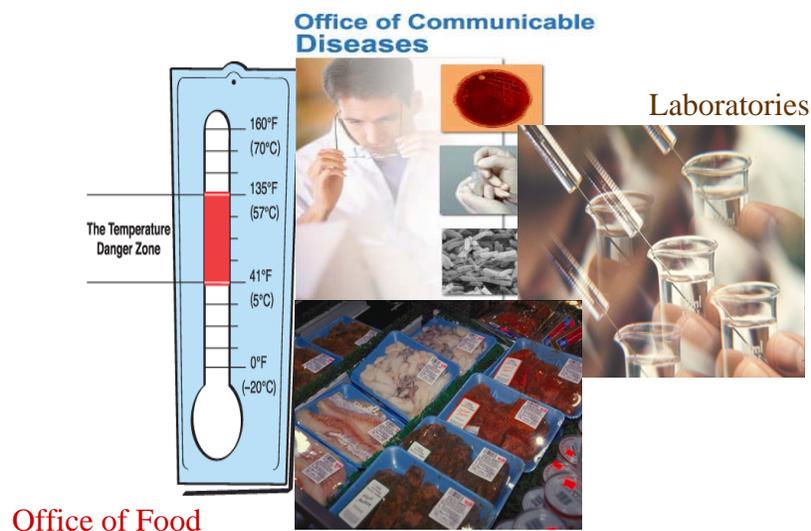


# Guidelines for Investigating Foodborne Illness Outbreaks



**Rhode Island Department of Health  
(HEALTH)  
Office of Communicable Diseases  
Office of Food Protection  
Division of Laboratories  
2007**



# *Guidelines for Investigating Foodborne Illness Outbreaks*

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**The Rhode Island Department of Health (HEALTH)**  
Office of Communicable Diseases,  
Office of Food Protection,  
Division of Health Laboratories

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**Approval signatures:**

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Date 9/10/07

Medical Director, Office of Communicable Diseases *M. Bondy*

Date 7-5-07

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Date 9/18/07

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|---|--|
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| 3 <a href="#">Brucellosis</a>             | 12 <a href="#">Salmonellosis</a>           |
| 4 <a href="#">Campylobacter</a>           | 13 <a href="#">Shigellosis</a>             |
| 5 <a href="#">Cholera</a>                 | 14 <a href="#">Trichinellosis</a>          |
| 6 <a href="#">Cryptosporidiosis</a>       | 15 <a href="#">Typhoid Fever</a>           |
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## Section 1 Introduction

A foodborne **illness** is considered to be any illness that is related to food ingestion; gastrointestinal tract symptoms are the most common clinical manifestations of foodborne illnesses. Microorganisms and their toxins, marine organisms and their toxins, fungi and their related toxins, and chemical contaminants can cause foodborne illnesses. A foodborne illness **outbreak** is defined as an incident in which two or more persons experience a similar illness after ingestion of a common food that has been implicated as a likely source of illness by epidemiological analysis.

Public health agencies are the frontline in protecting the public from foodborne illness associated with improper handling of food or poor hygienic practices in retail food establishments. It is the goal of the RI Department of Health (HEALTH) to quickly and efficiently acquire information of sufficient quantity and quality to identify and prevent the ongoing transmission of a foodborne illness. Towards this goal, it is the mission of HEALTH to include the Office of Food Protection, the Office of Communicable Diseases and the Division of Laboratories in a comprehensive and coordinated illness outbreak response team.

The procedures described in these guidelines cover the initial investigations (environmental and epidemiological) of a foodborne illness; the exchange of data and information associated with an outbreak between and among the three units within HEALTH; and laboratory support for the testing of clinical specimens, and food samples. The Food and Drug Administration (FDA) 2005 Food Code: <http://vm.cfsan.fda.gov/~dms/foodcode.html> and the Rhode Island Department of Health Food Code R-23, 21-27 FOOD: [http://www.health.ri.gov/environment/food/retail/retail\\_food.php](http://www.health.ri.gov/environment/food/retail/retail_food.php) (Appendix P for Chapters 2-2 & 8-5) are the basis for inspection and regulatory compliance activities in Rhode Island.

The purpose of these guidelines is to set forth the roles of the Office of Food Protection, the Office of Communicable Diseases, and the Division of Laboratories for coordinating responses during a foodborne illness outbreak. Accordingly, these guidelines primarily address those individuals among the three units named above, who will be involved in the investigation and response to a foodborne illness outbreak.

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## Section 2

### Rhode Island Department of Health Phone Numbers

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Staff for consultation and assistance related to surveillance and reporting of foodborne diseases

DIVISION/PROGRAM	PHONE NO.	CELL PHONE	PAGER	FAX NUMBER
Dr. David Gifford, Director of Health	222-2231	623-0393	1-800-759-7243 PIN # 8796159	222-6548
<b>Center for Epidemiology</b>	222-2577	After hours: Contact the Administrator on call 272-5952		222-2488
<b>Office of Communicable Diseases</b>				
William Waters, PhD, Associate Director (contact Program staff first)	222-2231	641-8851		222-6548
Utpala Bandy, MD, MPH, State Epidemiologist and Assistant Medical Director	222-2432	639-1888	877-763-5405	222-2488
Donna Costantino, Acting Chief	222-1008	641-2771		222-2488
Toushoua Xiong, Administrator	222-4930	639-5329		
Helen McCarthy PhD, Health Policy Analyst	222-4757			222-2488
Sharon Morrow, RN	222-7550	556-2621		222-2488
Carol Browning, RN	222-7542	862-7099		222-2488
Diane Brady, RN	222-7906			222-2488
Gale Forbes	222-7528			222-2488
Linda Franco, RN	222-3993	323-4682		222-2488
Linda D'Agostino, RN	222-2553			222-2477
Tara Cooper, MPH, Epidemiologist	222-3284			222-2488

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DIVISION/PROGRAM	PHONE NO.	CELL PHONE	PAGER	FAX NUMBER
Leanne Chiaverini, MPH Epidemiologist	222-4756	480-4482		
<b>DIVISION OF PUBLIC HEALTH LABORATORIES</b>	222-5600	<b>After hours: Contact the Administrator on call 272-5952</b>		
Eva King, Ph.D., Associate Director	222-1720	641-5135		222-3332
Ken Jones, Dr PH, Chief Biological Sciences	222-5596	641-0596		222-4572
David Uliss, Ph.D. Chief Forensics	222-5593	641-1253		
Kerry Patterson (Food & Water Micro)	222-5588	641-1959		222-5656
Adam Miller (Food & Water Micro)	222-5588			222-5656
Kristina Migliore (Food & Water)	222-5588			222-5656
Bob Ireland, Ph.D. (Molecular)	222-5598	641-1368		
Deb Ottaviano (Molecular)	222-5538			
Deanna Simmons (Molecular)	222-5538	641-3294		222-5656
Cheryl Campbell (Molecular)	222-5538			222-5656
Cynthia Vanner (Special Pathogens)	222-5586	641-9451		222-4572
Paul Iwuc (Drug Chemistry)	222-5567			
P. Christopher Ellis, PhD (Food Chemistry)	222-5589			
<b>DIVISION OF HEALTH SERVICES REGULATIONS</b>		<b>After hours: Contact the Administrator on call 272-5952</b>		
Donald Williams, Executive Director	222-1600	623-0423		222-3017
<b>OFFICE OF FOOD PROTECTION</b>	222-2749		482-8840	222-4775
Ernest Julian, Ph.D., Office Chief	222-4774	265-3323		222-4775
Ronald Lee, MS (Chief, EHFS)	222-7712	473-6920		222-4775

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<b>DIVISION/PROGRAM</b>	<b>PHONE NO.</b>	<b>CELL PHONE</b>	<b>PAGER</b>	<b>FAX NUMBER</b>
Stephen DiMaio (Supervisor)	222-7729	473-5772		222-4775
John Mullen (Supervisor)	222-7716	265-4619		222-4775
Lillian Berard (Supervisor)	222-7738	265-5187		222-4775
Amanda Boudreault, Acting Senior EHFS	222-7723	473-7048		222-4775
Rosa Morales, Senior EHFS	222-7713	473-5938		222-4775
Kim Seita, Senior EHFS	222-7731	265-7532		222-4775
Thomas Nerney, Compliance S/E Officer	222-7717	440-9406		222-4775
Kimberly Langelo, MPH (Food Defense Coordinator)	222-7719	265-2461		222-4775

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## Section 3

### General Foodborne Disease Outbreak Information

#### 3.1 Definition of Foodborne Disease Outbreak

According to the regulatory definition (2005 FDA Model Food Code), a foodborne disease outbreak is defined as: the occurrence of two or more cases of a similar illness resulting from the ingestion of a common food. The Centers for Disease Control and Prevention likewise defines a foodborne disease outbreak as an incident in which two or more persons experience a similar illness resulting from the ingestion of a common food.

The Rhode Island Department of Health (HEALTH) may be alerted to the existence of a foodborne outbreak by any one or more of the following events:

- 3.1.1** A number of enteric illness cases and other diseases associated with foodborne illness are reportable by health care providers and laboratories to the Office of Communicable Diseases ([Rules and Regulations Pertaining to the Reporting of Communicable, Environmental and Occupational Diseases R23-10-DIS, 1996](#)). Upon receiving the disease reports, the cases are counted and analyzed weekly to detect clustering by person, place or time, or to note increases in the number of cases of enteric organisms.
- 3.1.2** Health care professionals may suspect foodborne illness either because of the organism involved or other available information, such as several ill patients who have eaten the same food. Subsequently the health care provider may report this information to the Office of Communicable Diseases or the Office of Food Protection.
- 3.1.3** An increase in the number of positive stool cultures for a specific organism in one hospital laboratory serving one area of the state may be noted and reported to the State Laboratory for confirmatory testing.
- 3.1.4** Foodborne outbreak investigations may also be initiated when someone becomes ill after eating at a restaurant or attending a large catered event and then files a complaint with the Office of Food Protection. The complaint is logged and reviewed to determine if other complaints from the same event have been reported.

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The State Epidemiologist will make the decision on whether to launch a full investigation based on the magnitude of the threat to the public and the feasibility of conducting statistically valid studies. The full response to a small or medium size foodborne outbreak requires a team effort between staff from the Office of Communicable Diseases, Office of Food Protection and the Health Laboratory. As necessary, the resources available may be expanded first within the respective Divisions and then, if recommended by the Center for Emergency Preparedness and Response (CEPR), the Director of HEALTH may decide to activate the Department’s Incident Command System (ICS). Refer to Section 9 of this manual for information on management of public health emergencies.

### **3.2 Foodborne Disease Outbreak Prevention and Control Activities**

*The following activities will be activated in the event that a foodborne illness outbreak is suspected. These activities will be guided by the State Epidemiologist:*

**3.2.1 An epidemiologic investigation to characterize the illness.** The process of the investigation includes describing the clinical spectrum of illness (including ordering of lab tests on ill persons), collecting preliminary data, reviewing outbreak curves, and formulating biologically plausible hypotheses.

**3.2.2 Descriptive and analytical studies (case-control or cohort) to determine the etiology of the foodborne outbreak and to implicate foods or food-handlers as transmission vehicles.** This part of the process involves designing and conducting a case-control study selecting cases and controls for detailed interview using a questionnaire. Data from the questionnaire are then entered into a computerized database and analyzed to determine statistically significant associations between specific food items consumed and the incurred illness.

**3.2.3 Detailed environmental investigation to determine the environmental causes that contributed to the outbreak and to recommend appropriate control measures.** The environmental investigation will focus on the preparation and service of the implicated food(s) to determine the risk of contamination and temperature abuse. Suspect leftovers and foods found to be at risk for contamination from an infected food handler, from poor food handling practices or procedures, or from a product purchased from an unapproved source (i.e. clams, illegally harvested from contaminated beds) will be embargoed and samples of the contaminated food(s) collected for laboratory analysis. Employees must be questioned to determine if they have been ill within the previous two

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weeks before onset of the outbreak. Employees with diarrhea or potentially communicable illnesses must be excluded from food preparation and the handling of clean dishes and utensils in accordance with the RI Food Code: [http://www.health.ri.gov/environment/food/retail/retail\\_food.php](http://www.health.ri.gov/environment/food/retail/retail_food.php) The Department of Health (HEALTH) may choose to exercise its power (Rhode Island Department of Health Food Code R-23, 21-27 FOOD, Section 8-6) to issue an emergency closure or suspension order when an imminent health hazard exists. Examples of hazards that may invoke a closure or suspension include (but are not limited to): suspect ill food handlers, the lack of refrigeration, or the lack of running water. The source of any suspect food or food items will also be determined when there is the possibility that the food arrived contaminated at the time of delivery.

**Note:** The Department of Health is not authorized to conduct an investigation in a private home. The RI Department of Health (HEALTH) will attempt to conduct a Hazard Analysis and Critical Control Point (HACCP) inspection with the homeowner or person making the complaint. HACCP is a systematic approach to the identification, evaluation, and control of food safety hazards. The HACCP process involves conducting a risk assessment based on an interview with the food preparer to identify the possible source(s) of contamination. Advice and educational materials on safe food handling practices will be offered, and the prevention of further illnesses will be promoted by recommending that sick individuals seek medical attention. If a commercially processed food is suspect as the source of contamination in the home, the Office of Food Protection will obtain product information, i.e. name of item, purchase location, and date of purchase, and if possible, leftovers and comparison samples from the place of purchase for laboratory analysis.

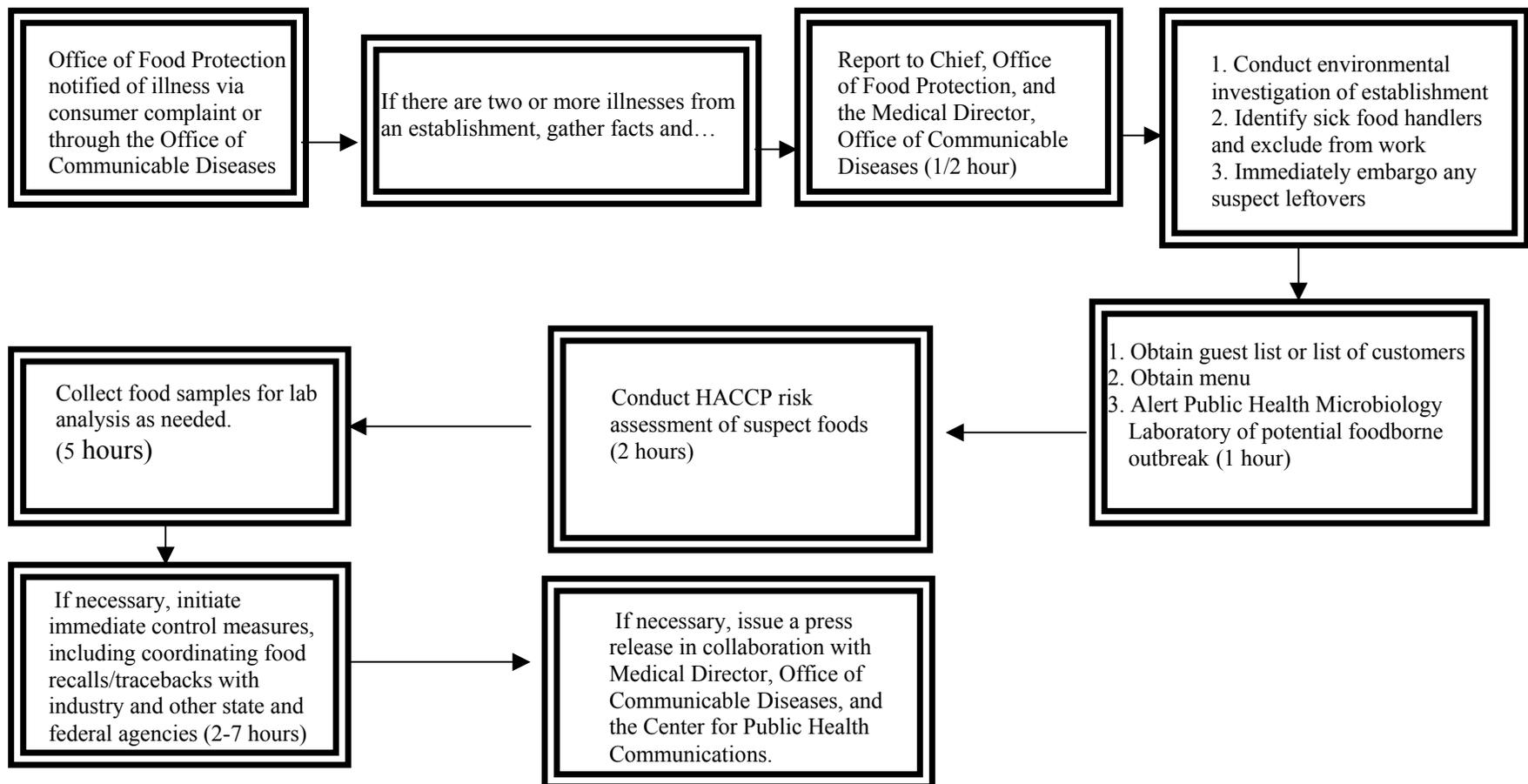
**3.2.4 Laboratory testing will be conducted on human and environmental specimens to provide definitive etiologic diagnosis or to rule out or rule in an organism or toxin.** Clinical and environmental specimens will be collected by the Office of Communicable Diseases and the Office of Food Protection respectively, and delivered to the Division of Laboratories for analysis.

