

**LAC+USC MEDICAL CENTER
DEPARTMENT OF INFECTION PREVENTION AND CONTROL
POLICIES AND PROCEDURES**

Subject: Outbreak Investigation & Management Policy	Original Issue Date: 5/1991	Effective Date: June 2022
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POLICY STATEMENT

Investigation of outbreaks and exposures to prevent spread of a communicable disease is an integral part of hospital infection control. An outbreak is defined as a significant increase in the rate of a certain infection above the typical norm for a specific location, site, time and/or organism. Outbreaks are detected through surveillance, notification by the microbiology lab, and reports from alert clinicians and nurses, among other sources. Responsibility for coordinating the investigation and management of outbreaks of healthcare-association infections shall lie with the Department of Infection Prevention and Control with measures that will be instituted as necessary and with Delegation of Authority of the Chief Medical Officer as outlined in the Infection Control Statement of Authority (Policy # IC-1).

In cases where it may be necessary to request the assistance of the Los Angeles County Department of Public Health, California Department of Public Health (CDPH), and/or the Centers for Disease Control (CDC), oversight is deferred to the relevant organization. Participation of additional hospital departments may be necessary to attain control of an outbreak.

PROCEDURES

I. THRESHOLDS FOR OUTBREAK INVESTIGATION

Case thresholds, as outlined below, shall be established to provide a minimum standard for investigation of infectious outbreaks. When case numbers exceed a threshold, intensified evaluation of potential aspects of care related to an outbreak will be initiated. A threshold or benchmark is set for all infection-related data in the Department of Infection Prevention & Control's infection surveillance activities. Thresholds are used in monthly surveillance data analysis to determine deviations from standard or baseline infection rates.

Thresholds prompting intensified investigation of an unusual healthcare-associated infection or pathogen are set as follows:

- A. Three (3) or more cases within a two-week period with the same infection type or organism, occurring on the same unit, area, or clinical service
- B. Any identified Airborne Transmissible Disease (e.g. even a single case of measles). Refer to the Airborne Transmissible Disease (ATD) Policy #IC-50 for further details regarding investigation of identified cases of ATDs.

When infection rates and/or case numbers exceed thresholds or historic norms, additional action is taken to reduce further spread. Healthcare-associated infections are closely monitored for at least one month after a threshold or historic norm is exceeded with additional review and intervention as required.

Thresholds are reviewed at least annually by the Infection Control Committee, and are revised as necessary, to ensure that they are set appropriate levels.

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II. RESPONSIBILITIES

A. Infection Preventionists

As soon as it is apparent that a threshold for infection case rates is exceeded, the Infection Preventionist (IP) assigned to the area in question will closely monitor the situation and/or initiate an investigation. If the situation requires monitoring only (for example an isolated cluster of cases not meeting Public Health reporting criteria) the IP will alert all caregivers and persons involved. If the situation requires a formal investigation, the IP will follow the investigation procedure outlined below. In all cases, whether monitoring or investigation is warranted, the IP will:

1. Review the data & details of the situation to identify the problem as specifically as possible
2. Inform the Infection Control Committee Chairperson and Hospital Epidemiologist of the situation
3. Inform the appropriate hospital staff
4. Inform the Office of Regulatory Affairs, as warranted
5. Inform County & State Health Departments as appropriate, after consulting with Regulatory Affairs

Should a formal outbreak investigation be warranted, the assigned IP will initiate Investigation Procedures as outlined in Section III.

B. Hospital Epidemiologist

When informed of a cluster or potential outbreak of an infectious disease, the Hospital Epidemiologist will:

1. Consult with other authorities (including for example, LA County or California Departments of Public Health) as necessary to assist with compiling relevant epidemiologic information.
2. Assist the Infection Preventionist in developing a case definition and defining exposure periods
3. Oversee the overall departmental and organizational response to the outbreak

III. OUTBREAK INVESTIGATION PROCEDURES

When a specific outbreak or case is determined to require formal investigation, the assigned Infection Preventionist will perform the following.

- A. **Inform the Hospital Epidemiologist** of the problem and provide progress updates on a timely basis throughout the duration of the investigation
- B. **Begin a basic description** of the investigation by writing up a description of the problem including:
 - Date the threshold was first exceeded or first case detected
 - Clinical sites/areas/units involved
 - Severity/extent of the problem
- C. **Develop a case definition** containing all necessary elements as below. Generally, initial case definitions will necessarily be broad and should be refined as the investigation progresses.

