The Integrated Food Safety Centers of Excellence were established by CDC under the Food Safety Modernization Act (FSMA). The Centers collaborate with academic institutions to build capacity in other state and local health departments to track individual foodborne illnesses as well as investigate outbreaks of foodborne disease.

The Centers:

**Colorado**
- Colorado Department of Public Health and Environment
- Colorado School of Public Health

**Florida**
- Florida Department of Health
- University of Florida

**Minnesota**
- Minnesota Department of Health
- University of Minnesota School of Public Health

**Oregon**
- Oregon Public Health Division
- University of Minnesota School of Public Health

**Tennessee**
- Tennessee Department of Health
- University of Tennessee

Main Activity Areas:
Centers develop and share best practices by focusing their efforts on six main activity areas.

1. **Strengthen** surveillance and outbreak investigations
2. **Analyze** timeliness and effectiveness of responses
3. **Train** public health staff in proven surveillance and investigation techniques
4. **Educate** future food safety workforce
5. **Improve** capacity of information systems
6. **Evaluate** and communicate best practices

VISIT US @
www.cdc.gov/foodsafety/centers
Examples of Center Products

**Colorado**

**Food Source Information Wiki**

The Food Source Information Wiki displays basic and timely “farm to fork” information on food production practices and distribution systems. Outbreak investigators can use the Wiki to learn more about a suspected food item including potential routes of contamination, season of production, distribution information, and information about past outbreaks associated with the food.

http://fsi.colostate.edu/

**Florida**

**Food Safety Southeast App**

This app is designed for foodborne outbreak investigators and food safety professionals to conveniently access resources on a mobile device while away from the office. It provides free access to food safety resources, trainings, videos, news, and conferences including the entire CIFOR toolkit and the University of Florida’s Foodborne Illness Introductory Video Series.

https://itunes.apple.com/us/app/id845296149

**Minnesota**

**Key Points for Successful Foodborne Outbreak Detection and Investigation**

The Key Points series gives brief descriptions of various foodborne outbreak detection and investigation topics. Current summaries include: 1) Creating a successful foodborne illness complaint system; 2) Investigating establishment sub-clusters; and 3) Creating a team of student workers. More topics are being developed.

http://mnfoodsafetycoe.umn.edu/resources/

**Oregon**

**IT-Kit™ Video**

This short video walks through the entire process of collecting a stool sample. It uses plain language and shows each step of the process, making it less confusing for the case. There are bits of humor throughout the video to lessen any fear or embarrassment that the case may feel. By providing cases with this video, they are more likely to provide the laboratory with a viable sample.

https://vimeo.com/106985921

**Tennessee**

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

This is the first course in a free online series about outbreak investigation and response. It is a great tool for training public health staff to rapidly identify, investigate, and implement control measures for foodborne outbreaks. The training is self-paced and a great tool for personnel unable to attend multi-day, in-person sessions.

http://foodsafety.utk.edu/training
Environmental Assessment QuickTrain Series

The Colorado Integrated Food Safety Center of Excellence, in collaboration with Colorado Department of Public Health and Environment, and Colorado School of Public Health, announces the release of the Environmental Assessment QuickTrain Series.

The training was developed for public health professionals as an introduction or refresher to environmental assessments. Each module should take between 10 and 15 minutes and can be completed on your mobile device on the way to an outbreak (while a colleague drives, of course!).

An extensive toolbox is available in each module, with practical tools helpful in conducting environmental assessments during outbreak investigations. Certificates of completion for continuing education are awarded.

Access the training at http://COFoodSafety.org under the trainings tab.

The training includes the following modules:
- Introduction to Outbreak Investigations Module
- Overview of Environmental Assessments Module
- Contributing Factors Module
- Clinical and Environmental Specimens Module

Interview skills and a laboratory testing modules will be added soon.

Keep checking the CoE website for additional trainings and tools.