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### 3.3 Flowcharts showing the Activities of a Foodborne Illness Outbreak Investigation

**Office of Food Protection (FP) staff**

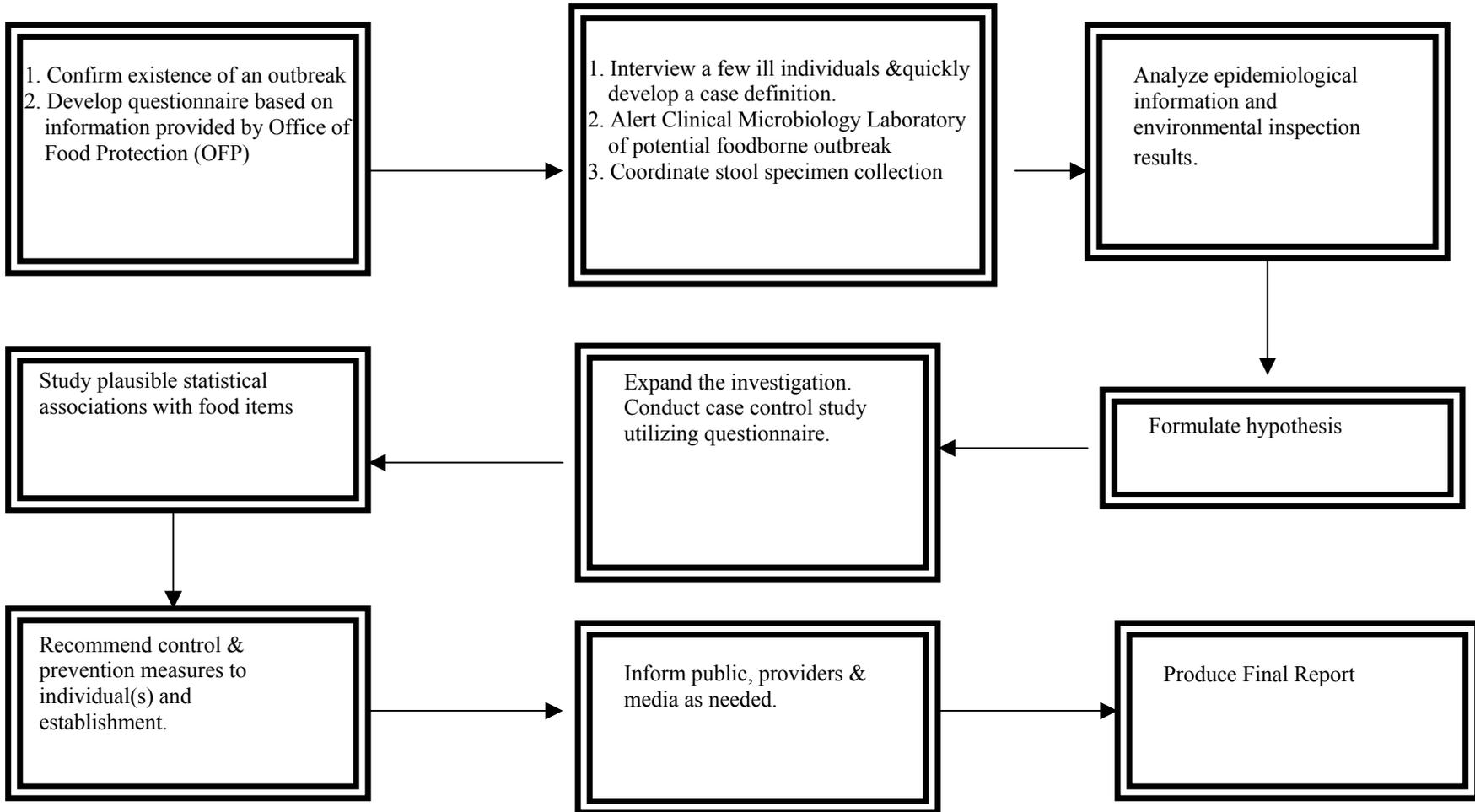
#### 3.3a Flowchart for Conducting Foodborne Illness Outbreaks



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### 3.3b Flowchart for Conducting Foodborne Illness Outbreaks



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## Section 4

### Responsibilities and Tasks for Investigating a Foodborne Illness Outbreak

#### 4.1 Policy:

Teams from the Office of Communicable Diseases, the Office of Food Protection, and the Health Laboratories will work collaboratively to investigate the foodborne outbreak when the existence of a foodborne outbreak is confirmed.

#### 4.2 Teams, Team Personnel and Responsibilities:

##### 4.2.1 Foodborne Outbreak Team for the Office of Communicable Diseases

**Team Leader:** State Epidemiologist

**Team Members:** Public Health Nurses, Epidemiologists and Disease Control representatives from the Office of Communicable Diseases.

**Responsibilities:** The Foodborne Outbreak Team for the Office of Communicable Diseases is responsible for coordinating the outbreak operations including overseeing and conducting the epidemiological investigation. The State Epidemiologist and her/his team is responsible for giving timely updates to the Office of Food Protection, the Public Information Officer (PIO) and to the Director's Office; for notifying other states of the outbreak, if necessary; for reporting the outbreak to the Centers for Disease Control and Prevention (CDC); and for writing the final report.

##### **Tasks/Responsibilities**

**Team Leader** (Medical Director, Office of Communicable Diseases)

- Coordinates the outbreak investigation.
- Communicates with the Health Director and PIO concerning the status of the Outbreak Investigation.
- Documents the conditions leading up to event and the current status of the outbreak situation.
- Provides "point of contact" information for surveillance and epidemiology issues.

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- Informs the member(s) of the investigative team regarding the investigation as warranted.
- Prepares Health Alerts for Physicians and other identified groups.
- Provides just-in-time direction and training to nurses, disease control representatives and epidemiologists in case surveillance and investigation procedures and policies.
- Serves as a liaison with relevant departmental, intrastate/interstate and national health authorities.
- Coordinates and oversees the Public Health nursing staff in conducting the epidemiological investigation (patient interviews and clinical testing of human specimens) both in the Office of Communicable Diseases and in the field.
- Provides training to HEALTH staff on risk communication messages and other information for designated “help line” phone personnel.
- Provides training, recommendations, and control measures to health care providers and to the general public.

*During a major public health crisis, the Director of Health may activate the Incident Command System. If activated, an additional responsibility of physicians would be to advise the Incident Command Team on situational updates, disease control, treatment, and prophylaxis recommendations. (See section 9 on management of public health emergencies).*

**Public Health Nurse**

- Conducts epidemiological investigation of foodborne incident using standard Office of Communicable Diseases protocols for obtaining information from all persons reported to be ill, as well as from persons not ill who may have eaten the same food(s) or who may have participated in the same function.
- Coordinates clinical testing of human specimens as required with the appropriate section(s) within the Division of Health Laboratories, as directed by the Consultant Public Health Nurse.
- Maintains contact with hospital Infection Control Practitioners to monitor for new cases of disease.
- Depending on the disease and nature of the foodborne disease outbreak provides on-site technical assistance to clinic sites (i.e. Hepatitis A IG clinics).

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### **Epidemiologists**

- Manage data
- Design analytical study (case-control or cohort)
- Formulate sensitive and specific case definitions.
- Develop system for collecting surveillance information.
- Create case report forms and questionnaires.
- Describe descriptive epidemiology of outbreak (age, gender, incubation period, symptoms, signs, labs, epidemic curve, calculate attack rate etc.).
- Present results of statistical analysis of case-control or cohort study.
- Prepare summary tables, reports and visuals.
- Assist with outbreak investigation, field investigations, interviewing cases etc.
- Prepare a final report based on an analysis of findings provided by the Office of Communicable Disease, the Office of Food Protection and the Division of Health Laboratories. Provide a copy of this report to the Chief Environmental Health Food Specialist (EHFS). The Division of Health Laboratories will be provided a copy of this report, if food testing and/or cultures are involved.

### **Disease Control Representatives**

- Assist with outbreak investigation as needed (field investigations, interview cases, provide phone coverage, etc.)
- Provide support in educating the general public and collecting exposure information from at- risk individuals.

### **Office Chief**

- Obtains personnel support if basic capacity is overwhelmed
- Plans for immediate personnel and budget needs during the outbreak and facilitates emergency purchases

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#### 4.2.2 Foodborne Disease Outbreak Team for the Office of Food Protection

**Team Leader:** Food Defense Coordinator

**Team Members:** Chief Environmental Food Specialist (EHFS), Supervising EHFS, Senior EHFS, EHFS

**Responsibilities:** The team from the Office of Food Protection is responsible for overseeing and conducting the environmental investigation; for implementing appropriate control measures to prevent additional illness, including conducting a traceback if necessary; for contacting the appropriate Federal and State agencies to institute a recall when needed; for giving timely updates to the Office of Communicable Diseases, the Public Information Officer (PIO) and the Director’s Office concerning the status of the environmental investigation; for notifying other States when necessary.

**Responsibilities/Tasks:**

**Food Defense Coordinator (or Chief EHFS in absence of the Coordinator)**

- Notifies the Chief, Office of Food Protection, and the Chief EHFS at the onset of the foodborne illness outbreak investigation.
- Coordinates investigative activities within the Office of Food Protection.
- Provides a guest list or list of customers and the menu for the event to the Medical Director, Office of Communicable Diseases
- Coordinates food testing with the appropriate sections of the Division of Health Laboratories.
- Serves as the liaison to the Office of Communicable Diseases and the Division of Laboratories.
- Promptly updates the Medical Director, Office of Communicable Diseases, and the Chief, Office of Food Protection, on the results of the environmental investigation.
- Provides the assigned Disease Control epidemiologist a summary of the environmental investigation to be included in the final outbreak report.

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**NOTE: The Chief EHFS (or the Chief, Office of Food Protection, in the absence of the Chief EHFS) in conjunction with the field supervisor will assign at least two EHFS to a foodborne illness outbreak investigation. If the outbreak is less than 3-days old, one member of the inspection staff needs to be present at the suspect food establishment within 1.5 hours of the reporting of an outbreak.**

**Supervising Environmental Health Food Specialist**

- Assists the Food Defense Coordinator in the coordination of the foodborne illness investigation.
- Obtains a guest list or list of customers and the menu for the event from the inspector(s) and provides information to the Food Defense Coordinator.
- Reviews the environmental investigation with the assigned inspector(s) and promptly updates the Food Defense Coordinator and the Chief, Office of Food Protection, on the results of the environmental investigation.

**Senior and/or Environmental Health Food Specialist**

- Conducts an environmental investigation of the food establishment(s), inquire if employees are ill or have been ill, and implement control measures such as embargoing leftover suspect foods and excluding ill employees.
- Obtains a list of attendees at event or food establishment and fax to supervisor as soon as possible.
- Obtain a list of items served, including ingredient list and the establishment’s daily menu. Fax or e-mail information to supervisor as soon as received.
- Informs Supervisor of findings of the inspection and interviews at the food establishment(s). Submit the inspection report(s).

**After-hours protocol (e.g. evenings, weekends, holidays, etc.):** The person “on call” will notify the Chief EHFS and the State Epidemiologist. The Chief, Office of Food Protection will be contacted if the Chief EHFS is not available. A Senior EHFS or an EHFS will be contacted from the overtime list. If no one accepts the assignment, the least senior EHFS is required to take the assignment. Depending on the extent of the outbreak

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and/or the size of the food establishment, more than one EHFS may be assigned. The State Epidemiologist will mobilize staff to respond. Press contact will be strictly centralized through HEALTH'S Public Information Officer.

#### **4.2.3 The Division of Laboratories Foodborne Disease Outbreak Team**

**Team Leader:** Associate Director of Health (Laboratories)

**Team Members:** Chief Clinical Laboratory Scientist, Public Health Microbiology (PHM), Chief Registered Environmental Lab Scientist

Bioterrorism Response and Special Pathogens Staff:

Supervising Clinical Laboratory Scientist, Principal Clinical Laboratory Scientist (PHM), 2 Clinical Laboratory Scientists (PHM), Clinical Laboratory Technician

Food and Water Microbiology Staff: Supervisor Clinical Laboratory Scientist (PHM), 2 Clinical Laboratory Scientists (PHM), Clinical Laboratory Technician

Food Chemistry Staff: Supervisor, Food Chemistry

Molecular Diagnostics and Enteric Pathogens Staff: Supervising Clinical Laboratory Scientist (PHM), 3 Senior Clinical Laboratory Scientists (PHM), Clinical Laboratory Scientist (PHM)

**Laboratory Team Overall Responsibility:** The Laboratory Foodborne Outbreak Team is responsible for receiving and testing and/or referring specimens associated with foodborne outbreaks to Centers for Disease Control and Prevention (CDC) or to other appropriate laboratories, and for the reporting of human and environmental testing laboratory results.

**Responsibilities/Tasks:**

**Laboratory Director**

- Serves as a member of the Director's Outbreak Management Team and relays relevant information to the Chief Clinical Laboratory Scientist.
- Responsible for determining the laboratory staffing necessary to respond appropriately to the outbreak.

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- Responsible for assembling, maintaining and updating a list of Laboratory Team member’s home phone numbers, cell phones and beeper numbers, in order to contact and/or call in appropriate staff.
- Responsible for notifying the Laboratory Directors from local hospitals and private laboratories of the outbreak and for providing them with appropriate specimen selection, collection and transport information.
- Responsible for notifying the State Laboratory Directors from surrounding states about the outbreak if appropriate.

**Chief Clinical Laboratory Scientist & Chief Registered Environmental Lab Scientist**

- Assists Laboratory Director in identifying and contacting the appropriate staff to respond to the outbreak.
- Assigns an appropriate Supervisor and/or Laboratory Team member (Laboratory Outbreak Coordinator) to act as the point person for the laboratory’s outbreak response. If more than one laboratory section is involved, each section shall have a coordinator.
- Serves as liaison between the Laboratory Director and the Laboratory Outbreak Coordinator.
- Supports the Laboratory Outbreak Coordinator as needed.
- Facilitates the transportation of specimens from hospital laboratories, private laboratories, and physician’s offices as needed.
- Serves as the liaison to the Office of Food Protection and the Division of Disease Prevention and Control.

**Laboratory Outbreak Coordinator** (Supervisor or Principal level Laboratory Team member)

- Serves as the point person for coordinating the laboratory’s testing and/or referral of outbreak specimens.
- Responsible for insuring the timely and accurate reporting of laboratory results.
- Serves as the single point of contact for the issuance of laboratory reports to the Division of Disease Prevention and Control.
- Responsible for compiling appropriate guidelines for specimen selection, collection and transport.

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- Responsible for keeping the Chief Clinical Laboratory Scientist informed as to the status of laboratory testing.
- Serves as the point person between the laboratory and the CDC.
- Oversees the referral of specimens to the CDC or other outside laboratory when necessary.
- Responsible for maintaining the chain of custody as appropriate.

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## Section 5

### Foodborne Illness Outbreak Response

The foodborne illness outbreak response is a coordinated effort among staff from the Office of Communicable Diseases, the Office of Food Protection and the Division of Laboratories. Each section has a specific function as outlined in Section 4 of this manual. Communication is paramount to a successful outcome.

Below is the outline of how a foodborne outbreak is investigated.

#### **5.1 Office of Food Protection Response to a Foodborne Illness Complaint**

##### **5.1.1 Policy of the Office of Food Protection**

The Office of Food Protection receives and investigates foodborne illness complaints. Foodborne illness complaints involving two or more individuals who experience a similar illness after ingestion of a common food(s) are investigated as an alleged foodborne illness outbreak.

##### **5.1.2 Receiving & Processing Food Complaints:**

- 5.1.2.1** A foodborne illness complaint may be taken via telephone, in person, or by mail. **Illness complaints must not be forwarded to voice mail.**
- 5.1.2.2** The Food Defense Coordinator will interview all complainants reporting an illness. If the Food Defense Coordinator is unavailable to take the call, only those staff members in the order listed will interview the complainant: Supervising Environmental Health Food Specialist (EHFS), Senior EHFS, EHFS, Chief EHFS, Chief, Office of Food Protection.
- 5.1.2.3** The interviewer of the complainant must ask all questions contained in the Office of Food Protection’s “Foodborne Illness Complaint Record” and record responses (Appendix A).

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- 5.1.2.4** During the course of the interview, if the complainant(s) asks questions regarding individual medical problems, the interviewer will refer them to their personal physician.
- 5.1.2.5** When the interview is completed, the interviewer logs the complaint, and a copy is given to the Food Defense Coordinator. The interviewer, if not a Supervisor, will also provide the appropriate Supervising EHFS with a **copy** of the complaint record. Note: While secondhand information regarding other persons who reportedly were ill may be helpful, try to obtain those individuals' telephone numbers and relationship(s) to the complainant, and interview each person directly.
- 5.1.2.6** The Food Defense Coordinator will review the foodborne illness complaints to determine if there are other complaints concerning the same event/establishment.
- 5.1.2.7** If it is suspected from the evaluation of the complainant interview, that a food establishment is the likely cause of illness, the Food Defense Coordinator will ask the Supervising EHFS to send an inspector(s) to the food establishment.
- 5.1.2.8** If two or more persons are reported ill, then the interviewer immediately notifies the Food Defense Coordinator or the Chief EHFS and gives him/her a copy of the complaint. The Food Defense Coordinator or the Chief EHFS will notify the Chief of the Office of Food Protection and the appropriate Supervising EHFS of the foodborne illness outbreak. The Food Defense Coordinator or the Chief EHFS is responsible for reporting the alleged foodborne illness outbreak to the Assistant Medical Director in the Office of Communicable Diseases and for coordinating the investigation within the Office of Food Protection. (Refer to Section 4, *Responsibilities and Tasks for Investigating a Foodborne Illness Outbreak*).

### **5.1.3 Investigating Complaints Procedure**

- 5.1.3.1 Review Files** - The Food Defense Coordinator and the Supervising Environmental Health Food Specialist (EHFS) will review the establishment(s) file(s) for previous complaints and a history of Food Code violations.

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### **5.1.3.2 Conduct On-Site Investigation.**

- 5.1.3.2.1** The EHFS will bring appropriate forms and equipment to the establishment(s).
- 5.1.3.2.2** The EHFS will introduce themselves to the person in charge at the establishment and explain the purpose of the foodborne illness investigation.
- 5.1.3.2.3** The EHFS will immediately embargo any suspect leftovers to prevent further illness, and ensure that there is no bare hand contact with ready-to-eat-foods.
- 5.1.3.2.4** The EHFS will identify current and/or previously ill food handlers through interviews, observation, and/or record review (Appendix H). If the employee has been sick with a foodborne illness, refer to the RI Food Code 2-201.12 for worker exclusions and restrictions. Supervisors will be notified so that the Office of Communicable Diseases can be contacted to obtain a stool culture.
- 5.1.3.2.5** Obtain the complete menu served to the ill group, including beverages, appetizers, desserts, etc. Immediately call or fax this information to the Office of Food Protection.
- 5.1.3.2.6** The EHFS will conduct a HACCP (Hazard Analysis and Critical Control Point) risk assessment of the suspect food that will include the following:
  - 5.1.3.2.6.1** Identification of ingredients, weight/volume, and steps involved in the preparation of suspect food(s).
  - 5.1.3.2.6.2** Identification of the food-handling procedures at each step in the preparation process of suspect food(s).
  - 5.1.3.2.6.3** Identification of personnel involved in the preparation of each suspect food item. Be sure to collect the name and phone number of each food handler involved in the preparation of the suspect food.
  - 5.1.3.2.6.4** Identification of potential hazards and critical control points based on observations and/or interview.
  - 5.1.3.2.6.5** Identification of violations and initiation of corrective actions.
  - 5.1.3.2.6.6** Verification that corrective actions are taken by the establishment(s)

### **5.1.3.2.7 Collect food samples for laboratory analysis as needed.**

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## **5.2 Office of Communicable Diseases Response to Foodborne Illness**

The Office of Communicable Diseases receives foodborne illness and other enteric infection information from a multitude of sources both systematic and ad hoc. These reports are scanned daily for potential deviations from the norm using standard descriptive and analytical epidemiologic methods.

### **5.2.1 Policy of the Office of Communicable Diseases**

The Office of Communicable Diseases will respond to any cluster or outbreak of enteric disease to determine if food or water may be a vehicle for transmission and/or will partner with the Office of Food Protection and Division of Laboratories to conduct surveillance and epidemiologic studies when an outbreak is in progress.

### **5.2.2 Procedure for Receiving and Processing Foodborne Outbreak Reports**

Suspected clusters and outbreaks can be reported to Office of Communicable Diseases through its 24/7 on-call telephone system by phone at 222-2577 (day), 272-5952 (after hours). Preliminary information is gathered by Office of Communicable Diseases nurses and epidemiologists and discussed with the State Epidemiologist (or alternate) for direction. After hours, the on-call system has protocols in place to activate the State Epidemiologist (or alternate). Initial outbreak reports must be reported as soon as possible to on-call personnel and not by e-mail or voice mail.

### **5.2.3 Investigation Procedure**

#### 5.2.3.1 Interview Food Handlers

**Note:** The form used by the Office of Communicable Diseases to interview food handlers during a foodborne outbreak investigation can be found in Appendix H.

#### 5.2.3.2 Confirm Illness in Food Handlers

#### 5.2.3.3 Stress the importance of thorough hand washing (Appendix J)

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## Section 6 Food Testing

Coordination of the collecting and testing of food samples is arranged between the Office of Communicable Diseases, Office of Food Protection, Department of Health Laboratories and the family or the restaurant involved.

