



Infectious Disease Epidemiology Section
Office of Public Health,
Louisiana Dept. of Health & Hospitals
800-256-2748 (24 hr. number)
www.infectiousdisease.dhh.louisiana.gov

Cluster Investigation Manual

Revised 8/6/2015

1-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 and cluster 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 section's main activities are:

1.1-Tracking of infectious diseases of public health importance

This is the surveillance component of the section. There is a list of diseases, set by law, that must be reported by all health professionals. 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.

1.2-Investigation of disease clusters and outbreaks

Clusters identified by the surveillance system or those reported by the public or health professionals in order to recommend preventive measures. Common clusters 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.

A cluster is a an aggregation of relatively uncommon events or diseases in space or time in frequencies that are believed or perceived to be greater than could be expected by chance (Last J 2008. A dictionary of Epidemiology. Oxford 5th Edition).

1.3-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 *Hemophilus*) 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;

1.4-Advice and education for the prevention of communicable diseases to the community, media and health professionals.

2-Mandates and Legal Requirements

2.1-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*), and 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, *Escherichia coli*, shiga-toxin producing bacteria, shigellosis (STEC), including *E. coli* 0157:H7, typhoid fever.

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.

Listeria, campylobacteriosis, eosinophilic meningitis, transmissible spongiform encephalopathies (TSE), cyclosporiasis, trichinosis, vibrio Infections (other than cholera), and yersiniosis

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

Heavy metal (arsenic, cadmium, mercury) exposure.

2.2-Federal grant requirements

The Centers for Disease Control and Prevention (CDC) Epidemiology and Laboratory Capacity Grant and the CDC Public Health Preparedness Grant (response to infectious diseases and public health emergen-

cies) both have performance measures for timeliness of case reporting and timeliness, documentation and quality of outbreak and cluster investigations.

3-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:

3.1-Infectious Disease Epidemiology

Epidemiologic studies to identify transmission routes, exposure sources, or pathogen vehicles and risk factors for disease

3.2-Sanitarian Services

- Regulatory investigations of food, water production sources and other environmental conditions to identify where contamination occurred and facilitate remediation;
- Environmental assessments of environmental conditions to identify routes of contamination, contributing factors, and environmental antecedents;

3.3-Public Health Laboratory

Laboratory studies to identify an agent, including microbiological studies

3.4-Bureau of Media & Communications

Communication of investigation findings to the public to support control and prevention measures.

4-Organizational response to a suspected cluster

4.1-Public Health Response Teams

When a potential cluster situation occurs, the first person involved should ensure that all the stake-holders are informed. This would include Regional Medical Director /Administrator, other regional staff (epidemiologist, disease surveillance specialist, sanitarian), and the Infectious Disease Epidemiology Section.

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

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

The IDEpi will assign a lead epidemiologist for each cluster 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 of the RRT team members pulled from their regular job responsibilities to work together continually on a cluster. 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 cluster activities.

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

4.2-Health Unit Staff

Initially, a nurse or sanitarian may be the first to hear of a cluster. In this case, the nurse or sanitarian's first responsibility is to notify the Regional staff, RRT Coordinator and the IDEPI of the cluster so that the investigation can be organized. 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 the IDEPI in completing questionnaires on ill and non-ill persons and assist in obtaining specimens for the laboratory if necessary.

4.3-Role of the State Laboratory

The Central and Regional Laboratories are state reference laboratories where hospitals and other laboratories send specimens or isolates.

5-Reporting of infections /illness

5.1-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

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.]

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 workweek after the existence of a case, suspected case, or a positive laboratory result is known.

5.2-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 and Territorial Epidemiologists (CSTE).

5.3-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 enters 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, and contacts requiring counseling and contacts requiring post exposure prophylaxis are all appropriately managed.

5.4-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 department and urgent care center.

The goals of syndromic surveillance are to:

- Rapidly detect clusters of symptoms and health complaints that might indicate a disease cluster 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 cluster 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 automatizes the data collection, data compilation and reporting. LEEDS providing IDEpi:

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

5.5-Cluster reporting

Disease clusters 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 the Infectious Disease - Rapid Response Team (ID-RRT) staff are regularly trained by IDEpi.

