Behind the Mask:

Fundamentals of a Surveillance Program and Outbreak Management – Part II

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Lauren Musil BSN, RN

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1

Meet our Subject Matter Experts

Terry Micheels MSN, RN, CIC, FAPIC

Terry is a Masters-prepared registered nurse with 29 years' experience as an Infection Preventionist in acute care settings. Fourteen of her 29 years involved managing IPC programs for community- and academic multi-hospital systems, including outpatient and ambulatory services. She has been certified in Infection Control since 2009 and is a Fellow in APIC. She is currently an IPC Consultant. She has multiple publications and has presented at National Annual APIC Conferences, national IPC webinars and multiple regional conferences.

Alisha Sheffield BSN, RN CIC

Alisha is an Infection Preventionist and Registered Nurse with 21 years of experience in a variety of healthcare settings including ambulatory, acute care, and surgical areas. Over the past 13 years, she has worked as an Infection Preventionist in outpatient surgery as well as at a large academic medical center. Her recent work has focused on utilizing her IPC expertise to develop infection control tools and resources to assist Infection Preventionists in under-resourced settings.

Lauren Musil BSN, RN

Lauren is an Infection Preventionist with a background as Registered Nurse. She has a wide variety of healthcare experience having worked in neurology, neurosurgery, ambulatory surgery, home health and with the Nebraska Biocontainment unit. As an IP, her primary focus was in critical care, oncology, VAE prevention and as the IP to the Nebraska Biocontainment Unit. Her recent work has been spent in a grant funded role to develop innovative tools to aid IPs in rural and remote settings.

2

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3

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- If you have not registered, please enter the following information into the chat
  - Name
  - Phone Number
  - Email
  - Discipline/Role
    - E.g., RN, BSN
- Registered attendees will receive an email in 1-2 business days

4

Disclosure Declaration

- We have no financial disclosures or conflicts related to this presentation.
- This work has been grant funded through the Center for Disease Control and Prevention in support of Project Firstline.
- The views and opinions expressed during this webinar are those of the presenters and do not necessarily reflect those of the University of Nebraska Medical Center, The Nebraska Medical Center or the Centers for Disease Control and Prevention.

5

Overall Series Objectives

- Analyze the fundamental components of a robust infection prevention and control (IPC) program.
- Interpret guidelines, regulatory requirements, and best practice literature for a successful application to the infection prevention program.
- Utilize identified strategies to incorporate best practice into Infection Prevention programs.
- Integrate Infection Prevention program data to target prevention and improvement strategies.
- Combine acquired knowledge to enhance collaboration and teamwork within the healthcare system.

6

IPC Program Objectives

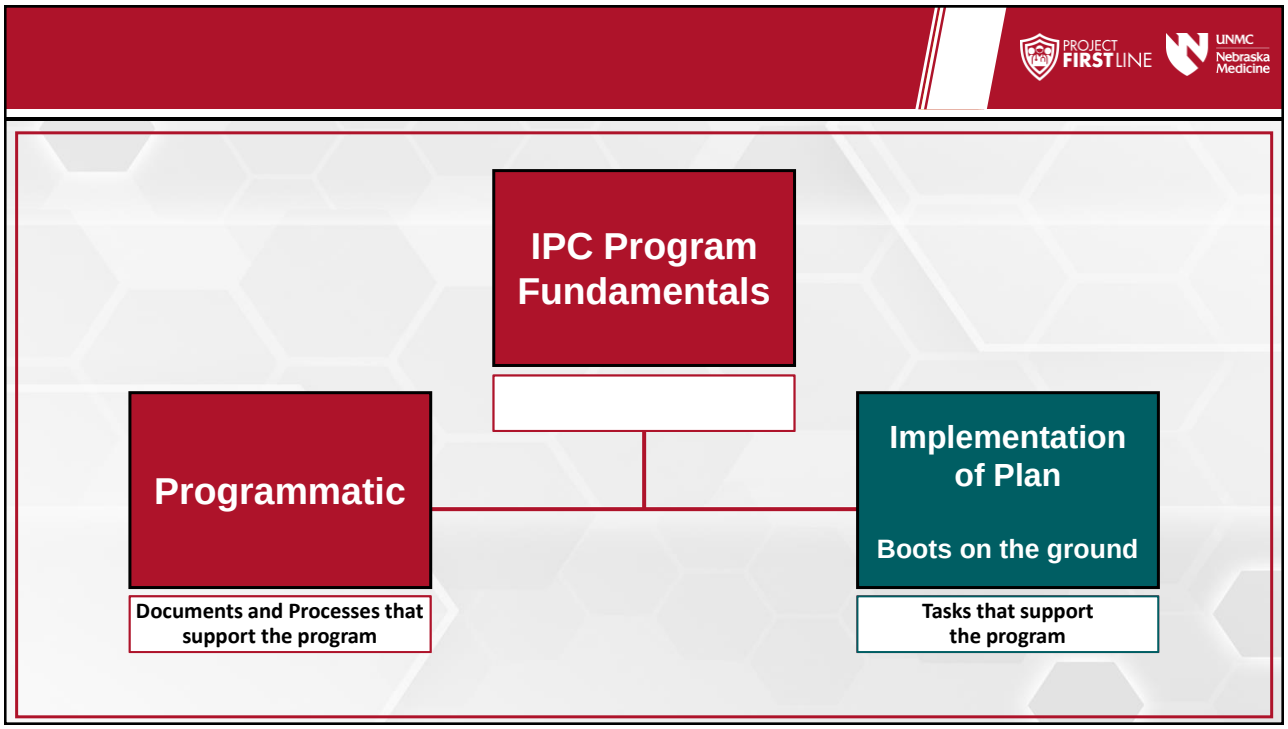
- Discuss the basic principles, terms, and methodologies used to perform surveillance in healthcare settings.
- Examine an Infection Prevention and Control (IPC) Surveillance program and the use of information technology.
- Explore statistical methods used to analyze surveillance data for performance improvement.
- Summarize how to detect an outbreak while performing IPC surveillance.
- Utilize epidemiological principles and surveillance techniques to identify, investigate and mitigate an outbreak.

7

Surveillance Webinar Outline

Surveillance Overview	Part I: Surveillance, TAPs, & CADs	Part II: Outbreak Detection & Investigation
• Key Concepts • Basics of Epidemiology • Infectious Disease Process • Program Design • Statistical Analysis	• Tell your hospitals story with data • Active Surveillance • Case Investigation	• Detecting an outbreak • Conducting an investigation • Case studies • Writing an outbreak report

8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IPC Program Fundamentals
Programmatic
Documents and Processes that support the program
Implementation of Plan
Boots on the ground
Tasks that support the program

9

Definitions[26]

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CLUSTER
A small aggregation (2-3) of cases grouped by time and place that may be greater than the expected number, whether the expected number is known or not

OUTBREAK
an increase in the occurrence of cases of infection or disease over what is expected in a defined setting or group in a specified time period

ENDEMIC
a disease that occurs regularly within an area or community

EPIDEMIC
a widespread occurrence of an infectious disease in a defined location at a particular time. The term may be used interchangeably with cluster.

10

Outbreak Detection

Recognizing a potential outbreak – cluster, pseudo-outbreak, endemic, or epidemic – occurs when an unusual pattern or an epidemiologically significant pathogen is identified.