### **6.1 Tests Performed on Food Samples**

The Food and Water Microbiology Laboratory performs foodborne illness testing of suspect foods. This laboratory is capable of testing for the following foodborne organisms: *Salmonella sp.*, *Shigella sp.*, *Staphylococcus aureus*, *Bacillus cereus*, *Listeria sp.*, *Clostridium perfringens*, *Clostridium botulinum*, *E. coli 0157:H7* and *Vibrio sp.*, *Yersinia* and *Campylobacter sp.* The Food and Water Microbiology Laboratory also has the capability of identifying microbiological agents of bioterrorism, e.g. anthrax.

The Food Chemistry Laboratory performs a variety of chemical tests. Refer to “Categorization of Tests by Method and Laboratory,” Appendix L, and “Guide to Sample Distribution,” Appendix M for additional information on tests performed.

### **6.2 Food Sampling Procedures**

#### **6.2.1 Protocol for Collection of all Samples for Food Testing**

**6.2.1.1 Always treat samples as if they are contaminated.** Wear gloves when collecting samples, and ensure that samples are properly sealed to avoid leakage. After removing gloves, discard them in nearest trash receptacle. Be sure to wash your hands after sample collection.

**6.2.1.2** Use aseptic sampling techniques if collecting samples for microbiological analysis.

**6.2.1.3** Complete the Sample Collection Form

**6.2.1.4** Follow the proper chain of custody procedures in order to maintain the integrity of the sample from collection to analysis. This requires sealing the sample at the time of collection, writing in the correct date, time, and condition of sample

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and obtaining the appropriate signatures as indicated in the Chain of Custody section on the Sample Collection Form whenever the sample changes hands.

## 6.2.2 Procedure For Handling Samples Resulting From Consumer Complaints

- 6.2.2.1** For food with suspected criminal implications, such as **tampering**, the consumer should be advised to contact the police department. Food samples suspected of containing blood, other bodily fluids, drugs or poisons fall into this category. The Office of Food Protection (Office) will notify the appropriate police department that the consumer has been advised to contact them. The police will be responsible for the investigation, and the Office will ask that the police keep them updated as the investigation progresses to make certain that there is no contaminated food in distribution that poses a public health risk.
- 6.2.2.2** Food samples suspected of containing **blood** or **other bodily fluids**, **drugs** or **poisons** should be directly delivered to Forensic Evidence Receiving at the Department of Health Laboratories (Lab), Room 306. Delivery to Evidence Receiving also applies to samples being delivered by the police (if contamination is suspected to be of a criminal nature) or by an agent of the Office of Food Protection (if contamination is suspected to be accidental or unintentional).
- 6.2.2.3** Readily identifiable **foreign objects** such as hair, glass, metal objects (nails, screws, etc), band-aids, cockroaches, or rodents will not be taken to the Lab for analysis. Obtain control food samples of the same lot from a container of commercially processed food. These will be used to determine if there is an isolated or broader public health issue. Control food samples, if collected, will be taken to the lab for analysis. If it is determined that the foreign object(s) may have been introduced from food prepared on site, an inspection of the establishment where the food was prepared will be conducted to determine the source of the foreign object.
- 6.2.2.4** Samples not accepted by the Office of Food Protection can be referred to outside labs listed in the yellow pages. A list of food testing laboratories is also available in the Office of Food

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Protection (please see the Food Defense Coordinator for this list).  
Do not recommend the Food Chemistry Lab as a fee for service lab. Food Chemistry will only handle samples accepted through the Office of Food Protection.

### **6.2.3 Protocol to Determine if a Sample(s) needs to be accepted from Consumers by the Office of Food Protection.**

**6.2.3.1** An Environmental Health Food Specialist (EHFS) or his/her supervisor will interview the complainant before the Office of Food Protection can accept any sample. If, after interviewing the complainant, the Environmental Health Food Specialist (EHFS) decides to accept the sample, the following paperwork will need to be completed. **The team supervisor or appointed designee will be responsible for ensuring that all the necessary paper work is completed correctly before the sample is taken to the Lab. The necessary paper work includes the following:**

1. A **consumer complaint form** (Food-Related Record form or Food-Related Illness Complaint form). See Appendix A. It is imperative that complaint forms be filled out accurately and completely for the lab to make an assessment of the situation. It is the responsibility of the Environmental Health Food Specialist (EHFS) or his/her supervisor to determine the type(s) of testing that needs to be performed on the submitted and accepted food sample(s). For **specific questions** relating to chemical testing contact the Food Chemistry Laboratory for assistance. Please note that if the type(s) of testing required is not specified, the laboratory will not be able to accept the sample.
2. A **Sample Collection form** must be filled out for each sample submitted. To evaluate possible testing choices, see “Categorization of Tests by Method and Laboratory,” Appendix L, and “Guide to Sample Distribution,” Appendix M.
3. The **Chain of Custody Section** of the **Sample Collection Form** needs to be completed in its entirety.

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**6.2.3.2** Whenever a sample is transferred from one person to another within the Office of Food Protection, the Chain of Custody section of the Sample Collection form must reflect in writing the date and time of transfer, and the people involved in the transfer. If the sample(s) cannot be taken to the Lab immediately, they must be locked in the sample refrigerator located in the Office of Food Protection, The key is available from the CEHFS and the Chief Clerk.

**Note:** A sample must never be left unattended. The chain of custody for an unattended sample will be considered broken and the sample will no longer be considered a legal sample.

**6.2.3.3** Delivery of samples to the DOH Laboratories for analysis:

Samples must be delivered to the lab receiving area for food chemistry specimens, and to the Public Health Microbiology supervisor or designated lab personnel for samples requiring microbiological analysis. The person releasing the sample (Food Protection personnel) and the person receiving the sample (Lab personnel) must complete the chain of custody section of the sample collection form. The original copy is given to lab personnel, and a copy of the original is given to the Food Defense Coordinator.

#### **6.2.4 Responding To A Consumer Complaint By Phone.**

**6.2.4.1** EHFS or his/her supervisor must interview the complainant before the Office of Food Protection can accept any sample.

**6.2.4.2** If the interviewer decides to accept the sample, the complainant will then be asked to bring the sample to the Office (**Refer to Section 6.2.3 “Protocol to Determine if a Sample(s) needs to be accepted from Consumers by the Office of Food Protection”**). If the interviewer is unsure of accepting the sample, he or she should consult the Chief EHFS or the Chief, Office of Food Protection. If the complainant cannot bring the sample to the Office, then the Chief EHFS will make provisions to collect the sample.

**6.2.4.3** If an agent is assigned to collect the sample at the complainant’s residence, he/she must complete the sample collection form and follow procedures as indicated in Section 6.2.3, **“Protocol to Determine if a Sample(s) needs to be accepted from Consumers by the Office of Food Protection.”**

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**Note:** Ensure that the appropriate Food Protection complaint number is entered on the Collection form (especially when the agent does not have a copy of the complaint report during collection of samples)

## 6.2.5 Collecting Food Sample(s) At a Food Establishment.

**6.2.5.1** The agent may be assigned to collect control food samples upon collection of the suspect food sample. For samples submitted to the Food Chemistry Lab, a minimum of three control samples must be collected.

Control samples should be from a different lot in order to try to represent a normal sample for comparison. If limited information on the complaint is available, the control sample provides comparative results, enabling the lab to make an educated assessment of the complaint status. Follow-up samples should be from the same lot to determine if the problem is wide spread among the lot or just an isolated case. If possible, submit the control samples ASAP after receiving the complaint (preferably submitted with the complaint sample), so that the lab can analyze all samples (complaint sample and controls) at the same time for efficiency purposes.

### 6.2.5.2 Agent must bring forms with them when collecting any food samples at the food establishment.

1. A sample form, including the chain of custody section, for each sample submitted must be filled out accurately and completely.
2. Samples must be delivered directly to the appropriate lab supervisor or designated lab personnel. The person releasing the samples (Food Protection agent) must complete the chain of custody section of the sample collection form and the person receiving the samples (Lab personnel) must validate by signature, date and time that they have received the samples. The original copy is given to lab personnel and a copy of the original is returned to the Office.
3. The team conducting the investigation should maintain a copy of these reports for their files.

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## 6.2.6 Food Sample Collection Procedures

### 6.2.6.1 Samples for microbiological analysis are to be collected following aseptic techniques.

- Wash hands before and after collecting sample(s).
- Always wear gloves during sample collection
- Use sterile containers.
- Make sure container covers are tight, to prevent leakage.
- Use sterile utensils, tongs, spoons, etc.
- Take the temperature of the food item with a sanitized thermometer prior to placing it in the container.
- Do not handle or touch the inside of the container.
- Try not to use Whirlpack bags or zip-lock type bags for liquids, which can leak and spill easily.
- Whirlpack bags or zip-lock type bags may be used for solid foods, such as dry milk, meat, etc.
- Collect a sufficient amount of sample, at least 4- 6 oz.
- Do not fill sample containers more than three quarters full.
- If possible, when collecting samples (especially liquids) an additional sample should be taken as a temperature control.

### 6.2.6.2 Labeling

- Write clearly with waterproof marker.
- Clearly write the name of the product, date, time, sample number and name of inspector on the container or plastic bag.

### 6.2.6.3 Transportation

- Use dry ice, available from the Lab, for ice cream or frozen food samples. If dry ice is not available, prompt delivery is key to not compromising frozen samples.
- Place the sample with pre-frozen ice packs in an insulated cooler.

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#### 6.2.6.4 Delivery

- Notify the DOH Laboratory (Lab) as soon as possible prior to obtaining samples related to foodborne illness complaints (See *RI Department of Health Phone Numbers*, Section 2 in this manual).
- Contact laboratory personnel (chiefs or supervisors) after normal working hours and weekends, as needed, regarding samples related to foodborne illness complaints.
- Transport foodborne illness complaint samples to the Lab immediately.
- Upon arrival at the laboratory, bring samples to the receiving area where they will be assigned a lab number.
- Laboratory personnel will take the temperature of the sample(s), upon their receipt by the laboratory.
- Samples will be placed immediately into the lab refrigerator once removed from the insulated cooler.
- Samples must be clearly labeled, identified, and numbered before being placed in the refrigerator.

#### 6.2.7 Sampling Equipment

Stock your sampling kit with the following items and store in your vehicle. Sampling kits are also available in the Office of Food Protection:

1. Sterile sample containers
  - Plastic bags, Whirlpack or Zip-loc, 18 oz. Sizes
  - Plastic containers with caps, 10 oz. Sizes
2. Sterile and wrapped sample collection implements
  - Spoons, scoops, spatulas, swabs, tongs
3. Supporting equipment
  - Waterproof marker, sample forms, thermometer, embargo stickers
4. Sterilizing and Sanitizing Agents
  - Alcohol wipes

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5. Refrigerants
  - Ice packs, insulated containers
6. Clothing
  - Laboratory coat, hair restraint, disposable vinyl gloves

**6.2.8 Forms pertinent to conducting environmental investigations:**

1. Foodborne Illness Investigation Report (Appendix C)
2. Foodborne Outbreak Investigation Checklist (Appendix B)
3. Sample Collection Forms (Appendix E)

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## Section 7

# Rhode Island Department of Health Laboratory: Foodborne Outbreak Investigation

### 7.1 Role of the State Laboratory in Foodborne Outbreaks

The Division of Laboratories for the Department of Health is located at 50 Orms Street, Providence, RI 02904. The State Laboratory is a reference laboratory, where hospitals and other laboratories send specimens or isolates for confirmation and serotyping. In addition to reference laboratory activities, the Laboratory examines implicated food and clinical specimens (in outbreak and non-outbreak situations) to identify the organism or extraneous materials responsible for human illness. The Health Department, other public agencies and health care providers submit specimens.

The laboratories within Biological Sciences that conduct foodborne illness-related testing are:

- The Molecular Diagnostics and Enteric Pathogens Laboratory (human specimen testing)
- The Food and Water Microbiology Lab (often referred to as the Food Lab) and

The Food Chemistry Lab may also conduct foodborne illness-related testing. The Environmental Sciences Section may be involved in situations that involve suspected chemical poisonings or for the testing of naturally occurring toxins. In outbreak situations, the laboratory can coordinate food and clinical specimen submissions with the Department to ensure that all specimens (e.g. food handlers, patrons, implicated foods) are handled in a coordinated fashion.

### 7.2 Types of sample testing available

#### 7.2.1 Feces and Food

The two specimens considered most appropriate for foodborne illness-related testing are **feces** and **food**. (Refer to Section 6.2 for *Food Sampling Procedures*.)

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### 7.2.2 Other Specimens

**Urine** is not a common specimen for culture although the Molecular Diagnostics and Enteric Pathogen Lab does receive isolates (usually from hospital labs) of *Salmonella*, *Shigella* and *E. coli* O157:H7 from urine specimens for identification or serotyping. If the Health Department receives notification from the Lab of a positive pathogen from a urine specimen, follow-up should include a stool specimen. If the case is a food handler, the employee may be required to submit at least one negative stool specimen for clearance to return to work (this is a requirement for food workers diagnosed with *S. typhi* infection).

**Blood** is not an acceptable specimen when either typhoid fever or botulism is suspected (See Section 7.6 of this manual for more information on botulism testing). Blood tests for hepatitis A are usually performed through the individual's private medical providers, and are not performed at the Health Laboratory.

## 7.3 Clinical Specimen Collection (Office of Communicable Diseases)

Laboratory identification of a pathogen in a clinical specimen (blood, feces, etc.) can validate an epidemiological hypothesis and perhaps allow easier implementation of control and preventive measures. Increased confidence will result if a statistical association is combined with isolation of a pathogen from the ill person and the implicated food. This evidence is almost certain to be irrefutable. **Therefore, time is critical when requesting and collecting clinical and food specimens.**

### 7.3.1 When to collect clinical specimens

- Diagnosis of most foodborne diseases can be made more easily when etiologic agents are isolated from clinical specimens of ill persons. **Encourage ill persons to submit stool specimens while they are still experiencing symptoms or as soon as is practical thereafter. Pathogens or toxins may remain in the intestinal tract for only a short time after illness onset.**
- Collect stool specimens prior to antibiotic treatment. **NOTE: A repeat sample may need to be submitted if the patient was on antibiotics when the initial culture was taken. This often happens if the patient is a food handler and needs clearance to return to work.**

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**NOTE:**

- To obtain stool kits, contact (401) 222-5538
- If there are any questions, contact the Molecular Diagnostics and Enteric Pathogens Laboratory at (401) 222-5538.

**7.3.2 How much sample to collect**

See Guidelines for Specimen Collection (Section 7.4).

**7.3.3 Label each specimen container with:**

- Patient name
- Physician name and address
- Date of specimen collection

**7.3.4 Complete the laboratory submission form** that is found inside the container. It must include the following:

- Patient name, address, date of birth, sex
- Date specimen was obtained and the name of the test being requested. This information is needed for epidemiological purposes and is not needed on the submission form.

**7.3.5 Packaging and Storage**

- Place the vial into the sealable side of specimen transport bag and seal bag. Place completed requisition in other side of bag.
- Specimen must be received within three days. Store in refrigerator after collection and until delivery to HEALTH laboratory.

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#### 7.4 Guidelines for Specimen Collection

Guidelines for collection and transportation of samples related to foodborne disease outbreaks

Instructions for Collecting Stool Specimens*			
Instructions	Bacterial	Parasitic	Viral
<b>When to collect</b>	During period of active diarrhea (preferably as soon after onset of illness).	Anytime after onset of illness (preferably as soon as possible).	Within 48-72 hours after onset of illness
<b>How much to collect</b>	Fresh stool from 10 ill persons; samples from 10 controls may also be submitted.	A fresh stool sample from 10 ill persons; samples from 10 controls may also be submitted. To enhance detection, 3 stool specimens per patient can be collected >48 hours apart.	As much stool sample from 10 ill persons as possible (a minimum of 10 ml of stool from each); samples may also be obtained from 10 controls.
<b>Method of collection</b>	A bulk stool specimen, unmixed with urine, should be collected in a dry, clean container, e.g. urine specimen cups.	A bulk stool specimen, unmixed with urine, should be collected in a clean container. Place a portion of each stool sample into 10% formalin and polyvinyl alcohol preservative (PVA) at a ratio of one part stool to three parts preservative. Mix well. A portion of the unpreserved stool placed into a leak-proof container may be saved for antigen or PCR testing.	Place fresh stool specimens (liquid preferable), unmixed with urine, in clean, dry containers, e.g., urine specimen cups.
<b>Storage of specimens after collection</b>	Whole stool should be refrigerated and processed within 2 hours after collection. A portion of each stool specimen may be stored frozen at ≤15°C for antigen or PCR testing.	Store at room temperature, or refrigerate at 4°C. DO NOT FREEZE. Store unpreserved stool specimen frozen at ≤15°C for antigen or PCR testing.	Immediately refrigerate at 4°C. DO NOT FREEZE. A portion of each stool specimen may be stored frozen at ≤15°C for antigen or PCR testing.

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## 7.5 Tests Performed on Clinical Specimens During Foodborne Outbreaks

### 7.5.1 Routine cultures:

- *Campylobacter* species
- *Salmonella* species
- *Shigella* species
- *Vibrio* species
- *Yersinia* species
- *E.coli* O157:H7, also known as Enterohemorrhagic *E. coli* or STEC (toxin testing)

### 7.5.2 Additional cultures and tests performed upon special request (if symptoms of illness are consistent or if symptoms are unknown) include:

- *Clostridium perfringens*
- *Bacillus cereus*
- *Staphylococcus aureus*
- *Clostridium botulinum*
- Norovirus
- Agents of Bioterrorism

### 7.5.3 Turnaround Times on Specimens (specimens submitted directly to the Laboratory The following table details the minimum time to complete enteric testing from receipt of sample to test result. (This does not include weekend days.)

#### Stool Testing Turnaround Times

Species	Positive (minimum hrs.)	Negative (minimum hrs.)
<i>Campylobacter</i>	48	72
<i>Salmonella</i>	48	72
<i>Yersinia</i>	96	48
<i>Shigella</i>	48	72
<i>Vibrio</i>	96	48
<i>E.coli</i> O157:H7	48	48
<i>C. perfringens</i>	72	96
<i>Bacillus cereus</i>	72	48
<i>S. aureus</i>	72	48
<i>Norovirus</i>	72	72
<i>Agents of Bioterrorism</i>	72	72

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## 7.6 Botulism Testing

### 7.6.1 Botulism is considered a potential agent of bioterrorism. There are 3 main types of botulism:

- Foodborne botulism occurs when a person ingests pre-formed toxin that leads to illness within a few hours to days. Foodborne botulism is a public health emergency because the contaminated food may still be available to other persons besides the patient. Please note that
- Infant botulism occurs in a small number of susceptible infants each year who harbor *C. botulinum* in their intestinal tract.
- Wound botulism occurs when wounds are infected with *C. botulinum* that secretes the toxin.

**Positive botulism** results include:

- Detection of botulinum toxin in serum, stool, or patient's food, **OR**
- Isolation of *Clostridium botulinum* from stool

Indicate the name of the case, address of the case's residence, gender, date of birth, or if unavailable, age, telephone number, attending physicians name, and race and ethnicity of the case.

