

Section VI, Chapter G: Food and Waterborne Disease Surveillance and Investigation

Objective

The objective of the Food and Waterborne Disease Surveillance and Investigation Program is to perform surveillance for the detection of food and waterborne diseases, to investigate food and waterborne disease outbreaks, and to educate staff about methods and procedures used in outbreak investigations. In addition, the staff of the program component provides an understanding of the etiology of the primary pathogens that cause the disease outbreaks. The DOH is committed to providing the public and other health care professionals and interested parties information regarding food and waterborne diseases, outbreaks, and their prevention.

Narrative Description

- a. Changing patterns of individual and global economic behavior have complicated the public health control of food and waterborne diseases in recent years and have accentuated the need for an improved public health infrastructure to detect illness. This has been recognized in Florida and was one of the considerations that led to the creation of eight regional food and waterborne illness epidemiologists in the Division of Disease Control and Health Protection, Bureau of Epidemiology. The job of the Regional Environmental Epidemiologists is to assist county health departments in the investigation of disease outbreaks.
- b. DOH continues its ongoing responsibility and authority for epidemiological investigation in public food establishments as well as its own facilities. DOH retains regulatory jurisdiction over public food service establishments in institutions such as hospitals, schools, nursing homes, prisons, adult congregate living facilities, day care, etc. The responsibility for routine, regulatory inspections of all other public food establishments was transferred from DOH to the Department of Business and Professional Regulation (DBPR) and to the Florida Department of Agriculture and Consumer Services (FDACS) through 1992 legislation.
- c. The development of an inclusive reporting system was a major concern as the degree of reporting equated to the degree of surveillance and investigation. Food and waterborne disease outbreaks have always been much underreported so an effort was needed to achieve better reporting at an earlier date in the outbreak process.
- d. Florida has a unique structure in place for food and waterborne disease surveillance and investigation with eight regional food and waterborne illness epidemiologists to assist the CHDs in the investigation of disease outbreaks. This program is designed to address tasks at the county, regional, and state levels. The county health departments maintain food and waterborne illness complaint logs and perform outbreak investigations with an epidemiological team composed of an environmental health professional, a nurse, and an epidemiologist. In addition to the knowledge and experience the Regional Environmental Epidemiologists bring to the program, they provide both training and technical assistance in outbreak investigations. The Regional Environmental Epidemiologists assist with report writing, questionnaire development, and statistical analysis.

Authority

- a. Section 381.006 (10), FS, Addresses the environmental epidemiology function of DOH, including the investigation of food and waterborne disease.
- b. Subsection 509.032 (2) (d) and 509.035 (1) (a), FS. The first section addresses the adoption of rules by DBPR providing the standards and requirements for “cooperating and coordinating with DOH in epidemiological investigations.” The second section addresses the coordination between DBPR and DOH on closures of establishments due to a public health threat.
- c. Rules 64D-3.029, 64D-3.040 (4), (6), (8) & 64D-3.041, FAC. Rule 64D-3.029 is known as the reportable diseases and conditions rule and lists those diseases that are reportable in Florida, many of which are food and waterborne. The list also includes reporting of food and waterborne disease outbreaks as well as individually confirmed cases of illness. Subsections 64D-3.040 (4) and (6) address the exclusion of food workers in certain situations and subsection 64D-3.040 (8) refers to the posting of warnings regarding raw oyster consumption in restaurants. Rule 64D-3.041 addresses epidemiological investigations.
- d. Interagency Agreement between the Department of Business and Professional Regulation and the Department of Health. This agreement clarifies the duties and responsibilities of DOH and DBPR with regard to conducting epidemiological investigations in public food service establishments licensed by DBPR.
- e. Memorandum of Understanding between the Florida Department of Agriculture and Consumer Services (FDACS) and the Department of Health. This agreement clarifies the duties and responsibilities of DOH and FDACS with regard to conducting epidemiological investigations in establishments regulated by FDACS.

Standards and Reporting Requirements

- a. Each county health department will maintain a log of food and waterborne disease complaints. This log can be a hard copy or computerized (the Regional Environmental Epidemiologist can help with setting up a computer file on request). The log will be reviewed on at least a weekly basis by health department staff for surveillance purposes (to detect outbreaks).
- b. Each county health department will have a written procedure describing the handling of food and waterborne disease complaints (when and which staff will be used to investigate the incident).
- c. Each county health department will forward complaint information within 24 hours of receipt to the agency of jurisdiction (FDACS, DBPR, DEP, DCF, AHCA, and APD) via fax, e-mail or phone, without identifying information to protect patient confidentiality. All complaints should be sent to the REE for entry into the centralized tracking system.

