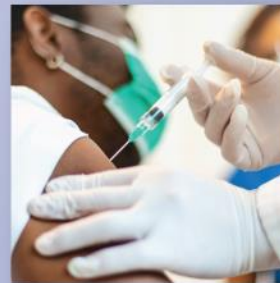


# Using Data and Innovative Approaches to Improve Patient Safety in Nursing Homes



# Welcome

Mary Ford, RN, MPH

Division of Community and Population Health

Quality Improvement and Innovation Group

Center of Medicare & Medicaid Services



# Reducing Sepsis-Related Readmissions and Emergency Department Visits Through a Fast-Track Educational Sprint Series

Sheila McLean, MBA, LNHA, CPHQ  
Senior Consulting Manager, Vice President - HQI

Allison Spangler, BSN, RN, RAC-CT, QCP  
Consulting Manager - HQI

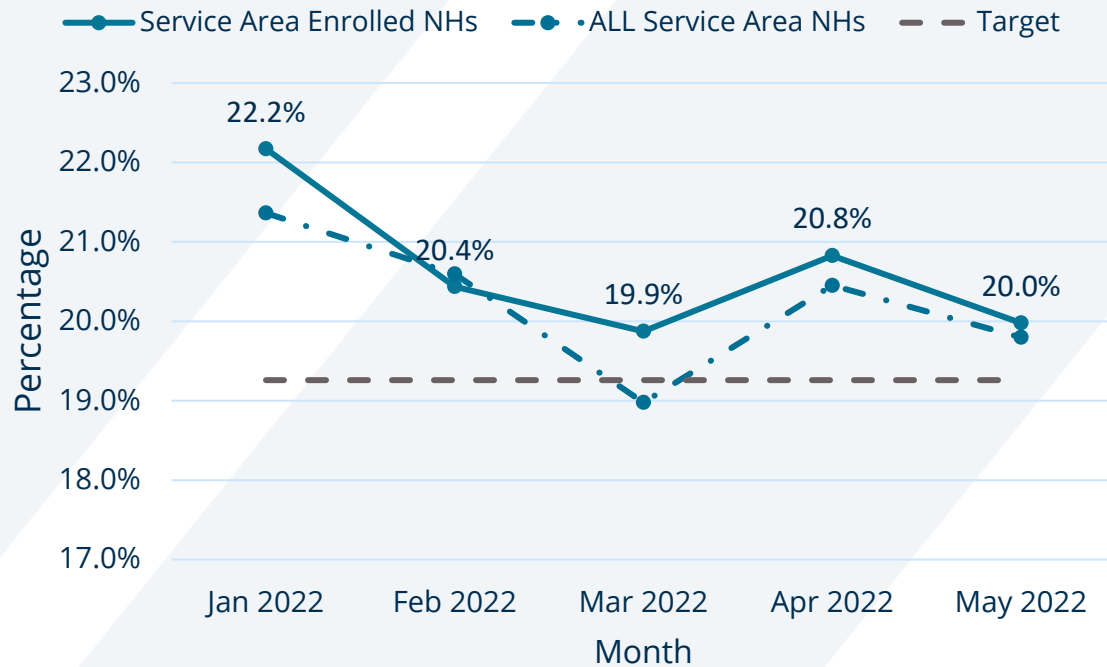


# Health Quality Innovation Network

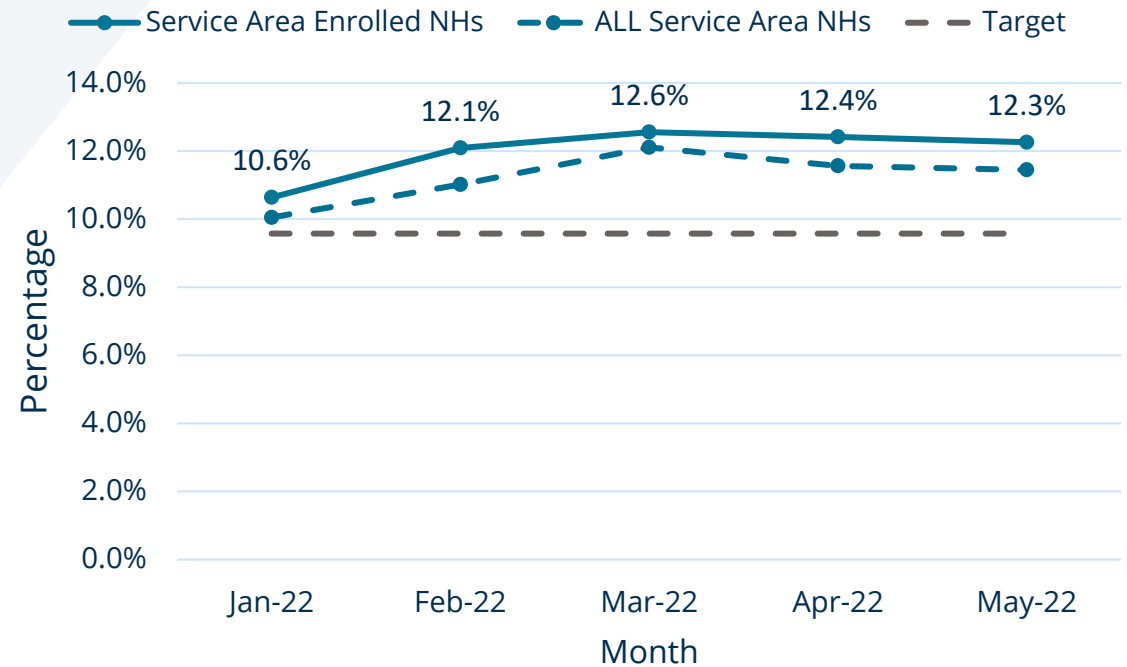


# The Challenge

### Percentage of readmissions within 30 days of hospital discharge among nursing home residents

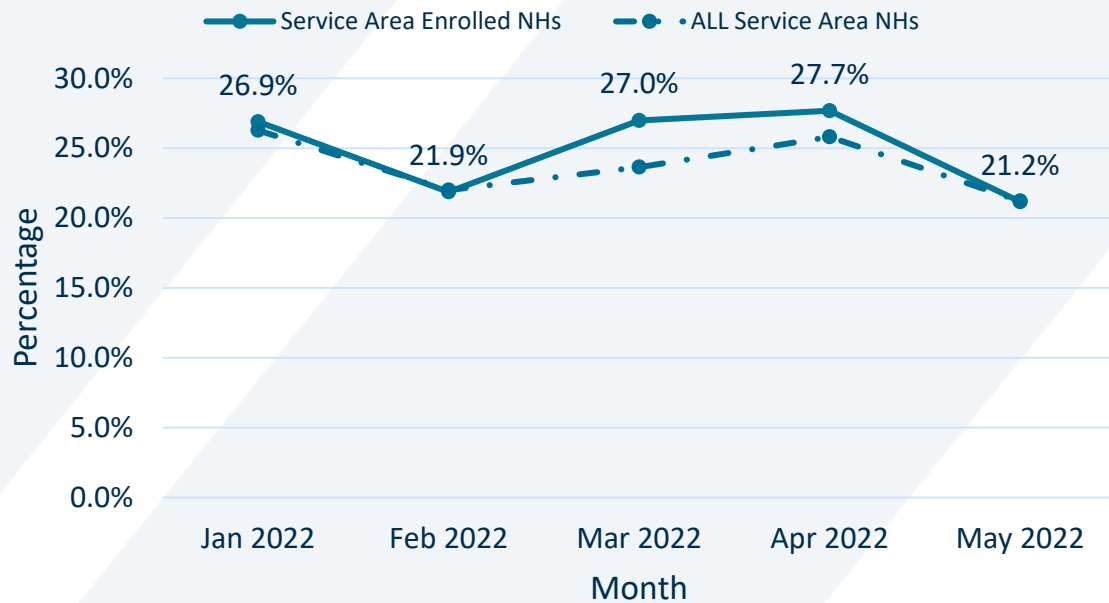


### Percentage of ED visits within 30 days of a hospital discharge among nursing home residents

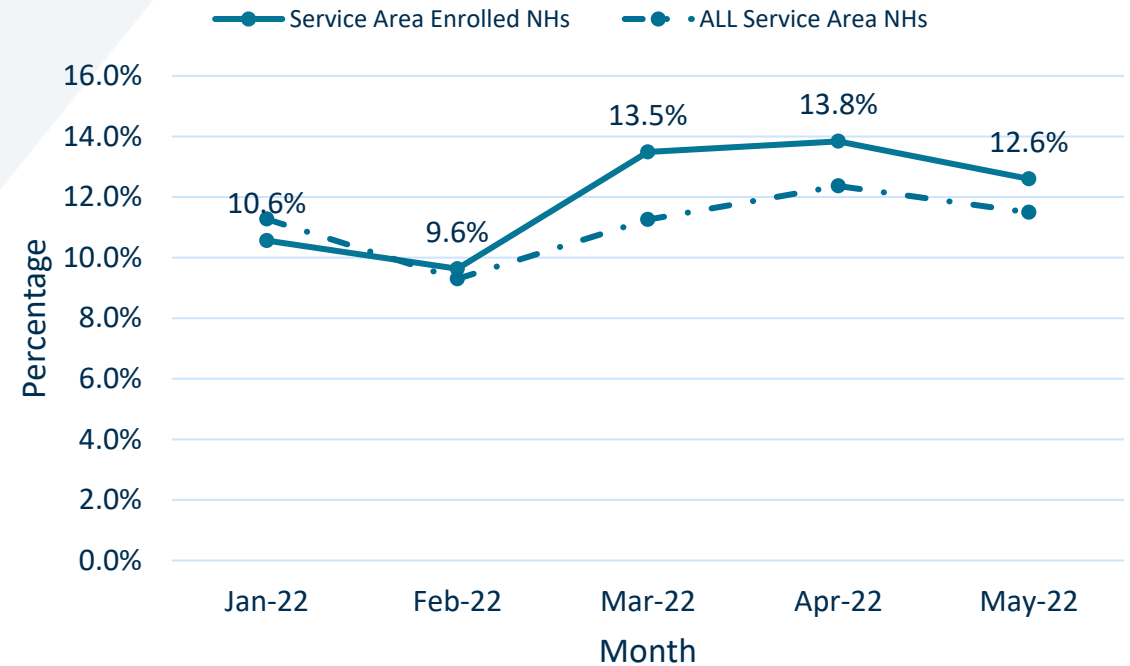


# The Driver: Sepsis

Percentage of readmissions within 30 days of hospital discharge among nursing home residents with principal DX of sepsis



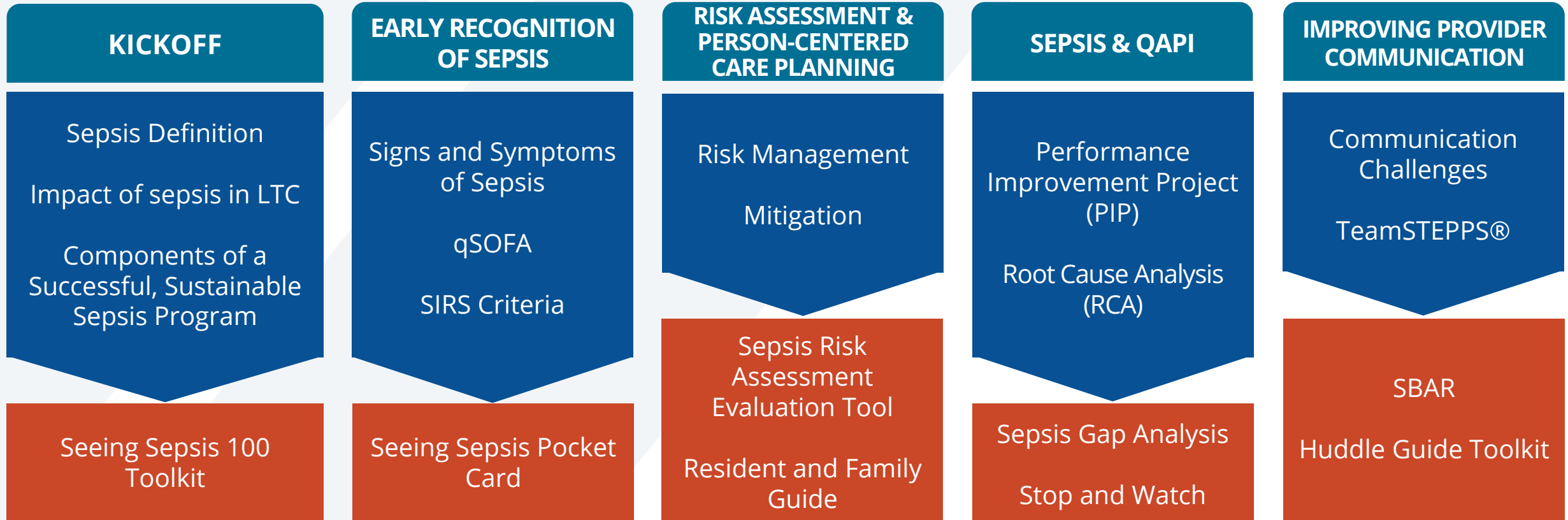
Percentage of ED visits within 30 days of hospital discharge among nursing home residents with principal DX of sepsis





# Sprint Cycle for Improvement



# Implementation



 = objectives for each session  
 = resources presented in each session



# Resource Highlights - 3 Prong Approach

## Frontline Staff Resources

### Stop and Watch Early Warning Tool

If you have identified a change while caring for or observing a resident/patient, please **circle** the change and notify a nurse. Either give the nurse a copy of this tool or review it with her/him as soon as you can.