### 7.6.2 Requirements for specimen submission to health

**Immediately report** to the HEALTH Office of Communicable Diseases by telephone at (401) 222-2577 suspect cases of *Clostridium botulinum*. If this is outside of normal HEALTH business hours, call the HEALTH after-hours answering service at (401) 272-5952 and ask the operator for the HEALTH physician.

After contacting the HEALTH Office of Communicable Diseases for preauthorization, submit all suspect clinical specimens and/or isolates to HEALTH Laboratories.

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### 7.6.3 Specimen collection, handling, and transport

Refer to the current version of the Level A Laboratory Guidelines for Identification of *Clostridium botulinum Toxin* for specimen selection and collection guidelines (See Appendix Q).

For suspicious isolates, submit the original culture plate on the initial day of isolation. Seal the plates with Parafilm® or other appropriate barrier film. Package and transport the isolate in transport containers supplied by the HEALTH Bioterrorism Response and Special Pathogens Laboratory (marked with specific labeling), following standard regulated packaging and transport requirements.

For clinical specimens, follow the same instructions as those described for isolates, with the additional requirement of maintaining refrigerated temperature conditions by surrounding the internal shipping container with blue or wet ice.

For further information contact the Bioterrorism Response and Special Pathogens Laboratory. See contact listing in Section 2 of this manual.

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## Section 8

### Reporting Results

**8.1 Written reports on all positive results are sent to:**

1. The Centers for Disease Control in Atlanta
2. Other submitters as noted on the laboratory submission form (e.g., the patient's physician or a hospital lab)
3. The Office of Communicable Diseases, Rhode Island Department of Health.

**8.2 Written reports on all negative results are sent to:**

1. Submitter on laboratory submission form.
2. Other submitters as noted on the laboratory submission form (e.g., the patient's physician or a Hospital lab).
3. Office of Communicable Diseases, Rhode Island Department of Health.

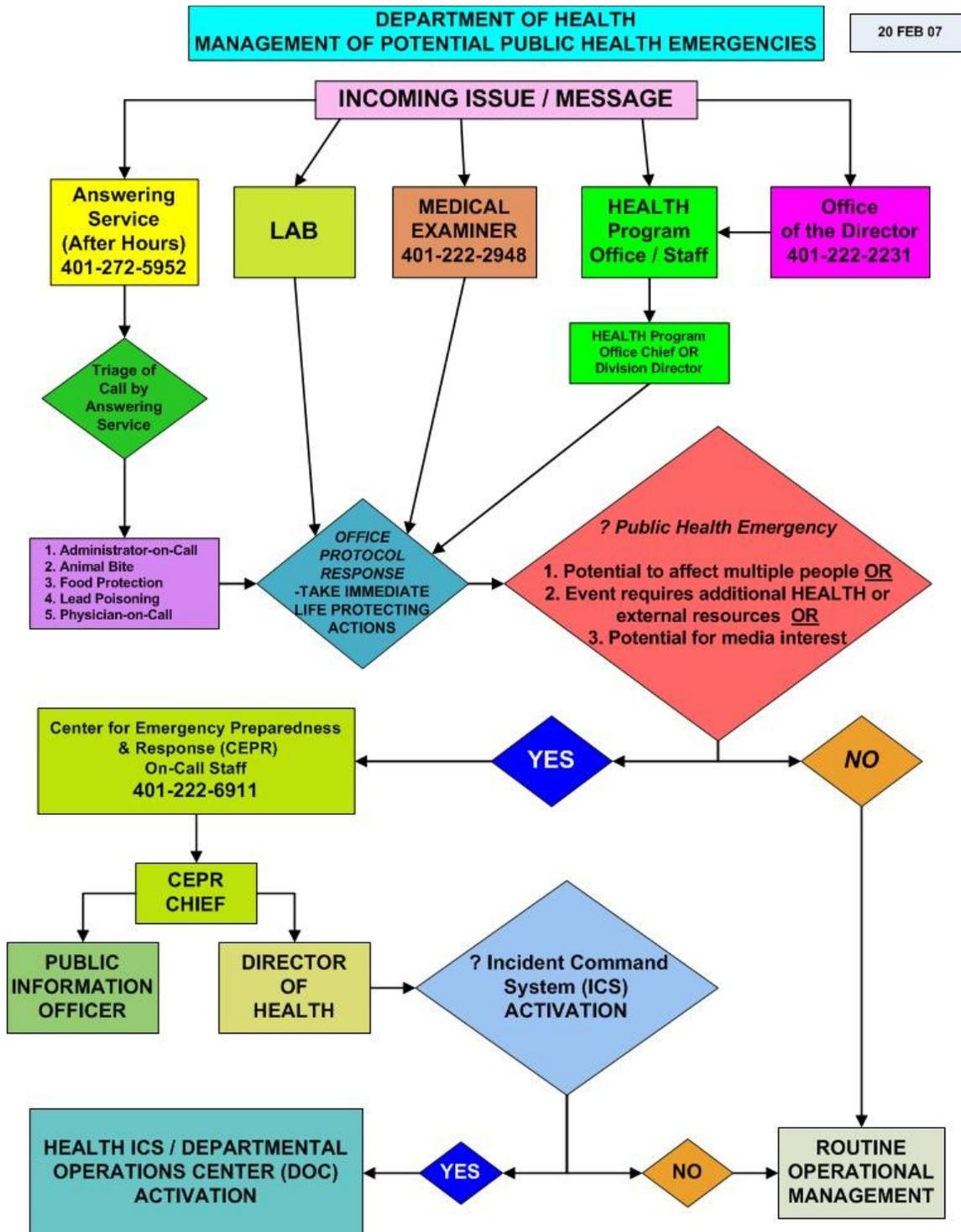
**8.3 Environmental test results (positive and negative) are sent to the Office of Food Protection; attention Food Defense Coordinator.**

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## Section 9

### Management of Public Health Emergencies/ICS Activation

**Note:** Information on the Rhode Island Department of Health's ICS structure can be found at the following: <http://www.health.ri.gov/cepr/ics/command%20staff.htm>



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## Section 10 Appendices

- A. Foodborne Illness Complaint Record**
- B. Foodborne Outbreak Investigation Checklist**
- C. Foodborne Illness Investigation Report**
- D. Office of Food Protection, Embargo/Disposal Form**
- E. Office of Food Protection, Sample Collection Form**
- F. Food Employee Reporting Agreement**
- G. Foodborne Outbreak Kit Inventory**
- H. Food Handler Information Form**
- I. Instructions for Interviewing Foodhandlers**
- J. Proper Handwashing Procedure**
- K. Hepatitis A Control Measures for Foodhandlers**
- L. Categorization of Tests by Method and Laboratory**
- M. Guide to Sample Distribution**
- N. RI Department of Health Laboratory: Guide to Clinical Specimen Collection**
- O. RI Department of Health Laboratory: Guide to Environmental Specimen  
Collection**

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**P. Rhode Island Department of Health Office of Food Protection Food Code  
(Chapters 2-2 & 8-5)**

**Q. Level A Laboratory Guidelines for Identification of *Clostridium botulinum*  
Toxin**

**R. Tables: Foodborne Outbreak Diseases**

- Table 1: Clinical Features of the Main Types of Foodborne Illness
- Table 2: Summary of Foodborne Infection and Foodborne Intoxication
- Table 3: Common Foodborne Diseases Caused by Bacteria
- Table 4: Common Foodborne Diseases Caused by Viruses
- Table 5: Foodborne Diseases Caused by Fungi other than Mushrooms
- Table 6: Foodborne Diseases Caused by Protozoa and Parasites
- Table 7: Foodborne Diseases Caused by Chemicals and Metals

**S. CDC fact sheets:**

- |   |  |
|---|--|
| 1 <a href="#">Amebiasis</a>               | 10 <a href="#">Listeriosis</a>             |
| 2 <a href="#">Botulism</a>                | 11 <a href="#">Norovirus</a>               |
| 3 <a href="#">Brucellosis</a>             | 12 <a href="#">Salmonellosis</a>           |
| 4 <a href="#">Campylobacter</a>           | 13 <a href="#">Shigellosis</a>             |
| 5 <a href="#">Cholera</a>                 | 14 <a href="#">Trichinellosis</a>          |
| 6 <a href="#">Cryptosporidiosis</a>       | 15 <a href="#">Typhoid Fever</a>           |
| 7 <a href="#">Cyclospora cayetanensis</a> | 16 <a href="#">Vibrio parahaemolyticus</a> |
| 8 <a href="#">E. Coli 0157:H7</a>         | 17 <a href="#">Vibrio vulnificus</a>       |
| 9 <a href="#">Giardiasis</a>              | 18 <a href="#">Yersinia Enterocolitica</a> |



### Foodborne Illness Complaint Record

Rhode Island Department of Health  
Office of Food Protection  
3 Capitol Hill, Rm. 203  
Providence, RI 02908  
401-222-2750



Complaint # \_\_\_\_\_ FP # \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name: \_\_\_\_\_ Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Home Phone: \_\_\_\_\_  
Work Phone: \_\_\_\_\_

DOB: \_\_\_\_\_ Gender: M  F  Occupation: \_\_\_\_\_

Place of Employment: \_\_\_\_\_

Complaint:		
Time first symptom(s): Date: _____ Hour: _____	End of symptom(s): Date: _____ Hour: _____	Duration of illness:
Number ill:	If event or function, number who ate food:	
Predominant symptoms: (please specify order of symptom occurrence, i.e. 1,2 3, etc.)		
<input type="checkbox"/> Vomiting # of episodes/24 hours: _____	<input type="checkbox"/> Fever _____ ° F	<input type="checkbox"/> Skin (itching, flushing, rash)
<input type="checkbox"/> Diarrhea # of episodes/24 hours: _____	<input type="checkbox"/> Nausea	<input type="checkbox"/> Jaundice
<input type="checkbox"/> Bloody Stool	<input type="checkbox"/> Abdominal Cramps	
Other symptoms:		
Did you seek medical attention: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, name of physician:		
Address:		Phone:
Hospitalized: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, Name:		
Address:		Phone:
Physician's name:		Phone:
Laboratory test conducted: <input type="checkbox"/> Yes <input type="checkbox"/> No	Type of Specimen:	Organism/Toxin detected:

**Potentially Hazardous Foods**

*(Please specify if the following were consumed in the past 5 days)*

<i>Food Item</i>	<i>Location</i>	<i>Date &amp; Time</i>
Raw or undercooked eggs?		
Raw or undercooked meat, shellfish, or fish?		
Unpasteurized milk or juice?		
Home canned goods?		
Fresh produce?		
Soft cheeses made from unpasteurized milk?		

**5 Day Food History**

*(Please list name & location of food establishments where foods were eaten)*

<i>Name</i>	<i>Location</i>	<i>Food Items</i>	<i>Date &amp; Time</i>
1.			
2.			
3.			
4.			
5.			
6.			

**Exposure History Within the Past 6 Weeks**

International travel? Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, please specify country:
Domestic Travel? Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, please specify location:
Day Care? Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, please specify location:
Contact with ill person? Yes <input type="checkbox"/> No <input type="checkbox"/>	Please specify illness if known:
Contact with ill animal? Yes <input type="checkbox"/> No <input type="checkbox"/> Contact with reptiles? Yes <input type="checkbox"/> No <input type="checkbox"/>	Please specify animal illness if known:
Attend any large functions or events? Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, please specify location:
Are you aware of other people with similar symptoms?	

Suspect meal and location:	Establishment License #:
----------------------------	--------------------------

Any leftovers? Yes  No

Additional comments/Action Taken:

Interviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

**RI Department of Health  
Office of Food Protection  
Foodborne Outbreak Investigation Checklist**

<i>Food Inspector Checklist</i>	<i>Task</i>	<i>Initials</i>
<input type="checkbox"/>	1. Immediately embargo any suspect leftovers to prevent further illness.	
<input type="checkbox"/>	2. Ensure that there is no bare hand contact with ready-to-eat foods.	
<input type="checkbox"/>	3. Do not allow food to be served without checking and assuring safe temperatures.	
<input type="checkbox"/>	4. Examine the walk-in refrigerator for food in large stockpots, in addition to whole roasts, or other foods more than four inches thick that were cooled. Take temperatures and determine when they were prepared and how they were cooled. Embargo if suspect.	
<input type="checkbox"/>	5. Interview each food worker to determine if they are ill or have been ill within the last two weeks.	
<input type="checkbox"/>	6. If the employee has been sick with a food-related illness within the last 3 days, exclude him or her from food preparation. (Notify Supervisor so that Disease Control can be contacted to obtain a stool culture.)	
<input type="checkbox"/>	7. Obtain the complete menu served to ill group (including beverages, appetizers, dessert, etc.) and fax or call into office.	
<input type="checkbox"/>	8. Obtain detailed food-handling procedures (including date, time & preparer) for each step in preparation of suspect food(s).	
<input type="checkbox"/>	9. Identify ingredients, including weight/volume, and steps involved in the preparation of suspect food(s).	
<input type="checkbox"/>	10. Collect samples for laboratory analysis as needed.	

**RHODE ISLAND DEPARTMENT OF HEALTH**  
Three Capitol Hill  
Providence, RI 02908-5094

[www.health.ri.gov](http://www.health.ri.gov)



**Rhode Island Department of Health**  
**Office of Food Protection**  
**Foodborne Illness Investigation Report**

3 CAPITOL HILL, RM. 203  
 PROVIDENCE, RI 02908  
 PHONE: (401) 222-2749  
 FAX: (401) 222-4775

Complaint #								
Establishment Name:	Out		F.P.	Risk Type	Complete	Month	Day	Year
	In				C I			
Address:	Total travel time:	Kind	Find	Action 1	Action 2	Prefix	License number	
					D E VC C			
City:	License: Yes <input type="checkbox"/> No <input type="checkbox"/>			Certified Manager: Yes <input type="checkbox"/> No <input type="checkbox"/>				

DATE OF LAST ROUTINE INSPECTION: (ATTACH MOST RECENT INSPECTION) \_\_\_\_\_

DATE AND TIME OF SUSPECT MEAL: \_\_\_\_\_

SUSPECT FOOD(S)/INGREDIENT(S):  
 (PLEASE ENTER UP TO THREE SUSPECT FOODS/INGREDIENTS. FOR ADDITIONAL ENTRIES, PLEASE USE ANOTHER SHEET.)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

<b><i>I. Product information (if known)</i></b>	
PRODUCT/BRAND NAME(S):	
CODE/LOT NUMBER(S):	
EXPIRATION DATE(S):	
<b><i>I. Product information cont...</i></b>	
SIZE/WEIGHT:	
MANUFACTURER NAME AND ADDRESS	
DISTRIBUTOR NAME AND ADDRESS	



ADDITIONAL COMMENTS:

*IV. actions Taken*

FOOD SAMPLES COLLECTED

FOOD DISPOSED

FOOD EMBARGOED

FOOD PRODUCT:

1.

2.

3.

FOOD EMPLOYEE RESTRICTION OR EXCLUSION

OPERATING PROCEDURES MODIFIED (PLEASE SPECIFY)

EQUIPMENT REPAIRED

NONE

OTHER (DESCRIBE BELOW)

OFFICE USE ONLY:

Conclusions:

\_\_\_\_\_  
ESTABLISHMENT OWNER/MANAGER

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
FOOD INSPECTOR

\_\_\_\_\_  
SIGNATURE

**DIVISION OF FOOD PROTECTION & SANITATION  
RHODE ISLAND DEPARTMENT OF HEALTH  
Providence, Rhode Island 02903**

FPS 569/4  
Embargo No. \_\_\_\_\_  
Date \_\_\_\_\_  
Field Office \_\_\_\_\_

(Check One)

- VOLUNTARY DISPOSAL:** I, \_\_\_\_\_ <sup>SIGNATURE</sup> have this day voluntarily destroyed, or caused to be destroyed, the merchandise described below and hereby release the R. I. Dept. of Health, Div. of Food Protection & Sanitation and its members, agents, and representatives from any and all liability. Said merchandise found in my possession was unfit for human consumption, or otherwise unlawful.
  
- EMBARGO:** The following items are hereby declared to be "EMBARGOED" under Sec. 21-31-6(a) of the R. I. Food, Drug and Cosmetics Act. It shall be UNLAWFUL FOR ANY PERSON TO REMOVE or DISPOSE or SELL SUCH DETAINED or EMBARGOED MERCHANDISE UNTIL PERMISSION FOR REMOVAL or DISPOSAL IS GIVEN BY A DULY AUTHORIZED AGENT of the R. I. Dept. of Health, or the COURT.  
I, \_\_\_\_\_ <sup>SIGNATURE</sup> agree that the following inventory is true & accurate and understand the conditions of the preceding paragraph.
  
- CONDEMNATION: DISPOSAL and/or DESTRUCTION:** The following items are hereby declared to be a "NUISANCE" under Sec. 21-31-6(d) of the R. I. Food, Drug and Cosmetics Act and are therefore CONDEMNED.
  
- EMBARGO RELEASE:** The products listed on EMBARGO No. \_\_\_\_\_ Dated \_\_\_\_\_ are hereby released from detention.
  
