Surveillance

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Objectives

At the conclusion of this presentation, participants will be able to:

- Define the purpose of conducting a surveillance program in long-term care
- Describe the different types of surveillance
- Discuss how to utilize McGeer's Criteria to define infections
- Explain the importance of doing an assessment of your infection prevention and control program

CMS Requirement

"The facility must establish and maintain an Infection Control Program designed to provide a safe, sanitary, and comfortable environment and to help prevent the development and transmission of disease and infection"(Section 483.80)

CMS Requirements of Participation Implemented November 2016, F Tag 880

CMS Requirement

- Section 483.80(a)(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 contractual arrangements based upon the facility assessment conducted.

What is the purpose of a surveillance program

- Monitor trends and pathogens
- Monitor staff compliance to infection prevention and control practices
- Through tracking and trending activities identify performance improvement opportunities
- Track progress of issues identified

Developing a Surveillance Plan

Practices for Developing A Surveillance Plan	
1. Assess your population	5. Analyze & calculate data
2. Select outcome and process measures	6. Apply risk stratification methodology
3. Use surveillance definitions	7. Report and use surveillance data
4. Collect surveillance data	

Risk Stratification

- The process of dividing or classifying events into categories to assist with interpretation of findings.
  - We stratify surveillance data according to type of infection or pathogen
  - Performance monitoring data might be stratified according to the staff being observed or the locations where monitoring was conducted
- Stratifying surveillance data helps identify where prevention opportunities might be greatest

What is Surveillance?

- Outcome surveillance
  - Identification of infection events which are monitored
  - Tracking multidrug-resistant infections (MDROs)
  - Tracking and trending for early identification of outbreaks
- Process surveillance
  - Auditing of practices of staff for adherence to IC policies and procedures

Methods of Surveillance

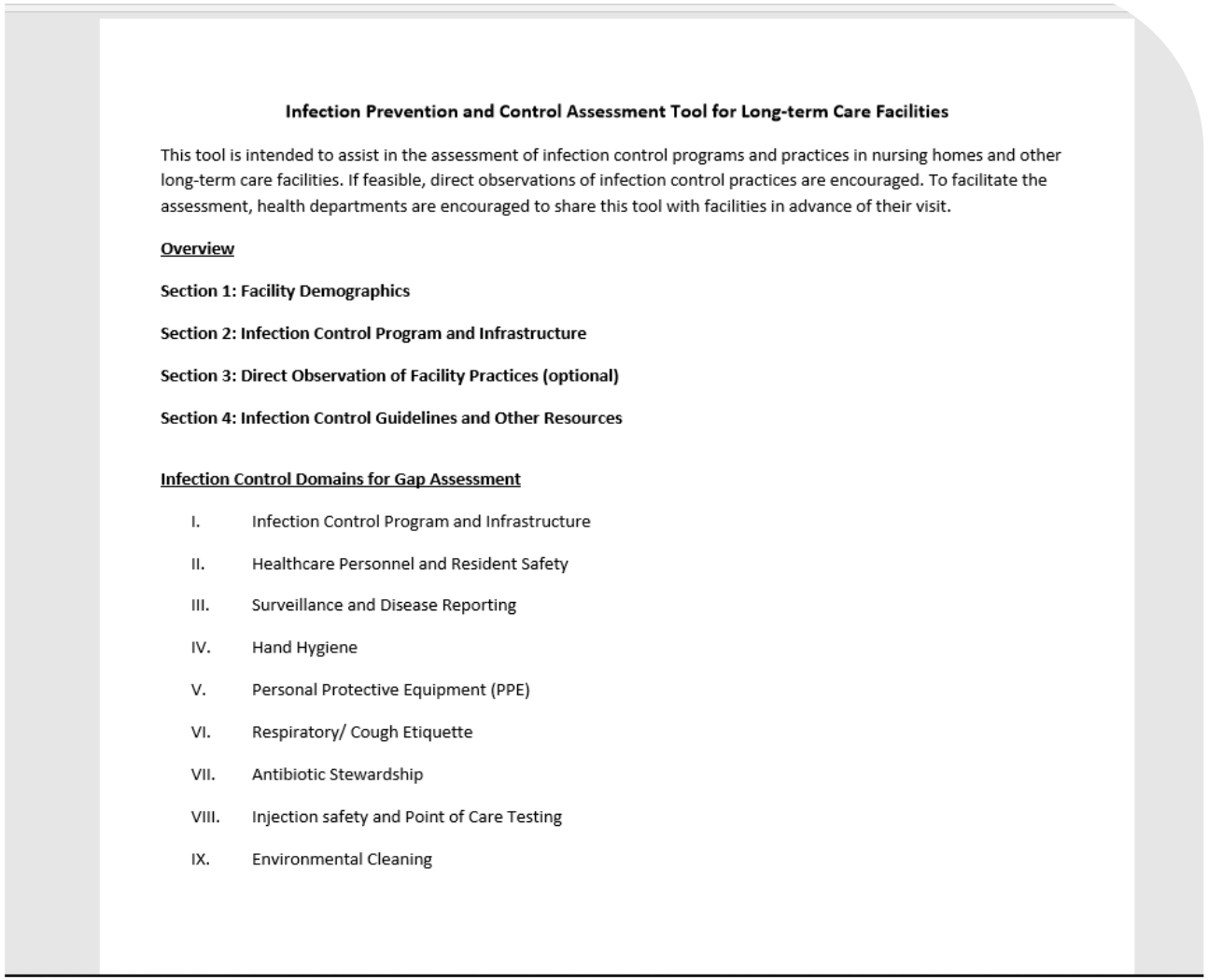
- Facility-wide surveillance
  - Tracking of all infections that occur in facility

