INNOVATIVE APPROACHES TO EDUCATE OLDER ADULTS AND THOSE WHO CARE FOR THEM ON FOODBORNE ILLNESS PREVENTION

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www.tnstate.edu
www.rti.org
Older adults are at increased risk for contracting foodborne illness compared with younger adults.

Many older adults do not follow recommended food safety practices. (Cates et al., 2009; Boone et al., 2005)
U.S. Population Is Aging

Older Population by Age: 1900-2050 - Percent 60+, Percent 65+, and 85+

Sources:
Projections for 2010 through 2050 are from: Table 12. Projections of the Population by Age and Sex for the United States: 2010 to 2050 (NP2008-T12), Population Division, U.S. Census Bureau; Release Date: August 14, 2008


This graph was compiled by the U.S. Administration on Aging using the Census data noted.
Factors that Increase Susceptibility

- Decline in immune system function
- Malnutrition common
- Lack of exercise
- Use of antibiotics
- Age related changes in gastrointestinal tract
FOOD SAFETY BECAUSE YOU CARE!

AN EDUCATIONAL PROGRAM FOR OLDER ADULTS AND THOSE WHO CARE FOR THEM
Focus Group Research with Health Care Providers

- Conducted eight tele-focus groups with health care providers and caregivers of older adults.
- Findings suggest a gap between older adults’ trust in health care providers for providing food safety information and providers’ lack of training, knowledge, and willingness to provide this information.
- Groups who are most receptive to discussing food safety information with older adults included the RNs/NPs/PAs and the home health care providers.

Source: Wohlgenant et al., 2012
Educational Booklet for Seniors

- Designed to be an easy to read/entertaining format
- Updated with new recommendations
  - Larger fonts
  - Lots of pictures
  - Created a booklet host named C-LES
  - Quizzes at the end of each section

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**FOOD SAFETY FOR OLDER ADULTS:**

**LET’S START WITH THE BASICS**

Have you ever awakened during the night with diarrhea, abdominal cramping, fever, a headache, or perhaps began vomiting and didn’t know what was the matter? You might have thought you had the flu. However, chances are you had food poisoning or a foodborne illness.

**What Is Foodborne Illness?**

Foodborne illness is caused by bacteria or other harmful organisms on food or in beverages that you eat or drink. They might not be there when you buy the food or they might come from you, your kitchen, your pets or other foods. Bacteria live everywhere—on many foods, on your skin, under your fingernails, on other surfaces, on animals and in the environment.

**Who Is Most Likely To Get a Foodborne Illness?**

- People with chronic illnesses
- People with weakened immune systems
- Older adults

**Why Are Older Adults More Susceptible To Foodborne Illness?**

- As you get older, the amount of acid produced in the stomach decreases.
- The acid that is produced by the stomach helps prevent the chances of infection occurring if harmful bacteria are taken in through food or drink.

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**Chemical Cleaners**

1. **Bleach**
   - You will need this to prepare the sanitizing solution. Do not mix with other cleaners and detergents.
   - The recipe for a sanitizing solution is to mix one teaspoon of liquid chlorine bleach with one quart of plain water.

2. **Cleaner**
   - Use cleaner for cleaning sinks, countertops, pots, pans and other kitchen surfaces. You can choose powder or liquid.

3. **Dish Detergent**
   - Use dish detergent to clean dishes, utensils, pots, pans, countertops and other kitchen items. Antimicrobial dish detergent is not necessary.

4. **Hand Soap**
   - Wash your hands for 20 seconds with warm water and liquid hand soap before, during and after cooking and cleaning.

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*YUCK...I HATE THE TASTE OF SOAP!*
C-LES is an imaginary germ that serves as the host throughout the educational booklet and also makes appearances in the educational handouts.
Development of the Program for HCP’s

- Food Safety Because You Care!
  An Educational Program for Older Adults and Those Who Care for Them
  - Program was adapted from the Take Control of Food Safety Educational Booklet.
  - Changes suggested by older adults in the post-test were made
    - For example – added pictures that related more to older adults
  - Increased emphasis in areas of concern determined from the post-test
Program Description

- Educational program consisted of 2 components
  1. Educational Booklet
     - Offers anyone who cares for older adults complete overview related to:
       - Identifying and caring for individuals experiencing a foodborne illness
       - Avoiding foods that could cause a foodborne illness
       - Proper food safety practices from the store to the dinner table
2. Online Educational Handouts

- Series of handouts that can be used to educate older adults on foodborne illness and proper food safety practices.

