announces a foodborne illness outbreak regardless of where the food was prepared (11% believed outbreaks were limited to food prepared at restaurants), and 68% knew that the government announces a foodborne illness outbreak when anyone is affected (6% believed outbreaks were limited to children and older adults) (see Figure 3-15).

Figure 3-15. Belief About When the Government Announces a Foodborne Illness Outbreak: Location of Outbreak, Location Food Prepared, and Whether At-Risk (Children and Older Adults) Population



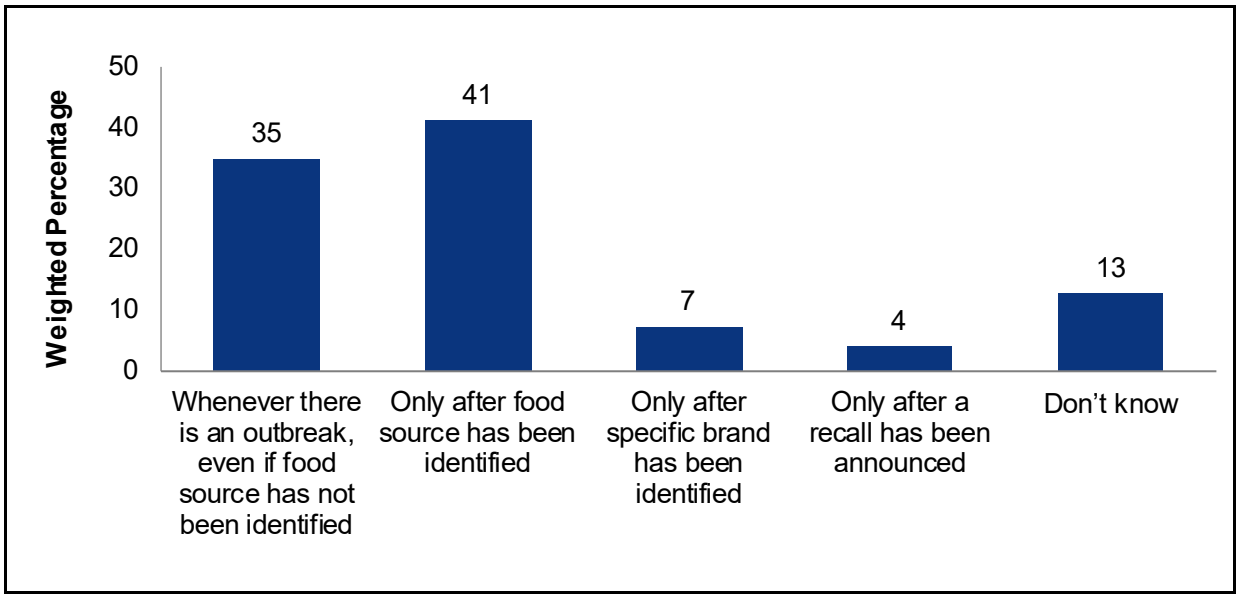
Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Regarding respondents' opinions on when the government should announce a foodborne illness outbreak, 35% think it should be whenever there is an outbreak even if the food source has not been identified, 41% think it should be only after the food source has been identified, and 7% think it should be only after the specific brand of the product has been identified. Few participants (4%) think the government should wait and announce an outbreak after the food product has been identified, and 13% did not know (see Figure 3-16). Announcements about foodborne illness outbreaks vary depending on several factors such as the severity of the pathogen; the timeline of cases being reported; and if there is any epidemiologic "signal" for a specific food, even if it has not been formally implicated. FSIS considers communication in coordination with other state and federal public health partners if the Agency can communicate any actions to consumers.

Figure 3-16. Opinion on When the Government Should Announce a Foodborne Illness Outbreak



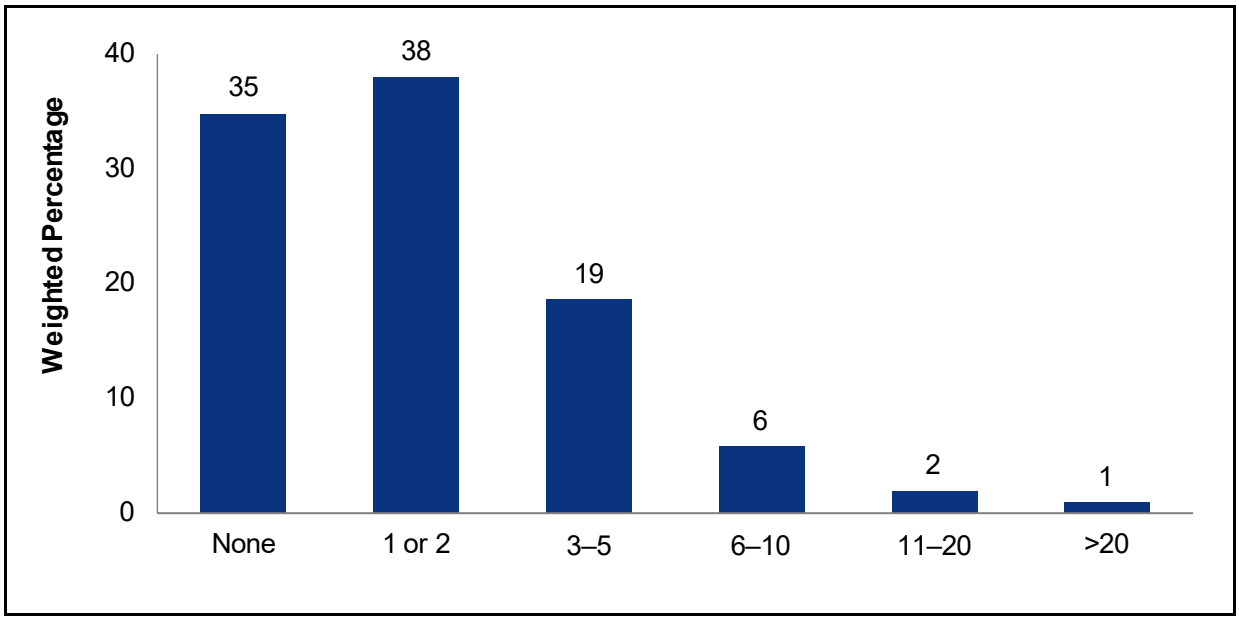
Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

The survey asked about the number of foodborne illness outbreaks that respondents had heard about in the past 6 months to assess whether consumers are aware of the frequency of foodborne illness outbreaks. Most respondents reported either none (35%) or between one and two (38%) (see Figure 3-17). The actual number of foodborne illness outbreaks reported by CDC during the 6 months before the survey was 13 (CDC, n.d.), suggesting respondents did not hear about many of the outbreaks announced by CDC. Table C-7 in Appendix C further summarizes respondents' answers to questions on their awareness and understanding of foodborne illness outbreaks.

Figure 3-17. Number of Foodborne Illness Outbreaks Heard of in Past 6 Months



Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

3.7 Respondents' Self-reported Food Handling Practices

The survey asked about consumers' food handling practices specific to grilling and serving food buffet style during parties and other gatherings the last time they prepared these types of food at home. We used the responses to these questions to determine whether participants followed or did not follow the recommended practice the last time they prepared the specific food at home.

3.7.1 Grilling Meat, Poultry, or Fish

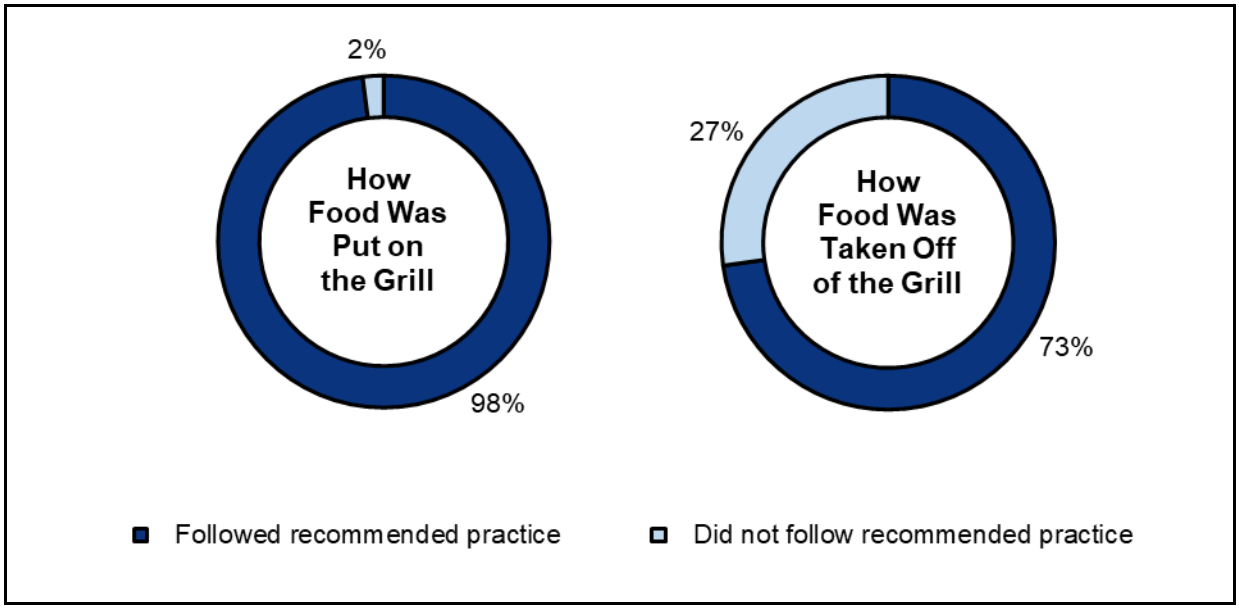
Only respondents who cooked meat, poultry, or fish on an outdoor grill in the past year answered this subset of questions (*n* = 1,871).

