

Overview of the Integrated Food Safety Centers of Excellence

CSTE Food Safety Subcommittee Webinar Series

March 2, 2015

2:00 – 3:00 pm Eastern



COUNCIL OF STATE AND
TERRITORIAL EPIDEMIOLOGISTS

Webinar Agenda

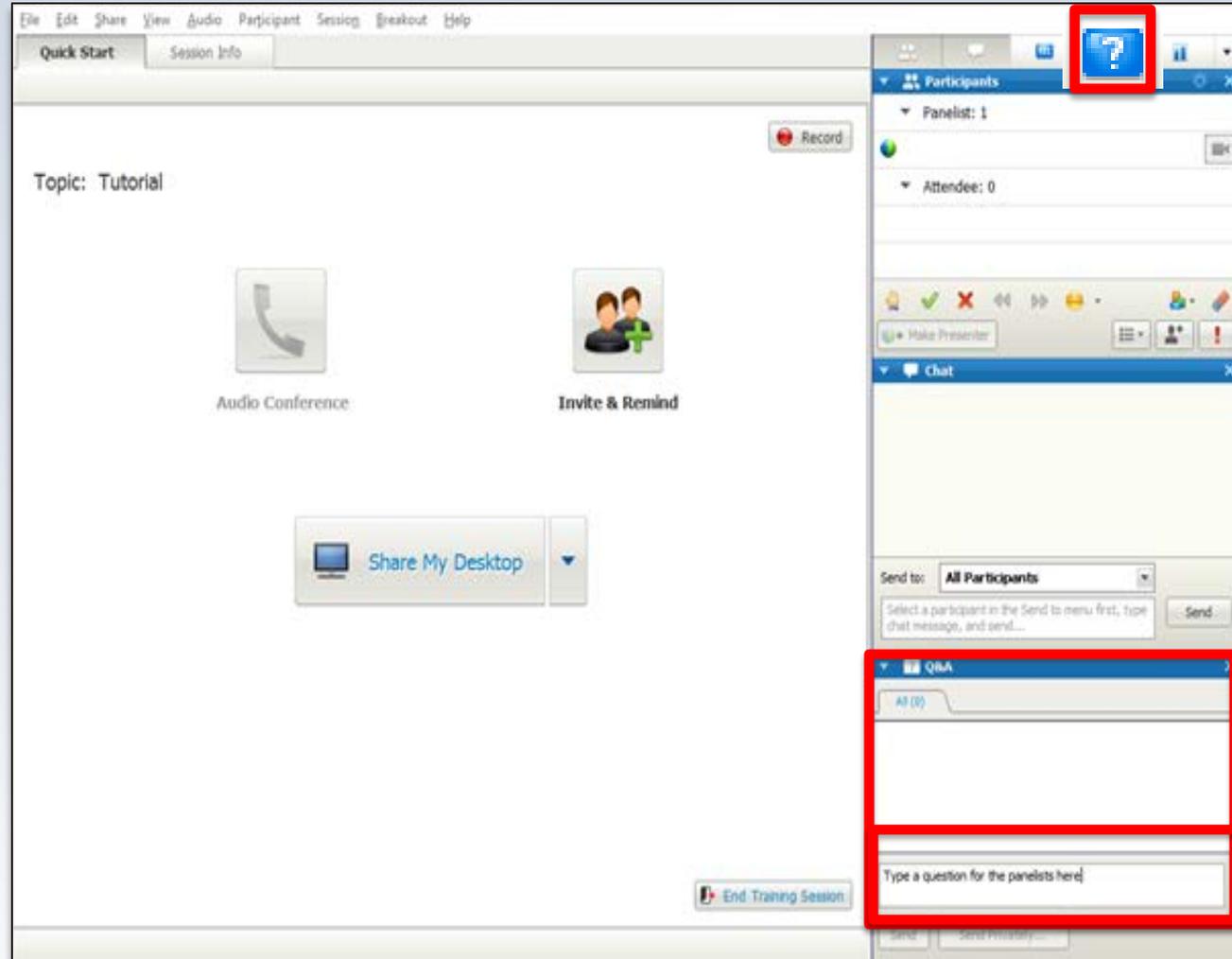
- **Introduction and Welcome: Dr. Kirk Smith, CSTE Food Safety Subcommittee Chair**
- Rachel Jervis, Colorado CoE
- David Dekevich, Florida CoE
- Joshua Rounds, Minnesota CoE
- Hillary Booth, Oregon CoE
- Katie Garman, Tennessee CoE
- Q&A and Discussion: Presenters and Participants

Webinar Housekeeping

- **Please note that today's webinar is being recorded**
 - The webinar recording and presentation slides will be available in the webinar library on CSTE's website:
<http://www.cste.org/?page=WebinarLibrary>
- **All phone lines have been placed on mute**
- **There will be a question-and-answer session at the end of the webinar**
 - To ask a question, please use the Q&A box on the right side of your screen

To Ask a Question

- Click on the blue question mark tab on the top right panel of your screen
- This will open the Q&A box on the bottom right panel on your screen
- Type a question
- Send questions to All Panelists
- Questions will be answered during the Q&A period



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Colorado CoE Projects & Products





In Person Trainings

- Interviewing skills
 - Routine case investigations
 - Outbreak investigations
- Outbreak training for epidemiologists
- CrossTrain peer-to-peer learning sessions
- Epi Ready



Online Training: QuickTrains

- Short modules
- Introduction or refresher
- Complimentary to longer trainings
- ToolKits

www.COFoodSafety.org Training Tab



Welcome to the Colorado Integrated Food Safety Center of Excellence Environmental Assessment QuickTrain

This training is designed for public health professionals as an introduction or re-fresher on conducting environmental assessments during an outbreak investigation.

Click on a module to begin



**Introduction to
Foodborne Outbreak
Investigations**



**Environmental
Assessments**



Contributing Factors



**Clinical and
Environmental
Specimens**



Evaluations of CIFOR Performance Measures

- Colorado (2013)
- Wyoming (2014)



Qualitative Outbreak Evaluation

- Outbreak hotwashes/debriefs
- Follow-up on action items



Food Source Information Wiki

fsi.colostate.edu

- Rapid access to basic information on food production practices
- Bridge knowledge gap and improve outbreak response nationwide
- FSI WiKi welcomes contributions from individuals and groups



A food production guide for public health professionals

Find help! Enter search term here.

Search



About

This Wiki is an interactive website created as a working guide to food production methods for public health professionals.



Articles & Tutorials

Articles include pages about production methods for individual food items. Please visit the contact page to become an editor.



Glossary

The glossary answers common questions and provides definitions to various terms used in food production.



From Seed to Stomach – and the Food Safety Hazards Encountered Along the Way

In a 2009 letter sent to seed suppliers, distributors, and sprouters, Stephen Sundlof, the Director of the National Center for Food Safety and Applied Nutrition at the FDA, wrote the following:

This letter is intended to make you aware of the Food and Drug Administration's (FDA's) serious concern with the continuing outbreaks of foodborne illness associated with the consumption of raw and lightly cooked sprouts... Sprouts are often consumed raw (or lightly cooked in the case of bean sprouts) without processing to reduce pathogens that may be present. Therefore, the manner in which they are produced, packed, and distributed is crucial to minimizing microbial contamination, thereby reducing the risk of illness to consumers.⁽²⁾

Contamination of sprouts by pathogens like *Salmonella*, *E. coli* and *Listeria* can occur at any point on the journey from seed to stomach. Therefore, in the section that follows, we will go through each step in that pathway and document the common industry practices, and the food safety risks encountered.

Seed production, distribution and storage

The initial risk for disease from sprouts has its genesis in the possible contamination during seed production and distribution, and is magnified by the sprouting process itself.

Seeds may be reared, harvested, milled, and sprouted locally, or shipped globally to sprout growers; bacterial contamination may occur at any point in this chain.⁽⁶⁾

- Plants for seed production are grown in typical agricultural environments and seed are generally treated as a raw agricultural product. Potential sources of contamination in the field include agricultural water, improperly managed animal manure, contact with wild animals, and inadequate worker hygiene. In addition, domestic animals may be allowed to graze on alfalfa fields. While such contact is not likely to be a significant problem for the primary use of seed, i.e., seed for forage production, even low level, sporadic contamination of seed for food use may result in significant public health concerns because the sprouting process amplifies pathogen levels.⁽⁴⁾



Seed bags in storage at a sprouting facility

Video Instructions

- Specimen collection for public health providers
- Coming Soon: Guidance on Completing NORs forms



Coming Soon

- Outbreak Case Study
- Picture specimen collection instructions for patients
- Basic foodborne illness complaint system template





www.COFoodSafety.org

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Center for Food Safety and the Prevention of Foodborne Disease

The Center for Food Safety and the Prevention of Foodborne Disease aims to improve food safety and prevent foodborne disease by fostering collaboration among academia, government, and industry in Colorado and the Region. As a Center within the Colorado School of Public Health (CSPH), we are committed to improving training, research, continuing education, and outreach related to food safety and the prevention of foodborne disease.

[Learn more about the Center for Food Safety](#)

Colorado Integrated Food Safety Center of Excellence (CoE)



Integrated Food Safety
Centers of Excellence

THE CENTER OF EXCELLENCE
— featured —



Wiki creator wins public health technology award

[Click Here for Details.](#)

"Norovirus Outbreaks and Control Measures"



November 18, 2014

[Click Here for Details.](#)



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Florida Integrated Food Safety Center of Excellence

David Dekevich, MPH
Bureau of Epidemiology
Florida Department of Health



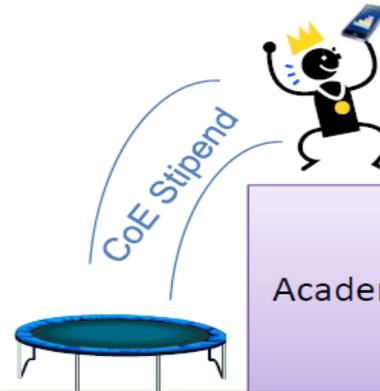
Overview

- » Training Curriculum Proposal
- » Website
- » Smartphone App
- » Epi Info Trainings
- » Introductory Video Training Series for Foodborne Outbreak Investigators
- » Twitter Account



Proposed Integrated Food Safety Center of Excellence Training Curriculum

Tool Kit
Webpage/App



CoE Stipend

Academic Certificates / Courses

State / Topic Specific Trainings
(Colorado CoE, EPI INFO 7 & Future Development)

Tennessee CoE Training Series

Florida CoE Training Series



Integrated Food Safety
Centers of Excellence



FLORIDA INTEGRATED FOOD SAFETY CENTER OF EXCELLENCE

Integrated Food Safety Center of Excellence Southeastern Region Education and Training Needs Assessment

To assist in focusing the efforts of the Florida Integrated Food Safety Center of Excellence, a needs assessment was conducted with the purpose to assess current needs/knowledge gaps among state and local personnel involved in food safety activities and to assess the best approach to reach the target audience. The online survey was distributed to foodborne outbreak responders in Alabama, Georgia, Florida, and Puerto Rico. Please follow the below link to review the results of this needs assessment.

Needs Assessment published August 13, 2013

Partners Regional Training Program Development Meeting - August 14, 2013

Integrated Food Safety Center of Excellence Southeastern Regional Partners Regional Training Program Development Meeting August 14, 2013

Regional partners of Integrated Food Safety Center of Excellence gathered at the University of Florida's Emerging Pathogen Institute in Gainesville, Florida on August 14, 2013 to kickoff

Home

[Background](#)[Emerging Pathogens Institute](#)[Florida Department of Health](#)

CDC Outbreak Feed

**January 23, 2015 (Final Update)
Multistate Outbreak of *Salmonella*
Enteritidis Infections Linked to Bean
Sprouts**

[Read More >>](#)

**December 16, 2014 (Investigation
Update) Multistate Outbreak of
Salmonella Enteritidis Infections Linked
to Bean Sprouts**

[Read More >>](#)

December 4, 2014 (Investigation

Food Safety Southeast App

» Available on iTunes and Google play



CIFOR Toolkit

AboutCIFORToolkit >

Toolkit Contents >

Toolkit Overview >

Toolkit User Instructions >

User instructions (Facilitator Cheat Sheet) >

Preliminaries Worksheet >

Selecting focus areas worksheet >

Relationships >

Necessary resources >

Communications >

< CIFOR Toolkit

Focus Area 7 Worksheet: Epidemiology Investigation



Focus Area 7: Epidemiology Investigation

To help you understand what is included in this Focus Area, review the following goals and keys to success.

GOALS FOR THE EPIDEMIOLOGY INVESTIGATION:

During an outbreak investigation, agency/jurisdiction staff collect, analyze, and interpret exposure (and other) information from cases (and comparison groups, where appropriate) to determine the etiologic agent, persons at risk, modes of transmission, and the vehicle of the outbreak.

KEYS TO SUCCESS FOR THE EPIDEMIOLOGY INVESTIGATION:

"Keys to success" are activities, relationships, and resources that are believed to be critical to achieving success in a Focus Area. Determining whether an agency/jurisdiction has a particular key to success in place is somewhat subjective. Metrics, such as measures of time (e.g., rapidly, timely, and quickly), have not been defined. Your Workgroup should provide its own definitions for these terms, as is appropriate for your agency/jurisdiction, and use its best judgment in deciding whether a particular key to success is fully or partially in place.

Staff skills and expertise

- o Staff have good interviewing skills and can collect complete and accurate exposure information from cases and controls, where appropriate, or have access to staff in other agencies with this expertise.
- o Staff have expertise in epidemiologic study design or have access to staff in other agencies with this expertise.

