



Health Quality Innovation Network

Prepare, Prevent, Protect  
9/20/22

# Lab Services, Epidemiology, Surveillance, Outbreak Investigation

**Presented by:**

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# Disclosure of Conflict(s) of Interest

Mary Locklin, MSN, RN, CIC, has no relevant financial relationships or relationships with ineligible companies of any amount during the past 24 months.

Deb Smith, MLT, BSN, CIC, has no relevant financial relationships or relationships with ineligible companies of any amount during the past 24 months.

# Prepare, Prevent, Protect

These brief learning opportunities will introduce essential infection prevention concepts and allow for recipients to connect directly to a certified infection preventionist for support.



## **Series Goals and Learning Objectives:**

- Introduce and tutor audience in creation and implementation of infection prevention components essential to a robust infection prevention program
- Collaborate with nursing home staff with an infection prevention role/duties to bolster the facility's infection prevention program

# Your Team



**Sandra Atkins**  
Project Assistant



**Mary Locklin**  
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Senior Quality Improvement  
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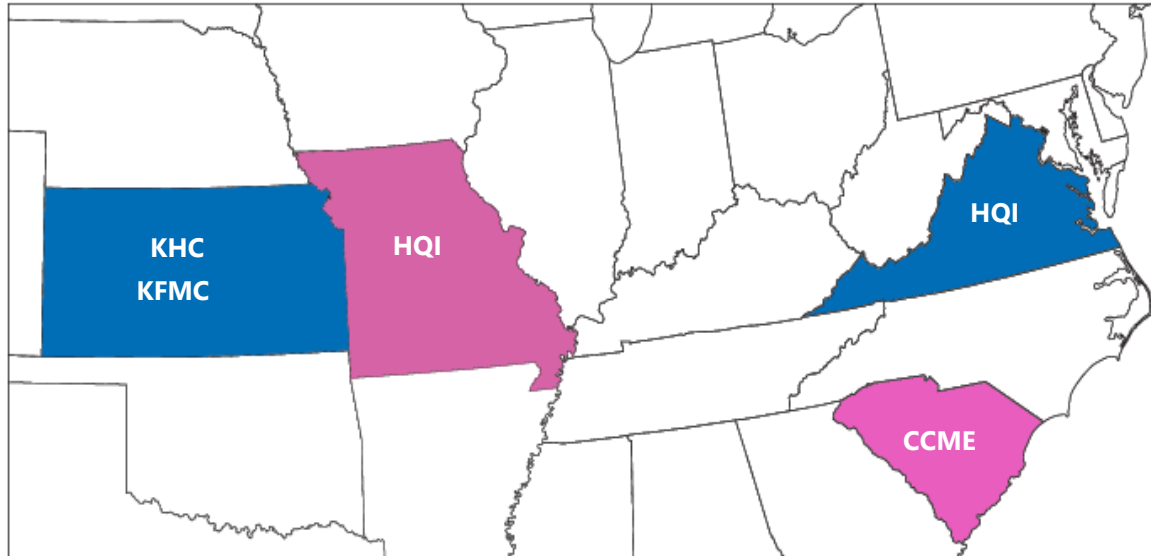


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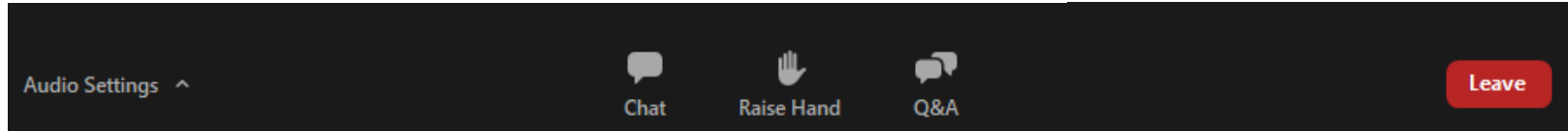


**April Faulkner**  
Communications  
Specialist

# Health Quality Innovation Network



# Logistics – Zoom Webinar



To ask a question, click on the **Q&A** icon.

**Raise your hand** if you want to verbally ask a question.

Resources from today's session will be posted in **Chat**.

You may adjust your audio by clicking **Audio Settings**.

You have been automatically muted with video turned off.

