

June 2006

Qualitative Research with Transplant Recipients and Caregivers: Food Safety Messages and Delivery Mechanisms

Final Report

Contract No. 53-3A94-03-12

Prepared for

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*RTI International is a trade name of Research Triangle Institute.

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Executive Summary

The U.S. Department of Agriculture's Food Safety and Inspection Service (USDA, FSIS) developed a food safety booklet targeted to bone marrow and solid organ transplant recipients and their caregivers. To determine the booklet's effectiveness in educating transplant recipients and their caregivers on food safety and to assess the best way to reach the target audience with food safety messages, FSIS contracted with RTI International (RTI) to conduct qualitative research with transplant recipients and caregivers. RTI conducted one focus group discussion in Durham, North Carolina, on March 30, 2006, and 22 individual telephone interviews from March 26 to April 2, 2006.

This report presents the findings from the focus group discussion and telephone interviews with transplant recipients and caregivers. FSIS can use the study findings to refine the booklet prior to dissemination and to identify effective communication channels for reaching transplant recipients and caregivers with food safety information.

ES.1 KEY FINDINGS

We list the key findings from the focus group discussion and telephone interviews below.

Participants' Food Safety Concerns, Knowledge, and Practices

Many participants received food safety information as part of their post-transplant education. Generally, this information was limited to specific foods to avoid and proper hygiene practices.

Since receiving their transplants or providing care for a transplant recipient, many participants received food safety information from a doctor or another healthcare professional. The content and format of the information varied by the institution that provided care, but many participants received information that was generally limited to specific foods to avoid (e.g., raw meat and sushi) and information on proper hygiene practices (e.g., handwashing).

Before receiving the booklet, most participants were somewhat concerned about getting sick from food they prepare at home because they were aware of the possible risks of foodborne illness, but were also confident in their abilities to handle and prepare food safely at home. A few participants are less concerned about getting sick than when they first received their transplants.

Although most participants say they are more cautious when preparing food at home since their transplants, most participants can do more to handle and prepare food safely. Most participants follow the recommended practices to keep hands and surfaces clean and to prevent cross-contamination, but most participants are not following the recommended practices to cook and chill food safely. Most participants do not use a food thermometer and do not reheat deli meats to steaming hot. Most participants do not own a refrigerator thermometer and do not safely store large amounts of leftovers (e.g., soups and stews).

As recommended by a doctor or another healthcare professional, some participants have stopped eating certain foods since receiving their transplants. Most participants have not consumed or served sushi, ceviche, or other raw fish, raw, unpasteurized milk, raw meat or poultry, cold hot dogs, raw sprouts, unpasteurized fruit or vegetable juice, and refrigerated pâtés or meat spreads. Since their transplants, some participants have consumed or served raw, homemade cookie dough or cake batter and dishes that contain raw or undercooked eggs (e.g., Caesar salad). Most participants have consumed or served cold deli or luncheon meats and soft cheeses (e.g., feta).

A majority of participants were very concerned about getting sick from food they ate outside their homes because “you have no control [outside your home].” Because they have found restaurants they trust and frequent often, a few participants are less concerned about getting sick from food they eat outside their homes. A few participants are less concerned about getting sick than when they first received their transplants.

Participants liked the booklet and thought it was well-prepared, very informative, comprehensive, concise, and easy to read.

Participants’ Evaluation of the Booklet

Participants liked the booklet and thought it was well prepared, very informative, comprehensive, concise, and easy to read. Most participants thought the booklet contained relevant and useful information for transplant recipients and their caregivers. Many participants shared the opinion of one participant who said, “I really liked [the booklet]. It reinforced some things I already knew, but I also picked up new information; like, I didn’t know that I had to worry about sprouts or bleu cheese.” Most participants said they learned something new after reading the booklet.

Participants liked the appearance of the booklet, particularly its colors, pictures, and tables. Participants especially liked the charts and graphics provided throughout the booklet. Many participants really liked the “Is It Done Yet?” graphic and/or the “Cold Storage Chart” and thought they provided the most valuable pieces of information in the booklet.

Each participant learned at least one new fact after reading the booklet, and many participants plan to make at least one change in their food handling practices based on what they learned.

Participants’ Knowledge and Behavior Changes

Each participant learned at least one new fact after reading the booklet, and many participants plan to make at least one change in their food handling practices based on what they learned.

After reading the booklet, many participants learned more about

- foodborne pathogens and foodborne illnesses,
- foods that pose a high risk for foodborne illness,
- safe ways to handle and prepare foods at home, and
- pasteurization.

Based on what they learned, many participants have made or plan to make the following changes in their food handling practices:

- separate raw meat and poultry from other foods in the grocery cart,
- follow recommendations in the “Cold Storage Chart” on page 11, and
- avoid eating sprouts.

Other participants have also made or plan to make other behavioral changes based on what they learned (e.g., purchase a refrigerator thermometer and/or food thermometer; divide large amounts of leftovers into shallow containers; and stop eating soft-boiled eggs or eggs prepared over-easy).

Participants’ Suggestions for Improving the Booklet

Participants were very forthcoming in offering their opinions and suggestions for improving the booklet. Participants suggested changes for improving the cover, pictures, and the text (e.g., removing the pictures of the woman in the wheelchair and the pregnant woman) and adding other information to the booklet (e.g., a discussion on whether organic foods are less or more risky for transplant recipients). Participants also identified words and sentences they found confusing (e.g., pasteurization).

Delivery Mechanisms

To reach transplant recipients and their caregivers with information on food safety, almost every participant suggested distributing food safety information to transplant coordinators at clinics and hospitals. Participants also suggested many other venues for distributing food safety information to transplant recipients and their caregivers (e.g., transplant and other healthcare organizations, government agencies’ Web sites, outreach programs and support groups, doctors’ offices, and pharmacies).

ES.2 RECOMMENDATIONS

The recommendations identify additional information FSIS should consider including in the booklet and suggest refinements for improving the booklet.

Based on the findings from the focus group discussion and telephone interviews with transplant recipients and caregivers, we offer the following recommendations for improving the food safety booklet:

- define pasteurization and explain why it is important for transplant recipients to choose food products (e.g., soft cheeses, eggs, fruit juices) that have been pasteurized;
- explain why transplant recipients need to reheat hot dogs, deli meats, and luncheon meats to steaming hot;

- instruct transplant recipients to contact their transplant coordinators instead of their physicians or healthcare providers;
- expand the section “Being Smart: When Eating Out” (see Section 3.4.8, page 3-23 for participants’ suggestions);
- replace the word “you” with “transplant recipient” in the first section titled “Food Safety: It’s Especially Important for You” (page 2) and throughout the text;
- remove the pictures of the pregnant woman and the woman in the wheelchair from the front cover;
- improve the resolution of the picture of the woman using a meat thermometer (page 6) and the picture of raw beef (page 8);
- enlarge the FightBAC!® logo (page 6);
- change the words printed in yellow (e.g., “separate” on page 9) to another color (e.g., green) that is easier to read; and
- remove the “My Physicians: Quick Reference List” (page 16).

1

Introduction

RTI conducted a focus group discussion and 22 telephone interviews with transplant recipients and caregivers to characterize their food safety knowledge, attitudes, and practices and to obtain their feedback on the food safety booklet developed by FSIS for transplant recipients and their caregivers.

Bone marrow and solid organ transplant recipients (transplant recipients) take immunosuppressive medications so their immune systems will not reject their transplanted bone marrow or organs. Due to their weakened immune systems, transplant recipients are at a higher risk of contracting a foodborne illness that may result in a lengthier illness, hospitalization, or death. To better understand associated foods and behaviors that have been linked to foodborne illness, transplant recipients should be informed about leading pathogens that cause foodborne illness in the United States. Transplant recipients should also know and follow safe food handling practices to prevent their exposure to pathogens known to cause foodborne illness.

The U.S. Department of Agriculture's Food Safety and Inspection Service (USDA, FSIS) developed a food safety booklet targeted to transplant recipients and their caregivers. Appendix A provides a copy of the booklet. To determine the effectiveness of the booklet in educating transplant recipients and their caregivers on food safety and to assess the best way to reach the target audience with food safety messages, FSIS contracted with RTI International (RTI) to conduct qualitative research with transplant recipients and caregivers. RTI conducted one focus group discussion in Durham, North Carolina, on March 30, 2006, and 22 individual telephone interviews from March 26 to April 2, 2006.

The objectives of the study were to

- characterize transplant recipients' and caregivers' concerns about foodborne illness;

- assess transplant recipients' and caregivers' general food safety knowledge and safe food handling practices;
- seek feedback from transplant recipients and caregivers on the booklet regarding
 - the look and feel of the booklet, including layout, comprehension level, and overall design;
 - the usefulness of the booklet's content; and
 - suggestions for improving the booklet;
- seek feedback from transplant recipients and caregivers on the USDA word-mark umbrella brand to determine receptivity, understanding, and overall look and feel; and
- identify preferred communication channels and dissemination strategies for the booklet.

FSIS can use the study findings to refine the booklet prior to dissemination and to identify effective communication channels for reaching transplant recipients and caregivers with food safety information.

This report describes the study design and presents the findings from the focus group discussion and telephone interviews with transplant recipients and caregivers. Section 2 describes the study design for the focus group and telephone interviews. Section 3 presents the results of the focus group and telephone interviews. Section 4 concludes the report with recommendations, based on the study findings, for improving the booklet.

2

Study Design

In this section, we describe the procedures and materials used to conduct the focus group and telephone interviews with transplant recipients and caregivers. We originally planned to conduct two focus groups with transplant recipients and one focus group with caregivers of transplant recipients. Because recruiting transplant recipients and caregivers for the focus groups proved difficult, we conducted instead a focus group discussion and telephone interviews to reach the desired number of study participants.

