



# Breakout Session: Non-acute Care Settings

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# Surveillance of Healthcare Associated Infections



- Specifics for your non-acute care setting

# What makes the non-hospital setting different?



- Different acuity and types of patients
- Various lengths of stay
- Same day treatment only
- Residential and non-residential environments
- Fewer diagnostic tests



...and sometimes less is known about the patient and his history

Example: patient to ambulatory surgery or endoscopy; little information about the patient prior to coming on the day of the procedure

# Non-hospital settings



- Long Term Care
- Home Care/Hospice
- Surgery centers
- Mental Health
- Psychiatric
- Behavioral
- Correctional
- Drug Treatment
- Adolescent
- Rehab
- Fire/rescue
- Long Term Acute Care
- Ambulatory Care
- Endoscopy Centers
- Clinics
- Physician's offices
- Others

# Surveillance: The Method



## CDC Definition

“The ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know.”

# Reasons for Surveillance Activities in non-hospital settings



- Establish baseline endemic healthcare-associated infection rates
- Facilitate early awareness of epidemics or clusters of healthcare-associated infections
- Identify problems for which there is action that may decrease rates and actions that may lead to prevention of future infections

# Types of Surveillance



- Traditional, total house surveillance
  - Finding ALL healthcare-associated infections ALL of the time
- Useful to establish endemic rates
- Required on an on-going basis??
- Time consuming

# Types of Surveillance



- Targeted Surveillance
- Geographic locations or types of healthcare-associated infections may be targeted for review
  - May consider:
    - High risk
    - High volume
    - Problem prone

# Post-procedure, post discharge surveillance



- Surgery centers and hospital same day surgery
- Methods
  - Post-op follow-up calls
  - Have a good contact person at surgeon's office
  - Send surgery list monthly
  - Work to get good return rates



# Passive surveillance

- Endoscopy centers and clinics
  - Information about complications may come from the patient's personal physician

# Changes in Surveillance due to Setting



- General surveillance methods
- What to survey?
- Definitions used
- Reporting of data





# Methods of Finding Infections

- Micro reports
- Unit generated report forms
- 24 hour report
- Antibiotic monitoring
- Unit rounds/communication forms
- Verbal reports/field nurse reports
- Medical Record review
- Patient/family interview
- Concurrent vs. retrospective



# Data to Collect - examples

- *You decide: What is essential to your analysis?*
- May collect:
  - Name
  - Location
  - Symptoms
  - Pathogen
  - Admission date
  - Risk factors
  - Number
  - Physician
  - Site
  - Culture date
  - Onset of S&S



# Two surveillance questions

- 1. Is infection present?
  - Use definitions of infection to determine
- 2. Is it healthcare associated?
  - Determine by time
  - 3 day rule (bacteria)
  - Viruses - incubation period
  - Exceptions: SSI - 30 days
  - With implant: 1 year

# Definitions of Infections



- Long Term Care
- McGeer definitions
- American Journal of Infection Control, 1991; 19;1-7  
(being revised by CDC and SHEA))
  
- Home Care
- American Journal of Infection Control, December, 2000 (draft)
- American Journal of Infection Control, May, 2008 (final)

# Definitions of Infections for Behavioral Health, Correctional Facilities, Drug Treatment Facilities, Rehab, LTACs



- National definitions have not yet been published
- Must adapt existing definitions
- LTACs should consider acute care definitions
- Behavioral Health definitions should be available in the near future
- Surgery Centers should use the CDC NHSN surgical site infection criteria

# Issue in Ambulatory Care and possibly other arenas



- Transmission of bloodborne pathogens
- Unsafe injection practices
- [http://www.cdc.gov/injectionsafety/IP07\\_standardPrecaution.html](http://www.cdc.gov/injectionsafety/IP07_standardPrecaution.html)

# Making an Infection Determination



- Review definitions of infection
- For demonstration ONLY

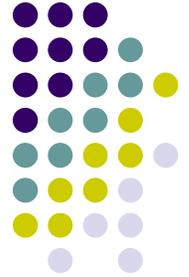


# Definition of Symptomatic UTI



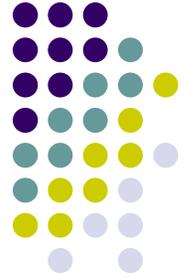
- Without catheter - 3 or more:
  - fever or chills
  - new burning pain on urinating, frequency or urgency
  - flank or suprapubic pain or tenderness
  - change in urine character
  - change in mental or functional status
- With catheter - 2 or more:
  - fever or chills
  - flank or suprapubic pain or tenderness
  - change in character of urine
  - change in mental or functional status

# Scenario #1



- A resident returned from the hospital on 4/10 with a foley catheter. The physician has chosen to leave the catheter in for one additional week.
- 4/14:
  - ● urine has become cloudy and has a strong odor
  - ● resident is lethargic and will not get out of bed
- Infection present?  yes  no
- Healthcare-associated for your facility?  yes  no
- Why?