11

Outbreak Detection[7]

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Key Steps to Help Identify an Outbreak

Baseline infection rate comparison	Cluster of infections	Individual cases

12

Investigation Process[5,25]

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- Confirm presence of an outbreak ~ *Identify the outbreak investigation team*
  - Verify diagnosis ~ *Lab findings, signs & symptoms*
    - Establish preliminary case definition ~ *Lit. review, alert admin*
      - Initial control & prevention plan
        - Methodology for case finding ~ *Prepare Line list, Epi curve*
          - Formulate a hypothesis
            - Additional risk mitigation measures
              - Define & measure success
                - After action communication

13

Confirm Presence of an Outbreak

Confirm & Validate

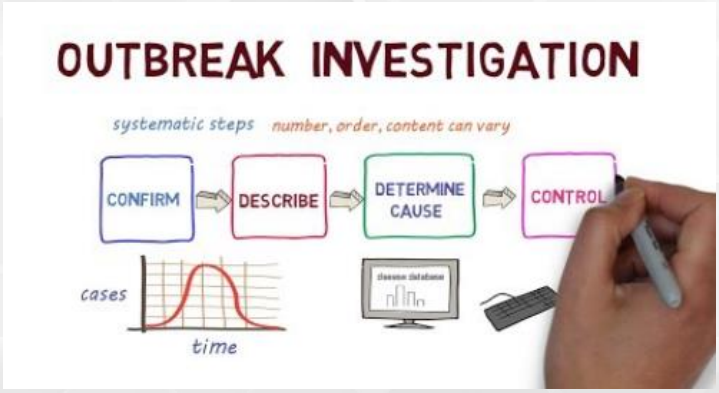

Image: Let's Learn Public Health, Outbreak Investigation https://www.youtube.com/watch?app=desktop&v=kUlKRIMxpZQ

14

Outbreak Management Team

Infection Control Team	Additional Internal Personnel
Infection Preventionist(s)	Clinical Director(s)
IPC Medical Director	Unit Manager(s)
Administrative Assistant Support	Chief Nursing Officer
Database Manager	Information/Media Relations
	Laboratory/Microbiology
	Epidemiologist, if available
	Risk Management
	QAPI Director

15

Verify the Diagnosis[2]

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Laboratory Tests

- Molecular Testing
- Serological Testing

Signs & Symptoms

- Lab results consistent with reported signs & symptoms

Implement initial IPC measures to mitigate transmission.

16

Establish a Preliminary Case Definition[3]

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A clear case definition is critical to effective investigation of an outbreak and should include four types of information:

- Clinical features
- Person
- Place
- Time

17

Case Categories

Once a preliminary case definition is established, there should be a concerted effort to identify new cases.

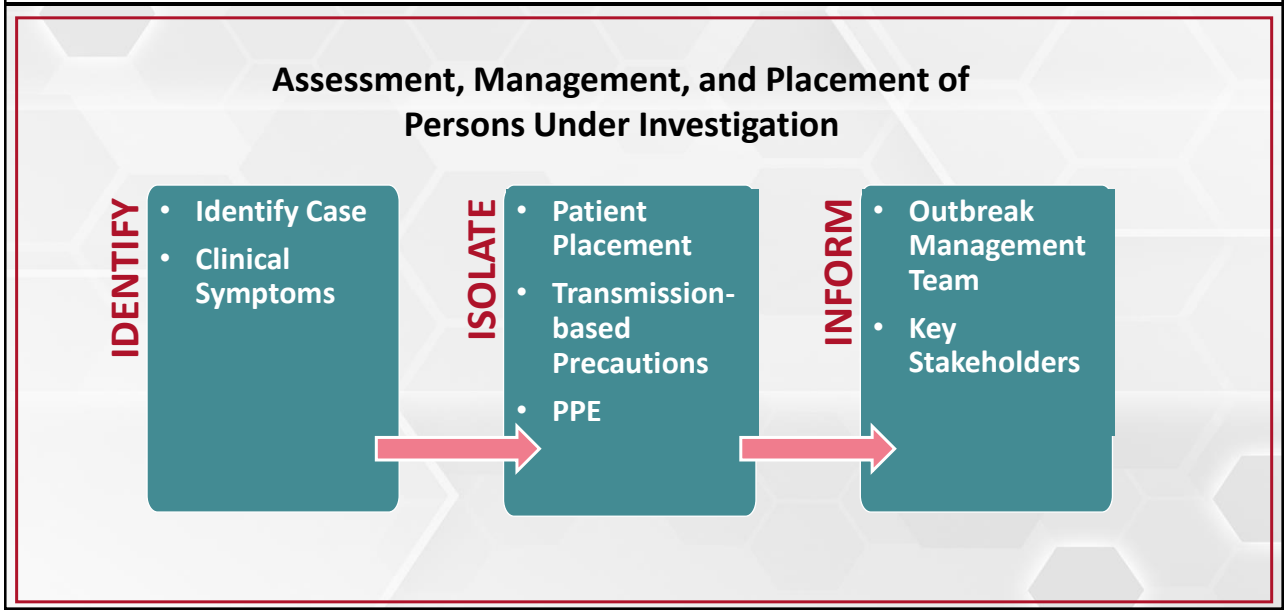
Confirmed Case
- Laboratory confirmation

Probable Case
- Clinical features of the disease, but lacks laboratory confirmation
- Usually have epidemiologic links

Possible Case
- Some clinical features

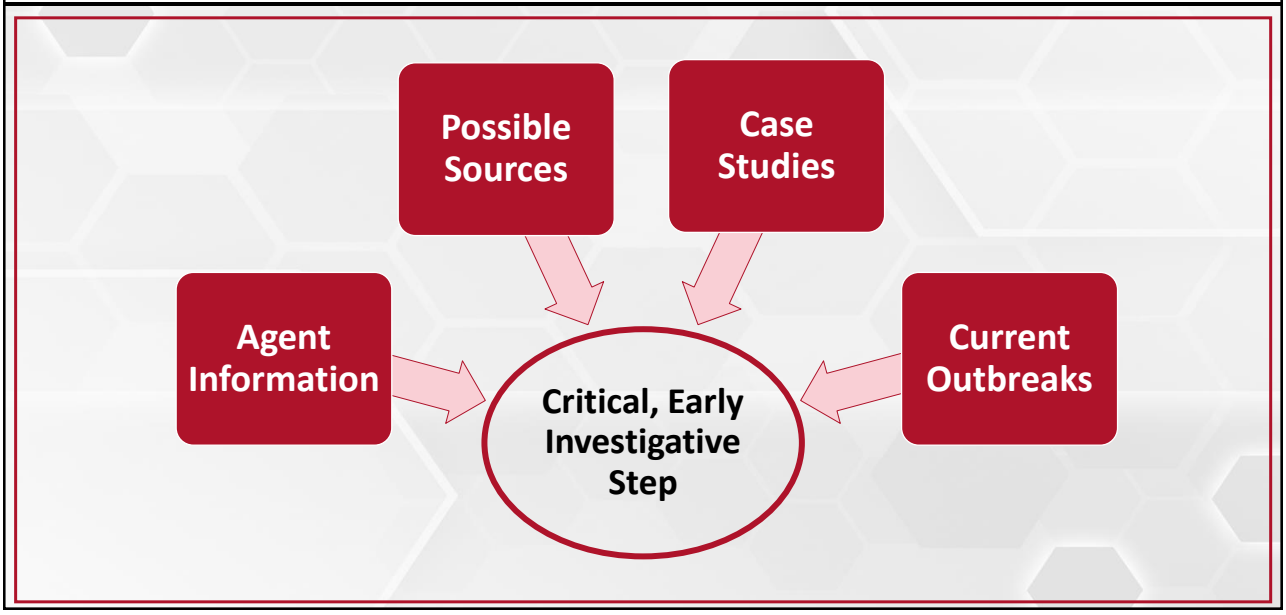
18

Initial Control & Prevention Plan[27]



