

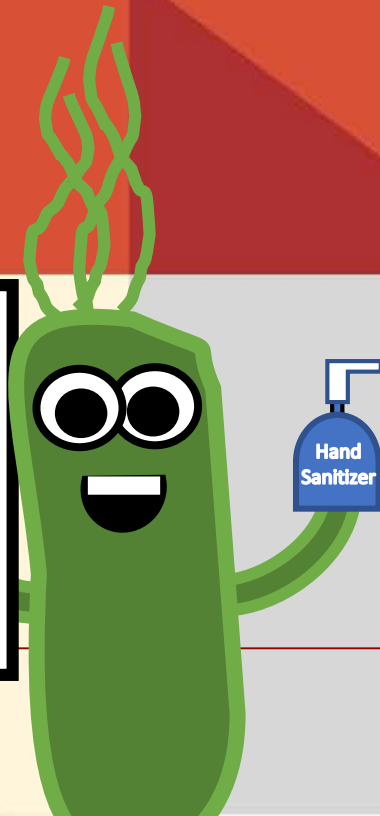
Surveillance in the Long-term Care Facility

Peggy Pass RN, MS, CIC, FAPIC

**Division of Infection Prevention & Control
Infectious Disease Epidemiology &
Outbreak Response Bureau**

December 13, 2018

**LTC
Webinar
Series
Webinar#7
Surveillance
Plan**



Objectives

- Define the term “surveillance”
- List the different types of resident care done in your facility and the average time those types of residents stay
- List the types of infections that have occurred in your residents during the last several months
- List the three types of infections that occur in your facility from the most common to the least common
- Describe the process used to determine the Risk Assessment for your facility each year
- Be able to discuss what type of surveillance you do presently
- List two types of information you consider your “source documents” for your surveillance

surveillance

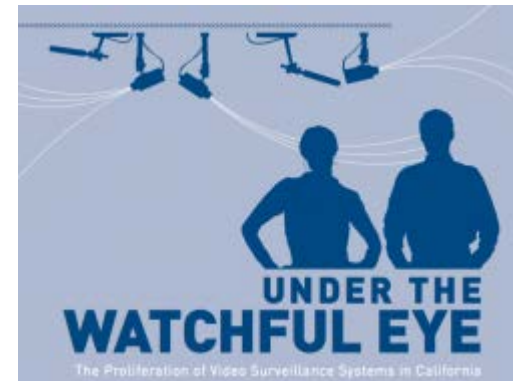
[ser-**vey**-luh ns, -**veyl**-yuh ns]

[Examples](#) [Word Origin](#)

[See more synonyms for surveillance on Thesaurus.com](#)

noun

1. a watch kept over a person, group, etc., especially over a suspect, prisoner, or the like:
The suspects were under police surveillance.
2. continuous observation of a place, person, group, or ongoing activity in order to gather information:
video cameras used for covert surveillance.
: See also [electronic surveillance](#).
3. attentive observation, as to oversee and direct someone or something:
increased surveillance of patients with chronic liver disease.



Surveillance

- Surveillance is an ongoing systematic collection, analysis, interpretation and dissemination of data on:
 - The occurrence and distribution of events (infections) within a selected population.
 - The events or conditions that may increase or decrease the risk of occurrence of these events (infections).
 - Surveillance is the monitoring of behavior, activities, or other changing information for the purpose of influencing, managing, directing, or protecting people.

Active Surveillance

- Active surveillance methods
 - Check with the nurse practitioner(s)/clinic weekly for information on residents
 - Review all cultures obtained from patients
 - Thorough reading of all hospital visits, i.e. any discharge summaries, microbiology results, any new medications, or changes
 - Review of all subsequent readmissions
 - Review of new admissions paperwork
 - Review of residents who have had influenza vaccine, pneumonia vaccine, etc. and ensuring all residents have been taken care of with regards to vaccinations/paperwork
 - You are beeped with a customized organism report, sensitivity report, resident being sent to the hospital, etc.

