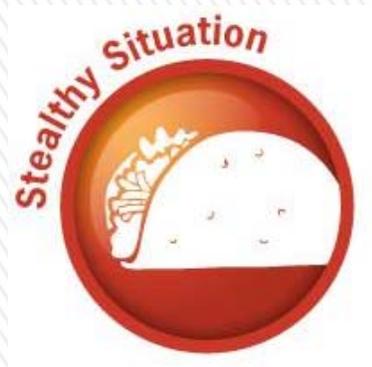


Click here to take the Pre-Test:

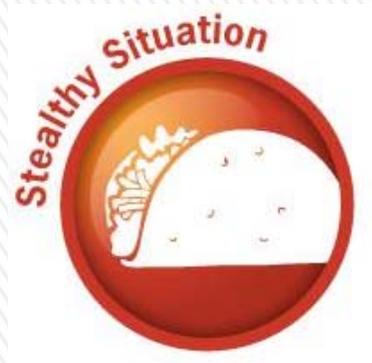
<http://www.ndhealth.gov/disease/foodborne/Pretest.aspx>

The presentation will begin shortly.



Stealthy Situation

Tabletop Exercise



Stealthy Situation

Tabletop Exercise

Introduction

- » This training provides participants with an overview of what happens at the local, State and Federal levels during an accidental contamination of a food ingredient.
- » Goals
 - > Assess plans, policies and procedures and think about how you would realistically apply them in a foodborne outbreak event.
 - > Facilitate discussion among various participating entities.

Training Structure

- » This training has five learning modules that we will be covering in the course of four days.
 - > Day 1: Module 1 – Onset of Illness, Module 2 – Identification of common exposure
 - > Day 2: Module 3 – Foodservice investigation, Module 4 – Agency collaboration
 - > Day 3: Module 5 – Traceback, Wrap-up

Objectives

- » After the conclusion of this training, you will be able to:
 - > Define your role in interacting with a large, diverse team of professionals who must work together to address a complex and urgent food contamination incident.
 - > Map the process and flow of a foodborne disease investigation from the initial epidemiologic signals through the traceback and recall phases, with periodic public communication.
 - > Understand the importance of gathering and cataloging critical information needed when making decisions in rapidly developing situations.
 - > Coordinate your efforts with other professionals engaged in an outbreak investigation.
 - > Use a collaborative approach to use to your advantage the skills of each agency and identify proactive solutions.
 - > Understand the importance of internal and external communications and dialogue and have ideas about how to improve both in your organization.

Post-Test Questions

- » PFGE is used to further specify or differentiate *Salmonella* or other organisms?
 - > True
 - > PFGE is a technique used by scientists to generate a DNA fingerprint for a bacterial isolate.

Post-Test Questions

- » According to the CDC, there is an estimated _____ foodborne illness cases each year in the U.S.?
 - > C. 48 million
 - > CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick of foodborne disease. Additionally, they estimated that 128,000 are hospitalized and 3,000 die of foodborne diseases.

Post-Test Questions

» Foodborne illness is typically caused by the last thing you ate.

> **False**

> Symptoms of foodborne illness usually occur 24 hours or more after eating a particular food and can last up to 10 days. Within 24 hours, you could have eaten a wide range of foods, and any of these foods could have contributed to the illness.

Post-Test Questions

- » The majority of foodborne illnesses are a result of which of the following?
 - > A. Improper handling of foods by the consumer

Post-Test Questions

- » How many pathogens and toxins are known to cause foodborne illness?
 - > **B. 250**
 - > More than 250 pathogens and toxins are known to cause foodborne illness. Nearly all of them can cause an outbreak. The top five pathogens contributing to domestically acquired foodborne illnesses are Norovirus, *Salmonella*, *Clostridium perfringens*, *Campylobacter* and *Staphylococcus aureus*