- Handouts can be
  - Displayed in the waiting room
  - Used as an educational tool while counseling patients/clients
  - Sent home with patients following their visit
  - Shared with an older adult when in their home
Overview of Booklet Sections

1. Learn About Foodborne Illness
   - Defines foodborne illness and who is most likely to become sick
   - Details symptoms and caring instructions for those experiencing a foodborne illness
   - Provides information on when to go to the doctor or report to the local health department

2. Foods That Seniors “Outgrow”
   - Lists some foods that are more likely than others to make older adults sick if they eat them
3. **Food Storage 101**
   - Provides safe refrigerator and freezer temperatures along with tips for keeping them cold
   - Lists recommended storage times of food items for both refrigerator and freezer
   - Instructs on how to safety store leftovers

4. **The Right Tools For A Spotless Kitchen**
   - Lists all the cleaning and cooking tools needed to have a clean and safe kitchen.
   - Each tool has an explanation as to its proper use and its purpose in the kitchen
5. Keeping Food Clean And Safe To Eat
   - Provides guidelines related to:
     - Personal Hygiene
     - Kitchen Hygiene
     - Food Hygiene

Food Hygiene is important because many people forget to wash their fresh fruits and vegetables. Tops of cans should be cleaned before opening.
Section Overview cont.

6. How To Get Rid Of Those Hidden Germs
   - List all the areas in the kitchen and on the cook where germs like to hide
   - Steps are provided on how to clean these area correctly and safely

7. Safe Cooking And Cooling Temperatures
   - Details how to keep foods out of the danger zone when purchasing in the store, storing at home, thawing, or transporting.
   - Provides instruction on cooking foods to safe internal temperatures
8. What To Do If A Food Product Is Recalled
   - Lists where food recalls are announced and what to do with the recalled foods
   - Describes signs of food tampering and who to contact if there are suspected signs of tampering

WOW!!
That is a lot of useful information.
The 7 topics covered are:
1. What Is A Foodborne Illness?
2. Foods Older Adults Should Avoid
3. How To Store Foods In The Refrigerator And Freezer
4. Thaw Frozen Foods Safety
5. Safely Prepare And Cook Raw Meats, Poultry, And Seafood
6. How To Store Leftovers
7. Tips For A Clean Kitchen

Include “Test Your Knowledge”
HOW TO STORE LEFTOVERS

Hot foods need to be kept at 140°F or above and cold foods need to be kept at 40°F or below. When foods are not kept at the proper temperature, bacteria will begin to grow which could lead to a foodborne illness. Follow the rules listed below to prevent bacteria from growing.

- Hot foods need to reach 140°F within 2 hours of being removed from the heat source (stove, oven, microwave oven, etc.). Any perishable food, including cut produce, left at room temperature for more than 2 hours needs to be thrown in the garbage.
- Divide meat and poultry into small portions to refrigerate or freeze.
- Refrigerate or freeze gravy, potatoes, vegetables, and soups or stews in shallow containers.
- Remove stuffing from whole cooked poultry and refrigerate separately from the poultry.

The Clock Is Ticking

- Have all leftovers in clean, preferably air-tight storage containers. Do not use the pot that the food was cooked in to store your leftovers in the refrigerator.

Keep Your Hot Foods Hot And Your Cold Foods Cold!

- Label leftovers with the name and date they were opened or prepared. It is easy to forget when an item was opened or used last.

TEST YOUR KNOWLEDGE

1. Hot foods need to be kept at _____ or above?
   A. 40°F
   B. 60°F
   C. 100°F
   D. 140°F

2. Cold foods need to be kept at _____ or below?
   A. 40°F
   B. 60°F
   C. 100°F
   D. 140°F

3. Hot foods need to reach 140°F within 2 hours of being removed from the heat source.
   A. True
   B. False

4. It is okay to use the pot that the food was cooked in to store your leftovers in the refrigerator.
   A. True
   B. False