Passive Surveillance

- A physician calls infection control regarding a perceived problem on a unit or with some patient, eg. ID doctor regarding an infection
- Getting daily microbiology reports for your units- you review what reports are there-see how they relate to the residents
- You have a phone line or a texting ability for staff to let you know about residents experiencing symptoms of illness that you check periodically
- Going to the state website periodically to see what flu rates look like in the state and your county

October 4, 2016

The Centers for Medicare & Medicaid Services (CMS) issued a final rule to make major changes to improve the care and safety of the nearly 1.5 million residents in over 15,000 long-term care facilities that participate in the Medicare and Medicaid programs.

Go to the Federal Register

<https://www.federalregister.gov/documents/2016/10/04/2016-23503/medicare-and-medicaid-programs-reform-of-requirements-for-long-term-care-facilities#h-30>

INFECTION CONTROL (§ 483.80)

We are requiring facilities to develop an Infection Prevention and Control Program (IPCP) that includes an Antibiotic Stewardship Program and designate at least one Infection Preventionist (IP).



42 CFR 483.80

§483.80 Infection Control

- The facility must establish and maintain an **infection prevention and control program** designed to provide a safe, sanitary, and comfortable environment to help **prevent the development and transmission** of communicable diseases and **infections**
- (a) **Infection prevention and control program** – The facility must establish an infection prevention and control program (IPCP) that **must include at a minimum, the following elements:**
 - (1) **A system for preventing, identifying, reporting, investigating, and controlling infections and communicable diseases for all residents, staff, volunteers, visitors, and other individuals providing services under a contractual arrangement** based upon the facility assessment conducted according to §483.70(e) – refers to “facility assessment” and following accepted national standards;

42 CFR 483.80 – Infection Control

- (2) **Written standards, policies, and procedures** for the program, which must **include**, but are not limited to:
 - (i) **A system of surveillance designed to identify possible communicable diseases or infections before they can spread to other persons in the facility;**
 - (ii) **When and to whom possible incidents of communicable disease or infections should be reported;**
 - (iii) **Standard and transmission-based precautions** to be followed to prevent spread of infections;
 - (iv) **When and how isolation should be used** for a resident; including, but not limited to:
 - (A) **The type and duration of the isolation**, depending upon the infectious agent or organism involved, and

Maryland Specific Regulations

COMAR 10.07.02

.21 Infection Control Program

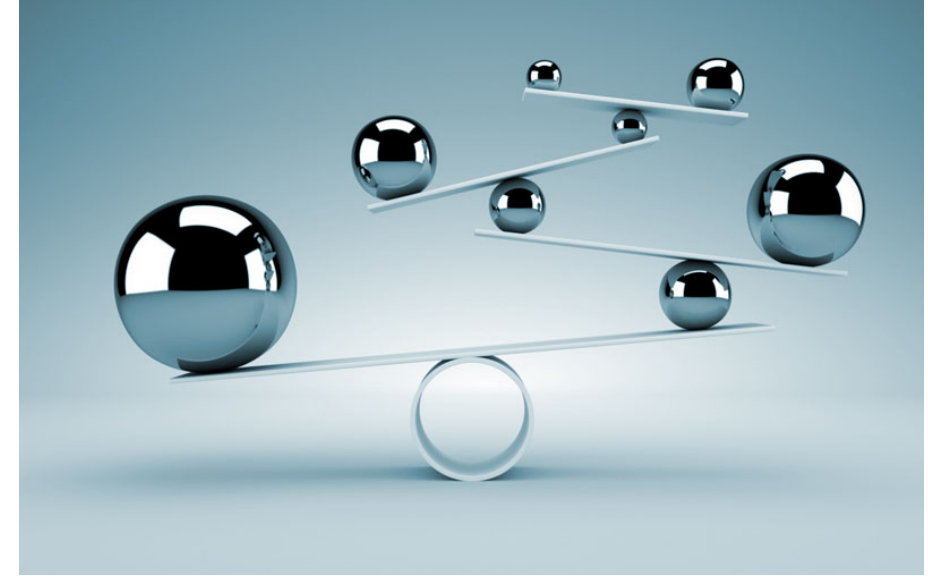
- A. Infection Control Program – The facility shall establish, maintain, and implement an effective infection control program that:
 - **(1) Investigates, controls, and prevents infections in a timely manner through a system that enables the facility to:**
 - **(a) Analyze patterns of infected individuals;**
 - **(b) Analyze changes in prevalent organisms;**
 - **(c) Analyze increases in the rate of infection; and**
 - **(d) Obtain surveillance data for the prevention and control of additional cases**
 - **(2) Determines the procedures, such as appropriate precautions, that are to be applied to an individual resident;**

Need to know your
baselines and bugs!