Food Source Information Wiki

Developed by Colorado State University, the Food Source Information Wiki provides rapid access to basic information on production practices and food distribution systems for a range of agricultural food products, from farm to fork. By centralizing information and delivering it in a user-friendly format, the project aims to bridge an important knowledge gap and improve outbreak response nationwide.

Currently available topics include:
- Cantaloupes
- Carrots
- Leafy greens
- Oranges
- Mushrooms
- Tree fruit
- Eggs
- Pomegranates
- Potatoes
- Strawberries
- Jalapeño peppers
- Tomatoes
- Sprouts

Each article has detailed information about how the food product is grown, processed, and distributed; nutrition information; and food safety issues associated with the product.

Access the wiki directly at http://FSI.ColoState.edu or at http://COFoodSafety.org under the wiki tab.

Food production specialists or public health professionals interested in editing the wiki or contributing content are encouraged to submit topic ideas by contacting the wiki managers.

CIFOR Performance Measures Assessments

The Council to Improve Foodborne Outbreak and Response (CIFOR) has identified sixteen performance measures with target ranges that indicate thorough foodborne illness investigation and outbreak detection. The Colorado Food Safety Center of Excellence has completed assessments for Colorado and Wyoming Data. The Center can assist state or local health departments by analyzing their foodborne illness data analyzed with CIFOR performance measures.

Visit the Publications page at COFoodSafety.org to see Colorado and Wyoming Reports. Contact us to have a report done for your jurisdiction.

Contact Us

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The Food Safety Modernization Act (FSMA) became law in 2011 and is the most sweeping revision to our food safety laws in generations. Under the law, CDC was directed to designate five Integrated Food Safety “Centers of Excellence” which form partnerships between designated state health departments and academic institutions. FOMES is one of those five centers.

What We Do:

- Strengthen outbreak investigations for foodborne diseases
- Train public health staff in disease investigation techniques
- Create outbreak investigation tools & training documentation

Our Goals:

- Evaluating and improving outbreak surveillance and investigations
- Strengthening capacity of health department information systems
- Creating useful outbreak investigation tools
- Facilitating the training of public health staff, and
- Nurturing the current and future public health workforce.
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.

Foodborne Outbreak Responsibilities Course A Flyer

Scope

These online courses will identify the roles and responsibilities of the epidemiology, laboratory, and environmental investigation disciplines and how they fit into the outbreak team. These courses will emphasize the importance of all team members working together to enhance the efficiency and effectiveness of the response effort to reduce the incidence of foodborne illness.

Target Audience

The target audience is Epidemiologists, Environmental Health Specialists, laboratory personnel, and any others who would be involved in a foodborne outbreak investigation and response.

To register for this course go to:

http://www.vet.utk.edu/cafsp/online/coe.php or http://foodsafety.utk.edu/training.php
Course 1. Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part A. (Status: Complete)

Module 1: Overview of an Integrated Food Safety System
Scope Statement
This module will provide an overview of the integrated food safety system and how local, state, and national agencies fit into this system.

Terminal Learning Objective
Participants will understand how local, state, and national agencies fit into an integrated food safety system.

Enabling Learning Objectives
At the conclusion of this module, participants will be able to:
1. Define an integrated food safety system;
2. Describe the complexities of the food supply;
3. Define what is meant by foodborne disease;
4. Identify common foodborne disease causative agents;
5. Define key terms such as outbreak and cluster; and
6. Analyze how local, state, and national agencies fit into an integrated food safety system.

Module 2: Foodborne Outbreak Response Team Members
Scope Statement
This module will identify the team members involved in foodborne outbreak response and how the different disciplines function and inter-relate to each other.

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

Enabling Learning Objectives
At the conclusion of this module, participants will be able to:
1. List the goals of a foodborne disease outbreak investigation;
2. Identify the three core, inter-related disciplines and functions in a foodborne outbreak response;
3. Describe the desirable knowledge and skills included on a foodborne outbreak investigation team; and,
4. Illustrate this interaction through consideration of a variety of case studies showing the spectrum of outbreaks and response levels.