19

Literature Review



20

Methodology for Case Finding

Image source: katemangostar on Freepik

21

Methodology for Case Finding ~ Case Location Map

- Location of cases
- Time course of the outbreak
- Incubation period of the disease

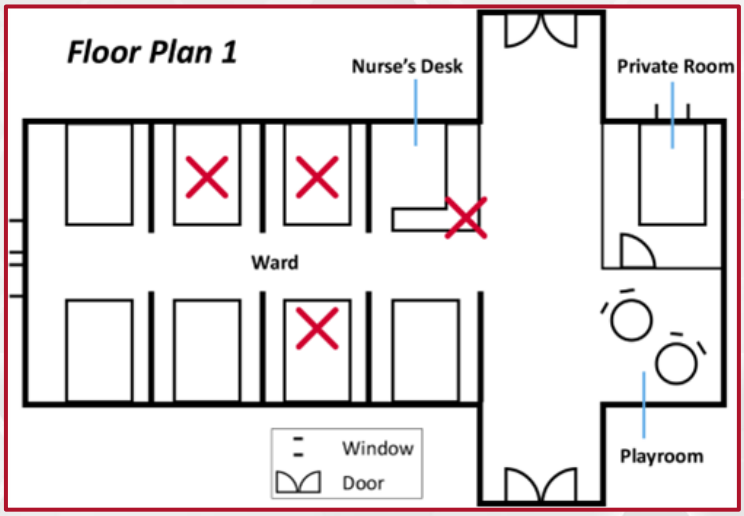


Image source: https://depts.washington.edu/edgh/app-ipc/web/outbreak_description.html

22

Methodology for Case Finding ~ Line List

Line Listing

- Case category
- Person information
- Signs & symptoms
- Laboratory test results
- Relevant exposure or risk factor

		Signs/Symptoms			Labs	Demographics	
Case #	Date of Symptom Onset	Diarrhea	Vomiting	Fever >101	Positive stool culture	Age	Gender
1	1/2/04	1	1	?	1	19	M
2	1/5/04	0	1	0	0	17	M
3	1/2/04	0	1	0	1	23	F
4	1/7/04	1	1	1	1	18	?
5	1/1/04	?	1	1	1	18	F

1="Yes" ?="Don't know"
0="No"

Image source: UNC School of Public Health https://slidetodoc.com/case-finding-and-line-listing-a-guide-for/

23

Methodology for Case Finding ~ Epidemiology Curve

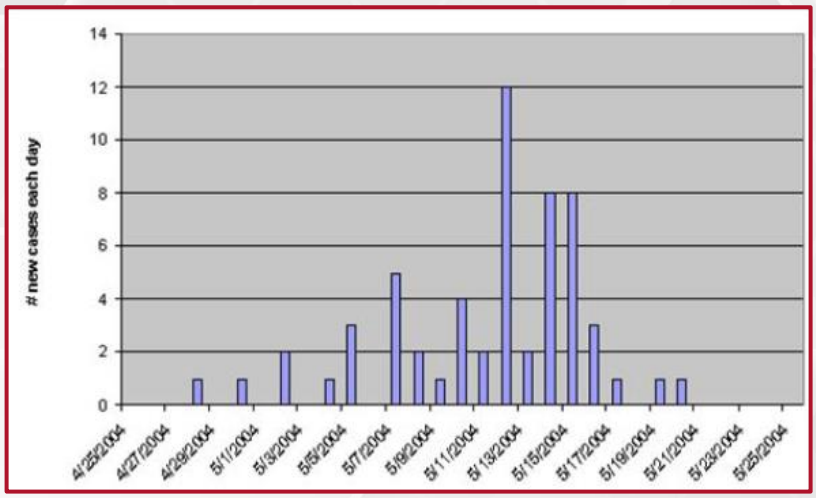


Image source: https://sphweb.bumc.bu.edu/otlt/mph-modules/ep/ep713_descriptiveepi/ep713_descriptiveepi3.html

Epidemiology Curve

- Shows the number of new cases at intervals of time
- Used to determine most likely period of exposure

Methodology for Case Finding ~ Epidemiology Curve

Period of Exposure

1. **Identify the Peak**
2. **Count back incubation period**
   - Average
   - Minimum
   - Maximum
3. **Most likely Period of Exposure**

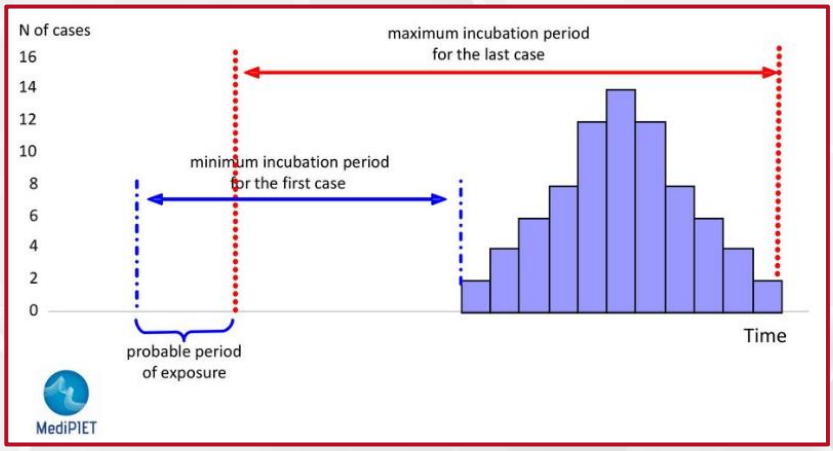


Image source: Epidemic curves Madrid, 3 February 2015 https://slideplayer.com/slide/13296388/

Methodology for Case Finding ~ Epidemiology Curve

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Types of Epi Curves

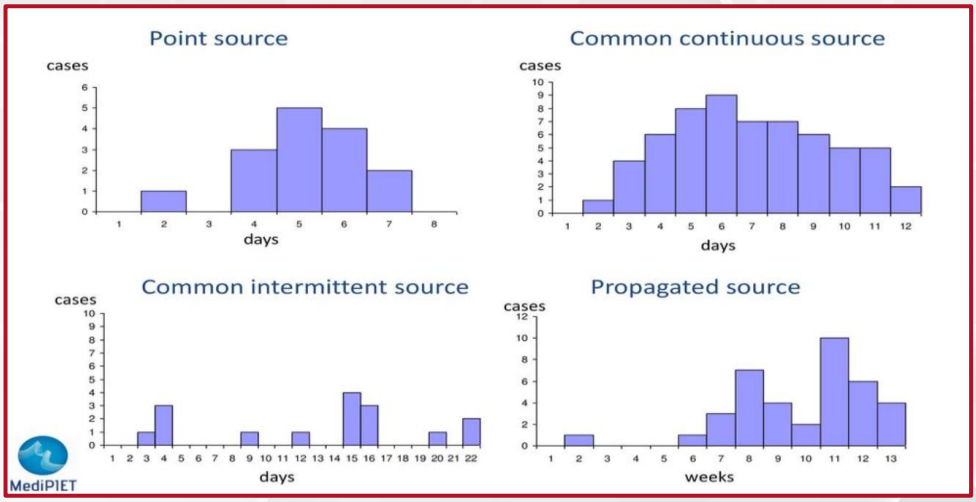
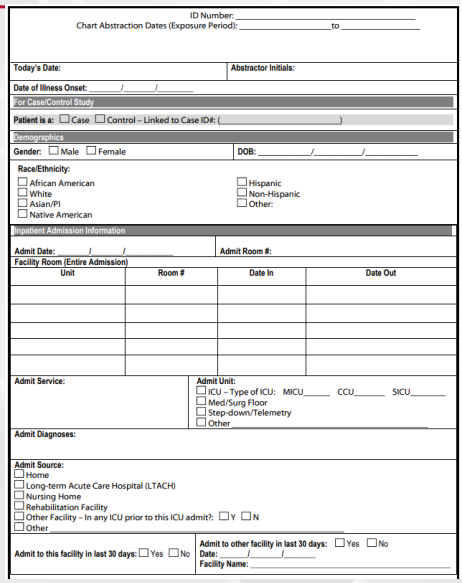