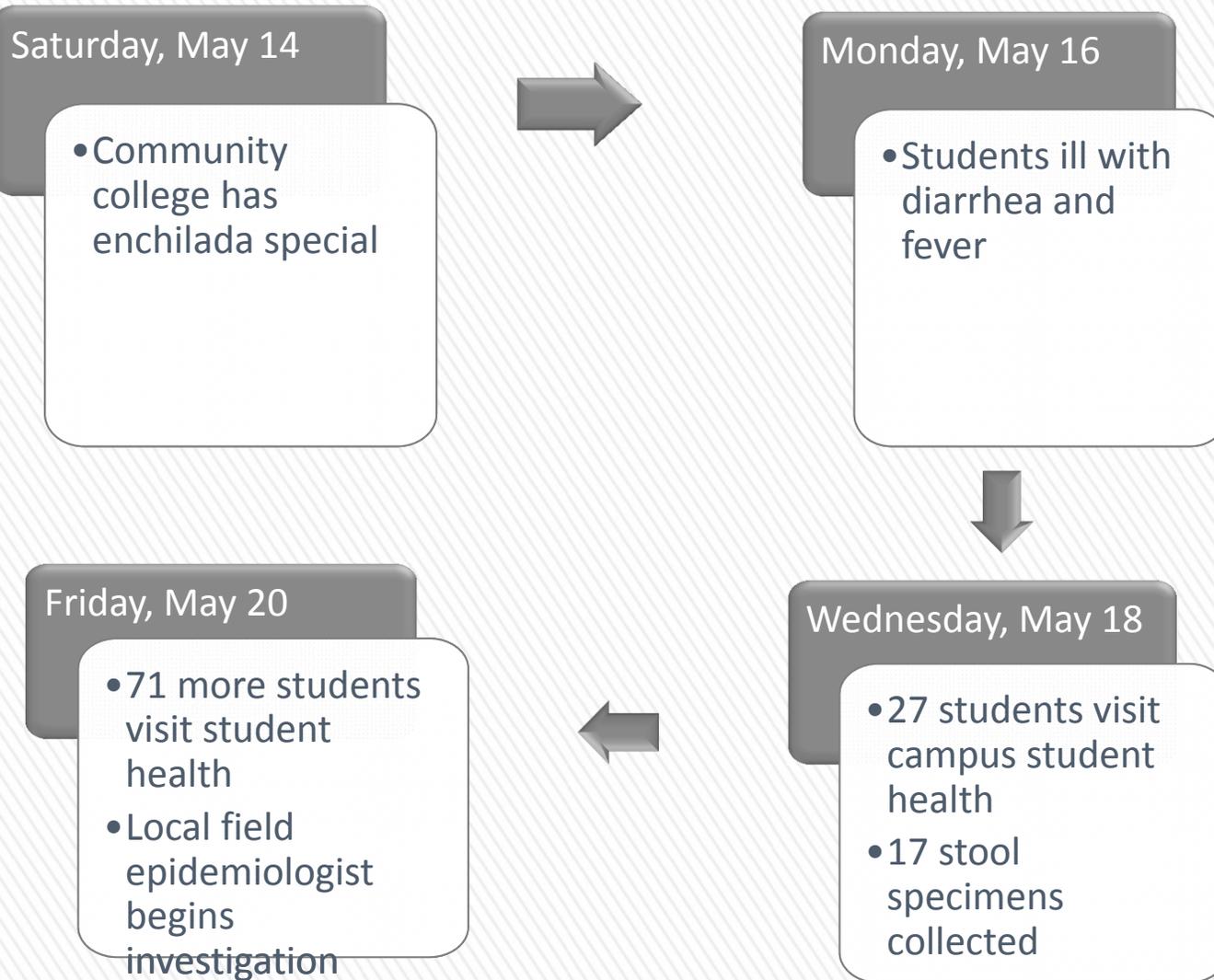
Onset of Illness : Burleigh County, North Dakota



What are hypothesis-generating interviews?

- » Epidemiologists interview persons who are ill to find out where and what they ate in the days or weeks before they got sick.
- » Ask about what and where the ill people ate in the period before they got sick, their shopping habits, travel history and other relevant information.
- » If the exposure occurred at a restaurant, hotel or catered event, for instance, interviews will focus on the menu items prepared, served or sold there. If there is no obvious place of exposure, investigators may use a standard questionnaire, also known as a 'shotgun' or 'trawling' questionnaire.