- RECEIPT FOR DISPOSAL:** I hereby acknowledge the receipt of the goods listed below for disposal. Method & Place of Destruction and/or Disposal \_\_\_\_\_

Received by \_\_\_\_\_ Date \_\_\_\_\_

QUANTITY	INVENTORY DESCRIPTION CODES	Reason for Action	Size	Wgt	Value
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

(Check ) **SUPPLEMENTARY INVENTORY SHEETS ATTACHED** \_\_\_\_\_

Firm Name \_\_\_\_\_ Address \_\_\_\_\_

Type of Business \_\_\_\_\_ Representative & Title \_\_\_\_\_

INSTRUCTIONS: Record only one action per form. \_\_\_\_\_ Signature

ORIGINAL - ESTABLISHMENT COPY - Agent \_\_\_\_\_ DIV. of FOOD PROTECTION & SANITATION  
DUPLICATE - DIVISION COPY

Rhode Island Department of Health – Office of Food Protection  
 Room 203, Cannon Bldg., 3 Capitol Hill, Providence, RI 02908

**Sample Collection Form**

Reason: Routine  Complaint  Other  \_\_\_\_\_

1. Item:	2. Brand name:
3. Collected at:	4. Establishment License Number:
5. Address:	6. City:

7. Manufacturer Name & Address:

8. Collected by:	9. Collection Date/Time:	10. Results to: FOO <input type="checkbox"/> SHL <input type="checkbox"/>
------------------	--------------------------	---

11. Condition	12. Sealed	13. Product Code/Date of Manufacture		14. From Lot of	15. Manufactured on Premises
Hot Cold Frozen Other	<input type="checkbox"/> Yes <input type="checkbox"/> No				Yes <input type="checkbox"/> No <input type="checkbox"/>
16. Size	17. Exp. Date	18. Date of Shipment	19. Import Product	20. Temp. Collected ° F	21. Temp. Rec'd. ° F
			<input type="checkbox"/> Yes <input type="checkbox"/> No		

22. Consumer Complaint: <input type="checkbox"/> Illness <input type="checkbox"/> Food-related <input type="checkbox"/> Environmental	23. Complaint #:	24. Original Container Yes <input type="checkbox"/> No <input type="checkbox"/>
--	------------------	--

25. Name & location of store where purchased:	26. Establishment License #	27. Date Purchased	28. Product used <input type="checkbox"/> Yes <input type="checkbox"/> No
---	-----------------------------	--------------------	--

29. Chain of Custody – Date, Time or Transaction of Complaint from Field to Lab, etc. (please sign then print your name)		Date	Time	How stored
1. From (sign):	To (sign):			
Print	Print			
2. From (sign):	To (sign):			
Print	Print			
3. From (sign):	To (sign):			
Print	Print			
4. From (sign):	To (sign):			
Print	Print			

30. Food Chemistry Tests* (please check)							31. Food Micro Tests*	
<input type="checkbox"/> FC01 Acetic Acid	<input type="checkbox"/> FC08 Cereal Qual	<input type="checkbox"/> FC16 Histamine	<input type="checkbox"/> FC 24 Moisture	<input type="checkbox"/> FC 33 Potassium	<input type="checkbox"/> FC38 Sugars	<input type="checkbox"/> FC69 Vitamin A	<input type="checkbox"/> SM16 Bacillus cereus	<input type="checkbox"/> SM08 Listeria
<input type="checkbox"/> FC03 Added H <sub>2</sub> O	<input type="checkbox"/> FC10 Domoic Acid (ASP)	<input type="checkbox"/> FC17 Lactic Acid	<input type="checkbox"/> FC25 Mold/Yeast	<input type="checkbox"/> FC34 Protein	<input type="checkbox"/> FC39 Sulfite	<input type="checkbox"/> FC70 Vitamin D	<input type="checkbox"/> SM Campylobacter	<input type="checkbox"/> SM32 Non-Coag Staph
<input type="checkbox"/> FC04 Additives	<input type="checkbox"/> FC11 Ethanol	<input type="checkbox"/> FC19 Lactose/ Galactose	<input type="checkbox"/> FC27 Non-Fat Dairy Milk	<input type="checkbox"/> FC32 Phytoplankton	<input type="checkbox"/> FC40 Thiobarbituric Acid	<input type="checkbox"/> FC45 Water Activity	<input type="checkbox"/> SM15 Coag. Staph	<input type="checkbox"/> SM18 Salmonella
<input type="checkbox"/> FC05 Allergens	<input type="checkbox"/> FC12 Fat	<input type="checkbox"/> FC20 L-Glutamic Acid	<input type="checkbox"/> FC28 Nitrite	<input type="checkbox"/> FC35 PSP	<input type="checkbox"/> FC41 Titratable Acidity	<input type="checkbox"/> FC46 Wt./Vol.	<input type="checkbox"/> SM20 Clostridium Botulinum	<input type="checkbox"/> SM24 Standard Plate Count
<input type="checkbox"/> FC02 Aflatoxin	<input type="checkbox"/> FC13 Free Fatty Acid	<input type="checkbox"/> FC21 Magnesium	<input type="checkbox"/> FC29 Organoleptic	<input type="checkbox"/> FC36 Sodium	<input type="checkbox"/> FC42 Trimethyl- amine		<input type="checkbox"/> SM19 Clostridium perfringens	<input type="checkbox"/> SM12 Total Coliform/MPN
<input type="checkbox"/> FC06 Brix	<input type="checkbox"/> FC14 Filtration	<input type="checkbox"/> FC22 Meat Species ID	<input type="checkbox"/> FC30 pH	<input type="checkbox"/> FC26 Sodium Chloride	<input type="checkbox"/> FC43 Total Solids-RI		<input type="checkbox"/> SM14 Fecal/MPN	<input type="checkbox"/> SM Yersinia
<input type="checkbox"/> FC07 Calcium	<input type="checkbox"/> FC15 Heavy Metals	<input type="checkbox"/> FC23 Mercury	<input type="checkbox"/> FC31 Phosphorous	<input type="checkbox"/> FC37 Soy Flour	<input type="checkbox"/> FC44 Total Volatile Bases	<b>Other:</b>		

**Comments:**



## Rhode Island Department of Health Office of Food Protection

### CONDITIONAL EMPLOYEE OR FOOD EMPLOYEE REPORTING AGREEMENT

Preventing Transmission of Diseases through Food by Infected Conditional Employees or Food Employees with Emphasis on illness due to Norovirus, *Salmonella Typhi*, *Shigella* spp., Enterohemorrhagic (EHEC) or Shiga toxin-producing *Escherichia coli* (STEC), or hepatitis A Virus

*The purpose of this agreement is to inform conditional employees or food employees of their responsibility to notify the person in charge when they experience any of the conditions listed so that the person in charge can take appropriate steps to preclude the transmission of foodborne illness.*

#### I AGREE TO REPORT TO THE PERSON IN CHARGE:

#### Any Onset of the Following Symptoms, Either While at Work or Outside of Work, Including the Date of Onset:

- |             |   |
|-------------|---|
| 1. Diarrhea | 4. Sore throat with fever   |
| 2. Vomiting | 5. Infected cuts or wounds, or lesions containing pus on the hand, wrist, an exposed body part, or other body part and the cuts, wounds, or lesions are not properly covered (such as boils and infected wounds, however small) |
| 3. Jaundice |   |

#### Future Medical Diagnosis:

Whenever diagnosed as being ill with Norovirus, typhoid fever (*Salmonella Typhi*), shigellosis (*Shigella* spp. infection), *Escherichia coli* O157:H7 or other EHEC/STEC infection, or hepatitis A (hepatitis A virus infection)

#### Future Exposure to Foodborne Pathogens:

1. Exposure to or suspicion of causing any confirmed disease outbreak of Norovirus, typhoid fever, shigellosis, *E. coli* O157:H7 or other EHEC/STEC infection, or hepatitis A.
2. A household member diagnosed with Norovirus, typhoid fever, shigellosis, illness due to EHEC/STEC, or hepatitis A.
3. A household member attending or working in a setting experiencing a confirmed disease outbreak of Norovirus, typhoid fever, shigellosis, *E. coli* O157:H7 or other EHEC/STEC infection, or hepatitis A.

I have read (or had explained to me) and understand the requirements concerning my responsibilities under the **Food Code** and this agreement to comply with:

1. Reporting requirements specified above involving symptoms, diagnoses, and exposure specified;
2. Work restrictions or exclusions that are imposed upon me; and
3. Good hygienic practices.

I understand that failure to comply with the terms of this agreement could lead to action by the food establishment or the food regulatory authority that may jeopardize my employment and may involve legal action against me.

Employee Name (please print) \_\_\_\_\_  Conditional Employee  
Employee Signature \_\_\_\_\_ Date \_\_\_\_\_  
Permit Holder or Representative Signature \_\_\_\_\_ Date \_\_\_\_\_

## Appendix G

<b>Foodborne Outbreak Kit Inventory *</b>					
<i>Item</i>	<i>Date:</i>	<i>Date:</i>	<i>Date:</i>	<i>Date:</i>	<i>Date:</i>
	<i>Check &amp; Initial</i>				
(1) Digital Camera	<input type="checkbox"/>				
(2) Foodborne Outbreak Investigation Checklists	<input type="checkbox"/>				
(2) Foodborne Illness Investigation reports	<input type="checkbox"/>				
(3) Sample Collection Forms	<input type="checkbox"/>				
(5) 10 oz. Sterile food sample containers	<input type="checkbox"/>				
(4) 18 oz. Whirl-Pak bags	<input type="checkbox"/>				
(4) Zip Loc Bags 13 x 18 in. (4 ml thick)	<input type="checkbox"/>				
(3) Sterile Spoons (1 Tablespoon.)	<input type="checkbox"/>				
(1) Sterile Scoop 4 oz.	<input type="checkbox"/>				
(3) Sterile Spatulas	<input type="checkbox"/>				
(1) 60 ml/2 oz. stainless steel sterile ladle	<input type="checkbox"/>				
(1) 250 ml/8 oz. stainless steel sterile ladle	<input type="checkbox"/>				
(5) Sterile cotton-tipped swabs	<input type="checkbox"/>				
(1) Sterile stainless steel tong	<input type="checkbox"/>				
Embargo Stickers	<input type="checkbox"/>				
Alcohol Preps	<input type="checkbox"/>				
Medium Vinyl Gloves	<input type="checkbox"/>				
Large Vinyl Gloves	<input type="checkbox"/>				

\* Please ensure that kit is complete. If items are out of stock or require sterilization, please notify the Food Defense Coordinator. (Autoclaved utensils good for one year.)

## FOOD HANDLER INFORMATION FORM

NAME	PHONE (WORK) ( ) -	PHONE (HOME) ( ) -
ADDRESS	CITY	STATE
		SEX: Male      Female
JOB TITLE:	WHAT DOES THE EMPLOYEE DO (DEFINE DUTIES)?	

### Clinical Information

Was the foodhandler sick during the past two weeks?     Y     N    *(If no skip to WORK HISTORY)*

IF YES, WHAT WERE THE SYMPTOMS OF ILLNESS?

Diarrhea	Abdominal	Headache	Loss of Appetite
Vomiting	Cramps	Muscle Aches	Fatigue
Nausea	Fever	Chills	Dizziness
	Bloody Stool		Burning Sensation in Mouth

Other Symptoms	Symptom onset date / /	Duration of symptoms days or hours
----------------	---------------------------	---------------------------------------

DID THE FOODHANDLER SEEK MEDICAL CARE?     Y     N    *(If no skip to WORK HISTORY)*

PHYSICIANS NAME	PHONE NUMBER ( ) -
-----------------	-----------------------

ANY SPECIMENS OBTAINED? <input type="checkbox"/> Y <input type="checkbox"/> N	TYPE OF SPECIMEN: <input type="checkbox"/> Stool <input type="checkbox"/> Blood <input type="checkbox"/> Other: _____
---	---

DATE OF SPECIMEN COLLECTION / /	LABORATORY
------------------------------------	------------

WAS THE CASE HOSPITALIZED?    Y    N	NAME OF HOSPITAL:	HOSPITAL CHART NO.
--------------------------------------	-------------------	--------------------

### Work History

✓ Did the food handler prepare/serve/or handle foods, assist others in eating, or give oral medications?  
 Y     N

✓ What are the specific dates the food handler worked in the last two weeks?

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

✓ In the past two weeks, did the foodhandler miss any work?     Y     N  
If yes, when: \_\_\_\_\_

✓ In the past two weeks, did the foodhandler work while experiencing loose stools?     Y     N  
If yes, when: \_\_\_\_\_

✓ In the past two weeks, were any household contacts ill?     Y     N  
If yes, when: \_\_\_\_\_

✓ In the past two weeks, did the foodhandler travel out of state/foreign?     Y     N  
If yes, where: \_\_\_\_\_

## Duties And Responsibilities

- ✓ Did the foodhandler prepare/handle/serve, any foods that would not be cooked before being eaten?  
 Y  N  
 If yes, please list all foods prepared/handled/served (e.g. salads, deserts, sandwiches, beverages, ice):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- ✓ Does the foodhandler wash his/her hands every time after using the bathroom?  Y  N

- ✓ Does the foodhandler wash his/her hands throughout the day?  Y  N

- ✓ Are there times when the foodhandler has bare hand contact with ready-to-eat foods?  Y  N  
 If yes, when:

- \_\_\_\_\_
- ✓ Are there times when the foodhandler does not wear protective gloves?  Y  N  
 If yes, when:

- \_\_\_\_\_
- ✓ Are there times when the foodhandler does not use serving utensils?  Y  N  
 If yes, when:

- \_\_\_\_\_
- ✓ Does the foodhandler work at any other establishment (daycare, food service or healthcare)?  Y  N

If yes, please provide:  
 Facility name: \_\_\_\_\_ Phone: (     ) \_\_\_\_\_ - \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_

Person notified: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Specific Dates worked at other establishment in the last two weeks:

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

Notes:

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Will submit a stool specimen for surveillance purposes (not diagnostic)     Y     N

Person completing the form: \_\_\_\_\_ Date/Time: \_\_\_\_\_



## Appendix I

### **Foodborne Illness Transmission by Food Handlers**

#### **1. Definition of a Food Handler**

A food handler is any person directly preparing or handling food in a food service establishment, health care facility, day care facility, school, or community residential program. A food handler can include the owner, an individual having supervisory or management duties, other employees on the payroll, a family member, a volunteer, a person performing work under contract, or any other person working in a facility.

#### **2. Impact Of Food Handler's Health On Foodborne Illness**

Foodborne illness may occur as a result of contamination of food by an infected food handler. Food handlers may transmit diseases such as Norovirus, Hepatitis A, Shigella, E. coli 0157:H7 and Salmonella via the fecal oral route. This may occur whether the individual is symptomatic or asymptomatic. Staphylococcus aureus may be transmitted to food from infected skin lesions of food handlers through direct contact of the infected lesion with food (hands or arms). It should also be noted that Staphylococcus aureus may be present on the face, in the nose or mouth, and may be transmitted after touching these areas and subsequently touching food. Refer to Appendices, CDC Fact Sheets, for additional information on the other diseases transmitted through food.

#### **3. What To Do If You Discover A Sick Food Handler**

##### **3.1. Confirm the Illness as a Foodborne illness (OCD\*)**

Confirming the illness involves a phone call or a face-to-face interview by qualified HEALTH nursing personnel. The HEALTH nurse who is assigned to perform the interview will gather patient information and will review all the medical findings, including lab tests performed by the individual's health care provider. The medical director of the OCD will review all the information for diagnosis and transmission risk. In concurrence with the OFP\*, the medical director of the OCD will recommend one or more of the following courses of action (**RI Food Code Section 8-501.20**):

- (A) Restricting the food employee or conditional employee;
- (B) Excluding the food employee or conditional employee;
- (C) Closing the food establishment by summarily suspending a permit to operate in accordance with law.

**NOTE:** Restrictions or exclusions may be removed according to the criteria outlined in Chapter 2 subpart 2-201.13 of the Rhode Island Food Code.

#### **4. Identify and Dispose of Food Contaminated by an Ill or Infected Food Worker (OFP)**

4.1 Interview the manager of the food establishment and other food handlers to determine the duties and responsibilities of the ill food handler(s). Determine if there is any food in the establishment that was prepared by the ill food handler(s) and the dates these items were prepared. Embargo these foods and discuss disposition with your EHFS supervisor. The decision to embargo foods will be based on: hygienic practices, food handling and method of preparation. Collect food samples for laboratory analysis if appropriate. Note: Individuals diagnosed with Hepatitis A are considered

infectious two (2) weeks before the onset of symptoms and up to one (1) week after the onset of symptoms.

**FOODS that have any possibility of having become contaminated by an ill/infected food handler must be disposed or embargoed in accordance with Section 3-701.11 of the Rhode Island Food Code ([http://www.health.ri.gov/environment/food/retail/retail\\_food.php](http://www.health.ri.gov/environment/food/retail/retail_food.php)) and Section 21-31-6 of the Rhode Island Food, Drugs and Cosmetic Act of the General Laws of Rhode Island (<http://www.rilin.state.ri.us/Statutes/TITLE21/21-31/21-31-6.HTM>).**

4.2 Questions to be asked include the following:

- 4.2.1 What dates did the food handler work? When (give dates) was he/she symptomatic?
- 4.2.2 Did the food handler prepare food during the time that they were symptomatic or able to transmit disease? What foods did the food handler prepare? At what points in the food preparation process was the food handler involved?
- 4.2.3 Did the food handler touch any foods with their bare hands? If so, were these foods cooked before serving to other people. Examples may include sandwiches, salads, breads, drinks, desserts, garnishes, etc.
- 4.2.4 Describe the food worker's hygienic practices. (Obtain this information through interviews of food handler and co-workers.)
- 4.2.5 Does the food handler wash his/her hands after using the bathroom?
- 4.2.6 Does the food handler wash his/her hands as necessary during the day?
- 4.2.7 Does the food handler use single-use gloves? If so, are they used properly?
- 4.2.8 Note: Please refer to the food handler's information form in Appendix H.

4.3 Interview and Educate Other Food Handlers (OFP & OCD)

- 4.3.1 Determine if the food establishment has an employee illness reporting policy/procedure. (OFP)
- 4.3.2 Interview other food handlers about their health status and, if symptomatic, inform the person in charge to exclude or restrict the ill/infected food handler as warranted, pending medical evaluation. If the person in charge refuses to comply, then an order must be obtained through proper channels from the Director of the Department of Health. (OFP)
- 4.3.3 A Public Health Nurse from the Office of Communicable Diseases will provide information to the food establishment employees about the specific disease of concern. Education will include: symptoms, mode of transmission, and prevention. Copies of the pertinent fact sheet will be given to employees. Provide employees with pertinent fact sheets. (Appendix S, *CDC Fact Sheets*).
- 4.3.4 Stress the importance of thorough hand washing. (Appendix J)

\*OCD = Office of Communicable Diseases

OFP = Office of Food Protection

## PROPER HANDWASHING PROCEDURE

- 1) Wet hands with warm water and apply enough soap to attain a good lather.
- 2) Vigorously rub together the surfaces of lathered hands and arms for at least 10 to 15 seconds. Pay particular attention to the area between the fingers and under the fingernails. Rinse thoroughly under clean running water.
- 3) Dry hands.
- 4) Use a paper towel to turn off tap

**Note:** Soap, drying materials or device, hot/cold running water must be provided at each hand-washing sink.

□ **Reinforce the following:**

- Policy of **NO BARE HAND CONTACT** with ready-to-eat foods,
- Proper use of gloves and utensils when handling ready-to-eat foods,



1



2



3



4

## **HEPATITIS A CONTROL MEASURES FOR FOOD HANDLERS**

**A confirmed case of Hepatitis A in a food handler should be acted upon immediately according to the following procedures:**

1. Determine the period of infectivity (OCD) - an individual is considered infectious 14 days prior to symptoms onset and 7 days after symptoms onset.
2. Exclude the food worker from the food establishment if the employee is diagnosed with Hepatitis A infection and is still considered infectious (OCD & OFP)
3. Inspect the food establishment. OFP personnel will concentrate on hand washing practices and rest room facilities.
4. Implement control measures to prevent transmission of Hepatitis A (OFP).
  - Frequent and proper hand washing
  - No bare hand contact with ready to eat foods
5. Assess employee exposure:
  - OCD will obtain a history of the days and shift that the infected employee worked, other places of employment, types of food handled, use of disposable gloves, and hygienic practices of the Hepatitis A positive individual.
  - OCD personnel will interview other employees for symptoms of Hepatitis A. If symptomatic, they should also be excluded from work and tested for Hepatitis A.
6. Immunize contacts (from food establishment) of ill employee with immune globulin (IG). The Office of Communicable Diseases will coordinate and conduct this intervention.
7. Assess the likelihood of transmission to food establishment patrons (OCD).
  - Determine if there was bare hand contact with ready to eat foods (OFP)
  - Assess hygienic practices of ill worker to determine the potential for transmission of disease (OFP).
  - Notify the public if applicable, i.e. the Hepatitis A positive individual prepared food less than 2 weeks ago while infectious, he/she prepared ready-to-eat foods with bare hands, and their hand washing or hygienic practices were poor (Public Health Information Officer in coordination with OFP and/or OCD)

8. OCD and OFP will make the decision to reinstate the excluded employee(s) in accordance with Chapter 2, subpart 2-201.13 of the RI Food Code. The person in charge of the food establishment must obtain approval from the Department of Health to reinstate the excluded employee after the employee meets one of the following conditions.
  - The food employee has been jaundiced for more than 7 calendar days;
  - The anicteric food employee has been symptomatic with symptoms other than jaundice for greater than 14 days.
  - The food employee provides written medical documentation to the person in charge of the food establishment specifying that the person is free of Hepatitis A infection.
  
9. Continue surveillance (OCD) – manager of food establishment must monitor employees daily to determine if signs and symptoms are present.