Outbreak Investigation

- o Agency/jurisdiction has a written protocol outlining the steps in the epidemiologic investigation of a foodborne disease outbreak. Staff have easy access to the protocol and have been trained in its implementation.

Print

Email

Videos

Recorded: 11/25/2014
 Foodborne Illness: What Problem?
 This production is the first in a series of seven videos. It introduces novice outbreak investigation team members to the concept of foodborne illness and the



Recorded: 4/8/2014
 Creating a Choropleth Map in Epi InfoTM 7
 A brief training video on how to create a choropleth map in Epi InfoTM 7, presented by Ben Klekamp, Liaison with the Florida Integrated Food Safety Center



Recorded: 4/8/2014
 Creating a Case Cluster Map in Epi InfoTM 7
 A brief training video on how to create a case cluster map in Epi InfoTM 7,



Videos

Webinar





Integrated Food Safety Centers of Excellence Florida

Food Safety Southeast Center of Excellence

www.youtube.com/c/foodsafetyfloridaorg

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Food Safety Southeast Center of Excellence uploaded a video



Foodborne Illness: What Problem?

3 months ago • 656 views

This production is the first in a series of seven videos. It introduces novice outbreak investigation team members to the concept of foodborne illness and the current health and...



Food Safety Southeast Center of Excellence uploaded a video



Creating a Case Cluster Map in Epi InfoTM 7

9 months ago • 42 views

A brief training video on how to create a case cluster map in Epi InfoTM 7, presented by Ben Klekamp, Liaison with the Florida Integrated Food Safety Center of Excellence. For optimal...

Epi Info Web Training

Please visit the Florida Integrated Food Safety...

2:43 / 2:58

Analytics Video Manager

Downloading Epi InfoTM 7

Food Safety Southeast Center of Excellence

Channel settings

16 views

+ Add to < Share ... More

Published on Mar 11, 2014

A brief training video on how to download and install Epi InfoTM 7 onto your computer, presented by Ben Klekamp, Liaison with the Florida Integrated Food Safety Center of Excellence.



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Foodborne Illness Introductory Training Series

Title	Date
Foodborne Illness: What Problem?	11/25/2014

This production is the first in a series of seven videos. It introduces novice outbreak investigation team members to the concept of foodborne illness and the current health and financial burden it has in the United States. This video also offers a historical perspective on the changes that have occurred within the food industry and their effects on public health and food safety professionals today.

Download Video

Presenter: Florida CoE



Integrated Food Safety
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Twitter @FoodSafetyCoE



FoodSafetyCoE @FoodSafetyCoE · Dec 30

Tennessee CoE launches [#Outbreak](#) Roles & Responsibilities Training to reduce burden of [#foodborneillness](#) ow.ly/GC4DA

← ↻ ★ 2 ⋮



FoodSafetyCoE retweeted



FSRIO at NAL @FoodSafety · Dec 30

[FDARecalls] Great Feeling Foods, LLC Recalls Groove Gluten-Free Ice Cream Cookie Sandwiches Because of Possib... 1.usa.gov/1vpqzuB

← ↻ 3 ★ ⋮



FoodSafetyCoE @FoodSafetyCoE · Dec 30

[#FoodSafety](#) App now available for iPhone ow.ly/GB3zf and Android ow.ly/GB3Fk
[#investigationtools](#) [#foodborneillness](#)

← ↻ 1 ★ 1 ⋮

[View details](#)



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Florida Integrated Food Safety Center of Excellence

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MINNESOTA INTEGRATED FOOD SAFETY CENTER OF EXCELLENCE

MINNESOTA DEPARTMENT OF HEALTH • UNIVERSITY OF MINNESOTA



KEY POINTS

for Successful Foodborne Outbreak Detection and Investigation

- **Brief (1-2 page) summaries of key points for various foodborne disease investigation topics, based on the experience of MDH**
- **Completed:**
 - **Complaint systems**
 - **Sub-cluster investigations**
 - **Student workers**
- **In development:**
 - **Traceback investigations**
 - **Using credit card transaction number to re-create receipt**
- **Available at <http://mnfoodsafetycoe.umn.edu/resources/>**



KEY POINTS

for Successful Foodborne Outbreak Detection and Investigation

CREATING A SUCCESSFUL FOODBORNE ILLNESS COMPLAINT SYSTEM

Foodborne illness complaint systems can be important tools to detect outbreaks that would not otherwise have been recognized. Here are some key points to make complaint systems work, based on the Minnesota Department of Health's (MDH) experience with the system it began in 1998.

1. Get stakeholder buy in

- Clearly describe how the system will work – engage stakeholders to define roles for state and local health departments, and epidemiology and environmental health components of each.
- Ensure that complaint information is made available to everybody that needs it. In Minnesota, MDH epidemiology staff collect complaint information for the whole state and then send it to the environmental health jurisdiction (state or local, public health or agriculture) for each food establishment mentioned in a complaint, independent of whether we initiate an outbreak investigation at a particular establishment (see #3 below).
 - This can free environmental health staff from taking complaint calls while still giving them access to the information.

2. Collect appropriate information from complainants

- **A frequent critical limitation of complaint systems is that information is collected only about the restaurant that the complainant suspects.**
 - Only 1 in 5 complaints with a known etiology was caused by an agent with an incubation period <24 hours, and people often identify an incorrect exposure as the cause of their illness (e.g., last thing they ate).
- Get details about symptoms, onset date and time, and recovery date and time.
 - These are needed to determine the likely etiology and determine which establishment (if any) was the most likely source of illness.
- If only one person was ill or all ill persons live in the same household, collect multiple days of food history (MDH collects 4 days; CIFOR recommends 5 days).
 - Outbreaks are frequently detected at restaurants named farther back in the food history, and not at the restaurant that the complainant suspects.
- If a complaint reports ill persons from multiple households, collect info only on common meals.
- Collect names and contact information for other ill people reported by the complainant; if they are reluctant to provide this information, ask them to give your telephone # to the ill people to call (and stress the importance of them doing so).
 - Illness information from other ill people is critical in determining if an outbreak actually occurred, the likely etiology, and on which restaurant(s) an investigation should be focused.
- Enter complaint information into an electronic database.

3. Review and respond systematically to complaints

- Individual jurisdictions have the freedom to respond to complaints as they wish if the complaint doesn't clearly signal a potential outbreak; responses can vary from no action to a call to the establishment to an inspection.
- If a complaint warrants the initiation of an outbreak investigation, the appropriate epidemiology and environmental health jurisdictions should be notified, and a conversation between appropriate agencies should take place to plan and initiate the investigation.
- The clinical profile of reported illnesses (distribution of incubation periods, symptoms, and durations) is often suggestive of a particular etiology and should guide the EH assessment.
 - E.g., short incubation, little or no fever - suggestive of foodborne intoxication → focus on time-temperature abuse.
 - E.g., norovirus profile → focus on food worker illness, handwashing, and bare-hand contact with ready-to-eat foods.
- **A frequent critical limitation of complaint systems is that environmental health resources are automatically used to inspect restaurants named in a complaint before the complaint is evaluated to determine whether that restaurant is a plausible source of the illness.**

4. Centralize the complaint system or develop a system for sharing complaint information

- There is one agency where all illness complaints are received and evaluated, even if the complaint was initially received elsewhere.
 - Allows all complaints to be reviewed by the same epidemiology staff to determine the need for further investigation and facilitate a consistent response for the same types of complaints.
 - Allows complaints to be cross-referenced to identify multiple independent complaints about a restaurant or event.
 - City- or county-specific complaint systems are more likely to fail to recognize independent complaints that name the same restaurant, if the complaints are made to different city/county health departments.
 - Centralization allows consistent data collection, review, and response to complaints by the same staff.
 - Experience gained by staff that process complaints on a routine basis facilitates efficient, effective outbreak detection and investigation.

5. Cross-reference restaurants named on complaints with those mentioned on pathogen-specific surveillance interviews

- Allows detection of more *Salmonella*, and STEC outbreaks.
- Allows detection of *Salmonella*, and STEC outbreaks more quickly than is possible by pathogen-specific surveillance alone.
 - This is much easier to accomplish if complaint systems are centralized at the same level as pathogen-specific disease surveillance.

Additional Resources:

<http://mnfoodsafetycoe.umn.edu/foodborne-illness-complaint-system/>
MN Systems: Foodborne and Waterborne Illness Complaint System

<http://www.cifor.us/documents/CIFORGuidelinesChapter4.pdf>
CIFOR, Second Edition of the CIFOR Guidelines for Foodborne Disease Outbreak Response, Chapter 4 (see page 125 for 4.3: Complaint Systems)

Background Exposure Data for Case-case Comparison Studies

- Last FoodNet Population Survey was in 2007
- Exposure data from sporadic *E. coli* O157 cases from 2009-2013 in Minnesota
 - Excluded outbreak cases, international travelers, and cases that could not be interviewed
- Give estimate of exposure rate in population
- Binomial probability distribution model
 - Epi Info 7 under StatCalc
- Use to quickly evaluate hypotheses in cluster investigations

DAIRY

Food Item	Denominator	Overall %	Overall % (including maybe)	Female	Male	Age: <18	Age: 18 – 65	Age: >65	Spring	Summer	Fall	Winter	Pop Survey MN	Pop Survey National
Eggs	409	65%	69%	68%	61%	62%	69%	65%	67%	67%	61%	60%	77%	75%
Shredded cheese	388	48%	57%	50%	47%	53%	49%	18%	56%	49%	45%	40%	N/A	N/A
Processed cheese slices	417	41%	47%	40%	42%	43%	40%	30%	37%	47%	37%	21%	57%	51%
Block cheese	438	22%	26%	22%	22%	22%	21%	21%	23%	20%	20%	37%	62%	61%
String cheese	436	19%	23%	23%	14%	26%	11%	5%	24%	18%	17%	16%	21%	16%
Cheese curds	457	6%	7%	6%	7%	6%	7%	3%	2%	7%	6%	6%	N/A	N/A
Queso fresco or other Mexican style cheese	457	2%	3%	2%	3%	3%	1%	3%	3%	3%	1%	0%	4%	6%
Gourmet cheese (gouda, blue, other cow, goat or sheep cheeses)*	265	5%	7%	4%	7%	3%	8%	9%	8%	4%	7%	0%	N/A‡	N/A‡
Ice cream	415	47%	52%	46%	48%	54%	36%	41%	33%	52%	46%	32%	63%	59%
Frozen dessert treats	440	17%	20%	18%	15%	24%	7%	8%	8%	22%	12%	7%	N/A	NA
Yogurt	433	47%	50%	56%	37%	52%	40%	44%	48%	48%	43%	52%	45%	43%
Milk	461	89%	89%	87%	90%	95%	80%	82%	87%	90%	89%	79%	85%	79%
Unpasteurized milk	467	2%	3%	2%	3%	2%	2%	2%	2%	2%	3%	3%	2%	3%
Milk alternatives (soy, almond, rice milk)*	266	7%	7%	10%	4%	6%	8%	8%	8%	7%	4%	13%	N/A	N/A
Other dairy (cottage cheese, cream cheese, sour cream)*	249	31%	37%	37%	26%	30%	34%	30%	35%	32%	26%	43%	N/A‡	N/A‡
Buttermilk**	186	1%	2%	1%	0%	0%	0%	8%	0%	0%	0%	6%	5%	6%
Sour cream**	175	15%	22%	16%	14%	16%	15%	15%	10%	14%	18%	24%	37%	32%
Cream cheese**	174	9%	16%	13%	5%	9%	9%	0%	0%	10%	2%	20%	25%	25%
Cottage cheese**	180	3%	8%	4%	2%	4%	2%	8%	0%	4%	2%	6%	25%	22%

‡ Please refer to pages 13-15 of the FoodNet Population Survey Atlas of Exposures, 2006-2007. Question asked by population survey may not have been compatible to MN hypothesis generating form or population survey may include additional details.

RESTAURANTS‡

(Note: Cases were not asked specifically about these restaurants by name. Cases were asked if they ate at a restaurant in the 7 days prior to illness onset. If the case reported eating at a restaurant, the case was asked to name the restaurant.)