Investigation of disease clusters identified by the surveillance system or those reported by the public or health professionals in order to recommend preventive measures. Common clusters 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

6-PROCEDURES FOR CLUSTER DETECTION & INVESTIGATIONS

6.1-Determine whether it is a real cluster

(Giesecke J 1994. Modern infectious disease epidemiology, Arnold Ed, London)

The main task of a surveillance system is to discover sudden changes in incidence, i.e. clusters or epidemics. In such situations it becomes important that the system's sensitivity for detecting cases is high. This sensitivity may be the sum of several factors, such as the clinician's diagnostic accuracy, microbiological test methods, reporting propensity, etc. On the other hand, specificity need not be so high; it is of little consequence if a few cases too many are reported in an epidemic situation.

Such surveillance of incidence must also look at regional/local differences. An increased incidence in one part of a state may be masked by decreasing incidence somewhere else, keeping the total constant. In short, a surveillance system looks for *clusters* of disease, in time and in space.

There are no simple rules of thumb to decide when a cluster is under way; just as with the word 'epidemic', definitions are difficult. For many diseases, such as salmonella, shigella, or varicella there will be a steady trickle of cases notified, and the task is to see when this endemic situation is replaced by a cluster. Other diseases such as listeria or rabies are sufficiently rare to warrant a cluster investigation after just one case. Because for many diseases there will always be a number of expected cases reported each week, surveillance implies continuous comparison of actual number of cases with the expected. In a conscientious surveillance program, even minor deviations should at least be noted and given a second thought, although this second thought may lead to the decision not to do anything. What constitutes a minor as opposed to an alerting deviation is very much a question of experience, and in most surveillance units there will be unwritten standards for action. In all such units there will always have been instances of heightened vigilance in response to suspected clusters, which were subsequently disregarded, and never reached public attention.

Even though the aim of a notification system is to give IDEpi power to detect clusters, many clusters are in reality first detected by astute health care providers.

6.2-Monitoring surveillance data

The IDEpi Dashboard updated weekly shows the following data that are used for rapid identification of abnormality:

- Comparison of year to date frequencies of reportable conditions for the past 3 years,
- Comparison of the rolling 3 months frequencies of reportable conditions for the past 3 years to deal with seasonal variations in reporting,
- Comparisons of the proportions of cases classified as confirmed, probable, suspect or “not a case” over comparable periods for the past 3 years,
- Similar comparisons for each of the 9 regions of the state
- Detection of aberration in syndromic surveillance reporting using an R aberration detection program.

6.3-Monitoring pulse field gel electrophoresis (PFGE) from lab culture

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).

Pulse field gel electrophoresis (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 fingerprint patterns strongly suggest a close relationship, while bacteria with distinctly different patterns are not closely related.

Traditionally, epidemiologic investigations of infectious disease clusters had relied primarily on detailed evaluation of cases. When laboratory methods such as serotyping were developed to characterize bacteria below the species level, these methods were applied to more definitively identify clusters with a higher granularity.

6.4-Statistical evaluation of a cluster

The statistical package to be used is in WINPEPI, “Clustering in space or time, in section “DESCRIBE “H” (computation of SMR or indirectly standardized rate.

This module performs indirect standardization. It computes a standardized morbidity or mortality ratio (SMR) and (optionally) an indirectly standardized rate, with confidence intervals. It can also be used for other purposes, in studies of occurrences that are assumed to have a Poisson distribution. The SMR is the ratio of observed to expected cases (events); more specifically, it is the ratio of the number of observed cases in a study population to the number that would be expected if the rates in its various strata were the same as those in the strata of a selected *standard (reference) population*. Use of the SMR permits comparisons in which a possible confounder is controlled by using it as the stratifying variable, e.g. by basing the expected number on the rates in the age categories of the standard population.

The *indirectly standardized rate* is a fictional (and usually unnecessary) rate computed by multiplying the SMR by the rate in the standard population. The observed and expected numbers can be either entered or computed by the program. Instead of the observed number, the observed rate and the size of the study population can be entered, or the number of cases in each stratum, or the rate and denominator in each stratum. Instead of the expected number, the rate or the number of cases and denominator size in each stratum of the standard population can be entered, together with the size of each stratum of the study population. If the observations cover y years and annual data are entered for the standard population, a *correction factor* of y must be entered.

The program computes exact and approximate confidence intervals for the SMR and the standardized rate, and for the number of cases. Optionally, it computes alternative confidence intervals that take account of random variation of the number of expected cases as well as that of observed cases; this may be advisable if the expected numbers are based on rates that were measured in small samples of the standard population. It can also take account of correlation between the observed and expected numbers, as occurs when the study population is part of the standard population.

The program may also be used in other comparisons of observed and expected numbers of occurrences, assuming a Poisson distribution, e.g. in studies of space-time clustering. It also estimates confidence intervals for an observed number of events (without entry of an expected number), e.g. in the instance of a rare disease whose occurrence can be assumed to have a Poisson distribution.