Image source: Epidemic curves Madrid, 3 February 2015 https://slideplayer.com/slide/13296388/

26

Interview and Observe

- What challenges do you face?
- What do you think contributed to the outbreak?
- What is the typical process? Does it ever deviate?
- When might you do it differently?
- Is there anything I am missing?



ID Number: _____
Chart Abstraction Dates (Exposure Period): _____ to _____

Today's Date: | **Abstractor Initials:**

Date of Illness Onset: ____/____/____

For Case/Control Study

Patient is a: ☐ Case ☐ Control – Linked to Case ID#: (_____)

Demographics

Gender: ☐ Male ☐ Female | **DOB:** ____/____/____

Race/Ethnicity:
☐ African American
☐ White
☐ Asian/PI
☐ Native American
☐ Hispanic
☐ Non-Hispanic
☐ Other:

Inpatient Admission Information

Admit Date: ____/____/____ | **Admit Room #:**

Facility Room (Entire Admission)

Unit	Room #	Date In	Date Out

Admit Service:

Admit Unit:
☐ ICU – Type of ICU: MICU_____ CCU_____ SICU_____
☐ Med/Surg Floor
☐ Step-down/Telemetry
☐ Other _____

Admit Diagnoses:

Admit Source:
☐ Home
☐ Long-term Acute Care Hospital (LTACH)
☐ Nursing Home
☐ Rehabilitation Facility
☐ Other Facility – In any ICU prior to this ICU admit? ☐ Y ☐ N
☐ Other _____

Admit to this facility in last 30 days: ☐ Yes ☐ No

Admit to other facility in last 30 days: ☐ Yes ☐ No
Date: ____/____/____
Facility Name: _____

Formulate a Hypothesis[25]

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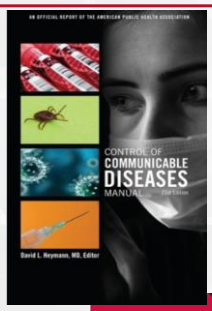
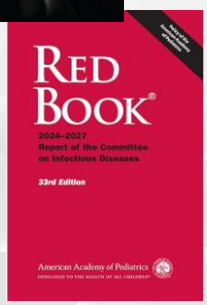
Hypothesis

- Differences
- Similarities
- Correlations





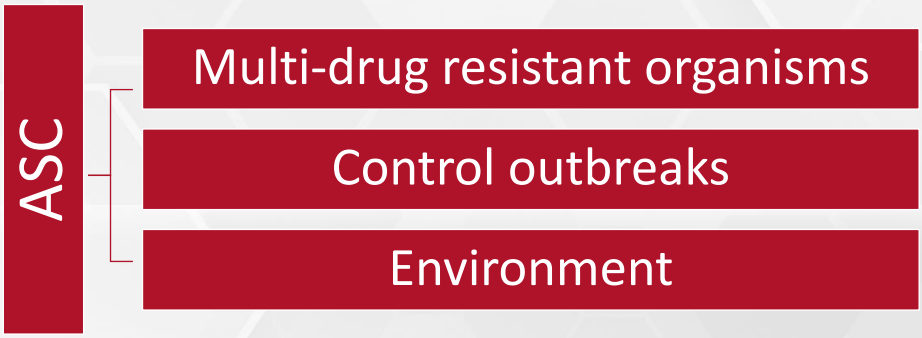
28

Additional Risk Mitigation Measures

29

Additional Risk Mitigation Measures ~Active Surveillance Cultures (ASC)

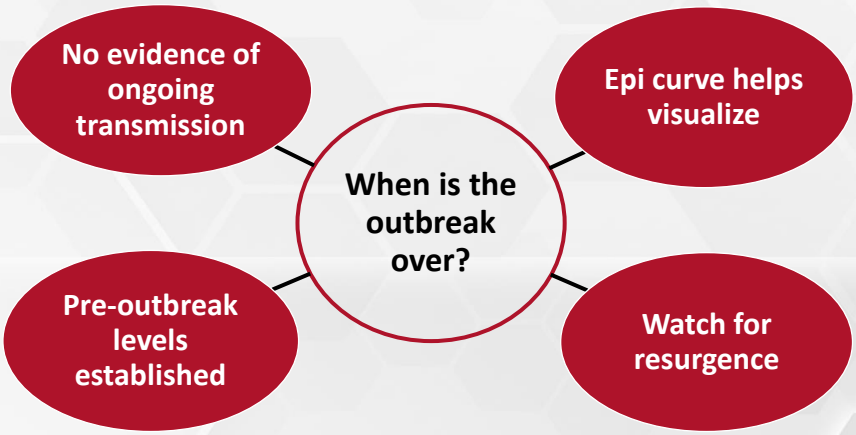
ASCs are used for a variety of infection control surveillance purposes



30

Define & Measure Success[13]

Commonly used criterion: Period of twice the longest incubation period without observing any new cases since the last possible transmission event



31

After Action Communication

Outbreak Title
Summary table (*Date range, case count, age range, gender, deaths, locations, etc.)*
Initial stages, verify diagnosis
Laboratory findings
Risk investigation, case definition
Initial control & prevention plan
Define the outbreak (C*ase finding, observations, line list, epi curve)*
Additional risk mitigation
Define & measure success
After action communication (*Recommendations/ challenges)*
Appendices *(Additional documents)*

- Written Summary Report
- Communication
  - Infection Control Committee
  - Leadership Committees
  - Involved Units
- Infection Control Risk Assessment
- IPC Program Evaluation

Add InnovateIPC.org/Outbreak Investigation Process and Documentation link)

32

Triggers for Patient Notification[4]

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Ethical principles

1. Transparency
2. Beneficence
3. Autonomy

Notifying patients when they have:

1. Experienced harm
2. Require information to identify and/or mitigate a potential harm
3. Their care is altered

Patient Notification Toolkit
https://www.cdc.gov/healthcare-associated-infections/hcp/patient-notification-toolkit/index.html

33

Infectious Exposure in Healthcare Personnel[16]

Evaluate the exposure incident, the exposed personnel, and the source

- Risk of Exposure
- Testing
- Options for postexposure prophylaxis or treatment
- Follow-up testing and treatment
- Work restrictions, if indicated
- Signs & symptoms of illness to report after an exposure
- Risk of transmitting infection to others

