COMMUNICABLE DISEASE
OUTBREAK MANUAL
New Jersey’s Public Health Response
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INTRODUCTION

As a public health professional, you strive to keep your communities as healthy as possible, by advocating practices to prevent the spread of infectious disease. But outbreaks sometimes happen, and when they do, your goal is to stop them as quickly and safely as possible.

An outbreak is an increase in cases of disease in time or place that is greater than expected. Outbreaks vary widely in magnitude and complexity, and diseases can spread through various modes of transmission.

HOW TO USE THIS MANUAL

This manual will help you prepare for an outbreak, by providing step-by-step instructions for conducting effective, efficient, and consistent scientific investigations. The manual begins with basic information about outbreaks and an overview of the steps in an outbreak investigation, followed by a question-and-answer section for more information if you need it. You’ll then find information on handling specific types of outbreaks based on source and mode of transmission, followed by guidance on effective communication during an outbreak. If you are unsure about the meaning of a term or acronym, please see the glossary notes on page 6.

HAVING A PLAN IN PLACE before an outbreak occurs is key. The manual will help you put together a response team, organize contact information, and obtain necessary paperwork. It also provides links to templates so you can carefully document your work.

For more information on specific diseases and how to deal with a communicable disease incident that is not a suspected outbreak, refer to the New Jersey Department of Health Communicable Disease health topics at Appendix Link 2.

Good planning and thorough investigations can make the difference between a quickly contained outbreak and an epidemic.

As soon as an outbreak is suspected, your LHD must contact the NJ Department of Health; epidemiologists are available to assist in any outbreak investigation.

(609) 826-5964 during state business hours

(609) 392-2020 after hours (nights, weekends, holidays)
PART 1

OUTBREAK BASICS

DEFINING AN OUTBREAK

An outbreak is an increase in cases of disease in time or place that is greater than expected.

An outbreak typically involves two or more cases of a disease originating from the same source, but if a condition is rare (e.g., measles) or has serious public health implications (e.g., bioterrorism agent), an outbreak may involve only one case.

Outbreaks vary widely in magnitude and complexity. They may involve a small, local cluster of cases with one clear common source (e.g., a restaurant), or a massive multi-state outbreak.

Diseases can spread through various modes of transmission:

- Airborne;
- Bloodborne;
- Foodborne;
- Person-to-person;
- Vectorborne; and
- Waterborne.

For more information, see Appendix A: Outbreak Investigations – A Perspective, by Arthur Reingold.

GLOSSARY OF TERMS USED IN THIS MANUAL

Communicable disease: Any disease transmitted from one person or animal to another; also called contagious disease.

Endemic level: The usual prevalence of a given disease within a geographic area.

Index case: The first case or instance of a patient coming to the attention of health authorities in relation to a particular outbreak or cluster of cases.

Source case: The case or patient who gives rise to an outbreak by transmitting the infection to others.

For terms you may not be familiar with, consult the CDC Excite! Glossary of Epidemiology Terms at Appendix Link 5.

For acronyms used in this manual, see page 48.
LOCAL HEALTH DEPARTMENT ROLES AND RESPONSIBILITIES IN AN OUTBREAK

Local health departments (LHDs) are required to respond to public health emergencies in accordance with applicable state and federal requirements (See Appendix D: Selected NJ Communicable Disease Regulations, which includes a list of reportable communicable diseases in New Jersey, and Appendix E, which provides quick-reference brochures on reporting).

TO BE PREPARED FOR OUTBREAKS, LHDs MUST:

• Provide health care providers and the public with a way to reach the LHD in an emergency, 24 hours per day, seven days per week, including weekends and holidays;
• Develop a preparedness plan with local public health system partners to address public health emergencies; and
• Train staff for their roles and responsibilities under the plan at least once a year.

LHD responsibility and authority during a communicable disease outbreak or incident are defined in Title 8 of the New Jersey Administrative Code (N.J.A.C.), specifically Chapter 52, entitled Public Health Practice Standards of Performance for Local Board of Health in New Jersey, and Chapter 57, entitled Communicable Diseases.

DURING OUTBREAKS, LHDs CAN:

• Order the isolation and restrictions of a person who is infected [N.J.A.C. 8:57-1.11];
• Order the examination and testing of suspected cases [N.J.A.C. 8:57-1.12]; and
• Prohibit food handlers from working with food if they are ill or infected with a communicable disease that can be transmitted through food [N.J.A.C. 8:57-1.13].

DURING OUTBREAKS, HEALTH OFFICERS MUST:

[N.J.A.C. 8:57-1.10]

• Investigate the facts contained in disease report(s);
• Determine whether an outbreak exists;
• Ascertain the source and spread of the infection; and
• Determine and implement appropriate control measures, which may include providing prophylaxis to contacts.
TO HELP IDENTIFY AND CONTROL OUTBREAKS:

- **HEALTH CARE PROVIDERS AND ADMINISTRATORS** must report any person who is ill or infected with any reportable disease (See Appendix D for list) within the required time frame. Health care providers include physicians, physician assistants, advanced practice nurses, and certified nurse midwives. Administrators are people who have control or supervision over a health care facility, correctional facility, school, youth camp, childcare center, preschool, or institution of higher learning. [N.J.A.C. 8:57-1.4]

- **CLINICAL LABORATORY DIRECTORS** must report any positive culture, test, or assay result specific for the organisms listed in N.J.A.C. 8:57-1.7 within the required timeframe.

- **VETERINARIANS, CERTIFIED ANIMAL CONTROL OFFICERS, AND MANAGERS OF ANIMAL FACILITIES** must report any case of a domestic companion animal that is ill or infected with any disease listed in N.J.A.C. 8:57-1.8 within the required timeframe.

EDUCATING YOUR JURISDICTION

To help manage outbreaks, you should routinely educate health care professionals and administrators in your jurisdiction about their obligation to report incidents of communicable disease. They are required to notify the health officer of the jurisdiction where the ill or infected person lives, or, if that is unknown, where the diagnosis is made. If the health officer is unavailable, they must report the incident to the NJDOH. An incident involving an ill or infected person who lives in a state institution, such as a correctional facility, should be reported by the LHD directly to the NJDOH by telephone at (609) 826-5964 during state business hours and (609) 392-2020 during nights, weekends, and holidays.

PERFORMANCE GOALS FOR LOCAL HEALTH DEPARTMENTS

The New Jersey Association of County and City Health Officers (NJACCHO) has defined the following performance goals for outbreak tracking and response:

1. Immediately report all suspected outbreaks to the NJDOH.

2. Conduct an investigation of all suspected outbreaks within 24 hours of receipt of a report or notification.

3. Forward all investigation summary reports to the NJDOH within 30 days of completion of the investigation.

4. Update the Red Book within 24 hours of change in personnel or contact information; ensure that contact information is always 24/7 and 3-by-3 (three contact persons with three contact methods).

5. Ensure that all outbreak response team personnel are properly trained. Provide, review, and update training at least once a year for all staff, and within 30 days of hire date for new employees.
PART 2

PREPARING FOR AN OUTBREAK

SUPPLIES

Outbreaks can occur at any time. To be prepared, make sure you:

• Can quickly access the current versions of communicable disease report forms and case investigation forms so they are immediately available when needed. Copies of useful outbreak investigation forms can be found in Appendix H.

• Know how to quickly obtain specimen collection kits and transport media (e.g. arrangements/agreements with a lab, clinic, or hospital to provide the LHD with kits and supplies when needed).

• Can access key phone numbers, including the NJDOH and regional epidemiologist.

See Appendix G for a checklist of useful supplies and equipment.

LAB TESTING AND SAMPLES

Local health departments are responsible for ensuring that required specimens are collected, analyzed, and handled in an approved manner that follows laboratory regulations and maintains chain of custody. When collecting and transporting specimens, you must follow procedures and complete specific forms (see Step 10 on page 15).

PUTTING TOGETHER AN INVESTIGATION TEAM

Identify individuals who could provide expertise and leadership in an outbreak. The size and expertise of the team will vary according to the scope of the outbreak and nature of the disease, but generally speaking, your team should include the health officer, a regional epidemiologist, a public health nurse, a registered environmental health specialist, a public information officer, an information technology specialist, a health educator, case investigators, and ancillary staff.

Prior to an outbreak, find out where resources within your county can be pulled without hindering essential tasks. The county Medical Reserve Corps may serve as a valuable resource. Local health departments within a region may wish to share their expertise and, through mutual aid agreements, form a regional outbreak investigation team.

SET UP AN AFTER-HOURS CONTACT NUMBER

Health professionals and the public must have a way to immediately notify the LHD of a possible communicable disease incident. Health officers should set up an after-hours emergency contact number for the public, provide the local police department with 24/7 contact information, and ensure that the state’s Red Book database is updated.
In any outbreak investigation, it is important to have a number of individuals dedicate their time to answering phones, scheduling meetings, entering data, making copies, etc. Tasks should be assigned based on the skill level of the individual. Persons answering phones should have a basic understanding of the disease or suspected disease being investigated. Meet with these individuals prior to performing the above-mentioned activities to establish skill levels and review tasks.

For information on picking a team leader, see What is the Role of the Team Leader? on page 21. See Appendix F for team roles and responsibilities, as well as a template for listing team member names, emergency contact phone numbers, and skills.

**PREPARING FOR THE INVESTIGATION AND TO MANAGE THE TEAM**

1. Review the team members’ expected roles and responsibilities. Refer to Appendix F: Outbreak Investigation Team Roles and Responsibilities.

2. Review the epidemiology of the disease, measures for control, all applicable investigation forms, specimen collection procedures, and protocols for prioritizing investigations with your team.

3. Work through past or published outbreak case studies to help further define the roles and responsibilities. Selected national and international case studies are provided in Appendix P and samples of New Jersey investigation final reports are provided in Appendix Q.

4. Ensure methods to maintain communication of information, decision-making, media messages, outbreak updates, and more.

5. Develop an Incident Command System (ICS) tree, which may be used during a complex outbreak event (refer to Appendix N for guidance on ICS). Names would be added to the ICS tree during the event. Responsibilities based on title can be found in Appendix F.

6. Develop a communication plan that defines who in the organization will lead communication efforts so that stakeholders are provided with consistent information, rumors are minimized, and good working relationships are maintained beyond the outbreak. Work with the Local Information Network Communication System (LINCS) to review and update your communication plan (see below).

**LOCAL INFORMATION NETWORK COMMUNICATION SYSTEM (LINCS)**

All LINCS agencies have all-hazards risk communication plans ready to go in the event of large-scale public health emergency. Use pre-developed messages for various bio-terrorism and other public health emergencies so that all public health agencies are communicating with the public in a clear and consistent manner. For more information, see the New Jersey LINCS website at Appendix Link 4.
PART 3

STEPS TO AN OUTBREAK INVESTIGATION

Conducting a thorough scientific investigation will help you quickly and effectively control and stop the outbreak. Scientific investigation involves collecting and analyzing evidence, forming a hypothesis about the source and mode of transmission (which you will revise and/or refine as the facts warrant), and implementing controls to halt the outbreak.