**S** Seems different than usual; Symptoms of new illness  
**T** Talks or communicates less  
**O** Overall needs more help  
**A** Pain – new or worsening; Participated less in activities  
**N** Ate less  
**D** No bowel movement in 3 days; or diarrhea  
**W** Drank less  
**A** Weight change; swollen legs or feet  
**T** Agitated or nervous more than usual  
**C** Tired, weak, confused, or drowsy  
**H** Change in skin color or condition  
**W** Help with walking, transferring, toileting more than usual

Check here if no change noted while monitoring high-risk patient

Patient / Resident  
 Your Name \_\_\_\_\_  
 Reported to \_\_\_\_\_ Date and Time (am/pm) \_\_\_\_\_  
 Nurse Response \_\_\_\_\_ Date and Time (am/pm) \_\_\_\_\_  
 Nurse's Name \_\_\_\_\_

Seeing Sepsis Wallet Cards

INTERACT Stop & Watch Early Warning Tool

## Clinical Staff Resources

### SBAR Communication for Possible Sepsis

**SITUATION**  
 My name is \_\_\_\_\_ (I'm calling from facility)  
 I need to speak with you about resident (name) \_\_\_\_\_  
 Resident Age \_\_\_\_\_

**BACKGROUND**  
 The resident was admitted on \_\_\_\_\_ date with the diagnosis of \_\_\_\_\_  
 The resident also has the following co-morbid conditions/diagnoses \_\_\_\_\_  
 The resident is now showing these signs of possible infection: \_\_\_\_\_

**ASSESSMENT (Provide key findings)**  
 My assessment of the situation is that the resident may be experiencing a new or worsening infection. Here are my findings:  
**Vital Signs:**  
 Temp: \_\_\_\_\_ Heart Rate: \_\_\_\_\_ BP: \_\_\_\_\_  
 Respiratory Rate: \_\_\_\_\_ SpO2 %/Pulse Oxi: \_\_\_\_\_  
 Current Weight: \_\_\_\_\_ Other Factors: \_\_\_\_\_  
 Blood Sugar: \_\_\_\_\_ Foley IV/N: \_\_\_\_\_ Last BM Date: \_\_\_\_\_  
 Current Labs/Recent Cultures: \_\_\_\_\_  
 Mental status is (Change/OK/Unchanged) from baseline: \_\_\_\_\_  
 Possible sources of infection: \_\_\_\_\_ (e.g., deep wounds, wound assessment, urine characteristics, etc.)

