

Clean Hands Count

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National Center for Emerging and Zoonotic Infectious Diseases

Division Name in this space



Objectives

- Provide an overview of the concept of Hand Hygiene
- Clearly identify indications
- Discuss components of improvement programs

Celebrate World Hand Hygiene Day!



Hand Hygiene

A critically important infection prevention measure that is applicable to all patient populations in all settings

- Hand washing
- Hand sanitizing
- Use of gloves
- Conditions of the healthcare personnel hands
 - Intact skin
 - Nail length



Participant Poll

You are a nursing technician and you perform hand hygiene before going into a patient room. You have touched the bed rail and nothing else. You are exiting the room. Is hand hygiene indicated?



Take your IP hat off and answer as if you are the nursing technician.

Healthcare worker hand contamination

A. baumannii

30% of healthcare worker hands were contaminated after interacting with patients known to be infected or colonized

Activity	Odds Ratio
Touching a bed rail	2.19
Interacting with ET tube or trach	5.15
Performing a wound dressing	8.35



A high impact intervention

- **Improvements in hand hygiene may reduce transmission more rapidly than improvements in environmental cleaning¹**
 - May be most pronounced in scenarios involving an MDRO with that is environmentally hardy (such as *A. baumannii*)
- **Very high compliance results in additional reductions in HAI²**
 - Seventeen month observation period
 - HH compliance was increased from 80% (high) to 95% (very high)
 - 197 fewer HAI, 22 fewer deaths, \$5million savings

1. Barnes SL. et al. ICHE 2014, 35:9; 156-1162

2. Sickbert-Bennett et al. EID 2016, 22:9; 1628-1630



Key Components of HH Improvement Programs

- **Commit to a Culture of Safety**
- **Identify and Remove Barriers to HH**
- **Train all Personnel**
- **Monitor and Provide Timely Feedback**
- **Invite Patients, Families and Visitors to Participate**

Commit to a Culture of Safety

“shared values and commitment to a safe environment”



Lowest Adherence

- Individual
- Theoretical risk, not linked to personal responsibility
- Minimal awareness of patient safety



Improved Adherence

- Blaming
- Risk is associated with failures in the practices of others
- Awareness of patient safety, citations



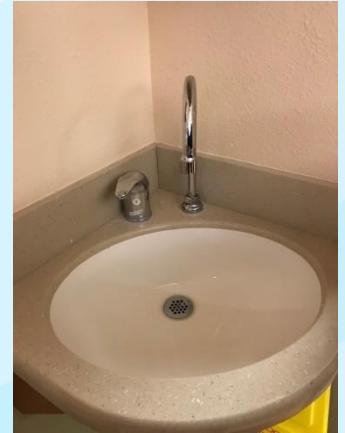
Highest Adherence

- Collaborative
- Responsibility to reduce risk of HAI is collective and shared
- Awareness of patient safety, empowerment

Identify and Remove Barriers

Placement of supplies

- Sinks that are free of clutter and accessible for use
- Soap
- Paper towels



- Alcohol-based hand sanitizer
 - Entry and exit to patient care area
 - Within arm's reach during care
 - In common areas



- Med prep areas, rehab, treatment rooms



How much hand sanitizer is allowed?

Criteria	Requirement
Hand rub solution	Must not exceed 95% alcohol content by volume. (The Centers for Disease Control and Prevention recommends that ABHS contain at least 60% alcohol.)
Maximum dispenser fluid capacity	1.2 liters (41 ounces, 0.32 gal) for dispensers in rooms, corridors, and areas open to corridors. 2.0 liters (67 ounces, 0.53 gal) for dispensers in suites of rooms separated from corridors.
Maximum quantity of ABHS allowed in-use (i.e., in dispensers)	Ten gallons (37.8 L) in-use outside of a storage cabinet within a single smoke compartment.* One dispenser per room off corridors is NOT included in the calculation.
Minimum corridor width	Six feet (1830 mm) wide
ABHS dispenser distance from ignition sources	One-inch (25 mm) distance (horizontal or vertical) above, to the side, or beneath an ignition source** Note: While one-inch is acceptable, a more conservative approach is to ensure a distance of no less than 6 inches (12.7 mm; horizontal or vertical, measured from the center of the dispenser) between ABHR dispensers and source of ignition.
ABHS dispenser separation	Horizontal spacing not less than 48 inches (1220 mm).
Carpeted areas	The smoke compartment must be equipped throughout with an approved automatic sprinkler system.
Operation of the dispenser	The dispenser shall: <ul style="list-style-type: none"> • not release its contents except when the dispenser is activated, either manually or automatically by touch-free activation. • not dispense more solution than the amount required for hand hygiene consistent with label instructions. • be designed, constructed and operated in a manner that ensures accidental or malicious activation is minimized. • be tested in accordance with the manufacturer's care and use instructions each time a new refill is installed. Any activation of the dispenser shall only occur when an object is placed within 4 inches (100mm) of the sensor. An object placed within the activation zone and left in place shall not cause more than one activation.