2.1 STUDY PARTICIPANTS

RTI conducted one focus group discussion with four transplant recipients and six caregivers and 22 telephone interviews with 15 transplant recipients and seven caregivers, for a total of 32 study participants.

Appendix B provides the questionnaires used to screen for eligibility and recruit participants for the study. To be eligible to participate in the study, transplant recipients must have had a bone marrow transplant, a solid organ transplant, or recurrent or chronic allograft rejection. Caregivers had to be either a home healthcare aid (excluding licensed healthcare professionals) or an individual who cares for a child, spouse, or parent who has received a bone marrow or solid organ transplant. Participants had to also meet the following eligibility criteria:

- be at least 18 years old;
- prepare meals that include meat and poultry at least three times per week;
- have not participated in a focus group in the past 6 months; and
- have not been employed, nor have household members employed, by the Federal government; cooperative extension service; the food service or food industries; the

healthcare industry; or a marketing research, advertising, or public relations firm in the past 5 years.

2.2 STUDY MATERIALS

Working with FSIS, we prepared interview guides for conducting the focus group and the telephone interviews. Appendix C contains two versions of the interview guide: one for discussions with transplant recipients and the other for discussions with caregivers. The interview guide addressed the following topics:

- Food safety concerns, knowledge, and practices: Participants discussed their concerns about foodborne illness and their knowledge and use of safe food handling practices.
- Evaluation of the booklet: Participants offered their opinions about the usefulness, attractiveness, ease of comprehension, relevancy, acceptability, and persuasiveness of the booklet (Doak, Doak, and Root, 1985).
- Knowledge and behavior changes: Participants identified new information that they learned about safe food handling practices and any changes they made in how they handle and prepare food at home based on the booklet.
- Suggestions: Participants offered their suggestions for making the booklet more understandable, informative, interesting, and attractive.
- Delivery mechanisms: Participants offered their suggestions on how and where the booklet should be distributed to reach transplant recipients and their caregivers.

We developed a prediscussion questionnaire to collect information on participants' food handling practices and demographics. Most of the questions were obtained from the FightBAC!® questionnaire that RTI developed for FSIS. Appendix D contains two versions of the prediscussion questionnaire: one for transplant recipients and the other for caregivers.

2.3 FOCUS GROUP WITH TRANSPLANT RECIPIENTS AND CAREGIVERS

RTI contracted with a local market research company in Durham, North Carolina, to recruit participants and provide facilities for hosting the focus group discussion. To recruit

transplant recipients and caregivers, the local market research company placed an advertisement in a local newspaper, the *News & Observer*, and worked with 16 local pharmacies, six local home healthcare providers, and the following 10 transplant support groups:

- Duke Lung Transplant Center,
- Duke Heart Transplant Center,
- Duke Liver Transplant Center,
- Duke Chapter of the Second Wind Lung Transplant Association,
- Eastern Carolina Chapter of the Transplant Recipients International Organization (TRIO),
- Triangle Chapter of TRIO,
- University of North Carolina (UNC) Lung Transplant Support Group,
- UNC Chapter of the Second Wind Lung Transplant Association,
- Wake Forest University Baptist Medical Center Heart Transplant Support Group, and
- Wake Forest University Baptist Medical Center Renal Transplant Support Group.

The pharmacies, home healthcare providers, and the transplant support groups posted fliers and talked with transplant recipients and their caregivers about the study.

On March 30, 2006, RTI conducted one focus group discussion with four transplant recipients and six caregivers, for a total of 10 participants. Table 2-1 provides information on participants' demographics.

RTI mailed participants the food safety booklet and instructed them to read the booklet prior to the focus group discussion. After arriving at the focus group facility, participants completed the prediscussion questionnaire. Two trained moderators conducted the focus group discussion, which lasted approximately 90 minutes. Focus group participants received a free gift (a refrigerator thermometer) and a monetary incentive of \$75.

Table 2-1. Participants' Demographics

Characteristic	Transplant Recipients (n = 18)	Caregivers (n = 13)
Gender		
Male	8	1
Female	10	12
Age		
18–29	0	0
30–44	2	2
45–59	7	7
Over 60	9	4
Hispanic or Spanish origin	1	0
Race		
White/Caucasian	16	11
Black/African American	1	1
Native American or Alaskan Native	0	1
Another race or multiracial	1	0
Education		
High school graduate or GED	2	1
Some college	8	6
College graduate	3	4
Postgraduate	5	2
Income		
Less than \$25,000	1	3
\$25,000 – \$49,999	4	1
\$50,000 – \$74, 999	3	4
\$75,000 – \$100,000	6	3
More than \$100,000	3	2
No response	1	0

Source: Prediscussion Questionnaire (n = 31). Because a probability-based sample was not used, these results should not be generalized to the population of U.S. transplant recipients and caregivers in any statistical sense.

2.4 TELEPHONE INTERVIEWS WITH TRANSPLANT RECIPIENTS AND CAREGIVERS

We contacted the Executive Director of Transplant Foundation, Inc.¹ to help recruit participants for the telephone interviews. The organization sent an e-mail about the study to its membership, and within 2 days, over 100 members expressed interest in participating in the study. RTI conducted telephone interviews with 15 transplant recipients and seven caregivers, for a total of 22 participants. Table 2-1 provides information on participants' demographics.

Prior to the telephone interviews, RTI mailed each participant the food safety booklet and the prediscussion questionnaire. Participants were instructed to complete the questionnaire and return it to RTI in a postage-paid envelope. Each interview lasted approximately 45 minutes, and participants received a monetary incentive of \$75 for their participation.

2.5 ANALYSIS

The focus group discussion was professionally videotaped, audio recorded, and transcribed. Appendix E provides the transcript of the focus group discussion. The moderators reviewed the videotape and the transcription to prepare a detailed summary of the focus group.

The interviewers took extensive notes during the telephone interviews and reviewed the notes to prepare detailed summaries of two to five individual participants' interviews.

The detailed summaries of the focus group and telephone interviews were systematically analyzed to identify common themes and any exceptions to these themes. We did not analyze the qualitative results by type of participant (transplant recipient vs. caregiver) because of the small number of participants.

¹ Transplant Foundation, Inc. (www.transplantfoundation.org) is a nonprofit organization located in Miami, Florida, that provides services for transplant recipients, community education on organ donation, and funding for transplant research.

We entered the responses to the prediscussion questionnaire (n = 31)² into a Microsoft Excel spreadsheet and calculated proportions for each question. Because a probability-based sample was not used, the results of the prediscussion questionnaire should not be generalized to the population of U.S. transplant recipients and their caregivers in any statistical sense.

² One transplant recipient did not complete the prediscussion questionnaire.

3

Results

In this section, we describe the results of the focus group discussion and the telephone interviews with transplant recipients and caregivers and present the findings from the pre-discussion questionnaire.

3.1 FOOD SAFETY CONCERNS, KNOWLEDGE, AND PRACTICES

Many participants received food safety information as part of their post-transplant education. Generally, this information was limited to specific foods to avoid and proper hygiene practices.

Since receiving their transplants or providing care for a transplant recipient, many participants received food safety information from a doctor or another healthcare professional (e.g., nutritionist, dietitian, transplant coordinator). The content and format of the information, however, varied by the institution that provided care. Because of food safety concerns, most participants were given a list of foods to avoid (e.g., raw or rare meat, uncooked or undercooked fish, unwashed fruits and vegetables) after receiving their transplants. Most participants were also instructed to avoid certain foods (e.g., grapefruit, grapefruit juice) that may interfere with their immuno-suppressive medications. Some participants were told to avoid certain foods for the rest of their lives, but others were not given a specific timeframe. Some participants were instructed to avoid salad bars and buffets when eating out. A few participants received information on safe food handling; but, for the most part, it was limited to proper hygiene (e.g., washing hands before and after handling food). Most participants did not receive information on how to recognize foodborne illness or what to do if they suspected they had contracted foodborne illness.

After receiving their transplants, a few participants received notebooks on post-transplant care that contained sections on food safety. These participants said the food safety information was similar but not as detailed as that provided in the booklet. One participant who received food safety information also had to take a 1-hour food safety course and pass a food safety quiz before she was discharged from her transplantation program.

Most participants have not searched for additional information on food safety since receiving their transplants. A few participants, however, have learned about food safety from the following sources:

- cooking shows,
- family members,
- Food and Drug Administration's (FDA's) Web site,
- the Internet,
- newsletters of transplant organizations,
- newspaper articles,
- product packaging, and
- television news programs.

Before receiving the booklet, most participants were somewhat concerned about getting sick from food they prepare at home because they were aware of the possible risks of foodborne illness from taking immuno-suppressive medications. Most participants, however, are also confident in their abilities to handle, prepare, cook, and store food safely at home. A few participants are less concerned than when they first received their transplants.

Although most participants say they are more cautious when preparing food at home, most participants can do more to handle and prepare food safely.

Most participants are more cautious about handling food since receiving their transplants. Most participants wash their hands more frequently. Many participants overcook meat and poultry to ensure doneness. Several participants use paper towels instead of dish towels. A few participants wash fruits and vegetables and pay more attention to cold storage times and product dating.