34

Stay Alert to Outbreaks

Sign up for Notifications, MMWR

HAN sign-up
https://emergency.cdc.gov/han/

Current Outbreak List
https://www.cdc.gov/outbreaks/

Tracking C. auris
https://www.cdc.gov/candida-auris/tracking-c-auris/index.html

MMWR Free Electronic Subscription
https://www.cdc.gov/mmwr/mmwrsubscribe.html

Infectious disease outbreaks currently reported on by the CDC

U.S.-Based Outbreaks

Recent investigations reported on CDC.gov

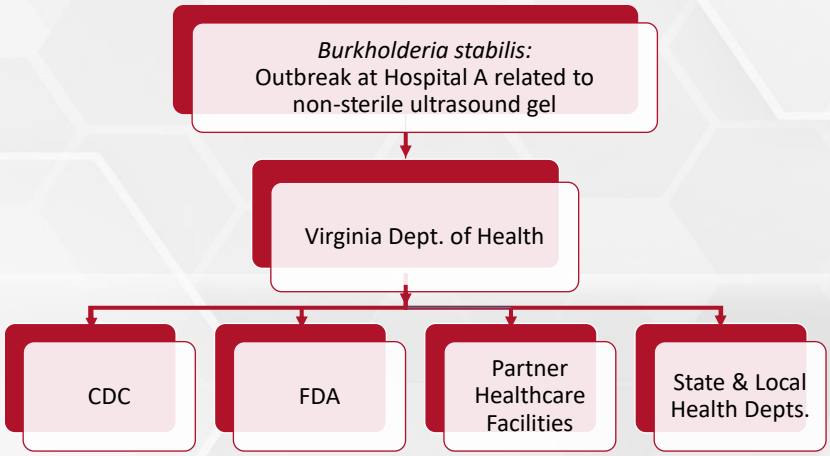
- Backyard Poultry – *Salmonella* Outbreaks
  ANNOUNCED MAY 2024
- Organic Walnuts – *E coli* Outbreak
  ANNOUNCED APRIL 2024
- Fresh Basil – *Salmonella* Outbreak
  ANNOUNCED APRIL 2024
- Measles Outbreaks 2024
  ANNOUNCED JANUARY 2024
- Coronavirus Disease 2019 (COVID-19)
  ANNOUNCED JANUARY 2020

CDC site accessed May 28, 2024

35

National Outbreak[9]

A cluster of 8 invasive infections lead to a national product recall



36

National Outbreak[10]

37

Outbreaks in Outpatient Settings[14]

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Injection Safety	• Reuse of syringes to access medication vials • Overt syringe reuse from one patient to another • Mishandling of injectable medications • Contents of single does vial for >1 patient • Drug Diversion • Use of common-source bag of saline to prepare saline flush
Device Reprocessing	• Improper reprocessing of instruments • Improper reprocessing of dental instruments • Visibly dirty equipment • No logs of autoclave use, maintenance, or performance checks
PPE Use	• Failure to wear surgical masks and gowns consistently • Healthcare personnel did not wear facemasks when performing spinal injections
Aseptic technique failures	• Procedural and infection control breaches • Healthcare personnel did not wear facemasks when performing spinal injections • Failure to follow aseptic technique when preparing injections
Failure to Follow IFUs	• Off-label use of lubricating gel directly on sterile tissues • Reuse of single-use breast implants as sizers

38

Recalling our Surveillance Finding

Variables	Patient A	Patient B
Demographics	66 y/o Male	70 y/o Female Diabetic
A/D/T	A-1/8/24, D-1/13/24 Readmit - Post-op Wound	A-1/8/24, D-1/16/24 Readmit - Wound Drainage
Date, Procedure	1/8/24 CBGB	1/8/24 CARD
Surveillance Criteria Met	SSI Organ space infection – MED (Mediastinitis)	SSI Deep Incisional Primary (DIP)
Date of Event (DOE)	2/5/24 (Readmission date, first retrievable S/S)	2/19/24 (Readmission date, first retrievable S/S)
FINAL Lab results, source, date	2/9/24 Staphylococcus aureus, MRSA tissue culture	2/23/24 Staphylococcus aureus, MRSA wound aspirate
Patient MDRO colonization status	History MRSA	No history MRSA

39

Infection Preventionist Role

- Initial detection and reporting
- Outbreak investigation
- Implementing control measures
- Communication and coordination
- Documentation and reporting
- Evaluation and feedback
- Ongoing prevention strategies

40

4 E's of Process Improvement

41

Literature Review

Agent Variables	Methicillin Resistant *Staphylococcus aureus* (MRSA)
Geographic Distribution	General population, acute care populations. One in three persons (33%) have nasal colonization.
Reservoir	Humans, rarely animals. Skin flora.
Incubation period	Variable and indefinite, commonly 4-10 days.
Communicability	Duration of an active lesion or autoinfection for carrier state.
Mode of transmission	Direct contact with an infected wound or contaminated hands.
Signs & symptoms	Skin infections: red, tender, swollen, boil. Infections: Abscess, invasive disease, SST, BSI, PNEU, SSI, CNS, Sepsis, Death.
Susceptibility	Greatest among newborns, chronically ill, elderly, debilitated. Resistant to beta-lactam antibiotics.

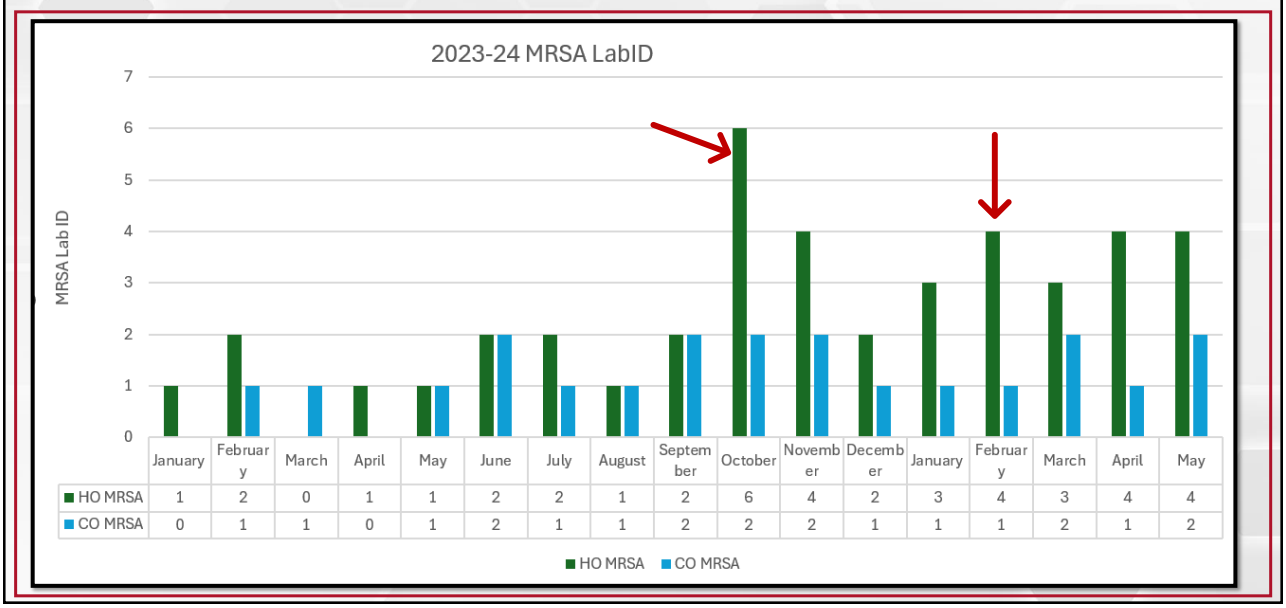
42

Preliminary Case Definition

"All current inpatients on the adult ICU, or previous patients with an overnight stay on the adult ICU since October 1, 2023, with new hospital-onset MRSA colonization or infection."

