Creating A Comprehensive Surveillance Program In Long-Term Care

Infection Prevention & Control
Boot Camp For Long-Term Care Facility
Infection Preventionists

Objectives

- At the conclusion of this presentation, participants will be able to:
- Describe the components of a surveillance program
- Understand how to utilize data to improve resident outcomes
- Explain the surveillance tracking and trending process
- Review forms for documenting findings
- Understand how to utilize McGeer's Criteria to define infections in Long-term Care Facilities
- Discuss how to analyze data collected
- Provide practical experience in developing intervention plans based on data collected

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- ✓ Observations
- ✓ Interviews
- ✓ Medical Record audits
- ✓ Analysis of the data

- **Where do I begin?**
- **Where do I find the time?**

Creating a Comprehensive Surveillance Program

The Interdisciplinary Coordinator[1]

- The Infection Preventionist (IP) ensures exchange of essential information between all departments
  - Ensures data collection is thorough and documented
- IP oversees daily practices of staff
- IP acts as liaison between the facility & Public Health Department
- IP advises healthcare team & visitors of isolation policies, as appropriate
- IP provides surveillance summaries to the Infection Control/QAPI/Safety Committees
- IP makes recommendations to committees for follow-up

Forms[2]

- Utilize what is most effective to track and trend infections
  - Individual assessment form and/or Surveillance log
- Monthly summary report/quarterly summary report
- Plot infections on floor plan of facility (mapping)
- Maintain multi-drug resistant organisms (MDRO) logs
- IP nurse's note for documenting infection control information each month
- Department checklist (nursing, dietary, housekeeping etc.)
- Hand hygiene/personal protective equipment (PPE) audit form
- Antibiotic review form

SURVEILLANCE DATA COLLECTION FORM[3]

Resident name: _____ Room#: _____
Date of Admission: _____ Date of Onset of Symptoms: _____
Report Completed By: _____

RESPIRATORY TRACT INFECTIONS

Temperature: **Pulse:** **Respirations:**

COMMON COLD SYNDROME OR PHARYNGITIS		INFLUENZA-LIKE ILLNESS	
At least 2 criteria must be present		**Both criteria 1 and 2** must be present	
1. Runny nose or sneezing		1. Fever	
2. Stuffy nose (i.e., Congestion)		2. **At least 3** of the following influenza-like illness sub-criteria	
3. Sore throat or hoarseness or difficulty swallowing		a. Chills	
4. Dry Cough		b. New headache or eye pain	
5. Swollen or tender glands in the neck (cervical lymphadenopathy)		c. Myalgias or body aches	
		d. Malaise or loss of appetite	
		e. Sore throat	
		New or increased dry cough	

TREATMENT

Antibiotic Treatment: _____ **Date Started:** _____
Was resident admitted to hospital?: _____ **Dates:** _____
Drug / Dosage / Route: _____
Culture Y / N: _____ **Type:** _____ **Date:** _____
Results: _____
Isolation / Precaution: _____ **Type:** _____

DO NOT FILL OUT THIS PART - FOR INFECTION PREVENTIONIST NURSE USE ONLY

[ ] Health Associated Infection (**HAI**) [ ] Community Associated Infection (**CAI**)

Additional Notes: _____

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Facility: Infection Prevention and Control Surveillance Log[4] Month & Year:

Resident Name	Admit Date	Onset Date	Urine	Respiratory	Eye	Blood	GI	Other	RM PI*	I.P.S. (Foley)	Fever	Sign & Symptoms	Mental Status (Confusion)	Organism on Culture	X-Ray (+/-)	Treatment	CAI	HAI	Dx NOT Transferred

I= Recurrent (infection which occurs within 14 days after completion of ATB for initial infection) M=Maintenance, P=Prophylaxis I.P.S. = Invasive Procedure Site (i.e. PIC)
HAI = Healthcare Associated Infection CAI= Community Associated Infection *According to McGeers Criteria

Sample

Infection Control Monthly/Quarterly Summary Report[3]

FACILITY:	MONTH/YEAR:
[ ] Monthly Report	[ ] Quarterly Report

Number of residents transferred to hospitals due to infections:	
Number of Healthcare Associated Infections (HAI):	Number of Community Associated Infections (CAI):
Rate of HAI per 1000 resident days for month:	Rate of CAI per 1000 resident day for month:
Number of infections cultured:	
Number of resident days:	
Resident Infection Prevention & Control	Employee Health
• # of TB Converters:	• # of TB Converters:
• # of Influenza Vaccine Administered:	• # of Employee Infection Reported:
• # of Pneumococcal Vaccine Administered:	• # of Influenza Vaccine Administered:
MDRO Health Associated Infection (HAI)	MDRO Community Associated Infection (CAI)
# of MRSA HAI:	# of MRSA CAI:
# of VRE HAI:	# of VRE CAI:
# of C Difficile HAI:	# of C Difficile CAI:
# Other MDRO's HAI:	# Other MDRO's CAI:
# HAI: UTI w/o Catheter: UTI with Catheter:	
# HAI: URI: Pneumonia: LRI: Influenza or ILI:	
# HAI: Skin: GI: Stool: Eye/Ear: Blood:	
CDPH Directives (AFL):	Total # of Infections for Quarter: Month: Month: Month:
Policy and Procedure Implementation/Revision/Review:	
Care Plan Reviewed:	