**RECOMMENDATION (REVIEW AND NOTIFY)**  
 I am concerned that this resident may have sepsis. Would you like to order any labs, IV fluids or treatments?  
 How often should vital signs be performed?  
 What vital signs parameters would initiate an immediate notification to you?  
 If no improvement, when would you want us to call you again?  
 Additional Orders requested: \_\_\_\_\_

Before Calling the Prescriber  
 Evaluate the resident and complete this form.  
 Check vital signs; be alert for early sepsis warning signs.  
 Review the resident record: recent hospitalizations, lab values, medications and progress notes.  
 Note any allergies.  
 Be aware of the resident's advance care wishes.

Sepsis Early Warning Signs  
 Temperature > 100°F or < 96.8°F  
 Heart rate > 100 bpm  
 Respiratory rate > 20 bpm  
 White blood cell (WBC) count > 12,000  $\mu$ L or < 4,000  $\mu$ L  
 Altered mental status  
 SpO2 (Pulse Oxi) < 90%  
 Decreased urine output from recently drawn labs (within 24 hours)  
 Creatinine > 2 mg/dL Bilirubin > 2 mg/dL  
 Patient count > 10,000  $\mu$ L Lactate > 2 mmol/L Coagopathy INR > 1.5 or aPTT > 30 sec

SBAR Communication for Possible Sepsis

### Seeing Sepsis Skilled nursing facility sepsis algorithm for adults

**Suspected infection and 2 or more SIRS criteria**  
 Suspected infection: Fever/chills, Febrile, Current antibiotics, Cough/SOB, Cellulitis/wound drainage, Weakness  
 SIRS criteria: Temp > 100.0 or < 96.8, Pulse > 100, BP < 100 or > 40 mmHg from baseline, Resp. rate > 20/SpO2 < 90%, Altered mental status  
 SIRS = Systemic Inflammatory Response Syndrome

**Decision Path:**  
 - Suspected infection and 2 or more SIRS criteria → YES → Prior to calling provider → Educate resident/family about status, Review Advance Directives and options → Notify provider → Transfer (Prepare transfer sheet, Call ambulance, Call report to hospital, Report positive sepsis screen) → Stay in facility (Establish IV access for the following: Lab: CBC w/diff, lactate level if possible, UA/C, blood cultures if able, from 2 sites, not from lines. Send all labs ASAP; Administer IV, IM or PO antibiotics; Comfort care) → Monitor for progression into Multi-system Organ Dysfunction Syndrome (Pain control, Anxious for fever, Reposition every 2-3 hrs, Care every 2 hrs, Offer fluids every 2 hrs, Keep family informed, Consider transferring to another level of care - hospice, palliative, or hospice) → Comfort care (Pain control, Anxious for fever, Reposition every 2-3 hrs, Care every 2 hrs, Offer fluids every 2 hrs, Keep family informed, Adjust care plan as needed)

**Decision Path:**  
 - Suspected infection and 2 or more SIRS criteria → NO → Early detection tool 100-100-100 → Positive screen for sepsis → Prior to calling provider → Educate resident/family about status, Review Advance Directives and options → Notify provider → Transfer (Prepare transfer sheet, Call ambulance, Call report to hospital, Report positive sepsis screen) → Stay in facility (Establish IV access for the following: Lab: CBC w/diff, lactate level if possible, UA/C, blood cultures if able, from 2 sites, not from lines. Send all labs ASAP; Administer IV, IM or PO antibiotics; Comfort care) → Monitor for progression into Multi-system Organ Dysfunction Syndrome (Pain control, Anxious for fever, Reposition every 2-3 hrs, Care every 2 hrs, Offer fluids every 2 hrs, Keep family informed, Consider transferring to another level of care - hospice, palliative, or hospice) → Comfort care (Pain control, Anxious for fever, Reposition every 2-3 hrs, Care every 2 hrs, Offer fluids every 2 hrs, Keep family informed, Adjust care plan as needed)

Skilled Nursing Facility Sepsis Algorithm for Adults

## Resident & Family Resources

### Resident and Family Guide to Understanding Sepsis

Resident and Family Guide to Understanding Sepsis

### Sepsis Stoptight Tool

Common infections can lead to sepsis, which can be deadly. If you may have sepsis, act NOW!

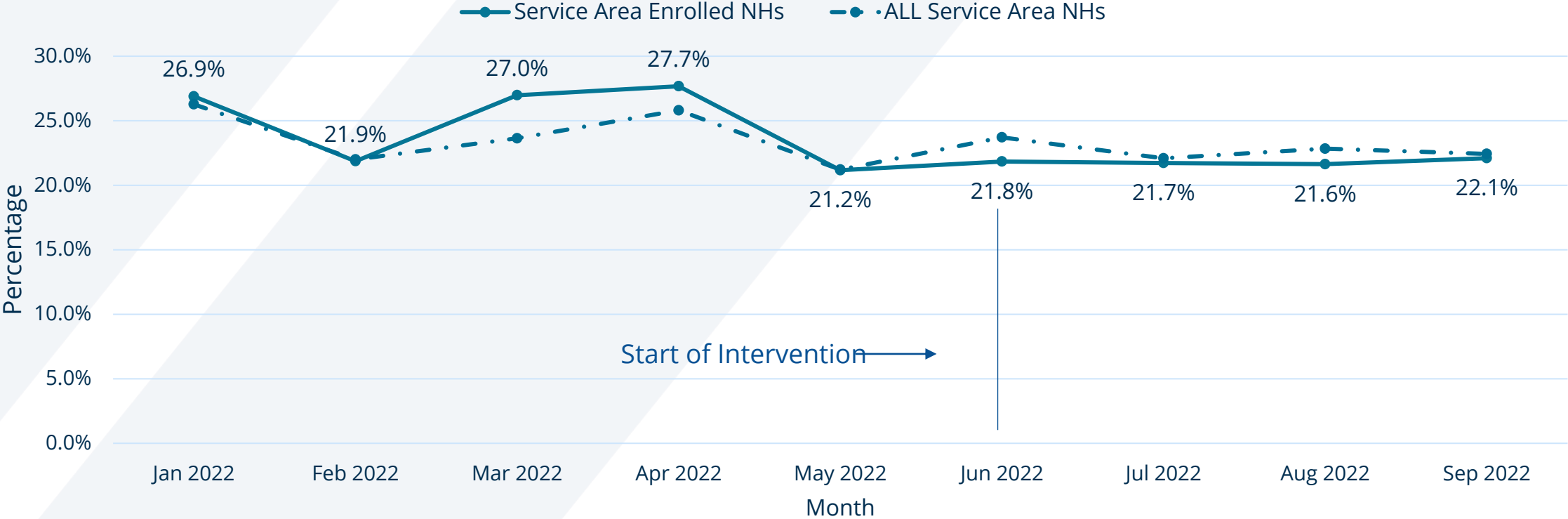
	Green Zone No signs of infection.	Yellow Zone Take action today. Call your doctor or nurse.	Red Zone Take action now! Call or see your doctor now!
<b>Do I have a fever?</b>	I have not had a fever in the past 24 hours and I am not taking medicine for a fever.	I have a fever between 100°F and 101.4°F.	I have a fever of 101.5°F or greater.
<b>Do I feel cold?</b>	I don't feel cold.	I feel cold and can't get warm. I'm shivering.	My temperature is below 96.8°F. My teeth are chattering. My skin or nails are pale.
<b>How is my energy?</b>	My energy level is as usual.	I'm too tired to do most of my usual activities.	I'm too weak to get out of bed.
<b>How is my thinking?</b>	My thinking is clear.	I'm thinking feels slow or not right.	My caregivers tell me I'm not making sense.
<b>Are there changes in how I feel after a hospitalization, procedure, infection or change in wound or IV site?</b>	I feel well.	I don't feel well. I have a bad cough. My wound or IV site looks different. I haven't urinated (pee) for 5 or more hours and/or my urine (pee) is cloudy, dark or smelly.	I feel very sick. My wound or IV site is painful, red, swollen, or has pus. I haven't urinated (pee) for 6 or more hours and/or my urine (pee) is very dark.
<b>Do I need to call 911 or go to the Emergency Room?</b>	I don't need to call 911 or go to the Emergency Room.	I don't need to call 911 but I will call my doctor if my heartbeat is faster than usual. My breathing is more difficult (for me) than usual. I have not had a fever in the past 24 hours.	I will call 911 if: My heartbeat is very fast. My home blood pressure is 40 points (top number) lower than usual. I have a fever of 103.5°F or greater. My skin or nails are blue.

