Surveillance and Data Analysis

Presented by:
Mary Locklin, MSN, RN, CIC
Deb Smith, MLT, BSN, CIC, CPHQ
Rachel Schade, CPH

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.

Rachel Schade, CPH, 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
MSN, RN, CIC
Senior Quality
Improvement Advisor –
Infection Prevention

Deb Smith
MLT, BSN, CIC, CPQH
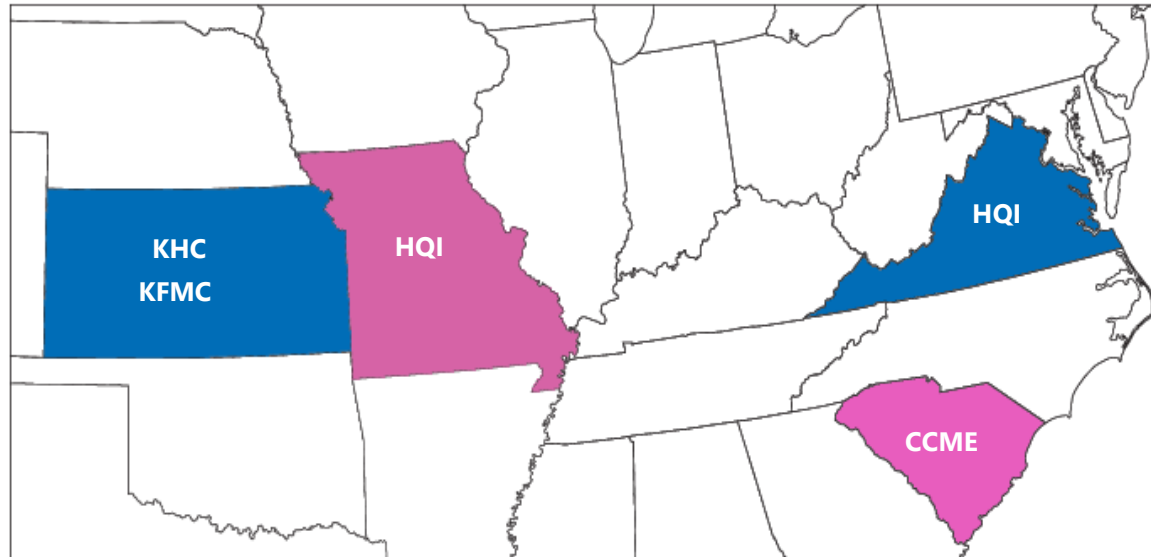Consulting Manager
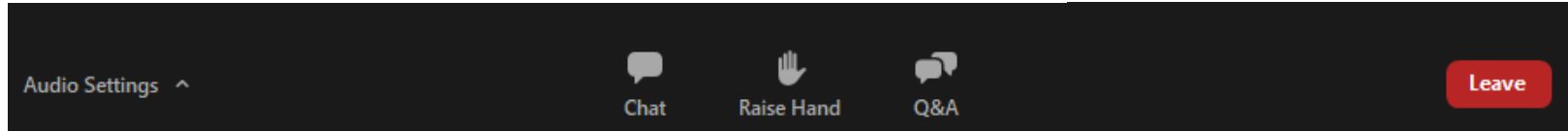
Rachel Schade, CPH
Senior Data Analyst

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

- Are you sharing the results of your audit data?

- What types of feedback are you sharing?

Join the Conversation

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 IP program evaluations
  - Facility-wide
  - Targeted
  - Combination