NOTE: These steps may occur simultaneously during the course of the investigation.

STEP 1: MAKE REQUIRED NOTIFICATIONS

- As soon as a suspected outbreak comes to your attention, your LHD must immediately notify the NJDOH by phone at (609) 826-5964 during state business hours or at (609) 392-2020 on nights, weekends, and holidays.

- Within 24 hours, forward disease reports to the NJDOH via electronic reporting, per N.J.A.C. 8:57-1.9(b). If the suspected outbreak may be caused by a reportable disease, use the NJ Communicable Disease Reporting and Surveillance System (CDRSS) – see Appendix Link 3.

- As soon as possible, share information with other local health officials who may become involved in the investigation. This may include health officers who have jurisdiction where:
  - The outbreak may have originated;
  - The local school or institution attended by the cases is located; or
  - The workplace of the cases is located.
STEP 2: BRIEF THE TEAM AND PREPARE FOR FIELDWORK

Bring everyone on the team up to date on the suspected outbreak. The nature of the disease will dictate which investigation team members should attend the briefing. Before you send team members into the field:

- Research the (possible) disease. You may want to begin your search at the NJDOH Communicable Disease health topics webpage (Appendix Link 2).
- Choose a team leader (see What is the role of the team leader? on page 21 and Appendix F for team roles and responsibilities).
- Gather supplies and equipment. See Appendix G for a useful checklist.
- Develop a plan of action for field personnel addressing management, operations, financial issues, and communication procedures.
- Review personal protection (see page 22 and Appendix O) with field personnel and ensure they have personal protective equipment (PPE).
- Develop an Incident Command System (ICS) tree to be used during a complex outbreak. (See further information on ICS on page 23 and in Appendix N.)
- Work with the Local Information Network Communication System (LINCS) agency to review and update your communication plan (see page 10).
- Check in with your LHD’s financial administrator to discuss potential costs of the outbreak investigation (e.g., additional staffing, testing, prophylaxis, etc.) and how these costs will be dealt with if they occur.

For more information on preparing for the investigation, see Part 2: Preparing for an Outbreak beginning on page 9.

STEP 3: CONFIRM THE SUSPECTED OUTBREAK

- Compare the current number of reported cases with numbers from the previous weeks or months, or from a comparable period during previous years.
- Check with the NJDOH on historical data trends and/or see if surrounding jurisdictions are noting a similar increase.
- Consider sending a Health Alert Network (HAN) message on LINCS to other public health professionals. Work with the NJDOH outbreak epidemiologist to develop and send HAN messages.

WATCH OUT FOR SKEWED STATISTICS

Make sure the increase in incidents is not due to changes in reporting procedures, case definition, diagnostic procedures, or heightened awareness at the local or national level. Also ensure that communities such as resorts, college towns, or migrant farming areas, which see regular fluctuations in population, are not the cause for increased incidence.
STEP 4: VERIFY THE DIAGNOSIS/LABORATORY TESTING

To ensure the disease under investigation has been properly diagnosed, collect samples from suspected cases and submit them for laboratory analysis (if laboratory confirmation is needed to confirm the disease), and review the lab results for errors. When two or more cases in an outbreak are tested in a lab and the lab result finds that the cases involve the same etiological (disease-causing) agent, then the outbreak has been “lab confirmed.”

STEP 5: DECLARE AN OUTBREAK

Once you determine an increase in cases is real and the diagnosis has been verified, declare an outbreak.

- Notify the NJDOH and the regional epidemiologist that the suspected outbreak has been confirmed. This second notification will announce the findings from the preliminary investigation.

- Brief the outbreak response team. The team leader should review the epidemiology of the disease, measures for control, all applicable investigation forms, specimen collection procedures, and protocols for prioritizing the investigation.

- Prioritize the local health department’s response and delegate duties and activities.

- Maintain communication with the NJDOH and the regional epidemiologist.

COMMUNICATION BETWEEN THE LOCAL OUTBREAK TEAM LEADER AND THE NJDOH EPIDEMIOLOGIST

The local outbreak team leader will:

- Continue daily to weekly contact regarding the status of the outbreak and intervention(s), depending on the disease and situation.

- Notify the NJDOH outbreak epidemiologist of the need for additional laboratory specimen testing, test media, specimen kits, etc.

- Assess the need for NJDOH assistance.

The NJDOH outbreak epidemiologist will:

- Notify the local team leader of laboratory results.

- Contact the local team leader periodically as needed.

- Arrange conference calls between local and state staff as needed.

- Arrange for local assistance as requested.
STEP 6: DEVELOP A PRELIMINARY HYPOTHESIS

Although information may be limited early on, the nature of the outbreak may shed some light. The initial hypothesis is a starting point for the investigation. It should address the source of the suspected agent, the mode of transmission, and the exposures that caused the outbreak. (See also Step 14: Evaluate Hypothesis on page 18 and How do I develop a hypothesis? on page 23).

STEP 7: IMPLEMENT INITIAL CONTROL AND PREVENTION MEASURES

You should discuss, plan, and implement control and prevention measures as soon as possible to prevent the spread of disease. Control measures should be based on the current knowledge of the chain of infection and aimed at specific links, including the agent, reservoir, portal of exit, mode of transmission, portal of entry, and host susceptibility. (If you are not familiar with these terms, consult the CDC Excite! Glossary of Epidemiology Terms at Appendix Link 5).

Control measures may include:

- Health education;
- Isolating the source;
- Interrupting transmission;
- Limiting exposure; and
- Reducing susceptibility.

Control measures may change during the course of the investigation, and multiple approaches may be implemented simultaneously.

DON’T WAIT FOR SCIENTIFIC CERTAINTY

As soon as you have an idea of what controls might work, implement them. You can always change course or add controls as you gain more evidence. Multiple approaches may be implemented simultaneously.

STEP 8: COMMUNICATE WITH STAKEHOLDERS

To keep information consistent and to minimize rumors, stay in contact with stakeholders through your communication lead for the incident (as defined in your ICS structure and roles). Communication is especially vital if you are asking stakeholders, such as physicians or schools, to help identify cases and control the spread of the outbreak.

SET UP AN AFTER-HOURS CONTACT NUMBER

Health professionals and the public must have a way to immediately notify the LHD of a possible communicable disease incident. Your department should set up an after-hours emergency contact number for the public, provide the local police department with 24/7 contact information, and ensure that the state’s Red Book database is updated.
STEP 9: DEFINE CASES

Establish a working case definition – a standard set of criteria for deciding whether a person should be classified as having the disease and be included in your outbreak investigation. The definition should include:

- Clinical information about the disease;
- Characteristics about the people who are affected;
- Information about the location or place; and
- Specification of time during which exposure or onset occurred.

Your working case definition may initially capture suspected/possible cases as well as confirmed and probable cases. As you gather information you will refine the definition. Cases that do not meet the revised definition would then be excluded.

CASE DEFINITION CLASSIFICATIONS

These four classifications can further define a case:

<table>
<thead>
<tr>
<th>CONFIRMED</th>
<th>PROBABLE</th>
<th>SUSPECTED</th>
<th>NOT A CASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A case that has been verified, usually through laboratory results, clinical symptoms, and temporal and geographic association with the outbreak.</td>
<td>A case that fits most of the typical clinical features of the disease but has no laboratory confirmation; a case that is epidemiologically linked to a lab-confirmed case.</td>
<td>A case that has some of the typical clinical features of the disease and has no laboratory verification.</td>
<td>One that does not meet the outbreak case definition or working case definition.</td>
</tr>
</tbody>
</table>

NOTE: You can find NJDOH surveillance case definitions (based on causative agent) in the New Jersey Department of Health Communicable Disease health topics at Appendix Link 2 and in the NJ Communicable Disease Reporting and Surveillance System (CDRSS) at Appendix Link 3.

STEP 10: IDENTIFY AND TRACK CASES

The information you gather will allow you to map the outbreak, determine the population at risk, verify that your case definition has been met, and meet other data needs.

Systematically find cases that meet your working definition and carefully record information:

- Ask stakeholders (e.g., physicians, school administrators) to identify cases;
- Review communicable disease registries;
- Check with medical facilities; and
- Conduct interviews – if the outbreak is within a limited population, you may need to interview the entire population.
SPECIMEN COLLECTION

Specimen collection may be necessary for some diseases. Consult with the regional epidemiologist or NJDOH outbreak epidemiologist assigned to the investigation to review the proper specimen collection, preservation, and transport technique. You can obtain state laboratory specimen submission forms and specimen submission identification numbers (which are required before your specimens can be processed) by calling the assigned NJDOH outbreak epidemiologist at (609) 826-5964. You can also obtain forms from the state laboratory forms webpage (see Appendix Link 19). Please note that there may be a cost associated with specimen collection and analysis.

USING AN OUTBREAK DATABASE

If you may be dealing with a large number of cases, an outbreak database is a valuable tool that provides you with quick, easy access to collected data and helps you efficiently manage cases.

- Design a database that mimics the order of information collected in the investigation form.
- Work with your regional epidemiologist when developing an outbreak database.

Databases are only as useful as you make them; a commitment to accurate daily data entry, updates of case information, and continuous data editing and cleaning is essential.

COMMUNICABLE DISEASE REPORTING AND SURVEILLANCE SYSTEM (CDRSS)

The NJDOH CDRSS (see Appendix Link 3) is a patient-centric, secure, web-enabled, electronic disease reporting system available to all local health departments and acute care hospitals in New Jersey. CDRSS capabilities include:

- Summarizing and monitoring the occurrence of known reportable infectious diseases of public health importance;
- Detecting and documenting new and emerging infectious disease threats; and
- Creating real-time reports to monitor cases of disease occurring in a local, regional, or statewide outbreak.

The system facilitates real-time reporting and investigating of communicable diseases, 24 hours a day, 7 days a week. In addition to detailed case management (including patient demographics, disease signs, symptoms and risk factors, laboratory data, and medical follow-up), CDRSS lets you perform outbreak management, contact tracing, and surveillance for notifiable communicable diseases. CDRSS generates a variety of reports, maps, and graphs that help you visualize the data.

Data can be exported and saved in multiple formats for further analysis using more sophisticated statistical software such as SAS and Epi Info.™ The Centers for Disease Control’s Epi Info 7 is free software that may meet your “outbreak database” needs. You can download it from the CDC at Appendix Link 6.
STEP 11: INTERVIEW CASES

Interview cases and track collected information in your case investigation report. The information you gather allows you to:

- Contact patients with additional questions;
- Notify patients of laboratory results;
- Map the outbreak;
- Create graphs of the outbreak;
- Determine the population at risk; and
- Verify that the case definition has been met.

*When the investigation requires a control group (see page 24), you will also have to interview well persons. Consult with the regional epidemiologist and/or NJDOH outbreak epidemiologist to determine if, and how many, well persons should be interviewed.*

Case investigation reports should include:

- Name;
- Contact information;
- Date of birth;
- Gender;
- Race and ethnicity (see note below);
- Occupation;
- Incubation period; and/or time of onset;
- Period of exposure;
- Period of communicability*;
- Symptoms;
- Severity of illness;
- Travel history;
- Contact with other ill cases;
- Food history; and
- Water exposure.