43

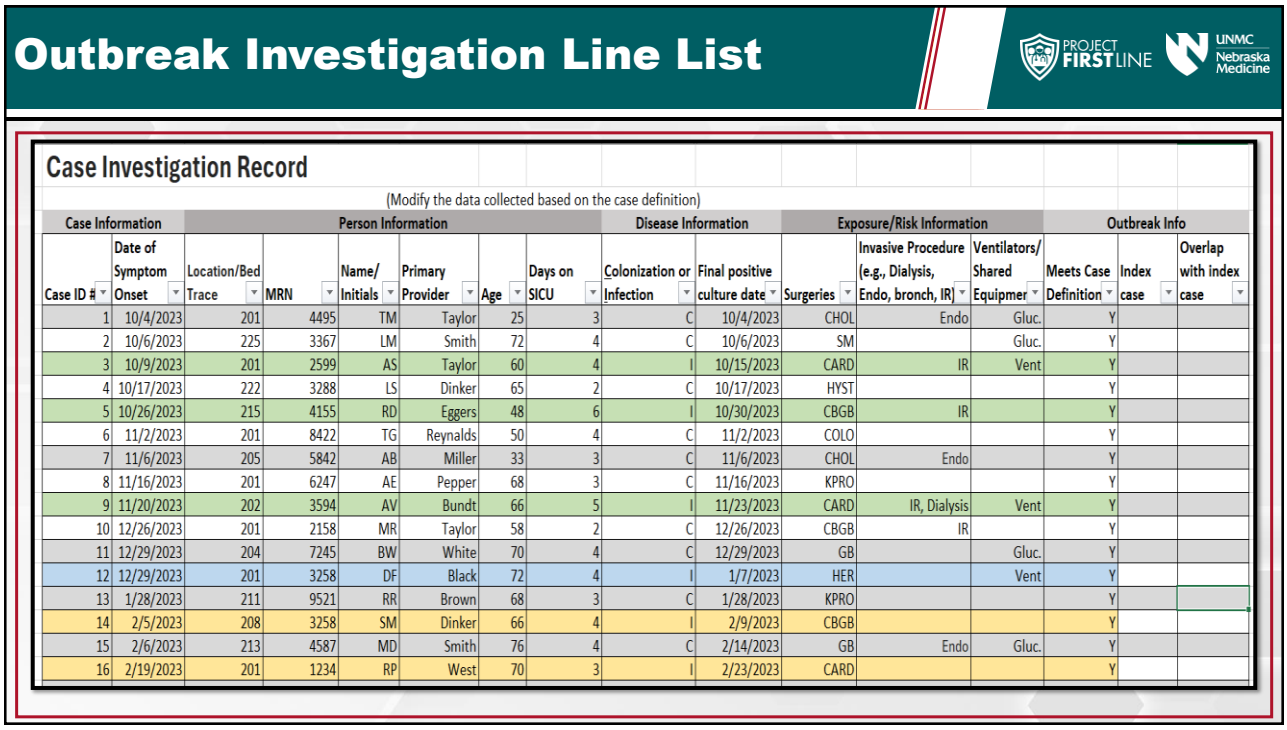
Outbreak Investigation Graph



	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May
HO MRSA	1	2	0	1	1	2	2	1	2	6	4	2	3	4	3	4	4
CO MRSA	0	1	1	0	1	2	1	1	2	2	2	1	1	1	2	1	2

44

Outbreak Investigation Line List



Case Investigation Record

(Modify the data collected based on the case definition)

Case Information		Person Information						Disease Information		Exposure/Risk Information			Outbreak Info		
Case ID #	Date of Symptom Onset	Location/Bed Trace	MRN	Name/ Initials	Primary Provider	Age	Days on SICU	Colonization or Infection	Final positive culture date	Surgeries	Invasive Procedure (e.g., Dialysis, Endo, bronch, IR)	Ventilators/ Shared Equipmer	Meets Case Definition	Index case	Overlap with index case
1	10/4/2023	201	4495	TM	Taylor	25	3	C	10/4/2023	CHOL	Endo	Gluc.	Y		
2	10/6/2023	225	3367	LM	Smith	72	4	C	10/6/2023	SM		Gluc.	Y		
3	10/9/2023	201	2599	AS	Taylor	60	4	I	10/15/2023	CARD	IR	Vent	Y		
4	10/17/2023	222	3288	LS	Dinker	65	2	C	10/17/2023	HYST			Y		
5	10/26/2023	215	4155	RD	Eggers	48	6	I	10/30/2023	CBGB	IR		Y		
6	11/2/2023	201	8422	TG	Reynalds	50	4	C	11/2/2023	COLO			Y		
7	11/6/2023	205	5842	AB	Miller	33	3	C	11/6/2023	CHOL	Endo		Y		
8	11/16/2023	201	6247	AE	Pepper	68	3	C	11/16/2023	KPRO			Y		
9	11/20/2023	202	3594	AV	Bundt	66	5	I	11/23/2023	CARD	IR, Dialysis	Vent	Y		
10	12/26/2023	201	2158	MR	Taylor	58	2	C	12/26/2023	CBGB	IR		Y		
11	12/29/2023	204	7245	BW	White	70	4	C	12/29/2023	GB		Gluc.	Y		
12	12/29/2023	201	3258	DF	Black	72	4	I	1/7/2023	HER		Vent	Y		
13	1/28/2023	211	9521	RR	Brown	68	3	C	1/28/2023	KPRO			Y		
14	2/5/2023	208	3258	SM	Dinker	66	4	I	2/9/2023	CBGB			Y		
15	2/6/2023	213	4587	MD	Smith	76	4	C	2/14/2023	GB	Endo	Gluc.	Y		
16	2/19/2023	201	1234	RP	West	70	3	I	2/23/2023	CARD			Y		

45

Outbreak Investigation Line List

Case Investigation Record

(Modify the data collected based on the case definition)