Total # of Infections	UTI with Cath	UTI with Cath	Resp	Skin	GI	Stool	Eye/Ear	Blood

Issue (s) Identified:

Plan of action based on the issues identified:

Action Plan:	Responsible Staff:	Goal Date:

Follow-up of prior concern:	Resolved: (yes/no)	Comments (reason not resolved and action plan):

The meeting adjourned at: (am/pm)	Infection Preventionist:
Report to: CQI Committee	Medical Director Name::
DHS Name::	Administrator Name:

Sample

VRE LINE LISTING REPORT[5]

NURSING STATION/UNIT_____ YEAR_____

NAME OF RESIDENT	ROOM NO.	SEX	ADMIT DATE	ONSET OF SYMPTOM DATE	NAME OF FACILITY ADMITTED FROM	ANTIBIOTICS USED	ORIGINAL CULTURE DATE: DUE TO COLONIZATION OR INFECTION?	INVASIVE RISK SITES	DATE WHEN COLONIZED	OTHER MDRO COLONIZATION

Sample

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Audits

Audit & Feedback

- Hand hygiene compliance
- PPE compliance
- Treatment nurse audit
- Housekeeping-Daily and Terminal cleaning audits
- Departmental audits

INFECTION CONTROL COMPLIANCE AUDIT [5]

OBSERVATION DATE_____EVALUATOR_____

NAME of PERSON OBSERVED	ROLE IN FACILITY*	OBSERVATION ROOM NUMBERS	STANDARD PRECAUTIONS USED	HAND HYGIENE USED SOAP & H20 OR ABHR	APPROPRIATE TRANSMISSION-BASED ISOLATION PRECAUTIONS USED (IF APPLICABLE)	GLOVES & LINEN USED APPROPRIATELY (IF NO, LIST CATEGORY OF NON-COMPLIANCE)	PROPER POSTING OF ISOLATION SIGNS	100% COMPLIANCE WITH ISOLATIO YES OR NO LIST OBSERVED VARIANCE IF NO**	
								YES	NO

Sample

*ROLE IN FACILITY CODE: 1.RN 2.PHYSICIAN 3. NURSING ASSISTANT 4. RT 5.REHAB 6.DIETARY 7.HOUSEKEEPING 8.OTHER HCW 9.VISITOR

**ISOLATION VARIANCE NON-COMPLIANCE TO NOTE IN THE "NO" COLUMN : GLOVES, GOWNS, MASK, OR GOGGLES NOT USED WHEN INDICATED.

djmemRNOC2009

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TREATMENT NURSE OBSERVATION [5]

NURSE OBSERVED_____EVALUATOR:_____

DATE:_____

OBSERVATION	YES	NO	COMMENTS
HCW performed hand washing prior to handling clean contents of treatment cart			
Treatment cart left outside of the room, locked when nurse not present			
Physician order for treatment available			
All supplies collected before leaving and entering resident's room			
Solutions dated and discarded after 24 hours (i.e., normal saline)			
Privacy provided before beginning treatment			
Nurse informed resident of treatment she/he intends to perform			
Nurse changed gloves when appropriate/Proper use of gloves			
Clean field set up at bedside			
Hand hygiene performed with each removal and application of gloves at appropriate times			
Treatment performed with appropriate "no touch" techniques to avoid cross-contamination. Always cleanse wd. from area of least contamination to most contamination			
Observe wound for size, color drainage and appearance (measure wound before application of medication)			
Discard soiled materials appropriately			
Were items used at bedside returned to the treatment cart before sanitizing item (like scissors)			

CONCLUSION_____

Let's Get Started

- In-service your licensed staff on their role in data collection
  - Instruct licensed nurses on how to fill out infection control (IC) surveillance forms
- Consider getting an assistant for IP to perform audits
- Select forms to be used and designate where they will be kept for the IP to retrieve and review
- Review documentation often-this is an ongoing program
  - Data collected must be reviewed frequently (weekly)

Environmental Audits[6]

- Sample audits can be found in CDPH Enhanced Standard Precautions Guideline (2010)[8]
  - Daily cleaning checklist
  - Terminal cleaning checklist

Revised McGeer Criteria (2012)[7]

- Definition of infection for long-term care facilities
- A consistent way to judge each possible infection event
- Compare observed signs and symptoms of each resident with McGeer's Criteria to distinguish between:
  - **Community-acquired infection (CAI)** – developed outside of LTCF
  - **Healthcare-associated infection (HAI) –** your nosocomial event, or
  - **Does not meet criteria (DNMC) –** not enough signs or symptoms present in the precise site of suspected infection

Definition of UTI without Foley[7]

Both criteria 1 and 2 must be present:

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

LOOK WHAT'S NEW!