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- d. Each county health department will have an epi team to investigate food and waterborne disease outbreaks and significant or unusual single food and waterborne disease complaints as described in this section.
- e. At the end of each food or waterborne disease outbreak, a final report will be written and sent within 30 days of the end of the investigation to the Regional Environmental Epidemiologist. The statewide coordinator will review and send reports to the state and federal agencies of concern.
- f. When assistance is needed (whether it is for information, training, or technical assistance) during a food or waterborne disease outbreak investigation, the county health department will call their Regional Environmental Epidemiologist or, if they are not available, the statewide coordinator.

Procedures

Planning – Planning makes all the difference in the smooth operation of a food and waterborne disease outbreak investigation.

- a. Designate the county health department epidemiological investigation team. It should consist of one nursing professional, one epidemiologist (if available) and one environmental health professional.
- b. Designate which forms are being used by the county health department and which computer programs are being used for epidemiological analysis (e.g., EpiInfo). A list of forms for use in food and waterborne outbreak investigations is on the bureau webpage.
- c. Establish a log for documenting complaints and reports of foodborne illnesses. Establish when an investigation needs to be made, and establish how and when each foodborne epidemiologist team member will be notified once it is determined that an outbreak has occurred.
- d. Establish who will take the lead in an outbreak investigation.
- e. Determine who will be the media contact (this could be the lead person, but also could be someone else, depending on the county health department policy for media contacts).
- f. Determine how, when, and who will contact the Regional Environmental Epidemiologist when it is decided that an outbreak is suspected.
- g. Establish specific duties for each team member to address in outbreak situations:
 - i. onsite visits;
 - ii. lab samples – clinical, food, and water;
 - iii. study design/questionnaire development;

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- iv. collecting case histories;
 - v. organization of data; and
 - vi. analyzing data.
- h. Determine who notifies involved agencies (e.g., DBPR, FDACS, and DEP) and when.
 - i. Designate who is responsible for writing the report and supplying the REE with the information to complete CDC Form 52.12 or 52.13. All information should be sent to the REE.
 - j. Determine who will receive copies of the written reports.
 - k. Establish and maintain a foodborne outbreak investigation kit in a strategic location. Each county health department should have a centrally located, readily accessible kit assembled with appropriate materials and equipment for investigating food and waterborne illness outbreaks (complete food and water kits were distributed to all county health departments in 2003). These kits should be prepared in advance and maintained in ready-to-use condition. Glass jars and sampling implements will be kept sterile. It is recommended that an inventory be conducted at least twice a year, preferably quarterly. Missing materials are to be replaced and existing equipment will be re-sterilized every six months. A smaller kit should also be prepared with a sampling of necessary equipment and issued to an individual assigned to on-call duty. When performing sample collections, use sterile technique, complete laboratory forms and sampling logs. When necessary complete chain-of-custody forms. Subsequent litigation is possible and custody of records is important. Please contact your Regional Environmental Epidemiologist or, if unavailable, the Food and Waterborne Disease Program Coordinator at (850) 245-4116 for technical assistance and training (see Appendix A for kit list).
 - l. Write a food and waterborne disease protocol (see template in Appendix B).
 - i. Follow procedures for investigating food and waterborne disease outbreaks and complaints as taught in DOH training: How to Investigate Foodborne Illness Outbreaks and How to Investigate Waterborne Disease Outbreaks (see checklist and sample questionnaires in Appendix C-E). One questionnaire is in EpiInfo format. Investigation information is available on the bureau's webpage. At the county health department's request, your Regional Environmental Epidemiologist is available to present training to both large and small county health department groups on any of these subjects.
 - ii. Send summary reports to the Regional Environmental Epidemiologist along with the information to complete the CDC Form 52.12 or 52.13. The Regional Environmental Epidemiologist will forward copies to the Food & Waterborne Disease program Coordinator. The Coordinator will review the reports for completeness and accuracy and forward them on to all agencies with jurisdiction over the outbreak source.

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Communications – During any food or waterborne disease outbreak or complaint investigation, prompt communications are of the utmost importance.