To help prevent illness, FSIS recommends that consumers put the cooked food (i.e., meat, poultry, or fish) on a different plate or pan than the one used to carry the raw food to the grill, serve the cooked food directly from the grill to individual plates, or put the cooked food on the same plate or pan that was used to carry food to grill if it was washed with soap and water or washed with soap and water and then sanitized with bleach or another sanitizing solution. Most respondents reported following one of these practices for removing the

cooked food from the grill the last time they grilled meat, poultry, or fish (98%). Of these, most respondents put the cooked food on a different plate or pan (89%).

Similarly, when taking the cooked food (i.e., meat, poultry, or fish) off of the grill using a utensil, FSIS recommends that consumers use a different utensil than the one that was used to put the raw food on the grill, or use the same utensil that was used if it was washed with soap and water or washed with soap and water and then sanitized with bleach or another sanitizing solution. Nearly three-quarters of respondents reported following one of these practices for taking food off of the grill the last time they grilled meat, poultry, or fish (73%). Of these, most respondents used a different utensil (66%) (see Figure 3-18 and Table C-8 in Appendix C).

Figure 3-18. Reported Handling Practices for Last Time Cooked Meat, Poultry, or Fish on Grill[a]



[a] Only respondents who cooked meat, poultry, or fish on an outdoor grill in the past year answered this question (n = 1,871). See Table C-8 in Appendix C for information on how we estimated whether respondents followed the recommended practice.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

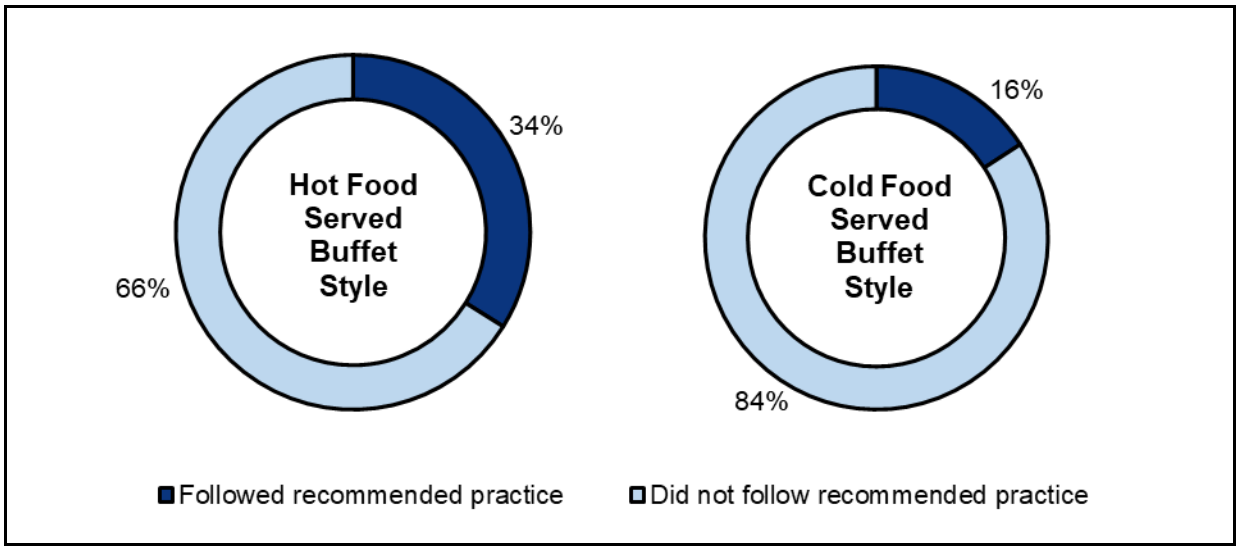
3.7.2 Serving Food Buffet Style at Gatherings

Only respondents who hosted a buffet-style gathering in past year answered this subset of questions (n = 1,477). Respondents were asked how they served hot and cold perishable foods (e.g., potato salad, chicken salad, seven-layer dip) at buffet-style gatherings.

To help prevent illness, FSIS recommends that consumers serve hot food in a container with a heat source such as a chafing dish, slow cooker, or warming tray. About a third of respondents indicated they followed the recommended practice the last time they served hot food buffet style. Of the two-thirds who indicated they did not follow the recommended practice, 43% served the hot food in the same dish it was cooked or heated in, and 23% served the food in a bowl, tray, or plate without a heat source.

For cold perishable foods, FSIS recommends serving the food in a container or plate nested in a bowl of ice and storing or discarding the leftovers after 2 hours. About 16% of respondents said they followed the recommended practice, with some serving a portion of the food nested in ice and storing the rest in the refrigerator and some serving all of the food nested in ice and storing or discarding the leftovers after 2 hours. About 84% of respondents indicated they did not follow the recommended practice the last time they served cold food buffet style; many served some or all of the food without nesting it in ice (see Figure 3-19 and Table C-8 in Appendix C).

Figure 3-19. Reported Handling Practices for Last Time Served Food Buffet Style at Gatherings: Hot Foods[a] and Cold Perishable Foods[b]



[a] Only respondents who had a gathering in which hot food was served buffet style in the past year answered this question (*n* = 1,404). See Table C-8 in Appendix C for information on how we estimated whether respondents followed the recommended practice.

[b] Only respondents who had a gathering in which cold perishable food was served buffet style in the past year answered this question (*n* = 1,393). See Table C-8 in Appendix C for information on how we estimated whether respondents followed the recommended practice.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

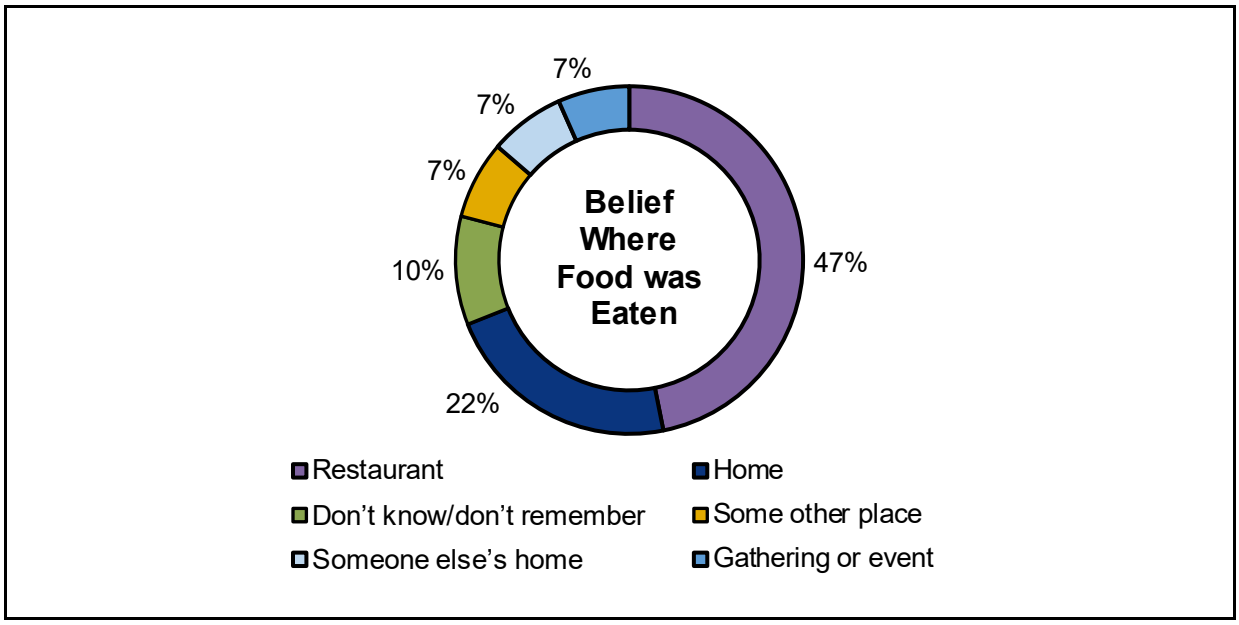
3.8 Respondents' or Households' Experience with Foodborne Illness

Respondents were asked if anyone in the household had any kind of sickness that might have been caused by eating unsafe food (not including food allergies) in the past year. Nine percent of respondents reported that they or someone else in the household had foodborne illness in the past year (n = 392). Of these, nearly half of respondents (46%) said they themselves had foodborne illness, about a third (32%) said it was another household member, and the remaining 22% said it was both themselves and another household member.

The most common symptoms reported among respondents or another household member were upset stomach (75%), diarrhea (75%), abdominal cramps (51%), and nausea or vomiting (48%). About 14% visited a healthcare provider because of the illness. Of these, about two-thirds (n = 38) were diagnosed with foodborne illness. The symptoms that prompted the respondent or someone else in the household to visit a healthcare provider were nausea or vomiting (79%), dehydration (76%), diarrhea (73%), and/or fever (70%). Nearly half of respondents (47%) believed the food that made them/household member ill was eaten at a restaurant, and about 22% believed the food was prepared at home (see Figure 3-20).

If the respondent believed the food that made them/household member ill was prepared at home, they were asked if they had since made changes in how they prepare and handle food (n = 87). About 61% said they did not make changes to how they prepare or handle food at home, and 39% (n = 34) said they did make changes. The most common self-reported changes made in response to having foodborne illness from food prepared at home included cooking the food longer or to very well done (18%), no longer buying that product (18%), and checking for spoilage sooner for stored foods (17%). Table C-9 in Appendix C provides responses to questions on respondents' or household members' experiences with foodborne illness.

Figure 3-20. Belief About Where Food Was Eaten That Caused Foodborne Illness for Respondents or Household Members Who Had Foodborne Illness[a]



[a] Only respondents who answered "yes" to either having foodborne illness in past month or in past year answered this question for self or household member (*n* = 392). Includes healthcare provider–diagnosed and self-diagnosed individuals.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

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Appendix A:
Questionnaire

RTI International is conducting this survey with funding from the U.S. Department of Agriculture (USDA). Your participation in this study is completely voluntary. All your answers will be kept private. In our experience, answering the survey questions involves no more risk of harm than you would experience in everyday life.