5. When labeling your leftovers you should include _____.
   A. The name
   B. The date
   C. Both the name and the date

2012 Tennessee State University Wildlife, TN 37209-0655-0519

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Online Educational Handouts

- Handouts are housed on the Fight C-LES Homepage
  [www.fightc-les.org](http://www.fightc-les.org)
- As of December 2013 (active for 2 years)
  - 37,000 hits
  - 16,000 pages downloaded
  - Most popular = Foods Older Adults Should Avoid
PILOT STUDY ON THE
FOOD SAFETY BECAUSE YOU CARE!
INTERVENTION

Phone 919-541-6810  •  Fax 919-541-6683  •  e-mail scc@rti.org

RTI International is a registered trademark
and a trade name of Research Triangle Institute
Pilot Study Methods

- Descriptive study using retrospective design to assess response to program
- Disseminated over 500 booklets to nurses and relative caregivers via:
  - Professional or educational conferences
  - Listservs/web forums/websites/e-newsletters
  - Caregiver support group meetings
  - Zoomerang (Web panel)
- One week or more after dissemination, administered post-survey to assess reaction to and use of the intervention
- 88 nurses and 89 relative caregivers completed the survey via the Web or by traditional pencil and paper method
Demographic Characteristics: Nurses (n=88)

- For nearly one-half of respondents, 75% or more of their patients were aged 60 or older
- 55% of respondents were registered nurses (RNs)
- 43% of respondents specialized in geriatric care; 28% in primary care; and 21% in home health care (multiple responses allowed)
- 27% of respondents worked in long-term care/rehabilitation facilities and 26% worked in hospitals
Demographic Characteristics: Relative Caregivers (n=89)

- 90% of respondents cared for an older adult relative 3 or more days per week
- 83% of respondents prepared meals for their relative 3 or more times per week
- 61% of respondents had a college degree
- 73% of respondents were white
Results: Opinions of the Food Safety Booklet

- How informative did you find the booklet?

![Bar chart showing opinions on the informativeness of the booklet.](chart.png)
Results: Opinions of the Food Safety Booklet

- How useful did you find the booklet?

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
<th>Nurses (n=88)</th>
<th>Caregivers (n=89)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very useful</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat useful</td>
<td>30</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td>Very useful</td>
<td>68</td>
<td>72</td>
<td>72</td>
</tr>
</tbody>
</table>

TENNESSEE STATE UNIVERSITY

RTI INTERNATIONAL
Results: Opinions of the Food Safety Booklet

- 90% of nurses and 99% of caregivers agreed the booklet was easy to understand
- After reading the booklet….
  - 91% nurses agreed they felt better prepared to advise older adults and/or their caregivers on food safety
  - 96% of caregivers agreed they felt better prepared to safely prepare food for their relative
Results: Opinions of the Food Safety Booklet

- How likely would you be to share the information in the booklet with others?

![Bar chart showing responses to the question about sharing the information in the booklet. The chart includes categories for 'Not at all likely', 'Not very likely', 'Somewhat likely', and 'Very likely'. The chart compares responses from nurses (n=88) and caregivers (n=89).]
Results: Self-reported Behavior

- **57%** of nurses advised older adult patients **not** to eat certain foods because of food safety concerns.

<table>
<thead>
<tr>
<th>Foods</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foods containing raw or undercooked eggs</td>
<td>27</td>
</tr>
<tr>
<td>Raw or undercooked meat or poultry</td>
<td>24</td>
</tr>
<tr>
<td>Mold-ripened, blue veined or soft cheeses</td>
<td>20</td>
</tr>
<tr>
<td>Food stored at room temperature ≥ 2 hours</td>
<td>15</td>
</tr>
<tr>
<td>Deli meats eaten without reheating</td>
<td>15</td>
</tr>
<tr>
<td>Raw or undercooked fish or seafood</td>
<td>10</td>
</tr>
<tr>
<td>Raw, unpasteurized milk</td>
<td>10</td>
</tr>
<tr>
<td>Hot dogs eaten without reheating</td>
<td>7</td>
</tr>
<tr>
<td>Raw sprouts</td>
<td>7</td>
</tr>
<tr>
<td>Food stored in dented, leaking, or swollen cans</td>
<td>5</td>
</tr>
<tr>
<td>Food past expiration date</td>
<td>5</td>
</tr>
</tbody>
</table>
Results: Self-reported Behavior

- 58% of caregivers advised their relatives not to eat certain foods because of food safety concerns.

