



# Foodborne Disease Outbreak Investigation

COMPUTER-BASED EPIDEMIOLOGIC CASE STUDIES

***These self-instructional, interactive exercises were developed to teach skills in outbreak investigation. The case studies are based on real-life outbreaks and require students to apply their epidemiologic knowledge and practice their public health skills.***

...for public health

practitioners such as  
epidemiologists, infectious  
disease investigators, public  
health nurses, environmental  
health specialists, and  
sanitarians...

***In each case study, students work through an outbreak investigation from beginning to end. Information about the outbreak is revealed gradually. Students must answer questions as they work through the case study. Students can review basic epidemiologic and public health concepts and explore topics of interest through special lessons. Although they are designed to be self-instructional, the case studies also can be used in the classroom as a group exercise, as home work, or as a test to reinforce concepts covered in class.***

#### **Target Audience and Prerequisites**

These case studies were developed for public health practitioners, such as epidemiologists, infectious disease investigators, public health nurses, environmental health specialists, sanitarians, veterinarians, and MPH students who have knowledge of basic epidemiologic and public health concepts. Students should have successfully completed training in descriptive epidemiology, epidemic curves, study design, measures of association, and outbreak investigation.

#### **Continuing Education**

Students can earn continuing education credits for completing selected case studies, including credits for continuing medical education (CMEs), continuing nursing education (CNEs), continuing education contact hours for health education specialists (CECHs), continuing education units for sanitarians and others (CEUs), and continuing veterinary education (AAVSB-RACE). To receive credit, students must register for the course and complete the evaluation and exam online at [www.cdc.gov/tceonline](http://www.cdc.gov/tceonline).

#### **Course Developers**

The case studies were created by Jeanette Stehr-Green, MD, and Nancy Gathany, MEd, in collaboration with the original investigators and experts from the Centers for Disease Control and Prevention, the Council of State and Territorial Epidemiologists, the U.S. Department of Agriculture, and the U.S. Food and Drug Administration.

#### **For More Information**

The case studies can be purchased from the Public Health Foundation (PHF) or downloaded from the Epidemiologic Case Studies website. Because the case studies are in the public domain, you can make copies and share them with others.



#### **Computer Requirements**

Any of the following operating systems will execute the case studies: Windows 95®, Windows 98®, Windows NT 4.0®, Windows 2000®, Windows XP®, or Windows Vista®. A complete list of the requirements for each case study is available at [www.bookstore.phf.org](http://www.bookstore.phf.org) or [www.cdc.gov/epicasestudies](http://www.cdc.gov/epicasestudies).



Purchase the case studies on CD from PHF. Call 877-252-1200 or go to [bookstore.phf.org](http://bookstore.phf.org)

Download the case studies at no cost from [www.cdc.gov/epicasestudies](http://www.cdc.gov/epicasestudies)

## Case Study Series

Each computer-based, epidemiologic case study was designed to focus on different learning objectives that complement each other. Students can benefit by completing all four of the case studies.

### Botulism in Argentina

(Course CB3058; released 2002)

Learning objectives include

1. Describe the major steps of an outbreak investigation.
2. Critique a press release about an outbreak.
3. Construct and interpret an epidemic curve.
4. Given the leading hypothesis in an outbreak, design a draft questionnaire.
5. Calculate and interpret the measure of association for a cohort study.
6. List activities for an environmental health assessment related to a food implicated in an outbreak investigation.
7. Given the details on the source of an outbreak, develop short- and long-term interventions.
8. Describe measures that can be used to monitor the success of an intervention.
9. Describe the occurrence, signs and symptoms, and control of foodborne botulism.

### Gastroenteritis at a University in Texas

(Course CB3076; released 2005)

Learning objectives include

1. Describe the appropriate response to a potential foodborne illness complaint.
2. List disease categories to include in the differential diagnosis of an acute gastrointestinal illness, given clinical information.
3. List three important considerations when collecting stool specimens from patients.
4. Outline a hypothesis on the source of an outbreak, given information about the disease, the descriptive epidemiology of cases, and results of hypothesis-generating interviews.
5. Select an epidemiologic study type to investigate the source of an outbreak, given circumstances around the outbreak.
6. Interpret epidemiologic study findings.
7. Identify information to include in an outbreak investigation report.
8. Describe the occurrence, transmission, and control of norovirus.

### *E. coli* O157:H7 Infection in Michigan

(Course CB3075; released 2004)

Learning objectives include

1. Determine whether an increase in reports of a disease represents an outbreak.
2. Write a case definition for an epidemiologic investigation.
3. Summarize the descriptive epidemiology of cases in an outbreak.
4. List questions for in-depth interviews of case-patients to generate hypotheses about the source of an outbreak.
5. Outline key considerations in designing a case-control study.
6. Analyze the results of a case-control study.
7. List detailed product information that will facilitate traceback of a food implicated in an outbreak.
8. Describe the unique role the laboratory can play in an outbreak investigation.
9. Describe infection with *E. coli* O157:H7.

### *Salmonella* in the Caribbean

(Course CB1167; released April 2008)

Learning objectives include

1. Describe the epidemiology of infection with *Salmonella*.
2. List the steps that might be used to investigate and address a public health problem.
3. Describe the desired characteristics of a surveillance system for a disease, given the objectives of the surveillance system.
4. Analyze figures that display public health data.
5. Interpret the results of a case-control study.
6. Discuss the uses of subtyping information in foodborne disease investigations.
7. Assist in the evaluation of a surveillance system.
8. Discuss how surveillance data can be used to identify and characterize public health problems and monitor control measures.

...excellent way to do continuing education without the cost of travel and lodging. The case studies are innovative and useful for people who want to understand how foodborne outbreak investigations are conducted...