*If applicable, as determined after consultation with the regional epidemiologist or NJDOH epidemiologist assigned to the outbreak.*

Review the specific types of outbreaks listed in Part 5 of this manual (beginning on page 27) for step-by-step case investigation forms to use during interviews.

A NOTE ABOUT RACE AND ETHNICITY DATA

An individual’s responses to race and ethnicity questions are based upon self-identification. U.S. Census uses five minimum categories for race (White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and two minimum categories for ethnicity (Hispanic or Latino, and Not Hispanic or Latino). These categories generally reflect social definitions of race and ethnicity recognized in this country, and are not an attempt to define race and ethnicity biologically, anthropologically, or genetically. People may choose to report more than one race to indicate their racial mixture, such as “American Indian” and “White.” People who identify their origin as Hispanic or Latino may be of any race.
**STEP 12: CREATE LINE LISTS**

Once individuals involved in the outbreak investigation have been interviewed, create a line list – a database or other record in which you record and track information from cases or patients in the outbreak. Each row in a line list represents an individual case or patient, with data about that individual in columns (see page 24 for a sample).

Line lists typically include:
- Name;
- Contact information;
- Illness status (ill/well);
- Demographics;
- Clinical and laboratory information; and
- A few risk factors.

Line list forms can be found in Appendix H (and for MRSA outbreaks at Appendix T1).

**STEP 13: DESCRIBE DATA**

Describe data in terms of time, place, and person.

Describing the epidemiology of the outbreak is a critical step. It should begin early and be updated continually as data is collected. This shows an outbreak’s trend over time, its geographic extent, and the populations affected by the disease. The description lets you begin to develop causal hypotheses to assess the outbreak in light of what is known about the disease. (See page 25 for more on epidemiology.)

**STEP 14: EVALUATE HYPOTHESIS**

Use the information you’ve gathered to develop a more focused hypothesis – to sharpen or alter it. Your hypothesis should address the source of the agent, the mode of transmission, and the exposures that caused the outbreak. Then evaluate it through environmental evidence, laboratory science, and epidemiology.

There are two approaches to test your hypothesis:

**COMPARISON OF THE HYPOTHESES WITH THE ESTABLISHED FACTS**

This approach should be used when the evidence is so strong that the hypothesis does not need to be tested. For example, in an outbreak of vitamin D intoxication, all of the cases drank milk delivered by a local dairy. Investigators hypothesized that the dairy was the source. When they visited the dairy, they learned that levels higher than the recommended dose were inadvertently added to the milk.

**ANALYTIC EPIDEMIOLOGY**

Analytic epidemiology is used when the cause of the outbreak is less clear. This approach examines the causal (etiologic) association between exposures and health conditions. The hypothesis is tested by using a comparison group to quantify relationships between various exposures and the disease. There are two types of analytic studies: cohort studies and case-control studies (see page 24).
POINTS TO CONSIDER:

- If studies do not confirm your hypothesis, look for new vehicles or modes of transmission. For example, you may want to meet with case-patients and visit their homes to ask if you can look at the products on their shelves.

- Even when your analytic study identifies an association between an exposure and a disease, you still may need to refine your hypothesis. Sometimes you will need to obtain more specific exposure histories or a more specific control group (see page 24 for more on control groups).

- While epidemiology can implicate vehicles and guide appropriate public health action, laboratory evidence can clinch the findings. Environmental studies often help explain why an outbreak occurred.

STEP 15: ADJUST CONTROL AND PREVENTION MEASURES

At this point, it’s likely you already have controls in place, based on the team’s early suspicions about the source of the outbreak. But now, your investigation has determined the source of the disease. It’s time to finalize effective, practical control and prevention measures (and bolster measures already in place) based on the chain of infection. Controls may target multiple links.

Evaluate the effectiveness of controls through continued surveillance. Incidence of disease should decrease over time. If the incidence does not decrease, then more data analysis and discussion will be needed to redefine the hypothesis and suggest new controls.

STEP 16: DECLARE AN OUTBREAK OVER

Don’t jump the gun on this step. An outbreak is over when no case that meets the investigation’s criteria is reported within two incubation periods. However, you must allow for delays in reporting. Consider consulting with the NJDOH outbreak epidemiologist.

STEP 17: REPORT AND COMMUNICATE FINDINGS

You’ll need to prepare an oral briefing and a written report to document your findings.

- The oral briefing is primarily for the outbreak team and others involved in the investigation, and may include the public or the media. It describes what you found, what you did, and your recommendations for further action. Present your findings in a scientifically objective fashion, and be prepared to defend your conclusions and recommendations.

- The written report serves as a record of performance, a reference for future outbreaks, and a document for potential legal issues. A Health Officer Outbreak Investigation Summary Report, including a summary of findings, actions taken to control disease, and recommendations to affected parties, must be submitted to the NJDOH within 30 days of completion of the investigation.
Consider following the standard scientific format, including introduction, background, results, discussion, conclusion, and recommendations.

◦ For more information, see *What are the Reporting Requirements at the Investigation’s Conclusion?* on page 26.

◦ Sample final reports are provided in Appendix Q and blank final report templates are provided in Appendix R.

**STEP 18: REVIEW LESSONS LEARNED**

The outbreak team and others involved should reconvene to review the lessons learned:

• Which methods worked well?
• What mistakes were made, and how could they be prevented in the future?
• What changes to the process should be made?
• Who will be responsible for making sure the recommended changes are implemented?
• How successfully was the communication flow maintained?
• What was the media’s involvement in the outbreak, and what effect did it have?
**HOW DO REPORTS OF COMMUNICABLE DISEASES REACH THE LHD?**

Health care providers, administrators of institutions, and laboratories are required to report any person who is ill or infected with any reportable disease listed in Appendix D within the required timeframe, and make a report as set forth in N.J.A.C. 8:57-1.6. Reports may also come from residents, other LHDs, regional epidemiologists, or through various surveillance and reporting systems.

Make sure the contact information for the health officer is readily available. Establish a method by which the public and health professionals can provide after-hours public health emergency notification. This may be accomplished by providing the public with a health department after-hours emergency contact number, providing the local police department with 24/7 contact information, and keeping the state’s Red Book database updated.

**WHAT IS THE ROLE OF THE TEAM LEADER?**

The team leader serves as the point of contact to the NJDOH and regional epidemiologist. He/she should have knowledge of communicable diseases and experience in investigating an outbreak. As point person with the NJDOH, the team leader will:

- Receive the name and contact information of the NJDOH outbreak epidemiologist who will serve as the communication liaison between the local and state health departments, the state epidemiologist, and the state laboratory. The NJDOH outbreak epidemiologist will also serve as consultant to the local outbreak team leader.

- With the NJDOH outbreak epidemiologist, review the specimen collection and transport issues such as time, temperature, transport media, sampling methods, quantity, and what specimens are needed to identify and type the agent.

- Request NJDOH assistance as needed.

See Appendix F for a list of team roles and responsibilities.
WHAT PRECAUTIONS SHOULD I TAKE TO PROTECT MYSELF AND OTHERS DURING THE OUTBREAK?

Precautions required to protect health care workers and others during an outbreak will depend, in part, on the specific agent and mode of transmission of the outbreak.

For example, during an outbreak of a respiratory disease, you should follow universal respiratory precautions:

• Cover coughs and sneezes with tissues or surgical masks;
• Wash hands frequently;
• Follow appropriate infection control precautions;
• Get your flu and pneumonia vaccines; and
• Stay home if you are feeling sick.

For more information, see Appendix Link 13 (OSHA healthcare universal precautions), Appendix K (infection prevention for outpatient settings), and Appendix O (respiratory precautions poster).

WHAT’S THE DIFFERENCE BETWEEN UNIVERSAL, STANDARD, AND TRANSMISSION-BASED PRECAUTIONS?

• **UNIVERSAL PRECAUTIONS**: an approach to infection control to treat all human blood and certain human body fluids as if they were known to be infectious for HIV, HBV, and other bloodborne pathogens.

• **STANDARD PRECAUTIONS**: designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection. The CDC recommends standard precautions for the care of all individuals, regardless of their diagnosis or presumed infection status. Standard precautions include the use of hand washing and appropriate personal protective equipment such as gloves, gowns, and masks whenever touching or exposure to patients’ body fluids is anticipated.

• **TRANSMISSION-BASED PRECAUTIONS**: used for individuals known or suspected to be infected or colonized with epidemiologically important pathogens that can be transmitted by airborne or droplet transmission, by contact with dry skin, or by contaminated surfaces. These precautions are recommended to provide additional precautions beyond standard precautions to interrupt transmission of pathogens.
HOW CAN I USE THE INCIDENT COMMAND SYSTEM (ICS) MODEL TO MANAGE A LARGE/COMPLICATED OUTBREAK?

Incident Command System (ICS) is an organized method to coordinate a response to an incident by assigning roles and managing groups. An outbreak coordinator oversees staff members who in turn are each responsible for specific tasks. A single staff member may handle more than one area, depending on the size of the outbreak and outbreak team.

In a very large outbreak, your coordinator may plug into a larger incident command structure. See Appendix N for a New Jersey example of how ICS can work in a public health outbreak investigation. Appendix N also includes templates and additional information on how to apply ICS to your incident.

HOW DO I DEVELOP A HYPOTHESIS?

Once you determine that an outbreak exists, use the information you have, such as the nature of the disease, to come up with a preliminary hypothesis. This will serve as the starting point for the investigation, and should address the:

- Source of the agent;
- Mode of transmission; and
- Exposures that caused the outbreak.

You will sharpen or revise your hypothesis based on the information you gather during the investigation.

Use the information you gather to develop a more focused hypothesis. Evaluate your hypothesis through environmental evidence, laboratory science, and epidemiology. Epidemiology includes:

- Statistics/confidence:
  - Probability (p);
  - Chi Squared Test; and
  - Fisher’s Exact Test.
- Measures of association:
  - Relative Risk; and
  - Odds Ratio.

Even when your analytic study identifies an association between an exposure and a disease, you often will need to refine your hypothesis. Sometimes you will need to obtain more specific exposure histories or a more specific control group.

See also Step 14: Evaluate Hypothesis on page 18.
HOW DO I DECIDE BETWEEN USING A COHORT STUDY OR A CASE-CONTROL STUDY?

A COHORT STUDY compares a group of people who share a similar feature, such as a demographic characteristic or a particular exposure, to another group of people who do not share that particular feature. Cohort study designs are generally not used for investigating dispersed and community-wide outbreaks. The exposure status to the suspected risk factor is determined first, followed by a determination of disease status.

Cohort designs are most useful for investigating outbreaks confined to a group that is well-defined and easy to count, and in which everyone can be identified, whether they became ill or not. Examples include outbreaks that occur at social functions, in institutions (like schools), and in households.