Although most participants say they are more cautious when preparing food at home, most participants can do more to handle and prepare food safely. Table 3-1 presents the percentage of participants who reported using specific safe

Table 3-1. Percentage of Participants Who Reported Using Specific Safe Handling Practices the Last Time They Handled Food

Practice	Transplant Recipients (n = 18)	Caregivers (n = 13)
<i>Clean: Wash hands and surfaces often</i>		
Always wash hands with soap before preparing food	89	92
Washed hands with soap after handling raw meat/poultry/seafood/eggs/seafood/eggs	78	85
<i>Separate: Don't cross-contaminate</i>		
Properly cleaned cutting boards or other surfaces after cutting raw meat/poultry/seafood/eggs and before using them to prepare other foods ^a	88	85
Properly cleaned dishes or utensils after preparing raw meat/poultry/seafood/eggs and before using them to prepare other foods ^a	89	85
When grilling, used clean or different dish for raw and cooked meat/poultry	94	100
Properly cleaned cutting boards or other surfaces after cutting fresh fruits or vegetables and before using them to prepare other foods ^a	78	85
Properly cleaned dishes or utensils after preparing fresh fruits or vegetables and before using them to prepare other foods ^a	72	85
<i>Cook: Cook to proper temperatures</i>		
Own a food thermometer	67	38
Used a food thermometer when cooking whole chicken or turkey	44	25
Used a food thermometer when cooking roasts or large pieces of meat	47	23
Used a food thermometer when cooking chicken parts, such as breasts or thighs	0	0
Used a food thermometer when cooking hamburgers	0	8
Used a food thermometer when reheating leftovers containing meat/poultry	0	0
Safely prepared deli or luncheon meat ^b	6	0
Safely prepared hot dogs ^b	86	100
<i>Chill: Refrigerate promptly</i>		
Refrigerator has built-in thermometer	22	15
Own a refrigerator thermometer ^c	28	31
Know the temperature inside refrigerator	17	15
Safely stored an unopened package of deli or luncheon meat in the refrigerator	100	100
Safely stored an opened package of deli or luncheon meat in the refrigerator	63	70
Safely stored large amounts of leftovers in the refrigerator ^d	44	25

^aWashed with soap and/or bleach or used a different item.

^bHeated until steaming hot.

^cIncludes built-in thermometers.

^dRefrigerated leftovers within 2 hours after cooking and stored in one or more shallow containers.

Source: Prediscussion Questionnaire (n = 31). Because a probability-based sample was not used, these results should not be generalized to the population of U.S. transplant recipients and caregivers in any statistical sense.

handling practices the last time they handled food. Most participants follow the recommended practices for cleanliness (78 percent to 92 percent) and practices to avoid cross-contamination (72 percent to 100 percent). Only 67 percent of transplant recipients and 38 percent of caregivers own a food thermometer. Most participants do not use a food thermometer to check whether roasts, whole turkeys, chicken parts, and hamburgers reach a safe internal temperature. Most participants reheat hot dogs to steaming hot but do not reheat deli meats prior to consumption. Less than one-third of participants have a refrigerator thermometer. All participants store unopened packages of deli or luncheon meats for the recommended time of 14 days or less, and many participants (63 percent to 70 percent) store opened packages of deli or luncheon meats for the recommended time of 3 to 5 days. Few participants (25 percent to 44 percent) safely store large amounts of leftovers (e.g., soups and stews).

As recommended by a doctor or another healthcare professional, some participants have stopped eating certain foods since receiving their transplants. Table 3-2 presents the number of participants who reported eating or serving high risk foods after transplantation. Most participants have not consumed or served sushi, ceviche, or other raw fish; raw, unpasteurized milk; raw meat or poultry (e.g., steak tartar); cold hot dogs; raw sprouts; unpasteurized fruit or vegetable juice; and refrigerated pâtés or meat spreads. Since receiving their transplants, about one-third of participants have consumed or served raw, homemade cookie dough or cake batter, and dishes that contain raw or undercooked eggs (e.g., Caesar salad or homemade eggnog). Most participants (67 percent to 89 percent) have consumed or served cold deli or luncheon meats and soft cheeses (e.g., Brie, feta, Camembert, blue, queso fresco).

The majority of participants were very concerned about getting sick from food they ate outside their homes because “you have no control [outside your home].” One participant said she is now very concerned because she and about 20 other transplant recipients contracted foodborne illness at a holiday party. Another participant was very concerned because her husband contracted listeriosis in January 2006 and had to be hospitalized for a few weeks. Because they have found

Table 3-2. Percentage of Participants Who Reported Eating or Serving High-Risk Foods After Receiving Transplant

High-Risk Food	Transplant Recipients (n = 18)	Caregivers (n = 13)
Cold deli or luncheon meats	89	77
Soft cheese, such as Brie, feta, Camembert, blue, queso fresco	67	8
Dishes that contain raw or undercooked eggs (e.g., Caesar salad or homemade eggnog)	33	8
Raw, homemade cookie dough or cake batter	6	31
Refrigerated smoked seafood, such as salmon, trout, mackerel, cod	22	15
Refrigerated pâtés or meat spreads	17	0
Raw sprouts	11	8
Unpasteurized fruit or vegetable juice or cider	11	0
Steak tartar (raw ground or chopped beef) or other raw meat or poultry	6	8
Sushi, ceviche, or other raw fish	0	0
Raw, unpasteurized milk	0	0
Cold hot dogs	0	0

Source: Prediscussion Questionnaire (n = 31). Because a probability-based sample was not used, these results should not be generalized to the population of U.S. transplant recipients and their caregivers in any statistical sense.

restaurants they trust and frequent often, a few participants are less concerned about getting sick from food they eat outside their homes. A few participants are less concerned about getting sick than when they first received their transplants.

3.2 PARTICIPANTS' EVALUATION OF THE BOOKLET

We present participants' impressions of the booklet below.

3.2.1 Overall Impressions

Participants liked the booklet and found it to be well prepared, very informative, comprehensive, and attractive.

Participants liked the booklet and thought it was well prepared, very informative, comprehensive, and attractive. Most participants thought the booklet contained relevant and useful information. Many participants shared the opinion of one participant who said, "I really liked [the booklet]. It reinforced some things I already knew, but I also picked up new information; like, I didn't know that I had to worry about sprouts or bleu cheese." Most participants said they learned something new after reading the booklet.

Participants especially liked the charts and graphics provided throughout the booklet. Many participants really liked the “Is It Done Yet?” graphic and/or the “Cold Storage Chart” and thought they provided the most valuable pieces of information in the booklet. Several participants liked the chart “Major Pathogens that Cause Foodborne Illness,” because they were not aware of the different types of pathogens that can cause foodborne illness.

Relevancy

All participants believed the booklet contained information they need to know, and many participants appreciated that USDA had prepared a booklet targeted to transplant recipients and their caregivers. One participant said, “[The booklet] has a lot of good information that all transplant recipients should know.” Another participant said, “[Food safety] education is part of a transplant recipient’s lifestyle. The more we know, the better chance we’ll avoid [organ] rejection.”

Usefulness

Many participants shared the opinion of one participant who said, “[The booklet] is an extremely good reference on food safety,” and several participants said they would refer back to the booklet for food safety information.

Pictures

Most participants liked the pictures in the booklet and thought they were used appropriately. One participant said, “[The booklet] is visually appealing.” Several participants, however, thought the resolution of some of the pictures (e.g., pages 6 and 8) could be improved. Also, several participants liked the FightBAC!® logo (page 6) but thought it should be enlarged to increase readability.

Colors

Participants really liked the colors used in the booklet. A few participants particularly liked the color blue used throughout the booklet. One participant said, “The colors make [the booklet] pleasing to the eye.” Some participants, however, found the words printed in yellow (e.g., “separate” on page 9) hard to read.

Length

Most participants thought the length of the booklet was just right—neither too long nor too short. Most participants thought the booklet sufficiently covered key food safety topics for transplant recipients.

Participants liked the appearance of the booklet, especially its colors, pictures, and tables. Participants thought the booklet was concise and easy to read.

Font

All participants found the font size easy to read. One participant commented that he could read it without his glasses.

Acceptability

Only a few participants found aspects of the booklet annoying or offensive. Several participants did not like the picture of the woman in the wheelchair on the front cover because she looked “out of place,” “sad,” and “disgusted.” Although these participants realize some transplant recipients require wheelchairs, they did not think that the woman in the picture represented transplant recipients because transplant recipients like to be seen as everyone else and are happy to be alive.

One participant thought the section, “Food Safety: It’s Especially Important for You,” was condescending because she believes all transplant recipients and caregivers already know and understand this information. Many participants said they already knew the information on page 2, but none of these participants shared her concern.

One participant described the first bullet on page 3, “The food supply in the United States is safe—but it can still be a source of infection for all persons” as “an oxymoron, and [I] would prefer [USDA] to tell me like it is.” A few participants also suggested that “it’s better to be tough about it [when providing information to transplant recipients].”

Comprehension

Participants thought the booklet was well organized, concise, and easy to read. One participant said, “[The booklet] was easy and straight to the point.”

Although participants thought the booklet was easy to understand, some participants admitted they did not know about pasteurization and that some food products (e.g., eggs) can be pasteurized to reduce the risk of foodborne illness. Other participants had misperceptions about pasteurization; for

example, some participants thought all eggs and soft cheeses are pasteurized.

A few participants thought the chart, "Major Pathogens that Cause Foodborne Illness," on pages 4 and 5 may be too technical for some people to understand, but they believed it was important information to include in the booklet.

A few participants who believe they know a great deal about food safety thought the booklet was a little redundant but also agreed "you can't explain [food safety] enough to people who don't know about it."

Participants suggested changes for items in the booklet they found confusing or hard to understand. These suggestions are offered in Section 3.4.

3.2.2 Evaluation of Booklet by Section

We present participants' impressions of each section of the booklet below.

Cover

Most participants liked the cover of the booklet but suggested removing the pictures of the pregnant woman and the woman in the wheelchair.

Most participants liked the cover and said it represented a good cross-section of people who could be transplant recipients. At least one participant, however, did not associate the people on the front cover with transplant recipients and suggested adding a picture of a doctor or a hospital to the cover.

Some participants were surprised to see the pictures of the woman in the wheelchair and the pregnant woman on the front cover. One participant said, "It's realistic [to see a transplant patient in a wheelchair], but most transplant patients want to be seen like everyone else." One participant said, "Normally, transplant patients do not get pregnant. Pregnancy is not a part of our lives." Another participant said, "It's sort of risky to become pregnant after a transplant." In addition, a few participants thought the picture of the woman in the wheelchair looked "superimposed," and one participant thought the inclusion of the pregnant woman suggested the booklet was targeted to the general public instead of transplant recipients.