Case Information		Person Information						Disease Information		Exposure/Risk Information			Outbreak Info		
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5	10/26/2023	215	4155	RD	Eggers	48	6	I	10/30/2023	CBGB	IR		Y		
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8	11/16/2023	201	6247	AE	Pepper	68	3	C	11/16/2023	KPRO			Y		
9	11/20/2023	202	3594	AV	Bundt	66	5	I	11/23/2023	CARD	IR, Dialysis	Vent	Y		
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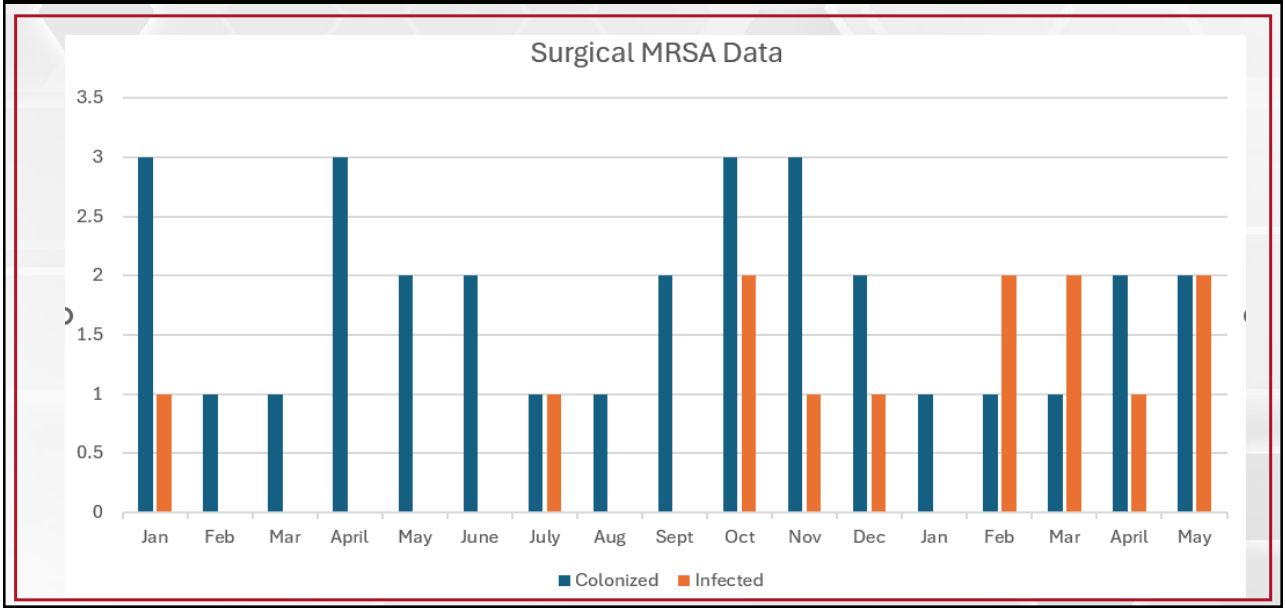
13	1/28/2023	211	9521	RR	Brown	68	3	C	1/28/2023	KPRO			Y		
14	2/5/2023	208	3258	SM	Dinker	66	4	I	2/9/2023	CBGB			Y		
15	2/6/2023	213	4587	MD	Smith	76	4	C	2/14/2023	GB	Endo	Gluc.	Y		
16	2/19/2023	201	1234	RP	West	70	3	I	2/23/2023	CARD			Y		

Confirm the Presence of an Outbreak



47

Initial Investigation

- Standard precautions with a private room
- EMR upgrade with ADL documentation changes
- Change CHG product
- Annual training

48

Initial Infection Control Measures[19]

IPC Measure	Rationale/Comment	Implement
Culture Environment	Easy to perform, expansive surface list, no specific room/surface to look for MRSA	No
Culture Equipment	Easy to perform, expansive equipment list, no specific equipment to look for MRSA	No
Isolation (single room or cohort)	Implement Contact Precautions for MRSA positive patients (infected, colonized)	Yes
Improve Hand Hygiene	Easy to aim for, all equipment needed is in place, assess current observation program	Yes
Improve CHG bathing	Easy to implement, assess current practice & policy	Yes
PPE compliance	Part of Standard Precautions & Contact, assess current practice	Yes
Change disinfection	Current products are effective, observe practice & methods	Observation Only
Change handling of equipment	No known breaches, assess practice for needed improvement (EVS, Ancillary & Unit staff)	Observation Only
Training and Education	Routine measure in all outbreaks, no additional costs	Yes

49

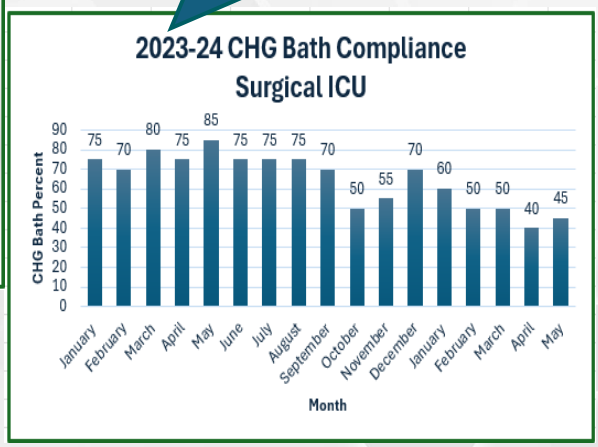
Outbreak Investigation

50

Questioning Attitude

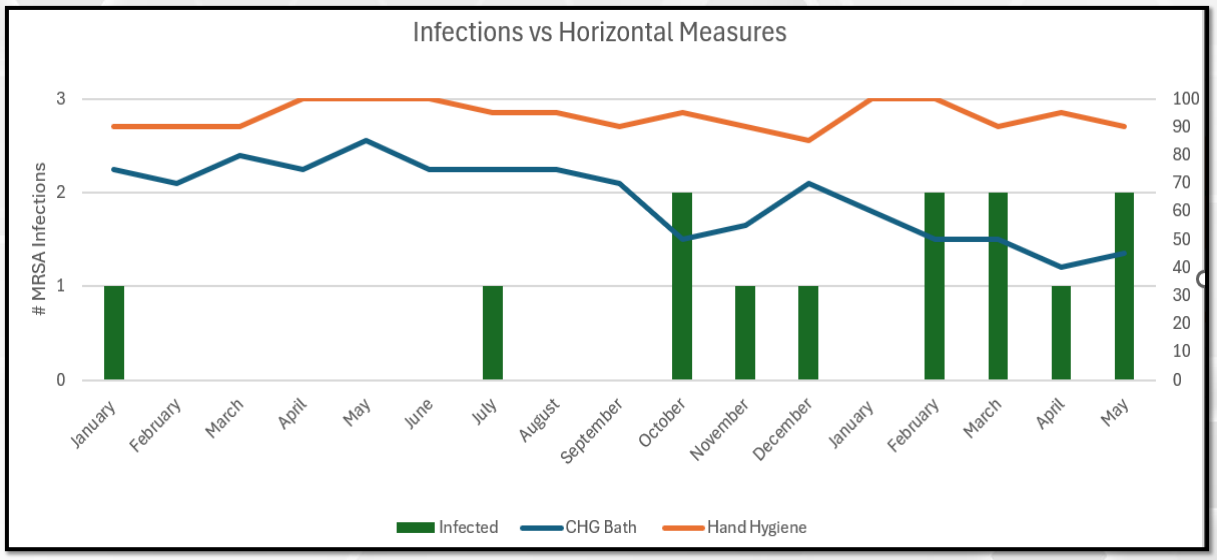
How accurate is the hand hygiene data?

Why did CHG bathing compliance drop in October 2023?



51

Outbreak Investigation Graph



52

Additional Infection Control Measures

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Optional control measures based upon ongoing risk assessment:

IPC Measure	Rationale/Comment	Implement
Consider PFGE to detect clonal similarities	Costs are moderate to expensive, determine if the same strain is responsible for the outbreak, add envir. culture testing	When to implement?
Active Surveillance Culture Patients	Moderately difficult to implement, moderate costs, need process & accountable person	No
Active Surveillance Culture Healthcare Staff	Potential legal issues, personal rights issue, may lose trust with leadership	No
Improve staff-to-patient ratio	Expensive measure as the number of staff would need to increase while the reimbursement for the patient care remains unchanged	No
Closure of Unit	Only rarely performed, quite expensive to close an entire unit to admissions of new patients	No

53

Define & Measure Success

Outcome Data Target:

- Return to pre-outbreak status (Jan-Sept '23) for a period of 3 consecutive months
  - *Mean #HO MRSA case count – 1.5*
  - *Median #HO MRSA case count – 2*
  - *Mean HO MRSA rate – 0.1*

Process Data Target:

- For a period of 3 consecutive months
  - *Unit-based CHG bathing rate ≥ 90%*
  - ***True*** *Hand hygiene percent compliance ≥ 80%*
  - *Room Cleaning ATP at 100%*