A CASE-CONTROL STUDY compares people with a disease with a group of people without the disease to ascertain differences in exposures. Those with a disease are the cases, while those without it are in the control group. Case-control studies may also be used when an outbreak’s affected population is too large to conduct a cohort study. In this type of study, the outcome is always identified before the exposure. It explores whether differences between cases and controls result from exposures to risk factors.

Case control designs are most useful for investigating community-wide outbreaks when the entire ‘at risk’ group (those potentially exposed) is not well defined. Examples include outbreaks involving shoppers at a supermarket or people living in a particular area.

HOW DO I USE A LINE LIST?

A line list is a tracking tool that allows relevant information to be seen at a glance. See Appendix H for line list forms tailored to the source of the outbreak and its mode of transmission.

SAMPLE: SCHOOL OUTBREAK LINE LIST

<table>
<thead>
<tr>
<th>Total Number of Students in School</th>
<th>Number of Students Ill Today</th>
<th>Total Number of Staff</th>
<th>Number of Staff Ill Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Name</td>
<td>Reported By</td>
<td>Telephone</td>
<td>Report Date</td>
</tr>
<tr>
<td>Example: JD</td>
<td>7 female</td>
<td>1 223 yes unk yes yes no 102.5 unk unk unk unk dizziness</td>
<td>9/11/12 4 days yes yes yes</td>
</tr>
</tbody>
</table>

Consult with the regional epidemiologist and/or NJDOH outbreak epidemiologist to determine if, and how many, well persons should be interviewed.
HOW DO I USE DESCRIPTIVE EPIDEMIOLOGY?

Descriptive epidemiology tracks data in terms of time, place, and person. It shows an outbreak’s trends over time, its geographic extent, and the populations affected by the disease. This description helps to assess the outbreak in light of what is known about the disease and to develop causal hypothesis. Describing the epidemiology of the outbreak should begin early and be updated regularly as additional data is collected.

- **CHARACTERIZING BY TIME** Graphing the number of cases by their date of onset shows the time course of an epidemic. This epidemic curve, or "epi curve" for short, gives a simple visual display of the outbreak’s magnitude and time trend (see sample below).

- **CHARACTERIZING BY PLACE** Beyond defining the geographical extent of the problem, assessing an outbreak by place may reveal clusters or patterns that provide clues to the identity and origins of the problem. A simple and useful technique is to create a spot map by plotting where affected people live, work, or may have been exposed.

- **CHARACTERIZING BY PERSON** We usually define populations affected by an outbreak by personal characteristics (e.g., age, race, sex, marital status) or by exposures (e.g., occupation, leisure activities, use of medications, tobacco, drugs). These factors are important because they may be related to susceptibility to the disease and to opportunities for exposure.

See Appendix C and Appendix A for detailed descriptions of characterizing an outbreak.

SAMPLE: FOODBORNE OUTBREAK, CHARACTERIZED BY TIME

![Diagram showing an outbreak in an extended family following a catered reunion party](chart)

Describing the epidemiology of the outbreak should begin early and be updated regularly as additional data is collected.
WHAT ARE THE REPORTING REQUIREMENTS AT THE INVESTIGATION’S CONCLUSION?

As set out in Step 17 on page 19, a Health Officer Outbreak Investigation Summary Report, including a summary of findings, actions taken to control disease, and recommendations to affected parties, must be submitted to the NJDOH within 30 days of completion of the investigation.

Physicians who reported cases of illness in connection with the outbreak should get copies in statistical form only (to protect the identify of cases).

INFORMATION TO INCLUDE:

- Your name, municipality, and location (if applicable);
- Name of disease, suspected disease, or cause of problem;
- The number ill;
- Date of onset;
- Description of symptoms;
- Pertinent medical history and available diagnostic confirmation;
- Summary of any site visits conducted;
- Summary of the LHD’s recommendations;
- Copies of any resources created or distributed (e.g., press releases, letters to parents, surveys); and
- Contact information for key contacts at facilities involved in the outbreak.

Sample final reports are provided in Appendix Q and blank final report templates are provided in Appendix R.
PART 5

SPECIAL CONSIDERATIONS
FOR SPECIFIC OUTBREAKS

COMMUNITY-ACQUIRED MRSA

Isolated cases of community-associated methicillin-resistant Staphylococcus aureus (CA-MRSA) are not reportable in New Jersey. CA-MRSA is only reportable when an outbreak may be occurring. NJDOH defines a suspected outbreak of CA-MRSA as two or more non-household, culture-confirmed cases that occur within 14 days of each other and may be epidemiologically linked (epi-linked).

CA-MRSA is primarily transmitted through direct contact, and, less frequently, through contaminated environmental items. CA-MRSA is found throughout the community, with over 30 percent of the population colonized with Staphylococcus aureus either permanently or transiently at any given time. Even pets can be colonized with CA-MRSA. As such, there is no incubation period for CA-MRSA, since individuals may be exposed in the community, at home, or even through their own colonization.

Most outbreaks of CA-MRSA never have an identified source; instead, public health investigations usually reveal breaches in hygiene or infection control where transmission could have occurred, or practices that may make the transmission of bacteria more likely.

- Testing of environmental items is rarely recommended, as the bacterium is ubiquitous.
- Routine cleaning is always recommended, but specialized cleaning is not usually effective, as environmental items may become re-contaminated from colonized individuals.
- Testing and treatment for colonization is rarely recommended, as individuals may become re-colonized after treatment, and exposure of cases could occur anywhere in the community.

For more information on specific diseases, or when dealing with a communicable disease incident that is not a suspected outbreak, refer to the NJDOH Communicable Disease Service disease/health topics at Appendix Link 2.
Your role as investigator for CA-MRSA outbreaks primarily involves debunking myths about the pathogen and transmission and trying to prevent individuals from panicking or implementing unnecessary measures that may be costly, intrusive, and ineffective. CA-MRSA prevention messages involve changing personal behavior, such as:

- Practicing good hand hygiene;
- Not sharing personal items; and
- Keeping abraded skin covered.

During your investigation, maintain good communication with the community in which the outbreak is occurring, and adhere to CDC and NJDOH guidelines whenever possible to avoid setting costly and ineffective precedents or exacerbating an already difficult situation.

SPECIAL STEPS AND GUIDELINES FOR MRSA OUTBREAKS

1. Gather and document specific information on each suspected case of CA-MRSA, using the CA-MRSA General Linelist (see attachments to Appendix T1).

2. Analyze the lab results and CA-MRSA General Line list to determine whether any of the symptomatic MRSA culture-confirmed cases occurred within 14 days of each other. Use the onset date to make this determination; if the onset date is not available, use the date the culture was collected. Be sure all cultures are for MRSA; any cases of methicillin-susceptible Staphylococcus aureus (MSSA) should not be included during this step. If two or more symptomatic MRSA culture-confirmed cases occurred within 14 days of each other, assign these a case classification of “confirmed” and continue. If not, this report does not meet the NJDOH definition for a suspected outbreak of CA-MRSA and no further work is necessary. Isolated cases of CA-MRSA are not unusual and therefore not reportable – you should provide basic information about disease transmission and prevention, and explain that the LHD does not recommend a public health investigation, enhanced surveillance, notification of parents or staff, or any environmental remediation beyond routine housekeeping and routine infection control measures.

Household cases are not reportable, such as siblings with CA-MRSA infections (although this a good opportunity for the LHD to review the importance of MRSA prevention measures to minimize transition among family members).

3. If a determination is made that two or more culture-confirmed cases occurred within 14 days of each other and may be related, a CA-MRSA outbreak may be occurring and the LHD should expand the initial investigation. The LHD should now do the following:

   a. Contact the NJDOH again to obtain an E-number and discuss next steps planned in the investigation. The E-number should be written on all documents and communication pertaining to the investigation.

   b. Develop outbreak case definitions based on a defined period of time that begins two weeks prior to the onset or specimen collection date of the earliest culture-confirmed case and the setting where the cases are occurring.

   c. Implement enhanced surveillance for CA-MRSA and skin and soft tissue infections (SSTIs) within the affected community setting. Although single cases of MRSA are not reportable, during an outbreak investigation all cases
and suspected cases of MRSA should be reported to the LHD conducting the investigation, even if a culture was not performed. Enhanced surveillance may be discontinued one month after the onset date of the last case. Since CA-MRSA is not unusual, unrelated cases may be detected during enhanced surveillance and should be classified as not a case.

d. Document detailed case and survey information in a second, more specific CA-MRSA linelist. The NJDOH has several template linelists available for use, including a CA-MRSA School Linelist for Outbreak Investigation and a CA-MRSA Correctional Facility Linelist for Outbreak Investigation (see attachments to Appendix T1). These linelists should serve as guidance for interviewing cases, clinicians, and other relevant individuals. You may need to create a new linelist or expand the existing templates to include variables unique to the investigation.

e. If needed, schedule an environmental and facility inspection. The registered environmental health specialist (REHS) should be involved in this step.

Although CA-MRSA is primarily transmitted through direct contact, there may be contaminated environmental items or, more likely, environmental practices that hinder MRSA prevention strategies. For example, the best way to prevent MRSA is practicing good hand hygiene, so an environmental inspection should include an evaluation of hand washing stations for both availability and functionality.

4. Formulate a hypothesis on transmission. Although a source of the outbreak may never be identified, public health can identify potential modes of transmission that occurred or may occur, and can issue guidelines to minimize future infections.

5. Prepare recommendations for the facility, including those specific to deficiencies found in the facility and for routine prevention of CA-MRSA. You may want to include the following in your recommendations:

a. MRSA education, including brochures, signs, videos, and presentations, with an emphasis on hand hygiene, not sharing personal items, proper wound care, and timely recognition / treatment of SSTIs. Education should be directed toward individuals and staff.

b. A documented routine cleaning plan, with a specialized plan for areas that are higher risk for bacterial growth and frequent contamination, such as locker rooms, spas, and wrestling mats.

c. A documented surveillance and response plan, with information on how to handle MSSA- and MRSA-positive SSTIs according to the level of risk of direct contact and transmission. For example, MRSA-positive cases among student athletes in high contact sports should be excluded from participation until infection has cleared; MRSA-positive cases among student athletes in other sports may continue participation, providing the SSTI can be covered.

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**MRSA OUTBREAKS – EXTENDED RESOURCE**

An extended version of this guidance on MRSA outbreaks in New Jersey can be found in Appendix T1.
FOODBORNE OUTBREAKS

By definition, a foodborne disease outbreak occurs when two or more people experience a similar illness from ingestion of a common food or drink. Local point-source outbreaks of foodborne disease are typically identified in two ways:

1. Through complaints of illnesses received from the public. Local health departments should log foodborne illness complaints and routinely review the log for commonalities that might suggest an outbreak.

2. Through pathogen-specific surveillance, which can be done using CDRSS (Appendix Link 3).

To determine whether complaints of illness attributed to a particular event or establishment meet the definition of a foodborne outbreak, answer the following questions:

• Are the incubation period and symptoms (or specific agent, if one or more cases have been diagnosed) consistent with an illness resulting from the reported exposure?

• Are multiple cases being attributed to the same exposure?

• Are all of the illnesses similar?

• Could these illnesses be reasonably explained by other common exposures?