\* OFP = Office of Food Protection  
OCD = Office of Communicable Diseases

Appendix L  
**Categorization of Tests by Method and Laboratory**

RI Department of Health (HEALTH)  
 Division of Laboratories

<i>Categorization of Tests by Method and Laboratory</i>		
<b>Category</b>	<b>Method</b>	<b>Laboratory</b>
Drugs	GC-MS, UV-VIS, Wet Chem	Drug and/or Forensic Tox
Poisons	Screening Tests, Kits	Forensic Tox, Food Chem
Solvents	GC Purge & Trap, GC-MS, LC, GC	Organic Chemistry
Pesticides	GC, LC	Organic Chemistry
Metals	GFAA, ICP/MS	Inorganic Chemistry
Additives	LC, UV, Scan, IR (solids), Wet Chem	Food Chem, Drug Lab
Labeling	LC, Wet Chem, GFAA, ICP/MS	Food Chem, Inorganics
Foodborne Illness	Micro and Chemical	Micro, Food Chem, Organics, Inorganics, Drug and/or Human Tox
Decomposition	Chemical and Micro	Food Chem and Micro
Agents of Bioterrorism	Specialized	Bioterrorism Response and Special Pathogens
Food Allergens	Wet Chem and Kits	Food Chem

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Appendix M

***Guide to Sample Distribution***

**\* Proper information regarding complaint and proper chain of custody must be submitted with complaint form. Targeted questions will help the lab focus on necessary testing. Vague statements such as “test for chemicals” and “made me sick” are not acceptable.**

<u>Descriptors</u>	<b>Possible Test Categories</b>
Chemical taste/odor	Metals, additives, pesticides, drugs, micro by-products
Solvent taste/odor	Volatile organics, micro by-products
Sweet, sour, bitter, salty, fruity, pungent	Decomp, labeling, additives, micro by-product
Allergic reaction and/or immediate illness	Food allergens, drugs, metals, poisons
Illness not immediate	Micro, drugs, metals, poisons
Foul odors/spoilage	Decomp, micro
Burning sensation	Acid or base (pH), inorganics (anions or cations to define acid or base)
Foreign object, insect, or rodent	Filth, metals on solid, metal-like objects

## Appendix N

RI Department of Health Laboratory: Guide to Clinical Specimen Collection						
Organism/Disease	Specimen Collection Media	Specimen Volume Required	Method of Collection	Specimen Transport	Specimen Storage	Turn around times pos/neg
<b>BACTERIA</b>						
<i>Bacillus cereus</i>	Enteric Pathogen Transport or Cary Blair	Transfer stool samples about the size of a walnut (continue filling the vial until the liquid level reaches the red line)	Transfer small samples (of stool) from areas that appear bloody, slimy, or watery. If specimen is firm, take sample from both ends and the middle. Continue adding specimen until the liquid reaches the red fill line.	Specimen must be received within three days. Place the vial into sealable side of specimen transport bag, seal bag. Package and ship all specimens according to Dept. of Transportation regulations.	Store in refrigerator after collection and until delivery to HEALTH laboratories	Bacteria Turn around times 72 hours for positive results and 72 hours for negative results
<i>Campylobacter</i>						
<i>Clostridium perfringens</i>						
<i>E. coli O157:H7</i>						
Salmonellosis						
Shigellosis						
<i>Staphylococcus aureus</i>						
Typhoid Fever ( <i>Salmonella typhi</i> )						
<i>Vibrio cholera</i>						
<i>Vibrio parahaemolyticus</i>						
<i>Vibrio vulnificus</i>						
<i>Yersinia enterocolitica</i>						
<b>PARASITES</b>						
Amebiasis	O + P kit 1 container SAF and 1 container Empty vial	Transfer stool samples about the size of a walnut (continue filling the vial until the liquid level reaches the red line)	A series of three specimens preferably collected every other day is needed for an adequate examination. Transfer small samples (of stool) from areas that appear bloody, slimy, or watery. If specimen is firm, take sample from both ends and the middle. Continue adding specimen until the liquid reaches the red fill line.	Transport as soon as possible. Place both vials into sealable side of specimen transport bag, seal bag. Package and ship all specimens according to Dept. of Transportation regulations.	Store in refrigerator after collection and until delivery to HEALTH laboratories	Parasite Turn around times 72 hours for positive results and 72 hours for negative results
Cryptosporidiosis						
<i>Cyclospora cayetanensis</i>						
Giardiasis						
<b>VIRUSES</b>						
Norovirus	Clean catch container	2 mls of specimen	Transfer small samples (of stool) from areas that appear bloody, slimy, or watery. If specimen is firm, take sample from both ends and the middle	Transport as soon as possible.	Store at 4C until delivered to laboratory Do not freeze specimen	Viral Turn around times 72 hours for pos+neg

## Appendix O

### RI Department of Health Laboratory: Guide to Environmental Specimen Collection

Organism Disease	Specimen Volume Required	Method of Collection	Specimen Transport	Specimen Storage
<i>Bacillus cereus</i>	50g. If quantity to be examined is large, take 50g samples from different parts)	aseptic technique	Transport promptly without freezing if possible. If not, pack in containers below 6°C	Store for 36 hrs max. Store frozen samples at -20°C. Refrigerate unfrozen perishables at 0-4°C. Non-perishables can be kept at room temp.
<i>Clostridium botulinum</i>	25g minimum	aseptic technique	aseptic container	Refrigerate. Unopened canned foods can be kept at room temp.
<i>Clostridium perfringens</i>	25g minimum	aseptic technique 150ml container	If sample needs to be shipped add 25ml buffered glycerin-salt. sol'n. Keep frozen at -70 to -90°C with dry ice.	Store at 10°C for a maximum of 8 hrs.
Campylobacter species	25g except 50g milk/cheese/ fruit/vegetable, 50-100g lobster tail/crab claw, 12 shellfish, or 2-4L water	aseptic technique	aseptic container	Organism can survive 1-3 weeks at refrigeration temp. Sample must be analyzed as soon as the package is opened and exposed to oxygen.
<i>E. coli O157:H7</i>	50g minimum or 12 shellfish (at least 200g)	aseptic technique	aseptic container or original unopened container if possible	Analyze sample promptly. Do not freeze. Refrigerate if necessary. Keep above 6°C.
Listeria species	25g minimum	aseptic technique	Keep refrigerated at 4°C in an antiseptic container.	Refrigerate at 4°C. If sample is frozen, keep frozen.
Salmonella species	25g minimum	aseptic technique	aseptic container	Refrigerate at 4°C. If sample is frozen, keep frozen.
Shigella species	25g minimum	aseptic technique	aseptic container	Store for 36 hrs max. Store frozen samples at -20°C. Refrigerate unfrozen perishables at 0-4°C. Non-perishables can be kept at room temp.
<i>Staphylococcus aureus</i>	25g minimum	aseptic technique	aseptic container	Store for 36 hrs max. Store frozen samples at -20°C. Refrigerate unfrozen perishables at 0-4°C. Non-perishables can be kept at room temp.
Vibrio species	25g minimum or oysters- 50g minimum	aseptic technique	aseptic container	Store for 36 hrs max. Store frozen samples at -20°C. Refrigerate unfrozen perishables at 0-4°C. Non-perishables can be kept at room temp.
<i>Yersinia</i>	25g minimum	aseptic technique	aseptic container	Analyze sample promptly or refrigerate at 4°C. Freezing not recommended.

\*Test TAT for pos and neg results is approx 72 hrs.

Appendix P

**RHODE ISLAND DEPARTMENT OF HEALTH**  
**OFFICE OF FOOD PROTECTION**  
**FOOD CODE - 2007**  
(Chapters 2-2 & 8-5)

**2-2 EMPLOYEE HEALTH**

*Subpart*

**2-201 Responsibilities of Permit Holder, Person in Charge, Food Employees, and Conditional Employees**

*Responsibilities and Reporting Symptoms and Diagnosis*

**2-201.11 Responsibility of Permit Holder, Person in Charge, and Conditional Employees.\***

(A) The PERMIT HOLDER shall require FOOD EMPLOYEES and CONDITIONAL EMPLOYEES to report to the PERSON IN CHARGE information about their health and activities as they relate to diseases that are transmissible through FOOD. A FOOD EMPLOYEE or CONDITIONAL EMPLOYEE shall report the information in a manner that allows the PERSON IN CHARGE to reduce the risk of foodborne disease transmission, including providing necessary additional information, such as the date of onset of symptoms and an illness, or of a diagnosis without symptoms, if the FOOD EMPLOYEE or CONDITIONAL EMPLOYEE:

*Reportable symptoms*

(1) Has any of the following symptoms:

- (a) Vomiting,
- (b) Diarrhea,
- (c) Jaundice,
- (d) Sore throat with fever, or
- (e) A lesion containing pus such as a boil or infected wound that is open or draining and is:

- (i) On the hands or wrists, *unless an impermeable cover such as a finger cot or stall protects the lesion and a SINGLE-USE glove is worn over the impermeable cover,*

(ii) On exposed portions of the arms, unless the lesion is protected by an impermeable cover, or

(iii) On other parts of the body, unless the lesion is covered by a dry, durable, tight-fitting bandage;

### ***Reportable diagnosis***

(2) Has an illness diagnosed by a HEALTH PRACTITIONER due to:

- (a) Norovirus,
- (b) Hepatitis A virus,
- (c) *Shigella* spp.,
- (d) Enterohemorrhagic or Shiga toxin-producing *Escherichia coli*,
- (e) *Salmonella* Typhi;

### ***Reportable past illness***

(3) Had a previous illness, diagnosed by a HEALTH PRACTITIONER, within the past 3 months due to *Salmonella* Typhi, without having received antibiotic therapy, as determined by a HEALTH PRACTITIONER;

### ***Reportable history of exposure***

(4) Has been exposed to, or is the suspected source of, a CONFIRMED DISEASE OUTBREAK, because the FOOD EMPLOYEE or CONDITIONAL EMPLOYEE consumed or prepared FOOD implicated in the outbreak, or consumed FOOD at an event prepared by a person who is infected or ill with:

- (a) Norovirus within the past 48 hours of the last exposure,
- (b) ENTEROHEMORRHAGIC or SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* , or *Shigella* spp. within the past 3 days of of the last exposure,
- (c) *Salmonella* Typhi within the past 14 days of the last exposure, or
- (d) Hepatitis A virus within the past 30 days of the last exposure;

### ***Reportable history of exposure***

(5) Has been exposed by attending or working in a setting where there is a CONFIRMED DISEASE OUTBREAK, or living in the same household as, and has knowledge about, an individual who works or attends a setting where there is a CONFIRMED DISEASE OUTBREAK, or living in the same household as, and has knowledge about, an individual diagnosed with an illness caused by:

- (a) Norovirus within the past 48 hours of the last exposure,
- (b) ENTEROHEMORRHAGIC or SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* , or *Shigella* spp. within the past 3 days of of the last exposure,
- (c) *Salmonella* Typhi within the past 14 days of the last exposure, or
- (d) Hepatitis A virus within the past 30 days of the last exposure.

### ***Responsibility of person in charge to notify the regulatory authority***

(B) The PERSON IN CHARGE shall notify the REGULATORY AUTHORITY when a FOOD

EMPLOYEE is:

(1) Jaundiced, or

(2) Diagnosed with an illness due to a pathogen as specified under Subparagraphs (A)(2)(a)-(e) of this section.

***Responsibility of the person in charge to prohibit a conditional employee from becoming a food employee***

(C) The PERSON IN CHARGE shall ensure that a CONDITIONAL EMPLOYEE:

(1) Who exhibits or reports a symptom, or who reports a diagnosed illness as specified under Subparagraphs (A)(1)-(3) of this section, is prohibited from becoming a FOOD EMPLOYEE until the CONDITIONAL EMPLOYEE meets the criteria for the specific symptoms or diagnosed illness as specified under § 2-201.13; and (2) Who will work as a FOOD EMPLOYEE in a FOOD ESTABLISHMENT that serves a HIGHLY SUSCEPTIBLE POPULATION and reports a history of exposure as specified under Subparagraphs (A)(4)-(5), is prohibited from becoming a FOOD EMPLOYEE until the CONDITIONAL EMPLOYEE meets the criteria as specified under ¶ 2-201.13(I).

***Responsibility of the person in charge to exclude or restrict***

(D) The PERSON IN CHARGE shall ensure that a FOOD EMPLOYEE who exhibits or reports a symptom, or who reports a diagnosed illness or a history of exposure as specified under Subparagraphs (A)(1)-(5) of this section is

- (1) EXCLUDED as specified under ¶¶ 2-201.12 (A) - (C), and Subparagraphs (D)(1), (E), (F), or (G)(1) and in compliance with the provisions specified under ¶¶ 2-201.13(A) - (G); or
- (2) RESTRICTED as specified under Subparagraphs 2-201.12 (D)(2), (E)(2), (F)(2), (G)(2), or ¶¶ 2-201.12(H) or (I) and in compliance with the provisions specified under ¶¶ 2-201.13(D) – (I).

(E) A FOOD EMPLOYEE or CONDITIONAL EMPLOYEE shall report to the PERSON IN CHARGE the information as specified under ¶ (A) of this section.

***Responsibility of food employees to comply***

(F) A FOOD EMPLOYEE shall:

- (1) Comply with an EXCLUSION as specified under ¶¶ 2-201.12(A) – (C) and Subparagraphs 2-201.12(D)(1), (E)(1), (F)(1), or (G)(1) and with the provisions specified under ¶¶ 2-201.13(A) – (G); or
- (2) Comply with a RESTRICTION as specified under Subparagraphs 2-201.12(D)(2), (E)(2), (F)(2), (G)(2), or ¶¶ 2-201.12 (H) or (I) and comply with the provisions specified under ¶¶ 2-201.13(D) – (I).

***2-201.12 Exclusions and Restrictions.\****

***Conditions of exclusion and restriction***

The PERSON IN CHARGE shall exclude or restrict a FOOD EMPLOYEE from a FOOD ESTABLISHMENT in accordance with the following:

***Symptomatic with vomiting or diarrhea***

(A) *Except when the symptom is from a noninfectious condition*, EXCLUDE A FOOD EMPLOYEE if the FOOD EMPLOYEE is:

(1) Symptomatic with vomiting or diarrhea; or

(2) Symptomatic with vomiting or diarrhea and diagnosed with an infection from Norovirus, *Shigella* spp., or ENTEROHEMORRHAGIC or SHIGA TOXIN PRODUCING *E. COLI*

*Jaundiced or diagnosed with hepatitis A infection*

(B) Exclude a FOOD EMPLOYEE who is:

(1) Jaundiced and the onset of jaundice occurred within the last 7 calendar days, unless the FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER specifying that the jaundice is not caused by hepatitis A virus or other fecal-orally transmitted infection;

(2) Diagnosed with an infection from hepatitis A virus within 14 calendar days from the onset of any illness symptoms, or within 7 calendar days of the onset of jaundice; or

(3) Diagnosed with an infection from hepatitis A virus without developing symptoms.

*Diagnosed or reported previous infection due to S. Typhi*

(C) EXCLUDE a FOOD EMPLOYEE who is diagnosed with an infection from *Salmonella* Typhi, or reports a previous infection with *Salmonella* Typhi within the past 3 months as specified under Subparagraph 2-201.11(A)(3).

*Diagnosed with an asymptomatic infection from Norovirus*

(D) If a FOOD EMPLOYEE is diagnosed with an infection from Norovirus and is ASYMPTOMATIC:

(1) EXCLUDE the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT serving a HIGHLY SUSCEPTIBLE POPULATION; or

(2) RESTRICT the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION.

*Diagnosed with Shigella spp. infection and asymptomatic*

(E) If a FOOD EMPLOYEE is diagnosed with an infection from *Shigella* spp. and is ASYMPTOMATIC:

(1) EXCLUDE the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT serving a HIGHLY SUSCEPTIBLE POPULATION; or

(2) RESTRICT the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION.

*Diagnosed with EHEC or STEC and asymptomatic*

(F) If a FOOD EMPLOYEE is diagnosed with an infection from ENTEROHEMORRHAGIC or SHIGA TOXIN-PRODUCING *E. COLI*, and is ASYMPTOMATIC:

(1) EXCLUDE the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT serving a HIGHLY SUSCEPTIBLE

POPULATION; or

(2) RESTRICT the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION.

***Symptomatic with sore throat with fever***

(G) If a FOOD EMPLOYEE is ill with symptoms of acute onset of sore throat with fever:

(1) EXCLUDE the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT serving a HIGHLY SUSCEPTIBLE POPULATION; or

(2) RESTRICT the FOOD EMPLOYEE who works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION.

***Symptomatic with uncovered infected wound or pustular boil***

(H) If a FOOD EMPLOYEE is infected with a skin lesion containing pus such as a boil or infected wound that is open or draining and not properly covered as specified under Subparagraph 2-201.11(A)(1)(e), RESTRICT the FOOD EMPLOYEE.

***Exposed to foodborne pathogen and works in food establishment serving HSP***

(I) If a FOOD EMPLOYEE is exposed to a foodborne pathogen as specified under Subparagraphs 2-201.11(A)(4) or (5), RESTRICT the food employee who works in a FOOD ESTABLISHMENT serving a highly susceptible population.

***Managing Exclusions and Restrictions***

**2-201.13 Removal, Adjustment, or Retention of Exclusions and Restrictions.**

The PERSON IN CHARGE may remove, adjust, or retain the EXCLUSION or RESTRICTION of a FOOD EMPLOYEE according to the following conditions:

(A) Except when a FOOD EMPLOYEE is diagnosed with an infection from hepatitis A virus or *Salmonella* Typhi:

***REMOVING EXCLUSION FOR FOOD EMPLOYEE WHO WAS SYMPTOMATIC AND NOT DIAGNOSED***

(1) Reinstate a FOOD EMPLOYEE who was EXCLUDED as specified under Subparagraph 2-201.12 (A)(1) if the FOOD EMPLOYEE:

(a) Is ASYMPTOMATIC for at least 24 hours; or

(b) Provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER that states the symptom is from a noninfectious condition.

***Norovirus diagnosis***

(2) If a FOOD EMPLOYEE was diagnosed with an infection from Norovirus and EXCLUDED as specified under Subparagraph 2-201.12(A)(2)

***Adjusting exclusion for food employee who was symptomatic and is now asymptomatic***

(a) RESTRICT the FOOD EMPLOYEE, who is ASYMPTOMATIC for at least 24 hours and works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION, until the conditions for reinstatement as specified under Subparagraphs (D)(1) or (2) of this section are met; or

***Retaining exclusion for food employee who was symptomatic and is now asymptomatic and works in food establishment serving HSP***

(b) Retain the EXCLUSION for the FOOD EMPLOYEE, who is ASYMPTOMATIC for at least 24 hours and works in a FOOD ESTABLISHMENT that serves a HIGHLY SUSCEPTIBLE POPULATION, until the conditions for reinstatement as specified under Subparagraphs (D)(1) or (2) of this section are met.

