



Infectious Disease Epidemiology Section
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Food-borne Infection Prevention & Investigation Manual

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1-Introduction

Food-borne illness in the United States is a major cause of personal distress, social disruption, preventable death and avoidable economic burden. The economic impact of illness is staggering since the unpleasant symptoms of even a mild case of food-borne illness may require absence from school or work. The microbiologic hazards associated with food and food preparation are receiving increasing public attention. They are causing increasing concern not only among consumers, but also among those involved in all facets of food production and distribution. While benefits of the availability of such a variety of foods are many, the potential for transmission of food-borne pathogens to large populations spread over large geographic areas also increases with modern food production and distribution.

Changing food industry practices, dietary choices of the American people and increasing global distribution of food supplies bring new challenges to providing a diet safe from pathogens. Commonly consumed food items contaminated with infectious agents place large numbers of persons at risk. In addition to the dangers inherent in the modern food distribution system, newly emerging or reemerging infectious diseases influence and complicate the occurrence of food-borne illness. Transmission of a new pathogen may be poorly understood and laboratory methods for diagnosis may be difficult or unavailable.

2-The Infectious Disease Epidemiology Section (IDEpi)

The purpose of the Infectious Disease Epidemiology Section is to study the distribution and determinants of infectious diseases in the community, to conduct infectious disease outbreak investigations, to institute disease control measures, and to coordinate programs that prevent the spread of communicable diseases.

The program was started in 1855 when the State Board of Health was first established with the purpose of tracking yellow fever cases. The main activities are:

2.1-Tracking of infectious diseases of public health importance

This is the surveillance component of the section. There is a list of diseases that must be reported by all health professionals. This list is set by law. Section epidemiologists look at the number of cases, their location and numerous other characteristics to study the distribution of these diseases and to draw some conclusions that will guide the communicable disease control programs.

2.2-Investigation of disease outbreaks

Outbreaks identified by the surveillance system or those reported by the public or health professionals in order to recommend preventive measures. Common outbreaks and settings investigated include: Food-borne diseases, vector-borne diseases (encephalitis), hospital-acquired infections, school and day-care centers, nursing homes, prisons and other institutions, community-acquired infections and potential bioterrorist events.

2.3-Special programs to:

1. Maintain situational awareness for conditions of public health importance;
2. Promote appropriate use of antibiotics and prevent the spread of antibiotic resistance;
3. Coordinate activities related to the prevention of health care-associated infections in hospitals, nursing homes, other long term health care facilities, dialysis centers and surgery centers;
4. Provide advice to infection preventionists about infection control and carry educational programs;
5. Monitor death from infectious diseases;
6. Prevent hepatitis A cases with immuno-prophylaxis, coordinate the prevention of hepatitis C and facilitate the development of state plan for hepatitis prevention activities;
7. **Collect specimens from food and food-borne infections to carry out fingerprinting of the bacterial strains and identify clusters of related infections;**

8. **Coordinate the prevention of seafood related infections with sanitarian services; the seafood industry, Restaurant Association, and the Food and Drug Agency;**
9. Prevent invasive diseases (meningococcal and Haemophilus) with chemoprophylaxis;
10. Provide counseling and recommendations for rabies exposure and coordinate the prevention of zoonotic diseases with the Louisiana Department of Agriculture Veterinary services and the veterinary community;
11. Maintain state of preparedness for mitigation of bioterrorism events, disasters and pandemics.

2.4-Advice and education

For prevention of communicable diseases to the community, media and health professionals.

3-Definitions

Complaints by citizens of symptoms that they feel are caused by food are common. These complaints often involve only one or two related people and cannot be shown to be food-related.

- **A suspected food-borne disease outbreak** is a clustering of people (two or more unrelated persons) with onset of similar objective symptoms (for example, vomiting or diarrhea) within a 48-hour period after eating a common food or eating at a common restaurant/gathering. Most single-source, food-borne outbreaks will meet this definition however, continuous source outbreaks or outbreaks involving diseases with long incubation periods (hepatitis A for example), do not meet this definition.
- **A probable food-borne disease outbreak** includes, in addition, a strong association (OR >1.5) between some of the food and the illness.
- **A confirmed food-borne disease outbreak** includes isolation of identical microorganisms both in the food and in clinical specimens.
- **A food-related complaint** is defined as a report by persons of symptoms of which they believe are related to a food source, but which does not fit the definition of a food-borne disease outbreak. Food-related complaints either occur over more than 48 hours, involve only one person, involve only people from one household, or are characterized only by subjective symptoms (such as nausea, headache, or dizziness).
- **A Food establishment complaint** is a complaint related to food such as the sale of spoiled or adulterated food or unsanitary conditions at a restaurant. It is important to track consumer complaints and review the data periodically for clusters of illness or changes in trends of illness.

4-Mandates and Legal Requirements

4.1-Reporting requirements

The Louisiana Administrative Code (LAC) Title 51 Part II. The control of Diseases 105 lists the infectious conditions that must be reported:

There is a list of some eighty (80) infectious diseases that must be reported by all health professionals. This list is set by law and regularly updated by rulemaking upon proposals submitted by IDEpi. These infectious diseases are divided in several classes:

Class A Diseases/Conditions - Reporting Required Within 24 Hours

Diseases of major public health concern because of the severity of disease and potential for epidemic spread-report by telephone immediately upon recognition that a case, a suspected case, or a positive laboratory result is known; in addition, all cases of rare or exotic communicable diseases, unexplained death, unusual cluster of disease and all outbreaks shall be reported.

Food-borne diseases in this category are: Acute Flaccid Paralysis Fish/ Shellfish Poisoning (Domoic Acid, neurotoxic, Anthrax (rarely acquired from food), Ciguatera, Scombroid, Staphylococcal Enterotoxin B (SEB), food-borne Botulism, Brucellosis, Tularemia (*Francisella tularensis*). Cholera.

Class B Diseases/Conditions - Reporting Required Within 1 Business Day

Diseases of public health concern needing timely response because of potential of epidemic spread-report by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known.

Salmonellosis, Listeria, *Escherichia coli*, Shiga-toxin producing bacteria, Shigellosis (STEC), including *E. coli* 0157:H7, Typhoid Fever, Vibrio Infections (other than cholera)

Class C Diseases/Conditions - Reporting Required Within 5 Business Days

Diseases of significant public health concern-report by the end of the work week after the existence of a case, suspected case, or a positive laboratory result is known.

Campylobacteriosis, Eosinophilic meningitis, Transmissible Spongiform Encephalopathies (TSE), Cyclosporiasis, Trichinosis, Yersiniosis.

Class D Diseases/Conditions - Reporting Required Within 5 Business Days

Heavy Metal (Arsenic, Cadmium, Mercury) Exposure

4.2-Federal grant requirements

The CDC Epidemiology and Laboratory Capacity Grant and the CDC Public Health Preparedness Grant (Response to Infectious Diseases and Public Health Emergencies) both have performance measures for timeliness of case reporting and timeliness, documentation and quality of outbreak investigations.

5-Investigation Leadership

During an investigation, the focus of activities might shift between roles described below. They also might shift between levels of government in accordance with authority and the availability of resources to carry out the required tasks. Responsibilities are distributed as follows:

5.1-Infectious Disease Epidemiology

- Epidemiologic studies to identify transmission routes, exposure sources, or food vehicles and risk factors for disease
 - Foodborne disease coordinator will collaborate with and communicate findings with agencies in order to guide their investigations
 - When necessary, the foodborne disease coordinator will collaborate with, via phone or email, FDA or any other regulatory entities in regards to multi-jurisdictional food related incidents.
 - When needed, refers to the OPH directory which is maintained by the Executive Management Officer. (See pages 35-59)
 - Provides the 24 hour 1-800 number on voicemail and email signature for after hours or in the case of emergencies
 - For urgent threats/incidents involving suspected illegal activity, the foodborne coordinator will contact The Louisiana State Analytical and Fusion Exchange at 225-925-4192 or 1-800-434-8007
 - For a more detailed description see the Surveillance and Epidemiological Plan
 - For a more detailed description of handling Bioterrorism events see Bioterrorism Surveillance & Epidemiologic Response Plan.

5.2-Sanitarian Food Services

- Are notified of food related incidents either through public reports, the regional surveillance epidemiologist or the foodborne disease coordinator
- Regulatory investigations of food-production sources and distribution chains to identify where, during production of the food, contamination occurred and facilitate recall of food items;
- Environmental assessments of food production, processing, and service facilities to identify routes of contamination, contributing factors, and environmental antecedents;

5.3-Public Health Laboratory

- Laboratory studies to identify an agent, including microbiological studies and applied food-safety research;

5.4-Bureau of Media & Communications

- Is notified of food related incidents by the foodborne disease coordinator
- Communication of investigation findings to the public and the food industry to support control and prevention measures.

5.5- Law Enforcement

- The Louisiana State Analytical and Fusion Exchange is notified of intentional food-related incidents by the foodborne disease coordinator
- activate phone tree to relevant agencies
- Follow up on any intentional incidents of foodborne contamination

6-Organizational Response to a Suspected Food-borne Outbreak

6.1-Public Health Response Teams

When a potential outbreak situation occurs, the first person involved should ensure that all the stake-holders are informed. This would include the Regional Medical Director /Administrator, other regional staff (Epidemiologist, Disease Surveillance Specialist, Sanitarian), and the Infectious Disease Epidemiology Section.

All relevant information pertaining to the outbreak/condition will be discussed in order to determine the course of action. A decision will be made whether to activate the Rapid Response Team (RRT).

The RRT are multidisciplinary groups of specially trained Office of Public Health (OPH) staff who can respond promptly to emergency epidemiological outbreaks/conditions. The OPH Regional Office in partnership with IDEpi, supervises and directs the RRT's specific activities during an investigation or intervention.

IDEpi will assign a lead epidemiologist for each investigation who will collaborate with the RRT and can outline correct protocols to follow.

The regional RRT Coordinator will coordinate the investigative tasks with the other team members and will be responsible for keeping the Regional Administrator/Medical Director informed of local activities on a daily basis.

It may not always be possible to have all team members pulled from their regular job responsibilities and work together continually on an outbreak. Team members may not be at their home base when the investigation

begins. However, there are quite a few activities that can be done away from the home base, such as designing questionnaires, making calls, faxing information and conferencing with other team members.

At the end of the investigation a member of the RRT, regional staff or IDEpi (to be discussed by the team), will prepare a summary report on the activities and analysis of data and interpretation of results, recommendations.

A post-exit conference with IDEpi staff and RRT members may be conducted (most likely via telephone conferencing) to review the investigative process and evaluate effectiveness and appropriateness of the outbreak activities.

Upon initiation of activities, the RRT members will be provided with the appropriate project code number for charging their time.

6.2-Health Unit Staff

Whereas handling a food-related complaint is the responsibility of the sanitarian, investigation of a food-borne disease outbreak is a joint effort by the sanitarian, parish health unit nurse, Regional Office, Regional RRT Coordinator and staff from IDEpi. Initially, a nurse or sanitarian may be the first to hear of a food-borne outbreak. In this case, the nurse or sanitarian's first responsibility is to notify the Regional staff, RRT Coordinator and IDEpi of the outbreak so that the investigation can be organized. In carrying out the investigation, the RRT team - in conjunction with the local sanitarian, will investigate the food-service establishment and ensure that continued food contamination does not occur. The local parish health unit nurse may need to assist and collaborate with the RRT team in obtaining stool and/or blood specimens from ill persons. Both the nurse and sanitarian may need to assist the RRT team and IDEpi in completing questionnaires on ill and non-ill persons and assist in obtaining stool cultures from foodhandlers.

6.3-Role of the State Laboratory

The Louisiana OPH Central Laboratory is the state laboratory where hospitals and other submitters send specimens or isolates for identification, confirmation and serotyping. In addition to reference laboratory activities, these laboratories examine food and clinical specimens from outbreak and non-outbreak situations to identify the organism or extraneous materials responsible for human illness.

Feces and food specimens are considered appropriate for food-borne related-illness testing. Blood is an acceptable specimen when typhoid, botulism or other relevant microorganisms are suspected. Pathogen testing on fecal specimens during outbreak situations include: *Campylobacter*, *Cholera* toxin, *Clostridium perfringens* toxin, *Escherichia coli* 0157, *Escherichia coli* non-0157 toxin, Norovirus, *Salmonella* species, *Shigella* species, *Vibrio*, and *Yersinia enterocolitica*. Additional capacity has been added from the Biofire GI panel. Additional pathogens tested for by the Biofire GI panel include: *Clostridium difficile* toxin A/B, *Pleseomonas shigelloides*, Enterohaggative *E. coli* (EAEC), Enteropathogenic *E. coli* (EPEC), Enterotoxigenic *E. coli* (ETEC), *Cryptosporidium*, *Cyclospora cayatanensis*, *Entamoeba histolytica*, *Giardia lamblia*, Adenovirus F 40/41, Astrovirus, Norovirus GI/GII, Rotavirus A, and Sapovirus. Certain food items can be tested for the following pathogens during outbreak situations: *Bacillus cereus* toxin, *E. coli* 0157, *Listeria monocytogenes*, *Salmonella* species, and *Staphylococcus aureus* toxin. In special circumstances, the CDC in Atlanta may be utilized for laboratory assistance in conducting viral testing on fresh stool specimens.

In 1998, a Molecular Epidemiology Laboratory had been established that was capable of performing molecular subtyping of bacterial pathogens by pulsed field gel electrophoresis (PFGE). Traditionally, epidemiologic investigations of infectious disease outbreaks had relied primarily on detailed evaluation of cases and comparison of those cases with carefully selected controls. Both differences and similarities between cases and controls were used to identify factors that may have been associated with a specific illness under investigation. Laboratory isolation and identification of an etiologic agent from the suspected source provided independent

confirmation of the probable source of the outbreak. When laboratory methods such as serotyping were developed to characterize bacteria below the species level, these methods were also applied to more definitively match between case isolates and isolates from suspected sources of infection.

PFGE is a technique used to produce the DNA fingerprints. PFGE testing can determine how closely related bacteria are to one another by comparing their fingerprints. Identical or very similar DNA finger-print patterns strongly suggest a close relationship, while bacteria with distinctly different patterns are not closely related.

7-Reporting of foodborne infections /illness

7.1-Reportable diseases

There is a list of some eighty (80) infectious diseases that must be reported by all health professionals. This list is set by law and regularly updated by rulemaking upon proposals submitted by IDEpi. These infectious diseases are divided in several classes:

A- Class A Diseases/Conditions - Reporting Required Within 24 Hours

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B- Class B Diseases/Conditions - Reporting Required Within 1 Business Day

Diseases of public health concern needing timely response because of potential of epidemic spread-report by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known.

C- Class C Diseases/Conditions - Reporting Required Within 5 Business Days

Diseases of significant public health concern-report by the end of the work week after the existence of a case, suspected case, or a positive laboratory result is known.

7.2-Case definitions

To ascertain that reportable diseases are counted in a standardized manner, IDEpi maintains case definitions for each reportable condition and even for some other conditions. Case definitions used in Louisiana are usually conforming to the case definitions in the National Notifiable Disease List, prepared by the Council of State & Territorial Epidemiologists (CSTE).