- Targeted surveillance
  - Tracking specific infections, high risk or high-consequence infection events

Annual Assessment of your Infection Control Program

- This is a CMS requirement
- Annual assessment is required
- Directs the IP to areas that need more attention
- Develop an action plan once your assessment is completed
  - Provide specifics of what needs to be addressed, who will be responsible, resources needed, and when will the issue be resolved

CDC Assessment Tool



Infection Prevention and Control Assessment Tool for Long-term Care Facilities

This tool is intended to assist in the assessment of infection control programs and practices in nursing homes and other long-term care facilities. If feasible, direct observations of infection control practices are encouraged. To facilitate the assessment, health departments are encouraged to share this tool with facilities in advance of their visit.

Overview

Section 1: Facility Demographics

Section 2: Infection Control Program and Infrastructure

Section 3: Direct Observation of Facility Practices (optional)

Section 4: Infection Control Guidelines and Other Resources

Infection Control Domains for Gap Assessment

I. Infection Control Program and Infrastructure

II. Healthcare Personnel and Resident Safety

III. Surveillance and Disease Reporting

IV. Hand Hygiene

V. Personal Protective Equipment (PPE)

VI. Respiratory/ Cough Etiquette

VII. Antibiotic Stewardship

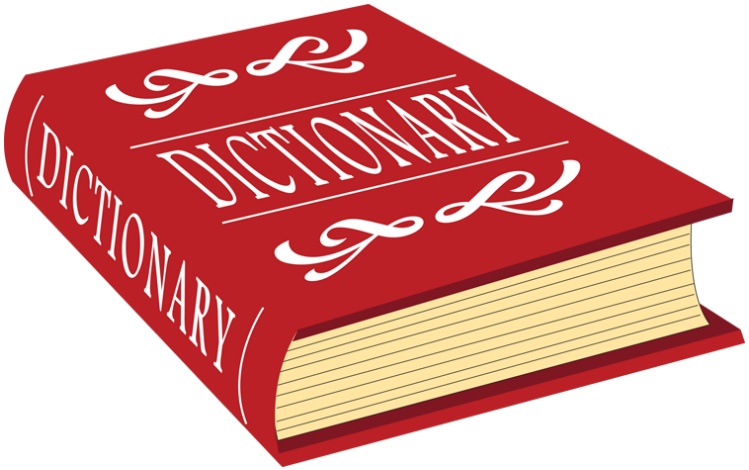
VIII. Injection safety and Point of Care Testing

