



## **Infection Surveillance - Overview**

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### **Purpose**

Infection prevention begins with ongoing surveillance to identify infections that are causing, or have the potential to cause, an outbreak. The facility closely monitors all residents who exhibit signs/symptoms of infection through ongoing surveillance and has a systematic method for collecting, consolidating, and analyzing data concerning the frequency and cause of a given disease or event, followed by dissemination of that information to those who can improve the outcomes.

The intent of surveillance is to identify possible communicable diseases or infections before they can spread to other persons in the facility. In addition, surveillance is crucial in the identification of possible clusters, changes in prevalent organisms, or increases in the rate of infection promptly. The results should be used to plan infection control activities, direct in-service education, and identify individual resident problems in need of intervention.

### **ELEMENTS OF SURVEILLANCE:**

#### **Essential elements of a surveillance system include:**

- Standardized definitions and listings of the symptoms of infections based upon national standards of practice
- Surveillance will be based upon the information from the facility assessment, including the resident population and the services and care provided,
- Use of monitoring tools such as surveys and data collection templates, walking rounds throughout the healthcare facility;
- Identification of resident populations at risk for infection;
- Identification of the processes or outcomes selected for surveillance;
- Statistical analysis of data that can uncover an outbreak; and
- Feedback of results to the primary caregivers and/or practitioners so that they can continually assess the residents' physical condition for signs of infection.

### **Two types of surveillance (process and outcome) implemented in healthcare facilities.**

#### **I. Process Surveillance**

Process surveillance reviews practices directly related to resident care in order to identify whether the practices comply with facility infection prevention and control procedures and policies based on recognized guidelines. Examples of this type of surveillance include but are not limited to:

- Monitoring of compliance with transmission based precautions,

- Proper hand hygiene,
- The use and disposal of personal protective equipment,
- Injection safety,
- Point-of-care testing,
- Urinary catheter care
- Dialysis care
- Management of bloodborne pathogen exposure
- Cleaning and disinfection of products, equipment or environmental surfaces
- Handling, storing, processing and transporting linens according to procedure

## **II. Outcome Surveillance**

The outcome surveillance process consists of collecting/documenting data on individual cases and comparing the collected data to standard written definitions (criteria) of infections. The Infection Preventionist or other designated staff reviews data (including residents with fever or purulent drainage, and cultures or other diagnostic test results consistent with potential infections) to detect clusters and trends and to be able to identify and report evidence of a suspected or confirmed HAI or communicable disease.

Sources of relevant data that can be used for outcome surveillance for infections, antibiotic use and susceptibility may include

- Monitoring a resident with a fever or other signs that may indicate an infection
- Laboratory cultures or other diagnostic test results consistent with potential infections to detect clusters, trends, or susceptibility patterns
- Antibiotic orders,
- Laboratory antibiograms (antibiotic susceptibility profiles),
- Medication regimen review reports,
- Medical record documentation such as physician progress notes and transfer summaries accompanying newly admitted residents.
- Transfer/discharge summaries for new or readmitted residents for infections

The facility's program should choose to either track the prevalence of infections (existing/current cases both old and new) at a specific point or focus on regularly identifying



new cases during defined time periods. When conducting outcome surveillance, the facility may choose to use one or more of the automated systems and authoritative resources that are available, and include definitions.

#### **MONITORING:**

Monitoring the implementation of the program, its effectiveness, the condition of any resident with an infection, and the resolution of the infection are considered an integral part of the healthcare facility surveillance. The healthcare facility monitors tasks (e.g., dressing changes and transmission-based precaution procedures) to ensure consistent utilization of practice standards.

All residents are monitored for the risk of infection and the presence of actual infections. Healthcare facility infection control reports identify the types and severity of the infection. The reports are used to identify trends and patterns.

The facility monitors practices (e.g., dressing changes and transmission-based precaution procedures) to ensure consistent implementation of established infection prevention and control policies and procedures based on current standards of practice. All residents are monitored for current infections and infectious risk.

In addition to monitoring processes and outcomes, the healthcare facility collects data about infections.