Investigate a possible outbreak if multiple cases of illness have an incubation period and symptoms consistent with an illness resulting from the reported exposure.

For case clusters identified through pathogen-specific surveillance, the following questions should be answered:

• Are the number of cases with the cluster characteristics clearly more than should be expected during this time frame?

• Does the distribution of cases by demographics (e.g., age, sex, ethnicity) or geography suggest a common source of exposure?

• Do cases share any unusual exposures?

• Do new cases continue to be detected, suggesting the potential for ongoing transmission and the need for additional control measures?

FOODBORNE OUTBREAK CONSULTATION

NJDOH Infectious and Zoonotic Disease Program (IZDP) staff are available for consultation on the epidemiologic aspects of the outbreak investigation and can be reached through Appendix Link 15 or 609-826-4872 and 609-826-5964 during state business hours and 609-392-2020 for after-hours emergencies.

NJDOH Food and Drug Safety Program (FDSP) staff are available for consultation on environmental aspects of the investigation and can be reached at (609) 826-4935.
Investigate a possible outbreak if the number of cases in a cluster clearly exceeds an expected value, if the demographic features or known exposures of cases suggest a common source, or if new cases continue to be detected.

INVESTIGATING FOODBORNE DISEASE OUTBREAKS

In addition to the outbreak investigation steps outlined in Part 3 of this manual, note that:

- The local health department in whose jurisdiction the outbreak occurs is responsible for investigating localized point-source outbreaks that occur within their jurisdiction. However, multiple health departments may participate in the investigation if residents of other jurisdictions attended the event, and/or the food was provided by a facility located in a different jurisdiction.

- Pathogen identification is an important element of any foodborne outbreak investigation. Clinical presentation can narrow the list of potential pathogens. However, it is ideal to confirm the pathogen by clinical (typically stool) and/or food specimens.

REQUIREMENTS FOR STOOL SPECIMENS

- Stool specimens collected for enteric bacterial pathogen testing (Shiga toxin-producing Escherichia coli, Salmonella spp., Shigella spp., Vibrio spp.) must be collected in a container that includes transport media. The container must be in-date (not expired) and properly labeled, and a BACT-109 form must be submitted for each specimen.

- Stool specimens collected for norovirus testing must be collected in a clean leak-proof container such as a urine specimen container. Each container must be properly labeled, and an SRD-1 form must be submitted with each specimen.

Contact NJDOH staff for sample submission approval and guidance on appropriate sample collection, holding, and delivery to the state Public Health Environmental Laboratories (PHEL). You can obtain necessary forms from the state laboratory forms website (see Appendix Link 19). Local health departments can obtain stool containers from PHEL by request through NJDOH.

SUMMARY REPORT

- NJDOH reports all foodborne outbreaks to the CDC through the National Outbreak Reporting System (NORS).

- Within 30 days of the end of the outbreak investigation, the local health department must submit a summary report to the NJDOH. For foodborne outbreaks, this summary report must contain the data elements required for NORS. NORS reporting forms and guidance can be downloaded from Appendix Link 12.

For more details on handling a foodborne outbreak, see Appendix C. For case studies, see Appendix P, and for NJ sample final reports for foodborne investigations, see Appendix Q.
HEALTH CARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE

The general guidelines for all outbreaks (Appendix T2: Attachment 1, Report of Immediately Reportable Outbreak, Incident, or Situation) should be followed and augmented as described below and/or as necessary for all reported health care-associated infection (HAI) outbreaks. HAI outbreaks may lead to:

- Death;
- Additional HAIs;
- Excess cost/lost reimbursement, therefore less money to support safety and quality;
- Increased length of stay (LOS), which, in turn, increases the risk for other patient safety events (e.g., medication errors, fall, pressure ulcers);
- Decreased opportunity costs/reputational costs for the facility;
- Increased societal costs, including loss of trust, increased legislation, and litigation; and
- Personal loss, i.e., decreased productivity and sense of wellbeing, and a negative impact on family and caregivers.

Acute care facilities, ambulatory surgery centers (ASCs), and dialysis centers are required to report HAIs; long-term care facilities (LTCFs) and other health care settings may soon also be required to report these infections.

Your investigations of HAI outbreaks should include implementation of control measures and evaluation, as well as targeted delivery of pertinent educational messaging/training.

More than 90 percent of NJ’s reported HAI outbreaks fall into one of three categories: respiratory illness, gastrointestinal illness, and scabies infestation (see box below).

EXTENDED GUIDES AND RESOURCES FOR HAI OUTBREAKS

An extended version of this guidance on health care-associated infection outbreaks in New Jersey can be found in Appendix T2.

See also the following NJDOH guidelines:

- Guidelines for the control of respiratory outbreaks in long-term care and other institutional settings at Appendix I;
- Guidelines for the control of gastrointestinal outbreaks in long-term care and other institutional settings at Appendix J; and
- Guidelines for scabies in health care facilities and other institutions is available in draft form by calling NJDOH at (609) 826-5964.
Other less commonly reported causes of HAI outbreaks may require an investigation involving additional research into the organism, the vulnerable population impacted, nuances of the site associated with the outbreak, and/or the route of transmission. The investigation may require a multi-disciplinary investigative team, including, but not limited to: the disease primary, an environmental specialist, an infection preventionist, a representative from the licensing agency, a laboratorian, and/or representatives from multiple states, CDC, FDA, OSHA, one or more professional organizations, and possibly even representatives from law enforcement.

Prior to beginning any investigation into a possible/confirmed HAI outbreak, notify the CDS HAI team.

**BLOODBORNE PATHOGENS**

Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV).

Problematic practices in any health care setting include:

- Using the same needle/cannula and/or syringe to administer intravenous medication to multiple patients;
- Inserting a used needle/cannula and/or syringe into a medication vial or solution container resulting in contamination of the contents and subsequent reuse for other patients; and
- Using single-dose vials as equivalent to multi-dose vials where the vial is entered on multiple occasions for different patients.

See Attachment 2 to Appendix T2 for a detailed guide to *Investigation of Possible Healthcare Transmission of Bloodborne Pathogens (HBV & HCV)*.

**COMPOUNDING PHARMACY PRODUCTS (PRODUCED IN FREE-STANDING, NOT ASSOCIATED WITH AN ACUTE-CARE, FACILITY)**

Compounding pharmacies prepare customized medications that are not otherwise commercially available for individual patients with specialized medical needs. A prescription is required for a compounded product. Compounding pharmacies are regulated by State Boards of Pharmacy. Compounding pharmacies are exempt from good manufacturing practice regulations that ensure quality of FDA-approved products, so compounded products are not regularly evaluated for clinical safety and efficacy.

An investigation involving a product produced in a compounding pharmacy should be reported and discussed with the CDS HAI team BEFORE an investigation begins.

**SINGLE DOSE VIALS**

Inappropriate use of single dose vials (SDVs) can lead to transmission of life-threatening bloodborne pathogens and bacterial infections. Clinician adherence to safe injection practices, even when appropriately sized SDVs are unavailable, is important to prevent infection transmission.
Single dose vials are typically preservative-free, so frequent access can lead to bacterial contamination. In addition, accessing a single dose vial multiple times increases the risk of patient-to-patient transmission of bloodborne pathogens such as HIV, HBV, and HCV.

An investigation involving possible contamination of a SDV should be reported and discussed with the CDS HAI team BEFORE an investigation begins.

**ANTIMICROBIAL RESISTANCE**

Antimicrobial drug resistance occurs everywhere in the world and is not limited to industrialized nations. Hospitals and other health care settings are battling drug-resistant organisms that spread inside these institutions. Drug-resistant infections also spread in the community at large. Examples include drug-resistant pneumonias, sexually transmitted diseases (STDs), and skin and soft tissue infections.

Some examples of drug resistance include:

- Methicillin-resistant *Staphylococcus aureus* (MRSA), a potentially dangerous type of staph bacteria that is resistant to certain antibiotics and may cause skin and other infections in persons with no links to health care systems;
- Multi-drug resistant *Klebsiella* spp. and *Escherichia coli* such as carbapenem-resistant Enterobacteriaceae (CRE) in hospitals;
- Antibiotic-resistant *Streptococcus pneumoniae* infections;
- Antimicrobial resistance among some fungi, particularly those that cause infections in transplant patients with weakened immune systems;
- Antimicrobial resistance to some of the drugs used to treat human immunodeficiency virus (HIV) infections and influenza;
- Development of antimicrobial resistance to the drugs used to treat malaria infections, as well as in a variety of other parasites that cause infection; and
- Although not a resistant organism, *Clostridium difficile* (C. difficile) can cause diarrheal illness in patients whose normal bacterial flora have been damaged due to prescribed antimicrobials, and it can be difficult to treat once acquired. *C. difficile* poses problem for many health care facilities, and proper sterilization of surfaces and medical devices is an integral part of prevention.

Reports of outbreaks of antimicrobial resistance in health care facilities, though rare, require significant investigation and collaboration between public health personnel, health care providers, and laboratories. Your role as public health investigator is not only to verify the outbreak and the susceptibility pattern, but also to ensure that the facility is implementing a robust antimicrobial program to prevent further HAIs.

For more guidance on how health care facilities should conduct HAI investigations, including investigations where contamination occurred but no disease is present, see Appendix T2.
INFLUENZA-LIKE ILLNESS

Note: Most influenza-like illness (ILI) cases are not tested to see whether influenza or a similar virus caused the symptoms.

Every year we prepare for the “flu season,” during which there is a spike in illness caused by Influenza and other respiratory pathogens. In New Jersey, flu season can start as early as October and last into May.

Typically, ILI outbreaks during the season are a concern only when clusters of illness occur in institutional settings, such as:

- Hospitals;
- Long-term care facilities;
- Rehabilitation centers;
- Prisons;
- Military barracks;
- Schools; and
- Day care centers.

The sections Health Care-Associated Infections on page 32, Outbreaks and Special Settings on page 36, and Extended Guidance for Specific Outbreaks at Appendix T provide more information on how to handle these scenarios. See Appendix I for NJDOH Guidelines for the Control of Respiratory Outbreaks in Long-Term Care and Other Institutional Settings.

ILI may be cause for concern when:

- The case (or cases) occurs outside the normal flu season.
- The patient traveled to an area where a novel virus is circulating.
- The patient had contact with animals.

Under any of these scenarios, the patient must be thoroughly investigated to determine whether they are the index case of a larger cluster, and to rule out the possibility of a novel virus event.

- Interview the individual about their travel and contact with other people and animals.
- Research places the patient has been to determine whether any known pathogens were circulating.
- Draw necessary samples for laboratory testing.

Use a line list (see page 24) to track respiratory tract infection outbreaks.

NOVEL INFLUENZA VIRUS occurs when a virus subtype is identified that is different from the currently circulating human subtypes. This is problematic because individuals often do not have immunity to these new viruses, which can lead to a pandemic.
OUTBREAKS IN SPECIAL SETTINGS

Outbreaks in special settings are of special concern because they can spread quickly and infect a population that may be especially vulnerable to sickness. Special settings range from long-term care facilities, to correctional institutions, to schools.