Onset of Illness : Morton County, North Dakota



Onset of Illness : Campbell County, South Dakota

Monday, May 23

- Supervisor of microbiology lab noticed high numbers samples positive for *Salmonella*



Tuesday, May 24

- Supervisor reached out to other branches
- 4 of 5 seeing significant increase in samples submitted



Wednesday, May 25

- Cultures sent to the state public health laboratory for serotyping confirmation and Pulsed Field Gel Electrophoresis (PFGE).

What is PFGE?

- » Standardized molecular subtyping using PFGE (Pulsed Field Gel Electrophoresis) helps to further specify or differentiate Salmonella (or other organisms).
- » Each type of bacteria has unique DNA which, when cut with one or more restriction enzymes, results in a pattern of bands. This process creates a banding pattern or “fingerprint”.
- » After a PFGE pattern is generated, the image is uploaded to PulseNet, which is a national network of public health and food regulatory agency laboratories. The PulseNet team match bacterial PFGE patterns from different states.

What is PFGE?

- » Although PFGE patterns are quite specific, some patterns are more commonly observed than others. In order to identify a potential outbreak, it is important to know the “baseline” – the frequency with which a particular pattern is observed. The more unique or unusual a pattern is, the greater the likelihood that an increased prevalence may signal an outbreak.

Developments

- » Onset of illness (illness in two counties in one state and another state)
- » Stool samples collected
- » School nurse contacts Burleigh County health department
- » Hypothesis-generating interviews begin
- » Multiple clinical labs see increase in sample submission; detect *Salmonella*
- » Local newspaper reports story

Onset of Illness: Timeline

| | Saturday May 14 | Sunday May 15 | Monday May 16 | Tuesday May 17 | Wednesday May 18 | Thursday May 19 | Friday May 20 |
|---------------------------|--|------------------|--------------------------------|-------------------|--|--------------------|--------------------------------|
| ND, Burleigh County | Little league ate at Mexican Restaurant | | 33 people become ill | | | | Epidemiologic investigation |
| ND, Morton County | Enchilada Special | | 98 people become ill | | | | Epidemiologic investigation |
| SD, Campbell County | | | High specimen numbers noted | | Positive <i>Salmonellas</i> sent to State public health lab | | |

Questions for Laboratorians

- » Do private laboratories have processes to further submit confirmed isolates to the State lab for serotyping and PFGE analysis? Is this a matter of routine for foodborne pathogens?
- » Who is responsible for monitoring for significant increases in the number of samples submitted or specific tests ordered, as a possible signal detection system? What happens if this type of increase is observed? Who is alerted?
- » If the number of specimens submitted exceeds the capacity of the laboratory, what actions are taken to ensure timely testing? What plans do you have for surge capacity?
- » What is the timeline (average number of days) from receiving a specimen to culture, to confirming the results, to serotyping and PFGE analysis, to posting to PulseNet?

Questions for Nurses

- » If you suspect a foodborne illness or infectious disease is affecting students or teachers in your district, what is your standard process for follow up?
- » Do you know if schools in your district have a standard operating procedure or a crisis management plan to handle a foodborne illness outbreak in their school?

Questions for Epidemiologists

- » When and how would you be made aware of an outbreak or an increase in isolations for a particular pathogen among your population?
- » What are your processes and procedures for evaluating the trigger information you receive and allocating resources to investigate or follow up?
- » If you were in Burleigh or Morton County, would your policies have resulted in an investigation based on the information in the module?

Questions for Epidemiologists

- » When you are aware of a communicable disease situation, what system(s) do you have to communicate with the clinical community to raise awareness of the situation and increase the speed of response?
- » What if the kids on the baseball team had not had access of medical care? How would the lack of cluster information and epidemiologic data impact the overall investigation?
- » At this stage, is your organization providing information to the public information officers?

Questions for Environmental Health

- » In a foodborne illness outbreak, what is the role and responsibility of your agency? Are there processes and procedures for you to execute that role?
- » What would you be doing in the early stages of a food-borne outbreak, when there are clinical cases of a foodborne pathogen but no implicated food?
- » What would you do if a parent of one of the sick children brought you some of the leftover food from the Mexican Restaurant to test for foodborne pathogens?