If you have any questions about the study, you may contact Jenna Brophy of RTI at 1-800-334-8571, extension 28881 or by email at jbrophy@rti.org. If you have any questions about your rights as a study participant, you may contact RTI's Office of Research Protection at 1-866-214-2043 or by email at orpe@rti.org.

[DISPLAY 2]

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0583-0178, and the expiration date is 10/31/2020. The time required to complete this information collection is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

[DISPLAY 3]

Privacy Act Notice

This statement serves to inform you of the purpose for collecting personal information required by this system and how it will be used.

Authority: The USDA is generally authorized to collect information to support its mission under: Title 7, Chapter 55-2205 (7 U.S.C 2204) (which authorizes the Secretary of Agriculture to collect information and employ any sampling or other statistical method deemed appropriate); 21 U.S.C. 679c(a)(1)-(3) (which expressly authorizes the Secretary to give high priority to enhancing the ability of FSIS to conduct its mission); the Federal Meat Inspection Act (FMIA) (21 U.S.C. 601, et seq.), the Poultry Product Inspection Act (PPIA) (21 U.S.C., et seq.), the Egg Products Inspection Act (EPIA) (21 U.S.C. 1031, et seq.), and the Humane Methods of Livestock Slaughter Act of 1978 (7 U.S.C. 1901-1906).

Purpose: Findings from the surveys will provide information on how FSIS communication programs and materials affect consumer understanding of recommended safe food handling practices and insight into how to effectively inform consumers of recommended practices. The results of this research will be used to enhance communication programs and materials to improve consumers' food safety behaviors and help prevent foodborne illness. Additionally, this research will provide useful information for tracking progress toward the goals outlined in the FSIS Fiscal Years 2017–2021 Strategic Plan.

Routine Uses: Not applicable.

Disclosure: Responses to any, and all, questions are completely voluntary. Panelists selected to participate in this survey can choose to decline or can skip any questions that they prefer not to answer. Additionally, panelists can decline to participate or withdraw their

participation at any point by closing their web browser prior to completing the survey. Those who do so will not be included in the final data deliverable. Panelists who decline to participate or withdraw participation are not penalized and remain eligible for future surveys.

[SP]
The first questions ask about you and your cooking experience.

S1. Do you have any children living in your household (0 to 17 years)?
1. Yes
2. No

[PROMPT IF REFUSED]
[SP]

S2. How many times a week do you prepare and cook meals at home?
1. Less than once a week
2. Once or twice a week
3. About three times a week
4. Four or more times a week

[TERMINATE IF QS2≠4 OR REFUSED]
[PROMPT IF REFUSED]

[MP]

S3. In the past 30 days, have you prepared a meal using any of the following? *(Select all that apply.)*
1. Broccoli
2. Raw meat (e.g., beef, pork)
3. Rice
4. Raw poultry (e.g., chicken, turkey)
5. Raw fish
6. None of the above—**EXCLUSIVE**

[TERMINATE IF QS3=6 OR QS3≠2 OR 4 OR REFUSED]
[PROMPT IF REFUSED]

[RANDOMIZE RESPONSE OPTIONS— KEEP ITEMS 7 AND 8 FOLLOWING EACH OTHER, KEEP ITEMS 2 AND 5 FOLLOWING EACH OTHER, AND KEEP ITEMS 12 AND 13 AT BOTTOM]
[MP]

1. How would you like to get information on how to safely handle, prepare, or store food? *(Select all that apply.)*
1. Radio
2. Social media (e.g., Facebook or Pinterest)
3. Newspaper
4. Magazines
5. Websites (excluding social media)
6. Cookbooks
7. Cooking shows
8. Television
9. Contact food safety expert by phone, email, or chat
10. Food labels
11. App on smartphone or tablet

12. Other source
13. I would **not** like to get information—**EXCLUSIVE**

[IF Q1=4]
[OPEN ENDED]

2. Please list the names and types of magazines from which you would like to get information on food safety.

[IF Q1=5]
[OPEN ENDED]

3. Please list the websites from which you would like to get information on food safety.

[IF Q1=7]
[OPEN ENDED]

4. Please list the cooking shows from which you would like to get information on food safety.

[IF Q1=12]
[OPEN ENDED]

5. What other ways would you like to get information on food safety?

[SP]

6. The U.S. Department of Agriculture offers a Meat and Poultry Hotline (1-888-MPHotline) that people can call, email, or live chat (e.g., Ask Karen) with and ask questions about safe storage, handling, and preparation of meat, poultry, and egg products.

   Before today, had you ever heard of the Meat and Poultry Hotline?
   1. Yes
   2. No

[PROMPT IF REFUSED]

[IF Q6=1]
[SP]

7. Have you ever contacted the Meat and Poultry Hotline?
   1. Yes
   2. No

[PROMPT IF REFUSED]
[IF Q7=1]
[MP]

7a. Why did you contact the Meat and Poultry Hotline? *(Select all that apply.)*
   1. Question on food preparation
   2. Question about food recall
   3. Restaurant complaint
   4. Other complaint
   5. Other, specify

[IF Q7=1]
[SP]

8. How satisfied were you with the information you received when you contacted the Meat and Poultry Hotline?
   1. Very unsatisfied
   2. Somewhat unsatisfied
   3. Neither unsatisfied nor satisfied
   4. Somewhat satisfied
   5. Very satisfied

[IF Q6=2]
[SP]

9. Now that you have heard of the Meat and Poultry Hotline, how likely would you be to contact it if you had a question about preparing food?
   1. Very unlikely
   2. Somewhat unlikely
   3. Neither unlikely nor likely
   4. Somewhat likely
   5. Very likely

[MP]

10. How would you contact the Meat and Poultry Hotline if you had a question? *(Select all that apply.)*
    1. Phone call
    2. Text message via cell phone
    3. Email
    4. Online chat
    5. Would not contact—**EXCLUSIVE**

[SP]
[INSERT RESPONDENT'S LOCAL TIMES BELOW]

11. When would be the most convenient time for you to call, email, or live chat the Hotline if you had a question?
    1. 8:00 –10:00 AM ET
    2. 10:00 AM–12:00 PM ET
    3. 12:00–2:00 PM ET
    4. 2:00–4:00 PM ET
    5. 4:00–6:00 PM ET
    6. 6:00–8:00 PM ET
    7. Would never contact

[DISPLAY 3]

Food recalls take place when food is removed from the market because it may be unsafe to eat. There are several reasons for food recalls: food may contain germs that could make you sick, food may contain a foreign object like plastic or metal, food packages may be mislabeled, or food may contain an allergen that is not listed on the label.

[SP]

12. Since **MONTH YEAR [insert 6 months prior to field date for survey]**, how many food recalls have you heard about?
    1. None
    2. Between 1–10
    3. Between 11–30
    4. Between 31–50
    5. Between 51–75
    6. Between 76–100
    7. More than 100

[SP]

13. Think about the last time that you heard about a food recall for a food **that you or your family eats**. Did you have the recalled food at home?
    1. Yes
    2. No
    3. Don't remember

[PROMPT IF REFUSED]

[OPEN ENDED]

14. What food was recalled?

[MP]

[RANDOMIZE RESPONSE OPTIONS—KEEP ITEMS 7 AND 3 FOLLOWING EACH OTHER; KEEP ITEMS 10, 11, AND 12 AT BOTTOM]

15. Where did you hear about the recall? *(Select all that apply.)*
    1. Local television or local radio news
    2. National television or national radio news
    3. Website (excluding social media)
    4. Government alert or press release
    5. Local newspaper
    6. National newspaper
    7. Social media (e.g., Facebook or Pinterest)
    8. Grocery store
    9. Friends or family
    10. Other
    11. None of the above—**EXCLUSIVE**
    12. Don't remember—**EXCLUSIVE**

[MP]
[IF Q15=3]

16. On what type of website did you hear about the recall? *(Select all that apply.)*
    1. Government website
    2. The product or company website
    3. News or media website
    4. Other website (excluding social media)

[MP]
[RANDOMIZE RESPONSE OPTIONS—CANNOT SELECT BOTH ITEMS 2 AND 3 –KEEP ITEMS 8 AND 4 FOLLOWING EACH OTHER, KEEP ITEMS 9, 10, AND 11 AT BOTTOM]

17. When you heard about the recall, what did you do?
    1. Checked to see if I had the food
    2. Stopped buying that specific brand of food
    3. Stopped buying that type of food (e.g., romaine lettuce in general)
    4. Went to a website for more information (excluding social media)
    5. Called USDA Meat and Poultry Hotline or other food safety hotline
    6. Shared information by talking with friends or family
    7. Shared information on social media
    8. Looked for more information on social media
    9. Other
    10. Did nothing—**EXCLUSIVE**
    11. Don't know—**EXCLUSIVE**

[MP]
[IF Q17=4]

18. What website did you go to? *(Select all that apply.)*
    1. Government website
    2. The product or company website
    3. News or media website
    4. Social media (e.g., Facebook or Pinterest)
    5. Other website (excluding social media)

[SP]
[IF Q17=2 OR 3]

19. For how long did you stop buying the [if Q21=2 = fill with "specific brand of food" or if Q21=3 = fill with "type of food"] that was recalled?
    1. Less than 2 weeks
    2. Between 2 weeks–1 month
    3. Between 2–3 months
    4. Between 4–6 months
    5. Between 7 months–1 year
    6. More than 1 year
    7. No longer buy it
    8. Don't remember

[MP]
[IF Q13=1]
[RANDOMIZE RESPONSE OPTIONS; KEEP 5 AND 6 AT BOTTOM]

20. What did you do with the recalled food that you had at home? *(Select all that apply.)*
    1. Continued to eat it
    2. Threw it away
    3. Returned it to the store
    4. Kept the recalled food but prepared it differently than I usually do
    5. Other
    6. Don't know **(EXCLUSIVE)**

21. On a 1-to-5 scale, how much do you trust the information that each of the following sources may provide on food recalls?