# Infection Prevention Blog

**Have you established a  
relationship with your lab?**

**What are you using to capture  
surveillance information?**



**Join the Conversation**

[Join the Conversation on Infection Prevention Blog](#)

# Agenda

- Laboratory Services
- Epidemiology
- Surveillance
- Outbreak Investigation





# Infection Prevention Program

- Infectious disease physician or epidemiologist
- Nursing
- Administration
- Engineering
- Pharmacy
- Building management
- Quality director
- Laboratory services
- Environmental services
- Materials management



# Laboratory Services

- Improving patient care through infection prevention collaboration with laboratory services
  - Increased communication between lab services and IPs
  - Understanding the alignment between lab services and infection prevention
  - Antibiotic stewardship
  - Diagnostic testing
  - Laboratory role in surveillance and outbreak investigation



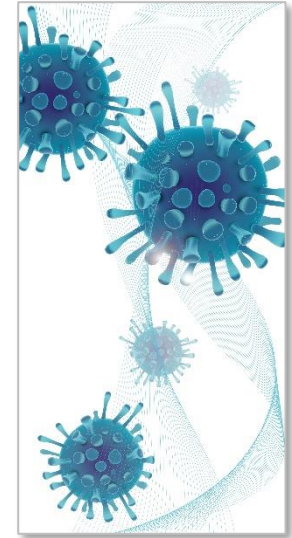
# Microbiology Laboratory

- Clinical microbiology is the scientific study of microorganisms and the diseases they cause in humans
- Includes study of bacteria, fungi, parasites and viruses



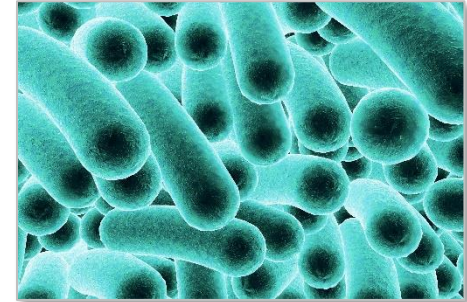
# Microorganisms

- Bacteria – single-celled organism (i.e., *E. coli*, *Staph aureus*, *C. difficile*)
- Fungus – multicellular, filamentous organism – molds (i.e., *Aspergillus*) and single-celled yeasts (i.e., *Candida*)
- Parasite – Plant/animal that lives on or in another living organism at the expense of the host (i.e., bedbugs, lice, *Giardia*, malaria)
- Virus – simplest living thing; ultramicroscopic infectious agent that multiplies only within cells of living hosts; contains DNA or RNA (i.e., influenza virus, norovirus, COVID-19)



# Normal Flora and/or Pathogen

- Skin
  - *Staphylococcus epidermidis*, *Staphylococcus aureus*, *Corynebacteria*, *Propionibacterium*
- Respiratory Tract
  - *Streptococcus sp.*, *Neisseria sp.*, *Streptococcus pneumoniae*, *Haemophilus*
- Genitourinary Tract
  - *Streptococcus sp.*, *Lactobacillus*, *Enterobacteriaceae*, *Bacteroides*, *Fusobacterium*
- Intestinal Tract
  - *Streptococcus sp.*, *Lactobacillus*, *Enterobacteriaceae*, *Bacteroides*, *Fusobacterium*, *Clostridioides sp.*



# Specimen Collection and Transport

- Standard precautions
- Appropriate collection devices
- Sterile equipment/aseptic technique
- Collect specimens during acute phase of illness
- Avoid specimens from drains/foleys already in place



# Specimen Collection and Transport

- Avoid contamination with normal flora
- Antimicrobial therapy
- Appropriateness of specimen
- Sufficient quantity
- Prompt delivery to lab
- Sufficient clinical information provided
- Specimen rejection

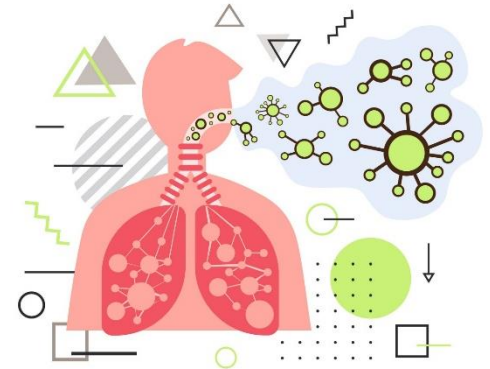


# Epidemiology

The study of frequency, distribution, cause and control of disease in populations.