Module 3: Overcoming Barriers to Effective Foodborne Outbreak Response by Enhancing Team Member Communication
Scope Statement
This module will identify potential barriers to effective foodborne outbreak response and will illustrate strategies to overcome those barriers with enhanced team member communications.
Terminal Learning Objective
Participants will be able to describe communication strategies to address potential barriers to effective foodborne outbreak response.

Enabling Learning Objectives
At the conclusion of this module, participants will be able to:
1. Identify potential barriers to effective foodborne outbreak response;
2. Describe ways to improve communications among outbreak investigation team members before, during, and after an outbreak;
3. List considerations in dealing with the media about a foodborne disease outbreak; and
4. Illustrate communication strategies with a variety of case studies and interactive activities.

Course 2. Foodborne Outbreak Investigation and Response Team Roles and Responsibilities: Part B. (Status: In final development stage: Estimated 6/15 completion)

Module 1: Foodborne Outbreak Response Surveillance Systems
Scope Statement
This module will identify surveillance systems relevant for foodborne outbreak response for the discipline areas of environmental health, epidemiology, and laboratories.

Terminal Learning Objective
Participants will be able to describe surveillance systems relevant for foodborne outbreak response.

Enabling Learning Objectives
At the conclusion of this module, participants will be able to:
1. Describe surveillance systems for environmental health;
2. Identify surveillance systems for epidemiology; and
3. Understand surveillance systems for laboratories.

Module 2: Team Dynamics During Outbreak Response to Local Complaint-Driven Clusters
Scope Statement
This module will describe team dynamics during a typical outbreak response.

Terminal Learning Objective
Participants will understand the difference between a routine and non-routine foodborne outbreak.

Enabling Learning Objectives
At the conclusion of this module, participants will be able to:
1. Describe the spectrum and variety of typical outbreaks,
2. Identify a role-specific response to a local complaint-driven cluster, and
3. Explore response to local complaint driven clusters through the review of case studies.

**Module 3: Team Dynamics During Outbreak Response to Lab-Identified Clusters**

**Scope Statement**
This module will describe team dynamics during a typical outbreak response.

**Terminal Learning Objective**
Participants will understand the difference between a routine and non-routine foodborne outbreak.

**Enabling Learning Objectives**
At the conclusion of this module, participants will be able to:
1. Describe the spectrum and variety of typical outbreaks,
2. Describe the role specific response to a lab-identified cluster, and
3. Explore response to local lab-identified clusters through the review of case studies.

**Module 4: Team Dynamics During A Complex Outbreak Response**

**Scope Statement**
This module will describe team dynamics during a complex outbreak response.

**Terminal Learning Objective**
Participants will understand the difference in team dynamics during a complex foodborne outbreak response.

**Enabling Learning Objectives**
At the conclusion of this module, participants will be able to:
1. Describe types of complex outbreaks and their recognition;
2. Analyze how team composition may change during a complex outbreak response;
3. Identify indicators and implications of an intentional contamination incident; and
4. Describe use of the Incident Command System (ICS) to support outbreak response.
Graduate Certificate in Food Safety

The Department of Public Health and the Department of Food Science and Technology (College of Agricultural Sciences and Natural Resources) jointly offer a Graduate Certificate in Food Safety to prepare public health and food industry leaders, researchers, educators, and practitioners to understand and apply knowledge and skills to enhance food safety and prevent food-related disease. The Center for Agriculture and Food Security and Preparedness and the Department of Biomedical and Diagnostic Sciences, College of Veterinary Medicine are partners supporting this certificate. The certificate offering is coordinated through the Tennessee Integrated Food Safety Center of Excellence and is administratively housed in the Department of Public Health.