[RANDOMIZE SOURCES; KEEP NON-GOVT WEBSITE AFTER GOVT WEBSITE]

Source	Do not trust at all (1)	(2)	(3)	(4)	Trust a lot (5)
Local television or local radio news					
National television or national radio news					
Government website, alert, or press release					
Non-government website (excluding social media)					
Local newspaper					
National newspaper					
Grocery store					
Social media (e.g., Facebook)					

[MP]
[RANDOMIZE RESPONSE OPTIONS—KEEP ITEMS 8, 3, AND 4 TOGETHER IN THIS ORDER, WITH ITEM 3 ALWAYS FIRST, AND ITEMS 12 AND 13 AT BOTTOM]

22. When a food recall occurs, how would you like to be told about it? *(Select up to three responses.)*
    1. Local television news
    2. National television news
    3. Government website
    4. Other website (excluding social media)
    5. Government notice or press release
    6. Newspaper
    7. Radio
    8. Social media (e.g., Facebook or Pinterest)
    9. Grocery store
    10. App on smartphone or tablet
    11. Recalled product company or manufacturer
    12. Other
    13. None of the above—**EXCLUSIVE**

[DISPLAY X]
The USDA publishes news releases to let the public know about food recalls. On the next screen, you will see an example news release with information about a food recall. Please read the information presented and answer the following questions.

[DISPLAY X]
[INSERT NEWS RELEASE INFORMATION]
[INSERT RECALL NOTICE, SPLIT SAMPLE: HALF SEE PATHOGEN NOTICE, HALF SEE FOREIGN OBJECT NOTICE]

[DISPLAY X]

[RANDOMIZE RESPONSE OPTIONS]

23. HALF SEE OPTION A

Click here to see the news release again.

Please select the pieces of information that are most important in helping you respond to a recall. *(Select up to five responses.)*

1. Whether anyone has become ill, hospitalized, or died from eating the food
2. Date and establishment or lot number on the packaging
3. Where the food was distributed (e.g., specific states or stores)
4. Brands affected
5. Type of food (e.g., spinach, ground beef)
6. What people should do with the food if they have it
7. How the contamination happened
8. Picture of product label
9. Total amount of food recalled (e.g., 45,000 pounds of ground beef products)
10. Container size recalled (e.g., 1-lb. ground beef package)
11. Contact information (e.g., website or phone) for questions
12. The type of foreign object in the recalled product

HALF SEE OPTION B

Click here to see the news release again.

Please select the pieces of information that are most important in helping you respond to a recall. *(Select up to five responses.)*

1. Whether anyone has become ill, hospitalized, or died from eating the food
2. Date and establishment or lot number on the packaging
3. Where the food was distributed (e.g., specific states or stores)
4. Brands affected
5. Type of food (e.g., spinach, ground beef)
6. What people should do with the food if they have it
7. How the contamination happened
8. Picture of product label
9. Total amount of food recalled (e.g., 99,260 pounds of ground beef products)
10. Container size recalled (e.g., 1-lb. ground beef package)
11. Contact information (e.g., website or phone) for questions
12. Illness and symptoms that could be caused by eating the food
13. Name of the bacteria contained in the recalled product
14. Steps consumers can take to make the recalled product safe to eat, such as cooking

[SP]

24. Have you ever visited a government website for information on food recalls?
    1. Yes
    2. No

[SP]

25. Do you currently receive email or text message alerts from the government about food recalls?
    1. Yes
    2. No

[USE GRID FOR Q26 AND Q27]
[SP]
[IF Q25=2]

26. How likely are you to sign up to receive emails from the federal government about future food recalls directly?
    1. Very unlikely
    2. Somewhat unlikely
    3. Neither unlikely nor likely
    4. Somewhat likely
    5. Very likely

[SP]
[IF Q25=2]

27. How likely are you to sign up to receive text messages from the federal government about future food recalls directly?
    1. Very unlikely
    2. Somewhat unlikely
    3. Neither unlikely nor likely
    4. Somewhat likely
    5. Very likely

[MP]
[IF Q26=4,5 OR Q27=4,5]
[RANDOMIZE RESPONSE OPTIONS—KEEP ITEM 7 AT BOTTOM]

28. Different types of products are recalled. For the following questions, consider that the government may be able to send you food recall alerts (via email or text) based on your specific preferences. For which of the following would you like to get alerts, a food that … *(Select all that apply.)*
    1. Contains an allergen but the manufacturer failed to include the allergen in the list of ingredients
    2. Contains germs that could make you sick (e.g., *E. coli, Salmonella*, or *Listeria)*
    3. Contains chemicals that could make you sick
    4. Was imported into the country without inspection

5. Contains foreign materials like plastic or metal
6. Was produced without inspection
7. None of the above—**EXCLUSIVE**

[MP]
[IF Q28=1]

29. For which allergen-related recalls would you like to get alerts? *(Select all that apply.)*
    1. Milk
    2. Eggs
    3. Fish (e.g., bass, flounder, cod)
    4. Crustacean shellfish (e.g., crab, lobster, shrimp)
    5. Tree nuts (e.g., almonds, walnuts, pecans)
    6. Peanuts
    7. Wheat
    8. Soy
    9. Some other allergen

[SP]
[IF Q26=4,5 OR Q27=4,5]

30. How often would you like to get alerts about food recalls via text or email?
    1. A summary every 2 weeks
    2. A weekly summary
    3. A daily summary
    4. Immediately after a recall

[SP]
[IF Q26=4,5 OR Q27=4,5]

31. For which regions would you like to get alerts?
    1. Only recalls for the state I live in
    2. Only recalls for the state I live in and surrounding states
    3. All recalls, regardless of location

[MP]
[IF Q26=4,5 OR Q27=4,5]
[RANDOMIZE RESPONSE OPTIONS]

32. For which of the following foods would you like to get alerts? *(Select all that apply.)*
    1. Raw meat and poultry
    2. Cooked, ready-to-eat meat and poultry
    3. Fruits and vegetables
    4. Dairy
    5. Seafood
    6. Eggs
    7. Packaged foods (e.g., canned products, peanut butter, cereal, flour)

[DISPLAY X]

The next set of questions may seem like the questions you just answered about food recalls, but these questions ask about foodborne illness outbreaks. Foodborne illness outbreaks occur when multiple people get sick from the same contaminated food. Sometimes recalls are associated with a foodborne illness outbreak, and sometimes they are not.

[SP]
[RANDOMIZE RESPONSES (BUT KEEP DON'T KNOW AT END) AND ORDER OF QUESTIONS]

33. When do you think the government announces a foodborne illness outbreak?
    1. When multiple people are affected in more than one state
    2. When multiple people are affected in a single state
    3. Don't know

[SP]

34. When do you think the government announces a foodborne illness outbreak?
    1. Only when people get sick from food prepared at restaurants
    2. When anyone is affected, regardless of where the food was prepared
    3. Don't know

[SP]

35. When do you think the government announces a foodborne illness outbreak?
    1. Only when the people affected are children or older adults
    2. When anyone is affected
    3. Don't know

36. How many foodborne illness outbreaks have you heard about since **MONTH YEAR [insert 6 months prior to field date for survey]**?
    1. None
    2. One or two
    3. Between 3–5
    4. Between 6–10
    5. Between 11–20
    6. More than 20

[SP]

37. Investigations by the government into foodborne illness outbreaks take time.

    In your opinion, when do you think the government should first announce to the public that a foodborne illness outbreak has occurred?
    1. Whenever there is an outbreak, even if the food source (e.g., spinach or ground beef) has not been identified
    2. Only after the food source has been identified
    3. Only after the specific brand name of the product has been identified
    4. Only after a recall for the affected product has been announced
    5. Don't know

[SP]
For the next set of questions, think about the last time you cooked on an outdoor grill.

38. Have you cooked meat, poultry, or fish on an outdoor grill in the past year?
    1. Yes
    2. No

[PROMPT IF REFUSED]

[RANDOMIZE ORDER PAIRS OF QUESTION Q39/40 AND Q41/42]
[IF Q38=1]
[SP]

39. After the food had finished cooking on the grill, how did you serve it?
    1. Put the cooked food on the same plate or pan that was used to carry the food to the grill
    2. Put the cooked food on a different plate or pan
    3. Served the cooked food directly from the grill to individual plates
    4. Some other way

[IF Q39=1]
[MP]

40. Did you do anything to the plate or pan before putting the cooked food on it? *(Select all that apply.)*
    1. Used as is
    2. Wiped or rinsed it
    3. Washed it with soap and water
    4. Sanitized with bleach or other sanitizing solution
    5. Did something else

[IF Q38=1]
[SP]

41. How did you remove the cooked food from the grill?
    1. Used the same utensil used to put the food on the grill
    2. Used a different utensil
    3. Used my hands
    4. Used some other method

[IF Q41=1]
[MP]

42. Did you do anything to the utensil before using it? *(Select all that apply.)*
    1. Used as is
    2. Wiped or rinsed it
    3. Washed it with soap or bleach
    4. Sanitized with bleach or other sanitizing solution
    5. Did something else

[SP]
For the next set of questions, think about the last time you served food at a gathering (e.g., potluck, holiday, work party, Super Bowl party) where the food was set out and served buffet style. Do NOT include sit down dinners in which people are served plated food.