- Mandatory or expected reporting requirements will drive some surveillance
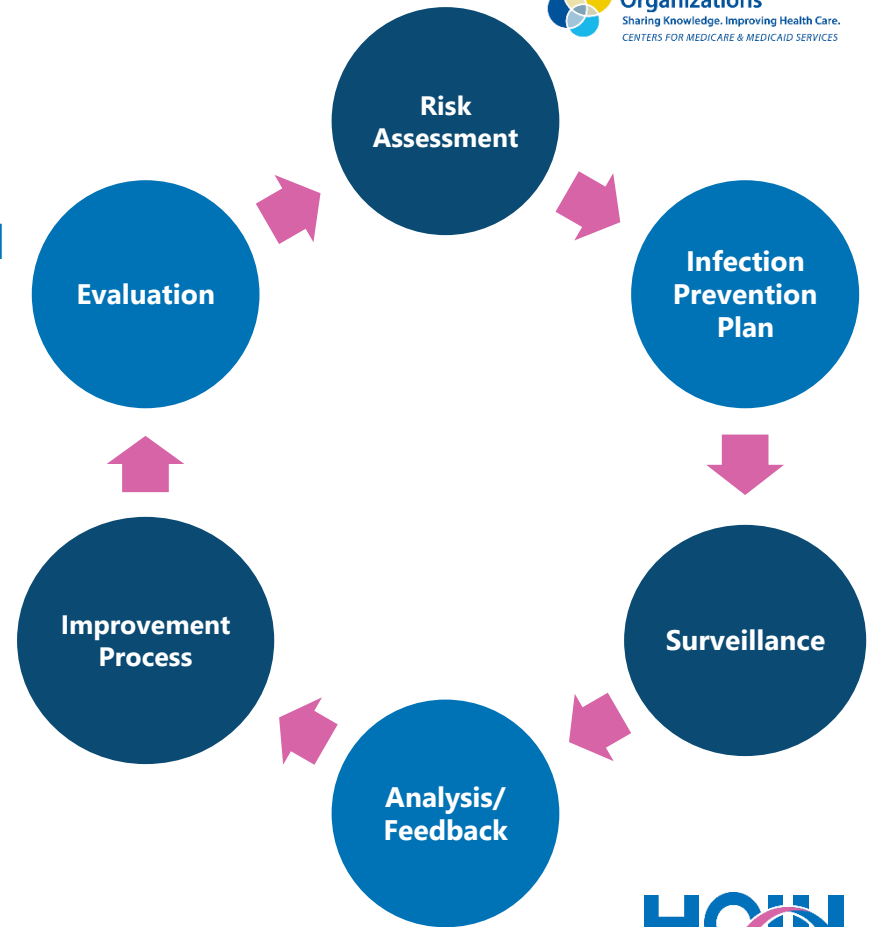
Surveillance, continued

 Micro Results

 Medical Record Review

 Daily Census/Admissions

 Radiology Results

 Incident Reports

Agenda

1   **Types of Measurement and Data Displays**

2   **Run Chart Basics**

3   **Calculating Improvement**

4   **Analyzing Small/Unstable Data**

Types of Measurement

Proportion	Rate	Ratio
(e.g., 15.3% of eligible discharges were readmitted within 30 days)	(e.g., 3.4 infections per 1,000 patient days)	(e.g., 1.2 observed infections for every 1 predicted infection)
Definition: A share or part of a whole; expressed as a percentage. The numerator is necessarily a subset of the denominator.	**Definition:** A quantity or frequency measured against another quantity or frequency; expressed as a value relative to a multiplier (e.g., per 1,000).	**Definition:** Quantitative relationship of two values (of the same units) explaining how many of one are contained within the other.
Pros: Easy to understand, interpret and explain	**Pros:** Allows us to present data in a more digestible way and incorporate measures of person-time	**Pros:** Allows us to simplify comparisons of large volumes
Examples: • 30-Day All-cause Readmissions (%) • 30-Day Sepsis Mortality (%)	**Examples:** • Infection Rates (e.g., CAUTIs per 1,000 catheter days) • ADE Rates (e.g., per 1,000 discharges)	**Examples:** • Standardized Infection Ratio (SIR) • Standardized Utilization Ratio (SUR) • Return on Investment (ROI) Ratio

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Types of Data Visuals

Line Chart
(i.e., run chart)

- Used to **track data over time**
- Used to establish trends by joining data points

- X-axis: measure of time (e.g., months, quarters, years, etc.)
- Y-axis: quantity (e.g., volume, rate, proportion)