Infection Surveillance:

- The facility has established/implemented a surveillance plan, based on a facility assessment, for identifying, tracking, monitoring and/or reporting of infections.
- The plan includes early detection, management of a potentially infectious, symptomatic resident and the implementation of appropriate transmission-based precautions.
- The plan uses evidence-based surveillance criteria (e.g., CDC NHSN Long-Term Care or revised McGeer Criteria) to define infections and the use of a data collection tool.
- The plan includes ongoing analysis of surveillance data and review of data and documentation of follow-up activity in response.
- The facility has a process for communicating the diagnosis, antibiotic use, if any, and laboratory test results when transferring a resident to an acute care hospital or other healthcare provider; and obtaining pertinent notes such as discharge summary, lab results, current diagnoses, and infection or multidrug-resistant organism colonization status when residents are transferred back from acute care hospitals.
- The facility has a current list of reportable communicable diseases.
- Staff can identify to whom and when communicable diseases, healthcare-associated infections (as appropriate), and potential outbreaks must be reported.
- Prohibiting employees with a communicable disease or infected skin lesions from direct contact with residents or their food, if direct contact will transmit disease.
- Interview appropriate staff to determine if infection control concerns are identified, reported, and acted upon.

6. Did the facility provide appropriate infection surveillance? Yes No F880



Your Facility Annual Risk Assessment



Potential Risks/ Problems	Probability					Risk Impact (Health, Financial, Legal, Regulatory)						Potential Change in Care (will a resident require more care as a result of the risk/problem?)					Current Facility Preparedness				Score	
	Very Likely	Likely	Maybe	Rare	Never	Catastrophic Loss (life/ limb/ function/ financial)	Serious Loss (Function/ Financial/ Legal)	Risk of Re-Admission or Transfer to High Acuity	Moderate Clinical/ Financial	Minimal Clinical/ Financial	None	Very Likely	Likely	Maybe	Unlikely	None	Poor	Fair	Good	Very Good		
	4	3	2	1	0	5	4	3	2	1	5	4	3	2	1	0	4	3	2	1		
Antibiotic Resistant Organisms																						
Tier 1 MDRO																						
Pan-resistant organism																						0
<i>Candida auris</i>																						0
<i>mcr</i> -positive gram negative organisms																						0
Vancomycin-resistant <i>S. aureus</i> (VRSA)																						0
Tier 2 MDRO																						
Non-KPC CP-CRE (e.g. NDM, VIM, IMP, OXA)																						0
CP- <i>Pseudomonas</i> (including KPC)																						0
CP- <i>Acinetobacter</i> (including KPC)																						0
Tier 3 MDRO																						
KPC-positive CRE																						0
Antibiotic Stewardship																						
Lack of leadership support for antibiotic stewardship																						0
Inadequate written policies for stewardship																						0
Unable to determine antibiotic usage reports from pharmacy																						0
Unable to retrieve report summarizing antibiotic resistance patterns (antibiogram)																						0
Environment																						
Inadequate cleaning/ disinfection of resident room																						0
Use of non-approved products for environmental cleaning																						0

Note regarding the Antibiotic-Resistant Organisms (MDRO's)

- We referred on the previous page of the Facility Risk Assessment, to Tier 1, 2, and 3 of these types of organisms.
- You can read up on these organisms which can occur in residents of longterm care facilities, and contact us for help in learning about them.
- There is an interim Guidance Document that discusses MDRO's available from CDC at this link:
- <https://www.cdc.gov/hai/outbreaks/docs/Health-Response-Contain-MDRO.pdf>
- CDC will be releasing an updated version of this Guidance Document on MDRO's sometime in 2019 and we will be sure to let you know when it is available.