- a. Even if the county health department does not require assistance from the Regional Environmental Epidemiologist, make sure they are notified within 24 hours in the event of a food or waterborne disease outbreak or unusual complaint.
- b. Make sure that your supervisors and county health department officer, Environmental Health Chief and Nursing Director are kept aware of all developments in a food or waterborne disease outbreak investigation as they occur. This can be done via email, face-to-face briefings, or conference calls.
- c. Make sure that your Regional Environmental Epidemiologist is also kept informed regarding outbreak information. Your Regional Environmental Epidemiologist will ensure that the Food and Waterborne Disease Coordinator in the Bureau of Epidemiology is kept informed.
- d. The Food and Waterborne Disease Coordinator will serve as liaison with DOH administrators and other state and federal agencies.

Special Investigations and Situations

- a. **Vibriosis** When there is consumption of oysters or clams, the following actions should be taken:
 - i. The Food and Waterborne Disease Coordinator or designee will function as interagency liaison and will provide all information from this investigation to the Division of Aquaculture at FDACS.
 - ii. As soon as you become aware of a case of vibriosis with shellfish consumption, call or email your Regional Environmental Epidemiologist. If your Regional Environmental Epidemiologist is not available, call the Food and Waterborne Disease Coordinator at the Bureau of Epidemiology in Tallahassee at (850) 245-4116.
 - iii. With the collaboration of the agency of jurisdiction, the CHD epidemiology team should immediately begin to obtain information regarding location of oyster or clam purchase and consumption and remaining tags of the implicated oysters or clams. As soon as tags are obtained, fax copies to your Regional Environmental Epidemiologist. Where invoices and receipts are available, those should also be collected.
 - iv. Observe oyster/clam storage temperatures and oyster/clam handling processes where possible.
 - v. Ascertain if any oysters or clams from the same lot are still available. If so, obtain a dozen and ship them to the Bureau of Public Health Laboratories in Jacksonville. Consult with your Regional Environmental Epidemiologist regarding packing and labeling.

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- vi. Ensure that the case is entered into Merlin and complete the Seafood Investigation section in Merlin. Attach a copy of the tags/invoices to the case documents in Merlin.
- vii. Other cases of vibriosis that are related to seafood consumption (such as scallops, crabs, finfish, etc.) should still be investigated and the Seafood Investigation section in Merlin should still be completed. However, collection of tags and assessment of temperatures and handling process are not necessary, unless cases are part of an outbreak. If outbreak related, follow outbreak investigation protocols.

b. Exclusions of Ill Food Workers from Work

- i. Consult Rule 64D-3.040, FAC, regarding exclusions for enteric pathogens.
- ii. Consult Rule 64D-3.040, FAC, for Typhoid fever infections.

c. Multi-state/national food and waterborne disease outbreak investigations

- i. The Food and Waterborne Disease Coordinator will serve as liaison with other state agencies, other states, and federal agencies.
- ii. The CHD will proceed as usual with the outbreak investigation.
- iii. Lead CHD investigators may be requested to participate in national conference calls to share the most up-to-date information regarding investigation results.
- iv. Use Council for the Improvement of Foodborne Outbreak Response (CIFOR) guidelines as a reference tool during multi-state outbreak investigations. Hard copies of the CIFOR guidelines were distributed to the CHDs and are available online at:
 - a. <http://www.cifor.us/documents/CIFORGuidelinesforFoodborneDiseaseOutbreakResponse-updated.pdf>

d. Botulism

- i. Any cases of suspected foodborne botulism will be referred immediately to the Merlin case reviewer for foodborne botulism in the Bureau of Epidemiology for differential diagnosis and confirmation.
- ii. The CHD will coordinate the investigation of any cases of foodborne botulism.

e. Single cases of neurotoxic shellfish poisoning, ciguatera, mushroom poisoning, chemical poisoning or other unusual food or waterborne illness

- i. These are to be fully investigated as though they were a food or waterborne disease outbreak.