A few participants would rather see food or graphics of different organs instead of pictures of people on the cover. No matter what type of pictures is used on the cover, some participants said the title alone would encourage transplant recipients to pick up the booklet.

Word-Mark Umbrella Brand

Some participants said the word-mark umbrella brand logo, “Be Food Safe from USDA,” grabbed their attention because of its contrasting colors. A few participants described the logo as “attractive” and “eye-catching.”



Participants said the logo conveyed the following ideas:

- “cleanliness,”
- “be careful when eating food,”
- “cook safely and purchase foods that are safe to eat,” and
- “the things you’ve done all your life are not necessarily the best ways [to handle food safely].”

Other participants did not pay much attention to the logo until the moderator/interviewer asked them about it. One participant said, “[The logo] doesn’t stand out.” Most of these participants said the logo would not encourage them to pick up the booklet.

Whether participants liked or disliked the logo, some participants thought “from USDA” was hard to read in yellow print.

Food Safety: It’s Especially Important for You

Most participants believed this section included important information but also said they already knew transplant recipients are immuno-compromised because of the medications they take. Several participants liked the foodborne illness statistics on page 3 and were surprised the numbers are so high. One participant said, “The numbers back up the seriousness [of foodborne illness].”

Major Pathogens that Cause Foodborne Illness

Most participants thought this section was very useful and informative because they were not aware of some of the pathogens that can cause foodborne illness. One participant said, “[This section] scares the heck out of you,” and another participant said, “[This section] was shock-therapy. I better be careful [when handling food].” Some participants liked that the symptoms of foodborne illness were listed. Several participants thought the section was easy to read; however, a few participants said the information was too technical. One participant did not like this section. This participant thought the pathogens and the symptoms were hard to differentiate;

however, he did believe this section provided important information that should be kept in the booklet.

Eating at Home: Making Wise Food Choices and Common Foods: The Low-Risk Options

Most participants liked this section and found it useful and informative. Many participants learned the most from this section because they were not aware of some of the foods that pose a high risk of contracting foodborne illness (e.g., cold luncheon meat, soft cheeses). Some participants mentioned they liked the FightBAC!® logo but found it too small to read. A few participants were indifferent to this section; although they thought this section provided important information, they believed it was information they already knew. A few participants thought this section was redundant; they thought the information was already covered in the booklet.

Taking Care: Handling and Preparing Food Safely

Most participants liked this section, especially the “Is It Done Yet?” graphic and the “Cold Storage Chart.” Most participants found this section useful and informative. Although many participants were familiar with and follow most of the recommended practices in this section, most participants learned at least one new fact.

In the Know: Becoming a Better Shopper

Some participants thought the information in this section was important and useful although they were already familiar with most of the information. Some participants appreciated the information on product dating because it helped clarify the difference between the different types of dates. Some participants were indifferent to this section because it included information with which they were already familiar.

Being Smart: When Eating Out

Some participants thought this section provided useful and important information. Because they already follow these recommendations when eating out, some participants appreciated the information but thought this section provided “nothing new.” A few participants found this section redundant; they thought the information was already covered in other sections of the booklet. A few participants believe this section has the potential to encourage transplant recipients to speak up and ask more questions when eating at restaurants.

Foodborne Illness: Know the Symptoms and Foodborne Illness Action Plan

Most participants thought these sections provided useful information, and many participants said they would likely follow the action plan if they suspected they had contracted foodborne illness. Many participants did not think the “My Physicians: Quick Reference List” was necessary because transplant recipients already have this information readily available.

For More Information on Food Safety

Some participants said they would likely call the Meat and Poultry Hotline or visit the Web sites listed in this section if they had a food safety concern or question.

3.3 KNOWLEDGE AND BEHAVIOR CHANGES

Each participant learned at least one new fact after reading the booklet, and many participants plan to make at least one change based on what they learned.

3.3.1 Knowledge Learned

Each participant learned at least one new fact after reading the booklet, and many participants plan to make at least one change based on what they learned.

After reading the booklet, participants’ awareness of foodborne pathogens and foodborne illness increased. Participants learned the following new information:

- Many participants were not aware of the different foodborne pathogens and their associated symptoms listed in the chart “Major Pathogens that Cause Foodborne Illness” (pages 4 and 5).
- Several participants were surprised to learn about the foodborne illness statistics on page 3; they had “no idea the numbers were so high.”
- A few participants were surprised that there are over 2,300 types of *Salmonella*.

After reading the booklet, many participants learned that some foods pose a higher risk for foodborne illness. Participants learned the following new information:

- From the chart “Common Foods: The Low Risk Options,” (page 7), many participants were surprised to learn that luncheon meats, precooked seafood (e.g., shrimp, crab), sprouts, soft cheeses, and foods that contain uncooked eggs (e.g., Caesar dressing) are considered high-risk foods.
- Several participants were also surprised to learn they should avoid soft-boiled eggs or eggs prepared over-easy (i.e.,

yolks are not fully cooked) from the chart “Smart Menu Choices” (page 15).

- A few participants also learned that they should avoid buffets and salad bars because they may contain undercooked foods or foods that have been at room temperature too long (page 14).

After reading the booklet, many participants learned more about

- foodborne pathogens and foodborne illnesses,
- foods that pose a high risk for foodborne illness,
- ways to safely handle and prepare foods at home, and
- pasteurization.

Many participants learned how to handle and prepare foods more safely at home from “Taking Care: Handling and Preparing Food Safely” (pages 8–11). Participants learned the following new information:

- Many participants learned the recommended internal temperatures of several types of food from the “Is It Done Yet?” graphic on page 9.
- Many participants learned the recommended storage times for bacon, luncheon meat, hot dogs, and leftovers from the “Cold Storage Chart” on page 11.
- Some participants learned raw meat and poultry should be separated from other foods in the grocery cart (page 9).
- Several participants learned the differences between sell-by, use-by, and best-if-used-by dates (page 13).
- Several participants learned the color of food is not a reliable indicator of doneness (page 9).
- A few participants learned leftovers should be reheated to a specific temperature and egg dishes should be cooked to a specific internal temperature (pages 9 and 10).
- A few participants learned the temperature of their refrigerators should be 40° F or below (page 10).
- A few participants learned that large amounts of leftovers should be divided into shallow containers and that foods should never be defrosted at room temperature (page 10).
- A few participants learned that separate cutting boards should be used for fresh produce and raw meat and poultry (page 9).

Many participants learned about pasteurization after reading the booklet. Participants learned the following new information:

- Many participants learned that soft cheeses, like bleu cheese and feta, can be made from unpasteurized milk.
- Some participants learned that some foods (e.g., eggs and fruit juices) can be pasteurized.
- After reading the booklet, however, some participants had misperceptions about pasteurization; for example, some

participants thought all eggs and soft cheeses are pasteurized.

3.3.2 Behavior Changes

Based on what they learned, participants made or plan to make changes in their food handling practices. Many participants did or plan to make at least one of the following changes in their food handling practices:

- separate raw meat and poultry from other foods in the grocery cart,
- follow recommendations in the “Cold Storage Chart” on page 11, and
- avoid sprouts.

Based on what they learned, some participants made or plan to make at least one of the following changes in their food handling practices:

- read labels more carefully to identify foods that have been pasteurized,
- cut out and use the “Is It Done Yet?” graphic, and
- avoid buffets and salad bars.

A few participants made or plan to make at least one of the following changes in their food handling practices:

- purchase a refrigerator thermometer;
- clean the inside of the refrigerator;
- use product dating;
- divide large amounts of leftovers into shallow containers;
- store eggs in the original carton;
- defrost foods in the refrigerator, cold water, or microwave;
- use separate cutting boards for raw meat and produce;
- purchase a food thermometer;
- use a food thermometer to check the doneness of chicken, egg dishes, and leftovers;
- stop eating soft-boiled eggs or eggs prepared over-easy;
- avoid or reheat luncheon meat;
- do not purchase precooked seafood; and
- ask for help when ordering at restaurants.

3.4 SUGGESTIONS FOR IMPROVING THE BOOKLET

Participants were very forthcoming in offering their opinions and suggestions for improving the booklet. Participants suggested printing the booklet on higher quality paper and providing a large print version for people who are visually impaired. Participants suggested adding a glossary to define words that may be unfamiliar to some readers (e.g., cross-contamination, pasteurization, ceviche, and alfalfa).