Restaurant Name	Denominator	Overall %	Female	Male	Age: <18	Age: 18 – 65	Age: >65	Spring	Summer	Fall	Winter
Applebee's	466	2%	3%	1%	2%	2%	5%	2%	2%	2%	3%
Arby's	466	3%	3%	3%	2%	4%	5%	2%	4%	2%	6%
Burger King	466	6%	3%	9%	7%	6%	3%	10%	7%	4%	6%
Buffalo Wild Wings	466	2%	0.4%	3%	1%	3%	0%	3%	0.4%	3%	0%
Chick-Fil-A	466	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chili's	466	1%	1%	0.4%	1%	1%	0%	2%	1%	1%	0%
Chipotle	466	2%	2%	3%	1%	5%	0%	2%	3%	1%	0%
Culver's	466	2%	1%	2%	2%	1%	0%	0%	2%	2%	0%
Dairy Queen	466	7%	7%	6%	7%	8%	0%	7%	8%	5%	3%
Denny's	466	1%	0.4%	0.4%	0%	1%	3%	2%	0%	1%	0%
Domino's Pizza	466	2%	0.4%	3%	2%	2%	0%	2%	2%	1%	3%
IHOP	466	0.2%	0%	0.4%	0%	0%	3%	2%	0%	0%	0%
Jimmy John's	466	2%	2%	1%	0.4%	4%	0%	2%	2%	1%	3%
KFC	466	2%	2%	2%	1%	2%	5%	2%	2%	2%	0%
McDonalds	466	28%	27%	28%	28%	30%	13%	20%	30%	28%	28%
Noodles and Company	466	0.2%	0%	0.4%	0%	1%	0%	0%	0%	1%	0%
Old Country Buffet	466	1%	0.4%	1%	1%	1%	3%	2%	1%	1%	0%
Olive Garden	466	0.2%	0.4%	0%	0.4%	0%	0%	0%	0%	1%	0%
Outback Steakhouse	466	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Papa John's Pizza	466	1%	0.4%	1%	1%	0%	0%	0%	1%	1%	0%
Panera	466	1%	2%	0.4%	0.4%	2%	0%	2%	1%	2%	0%
Perkins	466	3%	4%	1%	2%	1%	11%	0%	2%	3%	9%
Pizza Hut	466	2%	2%	1%	2%	2%	0%	0%	1%	2%	3%
Popeye's	466	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Subway	466	8%	8%	8%	7%	10%	5%	7%	10%	5%	3%
Taco Bell	466	3%	2%	4%	3%	3%	0%	0%	3%	2%	3%
Taco John's	466	2%	2%	3%	1%	4%	5%	0%	3%	4%	0%
Red Lobster	466	1%	0.4%	1%	0.4%	1%	0%	0%	1%	1%	0%
Wendy's	466	2%	2%	3%	3%	2%	0%	3%	3%	1%	0%

‡ Please refer to page 26 of the FoodNet Population Survey Atlas of Exposures, 2006-2007. The population survey did not include restaurant names but does have data of types of foods consumed at commercial establishments.

OTHER NON-FOOD TRANSMISSION ROUTES‡

Exposure	Denominator	Overall %	Female	Male	Age: <18	Age: 18 – 65	Age: >65	Spring	Summer	Fall	Winter
International Travel	530	3.8%	4%	4%	1%	8%	2%	10%	1%	3%	15%
Ill contact before onset	468	18%	21%	14%	22%	14%	4%	18%	20%	14%	14%
Well water*	275	35%	36%	33%	38%	27%	38%	37%	38%	32%	13%
Raw or Untreated water**	191	23%	20%	25%	24%	18%	36%	18%	23%	27%	13%
Other water (such as from a stream while camping)*	272	5%	6%	5%	7%	2%	4%	2%	9%	3%	0%
Recreational water (swim in ocean, lake, river, or pool)	478	26%	26%	26%	38%	13%	8%	8%	43%	9%	6%
Live on Farm	471	17%	14%	19%	18%	13%	21%	19%	16%	18%	6%
Work on Farm*	274	1%	1%	2%	1%	3%	0%	0%	2%	1%	0%
Visit Farm*	275	15%	15%	14%	19%	9%	8%	21%	16%	10%	0%
Visit petting zoo, educational exhibit, fair or other venue with animals*	274	16%	14%	17%	23%	6%	4%	8%	20%	17%	0%
Cow (present)*	276	26%	22%	30%	33%	15%	19%	21%	31%	23%	7%
Cow (contact)*	276	11%	10%	12%	14%	8%	4%	12%	12%	11%	0%
Goat (present)*	276	10%	8%	13%	14%	5%	0%	2%	15%	10%	0%
Goat (contact)*	276	6%	4%	8%	8%	3%	0%	0%	9%	6%	0%
Sheep (present)*	276	5%	4%	7%	8%	3%	0%	2%	6%	7%	0%
Sheep (contact)*	276	5%	3%	7%	7%	2%	0%	0%	5%	7%	0%
Pig (present)*	276	8%	6%	11%	10%	4%	8%	2%	8%	14%	0%
Pig (contact)*	276	3%	3%	4%	4%	2%	0%	0%	2%	7%	0%
Chicken (present)*	276	12%	10%	14%	16%	7%	4%	8%	14%	12%	0%
Chicken (contact)*	276	6%	6%	6%	9%	2%	0%	6%	7%	6%	0%
Turkey (present)*	276	3%	2%	3%	3%	3%	0%	2%	3%	2%	0%
Turkey (contact)*	276	1%	1%	1%	1%	1%	0%	0%	1%	1%	0%

‡ Please refer to pages 27-28 of the FoodNet Population Survey Atlas of Exposures, 2006-2007. Question asked by population survey may not have been compatible to MN hypothesis generating form or population survey may include additional details.

Background Exposure Data for Case-case Comparison Studies

- **Also have data on:**
 - **Meat/Poultry/Seafood**
 - **Frozen Foods**
 - **Fruits**
 - **Vegetables**
 - **Other**
- **Data from sporadic salmonellosis cases coming soon**
- **Other states assimilating similar data**
- **Need to consider potential biases**
- **Access at <http://mnfoodsafetycoe.umn.edu/resources/>**

Outbreak Investigation Case Series

Commercially Distributed Food Vehicles

In-depth, behind-the-scenes analyses of foodborne outbreak investigations



- **Focus on methods used by epidemiologists to generate, develop, and confirm hypotheses about the outbreak vehicle**
- **Descriptions begin with the detection of a cluster**
- **End when the food source is identified to a level of certainty/confidence that public health interventions are implemented**
- **Plan to reach out to other states for additional outbreaks to profile**

October 5 (DAY 19)

MDH was notified by MDA at 8:05 a.m. that info from the Sam's Club membership card number query confirmed that the burgers consumed by Case 1 and Case 3 were indeed the same product (same product name, Item #, and UPC #).

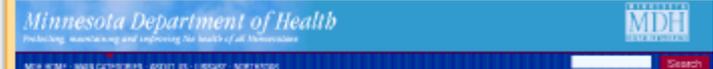
Case 4's household was called back, and specific product information on the box of American Chef's Selection Angus Burgers was obtained (and the box itself was ultimately obtained), and compared to the same information on the box from Case 3's household.

- The results were striking: the 2 different boxes of burgers were produced on the same date (as indicated by the same Best if Used date), on the same production line, 1 minute apart.



Assessment:

Now we have reached that "threshold of confidence" that prompts a public health intervention. What is the probability that 3 temporally associated cases with the same rare PFGE subtype of O157 would have consumed the same specific brand of hamburger patties purchased from 3 separate Sam's Club locations, if those burgers were not the source of the outbreak (furthermore, 2 of the boxes of product were produced 1 minute apart)? We deemed a community case-control study to be completely unnecessary. Although we didn't know the background rate of consumption of this brand of hamburger patties, experience made it obvious to us that the chance that this was a coincidence was extremely low. Even though preliminary lab testing results of ground beef patties were not yet available, the epidemiology was so strong that we felt we had no choice but to go public. Thus, a press release was issued the afternoon of October 5. Most of our cases still had leftover patties in their freezers, which meant that many other people did as well; risk to the public was clearly ongoing.



Minnesota Department of Health

News Release

October 5, 2007

Contact information

E. coli O157:H7 cases linked to frozen ground beef patties purchased at Sam's Club stores in August and September
Product removed from store shelves; customers asked to return or destroy

CIFOR Performance Measures

Minnesota CIFOR target range performance measures for 2013

CIFOR performance measure	Measurement methods	Target Range	Minnesota 2013 Performance
<p>1. <u>Foodborne illness complaint reporting system:</u></p> <p>Metric: Agency maintains logs or databases for all complaints or referral reports from other sources alleging food-related illness, food-related injury or intentional food contamination, and routinely reviews data to identify clusters of illnesses requiring investigation.</p>	<p>If an agency has any complaint system in place and it is used to review foodborne illness complaints, it will be considered acceptable. If an agency had an electronic database that can be systematically reviewed to link complaints, it will be considered optimal.</p>	<p>Preferable: Electronic database</p> <p>Acceptable: System to log complaints</p>	<p>Preferable: Minnesota maintains an electronic database for all complaints</p>
<p>2. <u>Outbreaks detected from complaints:</u></p> <p>Metric: Outbreaks detected from complaints: Number outbreaks detected as a result of foodborne illness complaints. Rate of outbreaks detected per 1,000 complaints received.</p>	<p>Determine the number of foodborne illness complaints that were received during the year. This will be the denominator for the metric. Determine the number of foodborne illness outbreaks that were detected as a result of a foodborne illness complaint investigation during the year. This will be the numerator for the metric. Divide the numerator by the denominator and multiply by 1,000. This will convert the observed numbers into a standardized rate.</p>	<p>*Preferable: >20 outbreaks / 1,000 complaints</p> <p>Acceptable: 10-20 outbreaks / 1,000 complaints</p> <p>*Evidence base may not always support value judgment on range. Very low numbers of documented complaints could inflate the observed rate.</p>	<p>Preferable: (29 complaint outbreaks / 704 complaints) x 1,000 = 41.2 outbreaks per 1,000 complaints</p>

- Calculated measures for MN and posted online
- Available to assist others in compiling measures for their jurisdiction

TRAINING



- **We are funded to serve as a resource for public health professionals who respond to foodborne illness outbreaks**
- **Provide training, assistance, or technical support in epidemiological, laboratory, and environmental investigations of foodborne illness**
 - **General surveillance**
 - **Outbreak investigations**
- **We are completely open to your specific ideas of how we could best serve as a resource for you, and will tailor our services to meet your needs**

CONTACT US



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Webinar Agenda

- Introduction and Welcome: Dr. Kirk Smith, CSTE Food Safety Subcommittee Chair
- Rachel Jervis, Colorado CoE
- David Dekevich, Florida CoE
- Joshua Rounds, Minnesota CoE
- **Hillary Booth, Oregon CoE**
- Katie Garman, Tennessee CoE
- Q&A and Discussion: Presenters and Participants

Oregon CoE: Who We Are & What We Do



HILLARY BOOTH
LEAD FOODBORNE DISEASE RESEARCH ANALYST

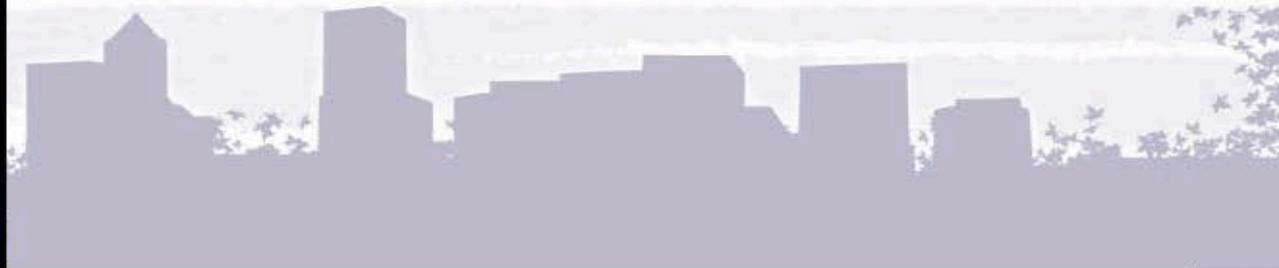
NW Center for **F**oodborne
Outbreak
Management,
Epidemiology, &
Surveillance







International Outbreak Museum Officially Established



WELCOME TO THE MUSEUM

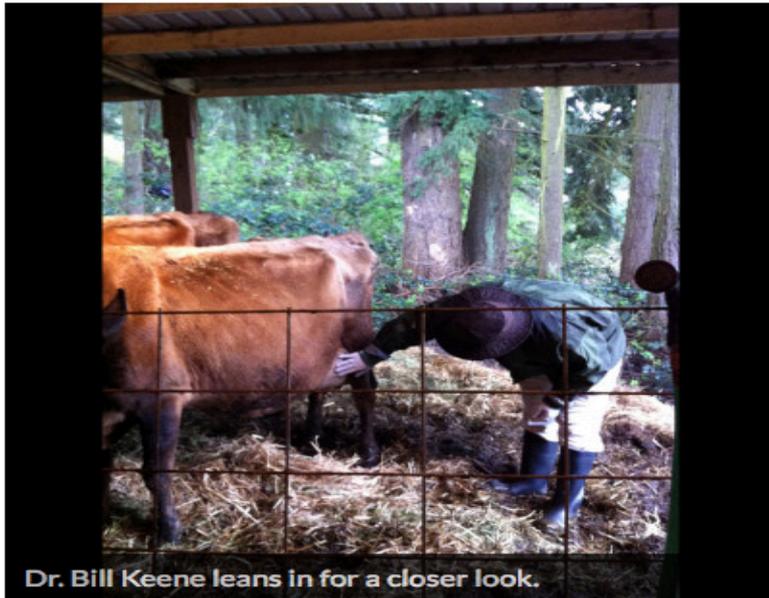
About the Museum

The International Outbreak Museum is part of The Northwest Center for Foodborne Outbreak Management, Epidemiology, and Surveillance (FOMES).

The museum has exhibits from thirty years of outbreak investigations, and it is part learning tool and part tribute to Dr. Bill Keene.

Most of the exhibits in the museum are carefully-constructed replicas of items in notable outbreaks from Dr. Bill Keene's work. The museum will continue to be housed where it has always been: in Bill's office in Portland, Oregon.





Dr. Bill Keene leans in for a closer look.



Outbreak: #2012-2369

Product: Foundation Farm Raw Milk

Investigation Start Date: 04/10/2012

Location: Clackamas, Multnomah, Washington Counties, OR

Etiology: E. coli (STEC) O157:H7

Earliest known case onset date: 04/01/2012

Latest case onset date: 04/14/2012

Presumptive / Confirmed Case Count: 5 / 11

Positive Samples (Food / Animal / Environmental / Water):
2 / 0 / 63 / 0

On April 10, 2012, Multnomah CHD was notified by a clinician about a 1 year-old child with HUS (culture pending; later shown to be O157:H7). The child attended a day-care center in Washington County and had a history of regular raw milk consumption, both of which indicated a need for public health follow-up.