7.3-The Infectious Disease Reporting Information System (IDRIS)

The main surveillance tool is the Infectious Disease Reporting Information System (IDRIS) which went live in 2009. It was upgraded in 2014 to be based on the CDC NEDSS Base System (NBS)

Management of reported cases

Health care facility staff enter data on reportable cases. IDEpi disease surveillance specialists have real time access to the data entered. They review the data, ask more questions if necessary, process the report, follow up with more detailed case investigation, ensure that infected individuals requiring counseling /follow-up, contacts requiring counseling and contacts requiring post exposure prophylaxis are all appropriately managed.

7.4-Syndromic surveillance

Syndromic Surveillance is the collection and analysis of pre-diagnostic and non-clinical disease indicators using pre-existing electronic data. Unlike traditional surveillance, syndromic surveillance does not use actual diagnoses. Data sources included in IDEpi syndromic surveillance are initially limited to clinical data, such as patient visits at emergency departments and urgent care centers.

The goals of syndromic surveillance are to:

- Rapidly detect clusters of symptoms and health complaints that might indicate a disease outbreak or other public health threat
- Monitor trends in syndromes of public health importance.

Because syndromic surveillance seeks to detect unusual increases in the occurrence of symptoms, it augments traditional surveillance by providing earlier detection and awareness of outbreaks or disease trends of public health significance, natural or man-made. This presumably will allow for a timelier public health response than that afforded by traditional surveillance. In addition, if laboratory testing does not occur, syndromic surveillance can increase the possibility of identifying cases that might go undetected.

Louisiana Early Events Detection System (LEEDS)

IDEpi has developed the Louisiana Early Events Detection System (LEEDS) which is a system that automates the data collection, data compilation and reporting. LEEDS provides IDEpi with:

- ease of importing data from different sources
- the automatic production of reports for feedback to the reporting institution
- the production of spot and aggregate maps
- the ability to quickly adapt syndromes or create new ones based on circumstances such as natural disasters or outbreak investigations.
- LEEDS flags records for 35 syndromes across numerous program areas including: bioterrorism, infectious disease, environmental epidemiology, injury, radiological exposure and mental health.

7.5-Outbreak reporting

Disease outbreaks are identified by the reportable disease surveillance system or by reports from the public or health professionals. Investigations are carried out by regional teams supported by the section's staff. Regional personnel including Infectious Disease - Rapid Response Team (ID-RRT) staff are regularly trained by IDEpi.

Investigation of disease outbreaks identified by the surveillance system or those reported by the public or health professionals in order to recommend preventive measures. Common outbreaks and settings investigated include:

- Food-borne diseases
- Vector-borne diseases (encephalitis)
- Hospital-acquired infections
- School and day-care centers
- Nursing homes, prisons and other institutions
- Community-acquired infections
- Potential bioterrorist events

8-Performance Measures

IDEpi has a set of performance measures used for the evaluation of cooperative agreements.

8.1-Surveillance

ID01	IDRIS	% of PHEP* case report received within 1 weekday of lab result (Dx date)
ID02	IDRIS	% reports of PHEP case report with initial recommendations within 1 workday
ID03	IDRIS	% completion of case classifications within 10 workdays of report date
ID04	IDRIS	% case report with 12 key fields completely filled
ID05	IDRIS	% completion of supplementary forms within 10 workdays of report
LE01	LEEDS	Number of acute care facilities in which LEEDS is deployed
LAB01		% lab cultures sent for PFGE

**PHEP disease=Bot/Tul/STEC/HAV/Mea/men*

8.2-Outbreak

OB01	OBKdbase	% outbreak investigations initiated within 1 workday of report
OB02	OBKdbase	% complete investigation for 95% outbreaks or clusters initiated
OB03	OBKdbase	% food-borne outbreaks with identified etiology
OB04	OBKdbase	% outbreaks invest with all minimal elements
OB05	OBKdbase	% outbreak investigations that generate reports
OB06	OBKdbase	% Single standard investigative questionnaire in outbreak.

8.3-Training

Number of participants attending RRT
Number of participants attending FET
Number of LMRs published annually
Number of learnlincs (Iinc) presented annually
Completion of yearly RRT training

9-PROCEDURES FOR OUTBREAK INVESTIGATIONS

9.1-Determining the cause of the food-borne outbreak

Food poisoning results from consumption of raw, cooked or processed food and of beverage contaminated with either:

- 1-Toxic substance (toxin) produced by a microorganism
- 2-Toxin naturally occurring in the food /beverage
- 3-Artificial chemical compound added accidentally or intentionally
- 4-Pathogenic microorganisms

In evaluating an outbreak that could be the result of food poisoning:

- List the suspected foods
- List the individuals that attended and the foods that they ate or did not eat
- List the delays between food consumption and onset of symptoms (incubation period)
- List the main symptoms experienced by each individual

Inquire about food preparation (details are known by the patient if food was prepared at home). Foods more likely to be contaminated are those stored at room temperature for several hours, food cooked in large quantities and stored in a large container in the refrigerator (improper cooling), inadequate cooking of meat (oozing blood in the center), and inadequate reheating of left-over food.

9.2-Confirm the etiologic diagnosis

If food poisoning is suspected, it is essential to obtain an etiologic diagnosis that will guide the preventive actions to be taken.

If possible, request that all suspect food and its original container or packages be kept. If the original container is not available, use an unused plastic bag or a clean (preferably boiled) jar. They should be placed in a paper or plastic bag and sent to the laboratory. If immediate transfer to the laboratory is impossible, the specimens should be kept in a refrigerator (not in the freezer). Some pathogens (e.g. the vegetative form of *C.perfringens*) are killed by freezing. Between 50 and 75 grams of each food item should be collected.

Collect also samples of vomitus and stools. If unavailable, consider obtaining samples by gastric lavage or rectal swab. These methods may not be well accepted by the patients.

To collect vomitus: if the patient is vomiting, get the patient to vomit in a large sterile specimen container, or transfer vomitus from a clean receptacle or lavatory into a sterile container. Use a clean spoon to transfer the vomitus.

Several methods can be used to collect stools: Provide the patient with a stool specimen container and a disposable plastic or wooden spoon or tongue depressor. If a patient is not producing stools, a rectal swab is necessary. This can be collected by an experienced technician. If unacceptable, the patient may collect the swab him/herself. Excrement-smear toilet paper or tissue are also acceptable. If examination is not carried out immediately, a transport medium is necessary.

In patients with acute fever, a blood sample may be useful.

9.3-Investigation activities related to foodborne infections reports

Per page 12 of The Louisiana Administrative Code (LAC) Title 51 investigations will begin immediately. “The state health officer may immediately upon receiving notification of any communicable disease or reportable condition, investigate as the circumstances may require for the purpose of verification of the diagnosis, to ascertain the source of the causative agent, to disclose unreported cases and to reveal susceptible contacts if such information is required to prevent a serious health threat to the community.”

Objective	Identify etiologic agent.
Epidemiology	<ul style="list-style-type: none"> • Contact health-care providers of cases who have sought medical attention. • Interview cases to characterize symptoms, incubation period, and duration of illness. • Obtain stool specimens from cases. • Determine whether symptoms, incubation period, or duration of illness suggest a likely pathogen. • Establish case definition based on confirmed diagnosis or clinical profile of cases. • Interview management to determine whether it has noticed any ill employees or any circumstances that could cause a foodborne illness. • Interview food workers to determine illness. This activity also could be conducted by nursing/healthcare staff. • Obtain stool specimens from ill or all food workers.
Environmental Health	<ul style="list-style-type: none"> • Obtain and store samples of implicated and suspected food items and ingredients. • Determine whether setting or food item suggests a likely pathogen.
Public Health Lab	<ul style="list-style-type: none"> • Contact clinical laboratories that might have performed primary cultures on cases, and obtain specimens. • Test stool samples to identify agent. • Test samples of implicated food items to identify agent. • Subtype all isolates as soon as possible after receipt.
Objective	Identify persons at risk and determine size and scope of outbreak.
Epidemiology	<ul style="list-style-type: none"> • Obtain from event organizer a list of persons attending event, or, if possible, list of persons patronizing the establishment during the outbreak period. • Interview persons who attended event or patronized establishment to determine attack rates, by time. • Contact health-care providers to identify additional persons seeking medical care whose illnesses meet the case definition.

	<ul style="list-style-type: none"> • If identified agent is reportable, review recently reported cases to identify possible exposures to event or establishment. • Obtain list of reservations for establishment, credit card receipts, receipts for take-out orders, inventory of foods ordered at establishment, or guest lists for events. Where possible, obtain information electronically.
Environmental Health	
Public Health Lab	<ul style="list-style-type: none"> • Contact clinical laboratories to identify additional stool specimens being cultured.
Objective	Identify mode of transmission and vehicle.
Epidemiology	<ul style="list-style-type: none"> • Interview identified cases and controls or well meal companions about all common exposure sources. • Calculate odds ratios or risk ratios for specific exposures. • Interview persons with identified exposures to determine attack rates and relative risks for specific exposures. • Combine descriptive and analytical epidemiology results to develop a model for the outbreak.
Environmental Health	<ul style="list-style-type: none"> • Identify how the food item(s) responsible for the transmission was contaminated /spoiled • Obtain menu from establishment or event. • Interview food workers to determine food preparation responsibilities. • Reconstruct food flow for implicated meal or food item. • Identify contributing factors and environmental antecedents. • Obtain samples of implicated food. • Obtain environmental samples from food contact surfaces or possible environmental reservoirs.
Public Health Lab	<ul style="list-style-type: none"> • Test implicated food and environmental samples to confirm presence of agent. • Subtype all isolates as soon as possible after receipt. • Conduct applied food safety research to determine ability of agent to survive or multiply in implicated vehicle and how vehicle might have become contaminated.
Objective	Identify source of contamination
Epidemiology	
Environmental Health	<ul style="list-style-type: none"> • Interview food workers to determine food preparation responsibilities. • Reconstruct food flow for implicated meal or food item. • Evaluate food flow for implicated meal or food item to identify contamination event at point of preparation or service. • If no contamination event identified, trace source of ingredients of implicated food item back through distribution to point where a contamination event can be identified or, if no contamination events can be identified during distribution, to source of production.
Public Health Lab	<ul style="list-style-type: none"> • Evaluate results of all outbreak-associated cultures to highlight possible relations among isolates from clinical, food, and environmental samples
Objective	Identify contributing factors and antecedents
Epidemiology	<ul style="list-style-type: none"> • Summarize information to identify confirmed or suspected agent. • Summarize information to identify confirmed or suspected food vehicle.
Environmental Health	<ul style="list-style-type: none"> • Evaluate results of environmental assessment, given identification of agent and results of epidemiologic investigation, to identify factors most likely to have contributed to outbreak and their environmental antecedents.
Public Health Lab	<ul style="list-style-type: none"> • Summarize information about culture results from clinical, food, and environmental samples.
Objective	Determine potential for ongoing transmission and need for abatement procedures.
Epidemiology	<ul style="list-style-type: none"> • On the basis of agent, incubation period, and likelihood of secondary spread, create epidemic curve, and evaluate the course of the epidemic to determine whether additional cases may still be occurring. • If outbreak appears to be ongoing, review possible control measures in collaboration with environmental health specialists.
Environmental Health	<ul style="list-style-type: none"> • Implement control measures to prevent further exposures: <ul style="list-style-type: none"> o Verify that all food workers who pose a risk for transmission have been excluded or restricted, as needed; o Verify that potentially contaminated foods have been properly disposed;

	<ul style="list-style-type: none"> o Verify that food contact surfaces and potential environmental reservoirs have been adequately cleaned and sanitized; o Train staff in safe food-preparation practices; o Modify food-production and food-preparation processes with appropriate preventive controls; and o Modify menu. <ul style="list-style-type: none"> • If any of these measures cannot be verified, review additional control measures, or if further exposure appears likely, alert public or close premises.
Public Health Lab	<ul style="list-style-type: none"> • Assess status of completed and pending cultures to identify gaps that suggest a potential for ongoing transmission.
Objective	Identify mode of transmission and vehicle.
Epidemiology	<ul style="list-style-type: none"> • Interview cases as soon as possible with standardized detailed exposure history questionnaire to identify possible common exposures (described in detail below). In some situations, cases are interviewed as soon as they are reported and before an outbreak has been recognized. • Establish case definition on the basis of characteristics of agent that led to detection of outbreak. • Characterize cases by person, place, and time, and evaluate this descriptive epidemiology to identify pattern possibly associated with particular food items or diets. • Compare detailed exposure history questionnaire frequencies against known or estimated background exposure rates, such as those in FoodNet Atlas of Exposures, to identify suspected food item. • Interview non-ill community controls or non-outbreak associated ill persons to obtain detailed exposure information to be used in a case-comparison analysis of exposures. • Obtain shopper card information to identify and verify grocery purchases and possibly determine background rates of purchase of item. • Document brand names and product code information for prepackaged food items. • Analyze exposure information comparing cases to relevant comparison group (e.g., non-ill controls or cases not associated with outbreak) to implicate food item or nonfood-exposure source.
Environmental Health	<ul style="list-style-type: none"> • Contact restaurants, grocery stores, or other locations identified by multiple cases to verify menu choices, identify ingredients, and identify distributors and/or source(s) for ingredients and/or food items of interest. • Obtain samples of suspected food items. Work with appropriate regulatory authority to ensure that food samples are collected and maintained with appropriate chain of custody. This will help the regulatory authority to take appropriate regulatory action. • Conduct an investigational trace-back to determine whether a suspected food vehicle from multiple cases has a distribution or other point in common. • Conduct an investigational trace-forward to determine where a suspected food vehicle ended up. • If specific food item or ingredient is implicated, conduct formal regulatory trace-back and/or trace-forward in coordination with FDA
Public Health Lab	<ul style="list-style-type: none"> • Store collected food samples, pending results of epidemiologic analyses. • Culture implicated food samples to confirm presence of agent. • Conduct serotype/ genotype tests, and further characterize pathogen as necessary for investigation. • Conduct applied food safety research to determine ability of agent to survive or multiply in implicated vehicle and how vehicle might have become contaminated.
Objective	Identify persons at risk and determine size and scope of outbreak.
Epidemiology	<ul style="list-style-type: none"> • Alert health-care providers of possible outbreak to identify additional persons seeking medical care, and review laboratory reports and medical charts at hospitals or physicians' offices to identify possible cases. • Ask cases if they know of others who are similarly ill. • Depending on nature of outbreak, take additional steps as warranted. Examples include reviewing employee or school absences, reviewing death certificates, surveying population affected, or directly asking members of the public to contact the health department if they have the illness under investigation.
Environmental Health	<ul style="list-style-type: none"> • Review foodborne illness complaints to identify undiagnosed cases that could be linked to outbreak.