National Fire Protection Association [NFPA]. *NFPA 101 Life Safety Code*. 2018 edition. Quincy, MA: National Fire Protection Association; 2018.
Available at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=101>



Training and Education

Indications for Hand Hygiene

The HICPAC Core Practices document provides the following indications:

Hand sanitizing	Hand washing
Before touching a patient	Whenever hands are visibly soiled
Before an aseptic task or handling an invasive device	Before eating
Before moving from work on a soiled body site to a clean body site on the same patient	After using the restroom
After touching a patient or the patient's immediate environment	Following care of a patient with known or suspected infectious diarrhea
After contact with blood, body fluids or potentially contaminated surfaces.	



Monitoring Hand Hygiene Adherence



1. Environment of care rounds
2. Audits of ABHS dispenser function
3. Observation of practices

Monitoring the environment of care

- **Routinely round to ensure**
 - Sinks are clean and dry
 - Drain quickly without splashing
 - Soaps and paper towels are available
 - Patient care supplies are not within splash zone
 - One meter surrounding sink



Monitoring function of ABHS dispensers

- **Efficacy is a function of ingredients, volume, and application technique**
 - Alcohol denatures the protein of bacteria
 - 60-95% alcohol
 - Volume is usually 1.0-1.1 ml
- **The manufacture should specify the amount to be dispensed in a single activation. This should:**
 - Cover all surface area of the hands
 - Take 20 seconds or more to dry





Standard Precautions: Observation of Hand Hygiene Provision of Supplies

4

Instructions: Audit sinks and alcohol-based hand sanitizer (ABHS) dispensers intended for use in patient care areas. For each category, record the observation. In the column on the right, sum (across) the total number of "Yes" and the total number of observations ("Yes" + "No"). Sum all categories (down) for overall performance.



Standard Precautions: Observation Categories		Room 1	Room 2	Room 3	Room 4	Room 5	Summary of Observations	
							Yes	Total Observed
1	Are functioning sinks readily accessible in the patient care area?	Yes No	Yes No	Yes No	Yes No	Yes No		
2	Are all handwashing supplies, such as soap and paper towels, available?	Yes No	Yes No	Yes No	Yes No	Yes No		
3	Is the sink area clean and dry?	Yes No	Yes No	Yes No	Yes No	Yes No		
4	Are any clean patient care supplies on the counter within a splash-zone of the sink?	Yes No	Yes No	Yes No	Yes No	Yes No		
5	Are signs promoting hand hygiene displayed in the area?	Yes No	Yes No	Yes No	Yes No	Yes No		
6	Are ABHS dispensers readily accessible?	Yes No	Yes No	Yes No	Yes No	Yes No		
7	Are ABHS dispensers filled and working properly?	Yes No	Yes No	Yes No	Yes No	Yes No		
Total YES and TOTAL OBSERVED								



Observation of adherence to hand hygiene

- Different methods may be better in different areas
 - Methods may be combined

Method	Strength	Weakness
Direct observation	Current gold standard	Prone to bias
Technology-assisted direct observations	Ability to rapidly save and aggregate data	Maintenance of infrastructure
Product volume	Unobtrusive and encompasses all opportunities	Relies on accurate usage data
Automated technology	Captures all room entry and exit opportunities	Limited data outside of research settings



Participant Poll

How many observations are needed per month on an inpatient unit to tell if behavior is changing?