Participants suggested adding the following information to the booklet:

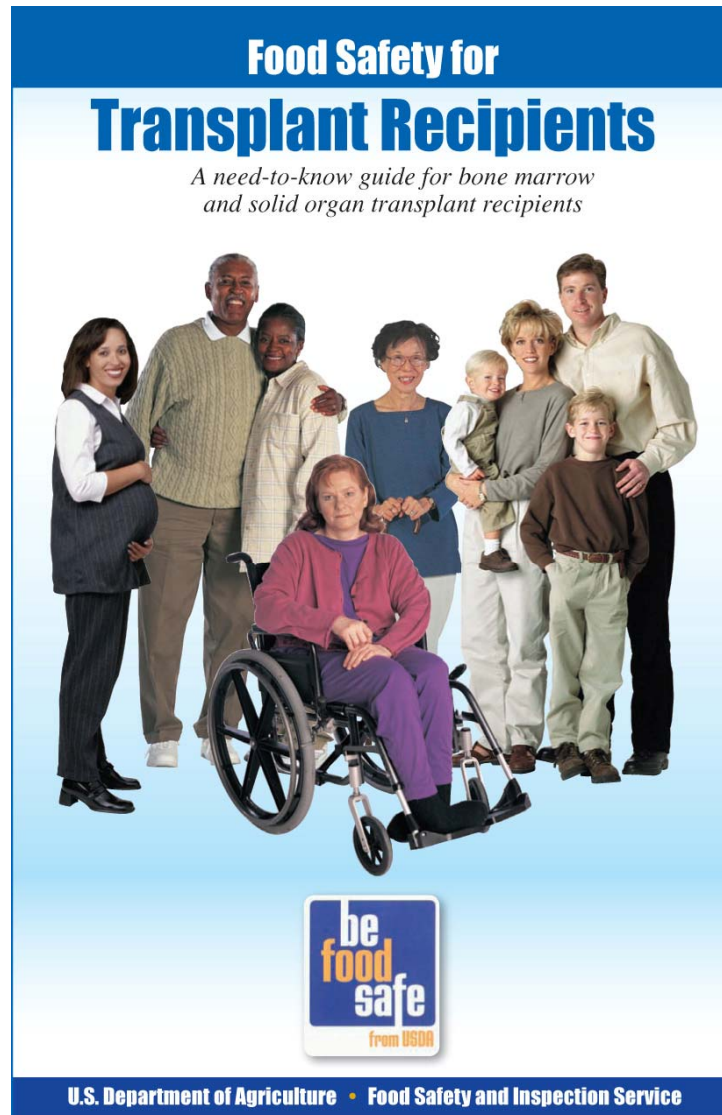
- discuss whether bleach is a recommended cleaning agent for transplant recipients,
- discuss whether kitchen sponges are a recommended cleaning tool for transplant recipients,
- identify foods (e.g., grapefruit, kiwis) that interfere with immuno-suppressive medications,
- discuss whether organic foods are less or more risky for transplant recipients,
- discuss whether prepared and/or packaged foods (e.g., chicken salad or frozen entrees) are less or more risky for transplant recipients,
- discuss whether soft-serve ice cream is safe for transplant recipients to eat,
- discuss whether transplant recipients should be concerned about salad bars, and
- discuss whether transplant recipients should be concerned about pesticides.

The following pages provide participants' suggestions for improving each section of the booklet.

3.4.1 Cover

For improving the cover, participants offered the following suggestions:

- increase the font size of the phrase “Food Safety for,”
- remove the word “solid” from the subtitle,
- remove the picture of the woman in the wheelchair,
- remove the picture of the pregnant woman,
- include pictures of food,
- replace pictures of people with pictures of food or graphics of different organs, and
- add a hospital or doctor’s office to the background.



3.4.2 Food Safety: It's Especially Important for You!

For improving this section, participants offered the following suggestions:

- add Dr. Samuel James' credentials;
- replace the word "you" with "transplant recipient" in the title and throughout the text;
- bold the subsection title "Foodborne Illness in the United States";
- use "food poisoning" rather than "foodborne illness";
- explain how foodborne illness can be fatal because "people do not understand how food can kill them";
- add to the text that "transplant recipients will always be immuno-compromised despite what is mentioned in the media about how certain foods and/or vitamins can improve your immune system";
- include a statement about contacting a doctor to learn what foods he/she recommends the reader should avoid to prevent foodborne illness and/or drug interactions;
- stress to the reader that even if he thinks he only has stomach ache, he should contact his doctor immediately because it may be something more serious, like foodborne illness;
- emphasize that caregivers, family members, and transplant recipients are a team and that information in the booklet is important for everyone;
- provide the publication date;
- unbold "what's inside"; and
- change the sidebar "Make safe food handling a lifelong commitment to minimize your risk of foodborne illness," to "you need to change your [food handling] habits to avoid foodborne illness."

Food Safety:

It's Especially Important for You

As a transplant recipient, you are probably familiar with the topic of transplant rejection. It's the body's natural reaction or immune system's response to "foreign invasion."

- A properly functioning **immune system will try to reject** or destroy your new solid organ and/or bone marrow transplant — in the same way that your immune system works to clear infection from your body.
- Because of this natural rejection possibility, it's common for transplant recipients to **take medications to keep rejection from happening**. These drugs are called *immunosuppressive medications* because they *suppress* your immune system to keep it from attacking, or rejecting, your transplanted organ or bone marrow. Over the past few decades, substantial progress has been made in the development of these drugs that help prevent you from experiencing a transplant rejection.
- Immunosuppressive medications are important, as they can protect your transplanted solid organ and/or bone marrow. But a side effect of these immunosuppressants is that they leave you more susceptible to developing infections — like those that can be brought on by disease-causing bacteria and other pathogens that cause foodborne illness.



About this Booklet

Food safety is important for everyone — but it's especially important for you. That's why the U.S. Department of Agriculture's Food Safety and Inspection Service has prepared this booklet. It's designed to provide practical guidance on how to reduce your risk of foodborne illness. You have a special need for this important information . . . so read on!



Foodborne Illness in the United States

When certain disease-causing bacteria or pathogens contaminate food, they can cause foodborne illness. Foodborne illness, often called *food poisoning*, is an illness that comes from a food you eat.

- The food supply in the United States is safe — but it can still be a source of infection for all persons.
- According to the Centers for Disease Control and Prevention, 76 million persons get sick, 325,000 are hospitalized, and 5,000 die from foodborne infection and illness each year. Many of these are very young, very old, or have weakened immune systems and may not be able to fight infection normally.

Since foodborne illness can be serious — or even fatal — it is important for you to know and practice safe food handling behaviors to help reduce your risk of accidentally getting sick from contaminated food.

Make safe food handling a lifelong commitment to minimize your risk of foodborne illness.

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A special thank you to Dr. Samuel James for his assistance in creating this booklet.

3.4.3 Major Pathogens that Cause Foodborne Illness

For improving this section, participants offered the following suggestions:

- add the phonetic spelling of the pathogens;
- include other foodborne illnesses, like botulism and trichinosis;
- define pasteurized, unpasteurized, and raw milk;
- explain how water, fruit, and vegetables can become contaminated;
- instruct readers to contact their physician even if they are not sure they have foodborne illness;
- list more foods associated with each pathogen;
- explain how foodborne illnesses are diagnosed (e.g., blood tests);
- use the term “unpasteurized milk” instead of “raw milk”;
- format the table as a tear-out sheet;
- explain whether “contaminated water” refers to drinking water or water from a lake or river;
- explain what “person-to-person” means; and
- clarify the first bullet under Associated Foods/Sources for “*Toxoplasma gondii*.”

Major Pathogens that Cause Foodborne Illness		(Bacteria, Parasites, Viruses)	
<p><i>Campylobacter jejuni</i></p> <p>Associated Foods</p> <ul style="list-style-type: none"> • Contaminated water • Raw milk • Raw or undercooked meat, poultry, or shellfish <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Fever, headache and muscle pain followed by diarrhea (sometimes bloody), abdominal pain, and nausea that appear 2 to 5 days after eating; may last 7 to 10 days. May spread to bloodstream and cause a life-threatening infection. 		<p><i>Salmonella</i> (over 2,300 types)</p> <p>Associated Foods</p> <ul style="list-style-type: none"> • Raw or undercooked eggs, poultry, and meat • Raw milk or juice • Cheese and seafood • Contaminated fresh fruits and vegetables <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Stomach pain, diarrhea, nausea, chills, fever, and headache usually appear 8 to 72 hours after eating; may last 4 to 7 days. • A more severe illness may result if the infection spreads from the intestines to the bloodstream. Without treatment, death may result. 	
<p><i>Escherichia coli</i> O157:H7 One of several strains of <i>E. coli</i> that can cause human illness.</p> <p>Associated Foods/Sources</p> <ul style="list-style-type: none"> • Undercooked beef, especially hamburger • Unpasteurized milk and juice • Contaminated raw fruits and vegetables, and water • Person-to-person <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Severe diarrhea that is often bloody, abdominal cramps, and vomiting. Usually little or no fever. • Can begin 1 to 8 days after food is eaten and last about 5 to 10 days. • Some, especially the very young, have developed hemolytic-uremic syndrome (HUS), which causes acute kidney failure. 		<p>Noroviruses (and other calciviruses)</p> <p>Associated Foods</p> <ul style="list-style-type: none"> • Shellfish and fecally contaminated foods or water • Ready-to-eat foods touched by infected food workers; e.g., salads, sandwiches, ice, cookies, fruit <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Nausea, vomiting, stomach pain, fever, muscle aches, and some headache usually appear within 1 to 2 days and may last 1 to 2 days. • Diarrhea is more prevalent in adults and vomiting is more prevalent in children. 	
<p><i>Listeria monocytogenes</i> Can grow slowly at refrigerator temperatures</p> <p>Associated Foods</p> <ul style="list-style-type: none"> • Contaminated hot dogs, luncheon meats, cold cuts, fermented or dry sausage, and other deli-style meat and poultry • Soft cheeses and unpasteurized milk <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Fever, chills, headache, backache, sometimes upset stomach, abdominal pain and diarrhea. May take up to 3 weeks to become ill. • At-risk patients (to include transplant recipients and others with weakened immune systems) may later develop more serious illness; death can result from this bacteria. <p>If you suspect that you have foodborne illness, call your physician or health care provider. Afterwards, refer to the <i>Foodborne Illness Action Plan</i> on page 17.</p>		<p><i>Toxoplasma gondii</i></p> <p>Associated Foods/Sources</p> <ul style="list-style-type: none"> • Accidental ingestion of soil contaminated with cat feces on fruits and vegetables. • Raw or undercooked meat. <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Flu-like illness that usually appears 5 to 23 days after eating, may last months. Those with a weakened immune system, including transplant recipients, may develop more serious illness. 	
<p><i>Vibrio Vulnificus</i></p> <p>Associated Foods</p> <ul style="list-style-type: none"> • Undercooked or raw seafood (fish or shellfish) <p>Symptoms and Potential Impact</p> <ul style="list-style-type: none"> • Diarrhea, stomach pain, and vomiting may appear within 1 to 7 days and last 2 to 8 days. May result in a blood infection. May result in death for those with a weakened immune system, including transplant recipients. 			