	<ul style="list-style-type: none"> • Contact restaurants, grocery stores, or other points of final service visited by multiple cases to identify employee illnesses or foodborne illness complaints from patrons.
Public Health Lab	<ul style="list-style-type: none"> • Contact clinical laboratories to identify additional stool specimens being cultured. • Speed up referral and subtyping of outbreak pathogen.
Objective	Identify source of contamination.
Epidemiology	<ul style="list-style-type: none"> • Combine descriptive and analytical epidemiology results to develop a model for outbreak.
Environmental Health	<ul style="list-style-type: none"> • Trace source of implicated food item or ingredients through distribution to point where a contamination event can be identified or to source of production if no contamination events can be identified during distribution. • Conduct environmental assessment of likely source of contamination, including <ul style="list-style-type: none"> o Reconstruct food flow for implicated food item. o Interview food workers to determine food-preparation responsibilities and practices before exposure. o Obtain samples of implicated food or ingredients. o Obtain environmental samples from food contact surfaces or potential environmental reservoirs.
Public Health Lab	<ul style="list-style-type: none"> • Evaluate results of all outbreak-associated cultures to highlight possible relations among isolates from clinical, food, and environmental samples. • Conduct applied food safety research to examine likely sources of contamination. • Work with appropriate regulatory authority to ensure that food samples are collected and maintained with appropriate chain of custody. This will help the regulatory authority to take appropriate regulatory action.
Objective	Identify contributing factors and antecedents.
Epidemiology	<ul style="list-style-type: none"> • Summarize information to identify confirmed or suspected food vehicle.
Environmental Health	<ul style="list-style-type: none"> • Evaluate results of environmental assessment, given identification of agent and results of epidemiologic investigation, to identify contributing factors and antecedents.
Public Health Lab	<ul style="list-style-type: none"> • Summarize information about culture results from clinical, food, and environmental samples. • Provide background statistics on pathogen prevalence.
Objective	Determine potential for ongoing transmission and need for abatement procedures.
Epidemiology	<ul style="list-style-type: none"> • Create and evaluate epidemic curve to determine whether additional cases might still be occurring. • If outbreak appears to be ongoing, continue surveillance, and review potential abatement procedures.
Environmental Health	<ul style="list-style-type: none"> • Create and evaluate epidemic curve to determine whether additional cases might still be occurring. • If outbreak appears to be ongoing, continue surveillance, and review potential abatement procedures. • Verify that food workers who might have been infected during outbreak and who pose a risk for transmission have been excluded or restricted, as needed. • Verify that potentially contaminated foods have been removed from distribution. • Train staff on safe food-preparation practices. • Modify food-production and food-preparation processes by implementing appropriate preventive controls. • Modify restaurant's menu.
Public Health Lab	<ul style="list-style-type: none"> • Assess status of completed and pending cultures to identify gaps that may suggest a potential for ongoing transmission.

9.4-Laboratory procedures

9.4.1-Procedures for Stool Sample Collection and Submission

Each Regional Rapid Response Team has been provided with a laboratory RRT kit containing all necessary supplies. The Regional RRT Coordinator is responsible for maintaining inventory of supplies and requesting replacements as needed.

9.4.1.1-Collection time of samples

Diagnosis of most food-borne 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. Collect stool specimens prior to antibiotic treatment.

9.4.1.2-Methods of stool collection

The BioFire GI panel is being used for outbreaks to test for a number of pathogens. The specimens should be placed in Cary Blair at the time of collection (no later than 2 hours post collection). If *C. perfringens* is suspected the stools may be collected in a screw cap container or any container with a tight lid. Refrigerate the specimen immediately. Rectal swabs are not usually recommended; however, if it is the only available method, the swab should be inserted past the anal sphincter muscle to obtain a representative fecal sample.

9.4.1.3- Transporting and Labeling

Each stool sample should be labeled with the patient's name, date of birth, date and time of collection and be accompanied by the appropriate laboratory requisition slip with completed information as required. Place samples in a zip lock bag to prevent spillage or leakage during transport and place lab slips in a separate plastic bag or waterproof envelope. Place these samples in a cooler or styrofoam box, insert frozen icepacks to avoid deterioration of the specimens. To be accepted for testing by the State Lab: samples must be received by the State Lab within 7 days from the time of collection. For the testing of most pathogens/toxins, the stool samples should be kept at 2°C-8°C. Samples should be transported on ice.

9.4.1.4- Shipping

It is preferable that all outbreak-related specimens be shipped as quickly as possible to the receiving lab. If specimens cannot be hand-carried to the laboratory, the samples can be delivered by the Statewide courier system or shipped via FedEx. Please do not ship on a Friday or before a holiday. If stool has been frozen, stool must be transported frozen. The date and time of freezing must be noted. If shipping by FedEx, the specimens must be double boxed. In the primary container, the samples (properly labeled in a spill proof container in a zip lock bag) should be wrapped in a cushioning, absorbent material with ice packs. The secondary container should be leak proof and hold the inner container snugly. The second container should be addressed, and marked as "BIOLOGICAL SUBSTANCE, CATEGORY B" and labeled with UN3373. An itemized list of contents should be placed between the two packages and should include the name and telephone number of the person responsible for the samples.

9.4.2-Procedures for Food Sample Collection and Submission

Collect at least 25 grams of food item per organism to be tested. Record the date and time when the food plate or samples were taken. Keep the food in a sturdy leak proof container such as a clean and dry plastic container. If there is more than one item in the meal, keep food samples separate. If the specimen is frozen, the food must be stored frozen and shipped with dry ice or enough ice packs to keep frozen during transit. If the specimen is refrigerated, the food must be stored refrigerated, and shipped with enough ice packs to keep refrigerated during transit. Do not ship in wet ice; use ice packs. Food sample must be shipped overnight to the laboratory. Each food sample should be accompanied by a separate food request form. Pre-numbered adhesive tags are provided at the bottom of these forms; attach tags to the appropriate sample to avoid mismatching.

REMINDER: Key Components of Lab Collection Process

- Timeliness of specimen collection - usually during the acute phase of illness
- Specimen type - based on suspected disease
- Proper handling - temperature control and follow biohazardous procedures
- Proper labeling/packaging - be sure to include patient identifiers, submitter's identification, and abide by established protocols for packaging
- Proper modes of transportation - consider the length of time the specimen will remain viable, level/timeliness of follow-up needed and location of specimen/laboratory
- Common types of specimens used to identify agents: **viruses** - serology, stool, throat cultures;

bacteria - stool, food, tissue cultures (CSF, wound); **parasites** - stool.

9.4.3-Procedures for Collection of Serum Specimens

The identification of specific antigens and/or antibodies in serum is the method of choice when the acute stage of disease is past or when the agent is difficult or dangerous to isolate. Diagnosis of viral infection using serological testing must be done using both the laboratory data and clinical observations. The laboratory can provide two types of serological analysis helpful in diagnosing acute viral infection – 1) total antibody titers on paired serum specimens or 2) detection of virus specific IgM class antibodies. It is important that the acute or single specimen be collected as soon as possible after onset of the illness. Timely collection, careful transport and accurate analysis of a specimen are all essential to insure clinically useful test results.

Collect one tube of blood in a red/gray serum separator blood collection tube, for analysis as early as possible after the onset of illness. Consult with the lab at the time of collection regarding the type of blood tube that should be used. Specimens may be submitted as **separated serum** or as **whole** blood.

Specimens submitted as whole blood must comply with the following requirements:

- For each serological analysis requested, optimally draw 7 - 10 ml of blood into one gray/red-topped tube with serum separator. Allow the tube to completely fill during venipuncture; partially filled tubes limit the number of tests that the laboratory can perform and increases the number of redraws.

- Allow the whole blood to clot. It is not necessary to remove the clot or separate the serum from the clot for transport to the laboratory unless there will be a delay of several days to arrive at the lab. If a delay is expected, the serum must be separated from the clot and frozen.

- Blood should be stored at refrigerator temperature and should remain cool during transport. Blood tubes should be packed in insulated cryotube mailing containers with sufficient refrigeration packs to maintain the integrity of the specimens. The refrigerant cold packs must not come in direct contact with the blood tubes as this may cause hemolysis.

- Specimens submitted as serum must be spun down and separated from the cells. Serum or plasma must be received in the laboratory within 48 hours of collection. If more than 48 hours will elapse between spinning the blood and arrival at the laboratory, the plasma or serum must be decanted into fresh cryotubes for freezing. The specimen must remain frozen for both storage and shipment.

- When submitting acute and convalescent specimens, it is better to hold the acute sera until the convalescent sera has been collected and forward both specimens to the laboratory at the same time. The acute specimen should be collected as early as possible and not later than 5 days after onset. The convalescent specimen should be collected 14 - 21 days after onset. Occasionally upon request, the acute serum may need to be sent as soon as collected if there are available methods for rapid testing on single specimens.

- Please be sure the tube is labeled with appropriate identification, such as bar-coded labels from the bar coded-lab forms, and submit the laboratory slip with complete information requested on the form. All forms accompanying specimens should be placed in a separate water-proof bag or envelope and placed outside of the specimen container.

9.4.4-Submission of Clinical Specimens to the State Laboratory:

Laboratory identification of a pathogen can validate the hypothesis and allow easier implementation of control and preventive measures. Increased certainty results if the statistical association of illness is combined with the isolation of a pathogen from the ill person and the implicated food item(s). Therefore, time is of the essence when requesting and collecting clinical and food specimens. Stool specimens should be collected within 48 to 72 hours after onset of symptoms during the period of active diarrhea.

10-Reporting and Confidentiality

Louisiana law stipulates that all epidemiologic investigations are confidential.

TITLE 40: PUBLIC HEALTH AND SAFETY, CHAPTER 1. DIVISION OF HEALTH AND HEALTH OFFICERS, PART I. STATE DIVISION OF HEALTH, §3.1. Confidentiality of public health investigations; prohibited disclosure and discovery; civil penalties

A. All records of interviews, questionnaires, reports, statements, notes, and memoranda procured by and prepared by employees or agents of the office of public health or by any other person, agency, or organization acting jointly with that office, including public or private colleges and universities, in connection with special morbidity and mortality studies and research investigations to determine any cause or condition of health, and any documents, records, or other information produced or given to the state health officer in response to a court order issued pursuant to R.S. 40:8, hereinafter referred to as "confidential data", are confidential and shall be used solely for statistical, scientific, and medical research purposes relating to the cause or condition of health, or for the purposes of furthering an investigation pursuant to R.S. 40:8, except as otherwise provided in this Section.

Outbreak reports are completed on all foodborne outbreaks and distributed as appropriate to relevant agencies and stakeholders. Reports are entered into Louisiana Outbreak Investigation Database (LOID). The following are guidelines to be considered when discussing the investigation with media, patients, food handlers and business owners:

10.1- Individual patient information:

Details about individual illness history, results of individual laboratory tests shall only be discussed with the patient him/herself. For example do not give specific individual information on lab results to the business owner (food handler that was ill), or the party organizer (who was ill).

10.2-Lab test results:

Individual lab test results should only be given to the individual patient from whom the samples were collected. Collective results can be divulged: for example one may say “this was a norovirus outbreak” as long as the names of the ill persons are not mentioned.

10.3-Food Service establishment /food preparation:

When collecting the information on food preparation, the epidemiologist assures the food preparer that the specific information will be kept confidential. The purpose is to make the food preparer comfortable enough to discuss possible mistakes made during preparation without fear of reprisals. Therefore, that information is to be kept confidential and will only be discussed with the business owner/food preparer to prevent future mishandling of food. While the epidemiologic investigation is confidential by law, the inspections made by the sanitarians are public documents. It is acceptable to discuss the results of the sanitary inspection.

10.4- Statistical results:

Basic statistical numbers can be given out. For example “in this outbreak there were 20 cases”, or “we carried out a case control study with 25 cases and 25 controls, the odds ratio was...”

10.5-Media questions:

The media often obtains information from the public and expects to gain more information from the epidemiologists. Information already in the media is not confidential and can be discussed as long as the above guidelines are followed.

10.6-Public summary:

When an outbreak has gained large media attention, it is useful to prepare an outbreak investigation summary limited to statistical results, sanitarians' inspection and common knowledge already in the media's hands.

10.7-Public health recommendations:

Where relevant, public health recommendations based on findings of investigations are communicated by IDEpi to the relevant agencies and stakeholders as long as above guidelines are followed.

11-Training

Two full-time IDEpi staff members coordinate activities related to education and training. Such activities include continued education for public health personnel to ensure that they are well-informed and competently trained. In addition, IDEpi offers infectious disease and epidemiology trainings to the healthcare community. This helps to ensure that the healthcare providers in Louisiana have the most up-to-date information related to infectious diseases of public health importance. It also provides a reciprocal service to infection control practitioners and other healthcare professionals that submit reportable disease information to IDEpi. The following education and training activities are regularly offered:

Data related to both surveillance and outbreak investigations are analyzed to provide education for prevention of communicable diseases to the community and health professionals. Feedback is provided through OPH websites, mass e-mails and publications such the Annual Report of Infectious Diseases and the bi-monthly Louisiana Morbidity Report (LMR).

11.1-Rapid Response Team (RRT)

IDEPI held trainings for the nine regional Infectious Disease-Rapid Response Teams (ID-RRT). The ID-RRTs are made up of regional epidemiologists, disease surveillance specialists, sanitarians, nurses, and other health professionals who might be asked to aid in a food, water or other enteric disease outbreak. Trainings for new and current members will be held each year of this new award project period. The training includes breakout sessions to practice outbreak investigation techniques pertaining to foodborne and other infectious diseases. These sessions provide the teams an opportunity to implement steps of outbreak investigations including recognizing and responding to an outbreak, data collection and analysis, and the provision of public health recommendations.

11.2-Field Epidemiology Training (FET)

IDEPI offers a Field Epidemiology Training (FET) to infection preventionists, nurses, OPH staff that may participate in a large outbreak investigation but are not part of an ID-RRT and healthcare workers outside of OPH. These trainings are similar to the RRT trainings in that they include breakout sessions to practice outbreak investigations.

11.3-Web-based Training

11.3.1-Web: <https://ldh.la.gov/page/299>

The IDEpi web site includes pages for:

- Epidemiology manual with 80 infectious disease topics with emphasis on etiology, epidemiology, laboratory diagnosis, prevention and control
- Bioterrorism manual
- Infection control manual for public health facilities
- Public information sheets for each disease
- Summary sheets for providers
- Antibiotic resistance and stewardship
- Food-borne infections and prevention
- Healthcare associated infection prevention and control
- Surveillance report for each disease (about 80) including results of case and outbreak detected in Louisiana, trends for the past 40 years
- Vector control, rabies, zoonosis

11.3.2- IDEpi staff is an important source of speakers

The IDEpi staff gives about 100 presentations a year for infection preventionists in hospitals and nursing homes, health care facilities educators, and local medical, nursing and allied health societies.

12-Communication

12.1-Bureau of Media and Communication

All communication to the media is handled by the DHH Bureau of Media and Communication that arranges for interviews.

12.2-Louisiana Morbidity Report

The Louisiana Morbidity Report is published on the web bimonthly. Its targeted audience includes clinicians, health care providers and public health professionals throughout the state. This publication often highlights outbreak investigation success stories and encourages physicians and other public health professionals to report outbreaks and send isolates to the State Lab for confirmation, serotyping and PFGE.