.21 Infection Control Program

- (3) Maintains a record of infections in the facility, and the corrective actions that were taken related to infections; and
- (4) Monitors and evaluates the:
 - (a) Effectiveness of the infection control program by **surveying rates of infection, especially of those residents who have an especially high risk of infection; and**
 - (b) Effective implementation of the policies and procedures that are outlined in §F(1) of this regulations.
- B. The facility shall assign at least one individual with education and training in infection surveillance, prevention, and control to be responsible for approving actions to prevent and control infections.

Know how to calculate rates!
Look into risk stratifying your residents...

.21 Infection Control Program

- (1) The infection control program shall establish **written policies and procedures to investigate, control, and prevention infections** in the facility including policies and procedures to:
 - (a) Identify facility-associated infections and communicable diseases in accordance with COMAR 10.06.01;
 - **(b) Report occurrences of certain communicable diseases and outbreaks of communicable diseases to the local health department in accordance with COMAR 10.06.01 and Health-General Article, §18-202, Annotated Code of Maryland;**
 - (c) Institute appropriate infection control steps when an infection is suspected or identified in order to control infection and prevent spread to other residents;

Recognize early and
get help from LHDs

.21 Infection Control Program

- (d) Perform **surveillance of residents and employees at appropriate intervals to monitor and investigate causes of infection, facility-associated and community acquired, and the manner in which it was spread;**
- (e) Train employees about infection control and hygiene including:
 - (i) Hand hygiene;
 - (ii) Respiratory protection;
 - (iii) Soiled laundry and linen processing;
 - (iv) Needles, sharps, or both;
 - (v) Special medical waste handling and disposal; and

.21 Infection Control Program

- **G. Preventing Spread of Infection**
- **(1) The facility shall assess any residents with signs and symptoms of an infectious illness for the possibility of transmission to another resident or employee**
- **(2) The facility shall take appropriate infection control steps to prevent the transmission of a communicable disease to residents, employees, and visitors as outlined in the following guidelines:**
 - (a) Guideline for Isolation Precautions in Hospitals; and
 - (b) Guidelines for Infection Control in Health Care Personnel.

Reasons for Surveillance

- Essential element of the performance improvement process:
 - Establishes baseline or endemic rates of disease.
 - Identifies problems such as outbreaks, clusters, i.e., increase in rates.
 - Identifies unusual infections, other significant events, process measures, i.e., falls, medication errors, sharps injuries, exudates, restraint use.
 - Identifies risk factors for disease
 - Collects and gathers information needed to investigate problems.
 - Used to improve outcomes based on results of control measures and corrective actions.
 - Provides new and renewed education!

Prioritize based on your facility needs.

Picking Your Targets: What to Survey

- Target outcomes that can be prevented, e.g., clinical targets: influenza, central, sharps injuries; process targets: influenza immunization pts/staff, hand hygiene practices, wound care technique.
- Serious problems, e.g., UTIs, RTI, PNEUMO most common in LTC.
- Infection prevention and control efforts to demonstrate effectiveness. Focus on high volume, high cost, “high” severity adverse events.
- Results of previous state surveys, Joint Commission; results and corrective actions implemented.
- Epidemiologically significant organisms
- Cost – benefit: Doing what makes a difference based on science, not tradition. Look at both typical, e.g., prevention of infections and beyond, e.g., biohazardous waste disposal, isolation use.



Significant Organisms and Infections

- Urinary tract infection??? Is it really???
Symptomatic??
- Multiply drug resistant organisms, e.g., CP-CRE, MRSA, VRE, *Candida auris*
- Acinetobacter, e.g., *Acinetobacter baumannii*
- *Clostridioides difficile*
- Resistant *Pseudomonas* and other MDROs
- Unusual infections, e.g., Hepatitis A, Salmonella, Norovirus
- Apparent cross transmission
- Blood Stream Infections
- Clusters or outbreaks.
- Locally significant organisms, eg. Flu season is upon us!!!!

Evaluate Effectiveness of Your Surveillance Program and

- Are you identifying significant infections, adverse outcomes?
- Are implemented prevention and/or control measures effective?
- Is staff actively engaged in the surveillance program? Do they understand the value, importance and work with you to identify issues, symptomatic residents?
- Are you passing your survey?