3.4.4 Eating at Home: Making Wise Food Choices and Common Foods: The Low-Risk Options

For improving this section, participants offered the following suggestions:

- explain why hot dogs, deli meats, and luncheon meats need to be reheated;
- change “alfalfa, bean, or any other” to “alfalfa, bean, or any other sprout”;
- enlarge FightBAC!® logo;
- change “Uncooked fresh fruits and vegetables” to “Fresh fruits and raw vegetables”;
- add “bagged salads” to “Uncooked fresh fruits and vegetables”;
- list only the “higher risk” foods;
- explain why certain foods (e.g., smoked fish, eggs, sprouts, cheeses) pose a higher risk to transplant recipients;
- add a sidebar that directs readers to consult their transplant coordinators if they have concerns about food choices;
- instruct readers to consult their doctors before trying food supplements or vitamins that can affect the immune system;
- explain whether organic foods are more or less risky; and
- add a statement that stresses to readers to discard food they have concerns about.

Eating at Home:
Making Wise Food Choices


Some foods are more risky for you than others. In general, the foods that are most likely to contain pathogens fall into two categories:

- **Uncooked** fresh fruits and vegetables
- **Animal products**, such as unpasteurized milk, meat, eggs, fish, poultry, and seafood.

Interestingly, the risk these foods may actually pose depends on *where a food comes from and how it is processed, stored, and prepared*. Follow these guidelines (see chart at right) for safe selection and preparation of your favorite foods.

Wise choices in your food selections are important.

All consumers need to follow the Four Basic Steps to Food Safety:
Clean, Separate, Cook, and Chill.



Common Foods: The Low Risk Options

Type of food	Higher Risk	Lower Risk
Meat and poultry	• Raw or undercooked meat or poultry	• Thoroughly cooked meat or poultry
<i>Tip: Use a food thermometer to check the internal temperature.</i>		
Seafood	• Any raw or undercooked fish, e.g., sushi or ceviche • Refrigerated smoked fish • Precooked seafood, such as shrimp and crab	• Fully cooked fish • Smoked fish and seafood heated to 165 °F • Canned fish and seafood
Milk	• Raw milk (unpasteurized)	• Pasteurized milk
Eggs	Foods that contain uncooked eggs, such as: • Caesar salad dressings • Homemade raw cookie dough • Homemade eggnog	<i>At home:</i> • Using pasteurized eggs/egg products when making undercooked foods <i>When eating out:</i> • Ask if pasteurized eggs were used.
<i>Tip: Most pre-made foods from grocery stores, such as Caesar dressing, pre-made cookie dough, or packaged eggnog are made with pasteurized eggs.</i>		
Sprouts	• Raw sprouts (alfalfa, bean, or any other)	• Cooked sprouts
Vegetables	• Unwashed fresh vegetables, including lettuce/salads	• Washed fresh vegetables, including salads
Cheese	• Soft cheeses made from unpasteurized milk, such as: — Feta — Brie — Camembert — Blue-veined cheese — Queso Fresco	• Hard cheeses • Processed cheeses • Cream cheese • Mozzarella • Soft cheeses that are clearly labeled “made from pasteurized milk”
Hot Dogs and Deli Meats	• Hot dogs, deli meats, and luncheon meats that have not been reheated	• Hot dogs, luncheon meats, and deli meats reheated to steaming hot or 165 °F
Pâtés	• Unpasteurized, refrigerated pâtés or meat spreads	• Canned pâtés or meat spreads


3.4.5 Taking Care: Handling and Preparing Food Safely (pages 8 and 9)

For improving these two pages of this section, participants offered the following suggestions:

- instruct readers to avoid vegetable washes because they contain the acid found in grapefruits;
- address not reusing bottles of water without first washing them;
- add “with soap and warm water” to the third bullet under “Separate”; and
- delete the phrase “packaged at the plant” in the third bullet under “Cook.”


Taking Care: Handling and Preparing Food Safely

Foodborne pathogens are sneaky. You can't tell by looking, smelling, or even tasting a food whether it contains pathogens. But these pathogens — like disease-causing bacteria, virus, fungi, or parasites — can make you sick.



As a transplant recipient, it is especially important for you — or those preparing your food — to be careful with food handling and preparation. The easiest way to do this is to follow the Four Basic Steps to Food Safety from the Fight BAC!® Campaign — the national campaign developed and promoted by the U.S. Partnership for Food Safety Education.

Four Basic Steps to Food Safety




1. Clean: Wash hands and surfaces often

Bacteria can spread throughout the kitchen and get onto cutting boards, utensils, counter tops, and food.

To ensure that your hands and surfaces are clean, be sure to:

- Wash hands in warm soapy water for at least 20 seconds before and after handling food and after using the bathroom, changing diapers, or handling pets.
- Wash cutting boards, dishes, utensils and counter tops with hot soapy water after preparing each food item and before going on to the next food.
- Consider using paper towels to clean up kitchen surfaces. If using cloth towels, you should wash them often in the hot cycle of the washing machine.
- Wash produce. Rinse fruits and vegetables, and rub firm-skin fruits and vegetables under running tap water, including those with skins and rinds that are not eaten.




2. Separate: Don't cross-contaminate

Cross-contamination occurs when bacteria are spread from one food product to another. This is especially common when handling raw meat, poultry, seafood, and eggs. The key is to keep these foods — and their juices — away from ready-to-eat foods.

To prevent cross-contamination, remember to:

- Separate raw meat, poultry, seafood, and eggs from other foods in your grocery shopping cart, grocery bags, and in your refrigerator.
- Use one cutting board for fresh produce and a separate one for raw meat, poultry, and seafood.
- Never place cooked food on a plate that previously held raw meat, poultry, seafood, or eggs without first washing the plate.
- Don't reuse marinades used on raw foods unless you bring them to a boil first.



3. Cook: Cook to proper temperatures

Foods are safely cooked when they are heated to the USDA-recommended temperatures, as shown on the “Is It Done Yet?” Chart (see next page).

To ensure that your foods are cooked safely, always:

- Use a **food thermometer** to measure the internal temperature of cooked foods. Check the internal temperature in several places to make sure that the meat, poultry, seafood or egg product is cooked all the way through.
- Cook **ground beef** to at least 160 °F and **ground poultry** to at least 165 °F. Color of food is not a reliable indicator of doneness.
- Reheat **fully cooked hams** packaged at the plant to 140 °F.
- Cook **shrimp, lobster, and crab** until they turn red and the flesh is pearly opaque. Cook **clams, mussels, and oysters** until the shells open.
- Cook **eggs** until the yolks and whites are firm. Use only recipes in which eggs are cooked or heated thoroughly.
- Bring **sauces, soups and gravy** to a boil when reheating. Heat other leftovers thoroughly to 165 °F.

8
9

3.4.6 Taking Care: Handling and Preparing Food Safely (pages 10 and 11)








For improving the last two pages of this section, participants offered the following suggestions:

- change “does not freeze well” to “do not freeze” in reference to “egg, chicken, ham, tuna, and macaroni salad”;
- include a mailing address or phone number to obtain a hard copy of the “Cold Storage Chart”; and
- list the “Four Basic Steps to Food Safety” on one page.

3. Cook: Cook to proper temperatures (cont.)

- Reheat hot dogs, luncheon meats, bologna, and other deli meats until steaming hot.
- When cooking in a microwave oven, cover food, stir, and rotate for even cooking. If there is no turntable, rotate the dish by hand once or twice during cooking. Food is done when it reaches the USDA recommended internal temperature.

Is It Done Yet?
You can't tell by looking. Use a food thermometer to be sure.

USDA Recommended Internal Temperatures						
						
Steaks & Roasts	Fish	Pork	Ground Beef	Egg Dishes	Chicken Breasts	Whole Poultry
145 °F	145 °F	160 °F	160 °F	160 °F	170 °F	180 °F

4. Chill: Refrigerate promptly

Cold temperatures slow the growth of harmful bacteria. Keeping a constant refrigerator temperature of **40 °F or below** is one of the most effective ways to reduce risk of foodborne illness. Use an appliance thermometer to be sure the refrigerator temperature is consistently 40 °F or below and the freezer temperature is 0 °F or below.

To chill foods properly:

- Refrigerate or freeze meat, poultry, eggs, seafood, and other perishables within 2 hours of cooking or purchasing. Refrigerate within 1 hour if the temperature outside is above 90 °F.
- Never defrost food at room temperature, such as on the counter top. It is safe to defrost food in the refrigerator, in cold water, or in the microwave. If you thaw food in cold water or in the microwave, you should cook it immediately.
- Divide large amounts of leftovers into shallow containers for quicker cooling in the refrigerator.
- Follow the recommendations in the abridged USDA Cold Storage Chart (at right). The USDA Cold Storage Chart in its entirety may be found at <http://www.foodsafety.gov/~fsg/f01chart.html>.

Cold Storage Chart

These time limit guidelines will help keep refrigerated food safe to eat. Because freezing keeps food safe indefinitely, recommended storage times relate only to food quality.