<table>
<thead>
<tr>
<th>Foods</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foods containing raw or undercooked eggs</td>
<td>55</td>
</tr>
<tr>
<td>Mold-ripened, blue veined or soft cheeses</td>
<td>23</td>
</tr>
<tr>
<td>Deli meats eaten without reheating</td>
<td>15</td>
</tr>
<tr>
<td>Raw or undercooked fish or seafood</td>
<td>15</td>
</tr>
<tr>
<td>Hot dogs eaten without reheating</td>
<td>13</td>
</tr>
<tr>
<td>Raw or undercooked meat or poultry</td>
<td>11</td>
</tr>
<tr>
<td>Raw sprouts</td>
<td>11</td>
</tr>
<tr>
<td>Food stored at room temperature ≥ 2 hours</td>
<td>11</td>
</tr>
<tr>
<td>Raw, unpasteurized milk</td>
<td>9</td>
</tr>
<tr>
<td>Unpasteurized juices, cider, or honey</td>
<td>9</td>
</tr>
<tr>
<td>Food past expiration date</td>
<td>6</td>
</tr>
</tbody>
</table>
57% of nurses gave older adult patients and/or their caregivers recommendations or advice on food safety.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other storage practice, nec</td>
<td>34</td>
</tr>
<tr>
<td>Store refrigerated foods for proper time</td>
<td>32</td>
</tr>
<tr>
<td>Use proper kitchen hygiene</td>
<td>15</td>
</tr>
<tr>
<td>Other food handling practice, nec</td>
<td>15</td>
</tr>
<tr>
<td>Use food thermometer to check doneness</td>
<td>10</td>
</tr>
<tr>
<td>Check refrigerator temperature</td>
<td>10</td>
</tr>
<tr>
<td>Refrigerate perishable food promptly</td>
<td>7</td>
</tr>
<tr>
<td>Use proper personal hygiene (hand washing)</td>
<td>7</td>
</tr>
<tr>
<td>Wash produce</td>
<td>7</td>
</tr>
<tr>
<td>Other cooking practice, nec</td>
<td>7</td>
</tr>
<tr>
<td>Follow procedures for preventing cross contamination</td>
<td>5</td>
</tr>
<tr>
<td>Reheat deli meats</td>
<td>5</td>
</tr>
</tbody>
</table>

nec = not elsewhere classified
71% of caregivers made changes to how they store, handle, or prepare food for their relative.

<table>
<thead>
<tr>
<th>Practices</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other storage practice, nec</td>
<td>34</td>
</tr>
<tr>
<td>Store refrigerated foods for proper time</td>
<td>32</td>
</tr>
<tr>
<td>Use proper kitchen hygiene</td>
<td>31</td>
</tr>
<tr>
<td>Refrigerate perishable food promptly</td>
<td>15</td>
</tr>
<tr>
<td>Other food handling practice, nec</td>
<td>15</td>
</tr>
<tr>
<td>Other cooking practice, nec</td>
<td>10</td>
</tr>
<tr>
<td>Use proper personal hygiene (hand washing)</td>
<td>10</td>
</tr>
<tr>
<td>Put thermometer in refrigerator</td>
<td>8</td>
</tr>
<tr>
<td>Use food thermometer to check doneness</td>
<td>5</td>
</tr>
</tbody>
</table>

nec=not elsewhere classified
Results: Self-reported Behavior

- Use of Refrigerator Thermometers
  - 40% of nurses advised older adult patients and/or their caregivers to put an appliance thermometer in their refrigerator
  - 17% of caregivers (n = 15) put a thermometer in their refrigerator
  - Among caregivers who did not own appliance thermometers (n=38), 82% reported they were somewhat or very likely to purchase one
Results: Self-reported Behavior

- Use of Food Thermometers
  - 56% of nurses advised older adult patients and/or their caregivers to use a food thermometer to check the internal temperature or doneness of meat and poultry
  - 14% of caregivers (n = 12) purchased a food thermometer
  - Among caregivers who did not own a food thermometer (n=24), 75% reported they were somewhat or very likely to purchase one
Results: Self-reported Behavior

- Preparation of Fried Eggs
  - 48% of nurses advised older adult patients and/or their caregivers to change how they prepare fried eggs
  - Among caregivers who prepare fried eggs for their relative (n = 48), 85% reported they cook eggs until the yolks are firm, the recommended practice
Conclusions