Washington CHD investigated the child care setting and found nothing to suggest any other illness of significance there. Meanwhile, it was agreed that ACDP would contact ODA and discuss what we could do about the herd share operation that was reportedly the source of the raw milk. It was determined that this was operation (dba Foundation Farm) was ostensibly legal with 4 cows (3 in production) that was unlicensed, unregulated by, and unknown to ODA. (Dairies of this type are not required to be licensed or regulated.)

We asked dairy specialist and supervisor Jim Postlewait from ODA to contact the farm owner (Brad Salyers) and ask if he would voluntarily cooperate with an investigation, including providing us with a list of herd share members and their contact information, and allowing us to collect samples at the farm. On the night of the 10th when he was contacted, Mr Salyers tentatively agreed but wanted to wait until morning to make a final determination.

On the morning of the 11th Mr Salyers sent ODA a spreadsheet listing the 48 household contacts for his customers, and gave ODA oral authorization to visit the premises and collect any specimens we wanted from the working part of the farm (but not the residence building). He also reported to ODA that, following his attempts to contact his customers through Facebook, he had learned of "several" additional illnesses. (He already knew about the index case). He also reported that he had voluntarily stopped distribution of milk (which



Investigators "lean in" to catch the sample slung by Dr. Keene. Note the ankle-deep "river" of mud, excrement, and urine in the milkcow's pasture captured in the photo just behind Dr. Keene. Pasture samples tested positive with matching strains of *E. coli*. *Item 2 of 6*

Applied Tools for Outbreak Management



- **Forms & templates for disease investigation**
 - Available for on-the-fly modification
- **Customized corresponding databases**
 - Rapid data entry and analysis
- **Standardized and simplified specimen collection**
 - Simple = beautiful; humor = gold

Welcome to the It-Kit™



- Developed by FOMES
- Standardized, simplified, low cost
- Cost = \$2.99/kit (2012)
- Available **FREE** to all county health depts in Oregon



How to Collect a Stool Specimen for the Health Department

Collecting a stool specimen is not most people's idea of fun. Most of us would prefer to flush it and forget it. We really appreciate you taking the time for this simple if somewhat unpleasant task. Getting a specimen isn't rocket science, but these instructions should help you get it with a minimum of fuss. If you're getting a specimen from someone else—a young child, for example—you may have to improvise a bit, but the principles are the same.

1. Get Ready

Check that you have everything you need. Use a new kit for each person. Your kit should include:

- Screw-top plastic container (for the specimen)
- Cardboard-and-tissue-paper liner (fits on a toilet seat)
- Paper bowl (can be added to liner if needed)
- Spoon or swabs (helps you move stuff around)
- Gloves (for your comfort)
- Gauze pad (for use with diapers; see section 2b)
- Paper slip (for person's name and other info)
- Alcohol cleaning pad
- Plastic specimen bag (may say "Biohazard")
- Paper sack.

2a. Grab the specimen (using a toilet)

If the person wears diapers, skip to the next section (2b).

Urinate before you start. Getting urine mixed in with the poop makes it harder for us to find the bugs we're looking for, so try not to pee into the specimen.

- Tape the liner onto the toilet seat with the printed instruction side facing up. If the stool has been watery, put the paper bowl into the liner (see picture). If the bowl got squashed in the kit, just pop it back into shape.
- Poop into the liner (or bowl).
- Scoop some of the poop into the container. Try to get an amount at least the size of a cherry tomato or a walnut; more is OK. If the stool is watery, you can pour it from the paper bowl into the container; otherwise, use the spoon or a swab.



liner by itself

liner with bowl (for watery stools)

2b. If all else fails...grab the specimen (from a diaper)

If you can't get a specimen any other way, you might be able to get a specimen from a diaper. It's hard to get enough poop, though, and you should only consider this as a last resort. Use the spoon to scrape up poop from a dirty diaper. Try to get an amount that is at least the size of a cherry tomato. If the stool is mostly liquid, try putting the gauze pad inside the diaper and wait for it to become soiled. Then just put the entire gauze pad into the container. Again, don't try this unless all else fails.

3. Pack it up

- Check that the lid is on tight; we don't want it to leak after you've gone to this much trouble!
- All the used materials can be thrown into the trash. The tissue from the seat liner can be flushed down the toilet.
- Gloves or no gloves, stop and wash your hands well with soap and water.
- Use the alcohol pad to wipe off the *outside* of the sealed container—just in case anything happened to touch it.
- After the alcohol dries, write the person's name on the lid or label of the container.
- Seal the container inside the plastic bag. If there is more than 1 specimen from your household, keep each one separate in its own bag.
- Fill out the paper slip with the name of the person who gave the sample, their date of birth, and the date and time they pooped. This information is very important; without it, the lab can't run the specimen, and all your efforts will be wasted!
- Put the completed paper form into the pouch on the outside of the bag. If you have more than 1 specimen, don't mix them up!

4. Get rid of it

You should have been given instructions about what to do with the sample after you pack it up; refer to the box below. Someone may come to pick it up, or you may be dropping it off at the health department or some other location. If you're not sure what to do, call whomever gave the kit to you or your local health department.

Try to keep the specimen cool after collection, but don't let it freeze. Refrigerating it is best if it will be more than 30 minutes before it is picked up. If you will be transporting the specimen, don't let it get hot in your car or elsewhere; use a cooler with an ice pack if you can. Put the package inside the paper sack if you don't want to look at it.

Thank you for your valuable contribution to public health!

Let me know how everything comes out. Call 555-1212
-Desperately Seeking Stool

Cómo recoger una muestra de heces para el Departamento de Salud

Para la mayoría de las personas, la toma de muestra de heces no es sinónimo de diversión. Casi todos prefieren bajarle al baño y olvidarse del asunto. Nosotros realmente apreciamos que se tome el tiempo para esta tarea simple aunque algo desagradable. La obtención de una muestra no es ciencia de cohetes, pero estas instrucciones le ayudarán a conseguirlo con un mínimo esfuerzo. Si lo que desea es obtener una muestra de un niño o de otra persona, tal vez tenga que improvisar un poco, pero los principios son los mismos.

1. Prepárese

Asegúrese de tener todo lo necesario. El presente kit incluye:

- Contenedor de plástico con tapa a rosca (para la muestra)
- Contenedor de cartón adhesivo (cabe en el inodoro)
- Recipiente de papel (puede agregarse al contenedor de cartón si es necesario)
- Cuchara o hisopos (le ayudarán a mover la materia fecal)
- Guantes (para su comodidad)
- Gasas (para usar con los pañales; ver sección 2b)
- Papel (para el nombre de la persona y otra información)
- Toallitas con alcohol
- Bolsa de plástico ("Biohazard") y una bolsa de papel.

2a. Tome la muestra (usando un inodoro o retrete)

Si la persona usa pañales, pase a la siguiente sección (2b).

Orine antes de comenzar. La orina mezclada con el excremento hace más difícil para nosotros encontrar lo que estamos buscando, así que evite hacer pis en la muestra.

- Pegue el contenedor de cartón en el asiento del inodoro, con la cara de las instrucciones hacia arriba. Si las heces han sido líquidas, ponga el recipiente de papel sobre el contenedor de cartón (ver foto). Si el recipiente se ha abollado dentro del kit, enderécelo.
- Defeque dentro del contenedor de cartón o sobre el recipiente.

- Vuelva un poco de materia fecal dentro del contenedor de plástico con tapa a rosca. Procure que la cantidad sea la equivalente a una nuez grande. Si la muestra es líquida, puede volcarla directamente desde el recipiente de plástico. Si no, hágalo con la cuchara.



sin tazón



con el tazón (para heces líquidas)

2b. Como último recurso...tome la muestra (desde un pañal)

Si Ud. no puede obtener una muestra de cualquier otra manera, es posible que pueda obtener una muestra de un pañal. Es difícil conseguir caca suficiente, sin embargo, y sólo se debe considerar esto como un último recurso. Use la cuchara para obtener la muestra desde el pañal, tratando de conseguir una cantidad equivalente a una nuez grande. Si la muestra es líquida, coloque la gasa dentro del pañal y espere a que absorba la mayor cantidad posible. Luego simplemente coloque la gasa dentro del contenedor de plástico con tapa a rosca. Una vez más, no intente esto a menos que todo lo demás falla.

3. Empaquétela

- Asegúrese que la tapa a rosca esté bien ajustada. ¡Después de tanto trabajo no queremos que se vuelque!
- Todos los materiales utilizados deben arrojarse a la basura.
- Haya usado o no los guantes, lávese bien las manos con agua y jabón.
- Use una toallitas con alcohol para limpiar el exterior del contenedor plástico.
- Escriba el nombre de la persona en la tapa del contenedor plástico.
- Ponga el contenedor con la muestra dentro de la bolsa plástica y séllela. Si hay más de una muestra, ponga cada una de ellas en bolsas separadas.
- Escriba nombre, apellido, fecha de nacimiento y fecha y hora de la recolección de la muestra, en el papel. Los datos deben ser siempre de la persona de la cual se obtiene la muestra. Esta información es muy importante—sin ella, el laboratorio no trabajará correctamente y sus esfuerzos habrán sido en vano.
- Ponga el papel con la información en el exterior de la bolsa. Si tiene más de una muestra, procure no mezclarlas.

4. Entréguela

Seguramente le han informado a esta altura qué hacer con la muestra; se refieren a la caja de abajo. Alguien vendrá a recogerla, o usted deberá dejarla en algún lugar específico. Si no está seguro sobre qué hacer con ella, llame a quien le entregó este kit o a su departamento de salud local.

Trate de mantener la muestra fresca, pero no deje que se congele, sobre todo si pasarán más de 30 minutos desde la recolección hasta la entrega. Una vez embolsada, puede ponerla dentro de cualquier otro recipiente si no quiere mirarla.

¡Gracias por su contribución a la salud pública!



www.healthoregon.org/fomes

Although many people can be talked into donating a stool specimen, we don't always get good specimens back from everyone who says yes. Sometimes they don't come back, and sometimes they aren't good. After much thought, discussion, and experimentation, we've come up with this kit — a revolutionary new packet of materials (in English and Spanish) that makes collecting a stool specimen simple and fun. You distribute the kits, collect them when they've been used, process the specimens back at the health department, and send the specimens to the lab (in Oregon, send to OSPHL by courier).



- [Patient instructions](#) 📄
- [Patient instructions video \(English\)](#) ▶
- [Cómo recoger una muestra de heces para el Departamento de Salud \(video instructivo\)](#) ▶
- [Health Department staff instructions](#) 📄
- [Order an IT-Kit™](#) 📄

[Back to top](#)

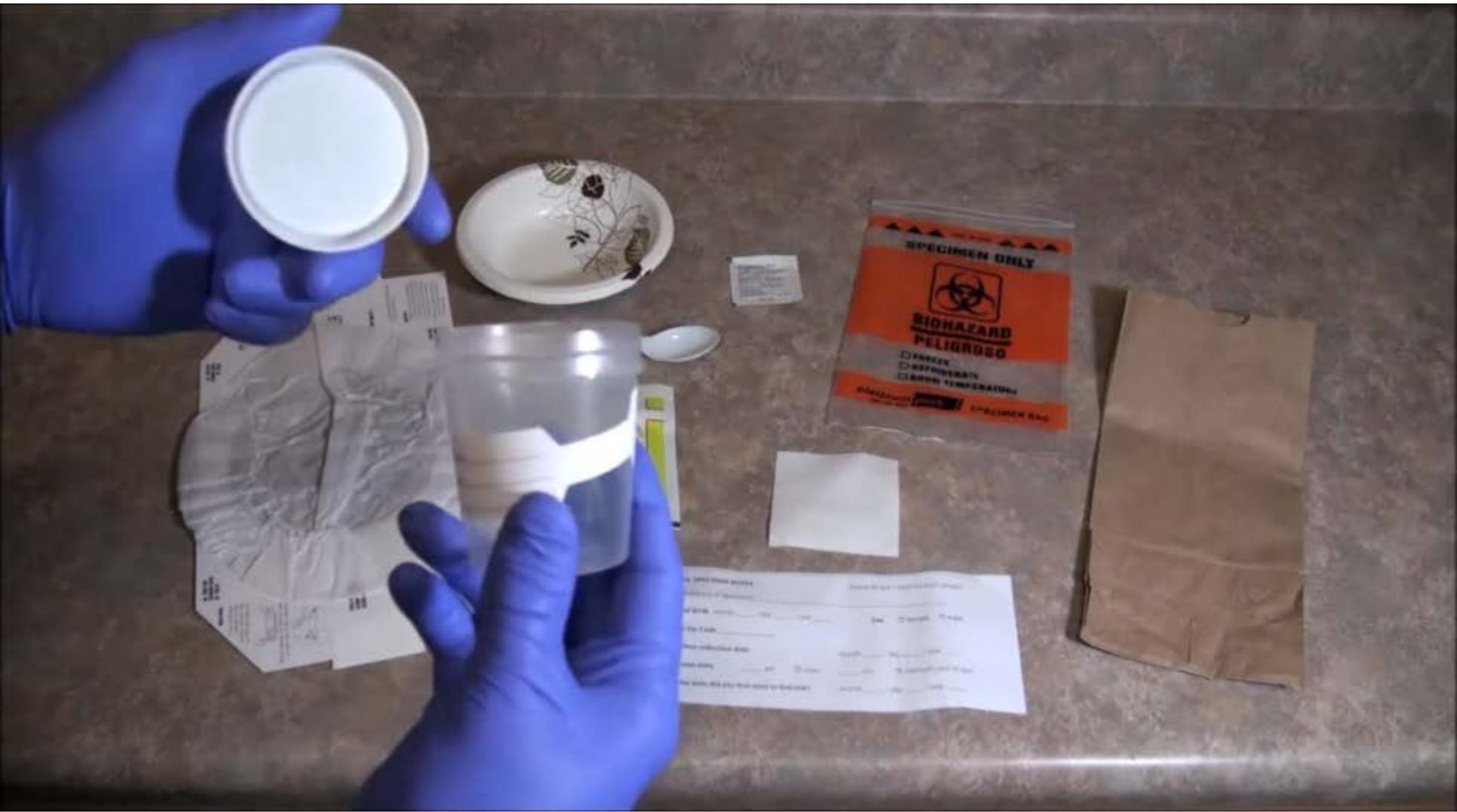
Interviewing Cardinal Rules

This video, starring many members of the Oregon Public Health Division, explains the 10 cardinal rules of effective interviewing. The longer version explains background and is very helpful for understanding outbreak investigation interviewing. The shorter 9-minute version is useful as a quick introduction to volunteer interviewers, for times when it is important to get on the phones as quickly as possible.