Product	Refrigerator (40 °F)	Freezer (0 °F)
Eggs		
Fresh, in shell	3 to 5 weeks	Do not freeze
Hard cooked	1 week	Does not freeze well
Liquid pasteurized eggs, egg substitutes		
Opened	3 days	Does not freeze well
Unopened	10 days	1 year
Salads		
Egg, chicken, ham, tuna, & macaroni salads	3 to 5 days	Does not freeze well
Hot dogs		
Opened package	1 week	1 to 2 months
Unopened package	2 weeks	1 to 2 months
Luncheon meat		
Opened package	3 to 5 days	1 to 2 months
Unopened package	2 weeks	1 to 2 months
Bacon & Sausage		
Bacon	7 days	1 month
Sausage, raw — from chicken, turkey, pork, beef	1 to 2 days	1 to 2 months
Hamburger and Other Ground Meats		
Hamburger, ground beef, turkey, veal, pork, lamb, & mixtures of them	1 to 2 days	3 to 4 months
Fresh Beef, Veal, Lamb, Pork		
Steaks	3 to 5 days	6 to 12 months
Chops	3 to 5 days	4 to 6 months
Roasts	3 to 5 days	4 to 12 months
Fresh Poultry		
Chicken or turkey, whole	1 to 2 days	1 year
Chicken or turkey, pieces	1 to 2 days	9 months
Soups & Stews		
Vegetable or meat added	3 to 4 days	2 to 3 months
Leftovers		
Cooked meat or poultry	3 to 4 days	2 to 6 months
Chicken nuggets, patties	1 to 2 days	1 to 3 months
Pizza	3 to 4 days	1 to 2 months

3.4.7 In the Know: Becoming a Better Shopper

For improving this section, participants offered the following suggestions:

- explain why USDA recommends storing shell eggs in their original cartons;
- add information about wiping the tops of cans before opening;
- add information about examining product packaging for tears, dents, or other defects before purchasing;
- explain what constitutes “unsafe or unclean conditions” in the last bullet on page 12;
- move the word “other” under the third bullet on page 12 to the next line;
- include information about sanitation wipes now available at local grocery stores to clean the handles of their carts; and
- add more pictures of food labels so readers will know where to look for product dates on different types of food products (i.e., cans, eggs).

In the Know: Becoming a Better Shopper

You can *buy* healthy to *be* healthy by following safe food-handling practices while you shop.

- Carefully read food labels while in the store to make sure food is not past its “sell by” date. (See About Food Labels at right.)
- Put raw packaged meat, poultry, or seafood into a plastic bag before placing it in the shopping cart, so that its juices will not drip on — and contaminate — other foods.
- Buy only pasteurized milk, cheese, and other dairy products from the refrigerated section. When buying fruit juice from the refrigerated section of the store, be sure that the juice label says it is **pasteurized**.
- Purchase eggs in the shell from the refrigerated section of the store. (Note: store the eggs in their original carton in the main part of your refrigerator once you are home.) Purchase pasteurized liquid eggs or egg products from the refrigerated section if you are planning to prepare dishes that call for uncooked eggs, such as salad dressings and some desserts. For optimal safety, eggs that have been pasteurized in the shell should still be cooked.
- **Never** buy food that is displayed in unsafe or unclean conditions.

*When shopping for food,
reading the label carefully is key.*


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About Food Labels

Read the “Safe Handling Label” for food safety information on raw foods.

Refrigerated Foods


“**Sell-By**” Dates: Refers to how long a refrigerated product should be shown on display in a grocery store. The food may remain safe after this date if stored properly. However, as a transplant recipient, it is best for you to avoid eating foods that are past the sell-by date. Throw away ready-to-eat foods or leftover foods after 3 to 4 days in the refrigerator.



Canned, Frozen, and Dry Foods

“**Best If Used By**” Dates: Refers to the flavor and the quality of the product, **NOT** its safety. In other words, it just means it looks and tastes “best” if used by that date. “**Use-By**” date is a safety date, and is the last date recommended for the use of a food. If not “dated,” consume opened, ready-to-eat food soon after purchasing it and no more than 3 to 5 days after opening.

Transporting Your Groceries



Follow these tips for safe transporting of your groceries:

- Pick up perishable foods last, and plan to go directly home from the grocery store.
- Always refrigerate perishable foods within 2 hours of cooking or purchasing.
- Refrigerate within 1 hour if the temperature outside is above 90 °F.
- In hot weather, take a cooler with ice or another cold source to transport foods safely.

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3.4.8 Being Smart: When Eating Out

For improving this section, participants offered the following suggestions:

- instruct readers to be aware of their surroundings when eating out and to examine restaurants closely, including their sanitation scores;
- instruct readers to examine restaurants and feel free to leave if it does not meet his expectations;
- encourage readers to feel comfortable to explain their situation to a waiter or waitress, which would also be an excellent opportunity to educate a food worker about weakened immune systems and foodborne illness;
- encourage readers to ask for substitutions at restaurants;
- encourage readers to make another food selection when in doubt;
- encourage readers to follow up after food is brought to the table and verify that it was prepared as ordered;
- include information about choosing bottled water and avoiding tap water outside the home;
- instruct readers to head straight home from a restaurant so they can store leftovers within 2 hours;
- add recommended storage times for “doggie bags”;
- provide more information about traveling to foreign countries and taking cruises; and
- advise transplant recipients to bring antibiotics with them when traveling.

Being Smart When Eating Out

Eating out can be lots of fun — so make it an enjoyable experience by following some simple guidelines to avoid food-borne illness. Remember to observe your food when it is served, and don't ever hesitate to ask questions before you order. Waiters and waitresses can be quite helpful if you ask how a food is prepared. Also, let them know you don't want any food item containing raw meat, poultry, fish, or eggs.

Basic Rules for Ordering

- Ask whether the food contains uncooked ingredients such as eggs, meat, poultry, or fish. If so, choose something else.
- Ask how these foods have been cooked. If the server does not know the answer, ask to speak to the chef.
- Order your meat, poultry, fish, and other cooked, perishable foods (like eggs) well done.
- Avoid buffets, which may contain undercooked foods or foods that have been at room temperature too long. Order from a menu to minimize your risk.

If in doubt, make another selection!

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Smart Menu Choices

Choose:	Avoid:
✓ Hard or processed cheeses, or soft cheeses only if made from pasteurized milk.	✗ Cheese made from unpasteurized milk.
✓ Fully cooked seafood or smoked fish.	✗ Cold seafood.
✓ Hot dogs reheated to steaming hot. If the hot dogs are served cold or lukewarm, ask the waiter to have the hot dogs reheated until steaming, or else choose something else.	✗ Cold hot dogs.
✓ Grilled sandwiches in which the meat is heated until steaming.	✗ Sandwiches with cold deli or luncheon meat.
✓ Fully cooked fish that is firm and flaky.	✗ Raw or undercooked fish, such as sushi or sashimi.
✓ Fully cooked eggs with firm yolk and whites.	✗ Soft-boiled or “over-easy” eggs, as the yolks are not fully cooked.

Ask questions about how your food is cooked.

Tips for Transporting Food

- Keep cold food cold. To be safest, place cold food in cooler with ice or frozen gel packs. Use plenty of ice or frozen gel packs. Cold food should be at 40°F or below the entire time you are transporting it.
- Hot food should be kept hot, at or above 140°F. Wrap the food well and place in an insulated container.

Stay “Food Safe” When Traveling Internationally
Discuss your travel plans with your physician before traveling to other countries. Your physician may have specific recommendations for the places you are visiting, and may suggest extra precautions or medications to take on your travels.

For more information about safe food and water while traveling abroad, access the Centers for Disease Control and prevention Web site at www.cdc.gov/travel.

Select your foods with care when traveling to other countries.

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3.4.9 Foodborne Illness: Know the Symptoms and Foodborne Illness Action Plan

For improving this section, participants offered the following suggestions:

- provide a Web address that includes links to local health departments;
- change the first bullet on page 17 to “Consult your transplant coordinator...immediately”;
- emphasize the importance of “not waiting 24 hours” and “contacting your transplant coordinator immediately” under the first bullet on page 17;
- instruct readers not to take any over-the-counter medicines to relieve symptoms without contacting their transplant coordinator first;
- instruct readers not to ignore possible symptoms of foodborne illness;
- explain how to identify whether a food was a source of foodborne illness;
- explain that some people who have foodborne illness may be asymptomatic;
- add the ✂ symbol to the “My Physicians: Quick Reference List”; and
- capitalize the “R” in “... Quick reference List.”

Foodborne Illness:
Know the Symptoms

Despite your best efforts, you may find yourself in a situation where you suspect you have a foodborne illness. Foodborne illness often presents itself with flu-like symptoms.

These symptoms include:

- Nausea
- Vomiting
- Diarrhea
- Fever

If you suspect that you could have a foodborne illness, there are four key steps that you should take. Follow the guidelines in the Foodborne Illness Action Plan at right, which begins with contacting your physician or health care provider right away.

When in doubt — contact your physician or health care provider!

My Physicians: Quick reference List

Name: _____
Phone: _____ Specialty: _____

Name: _____
Phone: _____ Specialty: _____

Name: _____
Phone: _____ Specialty: _____

Foodborne Illness Action Plan

If you suspect you have a foodborne illness, follow these general guidelines:

- 1. Consult your physician, or seek medical treatment as appropriate.**
 - As a transplant recipient on immunosuppressive medications, you are at increased risk for severe infection.
 - Contact your physician immediately if you develop symptoms or think you may be at risk.
 - If you develop signs of infection as discussed with your physician, seek out medical advice and/or treatment immediately.
- 2. Preserve the food.**
 - If a portion of the suspect food is available, wrap it securely, label it to say “DANGER,” and freeze it.
 - The remaining food may be used in diagnosing your illness and in preventing others from becoming ill.
- 3. Save all the packaging materials, such as cans or cartons.**
 - Write down the food type, the date and time consumed, and when the onset of symptoms occurred.
 - Save any identical unopened products.
 - Report the contaminated food to the USDA Meat and Poultry Hotline, 1-888-MPHotline (1-888-674-6854). The toll-free number for the hearing impaired (TTY) is 1-800-256-7072.
- 4. Call your local health department . . .**
 - . . . if you believe you became ill from food you ate in a restaurant or other food establishment.
 - The health department staff will be able to assist you in determining whether any further investigation is warranted.