Sepsis Stoptight Tool



# Outcome: Sepsis Readmissions

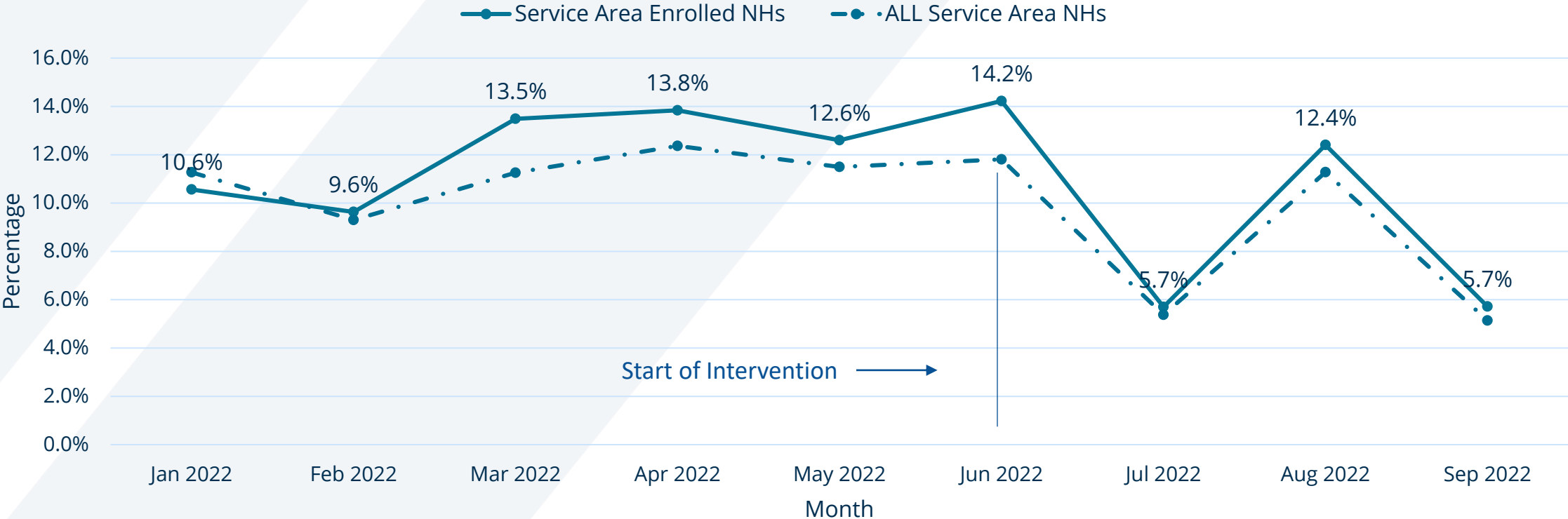
Percentage of readmissions within 30 days of hospital discharge among nursing home residents with principal DX of sepsis



\*RIR = Relative Improvement Rate

# Outcome: Sepsis ED Visits

Percentage of ED visits within 30 days of hospital discharge among nursing home residents with principal DX of sepsis



\*RIR = Relative Improvement Rate

# Next Steps



Identified NHs with high rates of sepsis readmissions/ED visits



Monthly affinity groups



Facility-specific sepsis reports

# Contact Us for More Information



**Sheila McLean, MBA,  
LNHA, CPHQ**

Senior Consulting Manager, Vice President

[smclean@hqi.solutions](mailto:smclean@hqi.solutions)

804.289.5345




**Allison Spangler,  
BSN, RN, RAC-CT, QCP**

Consulting Manager

[aspangler@hqi.solutions](mailto:aspangler@hqi.solutions)

804.289.5342





# Back to Basics- Nursing Home Hand Hygiene Electronic Data Collection/Visualization/Analysis

Teresa Lubowski, Pharm. D., B.S., CPHQ, IPRO

Valerie Reger, LPN, Quality Assurance Technician,  
New Jersey Department of Health



# Project Team

- NJDOH Infection Control Assessment & Response (ICAR) Unit
  - Jessica Arias, MHL, BSN, RN, CIC, FAPIC, ICAR Unit Lead
  - Lakisha Kelley, BSN, RN, CIC, ICAR Infection Preventionist
  - Amanda Henning, MSN, RN, NP-C, GS-C, ICAR Prevention Supervisor
  - Nootan Ghimire, MS, MSN, RN, ICAR Nurse Consultant
- IPRO Team
  - Melanie Ronda, MSN, RN, IP, CPHQ
  - John DeCelles Lead Data Scientist, Data & Analytics
  - Tammy Henning MHA, NHA
  - Chinita Marshall Project Support Coordinator



# The IPRO QIN-QIO Network

## The IPRO QIN-QIO

### The IPRO QIN-QIO

- A federally-funded Medicare Quality Innovation Network – Quality Improvement Organization (QIN-QIO) in contract with the Centers for Medicare & Medicaid Services (CMS)
- 12 regional CMS QIN-QIOs nationally