43. Have you had a gathering in which you served food buffet style in the past year?
    1. Yes
    2. No

[PROMPT IF REFUSED]

[IF Q43=1]
[MP]

44. How did you serve hot foods? *(Select all that apply.)*
    1. Did not serve hot foods **[EXCLUSIVE]**
    2. Took the hot food out of the oven or microwave and served it in the same cooking dish
    3. Served the hot food in a container without a heat source (e.g., bowl, tray, plate)
    4. Served the hot food in a container with a heat source (e.g., chafing dish, Crock-Pot, warming tray)
    5. Served some other way

[IF Q43=1]
[MP]

45. How did you serve cold foods that are perishable (e.g., potato salad, chicken salad, 7-layer dip)? *(Select all that apply.)*
    1. Did not serve cold foods **[EXCLUSIVE]**
    2. Served all of the food
    3. Served all of the food in a container or plate nested in a bowl of ice
    4. Served some of the food and stored the rest in the refrigerator
    5. Served some of the food in a container or plate nested in a bowl of ice, and stored the rest in the refrigerator
    6. Served some other way

[IF Q45≠1]
[SP]

46. About how long did you let perishable foods (e.g., potato salad, chicken salad, 7-layer dip) sit out before putting them in the refrigerator or freezer or before discarding them?
    1. Less than 1 hour
    2. Between 1–2 hours
    3. Between 3–4 hours
    4. Between 5–6 hours
    5. More than 6 hours

[SP]

47. In the past month, have you or has anyone in your household had any kind of sickness that you thought might have been caused by eating unsafe food? Do not include allergies to food.
    1. Yes
    2. No

[PROMPT IF REFUSED]

[IF Q47=2]
[SP]

48. In the past year, have you or has anyone in your household had any kind of sickness that you thought might have been caused by eating unsafe food? Do not include allergies to food.
    1. Yes
    2. No

[PROMPT IF REFUSED]

[IF Q47=1 OR Q48=1]
[SP]

49. Who got sick from eating unsafe food?
    1. I got sick
    2. Another household member got sick
    3. Another household member and I got sick

[PROMPT IF REFUSED]

[IF Q47=1 OR Q48=1]
[SP]

50. Did **[IF Q49=1,3 INSERT** "you" **OR IF Q49=2 INSERT** "the other household member"**]** see a doctor or other health care provider for this illness?
    1. Yes
    2. No

[IF Q50=1]

[SP]

51. Did a doctor say it was food poisoning or foodborne illness?
    1. Yes
    2. No

[IF Q47=1 OR Q48=1]
[MP]

52. What symptoms did **[IF Q49=1,3 INSERT** "you" **OR IF Q49=2 INSERT** "the other household member"**]** have? *(Select all that apply.)*
    1. Upset stomach
    2. Nausea/vomiting
    3. Diarrhea
    4. Dehydration
    5. Fever
    6. Chills
    7. General achiness
    8. Abdominal cramps
    9. Some other symptom

[IF Q50=1]
[MP]

53. What symptoms made **[IF Q49=1,3 INSERT** "you" **OR IF Q49=2 INSERT** "the other household member"**]** go see a doctor? *(Select all that apply.)*
    1. Upset stomach
    2. Nausea/vomiting
    3. Diarrhea
    4. Dehydration
    5. Fever
    6. Chills
    7. General achiness
    8. Abdominal cramps
    9. Some other symptom

[IF Q47=1 OR Q48=1]
[SP]

54. Where did **[IF Q49=1,3 INSERT** "you" **OR IF Q49=2 INSERT** "the other household member"**]** eat the food?
    1. Home
    2. Someone else's home
    3. Restaurant
    4. Gathering or event (e.g., church or work)
    5. Some other place
    6. Don't know/don't remember

[IF Q47=1 OR Q48=1 AND Q54=1]
[SP]

55. Which of the following statements do you most agree with?
    1. I made changes in how I handle and prepare food after **[IF Q49=1,3 INSERT** "I" **OR IF Q49=2 INSERT** "another household member"**]** got sick from eating unsafe food.
    2. I did <u>not</u> make any changes in how I handle and prepare food after **[IF Q49=1,3 INSERT** "I" **OR IF Q49=2 INSERT** "another household member"**]** got sick from eating unsafe food.

IF Q55=1

[OPEN ENDED]

56. What changes did you make?

[MP]

57. Are you or any of the members of your household … ? *(Select all that apply.)*
    1. 65 years of age or older
    2. 5 years of age or younger
    3. Pregnant
    4. Diagnosed with an allergy to any food or ingredient
    5. Diagnosed with diabetes or kidney disease
    6. Diagnosed with a condition that weakens the immune system (e.g., cancer, HIV, or AIDS; recipient of a transplant; or receiving treatments, e.g., chemotherapy, radiation, or special drugs or medications to treat these conditions)
    7. None of the above—**EXCLUSIVE**

[IF Q57=4]
[SP]

58. Was the food allergy diagnosed by an allergy doctor?
    1. Yes
    2. No

Thank you for completing the survey!

Demographic Questions: education level, race/ethnicity, gender, number of people in household, geographic location (state/Census region), metropolitan status. These items are available from the panel profile information and will not need to be collected in the survey.

Question 23—Option A (Pathogen Recall)

News Release

Dixie Beef, Inc. Recalls Ground Beef Products due to Possible E. coli O157:H7 Contamination
Class I Recall114-2018
Health Risk: High
[DATE—insert 2 days prior to current date]
En Español
Congressional and Public Affairs
Benjamin A. Bell
(555) 555-5555
Press@fsis.usda.gov

WASHINGTON, [MONTH DAY, YEAR—insert 2 days prior to current date] – Dixie Beef, Inc., a Mich. establishment, is recalling approximately 99,260 pounds of raw non-intact ground beef products that may be contaminated with *E. coli* O157:H7, the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) announced today.

The ground beef was produced on **[MONTH DAY, YEAR—insert 1 month prior to current date]**. The following products are subject to recall: [View Labels (PDF only)]

- 1 lb.—plastic wrapped packages of "Caldwell BEEF" Ground Beef 85/15 (85% lean) Coarse Grind bearing product code 44444.
- 1 lb.—plastic wrapped packages of "Caldwell BEEF" Ground Beef 90/10 (90% lean) Coarse Grind bearing product code 44444.

The products subject to recall bear establishment number "EST. 999" inside the USDA mark of inspection. These items were shipped to retail locations in **[insert 3 states, including respondent's state]**.

The problem was discovered on **[MONTH DAY, YEAR—insert 3 days prior to current date]**, when FSIS visited Dixie Beef, Inc. in response to a FSIS ground beef sample that was collected at a further processing establishment and was confirmed positive for *E. coli* O157:H7. FSIS confirmed that Dixie Beef, Inc. was the sole source supplier for the ground beef products. That affected product was recalled and information on that recall can be found here. There have been no confirmed reports of adverse reactions due to consumption of these products.

FSIS is concerned that some product may be frozen and in consumers' freezers. Consumers who have purchased these products are urged not to consume them. These products should be thrown away or returned to the place of purchase.

Anyone concerned about an injury or illness should contact a healthcare provider. *E. coli* O157:H7 is a potentially deadly bacterium that can cause dehydration, bloody diarrhea and abdominal cramps 2–8 days (3–4 days, on average) after exposure the organism. While most people recover within a week, some develop a type of kidney failure called hemolytic

uremic syndrome (HUS). This condition can occur among persons of any age but is most common in children under 5-years old and older adults. It is marked by easy bruising, pallor, and decreased urine output. Persons who experience these symptoms should seek emergency medical care immediately.

FSIS routinely conducts recall effectiveness checks to verify recalling firms notify their customers of the recall and that steps are taken to make certain that the product is no longer available to consumers. When available, the retail distribution list(s) will be posted on the FSIS website at www.fsis.usda.gov/recalls.

FSIS advises all consumers to safely prepare their raw meat products, including fresh and frozen, and only consume ground beef that has been cooked to a temperature of 165°F. The only way to confirm that ground beef is cooked to a temperature high enough to kill harmful bacteria is to use a food thermometer that measures internal temperature, https://www.fsis.usda.gov/safetempchart.

Consumers and members of the media with questions about the recall can contact Jane Smith, Corporate Communications, Dixie Beef, Inc., at (999) 999-9999.

Consumers with food safety questions can call the toll-free USDA Meat and Poultry Hotline 1-888-MPHotline (1-888-674-6854) or live chat via Ask USDA from 10 a.m. to 6 p.m. (Eastern Time) Monday through Friday. Consumers can also browse food safety messages at Ask USDA or send a question via email to AskUSDA@usda.gov. For consumers that need to report a problem with a meat, poultry, or egg product, the online Electronic Consumer Complaint Monitoring System can be accessed 24 hours a day at https://foodcomplaint.fsis.usda.gov/eCCF/

Question 23—Option B (Foreign Object Recall)

News Release

Dixie Beef, Inc. Recalls Ground Beef Products Due to Possible Foreign Matter Contamination
Class II Recall 043-2019
Health Risk: Low
[MONTH DAY, YEAR—insert 2 days prior to current date]
En Español
Congressional and Public Affairs
Benjamin A. Bell
(555) 555-5555
Press@fsis.usda.gov

WASHINGTON, [MONTH DAY, YEAR—insert 2 days prior to current date] – Dixie Beef, Inc., a Mich. establishment, is recalling approximately 43,292 pounds of ground beef products that may be contaminated with extraneous materials, specifically, pieces of hard plastic, the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) announced today.

The ground beef products were produced on **[MONTH DAY, YEAR—insert 1 month prior to current date]**. The following products are subject to recall: [View Labels (PDF only)]

- 1-lb. plastic wrapped ground beef package with "Caldwell LEAN GROUND BEEF" with case code 44444 and sell by date of **[MM/DD/YYYY—insert 4 days after current date]** represented on the label.

The products subject to recall bear establishment number "EST. 999M" inside the USDA mark of inspection or printed on the bottom of the label. These items were shipped to retail locations in [**insert 3 states, including respondent's state**].

The problem was discovered when the establishment received two complaints of green hard plastic in the ground beef products. FSIS was notified on **[MONTH DAY, YEAR—insert 3 days prior to current date]**.
There have been no confirmed reports of adverse reactions due to consumption of these products. Anyone concerned about an injury or illness should contact a healthcare provider.

FSIS is concerned that some product may be frozen and in consumers' freezers. Consumers who have purchased these products are urged not to consume them. These products should be thrown away or returned to the place of purchase.

FSIS routinely conducts recall effectiveness checks to verify recalling firms notify their customers of the recall and that steps are taken to make certain that the product is no longer available to consumers.

Consumers and members of the media with questions about the recall can contact Jane Smith, Corporate Communications, Dixie Beef, Inc., at (999) 999-9999.

