Food Safety Knowledge Among Older Adults: A Pilot Study
Angelina Adeline, Alice Hsiao-King Ko, Alexandria Wolz, Advisor: Jennifer Quinlan, PhD
Department of Nutrition Sciences, College of Nursing and Health Professions, Drexel University

Objectives

- Develop a web based survey regarding food safety knowledge and practices using appropriate questions from the 2006 FDA Food Safety Survey as well as questions about medications and illnesses which may make older adults more susceptible to foodborne illness
- Recruit target population (older adults and caretakers of older adults) through online classifieds and forums, as well as social media
- Analyze data to identify common unsafe practices and knowledge gaps among older adults and their caregivers

Introduction

Older Adults and Increased Complications from Foodborne Illness (FBI)

- Age-related factors that place older adults at a greater risk for FBI and its complications include declines in the immune system, declines in sense of taste and smell, and decreased stomach acid production.
- Older individuals are more likely to be diagnosed with chronic conditions or be on medications that can negatively impact the immune system.
- Factors such as increasing age, frailty, bereavement, living alone and concern about wasting food have all been shown to contribute to less safe food handling behavior by older adults.

Listeria monocytogenes and Older Adults

- L. monocytogenes is a small, nonsporeforming, Gram-positive, motile bacillus that can grow at refrigerator temperatures (~4-10°C) and survive high pH and high salt concentrations.
- Listeriosis, caused by L. monocytogenes, is the third leading cause of death by foodborne illness and responsible for 19% of total deaths from FBI.
- Most cases of Listeriosis are caused by ingestion of contaminated food products such as raw fruits and vegetables, raw milk, delicatessen products, and "ready-to-eat" meals.
- Older adults are 4 times more likely to contract listeriosis when compared to the general population and 58% of Listeria infections occur in adults 65 years of age and older.

Methods

- All materials and methods were approved by Drexel University Institutional Review Board (IRB)
- Survey Development
  - 32-question survey made up of questions from pre-existing and validated food safety survey (2006 FDA Food Safety Survey), with additional questions about medications and illnesses were adapted for the target population
  - Survey was piloted among peers prior to administering it online through survey software (Qualtrics)
- Participant Recruitment
  - Postings on online classifieds and social media:
    - Craigslist – 32 major US cities
    - Backpage.com – 31 major US cities
    - Facebook – 28 pages geared towards older adults communities
  - The posts were active between February 5, 2015 and March 31, 2015
- Eligibility Criteria
  - Adults ≥ 60 years, or their caretakers
- Data Analysis
  - Results were transferred to Microsoft Excel to organize and analyze the data

Results

- **Risk Food Consumption**
  - Mexican style cheese 42%
  - Homemade 11%
  - Store Bought 67%
  - Both 11%
  - Unpasteurized milk 23%
  - Raw Hot Dogs 32%

- **Food Handling Practices**
  - Wash/Rinse raw vegetables 93%
  - Wash/Rinse cantaloupes and melons 86%
  - Yes Sometimes 12%
  - Consume Deli meat more than 5 days 75%
  - Consume Food Past Use-By Date 32%
  - Consume leftovers more than 1 week 57%

- **Refrigeration and Thermometer Usage**
  - Relieved knowing refrigerator 84%
  - Temperature is important 62%
  - Have a built-in thermometer 43%
  - Have put one in the refrigerator 57%
  - Refrigerator temperature ≤ 42°F 50%
  - 42°F to > 55°F 7%
  - Didn’t know 19%
  - Checked temperature of refrigerator Weekly/Monthly 53%

- **Health Status**
  - Diabetes or reduced gastric acidity 24%
  - Liver disease, HIV, AIDS, currently receiving chemotherapy, or have had a organ transplant, or a weakened immune system 5%
  - Taking immune suppressive medications 18%
  - Chemotherapy drugs 7%
  - Methotrexate Drugs 5%
  - Corticosteroids or prednisone medications 16%

- **Knowledge**
  - Think that raw fruits have germs that could make them sick 30%
    - Very likely 16%
    - Somewhat likely 16%
  - Think that raw vegetables have germs that could make them sick 40%
    - Very likely 40%
    - Somewhat likely 49%
  - Have heard of Listeria 67%
  - Know that microorganism that could make you sick can grow in refrigerator and on food that is in the refrigerator 88%

- **Immuno-suppressed Conditions**
  - 88% knew that microorganism that could make you sick can grow in the refrigerator and on food in refrigerator, however 57% still consume leftovers that are more than one week old

Conclusions

- Approximately 1/3 of the respondents report having a weakened immune system due to health status.
- A high percentage of respondents report consumption of risky foods including raw hot dogs, raw dairy products and deli meat which has been open for more than 5 days
- This pilot data demonstrates that the survey is able to identify risky food handling and consumption behavior as well as identify immuno-suppressed conditions of survey participants.