# Scenario #2



- A resident with a diagnosis of Alzheimer's who has been in the facility for 6 months is noted to have:
- Fever of 100.0 F.
- Frequency of urination
- Infection present?  yes  no
- Healthcare-associated for your facility?  yes  no
- Why?

# Definition of cellulitis, soft tissue, wound infection



- Pus is present at the site
- OR
- Four or more of:
  - fever and at the site new or increasing -
  - heat
  - redness
  - swelling
  - tenderness
  - serous drainage

# Scenario #3



- A long term resident in the center has a stage four decubitus ulcer on the coccyx. On 3/15 you assist the treatment nurse to assess the wound. The treatment nurse notes the following new findings related to the ulcer:
  - ● fever
  - ● the wound is warm to touch
  - ● there is redness and swelling
  - ● the resident complained of pain at the site and requested medication
- Infection present?  yes  no
- Healthcare-associated for your facility?  yes  no
- Why?

# Scenario #4 (ASC)



- A patient is discharged to home on 7/26 following a cholecystectomy. The wound is clean and healing. On 8/10, the patient is in the surgeon's office with the following findings:
  - ● Pain and tenderness at the site
  - ● Purulent drainage from the wound
  - ● There is swelling, redness, and at the site
- Infection present?  yes  no
- Healthcare-associated for your ASC?  yes  no
- Why?

# Clarification of General Principles

## Clinical vs. Surveillance Definitions

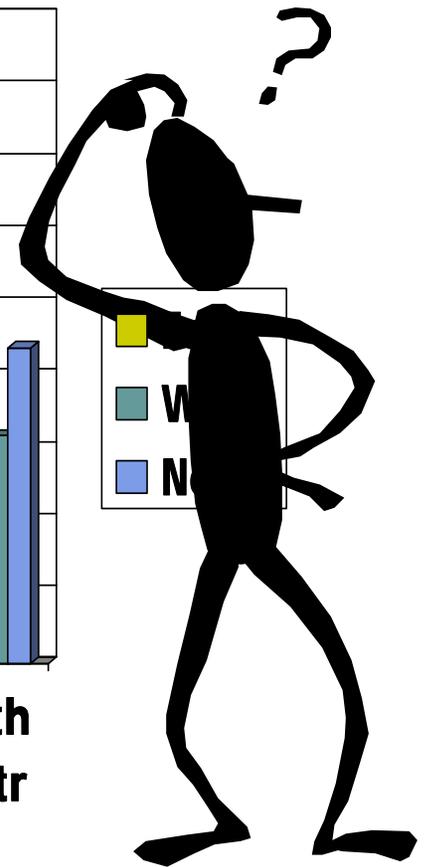
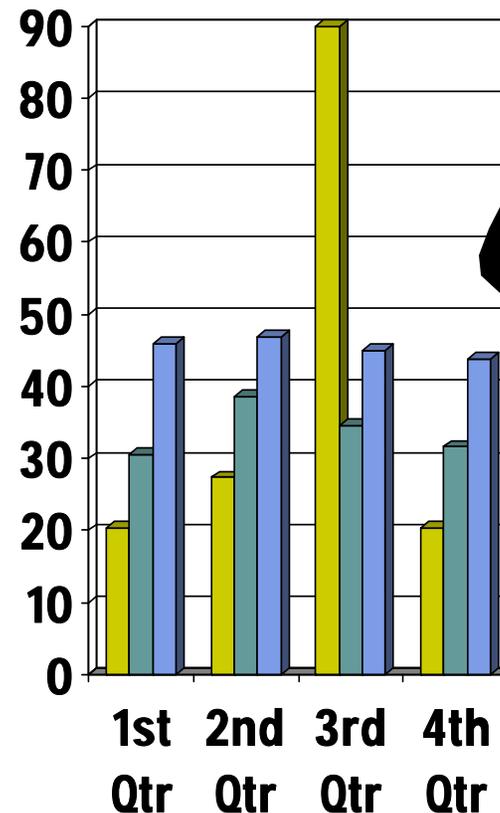