Periodic evaluation of your surveillance program needed to assure success and effectiveness.

What factors are playing an important role in what surveillance looks like today?

- Your Antibiotic Stewardship program or lack of it:
 - Not giving antibiotics automatically for conditions that do not warrant them such as:
 - UTI's without fever or other constitutional symptoms-with a catheter or without
 - URI's that are mostly viral and cannot be treated with antibiotics
 - GI infection such as Norovirus *AND*
- The development of MDROs in your residents which are actually encouraged by frequent and unnecessary antibiotic treatment.....

Remember to annually look at your Hazard Vulnerability Risk Assessment and prioritize your issues.....are they changing?? Is your facility getting better??

Elements required for accurate surveillance data – numbers and graphs

- Denominator
 - Must use accurate numbers that reflect the population “at risk”
 - The numbers used should be verified if necessary
 - This number might be total nursing home residents OR short-term rehab residents OR total number of urinary catheter days in your facility in a particular month, etc.
 - It depends on what you are “surveilling”
- Rates should be calculated
 - Reflects changes in volume
 - Could be an increase in numerator, eg. # patients meeting the definition of a central line infection has increased during November 2018-and that is divided by the denominator which would be the total number of central line days in your facility during the month of November 2018. How would this affect the rate of CLABSIs if the denominator stayed the same?
 - Could be an increase in the denominator with the numerator staying the same-what would that do to a CLABSI rate?
 - We will talk about doing rates at another webinar.

Barriers and challenges with our present systems and methodologies

- As the infection preventionist you are often dependent on others for giving you information – for deciding what is important and what is not
- Doing accurate surveillance takes time – something an IP may have in short supply

Health Care Associated (HAI) v. Community Acquired (CoAq) Evaluation

- HAIs
 - Neither present nor incubating when patient/resident admitted
 - Variables to consider
 - Interventions at admission
 - Exposures
 - Physician diagnosis
 - Clinical v. Epidemiological
- CoAq
 - Infections occurring or incubating prior to admission
 - Patient may have been at another health care facility/agency when infection occurred
 - Take into account known incubation periods

Evaluating Colonization vs. Infection

- Colonization
 - The presence of an infectious agent without evidence of infection.
 - Colonization may be identified by organism growth on cultures.
 - Can often still be transmitted to others
 - Important distinction: In general, do NOT treat.
- Infection
 - The entry and multiplication of an infectious agent in the body of persons or animals.
 - Infection may lead to the occurrence of an infectious disease which is clinically manifested through overt or latent signs/symptoms.
 - Treatment usually needed depending on severity, location available drugs, and patient's underlying condition.

Endogenous v. Exogenous Organisms

- Endogenous flora is patient's/resident's own flora
 - Bowel organisms
 - Skin organisms
 - Mouth
 - Respiratory tract
 - Vaginal
 - Other sites
- Exogenous flora is from another source
 - HCWs
 - Environment
 - medical devices
 - structural
 - Visitors, Family members

Outcomes and Process Surveillance

- Outcomes

- Measures results, i.e. infections vs. none
- Usually the “gold standard” of surveillance
- Infections are outcomes
- Small sample size makes differences difficult to distinguish, truly analyze significance of infections, normal variation
- Internal trending leads to better analysis, i.e., compare different time frames in the facility; possibly risk assess your residents by underlying illness(es) for example

- Processes

- Measures compliance with protocols and procedures
- Measures resource utilization.
- Processes may be closely linked to infectious outcomes (catheterization, equipment disinfection, hand hygiene, changing a wound dressing)

Endemic v. Epidemic

- Endemic - The usual level or presence of disease in a defined population during a given time period. Emphasizes the need to evaluate accurate baselines of your most common types of infections
- Epidemic - An unusual, higher than baseline level of disease in a defined population in a given time period. Also emphasized the need to read about what is around in the environment-seasonal disease activity-knowledge of new admissions and complete skin assessments, disease assessments, etc. Also knowledge of the readmitted patients from hospital settings-that they do not bring something new into your facility when they return-possible introduction here of empiric isolation?