54

Engage, Educate, Execute and Evaluate

- **ENGAGE**
  - Outbreak Investigation Team, ICU
- **EDUCATE**
  - IPC interventions
  - Partner with ICU leaders to train and assess competency
- **EXECUTE**
  - Go live with identified actions
- **EVALUATE**
  - Audit & Feedback
  - Success measures
  - After action communication with committees, unit leaders, & colleagues

55

Infection Preventionist Role

56

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Join us next month for Fundamentals of a Successful Surgical Site Infection (SSI) Prevention Program

July 18, 2024

57

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Questions

58

Office Hours

- If you have a questions
  - Raise hand and our admin will take you off mute

    OR
  - Enter your question into the chat

- If you have additional questions that are not answered, you can email us at ***ipslice.nebraskamed.com***

59

References

1.CDC Quick Learn Using an Epi Curve to Determine Most Likely Period of Exposure, accessed May 22, 2024, https://www.cdc.gov/training/quicklearns/exposure/
2.LaMorte, W.W. 2016. Boston University School of Public Health, Outbreak Investigations, accessed May 22, 2024. https://sphweb.bumc.bu.edu/otlt/mph-modules/ph/outbreak/index.html
3.CDC URDO Case Definition accessed May 22, 2024. https://www.cdc.gov/urdo/downloads/casedefinitions.pdf
4.Schaefer MK, Perkins KM, Link-Gelles R, Kallen AJ, Patel PR, Perz JF. Outbreaks and infection control breaches in health care settings: Considerations for patient notification. Am J Infect Control. 2020 Jun;48(6):718-724. doi: 10.1016/j.ajic.2020.02.013. Epub 2020 Apr 10. PMID: 32284161; PMCID: PMC7894041.
5.APIC Text Online, Outbreak Investigations, accessed May 22, 2024. https://text.apic.org/toc/epidemiology-surveillance-performance-and-patient-safety-measures/outbreak-investigations?token=681F7162D5EDE4A5
6.Centers for Disease Control and Prevention. Principles of epidemiology in public health practice, third edition: an introduction to applied epidemiology and biostatistics. Published October 2006, accessed May 24, 2024. https://archive.cdc.gov/#/details?url=https://www.cdc.gov/csels/dsepd/ss1978/index.html
7.Siegel J, Rhinehart E, Jackson M, Healthcare Infection Control Practices Advisory Committee. Management of multidrug-resistant organisms in healthcare settings, 2006. Centers for Disease Control and Prevention. Updated October 2022. Accessed May 22, 2024.
8.CDC Environmental Infection Control Guidelines, updated April 2023. https://www.cdc.gov/infection-control/hcp/environmental-infection-control-guidelines/updates.html
9.Outbreak of Burkholderia stabilis Infections Associated with Contaminated Nonsterile, Multiuse Ultrasound Gel — 10 States, May–September 2021 | MMWR (cdc.gov) https://www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7148a3-H.pdf
10.Dolan SA, Littlehorn C, Glodé MP, Dowell E, Xavier K, Nyquist AC, Todd JK. Association of Bacillus cereus infection with contaminated alcohol prep pads. Infect Control Hosp Epidemiol. 2012 Jul;33(7):666-71. doi: 10.1086/666334. Epub 2012 May 7. PMID: 22669227.
11.CDC Guide to Infection Prevention for Outpatient Settings: minimum expectations for safe care. https://www.cdc.gov/infection-control/media/pdfs/outpatient-guide-checklist-508.pdf (accessed May 28, 2024)
12.CDC Approach to an infection control breach with potential risk of bloodborne pathogen transmission.https://stacks.cdc.gov/pdfjs/web/viewer.html?file=https://stacks.cdc.gov/view/cdc/153991/cdc_153991_DS1.pdf (accessed May 28, 2024)
13.CDC Water, Sanitation, & Hygiene-related Emergencies & Outbreaks, 7. Decide Outbreak is Over. https://www.cdc.gov/healthywater/emergency/waterborne-disease-outbreak-investigation-toolkit/outbreak-over.html Accessed June 3, Accessed June 3, 2024.
14.CDC Outbreaks and Patient Notifications in Outpatient Settings, Selected Examples, 2010 – 2014. https://archive.cdc.gov/www_cdc_gov/hai/settings/outpatient/outbreaks-patient-notifications.html , Accessed June 3, 2024.
15.CDC Steps for Evaluating an Infection Control Breach, 2012. https://stacks.cdc.gov/pdfjs/web/viewer.html?file=https://stacks.cdc.gov/view/cdc/153991/cdc_153991_DS1.pdf, Accessed June 3, 2024

References

16.CDC Infection Control in Healthcare Personnel: Infrastructure and Routine Practices for Occupational Infection Prevention and Control Services (2019). https://www.cdc.gov/infection-control/hcp/healthcare-personnel-infrastructure-routine-practices/exposure-managment.html, accessed June 3, 2024.
17. CDC Introduction to the Patient Notification Toolkit, https://www.cdc.gov/healthcare-associated-infections/hcp/patient-notification-toolkit/index.html, accessed June 3, 2024.
18.Popovich KJ, Aureden K, Ham DC, et al. SHEA/IDSA/APIC Practice Recommendation: Strategies to prevent methicillin-resistant Staphylococcus aureus transmission and infection in acute-care hospitals: 2022 Update. *Infection Control & Hospital Epidemiology*. 2023;44(7):1039-1067.
19.Pannewick B, Baier C, Schwab F, Vonberg R-P (2021) Infection control measures in nosocomial MRSA outbreaks—Results of a systematic analysis. PLoS ONE 16(4): e0249837. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0249837
20.Möllers, M.; von Wahlde, M.-K.; Schuler, F.; Mellmann, A.; Böing, C.; Schwierzeck, V.; Schneider, J.S.; Kampmeier, S. Outbreak of MRSA in a Gynecology/Obstetrics Department during the COVID-19 Pandemic: A Cautionary Tale. Microorganisms 2022, 10, 689. https://doi.org/10.3390/ microorganisms10040689
21.Rubin Ingrid M., Hansen Thomas A., Klingenberg Anne Mette, Petersen Andreas M., Worning Peder, Westh Henrik, Bartels Mette D. A Sporadic Four-Year Hospital Outbreak of a ST97-IVa MRSA With Half of the Patients First Identified in the Community. Frontiers in Microbiology, 2018, 9, https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2018.01494
22.CDC Management of MDROs in Healthcare Settings, MDRO Prevention & Control, page 7-14. MDRO Prevention and Control | Infection Control | CDC Accessed May 28, 2024.
23. CDC MDRO Facility Assessment, https://www.cdc.gov/infection-control/media/pdfs/Guidelines-MDRO-Facility-Assessment-P.pdf Accessed May 28, 2024.
24.Reintjes R, Zanuzdana A. Outbreak Investigations. Modern Infectious Disease Epidemiology, Outbreak Investigations. 2009 Jul 28:159–76. doi: 10.1007/978-0-387-93835-6_9. PMCID: PMC7187955
25.Sood G, Perl TM. Outbreaks in Health Care Settings. Infect Dis Clin North Am. 2016 Sep;30(3):661-87
26.Koenig KL. Identify-Isolate-Inform: A Modified Tool for Initial Detection and Management of Middle East Respiratory Syndrome Patients in the Emergency Department. West J Emerg Med. 2015 Sep;16(5):619-24. doi: 10.5811/westjem.2015.7.27915. Epub 2015 Oct 20. PMID: 26587081; PMCID: PMC4644025.

61

62