#### **The Infection Preventionist (IP) reviews data on a regular basis including:**

- elevations in temperatures,
- purulent drainage,
- culture results or other diagnostic test results consistent with potential infections
- change in X-ray results consistent with possible infection
- increased falls
- changes in mental status
- changes in vital signs

#### **Other sources of relevant data include:**

- medication records of antibiotic orders,
- laboratory cultures and antibiograms (antibiotic susceptibility profiles),
- medication regimen review reports,
- medical record reviews of all new admissions



- pre-admission consideration of all potential admissions with infections,

#### DATA COLLECTION:

1. The unit charge nurses will identify residents with symptoms or identified infections and complete the Criteria for Infection Report Forms for the respective type of infection:
  - a. Urinary Tract Infection
  - b. Respiratory Tract Infection
  - c. Gastrointestinal Tract Infection
  - d. Skin, Soft Tissue and Mucosal Infection
2. The Infection Preventionist or designee will be alerted to identify any necessary interventions and add to the Monthly Infection Control Log for follow up and data collection. The Infection Preventionist will utilize this information to document infection site, type of infection, pathogen if known, signs and symptoms, resident location, etc., in order to identify trends or clusters for action.
3. The Infection Preventionist will keep an updated map of infections to identify any clusters or trends.
4. Data obtained from Process Surveillance Audits will be collected to analyze the compliance of staff with facility policies and procedures

#### DATA ANALYSIS:

The Infection Preventionist and the Infection Prevention and Control Committee will utilize the information collected from both Process and Outcome Surveillance activities in order to analyze the data to identify opportunities for improved care and process and identify an action plan for follow up and corrective action and reporting.

Data Analysis will assist the facility in:

- **Determining the origin of infection** assists the facility to identify the number of residents who developed infections within the facility. The healthcare facility can then evaluate whether it needs to change processes or practices to enhance infection prevention and minimize the potential for infection transmission.
- **Comparing current and past infection control surveillance** data to past performance enables detection of any unusual or unexpected outcomes. It is important that surveillance reports be shared with appropriate personnel in the nursing home, including, but not limited to, the director of nursing and medical director. The infection



control data summaries support the rationale for infection control measures that enhance its practices to prevent future infections.

- **Comparing the reported incidence of infections by type and location** to previous facility reports helps staff identify efficient and ineffective practices.
- **Determining need for additional education and staff competency** with results of process surveillance audits
- **This data is recorded at least quarterly and included in the report to the QAA committee.**

The surveillance reports are shared with appropriate individuals including the Director of Nursing, and medical director. Also, it is important that the staff and practitioners receive reports that are relevant to their practices to help them recognize the impact of their care on infection rates and outcome.

## **PLAN**

Based on analysis of data, develop and implement an action plan that includes correction actions, staff education, and measurable goals.

## **EVALUATE**

Assess the effectiveness of the corrective actions based on the outcome measures identified in the action plan.

## **DOCUMENTATION**

- Facilities may use various approaches to gathering, documenting, and listing surveillance data. The facility's infection control reports describe the types of infections and are used to identify trends and patterns.
- Descriptive documentation provides the facility with summaries of the observations of staff practices and/or the investigation of the causes of an infection and/or identification of underlying cause(s) of infection trends.
- It is important that the infection prevention and control program define how often and by what means surveillance data will be collected, regardless of whether the facility creates its own forms, purchases preprinted forms, or uses automated systems

## Infection Surveillance Considerations

Surveillance of infections should be attributed to a Long-Term Care Facility (LTCF) onset if:

- (a) There is no evidence of an incubating infection at the time of admission to the facility by clinical documentation of appropriate signs and symptoms and not solely on screening microbiologic data.
- (b) The onset of clinical manifestation occurs greater than **72 hours** after admission.
- (c) Although debate exists about the use of this time frame to determine the LTCF onset for *C. difficile* infections, the definition is consistent with acute care infection surveillance reporting and surveillance methodology.