13-Collaboration / Coordination

13.1-CDC

13.1.1-OUTBREAKNET

The foodborne epidemiologist coordinates activities in outbreak investigations including coordinating with the State Laboratory, developing questionnaires, maintaining databases associated with the outbreak, data collection, and analysis and summary reports. The epidemiologist oversees Louisiana's role in multi-state outbreaks by participating in conference calls with the CDC and coordinating the follow up with Louisiana's cases and forwarding questionnaires to the CDC. Along with maintaining the State's databases, the epidemiologist also continues to report outbreaks in the National Outbreak Reporting System (NORS). The foodborne epidemiologist serves as a liaison between other surveillance epidemiologists and the state laboratory. The epidemiologist ensures that bacteriology reports from the laboratory reach the regional disease surveillance personnel to facilitate timely disease surveillance activities such as data entry, data collection, and forwarding data to appropriate OPH personnel for follow up. The foodborne epidemiologist coordinates follow

up with enteric diseases of importance including Vibrio, Listeria, and shiga toxin producing *E.coli* cases. The epidemiologist ensures that all cases of Vibrio, Listeria and STEC are interviewed using the COVIS, Listeria Initiative form and the state's STEC surveillance form, respectively. If shellfish consumption is mentioned on the completed COVIS form, the foodborne epidemiologist notifies the Molluscan Shellfish department and the sanitarians in order to conduct an inspection and collect tags.

The foodborne epidemiologist coordinates the follow up of enteric disease cases to determine exposure. All consumer complaints calls are followed up on to determine if it is an isolated illness or an outbreak.

The foodborne program supports outbreak investigations if they are suspected to be foodborne related and coordinates the prevention of seafood related infections with sanitarian services, the seafood industry, Restaurant Association, and the Food and Drug Agency (FDA).

13.1.2-NORS:

The foodborne epidemiologist is responsible for reporting outbreaks in NORS. After the initial follow up on an outbreak has been completed, the information is entered into NORS. As additional information is collected such as gender and age breakdown, incubation period, exposure, and lab results, they are entered into the reporting system. All food-borne related outbreaks as well as person-to-person norovirus outbreaks are entered for each calendar year into NORS.

13.1.3-CALICINET

Noroviruses are suspected as the causative agent in many of the foodborne outbreaks that are investigated. IDEpi requests stool samples related to possible outbreaks to be sent to the OPH Central Laboratory for testing. The Molecular Biology Laboratory uses a Real Time RT-PCR method for the detection and differentiation of Norovirus GI and GII. The procedure used is an adaptation of the CDC assay which is a duplex real time (TaqMan®) RT-PCR assay to detect human norovirus GI and GII RNA in human fecal and emesis specimens. An internal control using Cepheid's QC-RNA bead into this assay for further quality control is included. Norovirus positive stools meeting shipping criteria will be forwarded to our designated contract laboratory in Tennessee for further characterization.

13.1.4-PULSENET

The PFGE Laboratory at the Louisiana State Public Health Laboratory is a PulseNet participant and processes over 1000 samples a year. Hospital laboratories are asked to send enteric isolates to the State Laboratory for confirmation, serotyping, PFGE, and uploading to PulseNet. The PulseNet laboratory conducts PFGE on all *Shigella*, *Escherichia coli* O157: H7, selective isolates of *Salmonella* (*enteritidis*, *newport*), and other species of *Salmonella* including typhi. Enteric disease outbreaks are posted on the PulseNet web-board by the laboratory, while *Salmonella* outbreaks are posted on SODA (*Salmonella* Outbreak Detection Algorithm). PFGE testing will be applied to all possible foodborne outbreaks and requests from the IDEPI. PFGE results will be submitted two to three times per week.

Hospitals are asked to send to the Public Health Laboratory, all *Escherichia coli* O157 isolates and any shiga toxin positive broth or stool where O157 has not been isolated. Hospitals that do not have the capability to identify O157 are asked to send sorbitol-negative *E. coli* isolates for additional testing. The General Bacteriology Laboratory confirms *E. coli* isolates using biochemical methods and checks for agglutination against O157 antiserum. The Molecular Biology Laboratory runs conventional PCR for four targets (*eco*, O157, *stx1* and *stx2*) on both the isolates and culture generated directly from the stool or broth specimens. All STEC isolates confirmed by the State Laboratory are sent to the State's PFGE Lab as well as to the CDC for confirmation. In the first quarter of 2013, the Sanitary Code of Louisiana was updated to make the submission of enteric pathogen isolates to the State Public Health Laboratory mandatory.

13.1.5-NARMS:

The IDEpi and State Public Health Bacteriology Laboratory Section participate in the National Antibiotic Resistance Monitoring System (NARMS), which is able to monitor emerging patterns of resistance. The Bacteriology Laboratory will continue to be responsible for sending every twentieth non-typhi *Salmonella*, every *Salmonella typhi*, every *Salmonella* serotype *Paratyphi A* and *C* isolate, every twentieth *Shigella*, every twentieth *E. coli* O157, and every non-toxigenic *Vibrio* isolate for testing at the NARMS laboratory. The Bacteriology Laboratory will send isolates from enteric disease outbreaks to the CDC for NARMS testing. Funds are requested to support these activities. IDEpi will continue to be responsible for interviewing persons from whom enteric bacterial isolates have been cultured with uncommon antimicrobial patterns. The foodborne epidemiologist and the State Bacteriology Laboratory will continue to participate in the NARMS conference calls.

In collaboration with the Bacteriology State Laboratory section, IDEpi participates in the National Antibiotic Resistance Monitoring System (NARMS) for monitoring the antibiotic susceptibility of enteric pathogens and in PulseNet investigations concerning the detection of clusters and comparison of Pulse Field Gel Electrophoresis (PFGE) patterns to those involved in outbreaks from other states.

13.1.6-ISSC:

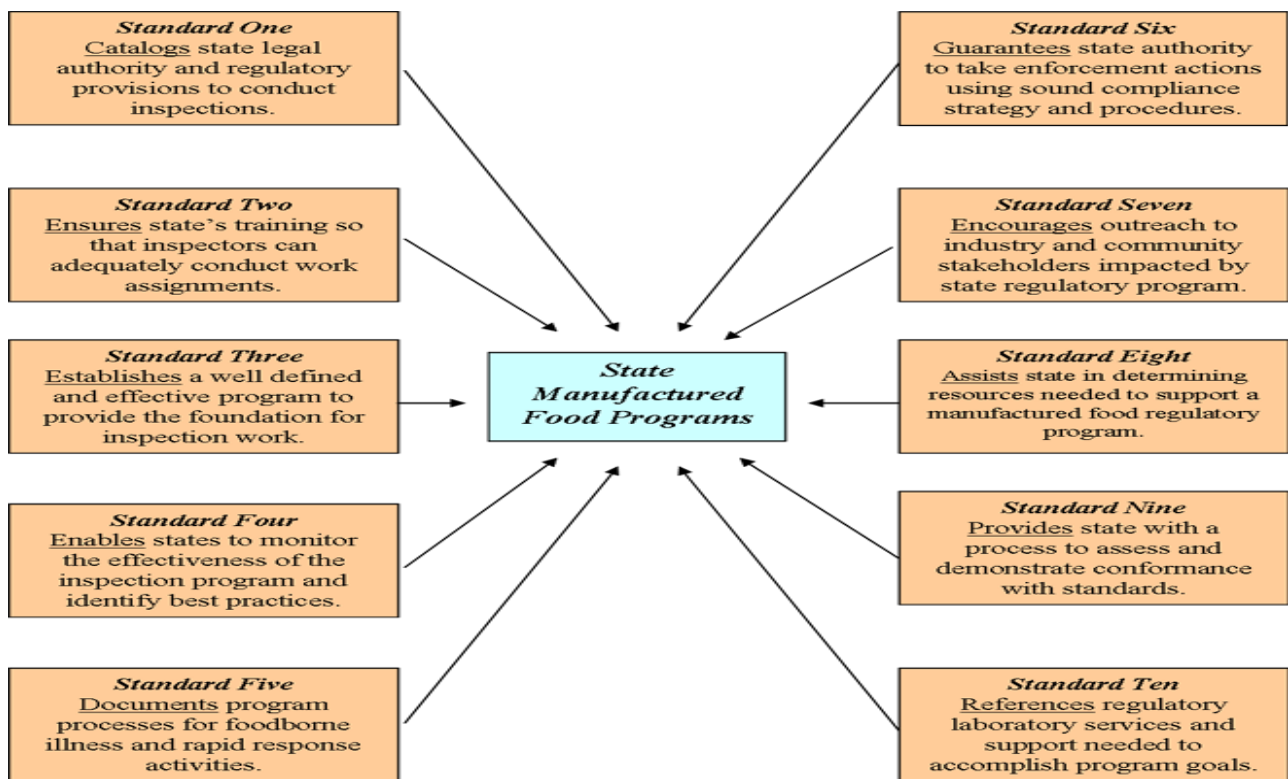
IDEpi collaborates with the **Interstate Shellfish Sanitation Commission (ISSC)**, and the Louisiana Center for Environmental Health Shellfish Sanitation Program to track *Vibrio* infections caused by the consumption of raw seafood (mainly oysters).

13.2-Food & Drug Administration: Manufactured Food Regulatory Program Standards (MFRPS)

The Louisiana OPH IDEpi Section uses the Manufactured Food Regulatory Program Standards (MFRPS), which are a set of standards developed by the FDA as a guide for continuous improvement for state food manufacturing programs.

The goal of the standards is to leverage resources and share common successes to build systems within Louisiana regulatory food programs. The standards promote development of a high-quality state manufactured food regulatory program and include a process for continuous improvement. Gaps are identified, improvement plans are developed and strategic goals are identified. The areas of focus include regulatory foundation, training, inspection programs, auditing, food defense, enforcement and compliance, stakeholder outreach and laboratory services.

This standard describes the functions and related activities necessary to investigate food-related illnesses, outbreaks, and hazards as well as coordinating roles and responsibilities with other jurisdictions and notifying the public.



13.2.1-Program Elements

The State program must have (or contract for) a system to:

- Conduct illness or injury investigations and collect information using established epidemiology procedures similar to those found in the "International Association for Food Protection Procedures to Investigate a Foodborne Illnesses, Fifth Edition" and the "Guidelines for Foodborne Disease Outbreak Response."
- Provide laboratory support for investigations of illness, injury, or outbreaks
- Maintain a current list of relevant agencies and emergency contacts
- Coordinate the trace-back and trace-forward of food implicated in an illness, injury, or outbreak
- Identify contributing factors for reports of illness, injury, or incidents implicating food
- Maintain investigational findings
- Distribute the final report of illness or injury implicating food to relevant agencies,
- Immediately notify all relevant agencies if intentional contamination is suspected or threatened, e.g. tampering or terrorism
- Establish criteria for releasing information to the public (includes identifying a media person and developing guidelines for coordinating media information with other jurisdictions)
- Mitigate and contain food-related illness and injury using enforcement activities and public awareness programs
- Provide guidance to prevent or reduce the incidence of food-related illness, injury, and intentional contamination, e.g. tampering or terrorism
- Collaborate as necessary with FDA and other Federal authorities under conditions of increased threat or intentional contamination

13.2.2-Outcome

The State program has written procedures for documenting and investigating alleged food-related illnesses, injuries, and unintentional or deliberate food. Additionally, the State program must have a rapid response system and team that is capable of detecting and distinguishing between outbreaks of foodborne disease and possible intentional contamination.

13.2.3-Documentation

The program maintains the records listed here:

- A written description of epidemiology support or an agreement that defines epidemiology support
- A complaint log or database
- Up-to-date emergency contact list for all relevant jurisdictions
- Procedure and contact person for releasing information to the public
- Documented timeframes for responding to complaints
- The illness, injury, or outbreak response procedures and the data collection forms
- Policies and procedures for handling incidents and threats of deliberate contamination and for collaborations with FDA and other jurisdictions under conditions of increased threat or intentional contamination
- Written agreements that identify and describe sources of supplemental laboratory capacity and expertise including laboratory support to detect contaminants not normally found in food
- Investigation reports and summaries

13.3-Other States

When IDEPI is notified that a Louisiana case is part of a multi-state outbreak, the foodborne epidemiologist will coordinate with the State Public Health Laboratory to obtain case information. The epidemiologist will also coordinate with other epidemiologists in the follow up of the case. The foodborne epidemiologist will ensure that the CDC questionnaires are completed and faxed to the CDC. The time from notification of case to follow-up of the case will be documented in IDEpi's epistories.

Table 1: Incubation and Symptoms of Food Poisoning

Agent	Incubation		Symptoms			
	Common	Limits	Vomit	Diarrhea	Abdo Pain	Fever
<i>Staphylococcus aureus</i>	2-4 hrs	up 8 hrs	+++	+	±	±
<i>Bacillus cereus</i>	2-4 hrs	8-16 hrs	+++ +	+ +++	- ++	- -
Salmonella	18-24 hrs	6-72 hrs	±	++	+++	+
<i>E.coli</i> ETEC	12-48 hrs		±	++	++	-
EIEC	12-48 hrs		+	++	++	+
EHEC	2-3 days		-	++	++	-
Shigella	1-3 days		±	++ bld	++	++
<i>Campylobacter jejuni</i>	3-5 days		±	++ bld	+++	+
<i>Vibrio parahemolyticus</i>	12 hrs	2-48 hrs	+	++	++	+
<i>Yersinia enterocolitica</i>	3-5 days		++	++	++	++
<i>Clostridium botulinum</i>	12-36 hrs	2-72 hrs	-	rare mostly neurological	+	-
<i>Clostridium perfringens</i>	10-12 hrs	6-24 hrs	±	+++	++	-
Norovirus	16-48 hrs		+++	++	+	±
Viral gastroenteritis	16-48 hrs		+	++	+	±

Table2 : Food Type and Source of Contamination

Agent	Food Commonly Involved	Source of Contamination			
		Improper Handling	Inadequate Cooling	Poor Hygiene	Contaminated Equipment
<i>Staph. aureus</i>	Beef, poultry, ham, pastries	+	-	++	-
<i>Bacillus cereus</i>	Cooked Rice	++	+	+	-
<i>Salmonella</i>	Beef, raw milk, poultry, pork, ice cream,	++	+	+	+
<i>E.coli</i> ETEC EIEC EHEC	Salad, raw veg, cheese, water	++	+	+	+
	Salad, raw veg, cheese, water	++	+	+	+
	Beef, raw milk, water	++	+	+	+
<i>Shigella</i>	Salad, raw	+	-	+++	-
<i>Campylobacter jejuni</i>	Raw milk, poultry, water	+	+	-	-
<i>Vibrio parahaemolyticus</i>	Shellfish	+	++	-	-
<i>Y enterolytica</i>	Pork	++	+	+	+
<i>Clos. botulinum</i>	Vegetables, fish	+	++	-	-
<i>Clos. perfringens</i>	Beef, poultry				-
Norwalk					-
Viral agent					-

Table 3-List of Illnesses Attributed to Food

1. Upper gastro intestinal tract signs & symptoms, nausea & vomiting, incubation less than 1 hour

- Mushroom: eating unknown varieties of mushrooms.
- Antimony, Cadmium, Copper, Lead: eating from newly purchased utensils, enamel-ware poorly fired, highly acidic food and beverages.
- Tin, Zinc: eating from food stored in zinc or tin containers, high acidic foods.