Consumers with food safety questions can call the toll-free USDA Meat and Poultry Hotline 1-888-MPHotline (1-888-674-6854) or live chat via Ask USDA 10 a.m. to 6 p.m. (Eastern Time) Monday through Friday. Consumers can also browse food safety messages at Ask USDA or send a question via email to AskUSDA@usda.gov. For consumers that need to report a problem with a meat, poultry, or egg product, the online Electronic Consumer Complaint Monitoring System can be accessed 24 hours a day at https://foodcomplaint.fsis.usda.gov/eCCF/

Appendix B:
Additional Information on the KnowledgePanel

The KnowledgePanel consists of approximately 55,000 members who were randomly selected and invited to participate as panelists. Panelists typically serve for 2 to 3 years and complete two to three surveys per month during their tenure. Panelists from non-Internet households are equipped with free access to the Internet and a tablet computer if needed. The panel also includes households that have listed and unlisted telephone numbers and those without a landline telephone.

B.1 Panelist Recruitment

Panelists are recruited using random sampling strategies, which is distinct from other online panels that use opt-in recruitment methods and allow individuals to volunteer as panelists. Random digit dialing (RDD) was originally the primary sampling strategy but was supplemented with address-based sampling (ABS) starting in 2008, and RDD sampling was fully eliminated in late 2009.

With ABS methodology, households are randomly selected based on mailing address, including post office boxes and rural route addresses. Business and institutional addresses (e.g., dormitories, nursing homes, group homes, and jails) are removed from the frame, as is military housing. Specifically, mailing addresses from the U.S. Postal Service's Delivery Sequence File (which covers 97% of U.S. homes) are randomly sampled and invited to join the panel through a series of mailings, including an initial invitation letter, a reminder postcard, and a subsequent follow-up letter. About 5 weeks after the initial mailing, telephone recruitment calls are made if an address and telephone number could be matched (about 45% of the physical addresses can be matched to a corresponding landline telephone number). After receiving the mailing and/or recruitment call, households that accept the invitation join the panel through one of three methods:

1. completing a paper enrollment form and returning it in a postage-paid envelope
2. calling a toll-free hotline and completing an enrollment interview
3. visiting a secure website and completing an online enrollment form

After an individual accepts the invitation to be a panel member, s/he is instructed to log on to a secure website and complete individual profile questionnaires. The questionnaires capture essential demographic information (e.g., sex, age, race, income, education) and health information (e.g., diagnoses, health status, health behaviors). These profiles enable the prescreening of potential participants for eligibility and eliminate demographic questions on every survey, and they can also be used in a nonresponse bias analysis. Each panelist

updates his or her profile annually. All panel members are provided privacy and confidentiality protections.

Between 2009 and 2011, Hispanic and non-Hispanic households (aged 18 to 29) were oversampled to help ensure sufficient representation. In 2012, Hispanic and non-Hispanic households (aged 18 to 29) were oversampled again but also included the age group 30 years or older. The panel's weighting procedures adjust for the oversampling carried out to improve the demographic composition of the panel.[7]

B.2 Sample Selection

For selection of general population samples (i.e., adults aged 18 or older) from the KnowledgePanel, Ipsos uses a patented methodology that was developed to ensure all samples behave as equal probability selection method samples. Briefly, this methodology starts by weighting the pool of active members to the geodemographic benchmarks secured from the latest March supplement of the U.S. Census Bureau's Current Population Survey (CPS) along several dimensions. Using the resulting weights as measures of size, a probability-proportional-to-size (PPS) procedure is used to select study specific samples. The application of this PPS methodology with the imposed size measures produces fully self-weighting samples from the KnowledgePanel, for which each sample member can carry a design weight of unity.

B.3 Weighting Procedures

The geodemographic benchmarks used to weight the active panel members for computation of size measures are the following:

- gender (male/female)
- age (18–29, 30–44, 45–59, and 60+)
- race/Hispanic ethnicity (White/non-Hispanic, Black/non-Hispanic, other/non-Hispanic, 2+ races/non-Hispanic, Hispanic)
- education (less than high school, high school, some college, bachelor and beyond)
- Census region (Northeast, Midwest, South, West)
- household income (under $10k, $10K to <$25k, $25K to <$50k, $50K to <$75k, $75K to <$100k, $100K to <$150k, and $150K and over)
- home ownership status (own, rent/other)
- metropolitan area (yes, no)
- Hispanic origin (Mexican, Puerto Rican, Cuban, other, non-Hispanic)

[7] Callegaro, M., & DiSogra, C. (2009). Computing response metrics for online panels. *Public Opinion Quarterly, 72*(5), 1008-1032. http://dx.doi.org/10.1093/poq/nfn065

B.4 Study-Specific Post-stratification Weights

Following data collection, the design weights were adjusted to account for any differential nonresponse that may have occurred using geodemographic distributions as described below. For this purpose, Ipsos used an iterative proportional fitting (raking) procedure to produce the final weights. In the final step, the calculated weights were examined to identify and, if necessary, trim outliers at the extreme upper and lower tails of the weight distribution. No trimming was required. The resulting weights were then scaled to aggregate to the total sample size of all eligible respondents.

Starting with the base weights of the fielded sample, weighted qualified and nonqualified respondents were weighted to look like the U.S. adult age 18 or older population. For this study, the following benchmark distributions of U.S. adults from the most recent (March 2019) CPS data were used for the raking adjustment of weights:

- gender (male, female) by age (18–29, 30–44, 45–59, 60+)
- race/ethnicity (White/non-Hispanic, Black/non-Hispanic, Other/non-Hispanic, Hispanic, 2+ races/non-Hispanic)
- Census region (Northeast, Midwest, South, West) by metropolitan status (metro, nonmetro)
- education (less than high school, high school, some college, bachelor or higher)
- household income (under $25K, $25–$49,999, $50K–$74,999, $75K–$99,999, $100,000–$149,999, $150K and over)

The final weights were scaled to sum to the unweighted sample size of qualified respondents (n = 2,586). By applying these weights in the analysis of the survey data (i.e., estimation of proportions), we can make inferences to the general population of adults (aged 18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

Appendix C:
Weighted Survey Estimates

Table C-1. Respondents' Preferences for Receiving Information on Food Safety

Question	Number of Respondents	Weighted %
Preferences for receiving information on food safety[a]		
Radio	146	5.64
Social media	542	20.98
Newspaper	289	11.20
Magazines	443	17.16
Websites (excluding social media)	1,120	43.34
Cookbooks	1,005	38.92
Cooking shows	803	31.10
Television	638	24.71
Contact food safety expert by phone, email, or chat	150	5.82
Food labels	1,451	56.16
App on smartphone or tablet	609	23.56
Other source	145	5.60
Would not like to get information	400	15.49
Preferred magazines for information on food safety[b]		
Bon Appetite	29	7.89
Food Network	44	11.86
Better Homes and Gardens	49	13.13
Good Housekeeping	54	14.68
Women's magazines (e.g., *Women's Day, Family Circle, Women's Health*)	66	17.85
Other magazines about food or cooking or that contain recipes (e.g., *Taste of Home, Food and Wine, Rachel Ray*)	146	39.42
Magazines about food or cooking or that contain recipes, not specified (e.g., "any magazine that has food in it")	67	18.11
General or not specified (e.g., "any," "all," "don't know")	27	7.42
Other (e.g., *AARP, Reader's Digest*)	78	20.93

(continued)

Table C-1. Respondents' Preferences for Receiving Information on Food Safety (continued)

Question	Number of Respondents	Weighted %
Preferred websites for information on food safety[c]		
Food personality websites (e.g., Rachel Ray, Pioneer Woman)	17	2.05
Allrecipes.com	61	7.40
Foodnetwork.com	138	16.75
News sources (e.g., ABC, Yahoo, New York Times)	62	7.54
CDC website	34	4.08
USDA website	68	8.27
FDA website	80	9.76
Other government website (e.g., foodsafety.gov, nih.gov)	57	6.93
Other websites about food or cooking or that contain recipes (e.g., food manufacturers, grocery stores, Weight Watchers, Dr. Oz)	264	32.03
General or not specified (e.g., "Google," "any," "don't know")	230	27.89
Other (e.g., AARP.com, webMD.com)	54	6.55
Preferred cooking shows for information on food safety[d]		
Rachel Ray Show	120	19.02
Pioneer Woman/Rhee Drummond	58	9.28
Chopped	39	6.12
Barefoot Contessa/Ina Garten	35	5.52
America's Test Kitchen (on PBS)	23	3.66
Other cooking shows on PBS (e.g., *Cook's Country*, *Martha Stewart*)	57	9.10
Food Network or Cooking Channel, general or specified shows (e.g., "shows on Food Network," *Bobby Flay*)	316	50.15
General or not specified (e.g., "any," "all," "don't know")	106	16.88
Other (e.g., *The Today Show*, *QVC*)	118	18.70

(continued)

Table C-1. Respondents' Preferences for Receiving Information on Food Safety (continued)

Question	Number of Respondents	Weighted %
Other methods for receiving information on food safety[e]		
Emails	8	5.54
News (e.g., local news, media coverage)	13	9.34
Food safety class(es)	14	10.03
Sharing information with friends and family	36	25.14
Not specified ("any," "don't know")	20	14.20
Other (e.g., grocery store, in school)	29	20.11

[a] Responses may sum to more than 100%; question indicated "select all that apply."

[b] Only respondents who prefer to receive food safety information via magazines answered this question (n = 443). Responses were coded into the categories shown; a category for a specific magazine was used if 5% or more of respondents wrote in the same response. Respondents could write in multiple responses, so the total may sum to more than 100%.

[c] Only respondents who prefer to receive food safety information via websites answered this question (n = 1,109). Responses were coded into the categories shown; a category for a specific website was used if 5% or more of respondents wrote in the same response. Respondents could write in multiple responses, so the total may sum to more than 100%.

[d] Only respondents who prefer to receive food safety information via cooking shows answered this question (n = 803). Responses were coded into the categories shown; a category for a specific cooking show was used if 4% or more of respondents wrote in the same response. Respondents could write in multiple responses, so the total may sum to more than 100%.