Stone, N., Ashraf, M., Calder, J., Crnich, C., Crossley, K., Drinka, P., . . . For the Society for Healthcare Epidemiology Long-Term Care Special Interest Group. (2012). Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria. *Infection Control and Hospital Epidemiology*, 33(10), 965-977. doi:10.1086/667743

## Surveillance Symptoms Considerations

1. All symptoms must be new or acutely worse. Many residents have chronic symptoms, such as a cough or urinary urgency that are not associated with infection; however, a new symptom or a change from baseline may be an indication that an infection is developing.
2. Alternative noninfectious causes of signs and symptoms (e.g., dehydration, medications) should be considered and evaluated before an event is deemed an infection.
3. Identification of infection should not be based on a single piece of evidence but should always consider the clinical presentation and any microbiologic or radiologic information that is available. Microbiologic and radiologic findings should not be the sole criteria for defining an event as an infection. Similarly, diagnosis by a physician alone is not sufficient for a surveillance definition of infection and must be accompanied by documentation of compatible signs and symptoms.

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Residents who have positive cultures but no signs and symptoms of infection may be colonized rather than infected so should not be included in these data.

Infections are counted in the data only once. An infection lasting over more than one reporting period is reported only once for the period of onset.

If an infection completely resolves and then recurs, it will be counted as a new infection.

Unless specifically designated as a criterion for infection, a physician's written, or verbal diagnosis of infection without supporting clinical evidence does not justify counting condition like an infection.

**Healthcare Associated Infection (HAI) :**

Healthcare-associated infections are infections that patients acquire during receiving treatment for other conditions within a healthcare setting

- Infection develops within 72 hours or more after admission or re-admission.
- Infection appears at a new or different site in the same resident.
- The infection did NOT develop as the result of a procedure carried out in a hospital, physicians' office, or other health care facility.

Note: See Infection Criteria (see Criteria for Infection Report Forms)

***Community --Acquired Infections***

An infection acquired in the community in contrast to a healthcare facility.

- Infection is present on admission to the facility.
- An infection would be classified as community-acquired if the patient had not recently been in a health care facility.

***OR***

- Infection is present on readmission to the facility but was not present or incubating when the resident was transferred from the facility.
- The infection developed as a result of a procedure carried out in a hospital, physician's office, or another healthcare facility (e.g., surgical site infection).

**Infection Surveillance Methods**

1. Infections are identified through a variety of methods including but not limited to:

***Concurrent surveillance:***

- a. Regular rounds of resident care units
- b. Verbal reports from nursing staff

***Retrospective surveillance:***

- a. Positive culture
- b. Pharmacy reports of antibiotic use
- c. X-ray
- d. Chart review



### **Infection Data Collection and Analysis (see excel spreadsheet in resource CD)**

1. Data is tabulated by type of infection.
2. Data is calculated into rates periodically (monthly, quarterly, and yearly).
3. The calculation to be used is # infections per 1000 resident days.

#### **The formula for calculation:**

$$\frac{\text{Number of new HAI's infections* (divided by)}}{\text{Number of resident days in a month}} \quad \text{Total (times) X 1000}$$

4. Rates are compared over time to discern;
  - a. Changes in patterns
  - b. Clusters
  - c. Trends
  - d. Opportunities for process assessment and improvement.

### **Reporting**

1. Analysis and conclusions are reported to the Quality Assurance (QA) committee on a minimum of a quarterly basis.
2. Surveillance results are communicated to the appropriate departments

### **Quality Assessment and Assurance Committee (QAA)**

1. The designated IP or at least one of the individuals if there are more than one IP will regularly attend and report on the Infection Prevention and Control Program at the facility's quality assessment and assurance committee.
2. The responsibilities include active implementation and reporting on current Quality Assurance and Performance Improvement projects.

### **References and Resources:**

#### **Centers for Medicare & Medicaid Manual System, State Operations Manual Appendix PP-Guidance to Surveyors for Long Term Care Facilities:**

<https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/GuidanceforLawsAndRegulations/Downloads/Advance-Appendix-PP-Including-Phase-2-.pdf>

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