SCHOOLS AND SCHOOL-LIKE SETTINGS

For example, determining whether an outbreak exists in a school or school-type setting (such as a child-care center or youth camp) can be difficult. The following scenarios for these settings should be investigated by the local health department:

• Several children who exhibit similar symptoms are in the same classroom, the same wing of a facility, or attendees at a common event.

• School absences are up, with many parents reporting similar symptoms as the reason their children are not in school.

• Two or more students are diagnosed with the same reportable disease (e.g., salmonellosis).

• A single case of a highly infectious disease (e.g., measles or pertussis) exists, or is suspected to exist. Do not wait for confirmation.

For guidelines on outbreaks in schools and child-care centers, see the NJDOH Communicable Disease Service site at Appendix Link 8. NJDOH guidelines for schools and daycare settings, together with a line list, are also provided in Appendix S.

LONG-TERM CARE AND OTHER INSTITUTIONAL SETTINGS

For guidance on outbreaks in long-term care facilities and other institutional settings, see:

• Guidelines for the control of respiratory outbreaks in long-term care and other institutional settings at Appendix I;

• Guidelines for the control of gastrointestinal outbreaks in long-term care and other institutional settings at Appendix J; and

• Guidelines for scabies in health care facilities and other institutions is available in draft form by calling NJDOH at (609) 826-5964.

If you suspect an outbreak in any setting, your local health department must contact the New Jersey Department of Health; epidemiologists are available to assist in any outbreak investigation.

(609) 826-5964 during state business hours

(609) 392-2020 after hours (nights, weekends, and holidays)
**STD, HIV, AND TB OUTBREAKS**

If you suspect a case of sexually transmitted disease (STD), Human Immunodeficiency Virus (HIV), or tuberculosis (TB), immediately contact the NJDOH Division of HIV/AIDS, STD, and TB Services, which is charged with handling these cases.

You can reach the Division on their website (see Appendix Link 9), and by phone: Division Main Line (609) 984-5874; AIDS/HIV Hotline (800) 624-2377; STD Program (609) 826-4869.

**VACCINE-PREVENTABLE OUTBREAKS**

We have record or near-record low levels of vaccine-preventable childhood diseases in New Jersey, but that does not mean these have disappeared.

If you suspect the outbreak is vaccine-preventable, your LHD must call the NJDOH Communicable Disease Service at (609) 826-5964 during state business hours, or (609) 392-2020 after hours.

**VECTORBORNE OUTBREAKS**

Vectorborne diseases are transmitted by the bite of an infected arthropod (e.g., mosquitoes, ticks, fleas, lice), and may be caused by viruses, bacteria, parasites, or protozoans.

Arboviral diseases are viral diseases transmitted by the bite of an infected mosquito or tick. Cases of these diseases must be reported within 24 hours of clinician diagnosis and 72 hours of laboratory identification.

- West Nile virus (WNV) and Eastern equine encephalitis (EEE) are routinely identified in New Jersey.
- Dengue (DEN) cases are reported annually in residents returning from international travel or domestic exposure in Florida and Puerto Rico.
- Chikungunya (CHIKV) cases are reported every few years in residents traveling to Europe and Asia.
- St. Louis encephalitis (SLE) and LaCrosse encephalitis (LAC) have been reported from states in the central and south-central U.S.
- Yellow fever may occur in travelers to sub-Saharan Africa and South America.
- Powassan virus (POW) is the only arbovirus that is transmitted by a tick rather than a mosquito. Historically, POW cases were identified in Canada and the northern U.S., but in the past few years, cases have been reported in the lower Hudson Valley in New York.

Another reportable mosquito-borne disease is malaria. Malaria, which is caused by a parasite rather than a virus, occurs primarily in sub-Saharan Africa and parts of northern South America, southern Asia, and Indonesia.

**VECTORBORNE OUTBREAKS – EXTENDED RESOURCE**

An extended version of this guidance on vectorborne outbreaks in New Jersey can be found in Appendix T3.
Infected ticks can transmit bacterial and protozoan reportable diseases such as:

- Babesiosis;
- Ehrlichiosis / Anaplasmosis;
- Lyme disease;
- Tularemia; and
- Rocky mountain spotted fever (RMSF).

Mosquito-borne diseases such as WNV and EEE are endemic in New Jersey, and there is no standardized threshold or expected number of cases that would constitute an outbreak.

- Geographic clusters of WNV may occur; LHDs should investigate clusters immediately to reduce the risk of additional cases in a given area.
- EEE is the most severe of the endemic mosquito-borne diseases in the country; human cases are rare, so even a single human case would warrant immediate investigation and communication between the local health department, NJDOH, and state and local mosquito control agencies.

Your public health investigations of WNV and EEE cases and clusters include obtaining information on clinical presentation, lab testing, and detailed history of outdoor exposures. Your local health department should coordinate with the NJDOH Vectorborne Disease Program and county mosquito control agencies to evaluate suspected cases and clusters promptly. It is therefore important that you maintain working relationships with and routinely communicate with NJDOH and your county mosquito control agencies throughout the WNV and EEE season.

Local health department investigations of non-endemic mosquito-borne diseases (DEN, CHIKV, SLE, LAC, yellow fever, and malaria) allow public health and mosquito control professionals to recommend prevention measures that minimize the possibility of an infected traveler transmitting the pathogen to local mosquitoes and posing a risk of autochthonous (local / regional) transmission of an imported mosquito-borne disease in New Jersey. As such, case investigations for mosquito-borne diseases should remain a priority, even though outbreaks rarely occur.

Similar to mosquito-borne diseases, many tick-borne diseases are endemic in New Jersey, and there is no specific threshold of cases that would constitute an outbreak. Geographic clusters may occur and should be investigated to identify any changes in risk factors or expanded range of existing vectors.

Some mosquito- and tick-borne diseases may be transmitted through contaminated blood transfusion or organ transplantation. Although this route of infection is rare, you should evaluate reported cases in a timely manner, especially if exposure occurred off-season or in an individual with no outdoor activity.

- WNV and malaria are two of the mosquito-borne diseases that may be transmitted via contaminated blood transfusion or organ transplantation.
- Lyme disease, babesiosis, anaplasmosis, and ehrlichiosis are tick-borne diseases that may be transmitted via contaminated blood transfusion or organ transplantation.

If your department suspects that a person may have been infected through a blood or organ product, the local health department must contact the NJDOH Vectorborne Disease Program immediately at (609) 826-5964 during state business hours or at (609) 392-2020 on nights, weekends and holidays. NJDOH staff will coordinate with you to conduct a trace-back investigation and quarantine any associated products that may be present.
WATERBORNE OUTBREAKS

A waterborne disease outbreak is an incident in which two or more people experience a similar illness after exposure to the same water source AND epidemiologic evidence implicates the water as the likely source of the illness.

Etiologic agents of waterborne disease outbreaks can be grouped into four categories:

- **BACTERIA:** These include *Shigella* spp., Shiga toxin-producing *Escherichia coli*, *Campylobacter* spp., *Salmonella* spp. (including *Salmonella typhi*), and *Vibrio* spp. (including *Vibrio cholerae*) that cause gastrointestinal symptoms, as well as other uncommon agents such as *Legionella*, *Leptospira*, *Mycobacterium* spp., and *Pseudomonas*.

- **VIRUSES:** These include hepatitis A virus and norovirus; historically poliovirus caused gastrointestinal symptoms.

- **PARASITES:** These include *Cryptosporidium* and *Giardia* causing gastrointestinal symptoms. Amoeba include *Entamoeba histolytica*, parasitic worms such as *Schistosoma* (causing schistosomiasis), and endemic trematodes (causing cercarial dermatitis – swimmer’s itch).

- **NONINFECTIOUS AGENTS:** These include cyanobacteria (blue green algae) toxins, copper, nitrates, and various chemicals causing contamination of floodwaters. Symptoms depend on the agent.

MODES OF TRANSMISSION

Waterborne disease agents are transmitted through water, but many agents can also be transmitted through other routes, such as food, inhalation, animal contact, or direct person-to-person contact. Ingestion and skin contact are typical routes of entry.

A waterborne disease outbreak may initially be investigated as a foodborne outbreak, or vice versa. The point of contamination determines whether an outbreak is foodborne or waterborne.

SYMPTOMS

Waterborne disease agents may cause gastrointestinal, skin, or, less commonly, respiratory or systemic illness. Symptoms may include:

- Abdominal cramps;
- Vomiting;
- Diarrhea (mucous-containing);
- Hives;
- Rashes;
- Irritated eyes;
- Sore throat;
- Pneumonia; and
- Systemic illness.

Waterborne outbreak investigations will vary greatly depending on the source. Even a single case of legionellosis occurring in a health care facility or institutional/communal setting, or during travel, warrants a special investigation.
TYPES OF WATER EXPOSURE

- **RECREATIONAL WATER, TREATED**: Swimming pools, interactive fountains, water slides, spas, whirlpools, and hot tubs.
- **RECREATIONAL WATER, UNTREATED**: Lakes, rivers, streams, hot springs, and ocean beaches.
- **DRINKING/BATHING WATER**: Tap water, well water, bottled water, and contaminated water served as ice or in a beverage.
- **OTHER WATER**: Water used in decorative or display fountains, grocery store misting devices, cooling towers, and agricultural or industrial uses.

WATERBORNE INVESTIGATION STEPS

In addition to the outbreak investigation steps outlined in Part 3 of this manual, if you suspect the outbreak is related to a waterborne agent, you should:

1. **Gather Information**

   A. Interview each individual (case) to ascertain their activities and water consumption, and any meals/drinks shared during at least the 72 hours prior to getting sick. Note that some agents have longer incubation periods and thus require collection of a longer period of food and drink history.

   B. If the individual had been traveling, find out the locations visited, the person’s water consumption, and their recreational water exposure. For travel involving cruise ships or hotels/motels, record dates, name of ship or hotel and room, and use of pools, spas, hot tubs, or other recreational water sites.

   C. Collect the names, addresses, phone numbers, and other contact information for anyone else who might be involved in the outbreak (whether sick or not), including the coordinator of a group activity, if applicable.

INVESTIGATION QUESTIONS TO CONSIDER:

- Did people from different households get sick following exposure to the same water, or after visiting the same recreational facility?
- Are all the illnesses similar and consistent to those caused by a waterborne disease agent?
- Is the number of illnesses more than what would be expected in this group of people and in the population as a whole?
- Are there reports of potentially associated cases from related sources?
- Are there common exposures other than water (e.g., food, personal or occupational contact) that could explain transmission?
- Does demographic information (age, ethnicity, etc.) suggest a common source?
D. Attempt to identify additional cases, if indicated. Methods include calling people potentially exposed to the suspected source (e.g. event attendees, visitors to a recreational site), sending alerts to health providers, requesting specimens from laboratories, and releasing media alerts).

2. **Conduct Field Investigation Based on the Epidemiologic Case Data**

The goals of a joint epidemiologic and environmental outbreak investigation are to identify the infectious agent, the mode of transmission, the water source, and the source of the contamination.