- Intervention well received by nurses and relative caregivers.
- Survey results suggest that the intervention motivated nurses to discuss food safety with their older adult patients and led caregivers to improve their own food safety practices.
- Additional research is needed to evaluate the intervention’s impact on older adults’ food safety practices.
EDUCATIONAL PROGRAM FOR OLDER ADULTS
Tasty and Safe Cookbook

- Includes food safety reminders within and following each recipe
- Has section dividers with food safety reminders

Tasty And Safe

A Combination That Makes The Perfect Meal.
Cookbook Description

- Cookbook is in a 3 ring binder that allows recipes to be added or removed easily
- Divided into 8 sections with tabbed dividers

I also serve as a host in the cookbook
Meat And Poultry

Cooking Food To A Safe Temperature

Using a cooking thermometer is the only way to determine if your food is cooked completely and safely. Insertion of the cooking thermometer is also important. You want to be sure that you insert the thermometer properly so you can get a correct reading to determine if your food is done.

- **Poultry** – Insert the thermometer into the inner thigh area near the breast of the chicken or turkey but not touching the bone. For a boneless piece of poultry, insert the stem sideways into the thickest part, away from any fat or gristle.
- **Beef, Pork, Lamb, Veal, Ham, Roasts, Steaks, Or Chops** – Insert the thermometer, sideways if necessary, into the thickest part of the piece of meat, away from bone, fat, or gristle.
- **Ground Meat And Poultry** – Place the stem into the thickest part of ground meat or poultry dishes, such as meatloaf. The thermometer may be inserted sideways into thin items such as meat patties.
- **Casseroles And Egg Dishes** – The thermometer should be inserted into the thickest portion.

### RECOMMENDED SAFE INTERNAL COOKING AND STORAGE TEMPERATURES

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>165°F (74°C)</td>
<td>All Poultry Products including Ground Chicken and Turkey, Stuffing, and Reheated Leftovers</td>
</tr>
<tr>
<td>160°F (71°C)</td>
<td>Ground Meats (Beef, Pork, Veal, and Lamb), Eggs*, Egg Dishes</td>
</tr>
<tr>
<td>145°F (63°C)</td>
<td>All Whole Cuts of Meatb (Beef, Pork, Veal, and Lamb), Fish</td>
</tr>
<tr>
<td>140°F (60°C)</td>
<td>Reheat Pre-cooked Ham, Hold Hot Foods</td>
</tr>
<tr>
<td>140°F - 40°F</td>
<td>Danger Zone</td>
</tr>
<tr>
<td>40°F (4.4°C) to 32°F (0°C)</td>
<td>Refrigerated Foods</td>
</tr>
<tr>
<td>0°F (-18°C)</td>
<td>Frozen Foods</td>
</tr>
</tbody>
</table>

* Or until both the yolks and whites are firm  
* Whole cuts of meat include steaks, roasts, and chops  
b All whole cuts of meat need to rest for three minutes before carving
Cookbook Description

- Cookbook’s 8 sections
  1. Preparing Your Kitchen
  2. Appetizers
  3. Soups And Casseroles
  4. Salads
  5. Egg Dishes
  6. Meat And Poultry
  7. Side Dishes
  8. Other Items

The Preparing Your Kitchen section has great information such as:
- Cleaning And Cooking Tools
- Potluck And Picnic Food Safety
- Kitchen Safety For Your Grandchild/children
Each recipe contains:

- Recipe title
- List of ingredients along with the amount of each ingredient needed to complete each recipe
- Recipe instructions
- Food safety information needed to complete each recipe. This information is in the recipe instructions and is in a **bold typeface**
- Additional food safety notes related to the recipe
- Recipe source

Each recipe had a color coded swirl that matched the divider color allowing for easy organization.
We chose recipes that not only tasted good but also had numerous food safety precautions. For example, meatloaf not only requires the older adult to use a food thermometer but to also wash and keep the vegetables separate from the raw meat.
**Rosemary Turkey Meatloaf**

2 slices white bread  
1/2 cup milk  
2 garlic cloves  
1 medium carrot  
1 medium zucchini  
1 medium onion  
2 tablespoons butter  
1 pound ground turkey  
1 egg  
1 1/2 teaspoons of salt  
1/4 teaspoon minced rosemary