- [Interviewing Cardinal Rules Video \(Complete Version\)](#) ▶
- [Interviewing Cardinal Rules Video \(9-minute version\)](#) ▶
- [Interviewing Cardinal Rules Written Instructions](#) 📄



How to collect your poop for the
health department



Video available in English and Spanish (both with closed captioning)



(Not Actual Feces)

PATIENT ONLY



STOOL SPECIMEN NOTES

Please fill out 1 form for each sample.

Name (Source of Specimen) Jon Smith

Date of Birth month 05 / day 17 / year 79 Sex female male

Home Zip Code 97266

Specimen collection date month 01 / day 29 / year 14

Specimen time 6 am noon pm midnight (end of day)

On what date did you first start to feel sick? month 1 / day 27 / year 14



The Current Suite of Oregon Data Collection & Management Tools

FREE
WEBINAR
TOURS ON
DEMAND!

Cake

- Orpheus: Case data collection and management
- Outbreaks: Summary data from outbreak investigations; NORS-Direct export
- Case Log: GI & ILI outbreak case data collection & descriptive analysis
- Napoli: Extended outbreak questionnaires, entry & analysis
- Shotgun (aka Project Mercury): data entry and analysis of “shotgun” food and animal exposure questionnaire, and questionnaire creation

Icing

- Call Tracker: “hopper” system that allows for multiple interviewers to track interview status
- Population: Disease rates for Oregon (county-level data)

Project Mercury Data Management System



- **Transition to new HGQ format (Shotgun 2.0)**
- **Three main functions**
 - Create hypothesis-generating questionnaires
 - Enter HGQ data, rapidly
 - Analyze HGQ data, instantly
- **Standardized library of food & animal exposures**
 - Simplified data sharing
- **Background data aggregation**
 - Binomial probability calculations
 - Generate hypotheses that can be tested with traceback

Onset of first symptoms m ___/a ___/y ___ Time of first onset ___ am noon ___ pm midnight
 Onset of first vomiting or diarrhea m ___/a ___/y ___ Time of first V or D ___ am noon ___ pm midnight
 Pathogen Salmonella _____ E. coli O157 E. coli _____ _____
 Ask about exposures between these dates: M T W T F S S m ___/a ___/y ___ through M T W T F S S m ___/a ___/y ___

Eligibility

There are exceptions, but in general it is not worth doing long exposure interviews with cases lacking a well-defined onset of vomiting or diarrhea. A vague onset means no defined exposure window. Thus, most people with who don't have a stool isolate or those with vague histories of symptoms going on for weeks, months, or years should be excluded. Persons with onsets more than a day after onsets of illness among close contacts should be considered presumptive secondary cases; they too rarely are worth interviewing for food exposures. It's not just a waste of time; including such interviews in a cluster investigation may lower ones ability to find a vehicle.

- 2161 Indicate source(s) of positive lab tests
 2156 stool 2157 urine 2158 blood
 2159 CSF 2160 other _____
- 63 Y ? N Do you have any chronic condition involving diarrhea or vomiting?
- 11 Y ? N Is the onset date for GI symptoms ambiguous? (Within a day or 2 is acceptable.)
- §† 58 Y ? N Was anyone in your household sick with diarrhea or vomiting in the week before you got sick?
- §† 46 Y ? N Any travel outside the United States in the 7 days before onset?
 1948 Mexico 1949 Canada 1011 other _____
- §† 59 Y ? N Were you in contact with anyone outside your household who had vomiting or diarrhea in the week before you got sick?
- 2226 Y ? N Would this interview require a third-party translator?
- 2225 Y ? N Is this case part of an outbreak that has already been "solved"?
If you answered "yes" to any of these questions, STOP. Under most circumstances, this person should not be interviewed.

Personal

- §† 47 Y ? N travel outside your home state (including local commutes)
 1388 list states visited
- §† 48 Y ? N travel within your home state (outside your usual area)
- 51 Y ? N Do you make a point to select organic produce when you shop?
- 2234 Y ? N Do you keep a food diary, log, or document your meals through social media (e.g., post pictures of meals on Facebook)
- 55 Y ? N any food allergies or special diets for medical, religious, or any other reason (check all that apply)
 52 vegetarian 53 vegan 54 weight loss
 843 medical diet 56 milk (lactose) intolerant 62 gluten free
 60 no nuts 61 no shellfish 1013 halal
 1014 kosher 2131 no eggs 1256 other _____

Places to Eat Out

Let's start with some general questions about eating out at restaurants, getting take-out, or anything like that. For each one, give me a "yes" or "no" if you ate at such a place. Do you recall eating anything at....

- 1953 Y ? N homes of family or friends

§=Salmonella risk question †= E. coli risk question



Dairy

Now let me ask you about milk, cheese, and other dairy products.

- 270 Y ? N pasteurized (regular) milk (If yes, 1) what kind of container did you get it in that week (paper or plastic), and 2) what type of milk did you drink?)
- | | | |
|---|---|--|
| 953 <input type="checkbox"/> plastic carton | 954 <input type="checkbox"/> paper carton | 2237 <input type="checkbox"/> glass bottle |
| 271 <input type="checkbox"/> skim | 272 <input type="checkbox"/> 1% (low fat) | 273 <input type="checkbox"/> 2% (reduced fat) |
| 274 <input type="checkbox"/> 4% (whole) | 795 <input type="checkbox"/> flavored (e.g., chocolate) | 2238 <input type="checkbox"/> non-cow (e.g., goat, sheep, yak) |
| 716 <input type="checkbox"/> other _____ | | |
-
- §† 269 Y ? N raw (unpasteurized) milk
- 2239 Y ? N any non-dairy milk alternatives
- | | | |
|--------------------------------------|------------------------------------|---|
| 2240 <input type="checkbox"/> almond | 2241 <input type="checkbox"/> soy | 2242 <input type="checkbox"/> coconut |
| 2243 <input type="checkbox"/> rice | 2244 <input type="checkbox"/> hemp | 2245 <input type="checkbox"/> other _____ |
-
- 260 Y ? N any kind of yogurt product
- | | | |
|--|---|---|
| 715 <input type="checkbox"/> store-bought | 1035 <input type="checkbox"/> homemade yogurt | |
| 966 <input type="checkbox"/> single serving containers | 993 <input type="checkbox"/> multi-serving tubs | 996 <input type="checkbox"/> mixed with fruit |
| 714 <input type="checkbox"/> frozen yogurt | 995 <input type="checkbox"/> Greek style | 994 <input type="checkbox"/> yogurt drinks |
| 997 <input type="checkbox"/> other _____ | | |
-
- 1443 Y ? N whipped cream or topping
- | | | |
|--|--|--|
| 677 <input type="checkbox"/> spray can | 280 <input type="checkbox"/> from a carton | 259 <input type="checkbox"/> imitation (e.g., Cool-Whip) |
|--|--|--|
-
- 267 Y ? N ice cream eaten at home
- | | | |
|--|--|---------------------------------------|
| 1445 <input type="checkbox"/> from container (e.g., pint, quart) | 484 <input type="checkbox"/> ice cream bars or novelties | 283 <input type="checkbox"/> homemade |
|--|--|---------------------------------------|
-
- 255 Y ? N buttermilk
-
- 256 Y ? N sour cream

Cheese

- 2134 Y ? N Did you eat any cheese?
If no, probe to make sure, but if so skip to next section.
-
- 300 Y ? N goat cheese
-
- 301 Y ? N sheep cheese
-
- 311 Y ? N cheese spread
-
- §† 318 Y ? N soft Mexican-style cheese (e.g., queso fresco, queso blanco)
- | | | |
|---|--|--|
| 1038 <input type="checkbox"/> store-bought | 1037 <input type="checkbox"/> homemade | 1226 <input type="checkbox"/> street vendor, door-to-door sale |
| 1041 <input type="checkbox"/> eaten at a restaurant | 1039 <input type="checkbox"/> imported | 1225 <input type="checkbox"/> made from raw milk |
-
- 306 Y ? N gourmet or "artisanal" cheese
- | | | |
|---|--|--|
| 1626 <input type="checkbox"/> eaten at a restaurant | 1627 <input type="checkbox"/> internet/mail order source | 1628 <input type="checkbox"/> from farmer's market |
| 1629 <input type="checkbox"/> store-bought | 1637 <input type="checkbox"/> other source _____ | |
-
- 309 Y ? N cheese from an ethnic market or specialty shop
-
- §† 307 Y ? N cheese made from unpasteurized (raw) milk
-
- 305 Y ? N cheese made outside the US
-
- 308 Y ? N cheese from a club, mail-order, or internet source
-
- 310 any other cheese (Check all that apply.)
- | | | |
|---|--|---|
| 312 <input type="checkbox"/> cheddar | 313 <input type="checkbox"/> Swiss | 941 <input type="checkbox"/> Gouda |
| 943 <input type="checkbox"/> Provolone | 940 <input type="checkbox"/> Jack (e.g., pepper, Monterey) | 942 <input type="checkbox"/> other sliced or blocks of cheese |
| 290 <input type="checkbox"/> packaged pre-shredded cheese | 294 <input type="checkbox"/> American (processed) cheese | 315 <input type="checkbox"/> feta |
| 299 <input type="checkbox"/> bleu (blue) | 1165 <input type="checkbox"/> cream cheese | 286 <input type="checkbox"/> cottage cheese |
| 296 <input type="checkbox"/> mozzarella | 288 <input type="checkbox"/> string cheese | 717 <input type="checkbox"/> fresh Parmesan or Romano |

2003	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	any kind of root or tuber vegetable (give examples) 352 <input type="checkbox"/> potatoes 397 <input type="checkbox"/> turnips	1470 <input type="checkbox"/> radishes 1469 <input type="checkbox"/> jicama	1468 <input type="checkbox"/> beets 2246 <input type="checkbox"/> other _____
398	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	okra		
354	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	homegrown tomatoes		
1451	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	tomatoes from farmers' market, roadside stand, farm		
355	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	grocery store-bought fresh tomatoes 357 <input type="checkbox"/> cherry 1087 <input type="checkbox"/> heirloom	358 <input type="checkbox"/> grape 359 <input type="checkbox"/> "regular" red (e.g., beefsteak)	356 <input type="checkbox"/> Roma (plum) 734 <input type="checkbox"/> sold on vine
369	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	cabbage		
1459	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	collard greens		
1460	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	mustard greens		
382	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	any lettuce on sandwiches or burgers 379 <input type="checkbox"/> romaine	378 <input type="checkbox"/> iceberg	380 <input type="checkbox"/> other _____
1994	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	lettuce 378 <input type="checkbox"/> iceberg 377 <input type="checkbox"/> any bagged, pre-washed lettuce or salad mix	379 <input type="checkbox"/> romaine	380 <input type="checkbox"/> other _____
1993	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	spinach 384 <input type="checkbox"/> in a sealed bag/container	385 <input type="checkbox"/> "loose" or bundled	
985						any other vegetables not already mentioned _____		

Salad items

Let me ask you some questions about salads of all kinds, including lettuce and leafy green salads. At home or away from home, do you remember eating any....