IX. Environmental Cleaning

https://www.cdc.gov/infectioncontrol/pdf/icar/ltcf.pdf

Surveillance Definitions-McGeer's

- A consistent way to judge possible infection events
- Ensures accuracy, reproducibility, and ability to compare data over time
- These are evidence-based
- Definitions developed for LTCFs



URINARY TRACT INFECTION (UTI) WITHOUT INDWELLING CATHETER

County of Los Angeles Public Health

Both criteria 1 and 2 must be present:

1. At least one of the following sub criteria (a-c) present:
   a. Acute dysuria or acute pain, swelling or tenderness of the testes, epididymis or prostate or
   b. Fever or leukocytosis and

      At least one of the following **localizing** urinary tract sub-criteria:

      i. Acute costovertebral angle pain or tenderness
      ii. Suprapubic pain
      iii. Gross hematuria
      iv. New or marked increase in incontinence
      v. New or marked increase in urgency or frequency

UTI WITHOUT INDWELLING CATHETER (continued)

c. In the absence of fever or leukocytosis, then **at least two** or more of the following localizing urinary tract sub-criteria:
   i. Suprapubic pain
   ii. Gross hematuria
   iii. New or marked increase in urgency
   iv. New or marked increase in frequency

2. One of the following microbiologic sub criteria:

a. $\geq 10^5$ of no more than 2 species of microorganisms in voided urine

b. $\geq 10^2$ colony forming units per ml of any number of organisms in a specimen collected by in and out catheter

URINARY TRACT INFECTION (UTI) WITH INDWELLING CATHETER (CAUTI)

Both Criteria 1 and 2 MUST be present:

1. **At least one** of the following signs/symptoms, sub-criteria (a-d) present:
   a. Fever, rigors or new onset of hypotension, with no alternate site of infection
   b. Either acute change in mental status **OR** acute functional decline with no alternate diagnosis **AND** leukocytosis
   c. New onset of suprapubic pain **OR** flank pain or tenderness
   d. Purulent discharge from around the catheter **OR** acute pain, swelling or tenderness of testes, epididymis or prostate
2. Urinary catheter culture with 100,000 colonies of any organism

***If catheter has been in place for >14 days, replace the catheter before collecting the specimen**

How to Use McGeer's Criteria

- Criteria created for purposes of surveillance definitions, not for diagnosis or treatment
- When using McGeers **all** criteria listed under a category (site) must be met
- Example:
  - **Resident A is a 92 year old resident admitted one week prior. Resident does not have an indwelling catheter. Today resident is complaining of burning on urination and nurse reports urine is smelly. Nursing notes document that the doctor was called with nurse reporting resident has a urinary tract infection.**

Let's Discuss

- What was wrong with the nurse's documentation?
- Did the nurse have enough information to make that diagnosis?
- Should she make the diagnosis?
- Lets review the criteria for urinary tract infection without an indwelling catheter
- Does the resident meet the criteria for UTI?

CONSTITUTIONAL CRITERIA

- Fever
- Leukocytosis (>14,000 WBC or >bands (>6% bands or ≥1500 bands/mm^3)
- **Acute** change in mental status from baseline
- **Acute** functional decline

DEFINITION OF TEMPERATURE

- Change in temperature definition
- One oral temp of 37.8°C= >100°F, or
- Repeated temps of 37.2°C (99°F) orally, or 37.5°C (99.5°F) rectally, or
- **1.1°C (2°F) degrees over baseline** temperature from any site (oral, tympanic or axillary)

Time frame for An HAI

- Health-care associated infection (HAI) definition: symptoms that manifest after resident is in your facility for **more than 2 calendar days**

Respiratory Infections

- 4 categories
  - Common Cold or Pharyngitis
  - Influenza or influenza-like illness (ILI)
  - Pneumonia
  - Lower Respiratory Infection