### IPRO:

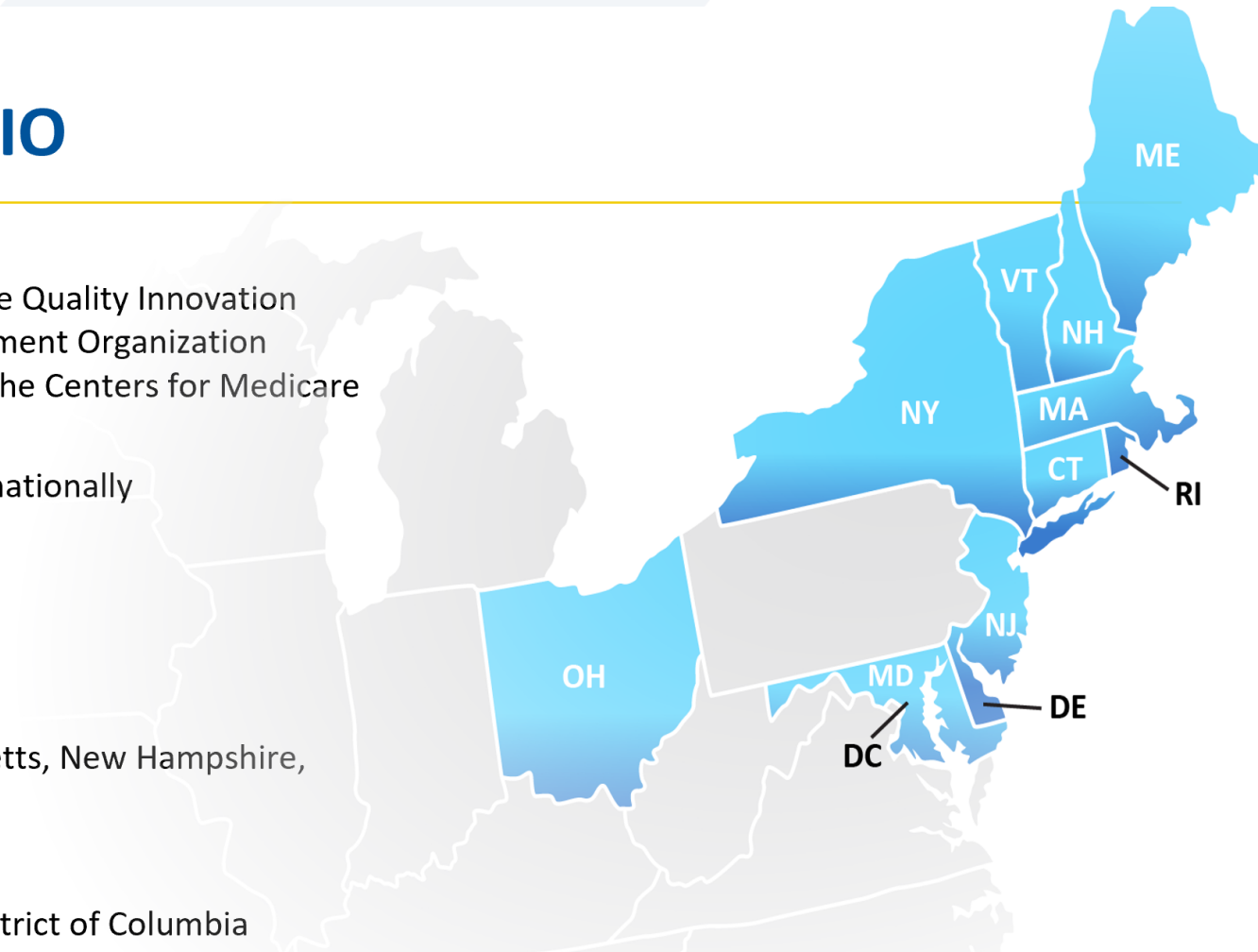
New York, New Jersey, and Ohio

### Healthcentric Advisors:

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont

### Qlarant:

Maryland, Delaware, and the District of Columbia



Working to ensure high-quality, safe healthcare for  
**20% of the nation's Medicare FFS beneficiaries**



- Healthcentric Advisors
- Qlarant

QIN-QIO  
Quality Innovation Network -  
Quality Improvement Organizations  
CENTERS FOR MEDICARE & MEDICAID SERVICES  
QUALITY IMPROVEMENT & INNOVATION GROUP

2023  
ence  
munities:

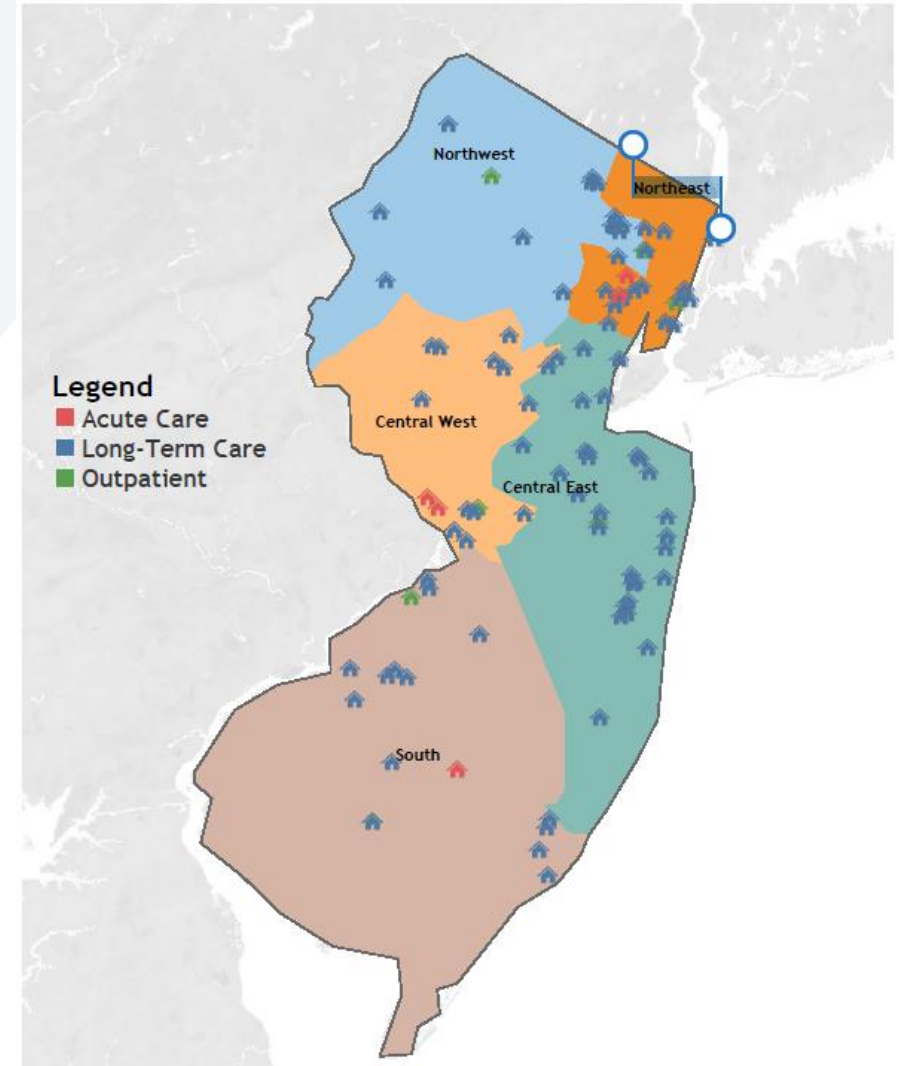
Having an Equitable Foundation for Quality Healthcare



# NJDOH ICAR Unit

- Focused infection prevention & control assessments
- On-site & virtual
- Prevention and containment
- Quality improvement
- January 2021 – Feb 8, 2023
  - 292 ICAR assessments performed

New Jersey Department of Health  
Completed ICARs



# QIN-QIO (IPRO) & NJDOH ICAR Collaborative



# Project Goals

- Promote electronic reporting capabilities
- Ensure competency-based training on hand hygiene
- Onboard facilities to report data in REDCap and Tableau
- Increase hand hygiene process audits
- Provide quarterly assessments to demonstrate sustainability



# Project Timeline: Active Planning

- Planning started 11/2021
- Created tools
- Built dashboard in Tableau
- Developed educational resources on quarterly basis
- Established training process for participants
- Established a process for follow up (including hand hygiene education) with all cohorts over time



# Project Timeline: Cohorts

Cohort /Date	Recruitment Strategy
1. January 2022	ICAR partners
2. April 2022	ICAR partners
3. July 2022	Targeted LTCFs with CMS Quality Rating Scores of 1, 2, & 3
4. October 2022	
5. January 2023	





# Project Timeline: Outcomes

- Developed new educational resources
- Increased access to facility specific data visualization- Competency Assessments (adherence rates) and Observation Data
- Continued participation
  - Increased compliance
  - Increased participation per Quarter
- Compiling best practice resources/ Participant Feedback Webinar (planned for 3-23)
- Aggregate and Single Facility Bar Charts, Run Charts, Line Lists



# Education Series- Examples


NEW JERSEY DEPARTMENT OF HEALTH

## IPRO REDCap Hand Hygiene Project

Issue 1

Look for these quarterly bulletins to help you use your facility's hand hygiene data to drive quality improvement.



### Next Step: Using Your Tableau Data

**Key messaging**  
Use these talking points to share the importance of hand hygiene with staff and residents:

- Our commitment to enhance and expect excellent hand hygiene practices supports safe resident care.
- We want staff and residents to feel empowered to speak up related to cleaning hands.

**Steps to be successful**

- Develop a team approach to management of hand hygiene; this initiative is for all staff always.
- Educate the staff on how competency rates are calculated so that audit data is gathered the same way by all involved in the audit process.
- Set a target or threshold for desired competency rates (90-100%).
- Review needs for additional hand sanitizers throughout the facility. Talk to staff to gather their input.
- Review results of audits in QAPI and conduct root cause analyses (RCAs) for

**Suggested Use of Data**

**Facility level:**

- Present data graphs at QAPI: share overall performance as well as more specific data to enable the leadership team to perform RCA on any low performers.
- Generate Tableau reports showing competency rates by unit to identify areas for improvement. Conduct annual reviews of overall competency compliance by unit to identify areas for improvement over the next year (targeted improvement).
- Use Tableau reports over time to demonstrate sustained high competency rates. If rates decrease in certain months, try to discover the underlying cause.
- Analyze Tableau reports to compare your facility to others of similar size that are using the same REDCap tool. This can provide your staff with encouragement if you compare positively, or highlight an opportunity for improvement.
- Use Tableau reports to track hand hygiene competency for specific types of roles in the facility (Nursing, Dietary, Environmental Services, Medical etc.).