1994	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	lettuce 377 <input type="checkbox"/> any bagged, pre-washed lettuce or salad mix 379 <input type="checkbox"/> romaine 984 <input type="checkbox"/> green leaf 2137 <input type="checkbox"/> unknown type	982 <input type="checkbox"/> butterhead, Boston, bibb 381 <input type="checkbox"/> mesclun, spring mix 380 <input type="checkbox"/> other _____	378 <input type="checkbox"/> iceberg 983 <input type="checkbox"/> red leaf 1995 <input type="checkbox"/> shredded
387	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	kale		
1461	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	chard		
1993	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	spinach 385 <input type="checkbox"/> "loose" or bundled	384 <input type="checkbox"/> in a sealed bag/container	1463 <input type="checkbox"/> spinach salad
1467	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	any other salad greens 1464 <input type="checkbox"/> arugula (rocket) 981 <input type="checkbox"/> radicchio	1465 <input type="checkbox"/> endive 381 <input type="checkbox"/> mesclun, spring mix	1466 <input type="checkbox"/> watercress 1996 <input type="checkbox"/> other _____
989	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	any deli or store-bought salad (not restaurant) 488 <input type="checkbox"/> potato salad 1072 <input type="checkbox"/> green salad 1463 <input type="checkbox"/> spinach salad 1231 <input type="checkbox"/> bean salad	490 <input type="checkbox"/> coleslaw 486 <input type="checkbox"/> fruit salad 457 <input type="checkbox"/> seafood salad 1073 <input type="checkbox"/> other _____	487 <input type="checkbox"/> pasta salad 489 <input type="checkbox"/> egg salad 2128 <input type="checkbox"/> kale salad
987	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	any other toppings on your salad 893 <input type="checkbox"/> bacon bits 2141 <input type="checkbox"/> sprouts 879 <input type="checkbox"/> croutons	896 <input type="checkbox"/> artichoke hearts 911 <input type="checkbox"/> cold cuts 1283 <input type="checkbox"/> other _____	902 <input type="checkbox"/> pepperoncin 906 <input type="checkbox"/> hard boiled eggs
1064	Y	<input type="checkbox"/>	? <input type="checkbox"/>	N	<input type="checkbox"/>	meat or seafood on salad 1066 <input type="checkbox"/> steak	2266 <input type="checkbox"/> chicken	1069 <input type="checkbox"/> turkey

- 1139 Y ? N What dried or powdered spices would have been used in the foods you ate?
- | | | |
|--|---|--|
| 1145 <input type="checkbox"/> salt | 2166 <input type="checkbox"/> allspice | 772 <input type="checkbox"/> basil |
| 1144 <input type="checkbox"/> bay leaf | 2165 <input type="checkbox"/> cardamom | 787 <input type="checkbox"/> cayenne or other chili powder |
| 769 <input type="checkbox"/> cinnamon | 2163 <input type="checkbox"/> cloves | 771 <input type="checkbox"/> coriander |
| 770 <input type="checkbox"/> cumin | 775 <input type="checkbox"/> curry powder | 776 <input type="checkbox"/> dill |
| 2178 <input type="checkbox"/> garam masala | 777 <input type="checkbox"/> ginger | 1614 <input type="checkbox"/> MSG |
| 2164 <input type="checkbox"/> mustard powder | 778 <input type="checkbox"/> nutmeg | 2162 <input type="checkbox"/> onion powder |
| 773 <input type="checkbox"/> oregano | 781 <input type="checkbox"/> paprika | 782 <input type="checkbox"/> dried parsley |
| 1178 <input type="checkbox"/> pepper, black | 774 <input type="checkbox"/> pepper, white | 2167 <input type="checkbox"/> peppercorns |
| 786 <input type="checkbox"/> poppy seeds | 1142 <input type="checkbox"/> red pepper flakes | 784 <input type="checkbox"/> rosemary |
| 783 <input type="checkbox"/> sage | 2228 <input type="checkbox"/> tamarind | 789 <input type="checkbox"/> tarragon |
| 809 <input type="checkbox"/> thyme | 785 <input type="checkbox"/> turmeric | 1140 <input type="checkbox"/> other _____ |

561 Y ? N Did you start using any new packages of spices or dried herbs in the 2 weeks before you got sick? (If so, specify.)

560 Y ? N Did you eat any spices that were bought in bulk (by weight) or at ethnic specialty markets? (If so, specify.)

Raw Foods

We may have talked about some of these foods already, but I'd like to ask if you remember eating any of the following items raw or undercooked.

- 452 Y ? N oysters
- 1293 Y ? N any other raw or undercooked seafood
- § 323 Y ? N eggs (e.g., raw, runny yolks, sunny side up)
- § 1062 Y ? N Caesar salad or any salad made with raw eggs
- § 2050 Y ? N anything else made with raw eggs (e.g., eggnog, mayonnaise, sauces, tiramisu, ice cream)
- §† 1230 Y ? N any meat or poultry
- | | | |
|--|------------------------------------|---|
| 817 <input type="checkbox"/> ground beef | 818 <input type="checkbox"/> pork | 815 <input type="checkbox"/> chicken |
| 816 <input type="checkbox"/> turkey | 2136 <input type="checkbox"/> lamb | 1246 <input type="checkbox"/> other _____ |
- § 324 Y ? N cookie dough
- § 585 Y ? N cake mix or batter
- 819 Y ? N any raw (uncooked, unroasted) nuts
- | | | |
|---------------------------------------|--|---|
| 1484 <input type="checkbox"/> almonds | 1485 <input type="checkbox"/> hazelnuts (filberts) | 1486 <input type="checkbox"/> walnuts |
| 1487 <input type="checkbox"/> cashews | 1957 <input type="checkbox"/> mixed nuts | 1488 <input type="checkbox"/> other _____ |
- §† 932 Y ? N any dairy product made from raw milk (e.g., cheese, ice cream, yogurt)
- §† 1489 Y ? N any raw (unpasteurized) juice or cider
- | | | |
|-------------------------------------|--|---|
| 1490 <input type="checkbox"/> apple | 1491 <input type="checkbox"/> orange juice (fresh) | 1493 <input type="checkbox"/> other _____ |
|-------------------------------------|--|---|

Frozen Foods

Now let me ask you about frozen foods, that is, items that you might find in the freezer section at a grocery store. Did you eat any....

468 Y ? N pot pies

467 Y ? N single-serve frozen entrée or TV dinner

- | | | |
|---|---|---|
| 2192 <input type="checkbox"/> Banquet | 2197 <input type="checkbox"/> Great Value (Walmart) | 2194 <input type="checkbox"/> Healthy Choice |
| 2220 <input type="checkbox"/> Jenny Craig | 2193 <input type="checkbox"/> Lean Cuisine | 2191 <input type="checkbox"/> Marie Callender |
| 2195 <input type="checkbox"/> Smart Ones | 2190 <input type="checkbox"/> Stouffer's | 2196 <input type="checkbox"/> Swanson |
| 2199 <input type="checkbox"/> Weight Watchers | 2199 <input type="checkbox"/> other _____ | |

Sections
 You've selected 26 of 42 available sections.
 [Select all](#)
[Remove all](#)

Sort order		Totals	
2	▲ ▼ Eligibility	51	<input type="checkbox"/> <input checked="" type="checkbox"/>
4	▲ ▼ Personal	17	<input type="checkbox"/> <input checked="" type="checkbox"/>
6	▲ ▼ Places to Eat Out	3	<input type="checkbox"/> <input checked="" type="checkbox"/>
8	▲ ▼ Restaurants	24	<input type="checkbox"/> <input checked="" type="checkbox"/>
10	▲ ▼ Foods Eaten Out	11	<input type="checkbox"/> <input checked="" type="checkbox"/>
12	▲ ▼ Sources of Food at Home	22	<input type="checkbox"/> <input checked="" type="checkbox"/>
14	▲ ▼ Records	20	<input type="checkbox"/> <input checked="" type="checkbox"/>
16	▲ ▼ Meat and Poultry at Home	37	<input type="checkbox"/> <input checked="" type="checkbox"/>
18	▲ ▼ Other Meat and Poultry	15	<input type="checkbox"/> <input checked="" type="checkbox"/>
20	▲ ▼ Eggs	9	<input type="checkbox"/> <input checked="" type="checkbox"/>
22	▲ ▼ Dairy	6	<input type="checkbox"/> <input checked="" type="checkbox"/>
24	▲ ▼ Cheese	4	<input type="checkbox"/> <input checked="" type="checkbox"/>
26	▲ ▼ Processed Meat	19	<input type="checkbox"/> <input checked="" type="checkbox"/>
28	▲ ▼ Seafood	21	<input type="checkbox"/> <input checked="" type="checkbox"/>
30	▲ ▼ Fresh Vegetables	23	<input type="checkbox"/> <input checked="" type="checkbox"/>
32	▲ ▼ Salad items	27	<input type="checkbox"/> <input checked="" type="checkbox"/>
34	▲ ▼ Fruit	13	<input type="checkbox"/> <input checked="" type="checkbox"/>
36	▲ ▼ Drinks	8	<input type="checkbox"/> <input checked="" type="checkbox"/>
38	▲ ▼ Spices and Herbs	26	<input type="checkbox"/> <input checked="" type="checkbox"/>
40	▲ ▼ Raw Foods	29	<input type="checkbox"/> <input checked="" type="checkbox"/>
42	▲ ▼ Frozen Foods	12	<input type="checkbox"/> <input checked="" type="checkbox"/>
44	▲ ▼ Miscellany	16	<input type="checkbox"/> <input checked="" type="checkbox"/>
46	▲ ▼ Environmental	38	<input type="checkbox"/> <input checked="" type="checkbox"/>
48	▲ ▼ Animals	2	<input type="checkbox"/> <input checked="" type="checkbox"/>
50	▲ ▼ Closing Details	48	<input type="checkbox"/> <input checked="" type="checkbox"/>
52	▲ ▼ Other Foods by Meal	50	<input type="checkbox"/> <input type="checkbox"/>
54	▲ ▼ Toddler Snacks	32	<input type="checkbox"/> <input type="checkbox"/>

Questions
 You've selected 353 of all 2128 available questions.
 [Add Exposure](#)
[Preview Section](#)
[Update sections and questions](#)
[Select all](#)
[Remove all](#)

Sources of Food at Home
Let me ask you some questions about where you got the food that you ate at home. Did you get anything from....

2	▲ ▼ membership stores like Costco	84	<input type="checkbox"/> <input checked="" type="checkbox"/>
4	▲ ▼ grocery stores and supermarkets (specify)	83	<input type="checkbox"/> <input checked="" type="checkbox"/>
6	▲ ▼ ethnic markets (e.g., bodegas, Indian or Asian groceries)	86	<input type="checkbox"/> <input checked="" type="checkbox"/>
8	▲ ▼ small markets and mini-marts	85	<input type="checkbox"/> <input checked="" type="checkbox"/>
10	▲ ▼ farmers' markets	91	<input type="checkbox"/> <input checked="" type="checkbox"/>
12	▲ ▼ food co-ops	2086	<input type="checkbox"/> <input checked="" type="checkbox"/>
14	▲ ▼ health food stores	87	<input type="checkbox"/> <input checked="" type="checkbox"/>
16	▲ ▼ roadside stands or on-farm locations	1403	<input type="checkbox"/> <input checked="" type="checkbox"/>
18	▲ ▼ CSA (Community Supported Agriculture) produce	92	<input type="checkbox"/> <input checked="" type="checkbox"/>
20	▲ ▼ bakery, bagel, donut, dessert, pastry shop	90	<input type="checkbox"/> <input checked="" type="checkbox"/>
22	▲ ▼ meat or fish market	93	<input type="checkbox"/> <input checked="" type="checkbox"/>
24	▲ ▼ private- or custom-processed meat	97	<input type="checkbox"/> <input checked="" type="checkbox"/>
26	▲ ▼ food banks or charity kitchens	99	<input type="checkbox"/> <input checked="" type="checkbox"/>
28	▲ ▼ home delivery grocery services (e.g., Amazon, Schwan's)	95	<input type="checkbox"/> <input checked="" type="checkbox"/>
30	▲ ▼ food from other households (e.g., friends, family, etc.)	708	<input type="checkbox"/> <input checked="" type="checkbox"/>
32	▲ ▼ delicatessens (including in-store delis)	89	<input type="checkbox"/> <input checked="" type="checkbox"/>
34	▲ ▼ other places where you shopped for food _____	1200	<input type="checkbox"/> <input checked="" type="checkbox"/>
36	▲ ▼ take-out or home delivered ready-to-eat food (e.g., pizza, Chinese)	94	<input type="checkbox"/> <input type="checkbox"/>
38	▲ ▼ delicatessens (including in-store delis)	89	<input type="checkbox"/> <input type="checkbox"/>
40	▲ ▼ food at other private households (friends or family)	98	<input type="checkbox"/> <input type="checkbox"/>
42	▲ ▼ internet shopping (e.g., Amazon, Netgrocer, other [specify])	864	<input type="checkbox"/> <input type="checkbox"/>
44	▲ ▼ Costco	872	<input type="checkbox"/> <input type="checkbox"/>
46	▲ ▼ bakery, bagel, donut, dessert, pastry shop	90	<input type="checkbox"/> <input type="checkbox"/>
48	▲ ▼ farmer's markets, roadside stands, open-air market	707	<input type="checkbox"/> <input type="checkbox"/>
50	▲ ▼ other specialty markets (e.g., Trader Joe's, Zabar's, AJs)	88	<input type="checkbox"/> <input type="checkbox"/>
52	▲ ▼ home-grown produce	96	<input type="checkbox"/> <input type="checkbox"/>

Exposure Questions

Translations "If yes" setup

Variable Name Length

Section

Old 22 delete

Comment (optional)