Common Cold/or Pharyngitis

- At least **2** criteria must be present (symptoms must be new and not due to allergies)
  - Runny nose or sneezing
  - Stuffy nose (e.g., congestion)
  - Sore throat or hoarseness or difficulty swallowing
  - Dry cough
  - Swollen or tender glands in the neck

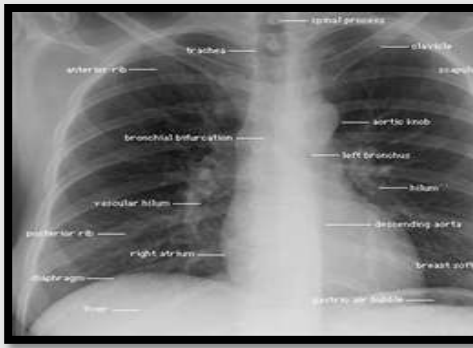
Influenza or Influenza-like-illness (ILI)

- Criteria 1 and 2 must be present (no longer seasonal)
  - Fever
  - At least 3 of the following ILI sub-criteria
    - Chills
    - New headache or eye pain
    - Myalgia or body aches
    - Malaise or loss of appetite
    - Sore Throat
    - New or increased cough

PNEUMONIA

All criteria **1-3** must be present:

1. Interpretation of Chest Xray as demonstrating pneumonia or presence of **NEW** infiltrate
2. At least one of the following respiratory sub-criteria (a-f):
   a. New or increased cough
   b. New or increased sputum production
   c. O_2 saturation<94% on room air or a reduction in O_2 saturation of more than 3% from baseline
   d. New or changed lung exam abnormalities
   e. Pleuritic chest pain
   f. Respiratory rate of >/=25/minute
3. At least one constitutional criteria



Lower Respiratory Tract

All criteria **1-3** must be present:

1. Chest x-ray not performed or, negative for pneumonia or new infiltrate if chest x-ray performed
2. **At least 2** of the following respiratory symptoms:
   a. New or increased cough or sputum production
   b. O_2 saturation <94% on room air or a reduction in O_2 saturation of more than 3% from baseline
   c. New or changed lung exam abnormalities
   d. Pleuritic chest pain
   e. Respiratory rate of >/=25/minute
3. At least **one** constitutional criteria (fever, ↑ WBC, acute change in mental or functional status)

Case Study

- Resident B is a 75 year old female S/P hip replacement who has was admitted to your facility on Sunday evening. Tuesday morning the resident developed a new cough with wheezing upon lung examination and is found to have a temperature of 100.3. Physician is called, he orders a chest x-ray.
- X-ray results: negative for pneumonia and no new infiltrates.
  - Is this a true infection?
  - If you believe it is, is it a healthcare-associated infection (HAI) or a community-associated infection?
  - What category of infection? (cold, influenza, pneumonia, or lower respiratory infection)

Skin, Soft Tissue and Mucosal Infections

At least **one** of the following criteria must be present:

1. Pus present at wound, skin, or soft tissue site
2. New or increasing presence of **at least four** of the following signs or symptoms sub-criteria:
   a. Heat at affected site
   b. Redness at affected site
   c. Swelling at affected site
   d. Tenderness **OR** pain at affected site
   e. Serous drainage at affected site
   f. One constitutional criteria