**Leadership level:**

- Use in leadership committee to review and drive improvement.
- Perform RCA on any outliers.
- Identify opportunities to improve, identify mitigation strategies, initiate corrective action and present your plan and results to QAPI. Consider types of positive reinforcement when units are achieving high levels of performance.
- Share results in your internal newsletter to highlight progress and sustained effort (include data).

**Department level:**

- QAPI: Quality Assurance Performance Improvement
- CMS requires LTCF Infection Preventionist report to QAPI
- Using data for action

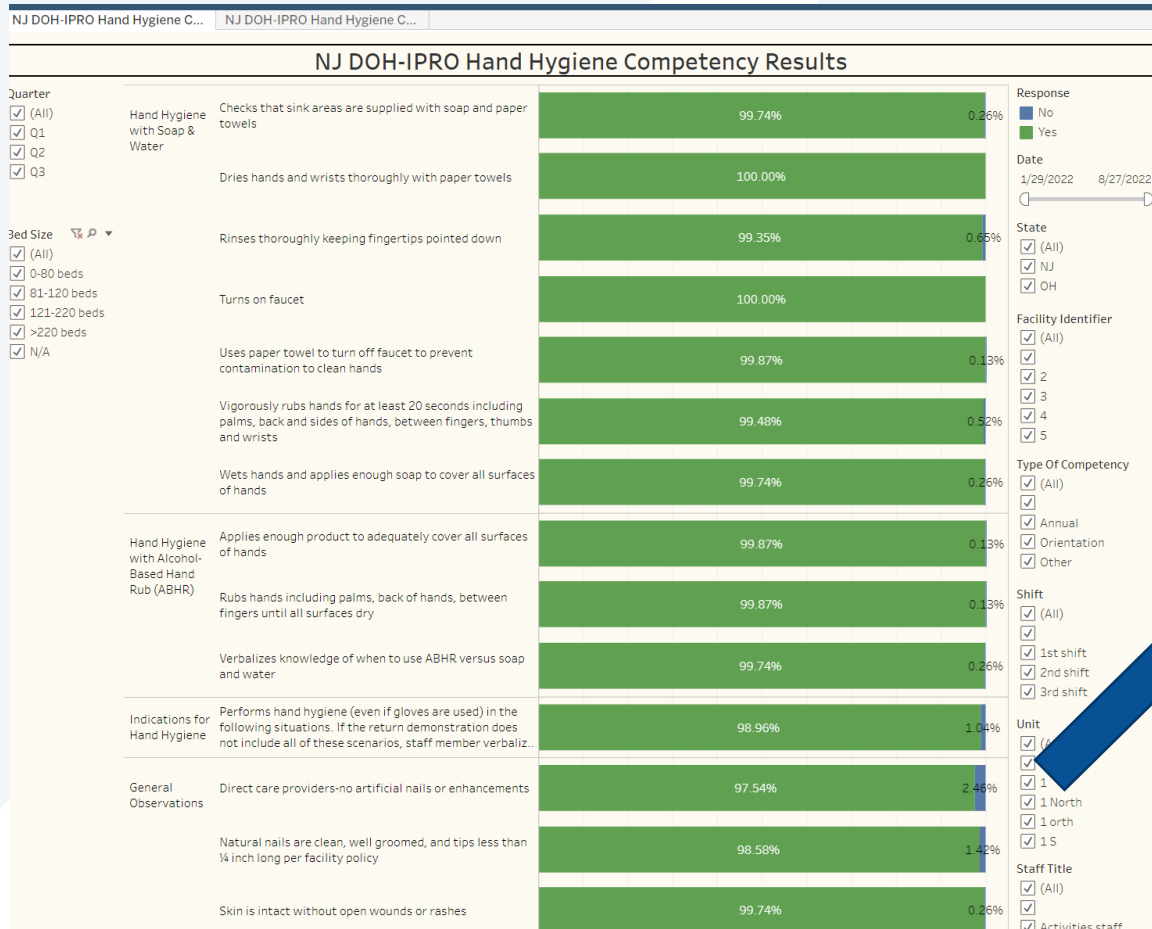
# Education Series- New Resources

- Issue 2- Nail Care Reminders- Evidence and CDC recommendations
- Issue 3- Bacteria and the Environment- transfer of bacteria facts and cleaning hands after removing PPE (focus on gloves and mask)
- Issue 4- NHSN Hand Hygiene Infection Prevention Background and New Competency Reports in Tableau- summary of contents of new staff competency reports
- Issue 5 (Planned for May 2023)- Observation Guidance





# Data for (internal NJ DOH/IPRO Team) Action



NEW JERSEY DEPARTMENT OF HEALTH



INFECTION CONTROL ASSESSMENT & RESPONSE  
NEW JERSEY DEPARTMENT OF HEALTH

## IPRO REDCap Hand Hygiene Project

Issue 2

Look for these quarterly bulletins to help you use your facility's hand hygiene data to drive quality improvement.



### Next Step: Nail Care Reminders

**1. Evidence - Bacteria and Nails**  
 Guideline for Hand Hygiene in Health-Care Settings, Morbidity and Mortality Weekly Report 10-25-2002 - Fingernails and Artificial Nails

<https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5116a1.htm>

### 2. Resident Rights and Staff Safety


Rights & protections in a nursing home | Medicare  
<https://www.medicare.gov/what-medicare-covers/what-part-a-covers/rights-protections-in-a-nursing-home>

- Patient safety concern including scratches on residents/patients
- Glove tears/puncture events may lead to contamination of healthcare worker hands

To help prevent the spread of germs and nail infections:



# Pre and Post Test Learning Assessment

Clean Hands: Combat COVID-19!		CDC COVID-19 Prevention Messages for Frontline Long-term Care Staff	
Pre-Test			
This pre-test prior to visit		<b>Clean Hands: Combat COVID-19!</b> <b>CDC COVID-19 Prevention Messages for Frontline Long-term Care Staff</b>	
Staff member:		Date:	
Test Scorer:		Post-Test Score:	
Question		True	False
1. The average nurse touches			
2. The four important moments when you must wash your hands are:			
1. Before Initial Resident/Resident Environment Contact. 2. After Aseptic Procedures. 3. After Body Fluid Exposure Risk. 4. After Resident/Resident Environment Contact.			
3. One of the benefits of alcohol-based hand sanitizer is that it			
4. The preferred maximum time to wash hands with soap and water is			
5. Soap and water can be used for up to 20 seconds and covers all surfaces.			
6. Alcohol-based hand sanitizer is preferred over soap and water.			
7. Skin becomes more fragile after frequent hand washing.			
4. Gloves can replace hand washing in some circumstances.			
5. Residents should be assisted with hand washing before meals, after toileting and intermittently throughout the day.			
6. Hands should be washed with soap and water after care of residents with infectious diarrhea.			

CDC ICAR definitions

Competency Assessment: The verification of IP competency through the use of **knowledge-based testing** and direct observation.

<https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html>

# Competency Checklist

Type of validation: Return demonstration		<input type="checkbox"/> Orientation
		<input type="checkbox"/> Annual
		<input type="checkbox"/> Other: _____
Employee Name: _____		Job Title: _____
Hand Hygiene with Soap & Water	Competent	
	YES	NO
1. Checks that sink areas are supplied with soap and paper towels		
2. Turns on faucet		
3. Wets hands and applies enough soap to cover all surfaces of hands		
4. Vigorously rubs hands for at least 20 seconds including palms, back and sides of hands, between fingers, thumbs and wrists		
5. Rinses thoroughly keeping fingertips pointed down		
6. Dries hands and wrists thoroughly with paper towels		
7. Discards paper towel in wastebasket		
8. Uses paper towel to turn off faucet to prevent contamination to clean hands		
Hand Hygiene with ABHR		
9. Applies enough product to adequately cover all surfaces of hands		
10. Rubs hands including palms, back of hands, between fingers until all surfaces dry		
11. Verbalizes knowledge of when to use ABHR versus soap and water		
Indications for Hand Hygiene		
12. Performs hand hygiene (even if gloves are used) in the following situations. If the return demonstration does not include <u>all</u> of these scenarios, staff member verbalizes all the touch points where hand hygiene is required:		
a. When hands are visibly soiled (e.g., body fluids)		
b. Before and after contact with the resident		
c. After contact with blood, body fluids, or visibly contaminated surfaces		
d. After contact with objects and surfaces in the resident's environment		
e. After removing personal protective equipment (e.g., gloves, gown, facemask)		
f. Before performing a procedure such as an aseptic task (e.g., insertion of an invasive device such as a urinary catheter, manipulation of a central venous catheter, and/or dressing care) and before handling invasive medical devices		
g. Before moving from work on a soiled body site to a clean body site on the same patient		

CDC ICAR definitions

Competency Assessment: The verification of IP competency through the use of knowledge-based testing and **direct observation**.