2. Upper gastro intestinal tract signs & symptoms, nausea & vomiting, incubation 1 to 6 hours

- Bacillus cereus*: poorly handled food (1)* see Table 4 – Clinical Classification).
- Staphylococcus aureus*: poorly handled food (1).
- Nitrite: cured meats, vegetables from field with excessive nitrate administration.
- Shellfish poisoning: mussels, shell, scallops

3. Upper respiratory symptoms, incubation less than 1 hour

- Sodium hydroxide poisoning: inadequate rinsing of dishes with caustic soda
- β -hemolytic streptococcal infections: contaminated raw milk or eggs

4. Lower gastrointestinal signs & symptoms, abdominal cramps & diarrhea, incubation 6-12 hours (up to 72hrs)

- Clostridium perfringens*: poorly handled food (1).
- Campylobacter jejuni*: raw milk or raw meat, poorly cooked milk or meat.
- Cholera: fish, shellfish, poorly handled food (1).
- Vibrio cholera*-like gastro-enteritis: raw fish, shellfish.
- Pathogenic *E.coli*: poorly handled food (1).
- Salmonella*: poultry, meat, egg products, milk and dairy poorly cooked.
- Shigella*: poorly handled food (1).
- Vibrio parahaemolyticus*: fish, shellfish poorly cooked or contamination by sea water.
- Yersinia enterocolitica*: milk poorly pasteurized or cooked.

5. Lower gastrointestinal signs & symptoms, abdominal cramps & diarrhea, incubation >72 hours

- Norwalk agent: Raw shellfish, green vegetables, pastry, poorly handled food (1).
- Viral gastro enteritis (ECHO, Coxsackie, Reo, Adeno, Rota and Polio viruses): food contaminated by carrier and poorly reheated.
- Amoebic dysentery: raw vegetables and fruits.
- Giardiasis: raw vegetables and fruits.
- Anisakiasis: Raw fish.
- Beef tape worm (teniasis): Poorly cooked beef meat.
- Pork tape worm (teniasis): Poorly cooked pork meat.
- Fish tapeworm (diphyllobothriasis): Raw fish.

6. Neurological symptoms: visual disturbances, confusion, tingling, twitching or paralysis, incubation less than 1 hour

- Mushroom poisoning by ibotenic acid group or muscarinic group.
- Organophosphorous: food accidentally contaminated by pesticide.
- Carbamate: food accidentally contaminated by pesticide.
- Neurologic shellfish poisoning: shellfish from areas with red tide.
- Puffer fish

7. Neurological symptoms: visual disturbances, confusion, tingling, twitching or paralysis, incubation 1 to 6 hours

- Chlorinated hydrocarbons: food accidentally contaminated by pesticide.

-Ciguatera: tropical fish in specific areas

8. Neurological symptoms: visual disturbances, confusion, tingling, twitching or paralysis, incubation 12 to 72 hours

-Botulism: poorly canned low acid food, improperly cured ham and fish, food held at room temperature for long time.

9. Neurological symptoms: visual disturbances, confusion, tingling, twitching or paralysis, incubation > 72 hours

-Mercury: grain treated with mercury, fish from heavily polluted area.

10. Generalized infection: fever, chills, malaise, incubation > 72 hours

-Brucellosis: raw milk and dairy products.

-Listeriosis: raw milk and dairy products.

-Typhoid: poorly handled food (1).

-*Vibrio vulnificus* septicemia: raw shellfish.

-Hepatitis A: poorly handled food (1), shellfish from contaminated areas.

-Toxoplasmosis: poorly cooked meat.

-Angiostrongyliasis: raw crab, shrimp, salad with slugs.

-Trichinosis: poorly cooked pork meat.

Table 4- Clinical Classification

1. Nausea and Vomiting within 1 to 6 Hours: *Staphylococcus aureus* and *Bacillus cereus*

The short incubation period results from the action of a preformed enterotoxin. Both staphylococcal and short-incubation *B. cereus* outbreaks are illnesses of short duration, usually lasting less than 12 hours.

Staphylococcal food poisoning is characterized by vomiting (82% of cases) and diarrhea (68%); fever is relatively uncommon (16%). Staphylococcal enterotoxins are multiple serologically distinct enterotoxins (currently, A through Q, excluding F) but not all are emetic. More than 99% of enterotoxigenic staphylococci associated with food poisoning are coagulase positive

B. cereus strains can cause two types of food poisoning syndromes:

1- characterized primarily by nausea and vomiting with an incubation period of 1 to 6 hours (short-incubation “emetic” syndrome). The short-incubation syndrome, characterized by vomiting (100% of cases), abdominal cramps (100%), and, less frequently, diarrhea (33%), is caused by a toxin resistant to heat, pH and proteolysis

2- characterized primarily by abdominal cramps and diarrhea with an incubation period of 8 to 16 hours (long-incubation “diarrhea” syndrome)..

Other major etiologic considerations for nausea, vomiting and abdominal cramps within 1 Hour: This syndrome may be caused by **heavy metals** - copper, zinc, tin and cadmium. Incubation periods most often range from 5 to 15 minutes. Nausea, vomiting and abdominal cramps result from irritation of the gastric mucosa and usually resolve within 2 to 3 hours after removal of the offending agent during emesis.

Nausea, vomiting, abdominal cramps and diarrhea may occur after ingestion of **mushrooms** containing gastrointestinal irritants that are not well characterized.

2. Paresthesias within 1 Hour.

When patients have this symptom - fish poisoning, shellfish poisoning, Chinese restaurant syndrome and niacin poisoning are the major possibilities.

Histamine fish poisoning (scombroid) is characterized by symptoms resembling those of a histamine reaction. Burning of the mouth and throat, flushing, headache and dizziness are common; abdominal cramps, nausea, vomiting and diarrhea also occur in most cases (see Manual section on Food poisoning due to Fish consumption).

The Chinese restaurant syndrome is characterized by a burning sensation in the neck, chest, abdomen, or arms and by a sensation of tightness over the face and chest. Headache, flushing, diaphoresis, lacrimation, weakness, nausea, abdominal cramps and thirst frequently occur. Symptoms appear to be caused by excessive amounts of monosodium L-glutamate in foods, although other undefined substances may also play a role. The illness usually resolves within several hours.

Niacin poisoning produces a burning facial erythema within 20 minutes of ingestion, which rapidly resolves.

3. Paresthesias or other neurological symptoms within 1 to 6 Hours.

The major diagnostic considerations for this syndrome are **Paralytic Shellfish Poisoning, ciguatera fish poisoning** and **mushroom poisoning**..

Ciguatera is characterized by an onset of abdominal cramps, nausea, vomiting and diarrhea, preceded or followed by numbness and paresthesias of the lips, tongue and throat.

Miscellaneous Mushroom Poisoning Syndromes with Onset within 2 Hours.

At least four clinical syndromes may occur within 2 hours of ingestion of toxic mushrooms.

1-Species containing ibotenic acid and muscimol cause an illness that mimics acute alcoholic intoxication and is characterized by confusion, restlessness and visual disturbances followed by lethargy; symptoms resolve within 24 hours.

2-Species containing muscarine cause an illness characterized by evidence of parasympathetic hyperactivity (e.g., salivation, lacrimation, diaphoresis, blurred vision, abdominal cramps, diarrhea). Some patients experience miosis, bradycardia and bronchospasm. Symptoms usually resolve within 24 hours.

3-Species containing the toxic substances psilocybin and psilocin cause an acute psychotic reaction manifested by hallucinations and inappropriate behavior, which usually resolves within 12 hours.

4-The mushroom *Coprinus atramentarius* contains a disulfiram-like substance that can result in headache, flushing, paresthesias, nausea, vomiting and tachycardia if alcohol is consumed during the 48-hour period after ingestion.

4. Abdominal Cramps and Diarrhea within 8 to 16 Hours: *Clostridium perfringens* and *B. cereus*.

In contrast to staphylococcal food poisoning and the short-incubation *B.cereus* disease, caused by ingestion of preformed enterotoxins in food, *C. perfringens* and long-incubation *B. cereus* food poisoning are caused by toxins produced in vivo, accounting for the longer incubation period. Although nausea occurs in many patients with *C. perfringens* and long-incubation *B. cereus* food poisoning, vomiting occurs infrequently. In fact, occurrence of vomiting in more than one third of affected persons suggests that these organisms are not involved. Although these illnesses last longer than staphylococcal and short-incubation *B. cereus* food poisoning, symptoms usually resolve within 24 hours. However, in some long-incubation *B. cereus* outbreaks, the mean duration of illness can be more than 2 days and occasionally illness may last several weeks.

In *C. perfringens* food poisoning, the most common symptoms are diarrhea and abdominal cramps. Although nausea may occur, vomiting and fever are uncommon, occurring in less than 10% of the patients. Although five types of *C. perfringens* toxin have been described, type A is almost always the toxin causing this food poisoning syndrome. *C. perfringens* enterotoxin is heat-labile.

B. cereus strains, cause a similar long-incubation syndrome that produces diarrhea (96%) and abdominal cramps (75%), sometimes vomiting (33%), and rarely fever.

5. Abdominal Cramps and Diarrhea within 6 to 24 Hours, Followed by Hepatorenal Failure.

Species of poisonous mushrooms containing amatoxins and phallotoxins are responsible for this syndrome. The most common implicated species are *Amanita phalloIDEpi*, *Amanita virosa* and *Amanita verna*. The illness is typically biphasic; the abdominal cramps and diarrhea, which may be severe, usually resolve within 24 hours. The patient then remains well for 1 to 2 days before evidence of hepatic and renal failure supervenes. A mortality rate of 20% to 50% has been reported.

A similar clinical syndrome occurs after ingestion of mushrooms of the *Gyromitra* genus, which contain the toxic substance gyromitrin. Hemolysis, seizures, and coma can occur, but this toxin does not cause acute renal failure.

6. Fever, Abdominal Cramps, and Diarrhea within 16 to 48 Hours.

The major etiologies for this syndrome are **Salmonella**, **Shigella**, **Campylobacter jejuni**, **Vibrio parahaemolyticus** and **E. coli**. Bloody diarrhea and vomiting occur in a varying proportion of patients infected with these pathogens. These illnesses usually resolve within 2 to 7 days.

C. jejuni is the most common foodborne bacterial pathogen. Salmonella is the second most common foodborne bacterial pathogen and the most common bacterial pathogen associated with foodborne outbreaks.

7. Abdominal Cramps and Watery Diarrhea within 16 to 72 Hours.

The major etiologies for this syndrome are enterotoxigenic strains of *E. coli*, *V. parahaemolyticus*, *V. cholerae non-O1* and, in Louisiana, *V. cholerae O1 and O139*; *C. jejuni*, *Salmonella* and *Shigella* may also cause this syndrome. Enterotoxins synthesized in vivo are usually responsible for this syndrome.

Severe cholera manifests as a profuse, watery diarrhea accompanied by muscular cramps. With the other infections, fever and vomiting occur in a minority of cases. With the exception of cholera, which may last for 5 days and disease caused by *V. cholerae non-O1*, which may last for 2 to 12 days, these illnesses usually resolve within 72 to 96 hours.

8. Vomiting and Nonbloody Diarrhea within 24 to 48 Hours

Noroviruses are the most common etiology. The syndrome progresses to include watery, nonbloody diarrhea, abdominal pain and nausea. Vomiting is more common among children, whereas diarrhea is more likely to predominate among adults. Fever occurs in one third to one half of patients, is usually low grade and lasts for less than 24 hours. Symptoms usually resolve in 1 to 3 days. It is impossible to distinguish between norovirus and some bacterial causes of gastroenteritis, such as enterotoxigenic strains of *E. coli* (ETEC), for a single patient based on clinical course, but a few simple criteria have been used epidemiologically to assess whether norovirus was the likely cause of outbreaks. Criteria that suggest norovirus infection include:

- (1) failure to detect a bacterial or parasitic pathogen in stool specimens
- (2) the occurrence of vomiting in greater than 50% of patients
- (3) a mean duration of illness of 12 to 60 hours and
- (4) a mean incubation period of 24 to 48 hours.

9. Fever and Abdominal Cramps within 16 to 48 Hours, without Diarrhea

Yersinia enterocolitica is the usual etiology. In older children and adults, the clinical illness may be prolonged and one syndrome may closely resemble acute appendicitis; nausea and vomiting are relatively uncommon, occurring in less than 25% to 40% of the cases. Duration of the illness ranges from 24 hours to 4 weeks.

10. Bloody Diarrhea without Fever within 72 to 120 Hours

The distinctive syndrome of hemorrhagic colitis has been linked to **Shiga toxin-producing strains of *E. coli***, most often serotype O157-H7. The illness is characterized by severe abdominal cramping and diarrhea, which is initially watery but may later be grossly bloody. Patients with uncomplicated infection usually remain afebrile. The duration of uncomplicated illness ranges from 1 to 12 days. Other *E. coli* serogroups that produce Shiga toxins can also cause hemorrhagic colitis and hemolytic uremic syndrome.

11. Persistent Diarrhea within 1 to 3 Weeks

Two distinctive persistent diarrheal syndromes can be foodborne: **cyclosporiasis** and **Brainerd diarrhea**.

Cyclosporiasis emerged as a major foodborne infection in the United States in 1996, when it caused many outbreaks related to imported raspberries. In 1997 and 1999, outbreaks of cyclosporiasis were associated with fresh mesclun and fresh basil. The diarrhea is often intermittent and relapsing; it is associated with anorexia, weight loss, nausea and profound fatigue; it begins after a median incubation period of 7 days.

A distinctive chronic watery diarrhea, known as **Brainerd diarrhea**, was first described in persons who had consumed raw milk. After a mean incubation period of 15 days, affected persons developed acute, watery diarrhea with marked urgency and abdominal cramping. Diarrhea persisted for a mean of 2 years. No etiologic agent was identified.

12. Nausea, Vomiting, Diarrhea and Paralysis within 18 to 36 Hours

The occurrence of acute gastrointestinal symptoms simultaneously with, or just before the onset of descending weakness or paralysis strongly suggests the diagnosis of foodborne botulism. Constipation is common once the neurologic syndrome is well established, but nausea and vomiting occur at onset in 50% of the patients and diarrhea occurs in approximately 20% to 25% of the patients. The disease in older children and adults results from ingestion of preformed toxin. The syndrome of infant botulism results from ingestion of spores, with subsequent toxin production in vivo. Both illnesses last from several weeks to several months. Clinical suspicion is critical if the disease is to be correctly diagnosed.

Guillain-Barré syndrome has been associated with serologic evidence of recent infection with *C. jejuni*. In a multicenter study of 118 patients in the United States with Guillain-Barré syndrome, 36% had serologic evidence of a preceding *C. jejuni* infection. When preceding diarrheal illness is reported, it typically occurs 1 to 3 weeks before the onset of neurologic symptoms. In contrast to botulism, this syndrome is usually manifested by an ascending paralysis accompanied by sensory findings and abnormal nerve conduction velocity.

13. Systemic Illness

Some foodborne diseases manifest mainly as invasive infections in immunocompromised patients.

Listeriosis typically affects pregnant women, fetuses and persons with compromised cellular immunity, who present with fever, myalgias and primary bacteremia or meningitis. Sources are most often foods, including cold processed meats and dairy products. The incubation period is prolonged, ranging from 2 to 6 weeks and the case-fatality rate is 23%.

Vibrio vulnificus infections cause fulminant myonecrosis or primary bacteremia after ingestion of raw oysters. This severe syndrome is seen almost exclusively in patients with underlying liver disease, especially if associated with iron-overload states.