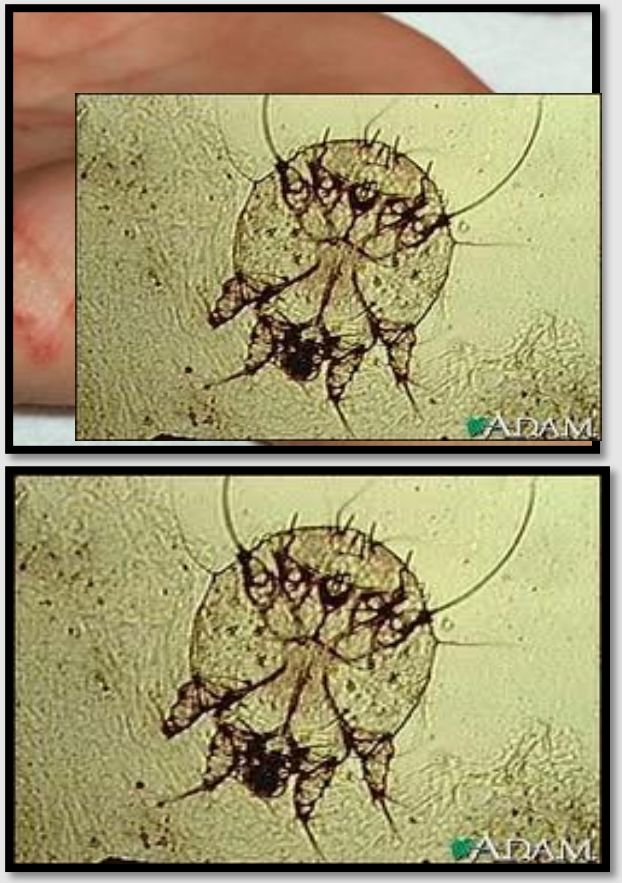
Case Study

- Resident C is an 80 year old man with DM, and COPD and has been a resident in your facility for one week. He develops a lower extremity ulcer which appears red, with some swelling and tenderness. No pus observed at the site. Vital signs are all within normal range.
  - Is this a healthcare-associated infection or not?

SCABIES

Both criteria **1 and 2** present:

1. Maculopapular and or itching rash
2. At least **1** of the following sub-criteria:
   a. Physician diagnosis
   b. Laboratory confirmation (scraping or biopsy)
   c. Epidemiologic linkage to a case of scabies with laboratory confirmation



Norovirus Gastroenteritis

Both Criteria **1 and 2** must be present:

1. At least **one** of the following GI sub-criteria must be present:
   a. Diarrhea, 3 or more liquid/watery stools above what is normal for resident in 24 hour period
   b. Vomiting, two or more episodes in a 24 hour period
2. A positive stool specimen for norovirus by either molecular testing, polymerase chain reaction (PCR) or enzyme immuno-assay (EIA) or electron microscopy

Clostridioides Difficile Infection (CDI)

Both criteria 1 and 2 must be present:

1. **One** of the following sub-criteria present:
   a. Diarrhea (3 or more liquid/watery stools above what is normal for resident in 24 hour period
   b. Presence of toxic megacolon (abnormal dilatation of large bowel), documented radiologically
2. **One** of the following diagnostic sub-criteria present:
   a. Stool sample yields a positive lab test result for *Clostridium difficile* toxin A or B
   b. Pseudomembranous colitis is identified during endoscopic examination or surgery

Case Study

- Resident D has been in your facility for over a year. Resident D is a man with lung cancer and CHF. On Monday morning the CNA reports that he has had several episodes of watery diarrhea and has vomited once. Another CNA on the same unit reports she has 2 residents who have been having watery diarrhea since the day before.
  - What do you think might be going on in this facility?
  - What are some of your next steps to take?

CALCULATION

- Infection rate to be calculated each month
  - Rates provide the number of events occurring among the population at risk
- Formula to be used:
- $\frac{\text{Number of new HAIs}}{\text{Total \# of resident days}}$ X 1000 residents days = # of infections per 1000 resident days
- **Example:** A facility had 2910 number of resident days for the month of June with 8 new HAIs
- $\frac{8}{2910}$ X 1000= $\frac{8000}{2910}$ = 2.75 infections per 1000 resident days

CALCULATION

- Remember to use total number of resident days not the average daily census
- Total number of resident days gives you a more accurate result
  - Takes into consideration all the residents in the facility that are at risk for developing infection each day of the month
- Get your total number of resident days from your business office