<https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html>



# Accomplishments

52 long-term  
care facilities

1169  
competency-  
assessments

1897 completed  
observations  
/audits



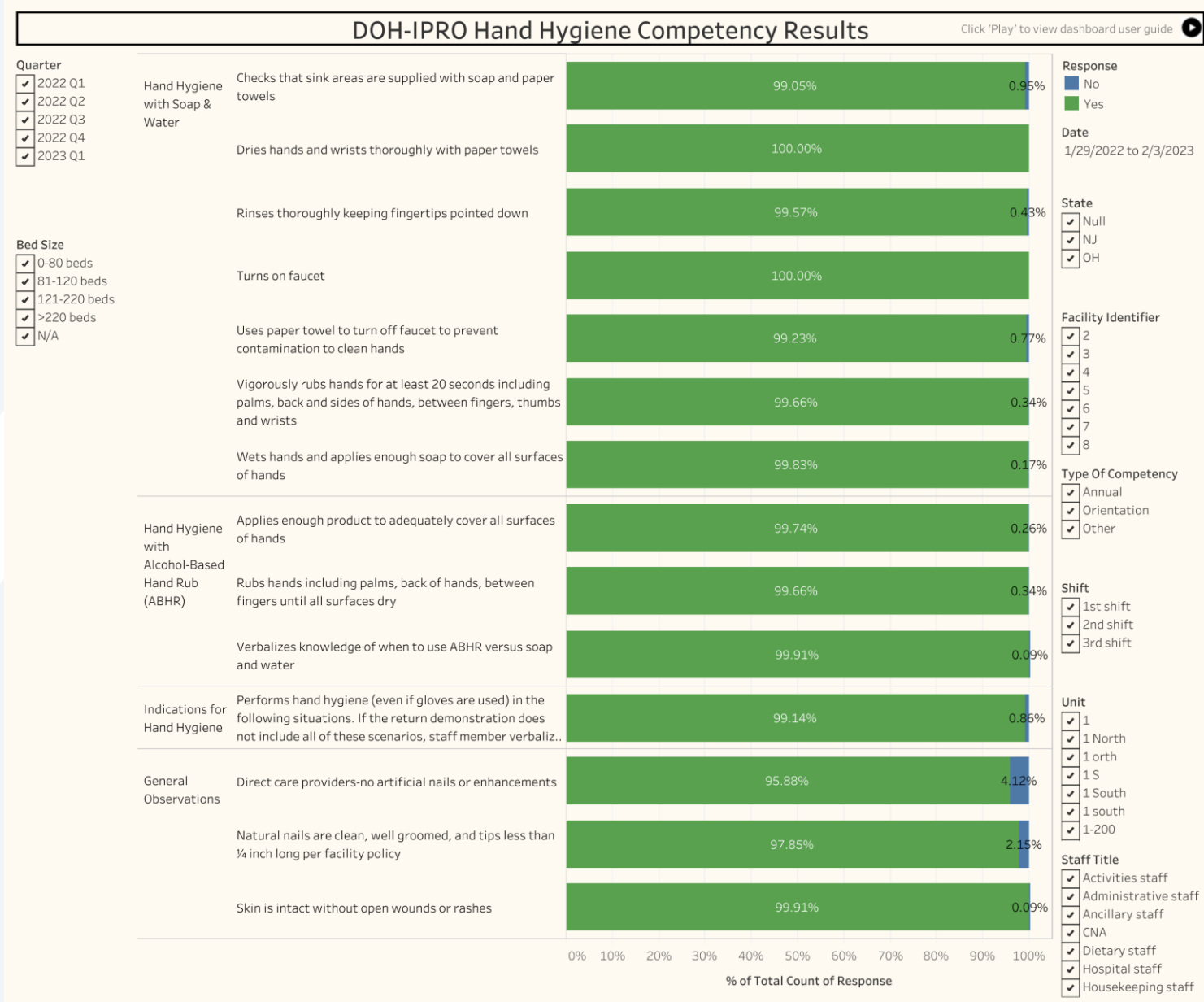
# REDCap Data Collection

HAND HYGIENE WITH SOAP & WATER		
1 Checks that sink areas are supplied with soap and paper towels <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No
2 Turns on faucet <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No
3 Wets hands and applies enough soap to cover all surfaces of hands <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No
4 Vigorously rubs hands for at least 20 seconds including palms, back and sides of hands, between fingers, thumbs and wrists <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No
5 Rinses thoroughly keeping fingertips pointed down <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No
6 Dries hands and wrists thoroughly with paper towels <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No
7 Discards paper towel in wastebasket <i>* must provide value</i>	<input type="radio"/> Yes	<input type="radio"/> No

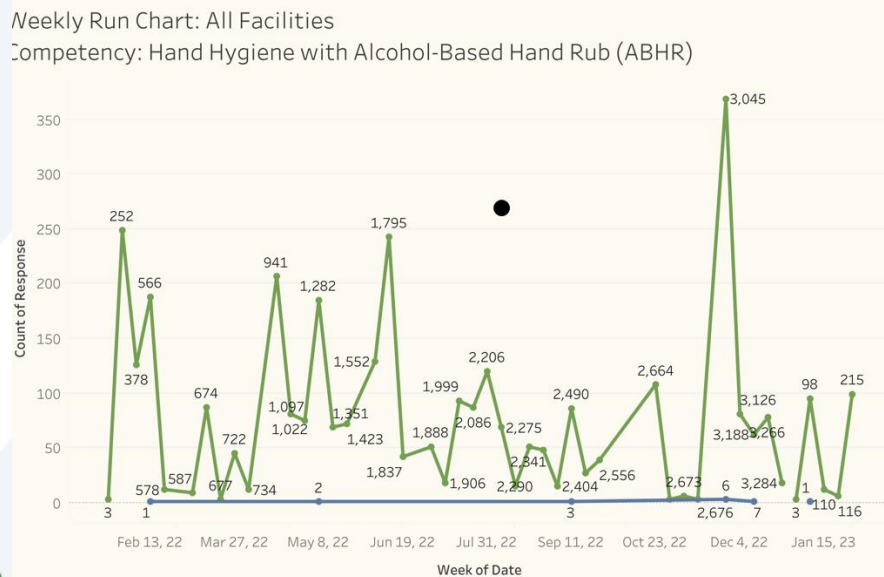
Performs hand hygiene (even if gloves are used) in the following situations. If the return demonstration does not include all of these scenarios, staff member verbalizes all of the touch points where hand hygiene is required:			
	Yes	No	Not observed
When hands are visibly soiled (e.g., body fluids) <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before and after contact with the resident <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After contact with blood, body fluids, or visibly contaminated surfaces <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After contact with objects and surfaces in the resident's environment <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After removing personal protective equipment (e.g., gloves, gown, facemask) <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before performing a procedure such as an aseptic task (e.g., insertion of an invasive device such as a urinary catheter, manipulation of a central venous catheter, and/or dressing care) and before handling invasive medical devices <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before moving from work on a soiled body site to a clean body site on the same patient <i>* must provide value</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