[e] Only respondents who selected "other source" answered this question (n = 176). Responses were coded into the categories shown; a category for a specific source was used if 5% or more of respondents wrote in the same response. Respondents could write in multiple responses, so the total may sum to more than 100%.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, n = 2,586

Table C-2. Respondents' Responses to the USDA Meat and Poultry Hotline

Question	Number of Respondents	Weighted %
Awareness of the USDA Meat and Poultry Hotline		
Yes	311	12.02
No	2,274	87.98
Contacted the Meat and Poultry Hotline[a]		
Yes	28	8.88
No	283	91.12
Reason(s) for contacting hotline[b,c]		
Question on food preparation	18	64.93
Question about food recall	10	35.80
Restaurant complaint	6	19.96
Other complaint	3	10.28
Other	1	1.95
Satisfaction with hotline[b]		
Very unsatisfied	4	14.18
Somewhat unsatisfied	0	0.00
Neither unsatisfied nor satisfied	7	25.94
Somewhat satisfied	1	4.59
Very satisfied	15	55.29
Likelihood of contacting hotline[d]		
Very unlikely	699	30.73
Somewhat unlikely	432	19.02
Neither unlikely nor likely	449	19.77
Somewhat likely	521	22.91
Very likely	172	7.56
Likely method of contacting hotline		
Phone call	1,161	44.98
Text message via cell phone	527	20.42
Email	744	28.84
Online chat	696	26.96
Would not contact	579	22.44

(continued)

Table C-2. Respondents' Responses to the USDA Meat and Poultry Hotline (continued)

Question	Number of Respondents	Weighted %
Convenient time for contacting hotline[e]		
8:00–10:00 AM ET	135	5.24
10:00 AM–12:00 PM ET	248	9.65
12:00–2:00 PM ET	241	9.35
2:00–4:00 PM ET	237	9.20
4:00–6:00 PM ET	475	18.46
6:00–8:00 PM ET	640	24.84
Would never contact	599	23.27

[a] Only respondents who were aware of the USDA Meat and Poultry Hotline answered this question (*n* = 311).

[b] Only respondents who had contacted the USDA Meat and Poultry Hotline answered this question (*n* = 28).

[c] Responses may sum to more than 100%; question indicated "select all that apply."

[d] Only respondents who were not aware of the USDA Meat and Poultry Hotline answered this question (*n* = 2,274).

[e] Times were shown in the respondent's local time.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Table C-3. Respondents' Experience with and Response to Food Recalls

Question	Number of Respondents	Weighted %
Number of food recalls heard about in past 6 months		
None	235	9.10
Between 1–10	2,014	77.96
Between 11–30	267	10.32
Between 31–50	48	1.86
Between 51–75	4	0.16
Between 76–100	4	0.15
More than 100	12	0.46
Respondent had recalled product at home for last food recall heard about		
Yes	266	10.28
No	2,085	80.64
Don't remember	235	9.09
How respondent heard about recall[a]		
Local television or radio news	1,276	49.42
National television or radio news	808	31.29
Website (excluding social media)	273	10.58
Government alert or press release	96	3.73
Local newspaper	211	8.16
National newspaper	90	3.47
Social media	527	20.42
Grocery store	272	10.52
Friends or family	270	10.47
Other	86	3.32
None of the above	40	1.56
Don't remember	148	5.73
Type of website that was source of information on food recall[a,b]		
Government website	25	9.42
The product or company website	14	5.06
News or media website	213	79.42
Other website (excluding social media)	48	17.95

(continued)

Table C-3. Respondents' Experience with and Response to Food Recalls (continued)

Question	Number of Respondents	Weighted %
Response to food recall[a]		
Checked to see if food was in home	1,288	49.92
Stopped buying that specific brand of food	228	8.84
Stopped buying that type of food	641	24.83
Went to a website for more information (excluding social media)	287	11.11
Called the USDA Meat and Poultry Hotline or other food safety hotline	6	0.25
Shared information by talking with friends or family	433	16.77
Shared information on social media	102	3.97
Looked for more information on social media	124	4.81
Other	112	4.34
Did nothing	562	21.80
Don't know	87	3.38
Type of website visited in response to recall[a,c]		
Government website	70	24.49
The product or company website	102	35.80
News or media website	171	60.31
Social media	41	14.56
Other website (excluding social media)	34	12.01
Length of time respondent did not buy recalled food[d]		
Less than 2 weeks	79	9.22
Between 2 weeks–1 month	303	35.13
Between 2–3 months	164	19.06
Between 4–6 months	74	8.63
Between 7 months–1 year	22	2.50
More than 1 year	13	1.52
No longer buy it	106	12.25
Don't remember	101	11.69

(continued)

Table C-3. Respondents' Experience with and Response to Food Recalls (continued)

Question	Number of Respondents	Weighted %
Action taken for recalled food at home[a,e]		
Continued to eat it	15	5.50
Threw away	184	69.86
Returned to the store	62	23.56
Kept the recalled food but prepared it differently than usual	6	2.18
Other	12	4.54
Don't know	3	1.21

[a] Responses may sum to more than 100%; question indicated "select all that apply."

[b] Only respondents who selected "website (excluding social media)" answered this question (*n* = 273).

[c] Only respondents who selected "website (excluding social media)" answered this question (*n* = 287).

[d] Only respondents who selected "stopped buying that specific brand of food" or "'stopped buying that type of food" answered this question (*n* = 866).

[e] Only respondents who selected "yes, had recalled food at home" answered this question (*n* = 266).

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Table C-4. Respondents' Level of Trust by Type of Source for Information on Food Recalls

	Do Not Trust at All (1)		(2)		(3)		(4)		Trust a Lot (5)	
Source	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Local television or radio news	47	1.84	94	3.65	587	22.89	911	35.51	927	36.10
National television or radio news	75	2.92	126	4.89	602	23.41	856	33.32	911	35.45
Government website, alert, or press release	72	2.80	119	4.67	515	20.12	762	29.80	1,090	42.61
Nongovernment website (excluding social media)	274	10.73	453	17.76	1,187	46.51	497	19.46	141	5.54
Local newspaper	103	4.00	147	5.74	714	27.88	882	34.44	716	27.93
National newspaper	138	5.38	201	7.87	723	28.25	785	30.67	712	27.84
Grocery store	53	2.07	129	5.04	614	23.89	869	33.86	902	35.14
Social media	679	26.53	653	25.52	877	34.28	253	9.87	97	3.80

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

n = number of respondents, % = weighted percentage

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Table C-5. Respondents' Perceptions of the Most Important Information Needed in Responding to a Food Recall

Item[a,b]	Foreign Object Recall		Pathogen Recall	
	Number of Respondents	Weighted %	Number of Respondents	Weighted %
Whether anyone has become ill, hospitalized, or died from eating the food	330	25.91	202	15.53
Date and establishment or lot number on the packaging	761	59.74	772	59.40
Where the food was distributed	923	72.40	901	69.33
Brands affected	828	64.97	849	65.28
Type of food	949	74.49	919	70.74
What people should do with the food if they have it	353	27.71	363	27.90
How the contamination happened	111	8.70	95	7.28
Picture of product label	389	30.50	401	30.87
Total amount of food recalled	58	4.54	63	4.82
Container size recalled	335	26.31	295	22.70
Contact information for questions	267	20.93	193	14.83
Name of the bacteria/type of foreign object in the recalled product	312	24.50	266	20.43
Steps consumers can take to make the recalled product safe to eat, such as cooking	NA	NA	153	11.74
Illness and symptoms that could be caused by eating the food	NA	NA	362	27.84

[a] Responses may sum to more than 100%; question indicated "select up to 5 responses."

[b] Respondents were randomized to each recall notice; n = 1,281 responded to the foreign object recall, and n = 1,305 responded to pathogen recall.

NA = Not applicable

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, n = 2,586

Table C-6. Respondents' Preferences for Receiving Information on Food Recalls

Question	Number of Respondents	Weighted %
Preferred source for food recall alerts[a]		
Local television news	1,494	57.98
National television news	1,060	41.15
Government website	213	8.26
Other website (excluding social media)	142	5.53
Government notice or press release	375	14.54
Newspaper	379	14.70
Radio	429	16.65
Social media	462	17.92
Grocery store	1,114	43.25
App on smartphone or tablet	303	11.74
Recalled product company or manufacturer	391	15.18
Other	43	1.68
None of the above	53	2.04
Ever visited government website for information on food recalls		
Yes	340	13.15
No	2,243	86.85
Currently receive government emails or text messages about food recalls		
Yes	85	3.31
No	2,493	96.69
Likelihood to sign up to receive government food recall emails[b]		
Very unlikely	799	32.16
Somewhat unlikely	356	14.34
Neither unlikely nor likely	497	20.02
Somewhat likely	564	22.71
Very likely	267	10.77
Likelihood to sign up to receive government food recall text messages[b]		
Very unlikely	1,003	40.46
Somewhat unlikely	370	14.92
Neither unlikely nor likely	434	17.51
Somewhat likely	438	17.65
Very likely	235	9.46

(continued)

Table C-6. Respondents' Preferences for Receiving Information on Food Recalls (continued)

Question	Number of Respondents	Weighted %
Preferences for types of recalls to receive information[c,d]		
Contains an allergen but the manufacturer failed to include the allergen in the list of ingredients	452	47.36
Contains germs that could make you sick	888	93.04
Contains chemicals that could make you sick	858	89.93
Was imported into the country without inspection	663	69.46
Contains foreign materials like plastic or metal	814	85.31
Was produced without inspection	620	64.99
None of the above	36	3.73
Preferences for types of allergen-related foods to receive information[d,e]		
Milk	241	56.03
Eggs	241	55.81
Fish	213	49.48
Crustacean shellfish	228	52.95
Tree nuts	232	53.84
Peanuts	232	53.82
Wheat	197	45.66
Soy	155	35.92
Some other allergen	96	22.23
Preference for frequency of email or text alert[c]		
Summary every 2 weeks	97	10.21
Weekly summary	203	21.36
Daily summary	41	4.28
Immediately after a recall	608	64.15
Preference for regional alert[c]		
Only recalls for the state I live in	395	41.95
Only recalls for the state I live in and surrounding states	234	24.91
All recalls, regardless of location	312	33.15
Preferences for types of food to receive alerts[c,d]		
Raw meat and poultry	919	97.77
Cooked, ready-to-eat meat and poultry	761	80.95

(continued)

Table C-6. Respondents' Preferences for Receiving Information on Food Recalls (continued)

Question	Number of Respondents	Weighted %
Fruits and vegetables	872	92.75
Dairy	827	87.95
Seafood	741	78.87
Eggs	815	86.71
Packaged foods	838	89.12

[a] Responses may sum to more than 100%; question indicated "select up to 3 responses."