3.4.10 For More Information on Food Safety and the Back Cover

For improving the last page and the inside back cover, participants offered the following suggestions:

- add a Web address that specifically addresses recalls;
- underline or highlight the Web addresses for easy reference;
- print cut-outs on stock card and place in the middle of the booklet on a tear-off sheet;
- enlarge font on the cut-out “Ordering ‘Smart’ When Eating Out”; and
- add “The Four Basic Steps to Food Safety.”

For More Information on Food Safety


There are several ways to obtain additional information in English and Spanish.

By Phone:
 Call the **USDA Meat and Poultry Hotline at 1-888-MPHotline (1-888-674-6854)** or **TTY: 1-800-256-7072**.

- The year-round, toll-free Hotline is available Monday through Friday from 10 a.m. to 4 p.m., Eastern Time.
- An extensive selection of timely food safety messages is also available at the same number, 24 hours a day.

Online:
 Information can also be accessed on the FSIS Web site at www.fsis.usda.gov.

- **Food Safety Questions? Ask Karen!** Karen is the FSIS Virtual Representative — an automated response system available 24/7 at www.fsis.usda.gov
- Send email inquiries to mphotline.fsis@usda.gov.




Additional Food Safety Resources:
USDA Food Safety and Inspection Service
www.fsis.usda.gov
Food and Drug Administration
 1-888-Safefood (1-888-723-3366)
www.cfsan.fda.gov
Centers for Disease Control and Prevention
 1-888-232-3228 (24-hour recorded information)
www.cdc.gov/foodsafety

- National Center for Infectious Diseases/Traveler's Health
www.cdc.gov/travel/index.htm
- National Center for Infectious Diseases/Water-Related Diseases
www.cdc.gov/ncidod/diseases/water/index.htm

U.S. Environmental Protection Agency Office of Water
www.epa.gov/OW
Gateway to Government Food Safety Information
www.foodsafety.gov
U.S. Partnership for Food Safety Education (Fight BAC!™)
www.fightbac.org

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Food Safety Tips for Smart Food Shoppers



- Check “Sell-By” date
- Put raw meat, poultry or seafood in plastic bags
- Buy only pasteurized milk, cheese, dairy products and juices
- When buying eggs:
 - Purchase *refrigerated* shell eggs
 - If your recipe calls for raw eggs, purchase pasteurized, *refrigerated* liquid eggs
- Don't buy food displayed in unsafe or unclean conditions

Is It Done Yet?

You can't tell by looking. Use a food thermometer to be sure.

USDA Recommended Internal Temperatures						
						
Steaks & Roasts	Fish	Pork	Ground Beef	Egg Dishes	Chicken Dishes	Whole Poultry
145 °F	145 °F	160 °F	160 °F	160 °F	170 °F	180 °F

Ordering “Smart” When Eating Out

<p style="text-align: center; color: green;">Choose</p> <ul style="list-style-type: none"> ✓ Hard or processed cheeses. Soft cheeses only if made from pasteurized milk. ✓ Hot dishes with precooked seafood or smoked fish. ✓ Hot dogs reheated to steaming hot. If the hot dogs are served cold or lukewarm, ask the waiter to have the hot dogs reheated until steaming, or else choose something else. ✓ Grilled sandwiches in which the meat is heated until steaming. ✓ Fully cooked fish that is firm and flaky. ✓ Fully cooked eggs with firm yolk and whites. 	<p style="text-align: center; color: red;">Avoid</p> <ul style="list-style-type: none"> ✗ Cheese made from unpasteurized milk. ✗ Cold seafood. ✗ Cold hot dogs. ✗ Sandwiches with cold deli or luncheon meat. ✗ Raw or undercooked fish, such as sushi or sashimi. ✗ Soft-boiled or “over-easy” eggs, as the yolks are not fully cooked.
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Check and carry these handy facts. Check and carry these for quick reference when shopping, cooking, and eating out!

3.5 DELIVERY MECHANISMS

To reach transplant recipients and their caregivers with information on food safety, almost every participant suggested distributing food safety information to transplant coordinators at clinics and hospitals.

Most participants said that transplant recipients and their caregivers rely more on their transplant coordinators than they do on their doctors to provide them with information they need to know. To reach transplant recipients and their caregivers with information on food safety, almost every participant suggested distributing food safety information to transplant coordinators at clinics and hospitals. A few participants suggested that transplant coordinators distribute the food safety booklet to transplant patients and their caregivers at both pre- and post-transplant.

Many participants also suggested distributing food safety information to transplant recipients and their caregivers via the following venues:

- transplant organizations, such as the Transplant Foundation, TRIO, the United Network of Organ Sharing (UNOS), Second Wind Lung Transplant Association, and the Blood and Marrow Transplant Clinical Trials Network;
- other health organizations, such as the American Liver Association, the American Diabetics Association, the American Cancer Society, the National Kidney Foundation, and the Diabetes Research Institute;
- Web sites of government agencies, such as USDA, FDA, and local health departments;
- outreach programs, such as the National Kidney Foundation's Transplant Games and Camp Sunshine, an organization that supports children with life-threatening illnesses and their families;
- support groups for transplant recipients and their caregivers, including online support groups, such as www.classkids.org, www.tigerfund.org, www.giftsfromheaven.info, and www.organdonor.gov;
- state organ donor services, such as Carolina Donor Services and Donor Network of Arizona;
- doctors' offices;
- laboratories where blood work is conducted;
- health fairs;
- pharmaceutical companies;
- pharmacies;
- conferences/seminars; and

- grocery stores.

Most participants said they trust USDA to provide transplant recipients with information on food safety. They also trust their transplant coordinators and transplant organizations (e.g., TRIO and UNOS) to provide them with information on food safety.

With regard to food safety information targeted to transplant recipients, most participants would prefer to be called “transplant recipients,” “transplant patients,” “immuno-suppressed,” or “immuno-compromised.”

4

Recommendations

In this section, we present our recommendations based on the findings from the focus group discussion and the telephone interviews with transplant recipients and caregivers. These recommendations identify additional information that FSIS should consider including in the booklet and address suggested refinements for improving the booklet. Based on the study findings, we recommend that FSIS consider the following:

FSIS can use the study findings to refine the booklet prior to dissemination and to identify effective communication channels for reaching transplant recipients and their caregivers with food safety information.

- **Defining pasteurization and explaining why it is important for transplant recipients to choose food products that have been pasteurized.** Some participants admitted they did not know about pasteurization and that some food products (e.g., soft cheeses, eggs, fruit juices) can be pasteurized to reduce the risk of foodborne illness. Other participants had misperceptions about pasteurization; for example, some participants believe all eggs and soft cheeses are pasteurized.
- **Explaining why transplant recipients need to reheat hot dogs, deli meats, and luncheon meats to steaming hot.** Most participants thought this recommendation was “silly,” “ridiculous,” and “an inconvenience.” Some participants wondered why USDA recommends reheating hot dogs, deli meats, and luncheon meats to steaming hot. Without more information, most participants said they are unlikely to adopt the recommendation.
- **Instructing transplant recipients to contact their transplant coordinators instead of their physicians or healthcare providers.** Most participants said they rely more on their transplant coordinators than on their doctors to provide them with information on post-transplant care. Several participants said that they would call their transplant coordinators, not their doctors, if they suspected they had contracted foodborne illness. Also, a few

participants said their transplant coordinators know more about their medical histories and have faster access to their medical records.

- **Expanding the section “Being Smart: When Eating Out.”** Some participants thought this section provided “nothing new” and would be more useful if it was expanded. Participants believe this section, if expanded, has the potential to encourage transplant recipients to speak up and ask more questions when eating at restaurants. Participants offered several suggestions for improving this section of the booklet (see Section 3.4.8, page 3-23).
- **Replacing the word “you” with “transplant recipient” throughout the text to make the message more personalized.** A few participants suggested replacing the word “you” with “transplant recipients” in the first section titled “Food Safety: It’s Especially Important for You” (page 2). A few participants also thought the sidebars throughout the booklet could be more compelling if the words “transplant recipients” were used; for example, changing the sidebar on page 3 from “Make safe food handling a lifelong commitment to minimize your risk of foodborne illness” to “Transplant recipients need to make safe food handling a lifelong commitment to minimize their risk of foodborne illness.”
- **Removing the pictures of the pregnant woman and the woman in the wheelchair from the front cover.** Participants thought the pictures of the pregnant woman and the woman in the wheelchair were inappropriate to include on the cover of a booklet targeted to transplant recipients. Although transplant recipients could be in a wheelchair, they prefer not to be portrayed as disabled. Also, it is unlikely for a transplant recipient to be pregnant.
- **Improving the resolution of the picture of the woman using a meat thermometer (page 6) and the picture of raw beef (page 8).** Most participants liked the pictures in the booklet and thought they were used appropriately throughout the booklet. Some participants, however, thought the resolution of these two pictures could be improved.
- **Enlarging the FightBAC!® logo (page 6).** Some participants mentioned they liked the FightBAC!® logo but found it too small to read. Because the “The Four Basic Steps to Food Safety”—clean, separate, cook, and chill—are listed on three different pages (pages 8–10), a few participants suggested listing the four steps on one page or presenting the information as a cut-out on the inside back cover of the booklet.

- **Changing the words printed in yellow to another color that is easier to read.** Some participants found the words “separate” on page 9 and “from USDA” of the word-mark umbrella brand logo “Be Food Safe from USDA” hard to read. Participants suggested using the color green instead of yellow.
- **Removing the “My Physicians: Quick Reference List” (page 16).** Many participants did not think the “My Physicians: Quick Reference List” was necessary because transplant recipients already have this information readily available (e.g., on their refrigerators, in their wallets, or programmed in their telephones).

5

References

Doak, C.C., Doak, L.G., & Root, J. (1985). *Teaching Patients with Low Literacy Skills*. Philadelphia, PA: Lippincott.