CALCULATION OF CAUTI

- Calculating an infection rate for catheter associated infections
  - If you had 2 residents in the month of April who had catheter associated infections (CAUTI) out of 5 residents with catheters, how do you calculate a rate of infection of CAUTIs?
    - April has 30 days, each of the 5 residents were in the facility all month which equals 150 catheter days or opportunities to develop an infection
    - Formula is

$$\frac{\text{\# of new CAUTIs}}{\text{Total \# of catheter days}} \times 1000 = \text{rate of CAUTIs /1000 catheter days}$$

$$\frac{2}{150} \times 1000 = 13.3 \text{ CAUTI per 1000 resident days}$$

PROCESS SURVEILLANCE

PPE	Standard/ Universal Precaution	Transmission-Based Precautions		
		Contact	Droplet	Airborne
Handwashing & Skin integrity				
Gloves	PRN	At all times	PRN	PRN
Gown	PRN	At all times	PRN	PRN
Mask	PRN	PRN	At all times, 3ft	At all times, N95
Goggles	PRN	PRN	PRN	PRN
Cohort	Yes	Yes	Yes	No
Misc.				

Processes to Observe

- Hand Hygiene
- Safe Injection Practices
- Standard Precautions
- Transmission-Based Isolation Precautions
- Proper use of PPE
- Treatment Nurse Observation
- Tracking antibiotic prescribing processes
  - Auditing use of resident assessment and communication tools
  - Evaluating adherence to facility-specific guidelines for antibiotic use
- Environmental Cleaning

Hand Hygiene

- Document observations to check for compliance
  - Observe weekly 10-20 opportunities
  - Observe various disciplines, including physicians, lab personnel, and others
  - Use checklist
- Calculate rates of compliance
- Report compliance rates to staff and to QAA committee
- Compare compliance rates to your infection rates

Calculation

Hand Hygiene Compliance Rate

- Calculate rate of compliance with hand hygiene opportunities
- Formula:
  - $\frac{\text{Number of opportunities for HH taken}}{\text{Total of opportunities observed}} \times 100 =$ Percent of Compliance
  - Example: 25 HCWs were observed for appropriate hand hygiene. Of the 25 observations 10 were compliant.

    $\frac{10}{25} \times 100 =$ 40% compliance with hand hygiene practices

Safe Injection Practices

- Observe how needles are disposed of
- Are they using safety needles
- Use of multi-dose vials
- Disinfection of rubber septum on medication vial
- Needs to be audited annually

Safe Injection Practices

Facility: Date:

Nurse Observed: Observer:

Process	Yes	No	Comments
Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids or contaminated equipment			
Needles and syringes are used for only one resident (this includes manufactured prefilled syringes and cartridge devices such as insulin pens).			
The rubber septum on a medication vial is disinfected with alcohol prior to piercing			
Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same resident			
Single dose (single-use) medication vials, ampules, and bags or bottles of intravenous solution are used for only one resident			
Medication administration tubing and connectors are used for only one resident			
Multi-dose vials are dated by HCP when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial.			
Multi-dose vials are dedicated to individual residents whenever possible			
Multi-dose vials to be used for more than one resident are kept in a centralized medication area and do not enter the			

Process Surveillance

Standard Precautions and Transmission-Based Isolation

- Observe for proper use of personal protective equipment (PPE)
- Monitor for proper use of Standard Precautions
- Audit how isolation practices are followed
- Document with Checklist

Isolation Audit

Facility Name:

Area Inspected	Date	Observer:

C= Compliant, NC= Not Compliant, CAC= Corrective Action Completed
FU= Follow Up, NA=Not Applicable

Criteria	C	NC	Finding or Comment	CAC	FU	NA
Appropriate sign posted						
Isolation equipment available (PPE)						
HCW uses PPE appropriately						
Dedicated non-critical care equipment available						
Equipment disinfected properly						
Hand hygiene supplies available						
Hand hygiene performed properly						
HCW handles linen appropriately						
HCW applies PPE before entering room						
HCW removes PPE before exiting room						
Alcohol Based Hand Rubs used appropriately						
Isolation policy available						
HCW familiar with isolation practices						
Resident isolated according to policy						
Trash handled according to regulation and according to facility policy						

Treatment Nurse Observation

- Observe how treatment nurse does dressing changes and prepares supplies
- Is waste disposed of properly?
- Glove use?
- Hand hygiene or use of ABHR

Environmental Sanitation

- Have housekeeping supervisor do monthly audits on daily practices of housekeeping staff (submit to IP)
  - IP to do her/his own audit quarterly
- Ask housekeepers questions to prepare them for survey
  - Contact Time?
  - Use of bleach
  - Mixing of bleach

Process surveillance

- Process surveillance gives you the opportunity to see the infection control practices of your staff
- Doing audits documents your observations
- Audits give you information on where your areas for improvement exist
- Compare audits with infection rates

Do You Have A Problem?