Bar Chart

- Used to display frequencies, rates or proportions for categorical variables

- X-axis: variable categories (e.g., state, race/ethnicity, etc.)
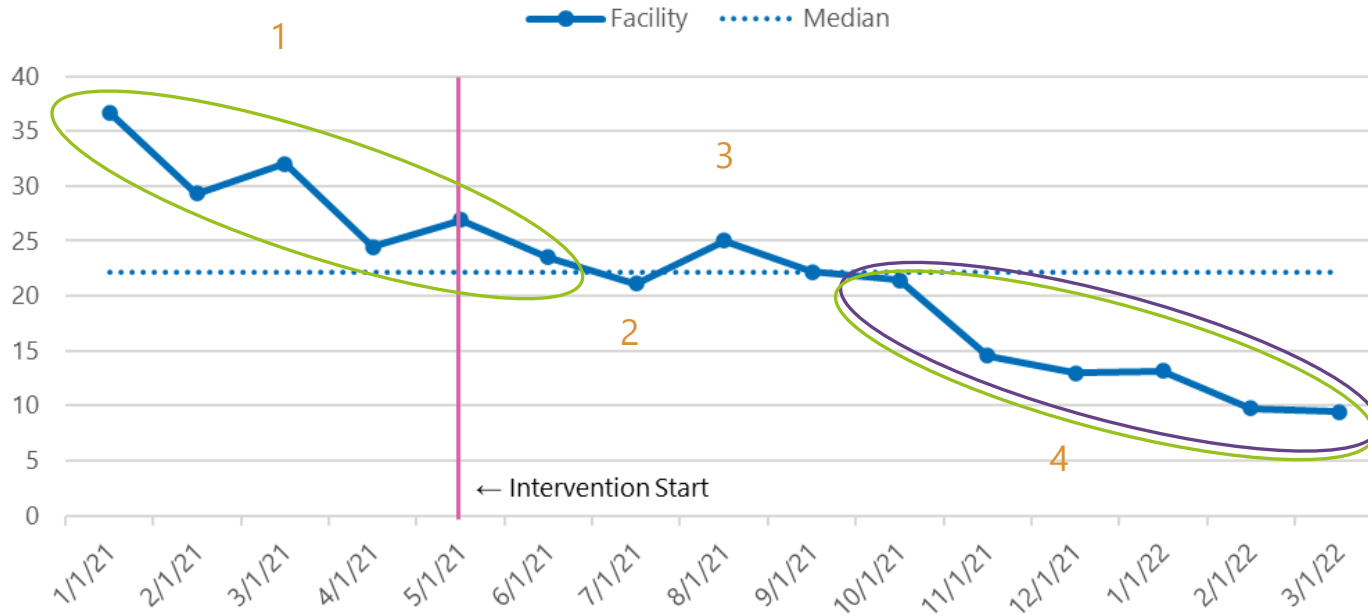- Y-axis: quantity (e.g., volume, rate, proportion)

Pie Chart

- Used to display frequencies or proportions for categorical variables that are **mutually exclusive**

- Each piece of the pie represents a part of a whole

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Run Chart Basics
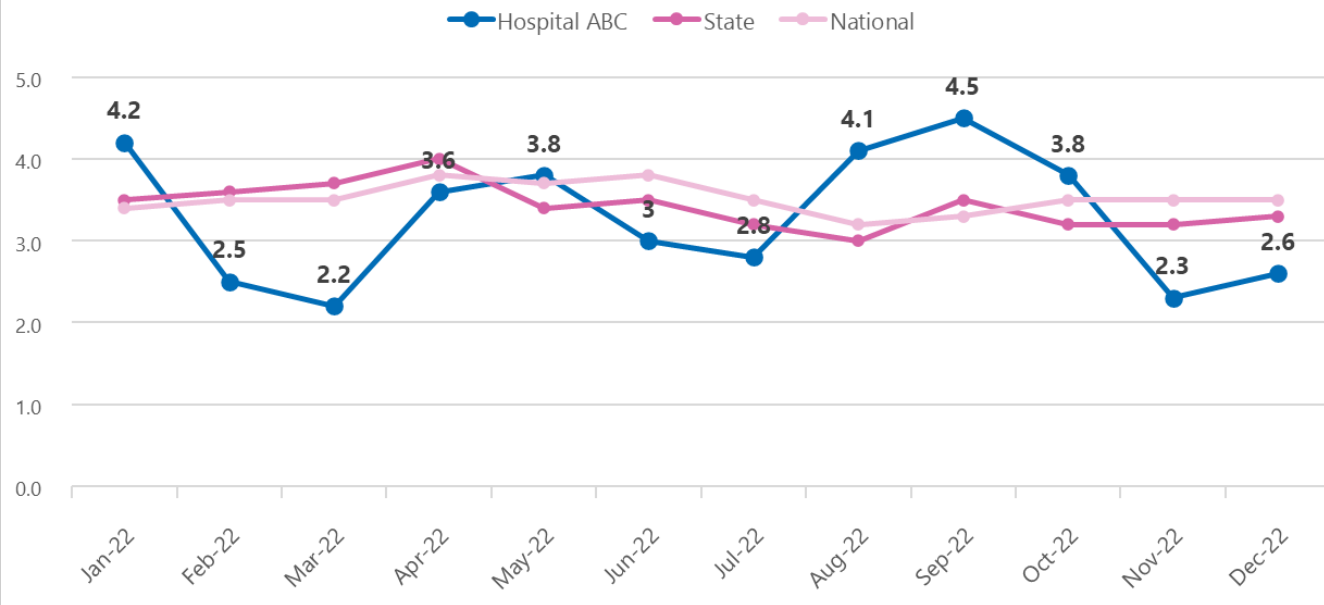