# Tableau Data Visualization- Competency



# Tableau Data Visualization- Competency



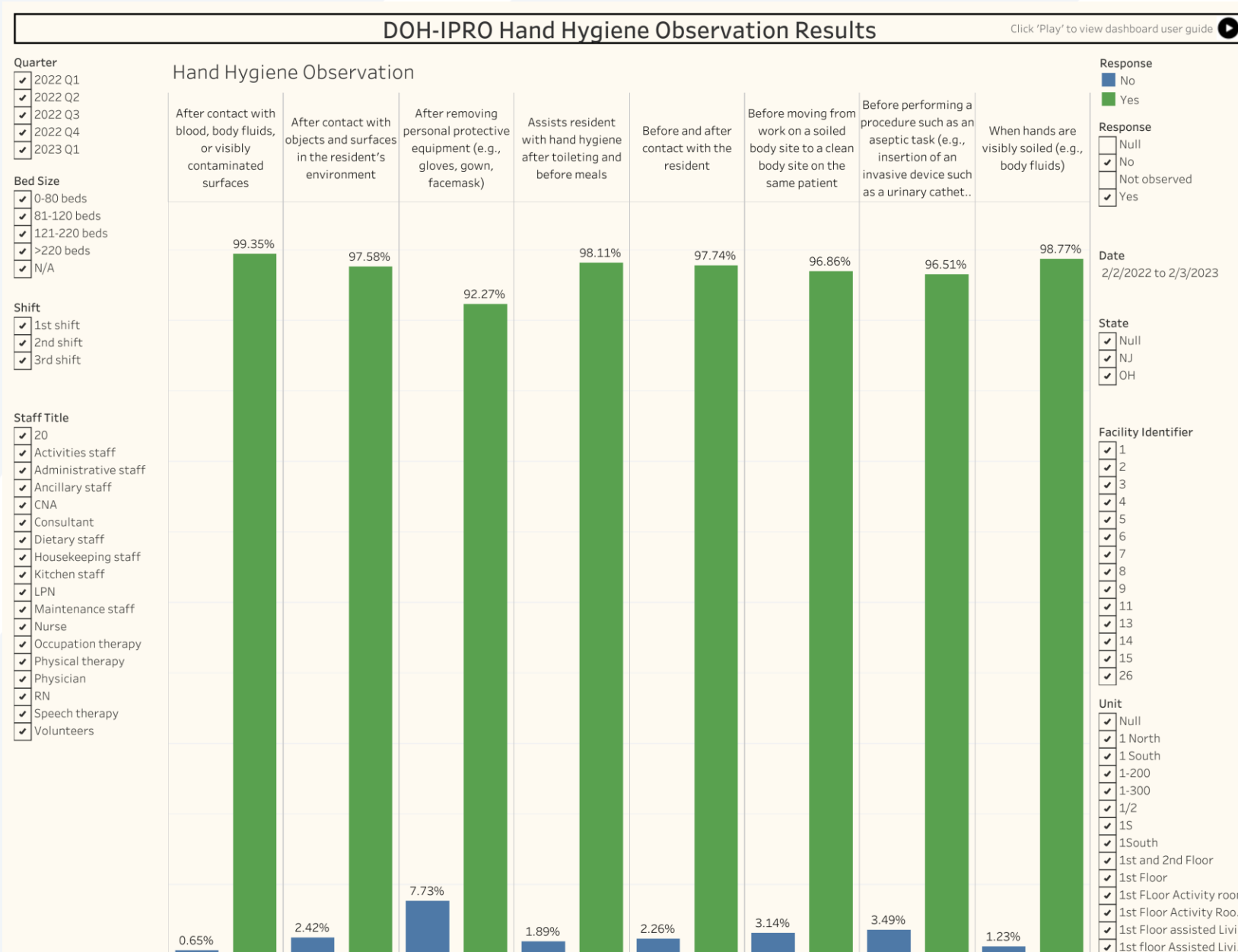
# Tableau Data Visualization- Staff Competency Reports

- Line List Report- List of all staff that have completed competency assessments. All staff listed with all competencies completed. Can easily see who needs assessments and who completed assessments.
- Staff Competency Summary Table- List of all staff and details outcomes of each item on the competency assessment. Can easily see how a staff member did on the competency assessments. Can direct additional education as needed.
- Individual Staff Competency Graph- A bar graph of an individual staff's competency assessment results. Print and provide to the staff for reference.

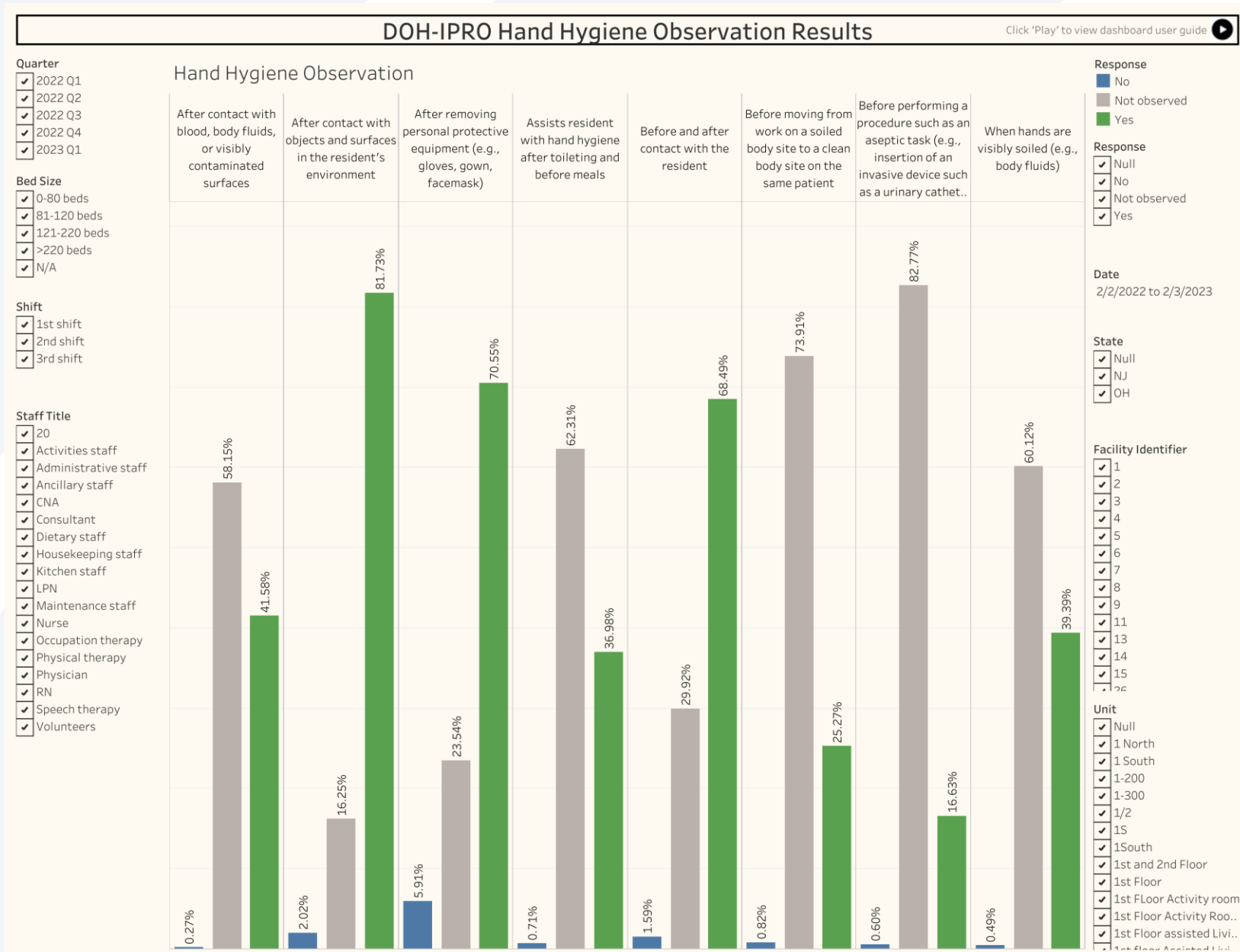




# Tableau Data Visualization- Observation (1)



# Tableau Data Visualization- Observation (2)



# Questions

I PRO:

NJDOH ICAR Unit: [CDS.ICAR@doh.nj.gov](mailto:CDS.ICAR@doh.nj.gov)