- Surveillance helps to track and trend and establish if you are experiencing an outbreak
- What constitutes an outbreak?
- When do increased numbers of infections need to be investigated or reported?

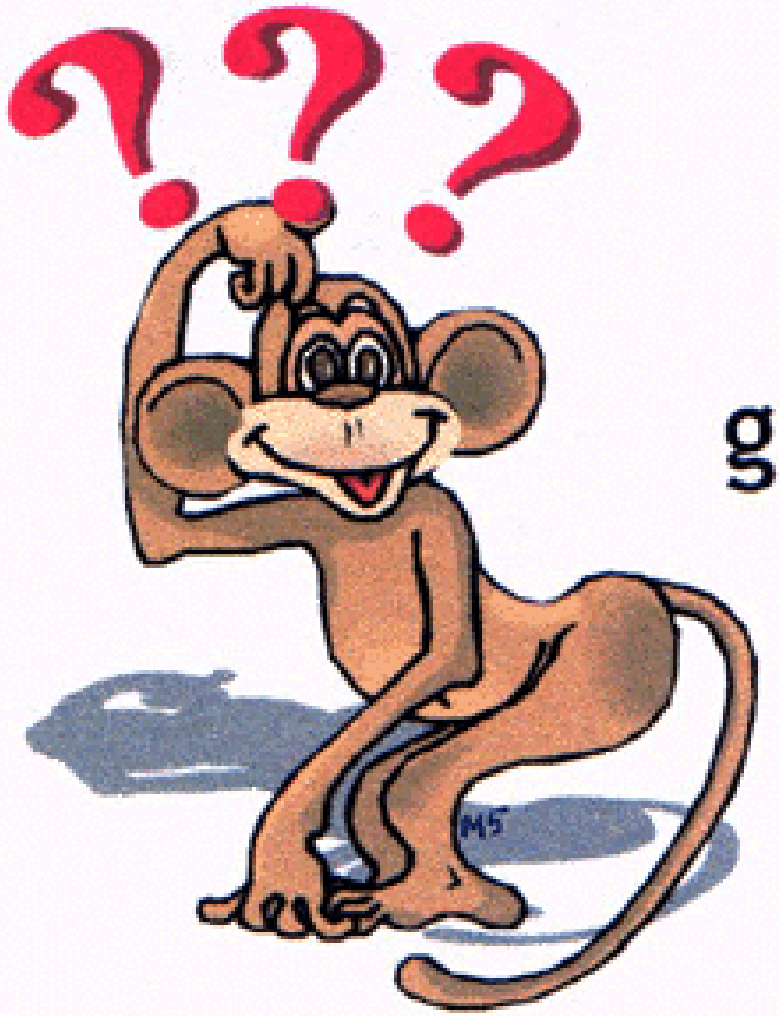
Documentation

- Tell a story in your documentation
- Documentation should explain how you arrived at your decisions
- Management plans
- Challenges
- Interventions
- Follow-up

In Summary

- Surveillance requires having a high level of suspicion
  - Start with doing an assessment of your infection control program (done annually)
    - Allow for adequate time to investigate
    - Be sure you have a system in place for assessing, documenting and communicating to appropriate staff
    - Utilize effective forms – analyze data regularly
    - Use McGeer's criteria
    - Tracking must be done on an ongoing basis
- Document all interactions with physicians
    - Train nurses to give thorough reports to physicians
    - Work with your nurses to ask questions-encourage them to dialogue with doctors about options

QUESTIONS?



Questions are guaranteed in life; Answers aren't.