Questions for Public Information Officers

- » When does a public information officer become involved in a foodborne outbreak?
- » At the beginning of a potential foodborne outbreak, would the epidemiologists, laboratorians or regulatory agencies be communicating with you proactively? If so, which ones?
- » How do you coordinate public comments between your different agencies and organizations involved?
- » At the beginning of an outbreak, which organization has the lead for releasing public information?

Identification of Common Exposure

» Review

- > Onset of illness (illness in two counties in one state and another state)
- > Stool samples collected
- > School nurse contacts Burleigh County health department
- > Hypothesis-generating interviews begin
- > Multiple clinical labs see increase in sample submission; detect *Salmonella*
- > Local newspaper reports story

| | Saturday May 14 | Sunday May 15 | Monday May 16 | Tuesday May 17 | Wednesday May 18 | Thursday May 19 | Friday May 20 | |
|---------------------------|---------------------------------------|------------------|--------------------------------|-------------------|--|--------------------|--------------------------------|--------------------------------|
| ND, Burleigh County | Little league ate at Restaurant | | 33 people become ill | | | | Epidemiologic investigation | |
| ND, Morton County | Enchilada Special | | 98 people become ill | | | | | Epidemiologic investigation |
| SD, Campbell County | | | High specimen numbers noted | | Positive <i>Salmonellas</i> sent to State public health lab | | | |

Identification of Common Exposure: Burleigh County, North Dakota

Sunday, May 22

- Epidemiologists continue hypothesis-generating interviews.

Monday, May 23

- Salmonella isolated from first 12 stool specimens. Sent to state public health lab for serotyping and PFGE.

Wednesday, May 25

- Environmental health professionals investigate Restaurant A.
- Local public health unit representative holds a media briefing.

Tuesday, May 24

- Results of hypothesis-generating interviews analyzed. New questionnaire developed.
- Epidemiologists contact local environmental health with possible association to Restaurant A

Identification of Common Exposure: Morton County, North Dakota

Sunday, May 22

- 29 hypothesis-generating interviews
- 33 more students reported to student health. 11 stool samples obtained.
- 17 of initial stool samples were positive for *Salmonella*.

Monday, May 23

- Physician at student health informed local field epidemiologist of lab results.
- College administration issued notice to students about illnesses and issued press statement.
- College foodservice director conducted internal investigation.

Tuesday, May 24

- Epidemiologist informed environmental health about the outbreak and possible origins in the school cafeteria.
- Environmental health started to plan investigation at college cafeteria.