1. In small bowl, soak white bread in milk. Mash into a paste.  
2. Break egg into a small clean bowl and beat. **Be sure to wash your hands after handling the raw egg.**  
3. Remove the outer skin from the garlic and onion. **Scrub garlic, carrot, zucchini and onion with a vegetable brush while holding under cold running water.** Mince garlic, carrot, zucchini, and onion in a food processor.  
4. Melt butter over low heat in a skillet. Add the minced mixture. Cook over medium heat until the butter starts to brown. Place in large bowl and let cool.  
5. Add the bread paste, ground turkey, egg, salt, and rosemary. Stir with a wooden spoon until well blended. **Form the meat mixture into a loaf on a baking sheet. Be sure to wash your hands after handling the raw meat mixture.**  
6. Heat the oven to 350°F. **Insert a cooking thermometer into the center of the meatloaf. Bake the meatloaf until the internal temperature reaches 165°F (about 45 minutes). Enjoy!**

---

**Additional Food Safety Notes Related To This Recipe**

- Always store raw ground turkey on the bottom shelf of the refrigerator, away from fresh produce, ready-to-eat foods, and cooked foods (leftovers). Place the ground turkey package on a pan or plate to catch any juices that may drip.  
- Defrost frozen ground turkey on the bottom shelf of the refrigerator. Place the ground turkey package on a plate or a pan to catch any juices that may drip. This method of defrosting usually takes 1 day.  
- Wash hands correctly after beating egg and handling raw meatloaf mix.  
  - Moisten hands with warm water and apply soap.  
  - Rub hands together for 20 seconds. Don’t forget to use a soft brush to clean your nails and nail beds.  
  - Rinse hands and dry with a clean towel.  
- Keep food out of the “Danger Zone”.  
  - Raw ground turkey should not be out of the refrigerator for longer than 2 hours.  
  - You have 1 hour to put any leftovers into the refrigerator.  
- When storing meatloaf leftovers, divide into small portions and place into a clean airtight storage container. Do not forget to label the container with the name and the date before placing in the refrigerator.  
- When reheating leftover meatloaf be sure to use a cooking thermometer. Reheated meatloaf needs to reach a temperature of 165°F.

**Recipe Source**
Richard Stone, TSU
The Tasty And Safe cookbook is available on the Fight C-LES website

www.fightc-les.org
Pilot Study on the Tasty and Safe Intervention for Older Adults
Pilot Study Methods

- Pre/post design, no control group.
- Convenience sample of 306 adults aged 60+ years recruited via Craigslist, word-of-mouth, and senior and community centers.
- Mailed or gave food safety booklet and recipe binder with first set of recipes along with pre-survey to assess baseline food consumption and handling practices.
- Over 3-month period, sent three supplemental mailings of recipes and food safety tips. Each had an instruction letter and recognizable sticker on outside.
- One week after last mailing, mailed post-survey to assess reaction to and use of the intervention and post-intervention practices.
- Received 258 completed post-surveys.
Results: Opinions on the Food Safety Booklet

- 99% of respondents read the food safety booklet.
- 98% found the booklet very or somewhat informative.
- 96% thought the booklet was very or somewhat useful.
- 95% of respondents completely agreed or agreed with the following statement, “I learned at least one new thing regarding food safety after reading the information.”
- 93% of respondents completely agreed or agreed with the following statement, “I found the information to be credible.”
- 90% of respondents reported they are very likely or likely to share the information in the food safety booklet with others.
Results: Opinions on the Recipe Binder

- 98% of respondents read the information in the recipe binder.
- 94% of respondents added the additional recipe cards to their binders.
- 94% read the food safety tips after each recipe.
- 99% found the food safety tips very or somewhat informative.
- 97% thought the food safety tips were very or somewhat useful.
- The majority of respondents (69%) tried the recipes:
  - 37% tried one to two recipes
  - 25% tried three to four recipes
  - 7% tried five or more recipes
Results: Opinions on the *Tasty and Safe* Intervention

- Level of agreement with the statement: “The information provided in the food safety booklet and Tasty and Safe cookbook helped me learn more about food safety.”