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f. Legionella cases and outbreaks

- i. Follow the Guidelines for Surveillance Investigation and Control of Legionnaire's Disease in Florida: <http://www.floridahealth.gov/diseases-and-conditions/legionnaires-disease/documents/gsi-legionella-update-final.pdf>

g. Primary Amebic Meningoencephalitis (PAM)

- i. Call your Regional Environmental Epidemiologist immediately to notify them. Use the information found at this website for risk communication: <http://www.floridahealth.gov/diseases-and-conditions/food-and-waterborne-disease/waterborne-links.html>
- ii. Use this form for case reporting: <http://www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/documents/crf-amebic-meningo.pdf>

h. Harmful Algal Blooms (HABs)

- i. Single cases of human illness potentially associated with a harmful algal bloom should be fully investigated. Investigations will be coordinated by the toxicology group and the FWDP.

i. Epi Aids

- i. With the eight Regional Environmental Epidemiologists and the many well-trained CHD staff, there will not be much occasion to request an Epi Aid (see definition of Epi Aid in (2) below).
- ii. An Epi Aid is an investigator with the CDC (usually a CDC EIS Officer) who is sent into the state to take over the outbreak investigation. Requests for an Epi Aid must come from the CHD through the Food and Waterborne Disease Coordinator. CDC cannot send anyone into the State of Florida to investigate unless they are specifically invited to do so by the State Epidemiologist.
- iii. If there is an unusual situation (e.g., emerging pathogen about which there is little information, unusual source/vehicle, multi-state involvement) in a food and waterborne disease outbreak and the CHD, along with the Food and Waterborne Disease Coordinator, decide that additional assistance is needed, the CHD may request an Epi Aid. This request must be discussed with the Food and Waterborne Disease Coordinator who will then discuss the appropriateness of the request with the Chief of the Bureau of Epidemiology who will get the approval of the State Epidemiologist. Only after the State Epidemiologist has approved the EpiAid, will the Food and Waterborne Disease Coordinator contact the Centers for Disease Control and Prevention (CDC).

j. Forms Used (a complete list is available on the bureau's webpage)

- i. CDC 52.13 – Investigation of a Foodborne Outbreak

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- ii. CDC 52.12 – Waterborne Diseases Outbreak Report
- iii. Food and Waterborne Outbreak Summary Report Form
- iv. DH 4073 – Product Complaint Incident Form
- v. DH 4045 – Stop Sale Notice
- vi. CDC 52.79 – Cholera and Other Vibrio Illness Surveillance Report
- vii. CDC 50.34 – Laboratory Examinations Requested
- viii. DH 1847 – DOH Laboratory Request Form
- ix. E. coli Case History Report
- x. Cyclosporiasis Case Report Form
- xi. Record of Ciguatera Intoxication
- xii. CDC 53.1 – Viral Hepatitis Case Record
- xiii. Primary Amebic Meningoencephalitis Case Report Form
- xiv. Cryptosporidium Risk Factor Questions

k. Relationship to Other Department of Health Units

- i. The CHDs will strive to maintain complete food and waterborne disease complaint logs and monthly outbreak investigation data. Monthly outbreak data will be provided to the designated Regional Environmental Epidemiologist by the 15 of the following month. The Regional Environmental Epidemiologists and the Bureau of Epidemiology will provide information, training, and technical assistance to the CHDs on request. The Bureau of Epidemiology will also provide information and coordinate related activities with all other programs within the Bureau of Epidemiology and the Bureau of Environmental Health, as well as the Division of Disease Control and Health Protection.

Relationship to other Agencies

- I. Department of Business and Professional Regulation – regulation of
 - i. Restaurants, caterers, mobile food carts and some temporary events.
- m. Florida Department of Agriculture and Consumer Services

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- i. Division of Food Safety – regulation of retail markets, delis in markets, food processors, and fast food establishments associated with gas stations.
 - ii. Division of Aquaculture – regulation of the molluscan shellfish program (oysters, clams, mussels, scallops (whole or with roe on)).
- n. Department of Environmental Protection – regulation of municipal water systems and wastewater.
- o. The Department of Children and Families responsibilities – Prior to
 1. licensing/opening a group care establishment that depends on a water
 2. supply regulated by Chapter 64E-8, FAC, and/or wastewater system
 3. regulated by Chapter 64E-6, FAC, approval is required from the CHD
 4. for the following: verify that the permit has been issued for the drinking water well and/or onsite sewage wastewater treatment and disposal system.
- p. The Agency for Persons with Disabilities responsibilities - Prior to
 1. licensing/opening a group care establishment that depends on a water
 2. supply regulated by Chapter 64E-8, FAC, and/or wastewater system
 3. regulated by Chapter 64E-6, FAC, approval is required from the CHD
 4. for the following: verify that the permit has been issued for the drinking water well and/or onsite sewage wastewater treatment and disposal system.
- q. The Agency for Health Care Administration (AHCA) responsibilities –
 1. based on changes to oversight of foodservice operations for hospitals
 2. and nursing homes emphasis will be placed on coordination of approvals
 3. prior to licensure for these facilities, prior to licensing/opening a
 4. hospital/nursing home establishment that depends on a water supply
 5. regulated by Chapter 64E-8, FAC, and/or wastewater system
 6. regulated by Chapter 64E-6, FAC, approval is required from the CHD
 7. for the following: verify that the permit has been issued for the drinking water well and/or onsite sewage wastewater treatment and disposal system.