Exp ID

AnswerFormat

is Orpheus Risk

		Variable Name	Length	Section	Old 22	delete	Comment (optional)	Exp ID	AnswerFormat	is Orpheus Risk
416	Raspberries	Raspberry	9	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		416	yes no	<input type="checkbox"/>
417	blueberries	Blueberry	9	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		417	yes no	<input type="checkbox"/>
418	blackberries	Blackberry	10	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		418	yes no	<input type="checkbox"/>
419	cranberries	Cranberry	9	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		419	yes no	<input type="checkbox"/>
420	berries other than	BerryOther	10	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		420	yes no	<input type="checkbox"/>
421	cherries	Cherries	8	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		421	yes no	<input type="checkbox"/>
422	grapes	Grapes	6	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		422	yes no	<input type="checkbox"/>
423	red grapes	GrapesRed	9	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		423	yes no	<input type="checkbox"/>
424	green grapes	GrapesGreen	11	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		424	yes no	<input type="checkbox"/>
425	bananas	Banana	6	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		425	yes no	<input type="checkbox"/>
426	plantains	Plantain	8	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		426	yes no	<input type="checkbox"/>
427	cantaloupe	Cantaloupe	10	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		427	yes no	<input type="checkbox"/>
428	honeydew	Honeydew	8	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		428	yes no	<input type="checkbox"/>
429	watermelon	Watermelon	10	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		429	yes no	<input type="checkbox"/>
430	other melon	OtherMelon	10	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		430	yes no	<input type="checkbox"/>
431	any cut melon, melon garnish, or melon-containing fruit salad	MelonSalad	10	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		431	yes no	<input type="checkbox"/>
432	kiwi	Kiwi	4	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>		432	yes no	<input type="checkbox"/>
433	pineapple	Pineapple	9	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>			yes no	<input type="checkbox"/>
434	mango	Mango	5	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>			yes no	<input type="checkbox"/>
435	papaya	Papaya	6	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>			yes no	<input type="checkbox"/>
436	any other "exotic" or tropical fruit	ExoticFruits	12	13 Fruit	<input type="checkbox"/>	<input type="checkbox"/>			yes no	<input type="checkbox"/>
320	eggs (anything anywhere from whole shell eggs [not powdered or processed])	EggsShell	9	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>			yes no	<input type="checkbox"/>
321	any whole eggs at home	EggsEatenAtHome	15	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		321	yes no	<input type="checkbox"/>
322	any egg dishes at restaurants or elsewhere away from home	EggsRestaurant	14	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		322	yes no	<input type="checkbox"/>
323	eggs eaten raw	RawEggs	7	29 Raw Foods	<input type="checkbox"/>	<input type="checkbox"/>		323	yes no	<input type="checkbox"/>
324	cookie dough eaten raw	RawCookies	10	29 Raw Foods	<input type="checkbox"/>	<input type="checkbox"/>		324	yes no	<input type="checkbox"/>
325	any egg substitutes	EggsFake	8	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		325	yes no	<input type="checkbox"/>
326	powdered eggs	EggsPowdered	12	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		326	yes no	<input type="checkbox"/>
327	brown eggs	EggsBrown	9	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		327	yes no	<input type="checkbox"/>
328	free range eggs	EggsFreeRange	13	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		328	yes no	<input type="checkbox"/>
329	organic eggs	EggsOrganic	11	9 Eggs	<input type="checkbox"/>	<input type="checkbox"/>		329	yes no	<input type="checkbox"/>
252	butter or margarine in a tub	Tubbutter	9	6 Dairy	<input checked="" type="checkbox"/>	<input type="checkbox"/>		252	yes no	<input type="checkbox"/>

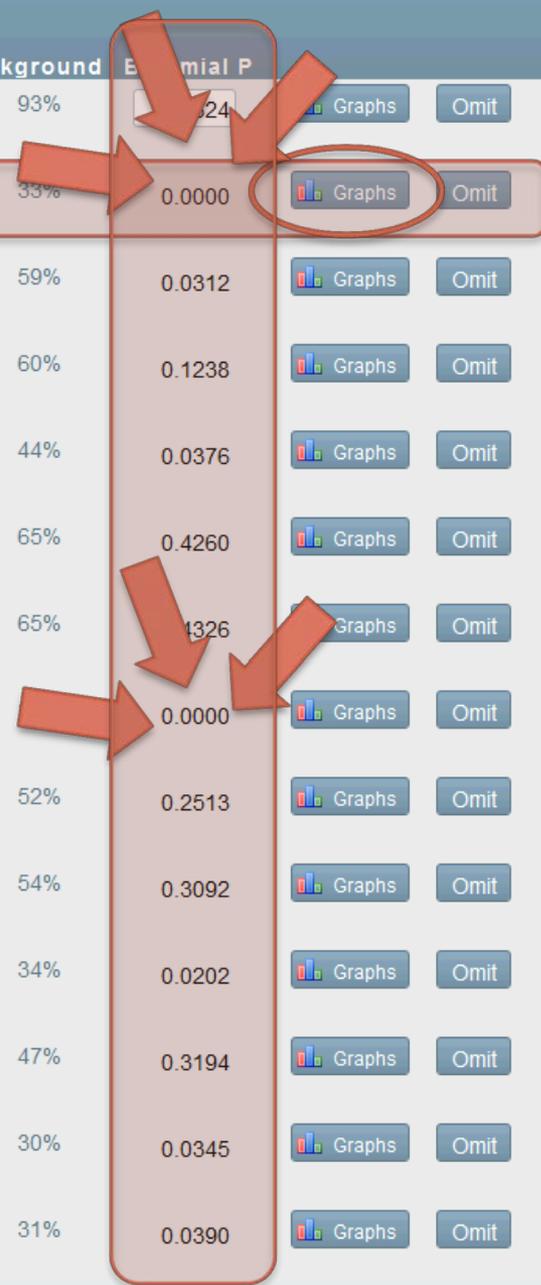
Its all about unique exposure codes!

Sections are independent of data entry or analysis

New Food Search

Cutoff %

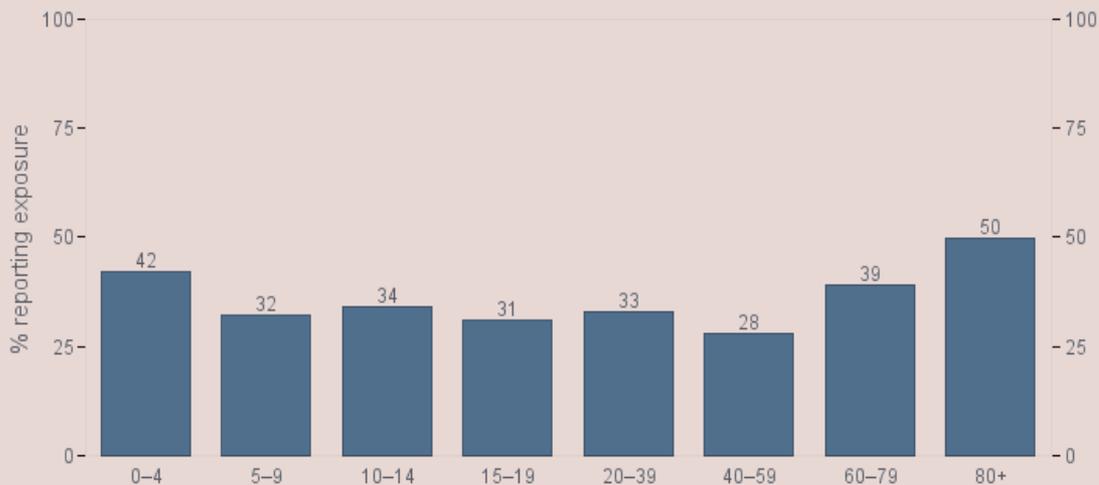
Section	ID	Variable Name	Description	Yes	Background	Binomial P	Graphs	Omit
Sources of Food	83	GroceryStore	grocery stores and supermarkets	13 / 14 93%	93%	0.0000	Graphs	Omit
Fruit	415	Strawberry	strawberries	13 / 14 93%	33%	0.0000	Graphs	Omit
Miscellany	742	ChipsOrPretzel	chips ; pretzels	12 / 14 86%	59%	0.0312	Graphs	Omit
Animals	619	DogExposure	exposure to any dogs	11 / 14 79%	60%	0.1238	Graphs	Omit
Fresh Vegetables	355	TomatoStore	grocery store-bought fresh tomatoes	10 / 14 71%	44%	0.0376	Graphs	Omit
Eggs	320	EggsShell	eggs (anything anywhere from whole shell eggs [not powdered or processed])	10 / 14 71%	65%	0.4260	Graphs	Omit
Dairy	270	MilkPasteurized	pasteurized (regular) milk <i>[If yes, 1) what kind of container did you get it in</i>	10 / 14 71%	65%	0.1326	Graphs	Omit
Sources of Food	707	FarmersMarketxx	farmer's markets	10 / 14 71%		0.0000	Graphs	Omit
Dairy	254	Butter	stick butter	9 / 14 64%	52%	0.2513	Graphs	Omit
Miscellany	564	ColdCerealBox	cold breakfast cereals in boxes	9 / 14 64%	54%	0.3092	Graphs	Omit
Other Meat and	216	ChickenPartsHome	Anything prepared at home from pre-cut chicken parts	9 / 14 64%	34%	0.0202	Graphs	Omit
Restaurants	110	SitDownRestaurant	anything from a sit-down restaurant	8 / 14 57%	47%	0.3194	Graphs	Omit
Fresh Vegetables	330	CarrotMini	"mini" carrots	8 / 14 57%	30%	0.0345	Graphs	Omit
Fresh Vegetables	334	Broccoli	broccoli	8 / 14 57%	31%	0.0390	Graphs	Omit



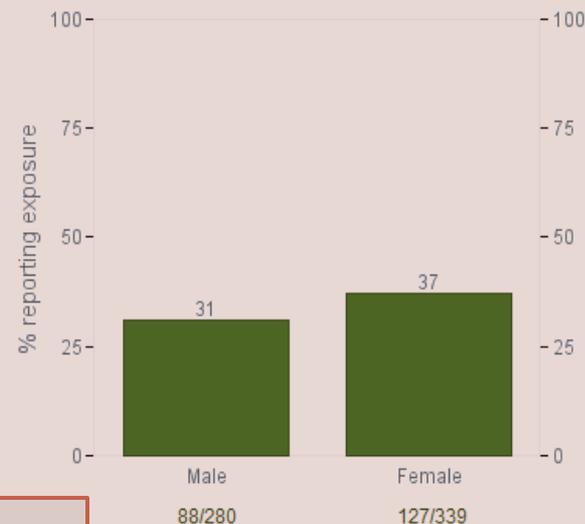


35% say yes to strawberries

Exposure by Age Group



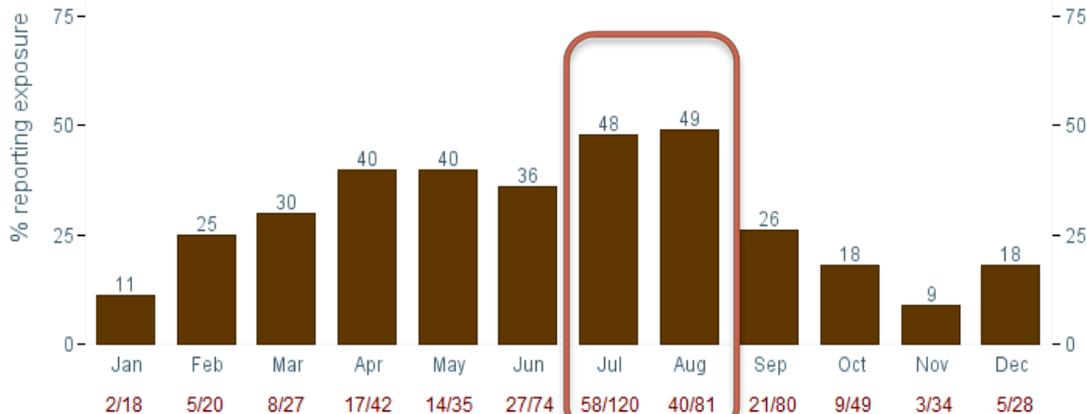
Exposure by Sex



415 Strawberry strawberries 13 / 14 93%

views included this exposure

ExposureID = 415





Interview Search

Filter by...

 Find

 Never mind

... Outbreak

Outbreak ID

... Exposure

Exposure

ExposureID

Also display Exposures

... Disease

Etiology

... Person

Age

Sex M F

Race

Hispanic

County

State

Orpheus ID

... Questionnaire

Version

Name

... Date/Season

Interview date

Interview month

Onset date

Onset month

New Food Search

Cutoff %

Section	ID	Variable Name	Description	Yes	Background	Binomial P
Fruit	404	Apple	apples	317 / 631 50%	<input type="text"/>	? Graphs Omit
Miscellany	528	Applesauce	applesauce	106 / 631 17%	<input type="text"/>	? Graphs Omit
Fruit	433	Pineapple	pineapple	84 / 631 13%	<input type="text"/>	? Graphs Omit
Drinks	603	JuiceApple22	any apple juice or cider	47 / 484 10%	<input type="text"/>	? Graphs Omit
Fruit	1958	AppleRedDelicious	red Delicious apple variety	18 / 147 12%	<input type="text"/>	? Graphs Omit
Fruit	1960	AppleFuji	Fuji apple variety	17 / 147 12%	<input type="text"/>	? Graphs Omit
Drinks	1119	JuiceApple	apple juice	16 / 147 11%	<input type="text"/>	? Graphs Omit
Fruit	1964	AppleGala	Gala apple variety	14 / 147 10%	<input type="text"/>	? Graphs Omit
Fruit	2089	AppleHoneycrisp	Honeycrisp apple variety	11 / 147 7%	<input type="text"/>	? Graphs Omit
Restaurant	186	Applebees	Applebee's	9 / 631 1%	<input type="text"/>	? Graphs Omit
Fruit	1966	AppleOtherVariety	other apple variety	8 / 147 5%	<input type="text"/>	? Graphs Omit
Fruit	1961	AppleBraeburn	Braeburn apple variety	6 / 147 4%	<input type="text"/>	? Graphs Omit
Fruit	1965	AppleGrannySmith	Granny Smith apple variety	6 / 147 4%	<input type="text"/>	? Graphs Omit
Fruit	1963	AppleJonagold	Jonagold apple variety	3 / 147 2%	<input type="text"/>	? Graphs Omit



Project Mercury

- FOMES Development
 - Build out CDC NHGQ-mapped export
 - Bring in 2006-2007 FoodNet Population survey data
- Publish Oregon exposure data sets online for *Salmonella* and *E. coli* O157
- Outreach to other states & LHJs conducting this surveillance
 - Compare across multiple sites & regions

Project Mercury: Your state?