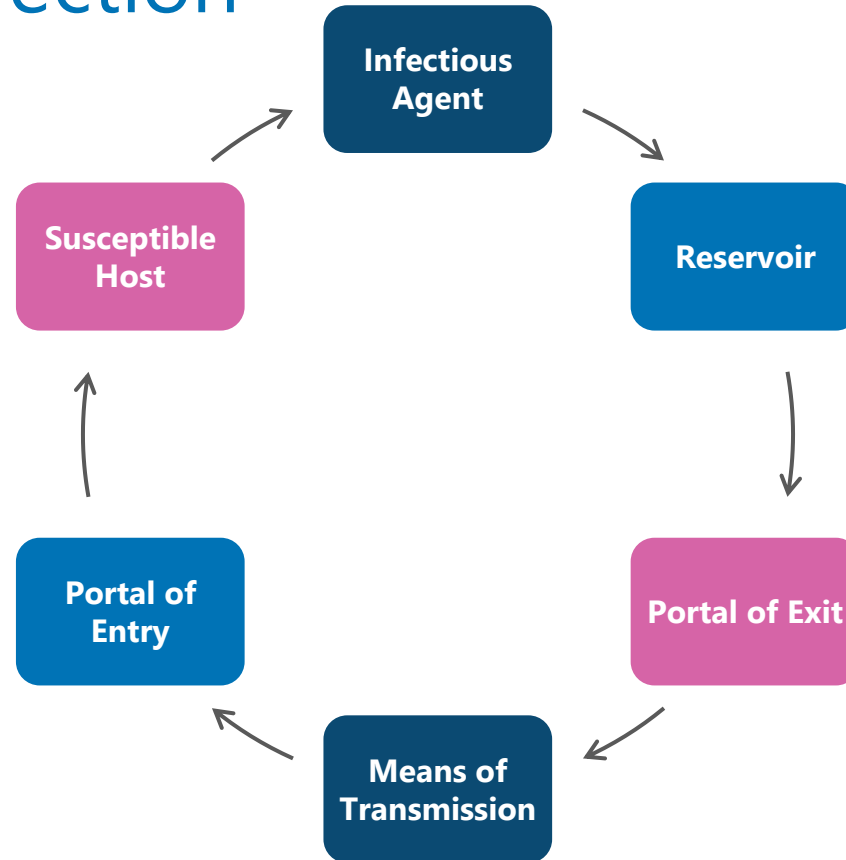
The basis of all healthcare related studies that provides the background for interventions to reduce transmission of infectious organisms.

Epidemiology is the basic science of public health. Human genome epidemiology (HuGE) is concerned with understanding how human and pathogen genomic variation affects the distribution of disease in populations.





# Chain of Infection



# Surveillance

- Systematic method of collecting, consolidating and analyzing data followed by the dissemination of that information to those who can improve the outcomes
- Methodologies based on your IP program evaluations
  - Facility-wide
  - Targeted
  - Combination
- Will be determined somewhat by mandatory or expected reporting requirements



# Elements of Surveillance

Identify risk factors for  
healthcare-  
associated infections

Assess the population  
to be surveyed

Establish case  
definitions for infection

Select the outcome(s)  
for surveillance

Collect the surveillance  
data (detect and  
monitor)

Calculate and analyze  
surveillance rates

Apply risk stratification  
methodology

Interpret infection rates

Communicate  
surveillance outcomes  
to staff through  
education to  
reinforce best practice

Evaluate the  
surveillance system and  
implement  
preventive interventions

Surveillance  
Data

Micro  
Results

Medical  
Record  
Review

Daily Census  
Admissions

Radiology  
Results

Incident  
Reports

# Surveillance Evaluation

A surveillance system is considered effective if it can:

- Detect infections, injuries or other events in a timely manner
- Identify trends and detect outbreaks
- Identify risk factors associated with HAIs or other tracked events
- Provide an estimate of the magnitude of the monitored events
- Assess effectiveness of prevention efforts
- Lead to improved practices by healthcare providers



# Outbreaks and Epidemics

**Outbreaks or epidemics are defined as an increase over the expected occurrence of an event**

- A single case can represent an outbreak
  - Group A *Streptococcus* in a wound, HAI *Legionella*
  - Unusual/unique microbe
- Clusters or small outbreak
- Pseudo-outbreak
  - Increase in testing without verified disease



# Outbreak Investigation

Identify	Identify investigation team members and resources (nurses, environmental services, laboratory, health department)
Establish	Establish the existence of an outbreak The occurrence of more cases of disease than expected
Verify	Verify the diagnosis and collect information on cases, clinical findings, lab results, medical records, line list, retrospective surveillance
Implement	Implement appropriate control and prevention measures
Communicate	Communicate findings to providers, health department, receiving facilities
Maintain	Maintain prospective surveillance to monitor trends and evaluate control measures

# Polling Question 1

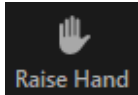
When faced with a potential outbreak, my approach is to:

- A. Use established methods for identifying (and validating) the outbreak
- B. Pull a team together to determine an approach to controlling the situation
- C. Communicate to health department partners
- D. Run for the hills