- Consider the likely infectious agent based on symptoms and incubation period. The source of exposure might also suggest an agent (e.g., fresh water organism vs. marine organism).
- Consider likely modes of transmission for that agent to focus your environmental investigation.
- Obtain the following additional information (as appropriate):
  - Were there any unusual circumstances just before the outbreak began that could have contaminated water, such as a power outage, water backup, or other equipment failures?
  - Were there any unusual weather circumstances just before the outbreak began (e.g., heavy rains, flooding)?
  - Were any water recreation staff members ill during the incubation period of the suspect waterborne agent? When did they become ill? With which water sources did they work?
  - Did staff involved with the water source ingest or have direct contact with the water they work with?

3. **Implement Immediate Control Measures**

Based on the circumstances, you may implement one or more of these measures:

- Issue a boil water order.
- Post warnings at a lake or other natural bathing beach.
- Close a facility.
- Recall a product like bottled water.
- Issue a press release to advise citizens who may develop symptoms.

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**BIOTERRORISM**

If you suspect a bioterrorism event, your LHD must immediately notify the NJDOH at (609) 826-5964, or (609) 392-2020 after hours. In the case of a bioterrorism event, the State Emergency Operations Plan may be activated, at which time state or federal authorities will provide health officers with instructions and information on how to proceed.
**ZOONOTIC OUTBREAKS**

Zoonotic diseases are spread between animals and humans. They are caused by bacteria, viruses, parasites, and fungi carried by vertebrate and invertebrate animals. People can get zoonotic diseases through contact with various types of infected animals, such as:

- Domestic animals;
- Wild animals;
- Chickens and other livestock;
- Mosquitoes;
- Rodents; and
- Ticks.

**INVESTIGATING RABIES CASES**

Rabies, a viral disease transmitted primarily through the bite of a rabid animal, is prevalent in New Jersey’s raccoon and bat populations. Raccoons account for 75 percent of the animals confirmed to be rabid through laboratory testing in New Jersey, but bats, skunks, foxes, and groundhogs are also commonly infected.

All rabies testing is performed by the NJ State Public Health and Environmental Laboratory (PHEL), and results of animal testing are automatically faxed to Health Officers. Make sure your department provides a current fax number to the PHEL, and that all of your samples are accompanied by a submission form that correctly lists your health department.

1. Upon receiving a report of a “positive” or “unsatisfactory for testing” result, investigate immediately to identify and notify all people who were bitten or exposed (or potentially exposed) to the animal. Specimens that are unsatisfactory for testing should generally be handled as rabid; people who are exposed or potentially exposed to a rabid or suspected rabid animal should be directed to consult with a physician about the need for post-exposure prophylaxis (PEP), while those bitten by a rabid or suspected rabid animal should be given PEP immediately.

**HUMAN EXPOSURE TO RABIES**

The NJDOH estimates that 2,000 New Jersey residents receive post-exposure prophylaxis (PEP) annually due to exposure to rabid or suspect rabid animals. The decision to initiate PEP must be made promptly, ranging from within 24 hours of exposure for bites to the face to within 10 days for domestic animals under observation and not displaying clinical signs of rabies. The incubation period ranges from 12 days to 6 months or more, but most people become ill one to three months after exposure. Once symptoms of rabies develop in an infected person, the disease is almost always fatal.

Animal control officers, veterinarians, veterinary technicians, feral cat caregivers, and anyone else who regularly works with animals should consider pre-exposure immunization. See “Rabies” at the NJDOH CDS disease/health topics site at Appendix Link 2.
2. Interview the involved parties to identify any domestic animals that may have been in contact with the rabid animal.
   - Pets that were exposed must be confined/observed for either 45 days or six months, based on NJDOH guidelines.
   - If livestock (e.g., horses, cows, sheep) were known to be exposed or are suspected of it, notify the NJ Department of Agriculture at (609) 671-6413.

3. If the public health is at risk due to a rabid animal that may have been in contact with a large number of people or domestic animals, it may be appropriate to release information to the local media, deliver information door-to-door, and/or post information in areas where people and pets may be at risk.

4. If you identify a cluster of rabid animals, it may also be appropriate to release information to the local media and provide information to residents in that area about how to reduce their risk. Rabies prevention information is available on the NJDOH CDS disease/health topics website at Appendix Link 2.

INVESTIGATING ZOONOTIC DISEASE CASES IN PETS

Domestic companion animals (DCAs) are defined as any domestic dog, cat, ferret, bird, reptile, rodent, rabbit not raised for food or fiber, or other animal kept primarily as a household pet for personal appreciation and companionship. This includes feral cats and dogs.

Livestock and poultry (e.g., horses, cattle, sheep, chickens) are not domestic companion animals; refer reports of zoonotic infections involving them to the New Jersey Department of Agriculture at (609) 671-6413.

1. A report of an unusual number of cases of zoonotic disease in domestic companion animals or an illness cluster may be indicative of an outbreak and should be investigated by the local health department. You will receive reports of cases/outbreaks from veterinarians, animal control officers, and animal facility managers by telephone, fax, or mail.

2. Determine whether there are human cases or exposures epidemiologically linked to the animal cases.

3. If you suspect a bioterrorism event, immediately notify the NJDOH at (609) 826-4872 during working hours and at (609) 392-2020 on nights, weekends, and holidays.

4. Consult veterinary practitioners regarding outbreak remediation measures, the diagnosis, and the medical status of potential cases. Case definitions for each reportable disease are posted on the NJDOH CDS disease reporting requirements/regulations webpage (Appendix Link 10) to help you classify cases.

5. The LHD must work with reporting entities to complete Zoonotic Disease Incident Reports and then provide them to the NJDOH, along with line listings of animal cases. Forms are posted on the NJDOH CDS forms webpage at Appendix Link 18. To submit line listings and report forms, email them to zoonoticrn@doh.state.nj.us, or call the NJDOH at (609) 826-4872 and follow instructions for faxing to (609) 826-4874.
COMMUNICATION BEFORE, DURING, AND AFTER OUTBREAKS

To keep information consistent, minimize rumors, and to help maintain a good working relationship beyond the outbreak, it’s important to have a communication plan ready to go when an outbreak occurs.

COMMUNICATE WITH PARTNERS

CONTACT THE NJDOH FOR COMMUNICATION ADVICE

LHD staff can reach the NJDOH by phone at (609) 826-5964 during state business hours or at (609) 392-2020 on nights, weekends, and holidays. You will be assigned an NJDOH outbreak epidemiologist, who will serve as consultant. If your LHD is developing a press release, coordinate with your NJDOH outbreak epidemiologist to ensure that media messages are consistent and that both agencies are prepared to answer questions from the media and the public.

CONTACT OTHER LHDs, IF NEEDED

To reach other LHDs, you can send a Health Alert Network (HAN) message on LINCS or check the state Red Book database for around-the-clock contact information of health department personnel. Remember to keep your own LHD’s Red Book information current.

COORDINATE WITH STATE/LINCS DURING LARGE OUTBREAKS

During a large outbreak, LHDs should work with their LINCS agency’s Health Educator/Risk Communicator (HERC) and, depending on the size/severity of the event, the NJDOH, to identify communication strategies that best fit the event.

All LINCS agencies have all-hazards risk communication plans ready to go in the event of a large-scale public health emergency. Use pre-developed messages for various bioterrorism and other public health emergencies so that all public health agencies are communicating with the public in a clear and consistent manner.

Review your all-hazard risk communication plans before an event occurs.
CRISIS AND EMERGENCY RISK COMMUNICATION (CERC)

*CERC is the attempt by public health professionals to provide information that allows individuals, stakeholders, and entire communities to make the best possible decisions for their well-being during a crisis or emergency. CERC includes communicating to these groups regarding decisions made by response organizations within nearly impossible time constraints. CERC principles teach us to accept the imperfect nature of choices as the situation evolves.*

— Centers for Disease Control and Prevention

While communication is often a big hurdle because of time constraints and staffing issues, providing information to the public and leaders during a communicable disease outbreak or other public health emergency is an essential part of your response.

The public hears, processes, and remembers information differently during times of stress, so you must alter your communication approach. Research shows that a person can comprehend only three messages at a time during times of high stress.

CERC SIX PRINCIPLES

Crisis and Emergency Risk Communication version 2.0 (2012) defines the six principles of effective crisis and risk communication:

1. **BE FIRST**: The first source of information often becomes the preferred source for people. Even if the situation is still evolving and much is unknown, let the public know that your agency is working to get answers/information at the start of a response/incident.

2. **BE RIGHT**: Accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps.

3. **BE CREDIBLE**: Honesty and truthfulness should not be compromised during crises. Once credibility is lost, it is difficult (and sometimes impossible) to regain.

4. **EXPRESS EMPATHY**: Crises create harm, and the suffering should be acknowledged in words. Addressing what people are feeling, and the challenges they face, builds trust and rapport.

5. **PROMOTE ACTION**: Giving people meaningful things to do calms anxiety, helps restore order, and promotes a sense of control. When possible, provide the public with positive, active steps they can take to protect themselves and their loved ones.

6. **SHOW RESPECT**: Respectful communication is particularly important when people feel vulnerable. Respectful communication promotes cooperation and rapport.

PROTECT CONFIDENTIALITY

As per N.J.A.C. 8:57-1.14:

- Reports shall **only** be used by the local health department, NJDOH and other agencies as designated by the Commissioner of Health.

- Information may be disclosed in statistical form that **does not disclose the identity of the individual**.
PREPARING THE LHD’s PUBLIC STATEMENT

As a first step to preparing your LHD’s public statement about the outbreak:

- Assemble the facts into bullet points.
- Identify what you don’t know.
- Develop simple messages (avoid using jargon or acronyms).

Address these questions as you prepare:

- Who is your audience?
- What do they already know?
- What do they need to know?
- What is your department doing to get the answers about what is unknown?
- What do you want your audience to do?
- Where can they get more information?

Before issuing a press release or conducting a press conference or media interview, review your statements and information with the NJDOH and other agencies participating in the investigation and response. It is important that public health messages be consistent and accurate.

LHD SPOKESPERSON RESPONSIBILITIES

- Know your organization’s policies.
- Stay within the scope of responsibilities.
- Tell the truth. Be transparent.
- Embody public health’s goals to promote health and prevent disease in the community.

PREPARING FOR A MEDIA INTERVIEW

Be ready to answer these questions:

- Are my family and I safe?
- What can I do to protect my family and myself?
- Who is in charge here?
- What can we expect?
- Why did this happen?
- Were you forewarned?
- Why wasn’t this prevented?
- What else can go wrong?
- When did you begin working on this?
- What does this information mean?
Practice staying on message:

- “What’s important is to remember…”
- “I can’t answer that question, but I can tell you…”
- “Before I forget, I want to tell your viewers…”
- “Let me put that in perspective…”

**HOW TO HANDLE A MEDIA INTERVIEW**

Three key interview tips:

1. Ask beforehand what the story is about, who else is involved, and your role.
2. State important points first and keep answers short and simple.
3. Keep in mind that how you look and sound can be as important as what you say.