[b] Only respondents who selected "no" to currently receiving emails or text message alerts from the government answered this question (*n* = 2,493).

[c] Only respondents who selected "somewhat likely" or "very likely" to sign up to receive emails or text message alerts from the government answered this question (*n* = 955).

[d] Responses may sum to more than 100%; question indicated "select all that apply."

[e] Only respondents who want to receive food alerts on allergens answered this question (*n* = 452).

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586

Table C-7. Respondents' Awareness and Understanding of Foodborne Illness Outbreaks

Question	Number of Respondents	Weighted %
Belief on when the government announces a foodborne illness outbreak—location		
When multiple people are affected in more than one state	823	31.90
When multiple people are affected in a single state	1,089	42.21
Don't know	668	25.89
Belief on when the government announces a foodborne illness outbreak—location of food prepared		
Only when people get sick from food prepared at restaurants	292	11.32
When anyone is affected, regardless of where the food was prepared	1,610	62.40
Don't know	678	26.28
Belief on when the government announces a foodborne illness outbreak—at risk		
Only when the people affected are children or older adults	162	6.29
When anyone is affected	1,757	68.21
Don't know	657	25.51
Opinion on when the government should announce a foodborne illness outbreak		
Whenever there is an outbreak, even if the food source has not been identified	901	34.93
Only after the food source has been identified	1,059	41.09
Only after the specific brand name of the product has been identified	188	7.31
Only after a recall for the affected product has been announced	104	4.01
Don't know	326	12.66
Number of foodborne illness outbreaks heard of in past 6 months		
None	894	34.83
One or two	976	38.00
Between 3–5	476	18.55
Between 6–10	149	5.78
Between 11–20	50	1.94
More than 20	23	0.90

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, n = 2,586

Table C-8. Respondents' Self-reported Food Handling Practices for Grilling and Serving Food Buffet Style

Question	Number of Respondents	Weighted %
Cooked meat, poultry, or fish on grill in the past year		
Yes	1,871	72.34
No	715	27.66
How food was removed and served from grill[a]		
Followed recommended practice		
Put cooked food on different plate or pan	1,639	88.67
Served cooked food directly from grill to individual plates	159	8.62
Put cooked food on same plate or pan used to carry food to grill—washed only	13	0.68
Put cooked food on same plate or pan used to carry food to grill—washed and then sanitized	0	0.00
Did not follow recommended practice		
Put cooked food on same plate or pan used to carry food to grill—without cleaning	18	0.97
Put cooked food on same plate or pan used to carry food to grill—wiped or rinsed	20	1.07
How food was taken off the grill[b]		
Followed recommended practice		
Used different utensil	1,184	66.00
Used same utensil used to put food on grill—washed only	119	6.64
Used same utensil used to put food on grill—washed and then sanitized	3	0.17
Did not follow recommended practice		
Used same utensil used to put food on grill—without cleaning	244	13.62
Used same utensil used to put food on grill—wiped or rinsed	219	12.22
Used hands	24	1.35
Hosted buffet-style gathering in past year		
Yes, served hot foods	1,404	54.30
Yes, served cold foods	1,393	53.88
No, did not host buffet-style gathering in past year	1,108	42.87

(continued)

Table C-8. Respondents' Self-reported Food Handling Practices for Grilling and Serving Food Buffet Style (continued)

Question	Number of Respondents	Weighted %
How hot foods were served at buffet-style gatherings[c]		
Followed recommended practice		
Served hot food in container with heat source (e.g., chafing dish, Crock-Pot, warming tray)	465	33.90
Did not follow recommended practice		
Took hot food out of oven or microwave and served it in same cooking dish	591	43.14
Served hot food in container without heat source (e.g., bowl, tray, plate)	315	22.96
How cold perishable foods were served at buffet-style gatherings[d]		
Followed recommended practice		
Served some of the food in container or plate nested in bowl of ice and stored the rest in refrigerator; discarded or stored any leftovers after 2 hours	124	9.24
Served all the food in container or plate nested in bowl of ice; discarded or stored any leftovers after 2 hours	89	6.60
Did not follow recommended practice		
Served some of the food in container or plate nested in bowl of ice and stored the rest in refrigerator but did not discard or store leftovers after 2 hours	18	1.35
Served all the food in container or plate nested in bowl of ice but did not discard or store leftovers after 2 hours	23	1.74
Served all the food without nesting in ice	548	40.71
Served some of the food without nesting in ice and stored the rest in refrigerator	544	40.37

[a] Only respondents who cooked meat, poultry, or fish on an outdoor grill in the past year answered this question (n = 1,871). Analysis excluded 22 respondents who skipped Question 39 or 40, responded "some other way" when answering these questions because it is not known whether what they did adhered to the recommended practice, or had an invalid response. Respondents could select multiple responses; respondents were only coded as following the recommended practice if all the responses selected were recommended practices.

[b] Only respondents who cooked meat, poultry, or fish on an outdoor grill in the past year answered this question (n = 1,871). Analysis excluded 78 respondents who skipped Question 41 or 42, responded "some other way" when answering these questions because it is not known whether what they did adhered to the recommended practice, or had an invalid response. Respondents could select multiple responses; respondents were only coded as following the recommended practice if all the responses selected were recommended practices.

(continued)

Table C-8. Respondents' Self-reported Food Handling Practices for Grilling and Serving Food Buffet Style (continued)

[c] Only respondents who had a gathering in which hot food was served buffet style in the past year answered this question (n = 1,404). Analysis excluded 33 respondents who skipped Question 44 or responded "some other way" when answering this question because it is not known whether what they did adhered to the recommended practice. Respondents could select multiple responses; respondents were only coded as following the recommended practice if all the responses selected were recommended practices.

[d] Only respondents who had a gathering in which cold perishable food was served buffet style in the past year answered this question (n = 1,393). Analysis excluded 47 respondents who skipped Question 45 or responded "some other way" when answering this question because it is not known whether what they did adhered to the recommended practice. Respondents could select multiple responses; respondents were only coded as following the recommended practice if all the responses selected were recommended practices. Responses to Question 46 provided information on how long the respondent let cold perishable foods sit out before refrigerating or discarding.

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, n = 2,586

Table C-9. Respondents' and Household Members' Experiences with Foodborne Illness

Question	Number of Respondents	Weighted %
Respondent or household member believe had foodborne illness in past month		
Yes	185	7.16
No	2,401	92.84
Respondent or household member believe had foodborne illness in past year		
Yes	207	8.61
No	2,194	91.39
Who had foodborne illness[a]		
Respondent	180	45.85
Another household member	126	32.12
Respondent and another household member	86	22.03
Respondent/household member visited healthcare provider[a]		
Yes	56	14.29
No	336	85.71
Doctor-diagnosed foodborne illness[b]		
Yes	38	67.38
No	18	32.62
Symptoms present[a,c]		
Upset stomach	293	74.70
Nausea/vomiting	188	47.95
Diarrhea	296	75.47
Dehydration	44	11.12
Fever	55	14.05
Chills	65	16.67
General achiness	53	13.59
Abdominal cramps	201	51.19
Some other symptom	18	4.58

(continued)

Table C-9. Respondents' and Household Members' Experiences with Foodborne Illness (continued)

Question	Number of Respondents	Weighted %
Symptoms that prompted visit to health care provider[b,c]		
Upset stomach	11	45.57
Nausea/vomiting	19	78.75
Diarrhea	18	73.22
Dehydration	12	76.14
Fever	15	69.92
Chills	7	44.82
General achiness	6	50.06
Abdominal cramps	18	64.19
Belief on where food was eaten that caused illness[a]		
Home	87	22.12
Someone else's home	28	7.03
Restaurant	184	46.85
Gathering or event	26	6.65
Some other place	28	7.25
Don't know/don't remember	40	10.09
Respondent made changes in handling and preparing food if food causing illness was eaten at home[d]		
Yes, made changes	34	38.73
No, did not make changes	53	61.27
Self-reported change(s) made in response to having had foodborne illness[e]		
Cooked the food longer or very well done	6	18.49
Stopped buying that product	6	17.79
Checked for spoilage/expiration dates/do not eat stored food	6	17.12
Other safe handling practices (e.g., wash hands, wash foods, use separate utensils, etc.)	13	39.59

[a] Only respondents who answered "yes" to either having foodborne illness in past month or in past year answered this question (n = 392).

[b] Only respondents who answered "yes" to seeing a healthcare provider answered this question (n = 56).

[c] Responses may sum to more than 100%; question indicated "select all that apply."

[d] Only respondents who answered "home" to where the food that made them ill was prepared answered this question (n = 87).

[e] Only respondents who answered "made changes" in handling and preparing food if food was eaten at home answered this question (n = 34).

(continued)

Table C-9. Respondents' and Household Members' Experiences with Foodborne Illness (continued)

Notes: Estimates were weighted to represent the U.S. general population of adults (18 or older) who prepare and cook meals at home 4 or more times a week and have prepared raw meat or poultry in the past 30 days.

For the estimation of the weighted percentages, respondents who skipped the survey question (i.e., missing values) were excluded from the analysis.

Source: 2019 FSIS In-Home Food Safety Behaviors and Consumer Education Survey, *n* = 2,586