***Shigella spp. diagnosis***

(3) If a FOOD EMPLOYEE was diagnosed with an infection from *Shigella* spp. and excluded as specified under Subparagraph 2-201.12(A)(2):

***Adjusting exclusion for food employee who was symptomatic and is now asymptomatic***

(a) RESTRICT the FOOD EMPLOYEE, who is ASYMPTOMATIC for at least 24 hours and works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION, until the conditions for reinstatement as specified under Subparagraphs (e)(1) or (2) of this section are met; or

***Retaining exclusion for food employee who was symptomatic and is now asymptomatic***

(b) Retain the EXCLUSION for the FOOD EMPLOYEE, who is ASYMPTOMATIC for at least 24 hours and works in a FOOD ESTABLISHMENT that serves a HIGHLY SUSCEPTIBLE POPULATION, until the conditions for reinstatement as specified under Subparagraphs (E)(1) or (2), or (E)(1) and (3)(a) of this section are met.

***EHEC or STEC diagnosis***

(4) If a FOOD EMPLOYEE was diagnosed with an infection from ENTEROHEMORRHAGIC or SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* and EXCLUDED as specified under subparagraph 2-201.12(A)(2):

***Adjusting exclusion for food employee who was symptomatic and is now asymptomatic***

(a) RESTRICT the FOOD EMPLOYEE, who is ASYMPTOMATIC for at least 24 hours and works in a FOOD ESTABLISHMENT not serving a HIGHLY SUSCEPTIBLE POPULATION, until the conditions for reinstatement as specified under Subparagraphs (F)(1) or (2) of this section are met; or

***Retaining exclusion for food employee who was symptomatic and is now asymptomatic and works in food establishment serving HSP***

(b) Retain the EXCLUSION for the FOOD EMPLOYEE, who is ASYMPTOMATIC for at least 24 hours and works in a FOOD ESTABLISHMENT that serves a HIGHLY SUSCEPTIBLE POPULATION, until the conditions for reinstatement as specified under Subparagraphs (F)(1) or (2) are met.

***Hepatitis A virus or jaundice diagnosis – removing exclusions***

(B) Reinstatement a FOOD EMPLOYEE who was EXCLUDED as specified under ¶ 2-201.12(B) if the PERSON IN CHARGE obtains approval from the REGULATORY AUTHORITY and one of the following conditions is met;

- (1) The FOOD EMPLOYEE has been jaundiced for more than 7 calendar days;
- (2) The anicteric FOOD EMPLOYEE has been symptomatic with symptoms other than jaundice for more than 14 calendar days; or
- (3) The FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER stating that the FOOD EMPLOYEE is free of a hepatitis A virus infection.

#### ***S. Typhi diagnosis – removing exclusions***

(C) Reinstate a FOOD EMPLOYEE who was EXCLUDED as specified under ¶ 2-201.12(C) if:

- (1) The PERSON IN CHARGE obtains approval from the REGULATORY AUTHORITY; and
- (2) The FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER that states the FOOD EMPLOYEE is free from S. Typhi Infection.

#### ***Norovirus diagnosis – removing exclusion or restriction***

(D) Reinstate a FOOD EMPLOYEE who was EXCLUDED as specified under Subparagraphs 2-201.12(A)(2) or (D)(1) who was RESTRICTED under Subparagraph 2-201.12(D)(2) if the PERSON IN CHARGE obtains approval from the REGULATORY AUTHORITY and one of the following conditions is met:

- (1) The EXCLUDED or RESTRICTED FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER stating that the FOOD EMPLOYEE is free of a Norovirus infection;
- (2) The FOOD EMPLOYEE was EXCLUDED or RESTRICTED after symptoms of vomiting or diarrhea resolved, and more than 48 hours have passed since the FOOD EMPLOYEE became ASYMPTOMATIC; or
- (3) The FOOD EMPLOYEE was EXCLUDED or RESTRICTED and did not develop symptoms and more than 48 hours have passed since the FOOD EMPLOYEE was diagnosed.

#### ***Shigella spp. diagnosis – removing exclusion or restriction***

(E) Reinstate a FOOD EMPLOYEE who was EXCLUDED as specified under Subparagraphs 2-201.12 (A)(2) or (E)(1) or who was RESTRICTED under Subparagraph 2-201.12(E)(2) if the PERSON IN CHARGE obtains approval from the REGULATORY AUTHORITY and one of the following conditions is met:

- (1) The EXCLUDED or RESTRICTED FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER stating that the FOOD EMPLOYEE is free of a *Shigella* spp. infection based on test results

showing 2 consecutive negative stool specimen cultures that are taken:

(2) The FOOD EMPLOYEE was EXCLUDED or RESTRICTED after symptoms of vomiting or diarrhea resolved, and more than 7 calendar days have passed since the FOOD EMPLOYEE became ASYMPTOMATIC; or

(3) The FOOD EMPLOYEE was EXCLUDED or RESTRICTED and did not develop symptoms and more than 7 calendar days have passed since the FOOD EMPLOYEE was diagnosed.

### ***EHEC or STEC diagnosis – removing exclusion or restriction***

(F) Reinstate a FOOD EMPLOYEE who was EXCLUDED or RESTRICTED as specified under Subparagraphs 2-201.12 (A)(2) or (F)(1) or who was RESTRICTED under Subparagraph 2-201.12 (F)(2) if the PERSON IN CHARGE obtains approval from the REGULATORY AUTHORITY and one of the following conditions is met:

(1) The EXCLUDED or RESTRICTED FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER stating that the FOOD EMPLOYEE is free of an infection from ENTEROHEMORRHAGIC or SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* based on test results that show 2 consecutive negative stool specimen cultures that are taken:

(a) Not earlier than 48 hours after discontinuance of antibiotics; and

(b) At least 24 hours apart;

(2) The FOOD EMPLOYEE was EXCLUDED or RESTRICTED after symptoms of vomiting or diarrhea resolved and more than 7 calendar days have passed since the FOOD EMPLOYEE became ASYMPTOMATIC; or

(3) The FOOD EMPLOYEE was EXCLUDED or RESTRICTED and did not develop symptoms and more than 7 days have passed since the FOOD EMPLOYEE was diagnosed.

### ***Sore throat with fever – removing exclusion or restriction***

(G) Reinstate a FOOD EMPLOYEE who was EXCLUDED or RESTRICTED as specified under Subparagraphs 2-201.12(G)(1) or (2) if the FOOD EMPLOYEE provides to the PERSON IN CHARGE written medical documentation from a HEALTH PRACTITIONER stating that the FOOD EMPLOYEE meets one of the following conditions:

(1) Has received antibiotic therapy for *Streptococcus pyogenes* infection for more than 24 hours;

(2) Has at least one negative throat specimen culture for *Streptococcus pyogenes* infection; or

(3) Is otherwise determined by a health practitioner to be free of a *Streptococcus pyogenes* infection.

***Uncovered infected wound or pustular boil – removing restriction***

(H) Reinstate a FOOD EMPLOYEE who was RESTRICTED as specified under ¶ 2-201.12(H) if the skin, infected wound, cut, or pustular boil is properly covered with one of the following:

- (1) An impermeable cover such as a finger cot or stall and a single-use glove over the impermeable cover if the infected wound or pustular boil is on the hand, finger, or wrist;
- (2) An impermeable cover on the arm if the infected wound or pustular boil is on the arm; or
- (3) A dry, durable, tight-fitting bandage if the infected wound or pustular boil is on another part of the body.

***Exposure to foodborne pathogen and works in FOOD ESTABLISHMENT serving HSP – removing restriction***

(I) Reinstate a FOOD EMPLOYEE who was RESTRICTED as specified under ¶ 2-201.12(I) and was exposed to one of the following pathogens as specified under Subparagraph 2-201.11(A)(4) or (5):

(1) Norovirus and one of the following conditions is met:

(a) More than 48 hours have passed since the last day the FOOD EMPLOYEE was potentially exposed; or

(b) More than 48 hours have passed since the FOOD EMPLOYEE'S household contact became ASYMPTOMATIC.

***Shigella spp., EHEC, or STEC***

(2) Shigella spp. or ENTEROHEMORRHAGIC or SHIGA TOXIN-PRODUCING ESCHERICHIA COLI and one of the following conditions is met:

(a) More than 3 calendar days have passed since the last day the FOOD EMPLOYEE was potentially exposed; or

(b) More than 3 calendar days have passed since the FOOD EMPLOYEE'S household contact became ASYMPTOMATIC.

***S. Typhi***

(3) S. TYPHI AND ONE OF THE FOLLOWING CONDITIONS IS MET:

(A) MORE THAN 14 CALENDAR DAYS HAVE PASSED SINCE THE LAST DAY THE FOOD EMPLOYEE WAS POTENTIALLY EXPOSED; OR

(B) MORE THAN 14 CALENDAR DAYS HAVE PASSED SINCE THE FOOD EMPLOYEE'S HOUSEHOLD CONTACT BECAME ASYMPTOMATIC.

## *Hepatitis A*

(4) Hepatitis A virus and one of the following conditions is met:

- (a) The FOOD EMPLOYEE is immune to hepatitis A virus infection because of a prior illness from hepatitis A;
- (b) The FOOD EMPLOYEE is immune to hepatitis A virus infection because of vaccination against hepatitis A;
- (c) The FOOD EMPLOYEE is immune to hepatitis A virus infection because of IgG administration;
- (d) More than 30 calendar days have passed since the last day the FOOD EMPLOYEE was potentially exposed;
- (e) More than 30 calendar days have passed since the FOOD EMPLOYEE'S household contact became jaundiced

## **8-5 PREVENTION OF FOODBORNE DISEASE TRANSMISSION BY EMPLOYEES**

### *Subpart*

### **8-501 Investigation and Control**

#### *Investigation and Control*

##### **8-501.10 Obtaining Information: Personal History of Illness, Medical Examination, and Specimen Analysis.**

The DEPARTMENT OF HEALTH shall act when it has reasonable cause to believe that a FOOD EMPLOYEE or CONDITIONAL EMPLOYEE has possibly transmitted disease; may be infected with a disease in a communicable form that is transmissible through FOOD; may be a carrier of infectious agents that cause a disease that is transmissible through FOOD; or is affected with a boil, an infected wound, or acute respiratory infection, by:

- (A) Securing a confidential medical history of the FOOD EMPLOYEE or CONDITIONAL EMPLOYEE suspected of transmitting disease or making other investigations as deemed appropriate; and
- (B) Requiring appropriate medical examinations, including collection of specimens for laboratory analysis, of a suspected FOOD EMPLOYEE or CONDITIONAL EMPLOYEE.

##### **8-501.20 Restriction or Exclusion of Food Employee, or Summary Suspension of Permit.**

Based on the findings of an investigation related to a FOOD EMPLOYEE or CONDITIONAL EMPLOYEE who is suspected of being infected or diseased, the DEPARTMENT OF HEALTH may issue an order to the suspected FOOD EMPLOYEE, CONDITIONAL EMPLOYEE or PERMIT HOLDER instituting one or more of the following control measures:

- (A) RESTRICTING the FOOD EMPLOYEE or CONDITIONAL EMPLOYEE;
- (B) EXCLUDING the FOOD EMPLOYEE or CONDITIONAL EMPLOYEE; or
- (C) Closing the FOOD ESTABLISHMENT by summarily suspending a PERMIT to operate in accordance with LAW.

##### **8-501.30 Restriction or Exclusion Order: Warning or Hearing Not Required, Information Required in Order.**

Based on the findings of the investigation as specified in § 8-501.10 and to control disease transmission, the DEPARTMENT OF HEALTH may issue an order of RESTRICTION or EXCLUSION to a suspected FOOD EMPLOYEE or the PERMIT HOLDER without prior warning, notice of a hearing, or a hearing if the order:

- (A) States the reasons for the RESTRICTION or EXCLUSION that is ordered;
- (B) States the evidence that the FOOD EMPLOYEE or PERMIT HOLDER shall provide in order to demonstrate that the reasons for the RESTRICTION or EXCLUSION are eliminated;

(C) States that the suspected FOOD EMPLOYEE or the PERMIT HOLDER may request an appeal hearing by submitting a timely request as provided in LAW; and

(D) Provides the name and address of the DEPARTMENT OF HEALTH representative to whom a request for an appeal hearing may be made.

#### **8-501.40 Removal of Exclusions and Restrictions.**

The DEPARTMENT OF HEALTH shall release a FOOD EMPLOYEE or CONDITIONAL EMPLOYEE from RESTRICTION or EXCLUSION according to LAW and the conditions specified under § 2-201.13.

## Appendix Q

### **Guidelines for Laboratory Identification of *Clostridium botulinum*.** *Taken from CDC Laboratory Response Network (LRN)*

#### **Level A Laboratory Guidelines for Identification of *Clostridium botulinum* Toxin**

**I. General:** Laboratory Response Network (LRN) Level A laboratory procedures are designed to ensure the proper collection and distribution of appropriate specimens to designated testing laboratories.

**II. Precautions:** Refer to Procedure for Laboratory Safety and Decontamination.

#### **III. Specimen**

##### **A. Acceptable specimens**

1. Clinical specimens
2. Postmortem specimens
3. Culture/isolate
4. Food samples, solid or liquid
5. Environmental samples

##### **B. Rejection criteria**

1. Incomplete documentation: All specimens must include the sender's name and telephone number to contact for the preliminary report and additional information.
2. Improper packaging/shipping
3. Do not ship specimens to higher-level LRN laboratories without prior approval.

#### **IV. Materials**

**A. Media:** Anaerobic media (chopped meat or equivalent); follow standard laboratory procedures.

##### **B. Supplies**

1. Port-A-Cul vials (Becton Dickinson; catalog #4321609) or equivalent
2. Leakproof containers (i.e., sealed plastic bags, and other plastic containers)
3. Petroleum jelly, or petrolatum (Fisher Scientific; catalog #P661LB), or equivalent (e.g., Vaseline)
4. Sterile, nonbacteriostatic water
5. Packaging materials: Refer to Shipping Procedure.

**Disclaimer:** Names of vendors or manufacturers are provided as examples of suitable product sources; inclusion does not imply endorsement by the Centers for Disease Control and prevention, the Department of Health and Human Services, or the Federal Bureau of Investigation.

**V. Quality control:** Use standard laboratory criteria and procedures.

#### **VI. Procedure**

**A. Collection:** Collect samples according to established laboratory procedures.

1. Feces: Place into sterile unbreakable container and label carefully. Confirmatory evidence of botulism may be obtained from 10-50 g quantities (English walnut size); botulism has been confirmed in infants with only "pea-sized" stool samples.

2. Enema: Place ~20 ml into sterile unbreakable container and label carefully. If an enema must be given because of constipation, a minimal amount of fluid (preferably sterile, nonbacteriostatic water) should be used to obtain the specimen so that the toxin will not be unnecessarily diluted.
3. Gastric aspirate or vomitus: Place ~20 ml into sterile unbreakable container and label carefully.
4. Serum: Use red top or separator type tubes to obtain serum (no anticoagulant). Samples should be obtained as soon as possible after the onset of symptoms and before antitoxin is given. Enough blood should be collected to provide at least 10 ml of serum for mouse toxicity tests (usually 20 ml whole blood); serum volumes less than 3 ml will provide inconclusive results. Whole blood should not be sent as it typically undergoes excessive hemolysis during transit.
5. Tissue or exudates: Place into sterile unbreakable container and label carefully. Specimens should be placed in Port-A-Cul vials (Mena, 1978) and sent to the appropriate laboratory, preferably without refrigeration, for attempted isolation of *C. botulinum*.
6. Postmortem: Obtain specimens of intestinal contents from different levels of small and large intestines. Place ~10 g per specimen into sterile unbreakable container and label carefully. Obtain gastric content, serum, and tissue specimens if/as appropriate (refer to A. 3, 4, and 5 above).
7. Culture: Ship suspicious isolates anaerobically (overlay liquid media with 2-inch sterile petroleum jelly or petrolatum; melt/temper prior to overlaying culture). Cultures may be shipped at room temperature or refrigerated.
8. Food specimens: Foods should be left in their original containers if possible, or placed in sterile unbreakable containers and labeled carefully. Place containers individually in leakproof containers (i.e., sealed plastic bags) to prevent cross-contamination during shipment. Empty containers with remnants of suspected foods can be examined.
9. Swab samples (environmental or clinical): Send clinical swabs in an anaerobic transport medium (e.g., Port-A-Cul tubes) (Mena, 1978). Environmental swabs (from which spores may be isolated) may be sent in plastic containers without any medium. Swabs may be shipped at room temperature or refrigerated. Collect 3-4 swabs from each potential site.
10. Environmental samples: Collect a sample in the size indicated below for each possible location.
  - (1) Soil (50-100 g)
  - (2) Water (=100 ml)

**B. Shipping:** Refer to Shipping Procedure; complete and attach appropriate documentation.

1. Specimens sent to a distant laboratory should be placed in sterile leakproof containers, then in insulated shipping containers with refrigerant (sealed ice packs, cold packs), labeled "MEDICAL EMERGENCY, BIOLOGICAL HAZARD, REFRIGERATE ON ARRIVAL" and should be shipped by the most rapid means available. Most of the major airlines have a special package handling service for expedited shipments. Do not send by U.S. Postal Service; ship as hazardous materials.
2. If an unavoidable delay of several days is anticipated, the specimens (serum or stool) should be kept frozen and then packed in an insulated container with dry ice and proper cushioning material for shipment. Freezing does not significantly affect the stability of botulinum toxin in specimens; freezing does reduce the probability of recovering *C. botulinum*. Since direct detection of toxin provides the best laboratory confirmation of botulism, priority should be given to

- preserving preformed toxin prior to transport.
3. The receiving laboratory should be notified in advance by telephone as to when and how specimens will be shipped, and when they will arrive.
  4. Forward patient history and clinical symptom information to reference laboratory with the specimens.

## **VII. Reporting/action**

- A.** Consult with state public health laboratory director (or designate) if *C. botulinum* toxin is suspected.
- B. General instruction and information**
  1. Preserve original specimens pursuant to a potential criminal investigation and possible transfer to an appropriate LRN laboratory as instructed.
  2. Environmental/nonclinical samples and samples from announced events should not be received by a Level A laboratory; submitter should contact the state public health laboratory directly.
  3. The state public health laboratory/state public health department will coordinate notification of local FBI agents as appropriate.
  4. Assist local law enforcement efforts in conjunction with guidance received from the state public health laboratory.
  5. FBI and state public health laboratory/state public health department will coordinate the transfer of isolates/specimens to a higher level LRN laboratory as appropriate.
- C.** In conjunction with state public health laboratory, the laboratory may contact CDC as appropriate.
  1. Emergency number, 24 h a day, 7 days a week: 770-488-7100
  2. National Botulism Surveillance and Reference Laboratory: 404-639-3867

## **VIII. Limitations**

- A.** If the patient has been taking any medication that might interfere with toxin assays or culturing of the stool, the laboratory should be notified. For example, it has been demonstrated that anticholinesterase drugs given orally to patients for myasthenia gravis can interfere with mouse botulinum toxin assays of stool extracts (Horwitz, 1976).
- B.** Recovery of viable cells from specimens often proves difficult. Proper handling, packaging, and shipping with minimal delay improves probability of recovery.