<table>
<thead>
<tr>
<th>Percentage of Respondents</th>
<th>Completely agree</th>
<th>Agree</th>
<th>Neither agree or disagree</th>
<th>Disagree</th>
<th>Completely disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely agree</td>
<td>40</td>
<td>46</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Neither agree or disagree</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Tennesssee State University and RTI International)
Participant Feedback on the *Tasty and Safe* Intervention

- “Using my food thermometer more often to check the temps of meats and casseroles.”
- “This cookbook holds a lot of good information. Not just for 60+ but for anyone who is doing the cooking.”
- “There are many recipes I want to incorporate into my menu. I knew many safety tips, but it was a good refresher to remind me to do them.”
- “The information is priceless, and the work is very professional. My sister is planning on using this information in her cooking class next semester. Thanks!”
- “Many safety concerns I wasn’t aware of previously. Will try to put most of these in place.”
- “I learned safety precautions and why cross-contamination could cause illness.”
## Results: Changes in Safe Food Consumption

<table>
<thead>
<tr>
<th>Foods</th>
<th>No. Changed (n)</th>
<th>Percent Changed (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpasteurized juice or cider</td>
<td>20</td>
<td>87</td>
</tr>
<tr>
<td>Foods containing raw or undercooked eggs</td>
<td>30</td>
<td>81</td>
</tr>
<tr>
<td>Raw homemade cookie dough or cake batter</td>
<td>37</td>
<td>77</td>
</tr>
<tr>
<td>Raw sprouts</td>
<td>62</td>
<td>75</td>
</tr>
<tr>
<td>Raw, unpasteurized milk</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>Refrigerated smoked seafood</td>
<td>50</td>
<td>65</td>
</tr>
<tr>
<td>Raw or undercooked meat or poultry</td>
<td>34</td>
<td>54</td>
</tr>
<tr>
<td>Hot dogs eaten without reheating</td>
<td>11</td>
<td>54</td>
</tr>
<tr>
<td>Raw or undercooked fish or seafood</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>Soft cheese (blue, feta, Camembert, Brie, queso fresco)</td>
<td>44</td>
<td>29</td>
</tr>
<tr>
<td>Deli meats eaten without reheating</td>
<td>60</td>
<td>28</td>
</tr>
</tbody>
</table>

*Note: Number/percentage who consumed “risky” food at baseline but not at follow-up.*
## Results: Changes in Food Safety Practices

<table>
<thead>
<tr>
<th>Food Handling Practices</th>
<th>No. Changed (n)</th>
<th>Percent Changed (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Followed recommended practices for promptly refrigerating leftovers</td>
<td>17</td>
<td>77</td>
</tr>
<tr>
<td>Followed recommended practices for thawing meat and poultry</td>
<td>49</td>
<td>74</td>
</tr>
<tr>
<td>Washed hands with soap and water after handling raw meat or poultry</td>
<td>20</td>
<td>59</td>
</tr>
<tr>
<td>Understands older adults’ food safety risk</td>
<td>66</td>
<td>51</td>
</tr>
<tr>
<td>Followed recommended practices to avoid cross-contamination with cutting boards</td>
<td>49</td>
<td>51</td>
</tr>
<tr>
<td>Followed recommended practices for storing leftovers in proper containers</td>
<td>30</td>
<td>48</td>
</tr>
<tr>
<td>Followed recommended practices for storing raw meat, poultry, or seafood in refrigerator</td>
<td>49</td>
<td>44</td>
</tr>
</tbody>
</table>

*Note: Number/percentage who did not follow recommended practices at baseline but did at follow-up.*
Results: Changes in Food Safety Practices (continued)

<table>
<thead>
<tr>
<th>Food Handling Practices</th>
<th>No. Changed (n)</th>
<th>Percent Changed (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safely prepared poached or boiled eggs (not runny)</td>
<td>11</td>
<td>41</td>
</tr>
<tr>
<td>Safely prepared fried eggs (not runny)</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Has food thermometer</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>Has refrigerator thermometer</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Followed recommended refrigerator cleaning practice</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Number/percentage who did not follow recommended practices at baseline but did at follow-up.
Conclusions

- Intervention was well received by participants.
- Survey results suggest that the intervention prompted some older adults to make changes in their food consumption and food handling practices.
- Additional research is needed to evaluate whether these changes were attributable to the intervention.
Acknowledgments

- This material is based upon data collected as part of the project “An Innovative Approach for Integrating Health Care Providers into Food Borne Illness Prevention for Older Adults” supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture under Agreement No. 2009-51110-20145.

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  - Kelly Wohlengant – RTI International