The program displays the SMR (the ratio of observed to expected numbers, expressed as a percentage), exact and approximate **significance tests** for the departure of the ratio from 100%, the indirectly standardized rate, and 90%, 95%, and 99% confidence intervals for the SMR, for the standardized rate, and for the number of events.

Other comparisons of observed and expected numbers of occurrences

The program can also be used for other purposes, in studies that compare observed and expected numbers of occurrences that are assumed to have a Poisson distribution, the expected number being based either on theoretical considerations or on empirical observations. It could be used, for example, for a simple *test of space-time clustering* (Knox 1964; Selvin 1991: 126-128) by defining ‘closeness in space’ and ‘closeness in time of occurrence’, and then classifying every possible pair of observations as close in both space and time, or not so. If there are n cases the number of possible pairs (N) is $n(n - 1) / 2$. The observed and expected numbers of [pairs that are close in both time and space are then entered in the program]; if S pairs

are close in space and T pairs are close in time, the expected number (under the null hypothesis) is ST / N . In viewing the results of such analyses, the SMR, divided by 100, would be read as "the ratio of observed to expected numbers".

Confidence intervals are computed on the assumption that the number of events is subject to random variation in accordance with a Poisson distribution (appropriate if the event is rare), whereas the expected number of events is an error-free constant. The estimates may be inaccurate if the denominators are very small. Exact Fisher's and mid-P confidence intervals are estimated if [there are 70 or fewer events], and approximate Fisher's confidence intervals in other instances. Cohen and Yang (1994) point out that, unlike the conservative Fisher's intervals, the narrower mid-P intervals do not guarantee the nominal confidence level in all instances, but these authors suggest that the discrepancies are of little practical importance.

6.5-Laboratory procedures

6.5.1-Collection time of samples

Diagnosis of most diseases can be made more easily when etiologic agents are isolated from clinical specimens of ill persons. Encourage ill persons to submit specimens while they are still experiencing symptoms. Collect specimens prior to antibiotic treatment.

6.5.2-Methods of collection

It is preferable to obtain a sample to make sure there is enough material for viral and bacterial isolation. Refrigerate the specimen immediately.

6.5.3- Transporting and Labeling

Each 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 ice-packs to avoid deterioration of the specimens. To be accepted for testing by the State Lab, samples must be received by the State Lab within a specific delay from the time of collection.

6.5.4- Shipping

It is preferable that all cluster-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 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.

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.

6.5.5-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.

7-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.

The following are guidelines to be considered when discussing the investigation with media, patients, food handlers and business owners:

7.1- 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).

7.2-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 cluster" as long as the names of the ill persons are not mentioned.

7.3- Statistical results:

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

7.4-Media questions:

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

7.5-Public summary:

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

8-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.

Data related to surveillance, cluster 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).

The following education and training activities are regularly offered:

8.1-Rapid Response Team (RRT)

IDEpi holds workshops 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 cluster. Trainings for new and current members are held each year of a new award project period. The training includes breakout sessions to practice cluster investigation techniques pertaining to foodborne and other infectious diseases. These sessions provide the teams an opportunity to implement steps of cluster investigations including recognizing and responding to an cluster, data collection and analysis, and the provision of public health recommendations.

8.2-Field Epidemiology (FET)

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

8.3-Web based Training

8.3.1-ILinc system:

IDEpi conducts trainings through the web-based ILinc system which are targeted towards public health personnel at OPH and hospital infection preventionists in all nine regions of the state. ILinc is designed for distance learning by creating a virtual classroom tool. The educator is seen talking about the presentation (slides, spreadsheet, database or other software). Participants have the ability to raise their hand and ask questions verbally or in writing. Lessons are taped and stored, and can be reviewed by students at a later date.

8.3.2-Web: www.infectiousdisease.dhh.louisiana.gov

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
- Antibiotic resistance and stewardship
- Food-borne infections and prevention
- Healthcare associated infection prevention and control
- Surveillance reports for each disease (about 80) including results of case and cluster detected in Louisiana, trends for the past 40 years
- Vector control, zoonosis.

8.3.3- 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.

9-Communication

9.1-Bureau of Media and Communication

All communication to the media is handled by the Department of Health and Hospitals' Bureau of Media and Communication that arranges for interviews.

9.2-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 cluster investigation success stories and encourages physicians and other public health professionals to report clusters and send isolates to the State Lab for confirmation, serotyping and PFGE.