Other infectious diseases causing systemic illnesses include **group A β -hemolytic streptococci** (most commonly in potato and egg salads), **typhoid fever** (shellfish), **brucellosis** (goat's milk cheese), **anthrax** (meat), **tuberculosis** (milk), **Q fever** (milk), **hepatitis A** (shellfish, fresh produce), **trichinosis** (pork), **toxoplasmosis** (beef), **anisakiasis** (fish), and **tapeworms** (beef, pork, and fish).

14. Postinfection Syndromes.

Reactive arthritis (Reiter's syndrome) may develop after infection with Salmonella, Yersinia, Campylobacter, or Shigella, as well as after nonfoodborne infections such as nongonococcal urethritis and Cyclospora infection.

Reiter's syndrome consists of the classic triad of aseptic inflammatory polyarthritis, urethritis and conjunctivitis, although not all components occur in all patients.

cases, independent as much as possible of disease status. It will also be easier to enter data information on non-cases in the computer program, since the disease information will not be applicable.

-- A section containing food items from the meal(s) in question with blank spaces is listed next. It is important for the investigator to remember to enter the complete menu in the blanks before making bulk number of copies that are necessary. Line listing food items will avoid open-ended questions such as what did you eat? (Open-ended questions may well result in incomplete information being obtained, especially if the individual being questioned forgets some of the food items served or if the individual is a child.)

-- There are three columns in the food history section for answers YES, NO, NOT SURE. When only YES and NO are allowed, it frequently results in blank entries that are difficult to handle in the analysis (it is always unclear whether the blank entries mean no, not sure, or data not collected).

-- The section containing a list of possible symptoms should follow the food history section. Once the investigator is able to develop a case definition, he/she will need specific symptoms, well defined, with YES –NO - NOT SURE answers for the same reasons as in the above.

-- Since diarrhea is the symptom used most often in establishing a case definition, there is a need to specify a standard definition for diarrhea. For the purpose of disease outbreak investigations, diarrhea shall be defined as three or more loose stools per day. Standardizing the definition for diarrhea should eliminate individual interpretations which result in conflicting information.

If the number of cases and non-cases are relatively small, it is essential to collect information contained on the food history questionnaire on all cases and all non-cases, if at all possible. If not, a way to draw a random sample of the non-cases to serve as controls will have to be designed by the IDEpi and should be discussed with that section early in the investigative process, before data are collected.

Depending on the suspected illness, the characteristics of the patients and the circumstances of the outbreak, other optional information might be necessary:

- date of birth
- place of employment, work phone numbers
- names/ages/disease status of household contacts (secondary cases/daycare/school)
- underlying conditions, medications
- travel history
- treatment: drug/dosage/duration
- places and times of exposure, if multiple

The epidemiologic investigation should also include information on both environmental and laboratory investigations. While each part of a food-borne investigation compliments the other, team work and ongoing communication is of utmost importance.

Investigation of an outbreak is a team effort where each member has an essential role to perform. The team may include a number of individuals at the local level (public health nurse, sanitarian, laboratory and disease investigator) as well as the Regional RRT team. It is important to remember that the RRT team and the IDEpi Section are available for guidance and assistance throughout each step of the investigation.

Analysis of Food-borne Case History Forms:

In general, IDEpi will be assisting the RRT Teams in analyzing the Food-borne Case History Forms to identify the specific food item that caused the outbreak.

Directory – (Emergency contacts will be updated annually. The rest will be updated when OPH updates their directory)

Outside OPH

Louisiana State Analytical and Fusion Exchange		225-925-4192 1-800-434-8007
FDA New Orleans District Office	Lindsay Bertling	615-366-7815 Lindsay.Bertling@fda.hhs.gov
USDA FSIS Office of Field Operations District Office	Dr. Jennifer Beasley-McKean, DM	214-767-9116 Jennifer.McKean@fsis.usda.gov
USDA FSIS OIEA Regional Compliance and Investigations Division Office	Mr. Larry Hortert	404-562-5962 Larry.Hortert@fsis.usda.gov

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	Joe Kanter, MD, MPH (OPH Medical Director, Asst. State Health Officer)		
	Jane Killen, (Administrative Assistant)		225-342-0494
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	Vacant, Deputy Asst. Secretary	BB	225-342-8810
	Gavin Coldwell, OPH-HR Director	BB	225-342-9863
	Sundee Winder, Legislative / Community Affairs Director	BB	225-342-8306
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Center for Community Preparedness and Health Protection	Dr. Glennis Gray, (Deputy Asst. Secretary 3)	BB	225-342-8483

Bureau of Finance	Ashley Dromgoole (Executive Director)	BB	225-342-7881
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	Joynetta Bell Tobacco Control Manager		225-342-4794
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	(VACANT), Regional Rev Manager		
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<p>Genetics</p> <p>Healthy Homes & Childhood Lead Poisoning Prevention Program</p>	<p>Cheryl Harris, Program Manager (Belinda Kassel)</p>	<p>504-568-8254 (F)504-568-8253 (Ste. 2046)</p>
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<p>STD/HIV</p> <p>(Medical Consultant)</p>	<p>Chaquetta Johnson</p> <p>Sam Burgess</p> <p>Kira Friedrich</p> <p>Javone Davis</p> <p>Stephanie Taylor, MD.</p>	<p>504-568-8359</p> <p>504-556-9856</p> <p>504-599-1306</p> <p>504-568-5390</p> <p>504-568-5031</p>
<p>Infectious Disease Epidemiology</p>	<p>Theresa Sokol (Thelma Ponson) Julie Hand</p>	<p>504-568-8313 (F) 504-568-8290 1-800-256-2748 (Ste.1641)</p>
<p>Environmental Epidemiology and Toxicology (SEET)</p> <p>628 N. 4th Street, Bin#10 P.O. Box 4489 BR, La. 70821-4489 & 1450 Poydras St. Ste. 1637 New Orleans, LA 70112</p> <p>General Information</p>	<p>Dianne Dugas, Program Manager (Ernest Forrestier)</p> <p>(Vacant)</p> <p>Shannon Soileau Collette Stewart-Briley</p> <p>225-342-7111</p>	<p>225-342-7136(BB)</p> <p>504-568-8150(BT) (F)504-568-8149 (Ste. 1641)</p> <p>504-568-8142</p>
<p>Immunization</p>	<p>Vacant, Program Manager (Tisha Young)</p>	<p>504-568-2600 (F) 504-568-2659 (Ste. 1938)</p>
<p>Medical Consultant (Immunization)</p>	<p>Frank Welch, MD.</p>	<p>504-568-2600</p>
<p>Bureau of Nutrition Services 628 N 4th Street, 8th Fl., Bin#4 BR, La. 70802 & 1450 Poydras St. Ste. 1950 New Orleans, LA 70112</p>	<p>Bruce Boyea, Director (Sylvia Forte)</p> <p>Monica McDaniels Asst. Director (Charlene Howard)</p>	<p>504-568-8236 (F) 504-568-8232 (Ste.1950)</p> <p>225-342-8064 225-342-7988</p>
<p>Tuberculosis</p>	<p>Charles Degraw, Director Michael Lacassagne, Program Manager (Janice Hingle)</p>	<p>504-568-5015 (504) 568-5010 (F)504-568-5016 (Ste.1242)</p>
<p>Medical Consultant (TB)</p>	<p>Louis Trachtman, MD., MPH</p>	<p>504-568-5048 (Ste.1242)</p>

BUREAU OF EMERGENCY MEDICAL SERVICES

628 North 4th Street, 3rd Floor, Bin 6
 Baton Rouge, LA 70802
 Phone: (844) 452-2367

Director	(VACANT) (Rochelle Grayer)	225-925-7200
EMS Education	(VACANT), Program Manager	225-925-7228
EMS Examination	Bob Brankline, Program Manager	225-342-7758
		225-342-7714
Licensure	(VACANT), Program Manager	225-342-7718
EMS for Children	Rose Johnson, Program Manager	225-342-7713
Investigator/Disaster Response	Stephen Phillipe, Program Manager	225-342-7762
Disaster Preparedness	(VACANT), Program Manager	225-342-7759
Ambulance Services	Joyce Erwin, Program Manager (Health Standards)	225-342-9405

CENTER FOR COMMUNITY PREPAREDNESS AND HEALTH PROTECTION

Bienville Building, 1st Floor (Bin 10)
 P. O. Box 4489
 Baton Rouge, LA 70821-4489

Deputy Assistant Secretary 3	Glennis Gray	225-342-8483
Bureau of Engineering	Amanda Laughlin, Chief Engineer (Cathy Melancon-Administrative Asst.)	225-342-8138 225-342-7499
Operator Certification	Tom Walton, Administrator	225-342-7512
Safe Drinking Water Program	Jenny Wilson, Manager	225-342-8138
Drinking Water Revolving Loan Fund	(Denise "Jill" Ruffin, Administrative Asst.)	225-342-8355
Environ. Health Emergency Preparedness	Charles "Steve" Backstrom	225-342-7641

Bureau of Sanitarian Services	Mike Vidrine, Director	225-342-7550
Orleans Sanitarian Services (1450 Poydras Ste.1800)	Gwen Shook, San 5	504-568-7970
Field Regional Chief (Onsite Wastewater/ Retail Food/Building & Premises)	Greg Richard, Chief	225-342-7541
	Albert Mancuso, Administrator	225-342-8959
	Carol Neusetzer, Assistant Administrator	225-342-7779
Entomologist	Kyle Moppert, Administrator	225-342-8950
Retail Food Program (issues per- mits and regulates food establish- ments; food safety cert.)	Tiffany Meche Chasity Cheramie Dane Thibodeaux	337-824-2193 318-294-1767 337-475-3200
Specialty Ops, Chief	Justin Gremillion, Chief	225-342-7545
Commercial Seafood Program Molluscan Shellfish Program	Gordon LeBlanc, Administrator	225-342-7539
Food and Drug Program (drugs, med. devices and gasses, cosmetics, tattoo parlors)	Brian Warren, Administrator	225-342-7514
Milk and Dairy Program	Tyra Granderson, Program Manager New Orleans	504-568-8185 (Ste.1817)

OPH, Laboratory Services 1209 Leesville Ave. Baton Rouge, La. 70802	Richard Tulley, Interim Labora- tory Director (Alison Burbank)	225-219-5235 225-219-5233 225-219-5200 (F)225-219-4903
OPH Laboratories 24/7	Emergency Cell Phone Number	504-458-9537
Biological Terrorism	Peter Travis, MT(ASCP)	225-219-5241
Chemical Terrorism	Richard Tulley	225-219-5201
Biochemistry	Terry Crockett	225-219-5206
Chemistry	Deborah Weber	225-219-5205
Microbiology	Jean-Jacques Aucoin	225-219-5262
Molecular Biology/Virology	Danielle Haydel	225-219-5263
Lab Certification	Betty Day	985-748-2011
	Renee Petitto (Microbiology)	985-748-2011
Safety	Donnell Ward (Chemistry)	225-219-5247
	Phi Nguyen	225-219-5244

BUREAU OF COMMUNITY PREPAREDNESS

8453 Veterans Memorial Blvd.

Baton Rouge, LA 70807

Director	Sundee Winder, MD (interim)	225-354-3511 (F)225-354-3506
Medical Director-All Hazard Preparedness	Frank Welch, MD	225-287-2929
Planning/Pandemic Influenza	Mardrah Starks-Robinson, Manager	225-354-3520
Logistics	Keith Phillips, Manager Wymon Dawson, Program Monitor Supv.	225-354-3530 225-354-3531
Admin & Finance	Ashley Cox Coats	225-354-3505
Community Resiliency	Mardrah Starks-Robinson, Manager	225-354-3521
EP Nurse Consultant – Pan Flu	Caren Pourciau	225-354-3508
EP Nurse Consultant	Carla Harmon	225-354-3518
Strategic National Stockpile (SNS) Coordinator	Glennis Gray	225-354-3510
EP Pharmacist	Vacant	

BUREAU OF PRIMARY CARE AND RURAL HEALTH

Bienville Building, 8th floor*

P. O. Box 3118 (Bin 15)

Baton Rouge, LA 70821-3118

Director	Avis Richard-Griffin (Cynthia Atwood) Admn Assistant	225-342-9513
-----------------	---	--------------

Health Systems Development Community Developer	Kimberly Jones, Program Manager (Denise Dowell, Coordinator)	225-342- 6326
FLEX and SHIP	Kandi Smith	225-342- 1328
HPSA Coordinator	Beth Butler	225-342- 3506
Primary Care Office	Dorie Tschudy, Program Manager	225-342- 4702
Rural Health	Tracie Ingram, Program Manager	225-342- 1583
		225-342- 1889
		225-342- 1328
Operations Support	Chris Wuchte, Contract/Grants Reviewer	225-342- 5634

BUREAU OF VITAL RECORDS AND STATISTICS

1450 Poydras Street, Suite 400/600

New Orleans, LA 70112

Phone: 504-593-5100

State Registrar	Devin George Janice Johnson, Admin. Assistant	504-593- 5180
	Customer Service Call Center LEERS Hotline	504-593- 5188
		504-593- 5100
		504-593- 5101
Vital Records	(VACANT) Dep. State Registrar Jemimah Mickel, Director of Operations Charlotte Sykes, Issuance Manager Mary Moss, Amendments Manager	504-593- 5181
		504-593- 5182
		504-593- 5104
		504-593- 5171
Quality Management Unit	Omar Khalid, QMU Director	504-593- 5140

Putative Father Registry	Charlene Mills, Admin. Coordinator	504-593-5112
Govt. Liaison & Fraud Prevention	Deneen Smith, Program Monitor	504-593-5145
Orleans Parish Marriage Office	Latoya Louis, Admin. Coordinator	504-593-5116
Statistics	Joan Borstell, Epidemiology Research	504-593-5150

MEDICAL DIRECTORS

Region 1

Shantel Hebert-Magee, MD
 Metropolitan Regional Office
 1450 Poydras St., Suite 1273
 New Orleans, LA 70160
 Phone: 504-599-0105
 Fax: 504-599-0200
Shantel.hebertmagee@la.gov

Region 2

Vacant
 Capitol Regional Office
 628 N. 4th Street
 Baton Rouge, LA 70806
 Phone: 225-342-3266
 Fax: 225-342-2009

Region 3

Vacant
 Teche Regional Office
 1434 Tiger Dr
 Thibodaux, LA 70301
 Phone: 985-447-0916
 Fax: 985-447-0920

Region 6

David Holcombe, M.D.
 Central Regional Office
 5604-B Coliseum Blvd.
 Alexandria, LA 71303
 Phone: 318-487-5262
 Fax: 318-487-5338
david.holcomb@LA.GOV

Region 4

Juliette “Tina” Stefanski, M.D.
 Acadian Regional Office
 Brandywine III, Suite 100
 825 Kaliste Saloom Road
 Lafayette, LA 70508
 Phone: 337-262-5311
 Fax: 337-262-5237
tina.stefanski.@LA.GOV

Region 5

Lacey Cavanaugh, MD
 Southwest Regional Office
 707A East Prien Lake Road
 Lake Charles, LA 70601
 Phone: 337-475-3200
 Fax: 337-475-3222
Lacey.cavanaugh@la.gov