- Clinical definitions
  - Individualized
  - Used by physicians for making therapeutic decisions
- Surveillance definitions
  - Population-based
  - Must be applied uniformly and consistently
  - Preventability/inevitability not considered

# Methods of Presentation of Data



- Line listing
- Monthly summary
- Site and pathogen
- Site and service
- Tables, graphs, charts



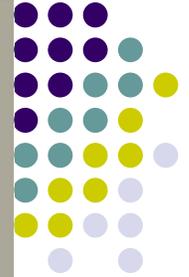


## LINE LISTING OF RESIDENT INFECTIONS

Month \_\_\_\_\_ Year \_\_\_\_\_

Room _____ Unit _____ Name _____ Admission date _____ Type of Infection _____ If UTI, catheter present? Yes/ No	Symptoms/Date	Cultures: Date/Site/Results	Treatment	Other actions (if needed)	Does not meet infection criteria	HAI	CAI
Room _____ Unit _____ Name _____ Admission date _____ Type of Infection _____ If UTI, catheter present? Yes/ No	Symptoms/Date	Cultures: Date/Site/Results	Treatment	Other actions (if needed)	Does not meet infection criteria	HAI	CAI
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HAI = healthcare-associated infection    CAI = community acquired infection



## HEALTHCARE-ASSOCIATED INFECTION SUMMARY REPORT BY RESIDENT DAYS

Month/Year \_\_\_\_\_

	UNIT				TOTAL	Infections/1000 Resident Days	
	1	2	3	4			
<b>Urinary Tract</b>							
With Foley							
Without Foley							
<b>Respiratory</b>							
Upper							
Lower (pneumonia or bronchitis)							
<b>Wound</b>							
Surgical							
Decubitus							
Other (skin)							
<b>Conjunctivitis</b>							
<b>Sepsis (Bloodstream)</b>							
<b>Other</b>							
<b>TOTAL BY FLOOR OR UNIT</b>							
<b>A. This month's total infections:</b>	$\div$	<b>B. Total Resident Days for month:</b>		X	1,000	=	<b>C. Infections per 1000 resident days:</b>
	$\div$			X	1,000	=	
<b>Specific Trends:</b>							



# Surgical Site Infection (SSI)

OMB No. 0920-0666  
Exp. Date: 09-30-2012



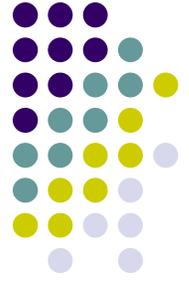
*required for saving **required for completion	
Facility ID:	Event #:
*Patient ID:	Social Security #:
Secondary ID:	
Patient Name, Last:	First: Middle:
*Gender: F M	*Date of Birth:
Ethnicity (specify):	Race (specify):
*Event Type: SSI	*Date of Event:
NHSN Procedure Code:	ICD-9-CM Procedure Code:
*Date of Procedure:	*Outpatient: Yes No
*MDRO Infection Surveillance:	<input type="checkbox"/> Yes, this event's pathogen & location are in-plan for the MDRO/CDAD Module <input type="checkbox"/> No, this event's pathogen & location are <b>not</b> in-plan for the MDRO/CDAD Module
*Date Admitted to Facility:	*Location:
<b>Event Details</b>	
*Specific Event:	
<input type="checkbox"/> Superficial Incisional Primary (SIP)	<input type="checkbox"/> Deep Incisional Primary (DIP)
<input type="checkbox"/> Superficial Incisional Secondary (SIS)	<input type="checkbox"/> Deep Incisional Secondary (DIS)
<input type="checkbox"/> Organ/Space (specify site): _____	
Specify Criteria Used (check all that apply)	
<u>Signs &amp; Symptoms</u> <input type="checkbox"/> Fever <input type="checkbox"/> Purulent drainage or material <input type="checkbox"/> Pain or tenderness <input type="checkbox"/> Localized swelling <input type="checkbox"/> Redness <input type="checkbox"/> Heat <input type="checkbox"/> Fever <input type="checkbox"/> Incision deliberately opened by surgeon <input type="checkbox"/> Wound spontaneously dehisces <input type="checkbox"/> Abscess <input type="checkbox"/> Hypothermia <input type="checkbox"/> Apnea <input type="checkbox"/> Bradycardia <input type="checkbox"/> Lethargy <input type="checkbox"/> Cough <input type="checkbox"/> Nausea <input type="checkbox"/> ...	<u>Laboratory</u> <input type="checkbox"/> Positive culture <input type="checkbox"/> Not cultured <input type="checkbox"/> Positive blood culture <input type="checkbox"/> Blood culture not done or no organisms detected in blood <input type="checkbox"/> Positive Gram stain when culture is negative or not done <input type="checkbox"/> Other positive laboratory tests <sup>‡</sup> <input type="checkbox"/> Radiographic evidence of infection  <u>Clinical Diagnosis</u> <input type="checkbox"/> Physician diagnosis of this event type <input type="checkbox"/> Physician institutes appropriate antimicrobial therapy <sup>‡</sup> <sup>‡</sup> per organ/space specific site criteria