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- r. Food and Drug Administration – regulation of foods other than meat and poultry and recalls.
- s. United States Department of Agriculture – regulation of meat, poultry and egg products and recalls of meat and poultry.
- t. Centers for Disease Control and Prevention – technical assistance, disease etiology and investigation, multi-state/nationwide food and waterborne disease outbreak coordination.
- u. Environmental Protection Agency – federal drinking water and wastewater regulations and regulation of pesticides.

v. Useful Publications

- i. *Control of Communicable Diseases Manual*, 20th Edition, 2015
David L. Heymann, MD, Editor
American Public Health Association
800 I Street, NW
Washington, D.C. 20001-3710
- ii. *Procedures to Investigate Foodborne Illness*, 5th Edition, 1999
Prepared by the Committee on Communicable Diseases Affecting Man, Food Subcommittee
International Association for Food Protection
6200 Aurora Avenue, Suite 200W
Des Moines, IA 50322-2863, USA
- iii. *Procedures to Investigate Waterborne Illness*, 2nd Edition, 1996
Prepared by the Committee on Communicable Diseases Affecting Man, Food Subcommittee
International Association of Milk, Food and Environmental Sanitarians, Inc. (IAMFES)
P.O. Box 701
Ames, IA 50010
- iv. “Foodborne Illness Acquired in the United States-Major Pathogens”
Elaine Scallan, et al.
Emerging Infectious Diseases, January, 2011
http://wwwnc.cdc.gov/eid/article/17/1/p1-1101_article
- v. *Diseases Transmitted by Foods: A Classification and Summary*, 2nd Edition, 1982 (may be out of print)
Frank L. Bryan, Ph.D., M.P.H.
HHS Publication No. (CDC) 83-8237
U.S. Centers for Disease Control and Prevention
U.S. Department of Commerce
Springfield, VA 22161
National Technical Information Service

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- vi. *Guidelines for Foodborne Outbreak Disease Response*, Second Edition
2014 Council to Improve Foodborne Outbreak Response
<http://www.cifor.us/CIFORGuidelinesProjectMore.cfm>
- w. Websites**
- i. DOH Food and Waterborne Disease Program website:
<http://www.floridahealth.gov/diseases-and-conditions/food-and-waterborne-disease/index.html>
- ii. Florida Integrated Food Safety Center of Excellence:
<http://foodsafetyflorida.org/>
- iii. *Foodborne Pathogenic Microorganisms and Natural Toxins Handbook 2012 - The "Bad Bug Book"*: includes fact sheets and links on many food and waterborne pathogens
<http://www.fda.gov/Food/FoodborneIllnessContaminants/CausesOfIllnessBadBugBook/ucm2006773.htm>
- iv. Recalls:
FDA - <http://www.fda.gov/Safety/Recalls/EnforcementReports/default.htm>
FSIS - http://www.fsis.usda.gov/FSIS_Recalls/index.asp
- v. Gateway to Government Food Safety Information
<http://www.foodsafety.gov/>
- vi. USDA Food Safety and Inspection Service Homepage
<http://www.fsis.usda.gov/>
- vii. FDA Consumer Advice <http://www.fda.gov/ForConsumers/default.htm>
- viii. FDA Seafood Consumer Advice:
<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm077331.htm>
- ix. FDA Mercury in Fish and Shellfish:
<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm110591.htm>
- x. CDC: Food and waterborne and other diseases - fact sheets
<http://www.cdc.gov/DiseasesConditions/>
<http://www.cdc.gov/foodsafety/>
- xi. CDC: Foodborne infections – general information
<http://www.cdc.gov/foodsafety/foodborne-germs.html>
- xii. CDC: A-Z Index for Foodborne Illness
<http://www.cdc.gov/foodsafety/diseases/>