Identification of Common Exposure: Campbell County, South Dakota

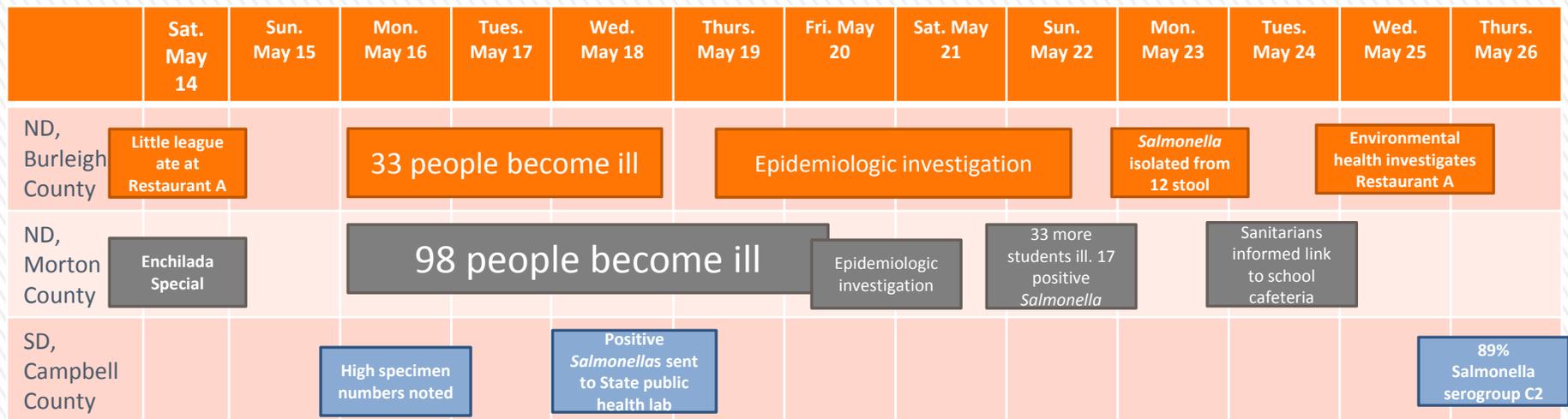
Thursday, May 26

- 89% of Salmonella identified as serogroup C2.
- Manager of lab called the state public health lab.
- Lab informed epidemiologists, alerted the possibility of a *Salmonella* outbreak.

Developments

- » Analysis of Little Leaguers and other Burleigh County victims' hypothesis-generating interviews points to Restaurant A.
- » Doctors in Burleigh County contacts health department after seeing spike in patients with Salmonellosis.
- » Hypothesis-generating interviews of college students in Morton County begin. Cafeteria food is suspected.
- » Private lab in Campbell County in SD notes the unusual increase in *Salmonella* of the same serogroup (C2) and contacts the State lab.

Identification of Common Exposure: Timeline



Questions for Laboratorians

- » How are priorities assigned when the lab is handling an increased workload with some possibly related cases?
- » Do you have partner organizations who can assist with surge capacity? Is the FERN laboratory network a resource for surge capacity? If so, how do you engage with that resource?
- » In Campbell county, the management at the private clinical lab contacted the local public health lab. Is this typical procedure? Are there formal relationships between public and private labs?

Questions for Nurses

- » If you were informed that the food in a school cafeteria located in your district may be linked to an ongoing outbreak, who would you contact for advice on what action to take? Would you contact the school to make recommendations, such as not serving certain foods or closing the cafeteria and serving only pre-packaged foods, or hygiene practices to limit spread of illnesses?

Questions for Epidemiologists

- » In your organization, with limited budgets and human capital, please describe how the decision is made to allocate resources to follow up on apparent increases in clinical cases of foodborne pathogens.
- » What would you be doing if you first became aware of the cluster of illnesses? If you would consider an investigation, who would undertake the investigation and analysis if a similar outbreak were to occur in your jurisdiction. Would you communicate with others within your jurisdiction?

Questions for Epidemiologists

- » How systematic is the collaboration between your organization and the laboratories to influence prioritization of work? What rules or processes govern this relationship? How do you communicate with the public health laboratory if there is a disease outbreak and dialogue is necessary for rapid results?
- » Do you have a standard template questionnaire or will you develop one specific to the event data that you have at hand? How do you determine the type of questionnaire to use for hypothesis generation?
- » How do you work with your public information officer when you need to get a message out or respond to inquiries?

Questions for Environmental Health

- » What is your action plan once you receive word that there is a *Salmonella* outbreak, but the source of the *Salmonella* is not yet identified?
- » Are there any resources to research the most common food sources of *Salmonella*?
- » Would you screen employees in foodservice for *Salmonella*?

Questions for Public Information Officers

- » When the public is clamoring for the “answers” and advice about how to protect themselves during an outbreak and the source is ambiguous, how do you present the information that is known and use it as a teachable moment to the public that it takes time to conduct these investigations, for laboratory analysis, etc.?
- » What would the goal for using media be at this point (i.e., additional case finding, educate the public)?

Questions for Emergency Preparedness and Response

- » Would the Department Operations Center (DOC) be operational at this point? Who would make that decision?
- » What role could the DOC play in a foodborne outbreak?

The End

- » Recording of this training can be found at www.ndhealth.gov/disease/GI/training

- » Nurses and EHPs interested in continuing education credit, post-test will be available following the third session on 3/12/2014.
 - > Successfully complete the post-test to receive your certificate.

- » Tomorrow, 3/11/2014 at 8:15 a.m.
 - > Module 3 – Foodservice Investigation
 - > Module 4 – Agency Collaboration