# Data Interpretation

- Clusters of infections (closely grouped series of infections – time or geographic)
- Outbreak (excess cases over normal)
- Sentinel events (single occurrence which requires action)
- Trend (increase in specific infections over time – at least 6 consecutive data points)

# Data Interpretation



- Compare with previous date (month, year, season)
- Consider particular risk factors
- Increase on one unit, floor, building, or service
- Seasonal occurrence

# Numerators



- New cases of infection for the period of review

# Denominators



- Census (rarely used)
- Patient/client/resident days, total cases of a specific class of surgery e.g. class I or II
- Outpatient visits
- Device days

# More commonly used: Statistics



New infections for the month

$$\frac{\text{New infections for the month}}{\text{Total resident days}} \times 1000 = \text{inf./1000 res. days}$$

Example:  $14 \text{ inf./}3240 \text{ days} = .0043 \times 1000$   
 $= 4.3 \text{ infections per } 1000 \text{ resident days}$

# Statistics



New infections for the month

$$\frac{\text{New infections for the month}}{\text{Total visits or procedures}} \times 1000 = \frac{\text{inf}}{\text{visits or procedures}} \times 1000 = \text{___}$$

Example:  $14 \text{ inf.} / 3240 \text{ procedures} = .0043 \times 1000$   
 $= 4.3 \text{ infections per } 1000 \text{ procedures}$

# Healthcare-associated Infection Rates using Device Days



New cases of UTIc

\_\_\_\_\_

Total urinary device days

X 1000=

1000 urinary device days

#UTIs per

Example: 2 UTIs divided by 240 foley days = .0083 X  
1000 = 8.3 UTIc per 1000 foley catheter days

# What rates are published?



- Difficult to find published rates for many non-hospital settings except LTCFs
- Some limited articles for behavioral health, correctional facilities, home care – very low rates

# Magnitude of the Nosocomial Infection Problem in LTC



- Prevalence rates found:  
2.7% - 32.7%
- Incidence rates found:
  - Older data: 2.6 - 7.1 infections/1000 resident days
  - Newly published data (Sept. 2008):
    - 1.8 – 13.5 infections/1000 resident days