Who	characteristics of the population in which the disease or symptoms are occurring
What	the pathogen, site, and/or clinical signs and symptoms for a disease of unknown etiology
Where	geographic location of the problem: <i>where is the problem occurring in the hospital</i>
When	how long the problem has been occurring
Why	any noticeable breaches in infection control or other protective procedures

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D. **Inform appropriate individuals** within the affected areas and organization

E. **Implement interim control measures** in conjunction & consultation with the Hospital Epidemiologist, identify and implement appropriate measures to mitigate and reduce further transmission. For all of the following measures, discussion with and communication to appropriate leadership from the affected unit/service and where relevant, Regulatory Affairs, regarding specific control measures is crucial. Depending on the situation, control measures may consist of any of the following:

Potential Outbreak Investigation and Control Measures

- Providing education on specific, pre-existing environmental, patient care, or Employee Health practices through training programs or other instructional methods
- Instituting more stringent barrier techniques
- Cohorting patients, room assignments, or work assignments
- Revision or development of new policies and procedures
- Facilitating hospital discharge of infectious & susceptible patients as soon as possible
- Closing a unit or service to further admissions
- Removing a particular commercial product from use and circulation
- Placing patients within a unit into protective isolation
- Initiation of laboratory testing among potentially exposed persons within the unit
- Stopping specific procedures (e.g., clean, elective surgery).

In the rare instance where an outbreak involves the need for two or more investigations, priority will be assigned as follows (in descending order with the most urgent factor listed first):

1. Situations involving high mortality or morbidity
2. Situations involving a large number of cases occurring in a short period of time
3. Situations involving an unusual pathogen

F. **Perform a case search** for additional cases meeting the case definition. Start dates of an investigation outbreak will vary depending on the type of infection being investigated.

G. **Collect and record data on all cases.** In some circumstances, data collection forms may be provided and specifically formatted. Information gathered generally consists of both demographic and risk factor data. Line listings, epidemic curves or other methods of organizing data may be used.

H. **Develop an integrated hypothesis** for the agent, source, and mode of transmission. If the agent is unusual or unknown, local Public Health or the state health department may be consulted after conferring with the Infection Control Committee and Hospital Epidemiologist. The hypothesis should reflect all the data in relation to each other.

I. **Test the hypothesis**, if feasible. Use the following methods, as appropriate.

- Case-control study.
- Selective laboratory testing (if indicated) including culture or other diagnostics
- Direct observation of patient care and/or cleaning/disinfecting techniques.
- Interviewing team members in affected areas

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IV. EVALUATION OF CONTROL MEASURES

After implementation of interim control measures during the initial outbreak procedures as outlined in Section III, and when more information is available regarding the extent of the outbreak, it is important to subsequently re-evaluate the need for ongoing control measures. Modify or discontinue interim control measures based on results of the investigation. Obtain prior approval as appropriate. Inform appropriate patient care personnel and ensure that any ongoing control measures are correctly implemented.

Additional aspects of control measure evaluation may include:

- Comparative analysis of data collected since implementation of control measures vs. prior to implementation (e.g. determination of control measures' efficacy)
- Determination of time interval since development of last case and comparison to organism's known incubation period.
- Culture or other diagnostic testing methods of potentially exposed patients, healthcare workers, or environmental specimens.
 - Note: for healthcare worker exposures, refer to relevant policies including the ATD Policy or the Bloodborne Pathogen Exposure policy.
 - Note: for details on environmental sampling (e.g. air or water sampling) please refer to the Environmental Microbiologic Sampling policy

The Infection Control Committee will be informed of all control measures instituted during any outbreak investigation. When the monitored data on infection rates return to baseline levels, a written report will be prepared, including chronological events of the investigation control measures instituted and evaluation of their effectiveness.

REFERENCES

1. LAC+USC Medical Center Infection Prevention & Control Plan
2. Infection Prevention & Control Policy: "Airborne Transmissible Disease Exposure Control Plan"
3. Infection Prevention & Control Policy: "Environmental Microbiologic Sampling"