The certificate program is designed to build upon and expand concepts from core courses of the curriculum of each discipline’s Master’s degree programs and the previous experiences and interests of students. The 12 credit hours obtained for the certificate may also count as graduate degree hours. The certificate is also designed for the current workforce in public health or food industry-related employment to acquire additional training and expertise relevant to their job functions. To learn more Tennessee Integrated Food Safety’s Certificate in Food Safety, please visit http://publichealth.utk.edu/foodsafety.html.

Testimonial from a recent graduate:

As a graduate of the Food Safety certificate program offer by the Center of Excellence, I had the opportunity to enroll in a variety of public health, epidemiology, food microbiology, and veterinary medicine courses at The University of Tennessee. It created a well-rounded academic course load for my graduate studies and of the required courses, only one had not been previously recommended by members of my graduate committee.

A certificate in Food Safety opens your eyes to the entire realm of food safety. Most field or industry workers only see their small part of a much bigger picture. It showed public health students why a specific bacterium is difficult for the food industry to overcome because the pathogen is pre-existing in a certain animal and for food science students, it shed light to why laboratory research skills are vital and can help with earlier detection of a possible outbreak. Involving students with varying backgrounds of study allowed for different perspectives during classroom discussions, ongoing statewide or national outbreaks, and mock outbreak scenarios. If I could recommend one piece of academic advice to future or current graduate students, it would be to earn a certificate of Food Safety!

Submitted by Molly Albin, MS
University Of Tennessee
Student Outbreak Rapid Response Training (SORRT)

The Student Outbreak Rapid Response Training was developed by the Tennessee Integrated Food Safety Center of Excellence to:

- 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 was first offered in the Fall of 2013. It is a 1-credit hour elective course at the University of Tennessee. The course is open to graduate students enrolled in the MPH, Food Science, or other related degrees and is also a required course in the University of Tennessee’s Graduate Certificate Course in Food Safety. Students are assigned weekly coursework assignments and have the opportunity to gain practical experience at the local or regional health department.

The SORRT coursework includes an 8-hour in-person training focused on:

- Public Health in Tennessee = Epidemiology 101
- Components of an Outbreak Investigation
- Outbreak Investigation case studies
- Traceability and Recall

Students meet once a month to work on skill-building activities, such as interview training, review current outbreak investigations and discuss activities conducted at the local or regional health department. Weekly MMWR reading assignments and quizzes are also given. To view the SORRT curriculum and presentations, please visit http://foodsafety.utk.edu/resources.php (the information is under Curriculum Guides).
HIGHLIGHTING THE PRODUCTS OF THE INTEGRATED FOOD SAFETY CENTERS OF EXCELLENCE

CDC has designated five Integrated Food Safety Centers of Excellence at state health departments and affiliated university partners in CO, FL, MN, OR, & TN. The Centers work together to identify and implement best practices in foodborne disease surveillance and outbreak response and to serve as a resource for other state, regional, and local public health professionals. [http://www.cdc.gov/foodsafety/centers/](http://www.cdc.gov/foodsafety/centers/)

Environmental Assessment QuickTrain Series

The Colorado Integrated Food Safety Center of Excellence, in collaboration with Colorado Department of Public Health and Environment, and Colorado School of Public Health, announces the release of the Environmental Assessment QuickTrain Series.

The training was developed for public health professionals as an introduction or refresher to environmental assessments. Each module should take between 10 and 15 minutes and can be completed on your mobile device on the way to an outbreak (while a colleague drives, of course!).

An extensive toolbox is available in each module, with practical tools helpful in conducting environmental assessments during outbreak investigations. Certificates of completion for continuing education are awarded.

Access the training at [http://COFoodSafety.org](http://COFoodSafety.org) under the trainings tab.

The training includes the following modules:
- Introduction to Outbreak Investigations Module
- Overview of Environmental Assessments Module
- Contributing Factors Module
- Clinical and Environmental Specimens Module

An interview skills module and a Colorado-specific module will be added soon. Keep checking the CoE website for additional trainings and tools.