Region 7

Martha Whyte, M.D.
 Northwest Regional Office
 1525 Fairfield Ave.
 Shreveport, LA 71101-4388
 Phone: 318-676-7489
 Fax: 318-676-7560
martha.whyte@LA.GOV

Region 8**Jeff Toms**

Northeast Regional Office
1650 Desiard St., 2nd Floor
P.O. Box 6118
Monroe, LA 71211-6118
Phone: 318-361-7201
Fax: 318-362-3163
Jeff.toms@la.gov

Region 9**Gina Lagarde, M.D.**

Southeast Regional Office
15481 W. Club Deluxe Rd
Hammond, LA 70403
Phone: 985-543-4880
Fax: 985-543-4888
gina.lagarde@LA.GOV

REGION 1

Metropolitan Regional Office

Shantel Hebert-Magee, MD
 1450 Poydras St., Suite 1273
 New Orleans, LA 70112
 Phone: 504-599-0100
 Fax: 504-599-0200



FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
Delgado Personal Health	517 N. Rampart St.	New Orleans, 70112	504-658-2540 504-903-5402 (F)504-599-1057
Wetmore TB Clinic	3308 Tulane Ave., 6th floor, Center	New Orleans, 70112	504-826-2063
Jefferson Parish Health Units	111 N. Causeway Blvd.	Metairie, 70001	504-838-5100, ext. 139 (F)504-838-5104
	1855 Ames Blvd. P.O. Box 458	Marrero, 70072	504-349-8802 (F)504-349-8817

Social Worker
 Vacant
 Phone: 504-838-5100

RN Regional Manager
 Kriesha Britton
 Phone: 504-599-0111

Nutritionist
 Sheneda Jackson
 Phone: 504-349-8802 or 838-5100
 Fax: 504-599-0200

Emergency Response
 Jovan Bernard
 Phone: 504-599-0109
 Fax: 504-599-0200

Immunization Consultant
 Angelique Gabriel
 Phone: 504-599-0128
 Fax: 504-568-0200

REGION 2

Capitol Regional Office

Vacant

Regional Administrator/Medical Director

628 N. 4TH Street, Bin #25

Baton Rouge, LA 70806

Phone: 225-342-3266

Fax: 225-342-2009

Assistant Regional Administrator: Ida Green

Parishes:

Ascension Pointe Coupee
 East Baton Rouge West Baton Rouge
 East Feliciana West Feliciana
 Iberville

FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
WIC Clinic	2751 Wooddale Blvd., Suite B	Baton Rouge, 70805	225-925-3606 (For Appointments- 225-242-4861)
Ascension	1024 S. E. Ascension Complex Ave. (Environmental and Sanitarian Services Only)	Gonzales, 70737	225-644-5916
East Baton Rouge	353 N. 12th St.	Baton Rouge, 70802	Admin.: 225-242-4928 Appts.: 225-242-4861 CSHS: 225-242-4890 Immunizations: 225-242-4862 Nursing: 225-242-4924 Env. Hlth & San Svcs: 225-242-4870 TB: 225-242-4916 STD: 225-242-4933 Vital Records: 225-242-4864 WIC Clinic: 225-925-3606
East Feliciana	12080 Marston St. P. O. Box 227	Clinton, 70722	225-683-8551
Iberville	24705 Plaza Drive	Plaquemine, 70764	225-687-9021
Pointe Coupee	282 B Hospital Rd.	New Roads, 70760	225-638-7320
West Baton Rouge	685 Louisiana Ave.	Port Allen, 70767	225-342-7525
West Feliciana	5154 Burnett Rd. P. O. Box 1928 (Environmental and Sanitarian Services Only)	St. Francisville, 70775	225-635-3644

Medical Social Worker

Monical Pearson

Phone: 225-342-4712

Fax: 225-342-4707

RN Regional Manager, Acting

Maranath Graugnard

Phone: 225-342-9463

Fax: 225-342-2009

Nutritionist

Donna Richards

Phone: 225-342-1233

Fax: 225-342-2009

Disease Surveillance Spec
 Gillian Richardson
 Phone: 504-568-8316
 Fax: 504-568-8290

Engineer
 Stephen Tassin
 Phone: 225-342-7148
 Fax: 225-342-7607

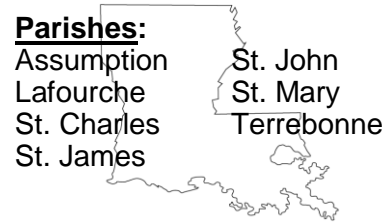
Sanitarian Director
 Carolyn Bombet
 Ph:225-342-7536
 Fax: 225-208-1540

Emergency Response
 Schaun Morgan
 Phone: 225-342-6919
 Fax: 225-342-2009

Immunization Supervisor
 Paula Mayeaux
 Phone: 225-342-2012
 Fax: 225-342-2009

REGION 3

Teche Regional Office
 Vacant
 Regional Administrator/Medical Director
 1434 Tiger Drive
 Thibodaux, LA
 70301
 Phone: 985-447-0916
 Fax: 985-447-0920



FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
Assumption	158 Highway 1008	Napoleonville, 70390	985-369-6031
Lafourche	2535 Veterans Blvd.	Thibodaux, 70301	Health Unit: 985- 447-0921 CSHS: 985-447-0896
	133 W. 112th St.	Cut Off, 70345	985- 632-5567
St. Charles (Sans)	16004 River Road	Norco, 70079	985-764-4376
St. James	29170 Health Unit St.	Vacherie, 70090	225-265-2181
St. John	473 Central Ave.	Reserve,70084	985-536-2172
St. Mary	1200 David Drive	Morgan City, 70380	985- 380-2441
Terrebonne	600 Polk St.	Houma, 70360	985- 857-3601

Assumption Parish – Sanitarian Services
 Phone: 985-369-3565

Nutritionist
 Ray Price
 Phone: 985-447-0916
 Fax: 985-447-0920

Emergency Response
 Kayla Guerrero
 Phone: 985-447-0916
 Fax: 985-447-0920

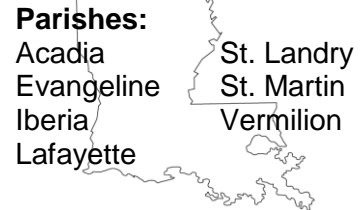
**Lafourche-Thibodaux
Sanitarian Services**
Phone: 985-447-0954
Fax: 985-447-0812

RN Regional Manager
Louise Karisny
Phone: 985-447-0916
Fax: 985-447-0920

**St. Mary Parish – Sanitarian
Services**
Phone: 985-385-7018

REGION 4

Acadian Regional Office
Juliette “Tina” Stefanski, M.D.
Regional Administrator/Medical Director
825 Kaliste Saloom,
Brandywine III, Suite 100
Lafayette, LA 70508
Phone: 337-262-5311
Fax: 337-262-5237



Assistant Regional Administrator: Susan Royer
Bi-Regional Administrative Manager: Sadie French (3&4)
Administrative Assistant: Haas Cormier Hargrave

FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
Acadia	1029 Capitol Ave.	Crowley, 70526	337-788-7507
Evangeline	1010 West LaSalle Street	Ville Platte, 70586	337-363-1135
Iberia	715B Weldon Street	New Iberia, 70560	337-373-0021
Lafayette	220 Willow St., Bldg. A CSHS: Bldg. A STD: Bldg. A TB: Bldg. A	Lafayette, 70501	337-262-5616 Environ. Health: Press 166 CSHS: Press 106 STD: Press 155 TB: Press 154
St. Landry	308 W. Bloch St., (P.O. Box 1557)	Opelousas, 70570	337-948-0220
	131 City Ave., (P. O. Box 1167)	Eunice, 70535	337-457-2767
	226 Havard St. Suite A (P. O. Box 404)	Melville, 71353	337-623-4941
St. Martin	303 W. Port St.	St. Martinville, 70582	337-394-3097
Vermilion	2501 Charity St.	Abbeville, 70510	337-893-1443

Nutritionist
Traci Quebedeaux
Phone: 337-262-2271
Fax: 337-262-5237
Sanitarian Director

Engineer
Kyle Champagne
Phone: 337-262-5316
Fax: 337-262-5638
Emergency Response
Carol Broussard

Immunization Supervisor
Amelia “Amy” Landry
Phone: 337-262-5620
Fax: 337-262-5237
**Disease Surveillance Spec
(DSS)**

Vickie Collins
 Phone: 337-262-5616, Ext.
 170
 Fax: 337-262-1320

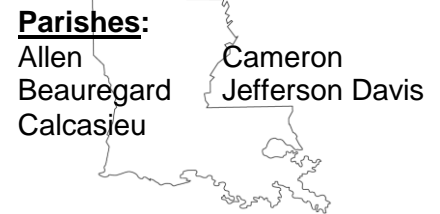
Phone: 337-262-1658
 Fax: 337-262-5237

Angela Orellana
 Phone: 337-262-1641
 Fax: 337-262-5237

RN Regional Manager
 Barbara Hebert, R.N., M.P.H.
 Phone: 337-262-1765
 Fax: 337-262-5237

REGION 5

Southwest Regional Office
 Lacey Cavanaugh, MD.
 Regional Administrator/Medical Director
 707-A East Prien Lake Road
 Lake Charles, LA 70601
 Phone: 337-475-3200
 Fax: 337-475-3222



Assistant Regional Administrator: Polly Strickland
 Bi-Regional Administrative Manager: Pamela Boswell (5&6)
 Administrative Assistant: Melanie Grantham

FACILITY	UNIT/CLINI- CADDRESS	CITY/ZIP	PHONE
Allen	145 Hospital Drive P.O. Box 1121	Oakdale, 71463-1121	318-335-1147
	Environmental Health 507 W. 7th Ave. P.O. Box 160	Oberlin, 70655	337-639-4186
Beauregard	216 Evangeline St. P.O. Box 327	Deridder, 70634	337-463-4486
Calcasieu	201 Edgar Street	Sulphur, 70633	337-478-6020
	3236 Kirkman St. P.O. Box 3170	Lake Charles, 70601 Lake Charles, 70602	Main: 337-478-6020 CSHS: 337-478-6020 ext.6040 Environmental: 337-478-6020 ext. 6029 Regional TB: 337-478-6020 ext. 6068
Cameron	107 Recreation Center Lane P.O. Box 1430	Cameron, 70631	337-775-5368
Jefferson Davis	403 Baker St. P. O. Box 317	Jennings, 70546	337-824-2193

Emergency Response
 Michael Parent
 Phone: 337-475-3229
 Fax: 337-475-3222

Acting RN Regional Manager
 Janet Fontenot
 Phone: 337-475-3200
 Fax: 337-475-3222

Nutritionist
 Daniel Morel
 Phone: 337-475-3219
 Fax: 337-475-3222

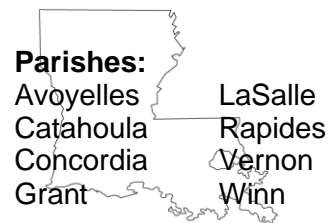
Sanitarian Director
 Dane Thibodeaux
 Phone: 337-475-3205
 Fax: 337-475-3222

Immunization Program Consultant
 Vacant
 Phone: 337-475-3245
 Fax: 337-475-3222

Engineer
 Steven Joubert
 Phone: 337-475-3214
 Fax: 337-475-3222

REGION 6

Central Regional Office
 David Holcombe, M.D.
 Regional Administrator/Medical Director
 5604-B Coliseum Blvd.
 Alexandria, LA 71303
 Phone: 318-487-5261
 Fax: 318-487-5338



Asst. Regional Administrator: Becky Maloyed
 Administrative Assistant: Melinda Henagan

FACILITY	UNIT/CLINICAL-ADDRESS	CITY/ZIP	PHONE
Avoyelles	657 Government Street.	Marksville, La. 71351	318-253-4528
(Open Tuesday & Friday)	406 Walnut Street	Bunkie, 71322	318-346-2586
Catahoula	109 Pine St./P.O. Box 240 (Sanitarian only)	Harrison-burg, 71340	318-744-5261
(Open Tues., Thurs., & 2 nd & 4 th Friday)	200 Third St.	Jonesville, 71343	318- 339-8352
Concordia	905 Mickey Gilley Ave.	Ferriday, 71334	318-757-8632
Grant (Open Tues., Thurs. & 2 nd & 4 th Friday)	340 - A Webb Smith Drive	Colfax, 71417	318-627-3133
LaSalle (Open Mon., Wed. & 1 st & 3 rd Friday)	1673 N. 2nd St./P.O. Box 17 Jena, LA 71342	Jena, 71343	318-992-4842

Rapides	5604 "A" Coliseum Blvd.	Alexandria, 71303	Admin: 318-487-5282 (Ext. 201 Switchboard) CSHS: 318-487-5282 (Ext. 204 Janice La-syone) STD: 318-487-5282 TB: 318-487-5282 (Ext. 233 Tara Ducote) Sanitarian Dept.: 318-487-5282 Ext. 218
Vernon	406 W. Fertitta Blvd.	Leesville ,71446	337-238-6410
Winn (Open Mon., Wed. & 1 st & 3 rd Friday)	301 W. Main St., Ste. 101	Winnfield, 71483	318-628-2148

Medical Social Worker

Debbie Difulco
Phone: 318-487-5282
Ext.239
Fax: 318-487-5338

RN Regional Manager

Cindy S. Griffin
Phone: 318-487-5898
Fax: 318-487-5338

Sanitarian Director

Randy Ducote
Phone: 318-487-5282, Ext. 202
Fax: 318-487-5338

Epidemiologist

Vacant

Emergency Response

Patricia White
Phone 318-487-5277
Fax 318-487-5338

Immunization Consultant

Kevin Bonton
Phone: 318-484-2158
Fax: 318-487-5338

Disease Surveillance Specialist

Michael Pogue
Phone:318-484-2162
Fax: 318-487-5338

Nutritionist

Shalane Pitts
Phone: 318-484-2163
Fax: 318-487-5338

Engineer

Divina Lanclos
Phone: 318-487-5282 Ext
252

REGION 7

Northwest Regional Office

Martha Whyte, M.D.
Regional Administrator/Medical Director
1525 Fairfield Ave., Room 569
Shreveport, LA 71101-4388
Phone: 318-676-7489
Fax: 318-676-7560

Assistant Regional Administrator: Keasha Henson
Administrative Assistant: Lorita Wilkerson

Parishes:

Bienville
Bossier
Caddo
Claiborne
Natchitoches
Red River
Sabine
Webster



FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
Bienville	1285 Pine St., Ste. 102	Arcadia, 71001	318-263-2125
Bossier	3022 Old Minden Rd.	Bossier City, 71112	318-741-7314
Caddo	1035 Creswell Ave.	Shreveport, 71101	Administration: 318-676-5222

			CSHS: 318-676-7488 STD: 318-676-5403 TB: 318-676-5228
	Caddo Sanitarian Services 1033 Creswell Ave.	Shreveport, 71101	318-676-5265
Claiborne	624 W. Main St.	Homer, 71040	318-927-6127
DeSoto	113 Jefferson Street	Mansfield, 71052	318-872-0472
Natchitoches	625 Bienville St.	Natchitoches, 71457	318-357-3132
Red River	2015 Red Oak Rd.	Coushatta, 71019	318-932-4087
Sabine	1230 W. Louisiana Ave.	Many, 71449	318-256-4105
Webster	1200 Homer Rd.	Minden, 71055	318-371-3030
	110 June Anthony Dr.	Springhill, LA 71075	318-539-4314