# What rates are published?

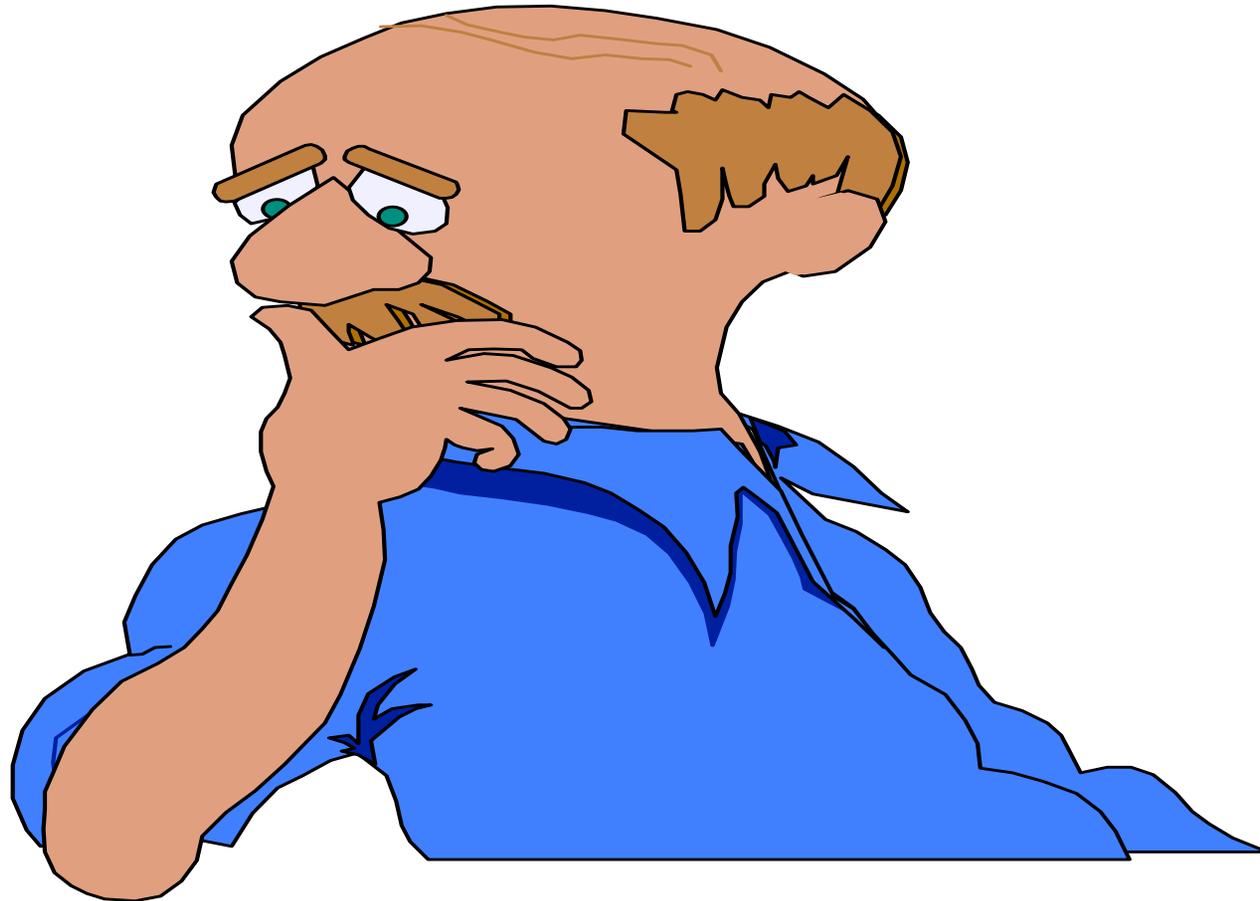
- Published - Behavioral Health
- Incidence rates found:
  - Less than .5% overall



# Surveillance notebook

- Large enough to hold 1-2 year's data
- Divided by month (Jan. - Dec. tab dividers)
- Behind the month's tab:
  - Monthly summary/device days form
  - Line listing
  - Outbreak forms
  - Compliance monitoring
  - Lab results (if you choose to keep them)

# How much time is needed for surveillance?



# Additional Issues of Importance



- Control of Multi-drug Resistant Organisms in Your Setting
- CDC guidelines address:
  - Acute care
  - Long term care
  - Ambulatory care
  - Home care

# Additional Issues of Importance



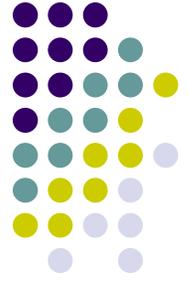
- Isolation Precautions Specific to Your Setting
  - Obstacles
  - Set-up for Precautions
  - Discontinuing precautions

# Additional Issues of Importance



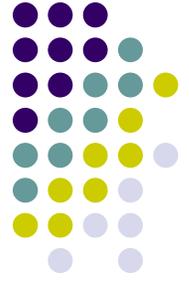
- Staff Education in Your Setting
  - Orientation
  - Annual mandatory
  - One on one

# Additional Issues of Importance



- Employee Health and OSHA
  - Immunizations
  - Exposures
  - Log of employee illnesses

# Additional Issues of Importance



- Policies and Procedures
  - Legal issues
  - Compliance
  - Updates

# Additional Issues of Importance



- Monitoring Compliance with Standards of Practice and Regulations
  - How do you do it?
  - What do you find?

# Additional Issues of Importance



- .....other issues?

# Discussion/Questions – Issues of Concern