Epi-Ready Train-the-Trainer Course Held

Epi-Ready is a well-established team-based training course for public health professionals. The course focuses on how to efficiently and effectively respond to a foodborne disease outbreak, and brings together the disciplines involved in the investigation of these outbreaks (i.e., environmental health specialists/sanitarian, epidemiologists, laboratorians, and public health nurses). In September 2014, Center of Excellence (CoE) awardees and selected jurisdictions attended a training event in Seattle coordinated by the National Environmental Health Association (NEHA) and funded by CDC. CoE participants attended the two-day Epi-Ready training, followed by an additional day-long train-the-trainer component. CoE Epi-Ready trainers will begin coordinating with out-of-state jurisdictions to provide Epi-Ready training to additional sites during spring 2015.
Background Exposure Data for Case-Case Comparisons

*MN Center of Excellence creates an extensive library of estimated general exposure rates for food items and other exposures that may be useful in case-case comparison during outbreak investigations.*

The Minnesota Integrated Food Safety Center of Excellence has created a tool that provides an estimate of the background exposure rates for particular food items or other exposures. These frequencies are based on data from sporadic *E. coli* O157 cases that occurred in Minnesota during 2009 - 2013. FoodNet Population Survey estimates from Minnesota are also provided. Epidemiologists can use these frequencies in a binomial model comparison to quickly assess a potential vehicle in a cluster/outbreak investigation. Gender, age, and seasonal frequencies are also provided. Access the tool at http://mnfoodsafetycoe.umn.edu/wp-content/uploads/2014/07/backgroundedcc.pdf

The excerpted table below indicates the level of detail available. Also included in the tool (but suppressed in the screenshot below) are estimated background rates by age group.

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Denominator</th>
<th>Overall %</th>
<th>Overall % (including maybe)</th>
<th>Female</th>
<th>Male</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Winter</th>
<th>Pop Survey M/N</th>
<th>Pop Survey National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepackaged salad</td>
<td>426</td>
<td>20%</td>
<td>26%</td>
<td>23%</td>
<td>18%</td>
<td>22%</td>
<td>19%</td>
<td>19%</td>
<td>18%</td>
<td>32%</td>
<td>37%</td>
</tr>
<tr>
<td>Iceberg</td>
<td>425</td>
<td>29%</td>
<td>34%</td>
<td>29%</td>
<td>29%</td>
<td>33%</td>
<td>29%</td>
<td>26%</td>
<td>26%</td>
<td>38%</td>
<td>44%</td>
</tr>
<tr>
<td>Romaine*</td>
<td>244</td>
<td>19%</td>
<td>26%</td>
<td>22%</td>
<td>16%</td>
<td>16%</td>
<td>19%</td>
<td>19%</td>
<td>19%</td>
<td>25%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Online Outbreak Training for Public Health Professionals

*TN Center of Excellence publishes an online outbreak investigation training course.*

The Tennessee Integrated Food Safety Center of Excellence (CoE) has made available the first course in an online training series on outbreak investigation and response. Developed by the TN CoE staff, subject matter experts (SMEs), and University of Tennessee (UT) curriculum development staff, the course provides an excellent training tool for staff that may be unable to attend multi-day, in-person trainings. Additional courses in the series are currently under development. The training may be accessed at http://foodsafety.utk.edu/training.

Each article has detailed information about how the food product is grown, processed, and distributed; nutrition information; and food safety issues associated with the product.

Access the wiki directly at http://FSI.ColoState.edu or at http://COFoodSafety.org under the wiki tab.

Food production specialists or public health professionals interested in editing the wiki or contributing content are encouraged to submit topic ideas by contacting the wiki managers.