## **IX. Procedure notes**

- A. Suggested specimens based on form of botulism**
  1. Foodborne
    - a. Clinical material: Serum, gastric contents, vomitus, stool, return from sterile water or saline enema
    - b. Autopsy samples: Intestinal contents and gastric contents (serum if available)
    - c. Food samples
  2. Infant
    - a. Feces
    - b. Return from sterile water or saline enema
    - c. Serum: Although circulating toxin may be detected in infants with botulism, it is rare. Shipment of other specimens should not be delayed while waiting for serum collection.
    - d. Postmortem samples: Intestinal contents from different levels of small and large intestine
    - e. Food and environmental samples as appropriate for the investigation
  3. Wound

- a. Serum
- b. Exudate, tissue, or swab samples of wound transported in an anaerobic transport medium
- c. Feces or return from sterile water enema (wound may not be source)
- d. An isolate of suspected *C. botulinum* (maintain under anaerobic conditions)
- 4. Intentional toxin release (inhalational or ingested)
  - a. Serum
  - b. Feces or return from sterile water enema
  - c. Food, solid or liquid
  - d. Environmental or nasal swabs
  - e. Gastric aspirate

**B. Specimen-related information**

- 1. Food
  - a. Foods most likely to allow growth of *C. botulinum* will have a pH range of 3.5-7.0, the most common pH is 5.5-6.5. However, suspected foods, regardless of pH, can be examined since localized environmental conditions may be present that may support the growth of *C. botulinum*.
  - b. Botulinum toxin in commercial products is rare. The state public health laboratory should notify the FDA at 301-443-1240 if a commercial product is suspected of containing botulinum toxin.
- 2. Feces: *C. botulinum* has been isolated from stools following antitoxin treatment.

Appendix R

**TABLE 1: Clinical Features of the Main Types of Foodborne Illness**

Usual Incubation	Typical Symptoms	Possible Cause
<b>Immediate</b>		
< 1 hour-3 hours	Vomiting, flushing, itching, rash, difficulty breathing	Copper, other chemicals, allergic reaction, Scombroid poisoning
<b>Short</b>		
1-5 hours	Vomiting, nausea, sometimes diarrhea and cramps	<i>Bacillus cereus</i> (preformed enterotoxin)
2-6 hours	Vomiting, nausea, diarrhea	<i>Staphylococcal aureus</i>
<b>Intermediate</b>		
8-18 hours	Diarrhea, abdominal pain	<i>Clostridium perfringens</i>
8-16 hours	Diarrhea, abdominal pain	<i>Bacillus cereus</i> (diarrheal toxin)
<b>Long</b>		
12-24 hours	Nausea, vomiting, diarrhea lasting 1-2 days	Small round structured viruses (Noroviruses)
12-24 hours	Diarrhea, abdominal pain	<i>Vibrio parahaemolyticus</i>
12-36 hours	Weakness, double vision, difficulty swallowing, dry mouth	<i>Clostridium botulinum</i>
12-48 hours	Diarrhea, fever, abdominal pain lasting several days	Salmonella species
1-2 days	Diarrhea, often bloody	<i>E. coli</i> (toxigenic species)
1-3 days	Abdominal pain, bloody and mucoid diarrhea, fever	<i>Shigella</i> species
2-5 days	Diarrhea (sometimes bloody), abdominal pain, fever	<i>Campylobacter</i> species
7-10 days	Very watery diarrhea, nausea, vomiting, gas, malaise, weight loss	Cyclospora
1-2 weeks	Diarrhea, bloating	<i>Cryptosporidium parvum</i>
1-3 days	Fever or constipation	<i>Salmonella typhi</i>
15-50 days	Jaundice, malaise, fever, diarrhea	Hepatitis A
1-10 weeks	Mild "flu", malaise, meningitis	<i>Listeria monocytogenes</i>

Source: Data adapted from Department of Health, Mgt. of Outbreaks of Foodborne Illness, London, 1994

**TABLE 2: Summary of Foodborne Infection and Foodborne Intoxication**

	<b>Foodborne Infection</b>	<b>Foodborne Intoxication</b>
<b>Incubation Period</b>	Generally rather long, usually measured in days	Generally rather short, often measured in minutes or hours
<b>Typical Symptoms</b>	Diarrhea, nausea, vomiting, abdominal cramps. Fever is often present.	Vomiting is more common. Can range from nausea to vomiting to interference with taste, touch and muscle movements (e.g., double vision, weakness, numbness, tingling of face, disorientation, flushing)
<b>Pathogens</b>	<p><u>Infection:</u>  <i>Salmonella</i> species, Hepatitis A, <i>Shigella</i> species, <i>Giardia lamblia</i>, <i>Campylobacter</i> species, <i>Yersinia</i> species, <i>Listeria monocytogenes</i>, <i>Vibrio parahaemolyticus</i>, <i>Vibrio vulnificus</i>, rotavirus, Norwalk virus, <i>Toxoplasma gondii</i>, <i>Cyclospora cayetanensis</i>, <i>Cryptosporidium parvum</i></p> <p><u>Toxin-mediated infection:</u>  <i>C. botulinum</i> (infant), <i>B. cereus</i> (long incubation), <i>E. coli</i> species, <i>V. cholerae</i>, <i>C. perfringens</i></p>	<p><i>C. Botulinum</i> (adult), <i>S. aureus</i>, <i>B. cereus</i> (short incubation), certain metals, certain wild mushrooms, certain fish and shellfish</p>

**TABLE 3: Common Foodborne Diseases Caused by Bacteria**

<b>Disease (causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
<i>(Bacillus cereus)</i> food poisoning, diarrheal	8-16 hr (12-24 hr)	Diarrhea, cramps occasional vomiting	Meat products, soups, sauces, vegetables	From soil or dust	Thorough heating and rapid cooling of foods
<i>(Bacillus cereus)</i> food poisoning, emetic	1-5 hr (6-24 hr)	Nausea, vomiting, sometimes diarrhea and cramps	Cooked rice and pasta	From soil or dust	Thorough heating and rapid cooling of foods
Botulism; food poisoning (heat labile toxin of <i>(Clostridium botulinum)</i> )	12-36 hr (months)	Fatigue, weakness, double vision, slurred speech, respiratory failure, sometimes death	Types A & B: vegetables, fruits, meat, fish, and poultry products, condiments: Type E: fish and fish products	Types A & B: from soil or dust; Type E: water and sediments	Thorough heating and rapid cooling of foods
Botulism; food poisoning infant infection	3-30 days (Variable)	Constipation, weakness, respiratory failure, sometimes death	Honey, soil	Ingested spores from soil, dust or honey colonize intestine	Do not feed honey to infants – will not prevent all
Campylobacteriosis <i>(Campylobacter jejuni)</i>	3–5 days (2–10 days)	Diarrhea, abdominal pain, fever, nausea, vomiting	Infected food-source animals	Chicken, raw milk	Cook chicken thoroughly; avoid cross-contamination; irradiate chickens; pasteurize milk
<i>Cholera</i> <i>(Vibrio cholerae)</i>	2–3 days hours to days	Profuse, watery stools; sometimes vomiting, dehydration; often fatal if untreated	Raw or undercooked seafood	Human feces in marine environment	Cook seafood thoroughly; general sanitation
<i>(Clostridium perfringens)</i> food poisoning	8–22 hr (12–24 hr)	Diarrhea, cramps, rarely nausea and vomiting	Cooked meat and poultry	Soil, raw foods	Thorough heating and rapid cooling of foods

<b>Disease (causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
<i>(Escherichia coli)</i> foodborne infection: enterohemorrhagic	12-60 hr (2-9 days)	Watery, bloody diarrhea	Raw or undercooked beef, raw milk	Infected cattle	Cook beef thoroughly; pasteurize milk
<i>(Escherichia coli)</i> enteroinvasive	At least 18 hr (uncertain)	Cramps diarrhea, fever, dysentery	Raw foods	Human fecal contamination, direct or via water	Cook foods thoroughly; general sanitation
<i>(Escherichia coli)</i> foodborne infection: enterotoxigenic	10-72 hr (3-5 days)	Profuse watery diarrhea; sometimes cramps, vomiting	Raw foods	Human fecal contamination, direct or via water	Cook foods thoroughly; general sanitation
Listeriosis ( <i>Listeria monocytogenes</i> )	3-70 days	Meningoencephalitis; still births; septicemia or meningitis in newborns	Raw milk, cheese and vegetables	Soil or infected animals, directly or via manure	Pasteurization of milk; cooking
Salmonellosis ( <i>Salmonella species</i> )	5-72 hr (1-4 days)	Diarrhea, abdominal pain, chills, fever, vomiting, dehydration	Raw and undercooked eggs; raw milk, meat and poultry	Infected food-source animals; human feces	Cook eggs, meat and poultry thoroughly; pasteurize milk; irradiate chickens
Shigellosis ( <i>Shigella species</i> )	12-96 hr (4-7 days)	Diarrhea fever, nausea; sometimes vomiting, cramps	Raw foods	Human fecal contamination, direct or via water	General sanitation; cook foods thoroughly
Staphylococcal food poisoning (heat stable enterotoxin of <i>Staphylococcus aureus</i> )	1-6 hr (6-24 hr)	Nausea, vomiting, diarrhea, cramps	Ham, meat and poultry products, cream-filled pastries, whipped butter, cheese	Handlers with colds, sore throats or infected cuts, food slicers	Thorough heating and rapid cooling of foods
Streptococcal foodborne infection ( <i>Streptococcus pyogenes</i> )	1-3 days (varies)	Various, including sore throat, erysipelas, scarlet fever	Raw milk, deviled eggs	Handlers with sore throats, other "strep" infections	General sanitation, pasteurize milk

<b>Disease (causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
<i>Vibrio parahaemolyticus</i> foodborne infection	12-24 hr (4-7 days)	Diarrhea, cramps, sometimes nausea, vomiting, fever headache	Fish and seafood	Marine coastal environment	Cook fish and seafood thoroughly
<i>Vibrio vulnificus</i> foodborne infection	In person with high serum iron: 1 day	Chills, fever, prostration, often death	Raw oysters and clams	Marine coastal environment	Cook shellfish thoroughly
Yersiniosis ( <i>Yersinia enterocolitica</i> )	3-7 days (2-3 weeks)	Diarrhea, pains mimicking appearance of appendicitis fever, vomiting, etc	Raw or undercooked pork and beef; tofu packed in spring water	Infected animals especially swine; contaminated water	Cook meats thoroughly, chlorinate water

Source: Table was extracted from Foodborne Illness Investigation and Control Reference Manual, Massachusetts Department of Public Health, September 1997.

**TABLE 4: Common Foodborne Diseases Caused by Viruses**

<b>Disease (Causative agent)</b>	<b>Onset (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
Hepatitis A (Hepatitis A virus)	15-50 days (weeks to months)	Fever, weakness nausea, discomfort, often jaundice	Raw or undercooked shellfish; sandwiches, salads, etc.	Human fecal contamination, via water or direct	Cook shellfish thoroughly; general sanitation
Viral gastroenteritis (Norwalk-like viruses)	1-2 days (1-2 days)	Nausea, vomiting, diarrhea, pains, headache, mild fever	Raw or undercooked shellfish; sandwiches, salads, etc.	Human fecal contamination, via water or direct	Cook shellfish thoroughly; general sanitation
Viral Gastroenteritis (rotaviruses)	1-3 days (4-6 days)	Diarrhea, especially in infants and children	Raw or mishandled food	Probably human fecal contamination	General sanitation

Source: Table was extracted from Foodborne Illness Investigation and Control Reference Manual, Massachusetts Department of Public Health, September 1997.

**Table 5: Foodborne Diseases Caused by Fungi Other than Mushrooms**

<b>Disease (Causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
Aflatoxicosis ("aflatoxins" of <i>Aspergillus flavus</i> and related molds)	Varies with dose	Vomiting, abdominal pain, liver damage, liver cancer (mostly Africa and Asia)	Grains, peanuts, milk	Molds grow on grains and peanuts in field or storage; cows fed moldy grain	Prevent mold growth; don't eat or feed moldy grain or peanuts; treat grain to destroy toxins
Alimentary toxic aleukia ("trichothecene" toxin of <i>Fusarium</i> molds)	1-3 days (weeks to months)	Diarrhea, nausea, vomiting; destruction of skin and bone marrow; sometimes death	Grains	Mild growth on grain, especially if left in the field through winter	Harvest grain in the fall; don't use moldy grain
Ergotism (toxins of <i>Claviceps purpurea</i> )	Varies with dose	Gangrene (limbs die and drop off); or convulsions and dementia; abortion (now not seen in the U.S.)	Rye; or wheat, barley, and oats	Fungus grows on grain in the field; grain kernel is replaced by a "sclerotium"	Remove sclerotia from harvested grain

Source: Table was extracted from Foodborne Illness Investigation and Control Reference Manual, Massachusetts Department of Public Health, September 1997.

**TABLE 6: Foodborne Diseases Caused by Protozoa and Parasites**

<b>Disease (Causative agent)</b>	<b>Onset (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
(PROTOZOA) Amebic dysentery ( <i>Entamoeba histolytica</i> )	2-4 weeks (varies)	Dysentery, fever, chills; sometimes liver abscess	Raw or mishandled foods	Cysts in human feces	General sanitation; thorough cooking
Cryptosporidiosis ( <i>Cryptosporidium parvum</i> )	1-12 days (1-30 days)	Diarrhea; sometimes fever, nausea and vomiting	Mishandled foods	Oocysts in human feces	General sanitation; thorough cooking
Giardiasis ( <i>Giardia lamblia</i> )	5-25 days (varies)	Diarrhea with greasy stools, cramps, bloat	Mishandled foods	Cysts in human and animal feces, directly or via water	General sanitation thorough cooking
Toxoplasmosis ( <i>Toxoplasma gondii</i> )	10-23 days (varies)	Resembles mononucleosis; fetal abnormality or death	Raw or undercooked meats; raw mild; mishandled foods	Cysts in pork or mutton, rarely beef; oocysts in cat feces	Cook meat thoroughly pasteurize milk; general sanitation
(ROUNDWORMS, Nematodes) Anisakiasis ( <i>Anisakis simplex</i> , <i>Pseudoterranova decipiens</i> )	Hours to weeks (varies)	Abdominal cramps; nausea, vomiting	Raw or undercooked marine fish, squid or octopus	Larvae occur naturally in edible parts of seafood	Cook fish thoroughly or freeze at -4°F for 30 days
Ascariasis ( <i>Ascaris lumbricoides</i> )	10 days-8 weeks (1-2 years)	Sometimes pneumonitis, bowel obstructions	Raw fruits or vegetables that grow in or near soil	Eggs in soil, from human feces	Sanitary disposal of feces; cooking food
Trichinosis ( <i>Trichinella spiralis</i> )	8-15 days (weeks, months)	Muscle pain, swollen eyelids, fever; sometimes digestive disturbances	Raw or undercooked pork or meat or carnivorous animals (e.g. bears)	Larvae encysted in animal's muscles	Thorough cooking of meat; freezing pork at 5°F for 30 days; irradiation

<b>Disease (Causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
(TAPEWORMS, Cestodes) Beef tapeworm ( <i>Taenia saginata</i> )	10-14 weeks (20-30 years)	Worm segments in stool; sometimes digestive disturbances	Raw or undercooked beef	“Cysticerci” in beef muscle	Cook beef thoroughly or freeze below 23°F
Fish tapeworm ( <i>Diphyllobothrium latum</i> )	3-6 weeks (years)	Limited: sometimes vitamin B-12 deficiency	Raw or undercooked fresh-water fish	“Plerocercoids” in fish muscle	Heat fish 5 minutes at 133°F or freeze 24 hours at 0°F
Pork tapeworm ( <i>Taenia solium</i> )	8 weeks-10 years (20-30 years)	Worm segments in stool; sometimes “cysticercosis” of muscles, organs, heart or brain	Raw or undercooked pork; any food mishandled by a <i>T. solium</i> carrier	“Cysticerci” in pork muscle; any food-human feces with <i>T. solium</i> eggs	Cook pork thoroughly or freeze below 32°F general sanitation

Source: Table was extracted from Foodborne Illness Investigation and Control Reference Manual, Massachusetts Department of Public Health, September 1997.

**TABLE 7: Foodborne Diseases Caused by Chemicals and Metals**

<b>Disease (Causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
(TOXINS IN FIN FISH) Ciguatera poisoning (ciguatoxin, etc)	3-4 hr (rapid onset)  12-18 hr (days- months)	Diarrhea, nausea, vomiting, abdominal pain Numbness and tingling of face; taste and vision aberrations, sometimes convulsions, respiratory arrest and death (1-24hrs)	“Reef and island” fish: grouper, surgeon fish, barracuda, pompano, snapper, etc.	(Sporadic); food chain, from algae	Eat only small fish
Fugu or pufferfish poisoning (tetrodotoxin, etc.)	10-45 min to $\geq 3$ hrs.	Nausea, vomiting, tingling lips and tongue, ataxia, dizziness, respiratory distress/arrest and sometimes death	Pufferfish, “fugu” (many species)	Toxin collects in gonads, viscera	Avoid pufferfish (or their gonads)
Scombroid or histamine poisoning (histamine, etc.)	Minutes to few hours (few hours)	Nausea, vomiting, diarrhea, cramps, flushing, headache, burning in mouth	“Scombroid” fish (tuna, mackerel etc.): mahi- mahi, others	Bacterial action	Refrigerate fish immediately when caught
(TOXINS IN SHELLFISH) Amnesic shellfish poisoning (domoic acid)		Vomiting, abdominal cramps, diarrhea, disorientation, memory loss; sometimes death	Mussels, clams	From algae	Heed surveillance warnings
Paralytic shellfish poisoning (saxitoxin, etc)	<1 hr (<24 hr)	Vomiting, diarrhea, paresthesias of face, sensory and motor disorders; respiratory paralysis, death	Mussels, clams, scallops, oysters	From “red tide” algae	Heed surveillance warnings
(MUSHROOMS TOXINS) Mushroom poisoning (varies greatly among species)	<2 hrs to $\geq 3$ days	Nausea, vomiting, diarrhea, profuse sweating, intense thirst, hallucinations, coma death	Poisonous mushrooms	Intrinsic	Don’t eat wild mushrooms

<b>Disease (Causative agent)</b>	<b>Latency Period (duration)</b>	<b>Principal Symptoms</b>	<b>Typical Foods</b>	<b>Mode of Contamination</b>	<b>Prevention of Disease</b>
(PLANT TOXINS) Cyanide poisoning (cyanogenetic glycosides from plants)	(Large doses) 1-15 min	Unconsciousness, convulsions, death	Bitter almonds, cassava, some lima bean varieties, apricot kernels	Intrinsic, natural	Proper processing; avoid some so- called foods
(METALS) Cadmium	Depends on dose	Nausea, vomiting, diarrhea, headache, muscular aches, salivation, abdominal pain, shock, liver damage, renal failure	Acid foods, food grilled on shelves from refrigerator	Acid or heat mobilizes cadmium plating	Select foods contact surfaces carefully
Copper poisoning	Depends on dose (24-28 hr)	Nausea, vomiting, diarrhea	Acid foods, foods contacting copper, soda fountains, beverages	Acid mobilizes copper	Select food contact surfaces carefully
Lead poisoning	Depends on dose	Metallic taste, abdominal pain, vomiting, diarrhea, black stools, oliguria, collapse coma (also chronic effects)	Glazes, glasses, illicit whiskey	Lead dissolves in beverages and foods	Test glazes and glasses; avoid illicit whiskey
Mercury poisoning	Depends on dose	Metallic taste, thirst, abdominal pain, vomiting, bloody diarrhea, kidney failure	Treated seeds (fungicide); fish	International; food chain	Eat only seeds intended for food
Zinc poisoning	Depends on dose (24-48 hr)	Nausea, vomiting, diarrhea	Acid foods in galvanized containers	Acid mobilizes zinc plating	Select food contact surfaces carefully

Source: Table was extracted from Foodborne Illness Investigation and Control Reference Manual, Massachusetts Department of Public Health, September 1997