How many observations should be collected?

- **Utilize a sampling plan**
 - Assess all areas/units on a routine (e.g. monthly) basis
 - Consider risk to individuals on the unit
 - Determine opportunities to be audited
- **Units with more patients and higher risk may need increased observations**
- **Consider using a formula to determine the number of observations to collect**

Hand Hygiene Opportunities: Acute Care

Consider attempting to observe 0.1% of opportunities

- *Number of open/staffed beds in unit * monthly occupancy rate in unit * no. of days in month * 30 observations = Hand hygiene opportunities*
- *30 open beds * .9 (90% occupancy rate) * 30 days * 30 opportunities = 24,300 opportunities*
- *0.1% of opportunities = 243/month*

When using direct observation

- **Observers should be trained**
 - The observation should be clearly defined
 - Entry, exit to room
 - Opportunities during the course of care
 - Tools like iScrub help standardize observations
- **Covert**
 - Limit observations to 10-15 minutes duration
- **Overt**
 - Allows for just in time feedback
 - More prone to reporting bias



Provide Timely Feedback

REMEMBER: Intended to change healthcare worker behavior

Offering effective feedback:

- Most effective when performance is less than optimal
- Person responsible for feedback is a supervisor or colleague
- Is provided more than once
- Is provided verbally and in writing
- Includes clear targets and an action plan



Ongoing Training & Motivation



- Videos compatible with facility learning management systems

<https://www.cdc.gov/handhygiene/providers/training/index.html>

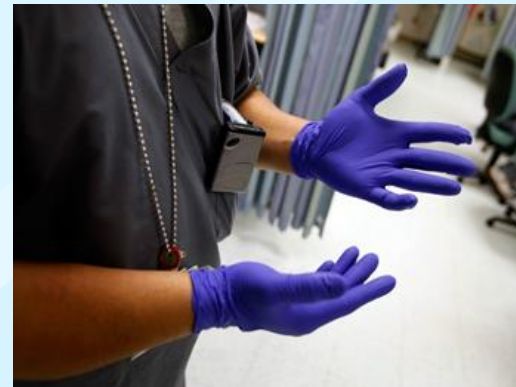
- Posters and Fact Sheets in Spanish on CDC website by World Hand Hygiene Day
- Additional tools coming!
- World Hand Hygiene Day – May 5

<https://www.cdc.gov/handhygiene/campaign/index.html>

<https://www.cdc.gov/handhygiene/campaign/promotional.html>

Questions

Comments



For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



National Center for Emerging and Zoonotic Infectious Diseases

Division Name in this space



CleanHands
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Premier Advisor Live:
**Technology and Culture: Critical Elements
of a Comprehensive Hand Hygiene Program**