The Surveillance Process

Definitions of Infections: Determining Criteria



Definitions of Infection

- Have written definitions of infection.
 - Makes it possible to determine the presence of HAIs
 - Epidemiologic definitions are based on most likely presentation vs. clinical diagnosis based on individual characteristics and medical opinion
 - Surveillance definitions vs. clinical definitions & treatment
- Definitions must be used consistently-compare apples to apples over time-and be able to benchmark
- Requires education and training for staff on signs and symptoms to look for
 - Systematic collection of data/information
- Choices:
 - NHSN definitions
 - McGeer LTC definitions of infection
 - Combinations
 - ₃₇ Develop your own unique to your facility.

LTC Surveillance Definitions

Updated McGeer

- Gastrointestinal
- Respiratory
- Skin and Soft Tissue
- Urinary

NHSN

- *C. difficile*
- MDRO
- Urinary

Important Factors to Consider With All Definitions

1. All symptoms must be new or acutely worse
2. Noninfectious causes of signs and symptoms should always be considered before a diagnosis of infection is made, eg. other causes of diarrhea? could the resident be dehydrated and demonstrating some cognitive deficits?
3. Identification of infection should not be based on a single piece of evidence – using standardized definitions takes this into account

Updated McGeer Definition – Gastrointestinal Tract Infection

Norovirus gastroenteritis

Must fulfill both 1 AND 2:

1. **MUST HAVE 1 of the following:**

- Diarrhea: ≥ 3 liquid or watery stools above what is normal for the resident within a 24-hour period
- Vomiting: ≥ 2 episodes in a 24-hour period, **AND**

2. **MUST HAVE the following:**

- Stool specimen for which norovirus is positive detected by electron microscopy, enzyme immunoassay, or molecular diagnostic testing, such as PCR

Comments

In the absence of lab confirmation, an outbreak (2 or more cases occurring in a LTCF) of acute gastroenteritis due to norovirus infection may be assumed if all Kaplan Criteria present:

- Vomiting in $>50\%$ of affected persons
- A mean or median incubation period of 24-48 hours
- A mean median duration of 12-60 hours
- No bacterial pathogen identified in stool culture

Updated McGeer Definition – Gastrointestinal Tract Infection

Example

- Mrs. Q had diarrhea Monday night and Tuesday morning and was vomiting at lunchtime on Tuesday. Her symptoms began to resolve by Wednesday morning.
- Mrs. Q's roommate began vomiting Tuesday morning and had 3 bouts of watery stool Tuesday evening into Wednesday morning. Her symptoms began to resolve Thursday morning.
- Stool cultures were collected on both Mrs. Q and her roommate. Mrs. Q's sample was positive for norovirus via PCR. Her roommate's sample was inconclusive for Norovirus, but negative for bacterial pathogens.

Criteria Met?

- Does the example meet McGeer criteria for norovirus? **NO**

Mrs. Q had only 2 episodes of diarrhea-once Mon night and once Tuesday morning-need =>3 "liquid" or "watery" stools-so does not meet the number necessary in 24 hours and may not meet the consistency definition either; and Mrs. Q only vomited once-at lunchtime on Tuesday which does not meet the required =>2 times in a 24 hour period

GI Norovirus Definition Answers:

- Does the example meet McGeer criteria for an outbreak of norovirus?

NO, Mrs. Q does not meet the definition of a case of Norovirus, her roommate did have 3 occurrences of watery stool within a 24 hour period, so she met #1 of the definition, but her PCR test for Norovirus was inconclusive—so she did not meet #2—so she did not meet the definition of a case of Norovirus either.

- Should you call the local health department to report an outbreak? **NO**

There is no outbreak.