UTI without Foley[7] (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

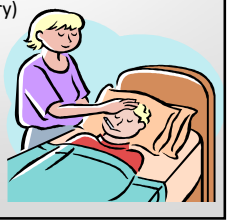
LOOK WHAT'S NEW!

Constitutional Criteria

A. Fever
B. Leukocytosis or >bands
C. Acute change in mental status from baseline
D. Acute functional decline

Changes in Revised McGeer's (2012)

- 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)



Other Changes in McGeer's Criteria

- Health-care associated infection (HAI) definition: symptoms that manifest after resident is in your facility for **more than 2 calendar days**
- Influenza definition: no seasonality for influenza
- *Clostridium difficile* and norovirus both have their own definition, separate from gastrointestinal infection

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Confusion Assessment Method Criteria

Acute Onset →
- Evidence of acute change in mental status from resident's baseline

Fluctuating →
- Behavior fluctuating (e.g. coming & going or changing in severity) during assessment

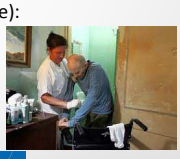
Inattention →
- Resident has difficulty focusing attention (e.g. unable to keep tract of discussion or easily distracted)

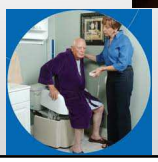
Disorganized thinking →
- Resident's thinking is incoherent (rambling conversations, unclear flow of ideas)

Altered level of consciousness →
- Resident's level of consciousness is described as different from baseline (hyper alert, sleepy, drowsy, difficult to arouse, or non responsive)

Acute Functional Decline Criteria

- A **new 3 point increase** in total ADL score (range 0-28) from baseline on 7 ADL items each scored from 0 (independent) to 4 (total dependence):
  - Bed mobility
  - Transfer
  - Locomotion within LTCF
  - Dressing
  - Toilet use
  - Personal hygiene
  - Eating

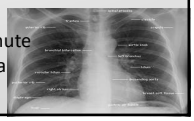




Pneumonia

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



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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)

Skin, Soft Tissue and Mucosal Infections

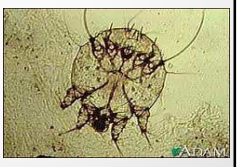
At least one of the following criteria must be present:

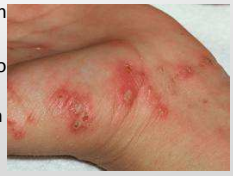
1. Pus present at wound, skin, or soft tissue site
2. New or increasing presence of a least four of the following signs or symptoms sub-criteria:
   a. Heat at affected site
   b. Redness at affected site
   c. Swelling at affected site
   d. Tenderness **OR** pain at affected site
   e. Serous drainage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

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

Kaplan's Criteria for Norovirus

- All criteria need to be present, in the absence of laboratory confirmation
  - Vomiting in more than half of affected persons
  - A mean incubation period of 24-48 hours
  - A mean duration of illness of 12-60 hours
  - No bacterial pathogen is detected in stool culture

Clostridium 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 pt. 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

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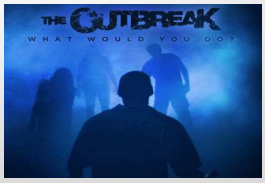
Do You Have A Problem?

- 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

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Antimicrobial Stewardship Plan

- Policy for Antimicrobial Stewardship Plan (ASP)[8]
- Review use of antibiotics[2]
- Share findings with Quality Assurance Committee and all clinicians in your facility
- Focus efforts on one problem to start with
  - Begin with "low hanging fruit," i.e., urinary tract events
- Education campaign to include all licensed nurses and clinicians providing care to your residents

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Communication

Communicate!
With your facility team!

Communicate!
With your providers!

Communicate!
With local public health & acute care partners!

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In Summary

- Surveillance requires having a high level of suspicion
  - Allow for adequate time to investigate possible infections
  - Utilize effective forms- analyze data regularly
    - Analyze data using 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

Key Take-Aways

- Understand that each possible infection event must be individually assessed on its own merit
- Develop interventions appropriate to individual resident conditions

Questions?

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References

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