Integrated Food Safety Centers of Excellence Websites:

- **CO** — [http://www.cofoodsafety.org/](http://www.cofoodsafety.org/)
- **FL** — [http://foodsaftyflorida.org/](http://foodsaftyflorida.org/)
- **MN** — [http://mnfoodsafetycoe.umn.edu/](http://mnfoodsafetycoe.umn.edu/)
- **OR** — [http://www.healthoregon.org/fomes](http://www.healthoregon.org/fomes)
- **TN** — [http://foodsafety.utk.edu](http://foodsafety.utk.edu/)

Food production specialists or public health professionals interested in editing the wiki or contributing content are encouraged to submit topic ideas by contacting the wiki managers.
HIGHLIGHTING THE PRODUCTS AND ACTIVITIES OF THE INTEGRATED FOOD SAFETY CENTERS OF EXCELLENCE

CDC has designated five Integrated Food Safety Centers of Excellence at state health departments and affiliated university partners in CO, FL, MN, OR, & TN. The Centers work together to identify and implement best practices in foodborne disease surveillance and outbreak response and to serve as a resource for other state, regional, and local public health professionals. [http://www.cdc.gov/foodsafety/centers/](http://www.cdc.gov/foodsafety/centers/)

Foodborne Illness Video Series Debuts

*FL Center of Excellence unveils the first in a series of videos on outbreak investigations*

The Florida Integrated Food Safety Center of Excellence recently released the first video in their Foodborne Illness Introductory Video Series titled “Foodborne Illness: What Problem?” The series introduces novice outbreak investigation team members to the concept of foodborne illness and the current health and financial burden it poses in the United States.

The first video offers a historical perspective on changes within the food industry and their effects on public health and food safety professionals today.

Topics for future videos include: Federal Partners; State and Local Partners; Foodborne Outbreak Investigation; What Does an Epidemiologist Do?; What Does an Environmental Health Specialist Do?; and What Does a Laboratorian Do?

Watch the video at [https://www.youtube.com/c/foodsafetyfloridaorg](https://www.youtube.com/c/foodsafetyfloridaorg)

Want to Learn More About the Integrated Food Safety Centers of Excellence?

Check out this fact sheet for information about the program and some of our products in a two-page document that's perfect for sharing with your partners: [http://www.cdc.gov/foodsafety/centers/PDFs/FactSheetFinal-508.pdf](http://www.cdc.gov/foodsafety/centers/PDFs/FactSheetFinal-508.pdf)

For the latest news, follow @FoodSafetyCoE on Twitter! Be the first to try our new products and live chat with us so we can address your CoE questions and food safety concerns.
**Key Points Series for Outbreak Detection and Investigation**

*MN Center of Excellence creates a series of summaries describing key points for outbreak detection and investigation topics*

The Minnesota Integrated Food Safety Center of Excellence has created a series of brief summaries describing the key points for various foodborne outbreak detection and investigation topics.

Current summaries include creating a successful foodborne illness complaint system, investigating establishment sub-clusters, and creating a team of student workers. Additional topics are under development.

Access the documents at [http://mnfoodsafetycoe.umn.edu/resources/](http://mnfoodsafetycoe.umn.edu/resources/)

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**Joint Regional Meetings of PulseNet & OutbreakNet in 2015**

*Multi-disciplinary meeting of CDC programs to integrate food safety specialties*

For the first time ever, PulseNet and OutbreakNet are holding joint regional meetings throughout the spring of 2015. Laboratorians, epidemiologists, and environmental health specialists are coming together to discuss regional issues and strategies to improve outbreak surveillance and response. During the discussion and training sessions, each state is encouraged to identify key action items to take back to their jurisdictions. Representatives from the Integrated Food Safety Centers of Excellence will share tools and resources developed by the Centers. Invited laboratorians, epidemiologists, and environmental health specialists won’t want to miss out on this opportunity to interact and learn from other state colleagues as well as professionals from different disciplines!

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**Integrated Food Safety Centers of Excellence Websites:**

- MN — [http://mnfoodsafetycoe.umn.edu/](http://mnfoodsafetycoe.umn.edu/)
- OR — [http://www.healthoregon.org/fomes](http://www.healthoregon.org/fomes)

**Twitter Feed** — @FoodSafetyCoE