- **Standardized exposure coding**
 - Data dictionary
 - “Standards” curation group: CoE, FoodCORE... and beyond?
- **Use prospectively, coding your current questionnaire to meet a to-be-agreed upon standard**
- **Retrospective aggregation: take historical questionnaires and map to a to-be-agreed upon standard**
- **Mapping to compare with FN Pop Survey**
- **Oregon may be able to offer assistance with any or all of these projects, depending on interest & need**

Cooperation Makes It Happen



"It's curiosity."

Hillary.Booth@state.or.us

1072

971-673-

www.healthoregon.org/fomes

Webinar Agenda

- Introduction and Welcome: Dr. Kirk Smith, CSTE Food Safety Subcommittee Chair
- Rachel Jervis, Colorado CoE
- David Dekevich, Florida CoE
- Joshua Rounds, Minnesota CoE
- Hillary Booth, Oregon CoE
- **Katie Garman, Tennessee CoE**
- Q&A and Discussion: Presenters and Participants

Tennessee Integrated Food Safety Center of Excellence

Katie Garman, MPH
Epidemiologist
Tennessee Department of Health

Tennessee Integrated Food Safety Center of Excellence (CoE)

- Tennessee Department of Health (TDH)
 - FoodNet
 - EHS-Net
 - FoodCORE
- University of Tennessee (UT)
 - Center for Agriculture and Food Security and Preparedness (School of Veterinary Medicine)
 - Department of Public Health
 - Department of Food Science and Technology
 - Agricultural Extension Program

Tennessee CoE Activities

- Web-based training modules in foodborne outbreak detection and response
 - 1st of 6 modules released
- Food Safety Graduate Certificate Program at UT
 - Student Outbreak Rapid Response Training (SORRT)
- Food safety exercises with surrounding states

Tennessee Integrated Food Safety Center of Excellence Website



www.foodsafety.utk.edu

Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

Training

Tennessee Integrated Food Safety Centers of Excellence announces the completion of an online training entitled **Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A**. This course is located on the Learning Management Center of the Center for Agriculture and Food Security and Preparedness. To register for this course go the CAFSP website:



<http://www.vet.utk.edu/cafsp/online/coe.php>

Web Course Registration

<http://www.vet.utk.edu/cafsp/online/coe.php>

COE Web Course

Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

Overview

The goal for this online course, which is the first part of a two part course, will be to train public health professionals and other involved personnel to rapidly identify, investigate and implement control measures for a foodborne disease outbreak to reduce the incidence of foodborne illness.

Scope

The course will be an introductory level, self-paced, on-line web course that will raise awareness of the importance of information sharing related to the importation and transportation of food. This course will describe the complexity of food and food ingredient transportation and importation and will introduce mechanisms to enhance information sharing between the private sector and government officials.



Register here

PreTest



Module 1: Overview of an Integrated Food Safety System

Participants will be able to understand how local, state, and national agencies fit into an integrated food safety system. Participants will be able to define foodborne disease and identify common foodborne disease causative agents.



Restricted: Not available until you achieve a required score in **PreTest**.

Module 2: Foodborne Outbreak Response Team Members

Participants will understand the key importance of all foodborne outbreak team members and the importance of coordination between the different disciplines.



Restricted: Not available until you achieve a required score in **PreTest**.

Module 3: Overcoming Barriers to Effective Foodborne Outbreak Response by Enhancing Team Member Communication

Participants will be able to describe communication strategies to address potential barriers to effective foodborne outbreak response. Participants will be able to describe ways to improve communications among outbreak investigation team members, stakeholders and the media.

Pretest

Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

You are logged in as **CAFSP Admin** (Log out)

Home ▶ ... Response Team Roles and Responsibilities: Course 1 ▶ PreTest ▶ **PreTest** ▶ Preview

Quiz navigation



Finish attempt ...

Start a new preview

Administration

- Quiz administration
 - Edit settings
 - Group overrides
 - User overrides

Question 1

Not yet answered

Marked out of 1.00

Flag question

Edit question

Next

When it comes to determining the likely cause of an outbreak, which of the following is the best approach for coming up with the most reasonable answer?

Select one:

- a. The Public Health Officer makes that determination after hearing everyone's input.
- b. The CDC decides what the best hypothesis is after hearing what the local team has found.
- c. The courts will decide once the lawsuits go to trial and all the evidence gets presented.
- d. The investigation team decides together what the "best guess" is on what may have caused the outbreak and then tests that hypothesis.

Module 1



navigation



Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

MODULE 1

Overview of an Integrated
Food Safety System



Tennessee Integrated Food Safety
Centers of Excellence



Course Map

Module 1 with Navigation

Module Introduction

- Foodborne Outbreak Investigation and Response Team Roles and Responsibilities
- Course Map
- Learning Objectives
- Foodborne Illness Burden
- Food System Farm-to-Fork Continuum
- Global Food Supply
- Complex Food Supply Video
- Foodborne Illness
- Frequency of Causative Agents
- Sign and Symptoms
- Food Vehicles
- Foods and Commonly Associated Causative Agents
- Other Modes of Transmission
- Clusters and Outbreaks
- What is an Integrated Food Safety System?
- Partner Roles in Food Safety
- Partner Roles in Food Safety
- Summary

Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

MODULE 1
Overview of an Integrated Food Safety System

 **Tennessee Integrated Food Safety**
Centers of Excellence

Course Map

Module 2

Module Introduction

Learning Objectives

Primary Goals of Outbreak Investigations

Outbreak Investigation Team Video

Other Outbreak Investigation Team Members

Other Outbreak Investigation Team Members

Epi-Ready Team Activity

The Team: Together

Criteria Required to Activate the Foodborne-
-Illness Team

D.Sharp Middle School Outbreak Video

D.Sharp Middle School Outbreak Video, Part 2

Summary



Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

MODULE 2 Foodborne Outbreak Response Team Members



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Objectives

Module 3

Module Introduction

Learning Objectives

Barriers to Effective Foodborne Outbreak Response

Legal Barriers

Political Barriers

Human Resource Barriers

Organizational Barriers

Discipline Specific Epidemiology Barriers

Discipline Specific Laboratory Barriers

Discipline Specific Environmental Health Barriers

Communication Between Team Members,- -Agencies and the Public

Pre-Outbreak Communication Strategies

Team Communication During the Investigation

Communication with Others During the Investigation

Communication with the Implicated Business During- -the Investigation

Communication Strategies for Working with the Media

Considerations for Print, TV and Radio Communication

Communication After the Investigation

Sal's Restaurant Outbreak Scenario Video

Summary



Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A

MODULE 3

Overcoming Barriers to Effective Foodborne Outbreak Response by Enhancing Team Member Communication



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Objectives

Student Outbreak Rapid Response Training (SORRT)

SORRT Objectives

- Improve foodborne outbreak investigations by building surge capacity
- Train future public health workforce
- Develop model practices that can be adapted for use in other public health jurisdictions

SORRT

- Established Fall 2013
- 1-credit hour elective course at UT
- Open to graduate students
 - MPH, Food Science, or other related degrees
- Coursework and practical experience

SORRT Coursework

- 8-hour training
 - Public Health in Tennessee
 - Epidemiology 101
 - Components of an Outbreak Investigation
 - Outbreak Investigation case studies
 - Traceability and Recall
- Monthly class meetings
 - Skill-building activity
 - Current outbreak investigation discussions
 - Weekly MMWR reading assignments and quizzes

SORRT Practical Experience

- Outbreak investigations
 - Phone numbers from restaurant receipts
 - Cases/controls interviews, case finding
 - Questionnaire development
- Restaurant inspections

Results

	Fall 2013	Spring 2014	Fall 2014
# of students	19	5	5
8-hour training education			
Pre-test median score	44%	63%	63%
Post-test median score	81%	72%	75%
Median change	31%	9%	13%
Practical experience			
# of surge events	3	2	1
# of analytic studies	3	2	0
# of person hours	15	15	5

Discussion

- Successful model
 - Training future public health workforce
 - Providing surge capacity to local and regional health departments
- Other jurisdictions can adopt similar models with minimal cost by working with nearby academic partners

Food Safety Table Top Exercise

- TN CoE and the TN Food Safety Task Force held a table top focused on regulatory trackback investigation
- 40 participants
 - Federal
 - State
 - TN
 - GA
 - NC
 - Multi-state food manufacturers and retailers



Tabletop Focus



- Provided participants with
 - Overview of actions taken at various levels when an incident occurs
 - Roles of key personnel
- Participants work through three discussion-based modules focused on:
 - Identification of the violative product
 - Supply chain traceback investigation procedures
 - The ensuing traceforward investigation and recall

Food Related Emergency Exercise Bundle (FREE-B)

- The exercise is one of a set developed by the Institute of Food Technologists on behalf of the FDA Food Defense Oversight Team
 - Produced in cooperation with CDC
 - <http://www.fda.gov/Food/FoodDefense/ToolsEducationalMaterials/ucm295902.htm>



Thank you

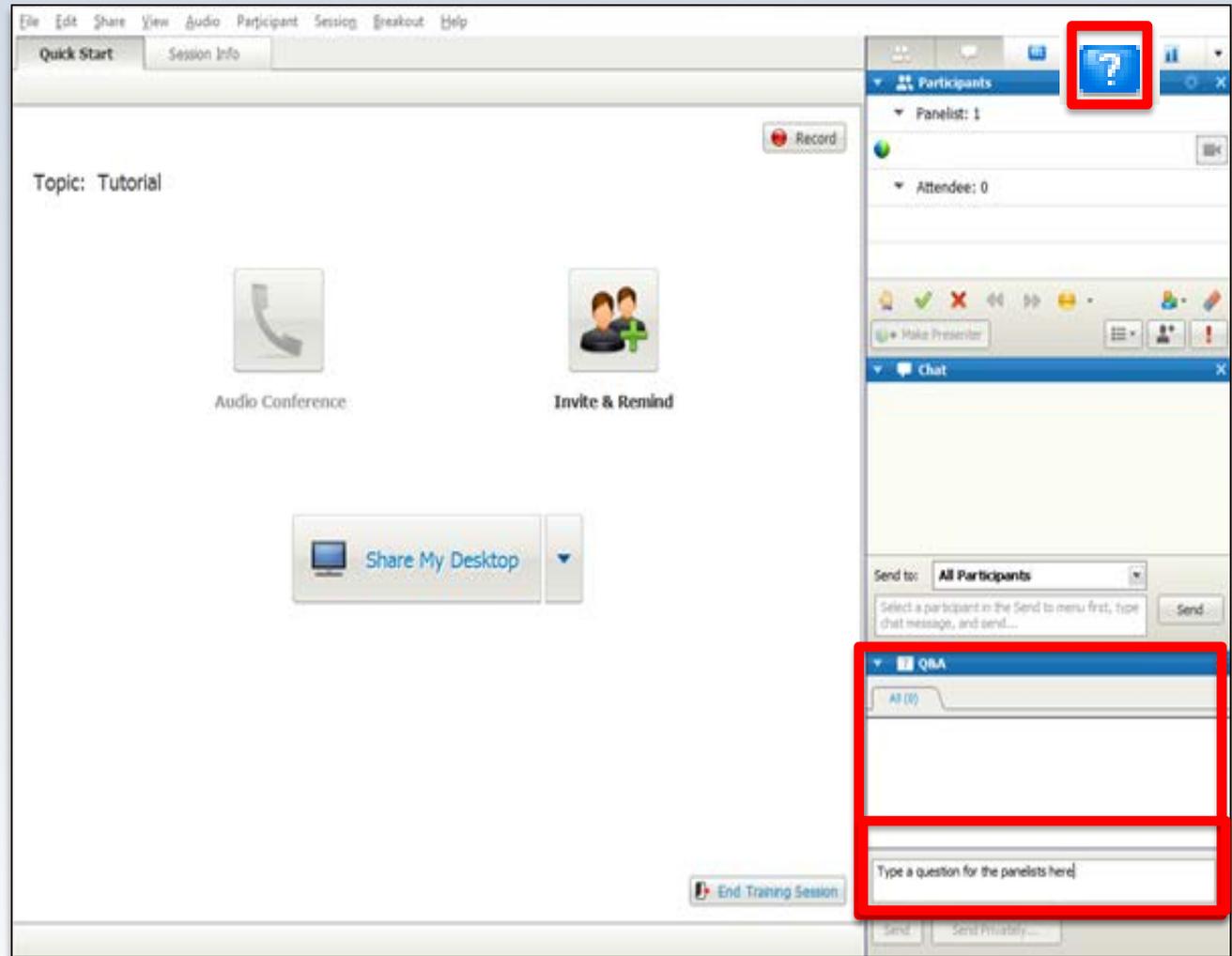
Katie Garman, MPH
615-532-9051
katie.garman@tn.gov

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To Ask a Question

- Click on the blue question mark tab on the top right panel of your screen
- This will open the Q&A box on the bottom right panel on your screen
- Type a question
- Send questions to All Panelists



Thank you for your participation!

- Please complete the webinar evaluation:
https://www.research.net/s/CSTE_FoodSafety2
- The webinar recording & slides will be available CSTE's website in the webinar library: <http://www.cste.org/?page=WebinarLibrary>