NHSN Definition – Urinary Tract Infection

Catheter-associated Symptomatic Urinary Tract Infection (CA-SUTI)

- One or more of the following signs/symptoms and laboratory/diagnostic testing:
 1. Fever – Single temperature $\geq 37.8^{\circ}\text{C}$, or $>37.2^{\circ}\text{C}$ on repeated occasions, or an increase of $>1.1^{\circ}\text{C}$ over baseline
 2. Rigors
 3. New onset hypotension, with no alternate non-infectious cause
 4. New onset confusion/functional decline with no alternate diagnosis AND leukocytosis $>14,000$ cells/mm³ or left shift
 5. New or marked increase in suprapubic tenderness
 6. New or marked increase in costovertebral angle pain or tenderness
 7. Acute pain, swelling, or tenderness of the testes, epididymis, or prostate
 8. Purulent discharge from around the catheter insertion site

NHSN Definition – Urinary Tract Infection continued

Catheter-associated Symptomatic Urinary Tract Infection (CA-SUTI)

- Any of the following:
 1. If urinary catheter removed within the last 2 days:
 - Specimen collected from clean catch voided urine and positive culture with no more than 2 species of microorganisms, at least 1 of which is a bacterium of $>10^5$ CFU/mL
 - Specimen collected from in/out straight catheter and positive culture with any number of microorganisms, at least one of which is a bacterium of $\geq 10^2$ CFU/mL
 2. If urinary catheter in place:
 - Specimen collected from indwelling catheter and positive with any number of microorganisms, at least one of which is a bacterium of $\geq 10^5$ CFU/mL
- Note – Fever can be used to meet CA-SUTI criteria even if the resident has another possible cause for the fever (i.e., pneumonia)

NHSN Definition – Urinary Tract Infection

Example

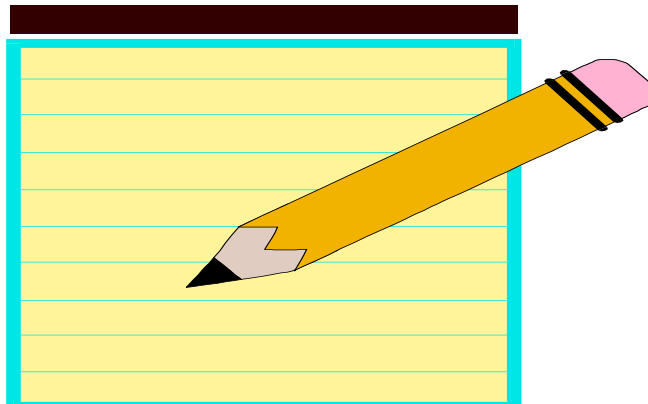
- Mr. A has a fever of 38°C, he is complaining of pain and tenderness in his testes, and has an indwelling catheter.
- A urinary specimen was collected from the indwelling catheter. The specimen was positive for *K. pneumoniae* and *E. coli*. The *E. coli* was greater than 100,000 cfu/mL.

Criteria Met?

Does the example meet NHSN criteria for CA-SUTI?

Yes

“Surveillance Source Communication”



Where to Find Important Information

- 24 hour reports.
- Microbiology, culture results.
- Other lab results (U/A, WBCs).
- Discussions with staff.
- Medical Records, Chart Audit.
- Doctors' Orders.
- Other: MARs, X-rays, Pharmacy.

Written Plan

- Document surveillance process.
- Include
 - Program description: Written policies and protocols.
 - Objectives of surveillance for infections. Ex., all infections, site specific infections, specific microorganism infections, other.
 - Components of the process, i.e., how surveillance is conducted, who's responsible, frequency.
 - Identification of significant organisms/infectious diseases.
 - Communication.
 - Role of the Infection Control Committee (or QA, PI, etc.) in determining surveillance strategies.
 - Examples of Forms.

Strategies

- **Develop Action Plan for Implementation**
- **Consider:**
 - Who: Ability and experience of person collecting the data..
 - What: Facility and parent organization needs and regulatory requirements, patient/resident risk factors, staff risk factors.
 - When: Amount of time that can be devoted to data collection.
 - How: Recommended practices and development of SOPs.
 - Where: All units, high acuity units, select patient groups, specific organisms.

Summary

- Determine baseline levels.
- Benchmark to self by time periods, to others only if data is comparable.
- Data to find strong and weak areas of prevention and control
 - Detect and stop outbreaks.
 - Identify residents for follow-up.
 - Develop prevention programs.
 - Use collected data to communicate, and to educate staff.



**THANK
YOU
AND
SEE YOU
NEXT TIME**



Forms to Use

January 13th Next Webinar