Infection Rate for ABC Nursing Home

Run: Series of points above or below the median

Shift: 6+ consecutive points above or below the median

Trend: 5+ consecutive points trending in one direction

Comparison Groups

Rate of Infections per 1,000 Patient-Days

Hospital ABC — State — National

Performance data aggregated at a group level to compare against individual performance

Common Comparison Groups:
- State
- National
- Project network (e.g., all HQIN nursing homes)
- Benchmarking groups with similar characteristics (e.g., NHs with similar # beds)

Provides context for data points or trends

Calculating Improvement

Relative Improvement Rate (RIR) provides a way to compare progress for multiple measures where the goal directions may be different

Type of Change	Definition	Example
Absolute Change	Exact difference between ending number and beginning number	$\lvert 30\% - 10\% \rvert$ = 20% absolute decrease
Relative Change (RIR)	Difference between ending and beginning numbers as a percentage of beginning number	$\dfrac{\lvert 30\% - 10\% \rvert}{30\%}$ = 67% relative decrease

Measure	Goal Direction	Example	% RIR
30-Day Readmissions (%)	**Decrease**	Baseline: 20% Remeasurement: 15%	25% RIR

Unstable Data

- Common reasons for small denominators
  - Population is too small
  - Timeframe is too short
  - Data are incomplete/immature
- What to do when data are unstable?
  - Aggregate multiple time periods (e.g., rolling timeframes)
  - Aggregate multiple facilities or groups
  - Suppress/withhold presenting the data
  - Provide context around the denominators

Example: Measures stratified by health equity categories

30-Day Readmissions for ABC Nursing Home

Differences in Reported Timeframes

Incremental

- Represents a date range that is unique to other time periods displayed or presented
- Sometimes referred to as "standalone" timeframes
- Allows us to see immediate effects of change

Time Period	1/22	2/22	3/22	4/22	5/22	6/22	7/22	8/22	9/22	10/22	11/22	12/22
1	■											
2		■										
3			■									
4				■								
5					■							
6						■						
7							■					
8								■				
9									■			
10										■		
11											■	
12												■

Rolling

- Represents a date range that is partially inclusive of other time periods displayed
- Each time period has a different start date but the same length (e.g., 12 months)
- Allows us to standardize for seasonal variations
- Allows us to stabilize rates with small numerators and denominators

Time Period	10/21	11/21	12/21	1/22	2/22	3/22	4/22	5/22	6/22	7/22	8/22	9/22	10/22	11/22	12/22	1/23	2/23	3/23
1	■	■	■	■	■	■	■	■	■	■	■	■						
2		■	■	■	■	■	■	■	■	■	■	■	■					
3			■	■	■	■	■	■	■	■	■	■	■	■				
4				■	■	■	■	■	■	■	■	■	■	■	■			
5					■	■	■	■	■	■	■	■	■	■	■	■		
6						■	■	■	■	■	■	■	■	■	■	■	■	
7							■	■	■	■	■	■	■	■	■	■	■	■

Analysis and Feedback

- Identify trends
  - Indwelling catheter-related urinary tract infections, etc.
  - Outbreaks
- Spotlight opportunities
  - Infection prevention training and/or practices
  - Process issues
  - Compliance issues
- Celebrate successes!

Polling Question

In my facility, infection prevention data is shared:

A. Routinely in quality meetings
B. Only with the administrator and DON
C. We aren't currently sharing IP data

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

What Are Your Questions?
Share What is Working for Your Team!
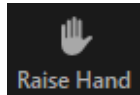
 Raise your hand to verbally ask a question

 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** *or your HQIN Quality Improvement Advisor.*

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: 2904-DATA
  - 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 November 18, 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

LTC@hqin.solutions

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*Next Session: 11/15/22 @ 2 p.m. EST

Isolation, Hand Hygiene & Personal Protective Equipment

Mary Locklin
MSN, RN, CIC
Senior Quality Improvement Advisor
mlocklin@hqi.solutions
804.289.5320

Susan Moeslein
MSA, BSN, RN, ACM, CIC
Infection Prevention Consultant
smoeslein@hqi.solutions
804.287.0289

Deb Smith
MLT (ASCP), BSN, RN, CIC, CPHQ
Consulting Manager
dsmith@hqi.solutions
804.289.5358

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From HQIN:

To all essential care giving teams supporting residents and families,

Thank you for attending