Medical Social Worker

Delton Abrams
1035 Creswell Ave.
Shreveport, LA 71101
Phone: 318-676-7488

Immunization Program Consultant

Louann Jackson
Phone: 318-676-7474

RN Regional Manager

Tammy Bennett
Phone: 318-676-7483

Emergency Response

Frank Robison
Phone: 318-676-7648

Deputy Chief Engineer

William Smith
Phone: 318-676-7477

Nutritionist

Stephanie Tarver
Phone: 318-676-7473

Sanitarian Director

Bob Norred
Phone: 318-676-7439
Fax: 318-676-7560

REGION 8

Northeast Regional Office

Jeff Toms
Regional Administrator/Medical Director
1650 Desiard St
2nd Floor
P.O. Box 6118
Monroe, LA 71211-6118
P: 318-361-7201
Fax: 318-362-3163

Parishes:

East Carroll
Morehouse
Caldwell
Franklin
Jackson
Lincoln
Ouachita
Richland
Tensas
Union

Assistant Regional Administrator: Jeff Toms
Bi-Regional Administrative Manager: Pam Murphy(7&8)
Administrative Assistant: Joy Jackson

FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
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Caldwell	501 Collins Rd. P.O. Box 720	Columbia, 71418	318-649-2393
East Carroll	403 Second St. (new location)	Lake Providence, 71254	318-559-2012
Franklin	6614 Main St.	Winnsboro, 71295	318-435-2143
Jackson	228 Bond St. P. O. Box 87	Jonesboro, 71251-0087	318-259-6601
Lincoln	405 E. Georgia Ave.	Ruston, 71270	318-251-4120
Madison	123 Bailey Rd.	Tallulah, 71282	318-574-3311
Morehouse	650 School Rd.	Bastrop, 71220	318-283-0806
Ouachita	1650 DeSiard St	Monroe, 71201	Administration: 318-361-7370 CSHS: 318-361--7282 TB: 318-361-7208
Richland	21 Lynn Gayle Robertson Rd.	Rayville, 71269	318-728-4441
Tensas	1115 Levee St./P.O. Box 77	St. Joseph, 71366	318-766-3515
Union	1002 Marion Hwy. P. O. Box 516	Farmerville, 71241	318-368-3156
West Carroll	402 Beale St. P. O. Box 306	Oak Grove, 71263	318-428-9361

Medical Social Work
Lucinda Stringer
Phone: 318-361-7297
Fax: 318-362-3016

RN Regional Manager
Becky Brown
Phone: 318-361-7229
Fax: 318-362-3163

Nutritionist
Donna Davis
Phone: 318- 361-7205
Fax: 318-362-3163

Engineer
Charles Capdepon
Phone: 318-361-7210
Fax: 318-362-3163

Immunization Program Consultant
Joy Jordan
Phone: 318-361-7217
Fax: 318-362-3163

Emergency Response
Sheila Hutson
Phone: 318-361-7219
Fax: 318-362-3163

Sanitarian Director
Greg Hill
Phone: 318-361-7213
Fax: 318-362-3163

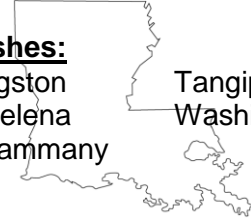
REGION 9

Southeast Regional Office

Gina Lagarde, M.D.
 Regional Administrator/Medical Director
 15481 W. Club Deluxe
 Rd.
 Hammond, LA
 70403
 Phone: 985-543-
 4880
 Fax: 985-543-4888

Parishes:

Livingston
 St. Helena
 St. Tammany



Assistant Regional Administrator: Jennifer Fagan
 Bi-Regional Administrative Manager: Sheila Bordes(2&9)

FACILITY	UNIT/CLINIC ADDRESS	CITY/ZIP	PHONE
Livingston	20399 Government Blvd. P. O. Box 365	Livingston, 70754	225-686-7017
St. Helena	53 N. Second St. P. O. Box 391 (Environmental Health Only)	Greensburg, 70441	225-222-4412
St. Tammany	Environmental Health 21454 Koop Dr., Ste. 2B	Mandeville, 70471	985-893-6296
	Engineering/SDWP 71128 Hwy 59, Suite 102-B	Abita Springs, 70420	985-871-1331
	Slidell Health Unit 520 Old Spanish Trail, Suite 2A (Environmental Health and Vital Records Only)	Slidell, 70458	985-646-6445
Tangipahoa	63103 Commercial Street, Suite B (Environmental Health Only)	Roseland, 70456	985-748-2024
	330 West Oak St. P. O. Box 278	Amite, 70422	985-748-2020
	15481 W. Club Deluxe Rd.	Hammond, 70403	Clinic: 985-543- 4165 CSHS: 985-543-4165
	15485 W. Club Deluxe Rd. (Environ- mental Health Only)	Hammond, 70403	985-543-4175
Washington	120 11th Avenue	Franklinton, 70438	985-839-5646
	626 Carolina Ave	Bogalusa, 70427	985-732-6615

Medical Social Worker

Judy Posey
 Phone:985-543-4856
 Fax: 985-543-4888

Sanitarian Director

Brant Conti
 Phone:985-748-2024
 Fax: 985-748-2079

Engineer

Marcus Redford
 Phone: 985-543-4860
 Fax: 985-543-4888

RN Regional Manager

Cynthia Coston
 Phone: 985-543-4860
 Fax: 985-543-4888

Emergency Response

Thomas Jordan
 Phone: 985-543-4855
 Fax: 985-543-4888

Immunization Consultant

Linda Tycer
 Phone: 985-543-4862

Nutritionist

Bonnie Lee
 Phone: 985-543-4858
 Fax: 985-543-4888

Hospital Nurse Consultant

Melissa Carter Jeffries
 Phone: 985-543-4859
 Fax: 985-543-4888

Disease Surveillance Specialist

John Lyons
 Phone: 985-543-4865

Parish	Address	City/Zip	Phone	Fax
Acadia	1029 Capitol Ave.	Crowley, 70526	337-788-7507	334-788-7577
Allen	145 Hospital Dr. P.O. Box 1121	Oakdale, 71463-1121	318-335-1147	318-335-2898
	507 W. 7 th Ave. P.O. Box 160 (Environmental Health)	Oberlin, 70655	337-639-4186	337-639-4080
Ascension	901 Catalpa St. Personal Health (PARISH OPERATED)	Donaldsonville, 70346	225-474-2004	225-474-2060
	1024 S.E. Ascension Complex Avenue (Environmental and Sanitarian Services)	Gonzales, 70737	225-664-5916	225-664-8487
Assumption	158 Highway 1008	Napoleonville, 70390	985-369-6031	985-369-2326
Avoyelles	657 Government Street	Marksville, 71351	318-253-4528	318-253-4528
	406 Walnut Street	Bunkie, 71322	318-346-2586	318-346-6646
Beauregard	216 Evangeline Street	DeRidder, 70634	337-463-4486	337-462-2486
Bienville	1285 Pine St., Suite 102	Arcadia, 71001	318-263-2152	318-263-2009
Bossier	3022 Old Minden Rd.	Bossier City, 71112	318-741-7314	318-741-7441
Caddo	1035 Creswell Ave.	Shreveport, 71101	318-676-5222	318-676-5221
	Caddo Sanitarian Svs 1033 Creswell Ave.	Shreveport, 71101	318-676-5265	318-676-5033
Calcasieu	3236 Kirkman St. P.O. Box 3170	Lake Charles, 70601	337-478-6020	337-475-8613
	201 Edgar St.	Sulphur, 70663	337-478-6020	337-527-8114
Caldwell	501 E. Collins Rd.	Columbia, 71418	318-649-2393	318-649-0969
Cameron	107 Recreation Center Lane	Cameron, 70631	337-775-5368	337-775-5367

	P.O. Box 1430			
Catahoula	200 Third Street	Jonesville, 71343	318-339-8352	337-339-7601
	109 Pine Street	Harrisonburg, 71340	318-744-5261	318-744-9344
Claiborne	624 W. Main St.	Homer, 71040	318-927-6127	318-927-6362
Concordia	905 Mickey Gilley Ave. P.O. Box 826	Ferriday, 71334	318-757-8632	318-757-7654
DeSoto	113 Jefferson St.	Mansfield, 71052	318-872-0472	318-872-2220

Parish	Address	City/Zip	Phone	Fax
East Baton Rouge	353 n. 12 th St.(70802)	Administration.....	225-242-4928	225-342-5821
		Appointment Desk...		
		CSHS.....	225-242-4861	225-242-4707
		Immunizations.....	225-242-4890	
		Nursing.....	225-242-4890	225-342-5193
		Env. Hlth/San. Scvs	225-242-4862	225-342-5157
		TB.....	225-242-4924	225-342-8948
		STD.....	225-242-4870	225-342-8948
		Vital Records.....	225-242-4916	225-342-1932
		Wic Clinic.....	225-242-4933	
			225-242-4864	
			225-925-3603	
		East Carroll	403 Second St.	Lake Providence, 71254
East Feliciana	12080 Mars-ton St.	Clinton, 70722	225-683-8551	225-683-3788
Evangeline	1010 W. La Salle St.	Ville Platte, 70586	337-363-1135	337-363-3899
Franklin	6614 Main St.	Winnsboro, 71295	318-435-2143	318-435-2136
Grant	340 A Webb Smith Dr.	Colfax, 71417	318-624-3133	318-627-2981
Iberia	715B Wel-don St	New Iberia, 70560	337-373-0021	337-364-4568
Iberville	24705 Plaza Dr.	Plaquemine, 70764	225-687-9021	225-687-1892
Jackson	229 Bond	Jonesboro, 71251	318-259-6601	318-259-1146

Jefferson	111 N. Causeway Blvd.	Metairie, 70001	504-838-5100	504-838-5104
	1855 Ames Blvd	Marrero, 70072	504-349-8802	504-349-8817
Jefferson Davis	403 Baker Street	Jennings, 70546	337-824-2193	337-824-0794
Lafayette	220 W. Willow St., Bldg A	Lafayette, 70501	337-262-5616	337-262-5399
Lafourche	2535 Veterans Blvd.	Thibodaux, 70301	985-47-0921	985-447-0897
	133 W. 112 th St.	Cut Off, 70345	985-632-5567	985-632-5573
LaSalle	1673 N. 2 nd Street	Jena, 71342	318-992-4842	318-992-6593
Lincoln	405 E. Georgia Ave.	Ruston, 71270	318-251-4120	318-251-4181
Livingston	20399 Government Blvd	Livingston, 70754	225-686-7017	225-686-1782
	Environmental Health 20399 Government Blvd	Livingston, 70754	225-686-1786	225-686-1802
Madison	123 Bailey	Tallulah, 71282	318-574-3311	318-574-1396
Morehouse	650 School Road	Bastrop, 71220	318-283-0806	318-283-0860
Natchitoches	625 Bienville Street	Natchitoches, 71457	318-357-3132	318-357-3136
Orleans Sanitarian	1450 Poydras St. Suite 1204	New Orleans, 70112	504-568-7970	504-568-7974
Orleans (City Health Dept)	1300 Perdido St. City Hall Civic Center Room 8E18	New Orleans, 70112	504-658-2500 or 2506	504-658-7996
Ouachita	1650 Desiard St.	Monroe, 71201	318-361-7370	318-362-0405
Plaquemine-H.D.	3706 Main Street	Belle Chasse	504-394-3510	

Parish	Address	City/Zip	Phone	Fax
Pointe Coupee	282- B Hospital	New Roads, 70760	225-638-7320	225-638-3022
Rapides	5604 "A" Coliseum Blvd	Alexandria, 71303	318-487-5282	318-487-5557
Red River	2015 Red Oak Rd. P.O. Box 628	Coushatta, 71019	318-932-4087	318-932-5415

Richland	21 Lynn Gayle Robertson Rd.	Rayville, 71269	318-728-4441	318-728-6291
Sabine	1230 West LA Avenue	Many, 71449	318-256-4105	318-256-4144
St. Charles	Sanitarian Services 16004 River Road	Norco, 70079	985-764-4376	985-764-4379
St. Helena	(Environmental Health Only) 53 North Sec- ond Street	Greensburg, 70441	225-222-4412	225-222-6391
St. James	29170 Health Unit Street	Vacherie, 70090	225-265-2181	225-265-7247
St. John	473 Central Avenue	Reserve, 70084	985-536-2172	985-536-2571
St. Landry	226 Havard St., Suite A	Opelousas, 70570	337-948-0220	337-948-0324
	(P.O. BOX 404)	Melville, 71353	337-623-4941	
	131 City Ave.	Eunice, 70535	337-457-2767	None
St. Martin	303 W. Port Street	St. Martinville, 70582	337-394-3097	337-394-1279
St. Mary	1200 David Drive	Morgan City	985-380-2441	985-380-2489
St. Tammany	Environmental Health Only 21454 Koop Dr., Suite B	Mandeville, 70471	985-893-6296	985-893-6295
	(Environmental Health and Vi- tal Records only) 520 Old Span- ish Trail, Suite 2A	Slidell, 70458	985-646-6445 (vital records) 985-646-6448 (environmen- tal health)	(Env. Health and VR) 985-646-6474
Tangipahoa	Environmental Health only 63103 Commer- cial St. Suite B	Roseland, 70456	985-748-2024	985-748-2079
	330 West Oak Street	Amite, 70422	985-748-2020	985-748-2029
	15481 W. Club Deluxe Rd	Hammond, 70403	985-543-4165	985-543-4171
	Environmental Health 15485 W. Club Deluxe Rd.	Hammond, 70403	985-543-4175	985-543-4179

Parish	Address	City/Zip	Phone	Fax
Tensas	1115 Levee Street P.O. Box 77	St. Joseph, 71366	318-766-3515	318-766-9090
Terrebonne	600 Polk	Houma, 70360	985-857-3601	985-857-3607
Union	1002 Marion Hwy. P.O. Box 516	Farmerville, 71241	318-368-3156	318-368-3831
Vermilion	2501 Charity St.	Abbeville, 70510	337-893-1443	337-893-6680
Vernon	406 W. Fertitta Blvd	Leesville, 71496	318-238-6410	318-238-6447
Washington	120 11 th Avenue	Franklinton, 70438	985-839-5646	985-839-6691
	Environmental Health 120 11 th Avenue	Franklinton, 70438	985-839-2685	985-839-8956
	626 Carolina Avenue	Bogalusa, 70427	985-732-6615	985-732-6621
	Environmental Health 626 Carolina Avenue	Bogalusa, 70427	985-732-6619	985-732-6621
Webster	1200 Homer Road	Minden, 71055	318-371-3030	318-539-2589
	110 June Anthony Dr.	Springhill, 71075	318-539-4314	
West Baton Rouge	685 Louisiana Avenue	Port Allen, 70767	225-342-7525	225-383-3552
West Carroll	402 Beale Street P.O. Box 306	Oak Grove, 71263	318-428-9361	318-428-7200
West Feliciana	5154 Burnett Road	St. Francisville, 70775	225-635-3644	225-635-2167
Winn	301 W. Main Street Suite. 101	Winnfield, 71483	318-628-2148	318-328-6822

Updated/2017