# What Are Your Questions? Share What is Working for Your Team!



**Raise your hand** to verbally ask a question



**Type a question** by clicking the **Q&A** icon

*Don't hesitate to ask a question after the webinar is over.  
Email [LTC@hqi.solutions](mailto:LTC@hqi.solutions) or your HQIN Quality Improvement Advisor.*

# Resources

- Advisory Committee on Immunization Practices (ACIP)
- Agency for Healthcare Research and Quality (AHRQ)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- Centers for Disease Control and Prevention (CDC)
- Centers for Medicare & Medicaid Services (CMS)
- Infectious Diseases Society of America (IDSA)
- Institute for Healthcare Improvement (IHI)
- National Association for Healthcare Quality (NAHQ)
- Occupational Safety and Health Administration (OSHA)
- The Society for Healthcare Epidemiology of America (SHEA)
- U.S. Food & Drug Administration (FDA)



# Resources

- [SPICE LTC Infection Prevention Risk Assessment - Statewide Program for Infection Control & Epidemiology | UNC](#)
- [Risk Assessment for Infection Surveillance, Prevention and Control Programs in Ambulatory Healthcare Settings](#)
- [IPC Risk Assessment Spreadsheet](#)
- [Inter-Facility Infection Control Transfer Form for States Establishing HAI Prevention Collaboratives | CDC](#)
- [Incorporating Infection Prevention and Control into an Emergency Preparedness Plan | AHRQ](#)
- [Long Term Care Requirements CMS Emergency Preparedness Final Rule](#)
- [Appendix PP - November 22, 2017 | CMS](#)



# Resources

- [APIC Toolkit for Rural and Isolated Settings](#)
- [State Operations Manual Appendix Z- Emergency Preparedness for All Provider and Certified Supplier Types Interpretive Guidance | CMS](#)
- [Emergency Preparedness Exercises | FEMA](#)
- [Sample Policy for Emergent Infectious Diseases for Skilled Nursing Care Centers | AHCA NCAL](#)
- [Disaster Preparedness Plan Template for use in Long Term Care Facilities | ASPR TRACIE](#)
- [Infection Prevention Annual Risk Assessment Email Template | HQIN](#)
- [Safe Linen and Laundry Management Audit Tool | HQIN](#)
- [Safe Linen/Laundry Management IPC Action Plan Template | HQIN](#)
- [Infection Prevention Plan FY2022 | UNC Medical Center](#)



# Resources

- [Forms & Checklists for Infection Prevention | APIC](#)
- [Nursing Homes and Assisted Living Infection Prevention Training | CDC](#)
- [Infection Prevention and Control Program Sample Policy](#)
- [Hand Hygiene Action Plan Template | HQIN](#)
- [Staff Infection Exposure Prevention Action Plan Template | HQIN](#)
- [Isolation Precautions Action Plan Template | HQIN](#)
- [Environmental Hygiene Action Plan Template | HQIN](#)
- [Competency-Based Training 102 | CDC](#)
- [Break the Chain of Infection with Better Hand Hygiene | HQIN](#)
- [Hand Hygiene Module 1 | HQIN](#)
- [Hand Hygiene Competency Validation | HQIN](#)
- [Hand Hygiene Competency Tracking Tool | HQIN](#)



# Contact Hours Certificate

- Complete the attestation form at <https://go2certificate.com> to receive the contact hours you deserve. This activity awards 0.5 contact hours for nurses. A general certificate of participation is also available.
- If you receive an error when you click the link, copy and paste the URL into your browser. Chrome is recommended for an optimal portal experience.
  - Enter Access Code: 2857-LAB
  - Enter your email address
  - Click the Confirm button
- If you are a returning user of Go2Certificate, the system will alert you to this fact and request that you enter your password.
- If you are a first-time visitor to Go2Certificate, complete the demographic information, set-up a password and click the Submit button.
- Select the Activity you attended by clicking the box to the left of the activity title. There is only one activity assigned to this access code.
- Click the Continue button.
- Complete the Activity Evaluation by using the Next buttons. Your input is invaluable. At the end of the evaluation, please click the Submit button.
- Please confirm how you would like your name to appear on the certificate.
- Select the box requesting the accreditation you wish to earn. Multiple selections are acceptable. Click the Confirm button.

**The portal will expire  
on October 20, 2022,  
at 11:59 p.m. ET.**

In future visits, the system automatically recognizes your account based on your email address. It will ask you to enter your own created password after you have entered the Access Code and your email address.

# FOR MORE INFORMATION

Call 877.731.4746 or visit [www.hqin.org](http://www.hqin.org)

**LTC@hqin.solutions**

**\*Next Session: 10/18/22 @ 2 p.m. EST**

*Surveillance and Data Analysis*

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From HQIN:

To all essential care giving teams  
supporting residents and families,

*Thank you for attending*