Remember:

- Speak slowly and clearly.
- Think before you answer.
- Keep to the facts.
- Only discuss your area of expertise.
- If you don’t know the answer, say so.
- If you can’t answer, explain why.
- Assume everything is “on the record.”
- Maintain eye contact with the reporter(s).
- Be firm, fair, and honest.
- Be professional.
- Use transition statements to return to your message.

**WHAT NOT TO DO IN AN INTERVIEW:**

- Lie, guess, or speculate;
- Get upset or angry;
- Use acronyms or jargon;
- Discuss confidential information;
- Discuss information beyond your expertise;
- Repeat negative words from questions; or
- Say “no comment.”
ACRONYMS

CDC     Centers for Disease Control and Prevention
CDS     Communicable Disease Service
CDRSS   Communicable Disease Reporting and Surveillance System
DCA     Domestic Companion Animals
E. coli Escherichia coli
Epi Info Epidemiology Information
FDSP    Food and Drug Safety Program
HAN     Health Alert Network
ICS     Incident Command System
ILI     Influenza-like Illness
IZDP    Infectious and Zoonotic Disease Program
LINCS   Local Information Network Communication System
LHD     Local Health Department
MRSA    Methicillin-Resistant Staphylococcus aureus
N.J.A.C. New Jersey Administrative Code
NJACCHO New Jersey Association of County and City Health Officials
NJDOH   New Jersey Department of Health
NJLMN   New Jersey Learning Management Network
NORS    National Outbreak Reporting System
OSHA    Occupational Safety & Health Administration
PHEL    NJDOH Public Health and Environmental Laboratories
PPE     Personal Protective Equipment
WHO     World Health Organization
APPENDIX LINKS

Additional guidance can be found on following websites, which can be accessed at njlmn2.rutgers.edu/exchange/njaccho-outbreak-investigation-manual

Appendix Link 1:  NJDOH Communicable Disease Service home page
Appendix Link 2:  NJDOH Communicable Disease Service disease/health topics
   (the online version of the former NJDOH Communicable Disease Manual)
   Note that there are three tabs per topic: General, Technical Info, and More Info.
Appendix Link 3:  NJDOH Communicable Disease Reporting and Surveillance System (CDRSS)
Appendix Link 4:  New Jersey Local Information Network Communications System (LINCS)
Appendix Link 5:  CDC Excite! Glossary of Epidemiology Terms
Appendix Link 6:  CDC Epi Info 7 free software (for outbreak databases)
Appendix Link 7:  CDC Foodborne Diseases Surveillance and Outbreak Investigation Toolkit
Appendix Link 8:  NJDOH Communicable Disease Service Outbreaks in School and Daycare Settings
Appendix Link 9:  NJDOH Division of HIV/AIDS, STD, and TB Services
Appendix Link 10:  NJDOH CDS disease reporting requirements / regulations webpage
Appendix Link 11:  CDC National Outbreak Reporting System (NORS) webpage
Appendix Link 12:  CDC National Outbreak Reporting System (NORS) forms and guidance
Appendix Link 13:  OSHA Healthcare Wide Hazards (Lack of) Universal Precautions
Appendix Link 14:  I is for Investigation: Outbreak investigation methods from mystery
to mastery, online and CD-ROM training series from the University
of North Carolina Center for Public Health Preparedness
Appendix Link 15:  NJDOH Infectious and Zoonotic Disease Program webpage
Appendix Link 16:  NJDOH Public Health and Environmental Laboratories directory

LINKS TO NJ DOH FORMS

Appendix Link 17:  NJDOH general forms
Appendix Link 18:  NJDOH Communicable Disease Service forms
Appendix Link 19:  NJDOH state laboratory forms
APPENDICES

Additional guidance can be found in the following documents, which can be downloaded at njlmn2.rutgers.edu/exchange/njaccho-outbreak-investigation-manual


Appendix B: Communicable Disease Control in Emergencies – A Field Manual, World Health Organization, 2005. (PDF, 308 pages)

Appendix C: Foodborne Disease Outbreaks: Guidelines for Investigation and Control, World Health Organization, 2008. (PDF, 162 pages)

Appendix D: Selected New Jersey Communicable Disease Regulations (includes list of NJ reportable communicable diseases), June 2013. (Word and PDF, 10 pages)

Appendix E: NJDOH disease reporting quick reference materials

- Appendix E1: Magnet – Reporting Requirements for Communicable Diseases and Work-Related Conditions (PDF)
- Appendix E2: Wallet card – Reporting Requirements for Communicable Diseases and Work-Related Conditions (PDF)
- Appendix E3: Tip card – Communicable Disease Reporting (PDF)
- Appendix E4: Brochure – Reporting Communicable Diseases to Protect the Public’s Health (PDF)
- Appendix E5: Veterinary magnet: Reporting Requirements for Communicable Diseases in Domestic Companion Animals (PDF)
Appendix F1: Outbreak Investigation Team Roles and Responsibilities, NJACCHO Communicable Disease Outbreak Manual, June 2013. (Word and PDF, 10 pages)

Appendix F2: Outbreak Team Members Listing Template. (Word, single page)

Appendix G: Supplies Checklist, NJACCHO Communicable Disease Outbreak Manual, June 2013. (Word and PDF, 2 pages)

Appendix H: Forms used during an outbreak investigation
(Links to all NJDOH forms can be found at Appendix Links 17 to 19)

- Appendix H1: Communicable Disease Report Form (PDF)
- Appendix H2: Gastrointestinal Foodborne Illness Case Report Worksheet (Word and PDF)
- Appendix H3: Food-Specific Attack Rate Worksheet (Word and PDF)
- Appendix H4: Respiratory Tract Infection Line List (Word and PDF)
- Appendix H5: Gastrointestinal Patient Symptoms Line List (Word)
- Appendix H6: Student Symptom Line List (Word and PDF)
- Appendix H7: Generic Outbreak Case Tracking Line List (Word and Excel)
- Appendix H8: Salmonella STEC (including E. coli O157:H7) Questionnaire (Word and PDF)
- Appendix H9: Zoonotic Disease Incident Report (PDF)

Appendix I: Guidelines for the Control of Respiratory Outbreaks in Long-Term Care and Other Institutional Settings, NJDOH CDS, November 2011. (PDF, 12 pages)

Appendix J: Guidelines for the Control of Gastroenteritis Outbreaks in Long-Term Care and Other Institutional Settings, NJDOH CDS, November 2011. (PDF, 9 pages)
Appendix K: Guide to Infection Prevention for Outpatient Settings, CDC. (PDF, 17 pages)

Appendix L: Infection Prevention Checklist for Outpatient Settings, CDC. (PDF, 16 pages)

Appendix M: Interviewing Techniques
From I is for Investigation: Outbreak investigation methods from mystery to mastery, online and CD-ROM training series from the University of North Carolina Center for Public Health Preparedness (see Appendix Link 14)

- Appendix M1: Session Overview (Word, single page)
- Appendix M2: Discussion Guide (Word, 3 pages)
- Appendix M3: PowerPoint presentation (PPT, 53 slides)

Appendix N: Public Health Incident Command System (ICS)

- Appendix N1: ICS Outbreak Response Template, NJDOH (chart, single page)
- Appendix N3: PHICS (Public Health Incident Command System) Volume 1 – A Guide for the Management of Emergencies or Other Unusual Incidents within Public Health Agencies, 2005 (PDF, 44 pages)

Appendix O: Universal Respiratory Precautions poster (PDF, single page)
Appendix P: Case Studies in Journals


- Appendix P2: Response to U.S. Foodborne Illness Outbreaks Associated With Imported Produce, Linda Calvin, US Department of Agriculture, February 2004. (PDF, 2 pages)


Appendix Q: Sample Final Reports

- Appendix Q1: NJDOH CDS Outbreak Reporting Format and Sample Final Report (gastrointestinal at baby shower). (PDF, 11 pages)

- Appendix Q2: NJDOH CDS Outbreak Report for Long Term Care and Other Institutions (possible norovirus at long-term care facility). (PDF, 18 pages)

- Appendix Q3: NJDOH CDS Outbreak Reporting Format and Sample Final Report (respiratory outbreak at rehab/long term care facility) (PDF, 16 pages)

Appendix R: Blank Final Report Templates

- Appendix R1: NJDOH CDS Outbreak Report for Long Term Care and Other Institutions. (Word form, 6 pages)

- Appendix R2: NJDOH CDS Outbreak Reporting Format and Sample Final Report. (Word form, 9 pages)
Appendix S: School Outbreaks

- Appendix S1: NJDOH CDS General Guidelines for the Control of Outbreaks in School and Daycare Settings. (PDF, 15 pages)
- Appendix S2: Student Symptom Line List (Word and PDF)

Appendix T: Extended Guidance for Specific Outbreaks

MRSA

- Appendix T1: Extended Outbreak Investigation Guidance for Community-Acquired MRSA, NJACCHO Communicable Disease Outbreak Manual, June 2013. (Word and PDF, 4 pages)
  - Attachment T1.1: MRSA Correctional Facility Linelist (Word)
  - Attachment T1.2: MRSA General Linelist (Word)
  - Attachment T1.3: MRSA School Linelist (Word)

Health care-Associated Infections

- Appendix T2: Extended Outbreak Investigation Guidance for Health care-Associated Infections, NJACCHO Communicable Disease Outbreak Manual, June 2013. (Word and PDF, 12 pages)
  - Attachment T2.1: Outbreak algorithm – Report of Immediately Reportable Outbreak, Incident or Situation Received by LHD (Word)
  - Attachment T2.2: Outbreak algorithm – Investigation of Possible Healthcare Transmission of Bloodborne Pathogens (Word and PDF)
  - Attachment T2.3: Bloodborne pathogen as Table (Word)
  - Attachment T2.4: Bloodborne pathogen as Text (Word)
  - Attachment T2.5: Management of Infection Control Breaches in Health Care Settings (.pub)

- See also guidelines for outbreaks in health care facilities and other institutions for respiratory illness (Appendix I), gastrointestinal illness (Appendix J), and scabies (available in draft form from the NJDOH at (609) 826-5964).

Vectorborne Diseases

- Appendix T3: Extended Outbreak Investigation Guidance for Vectorborne Diseases, NJACCHO Communicable Disease Outbreak Manual, June 2013. (Word and PDF, 5 pages)
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NEW JERSEY ASSOCIATION OF COUNTY AND CITY HEALTH OFFICIALS

PROTECTING NEW JERSEY PUBLIC HEALTH SINCE 1911

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As custodians of public health, NJACCHO members address many issues, including communicable disease prevention, chronic illness, maternal and child health, and environmental health. Public health departments also plan for and respond to disease epidemics, natural disasters and other public health emergencies, including health-related consequences of a terrorist act.

Informing and educating the people in our communities is an important part of what we do. The NJACCHO supports its members’ communication efforts by offering resources to members and to the general public.

We invite you to visit our website to learn more about public health issues, health emergency preparedness planning, and best practices. You’ll find informative videos, downloadable brochures and reports, and links to other useful sites.

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