Dr. Chris Hermann

Technology

Badge Reel



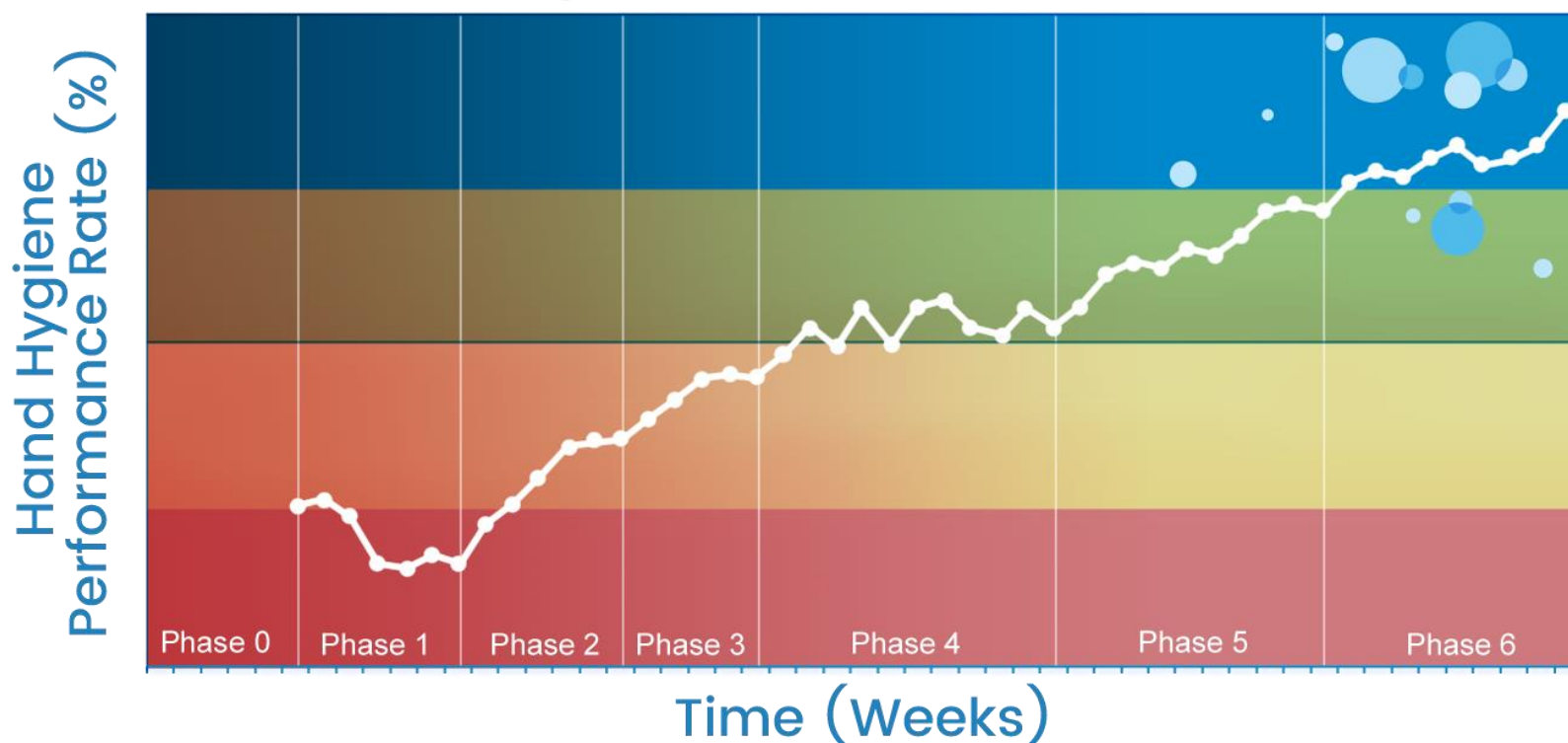
Sensor



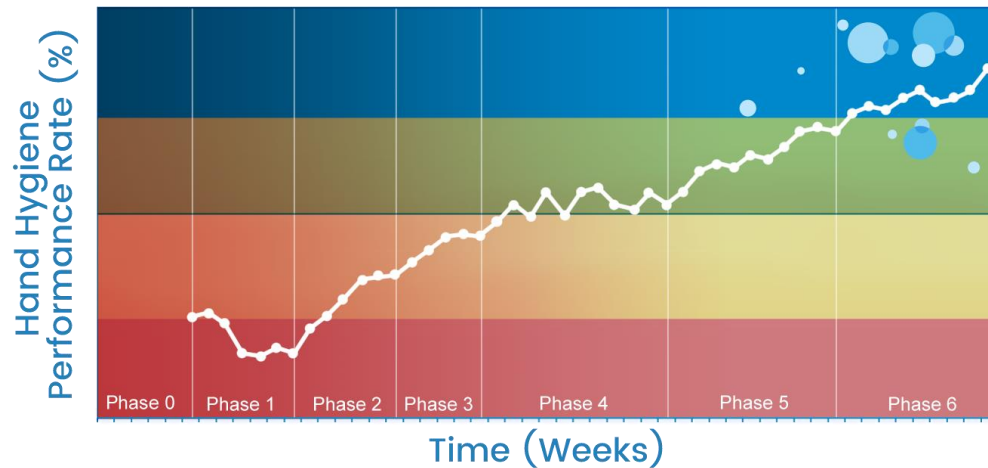
Network Hub



Hand Hygiene Acceleration Pathway™

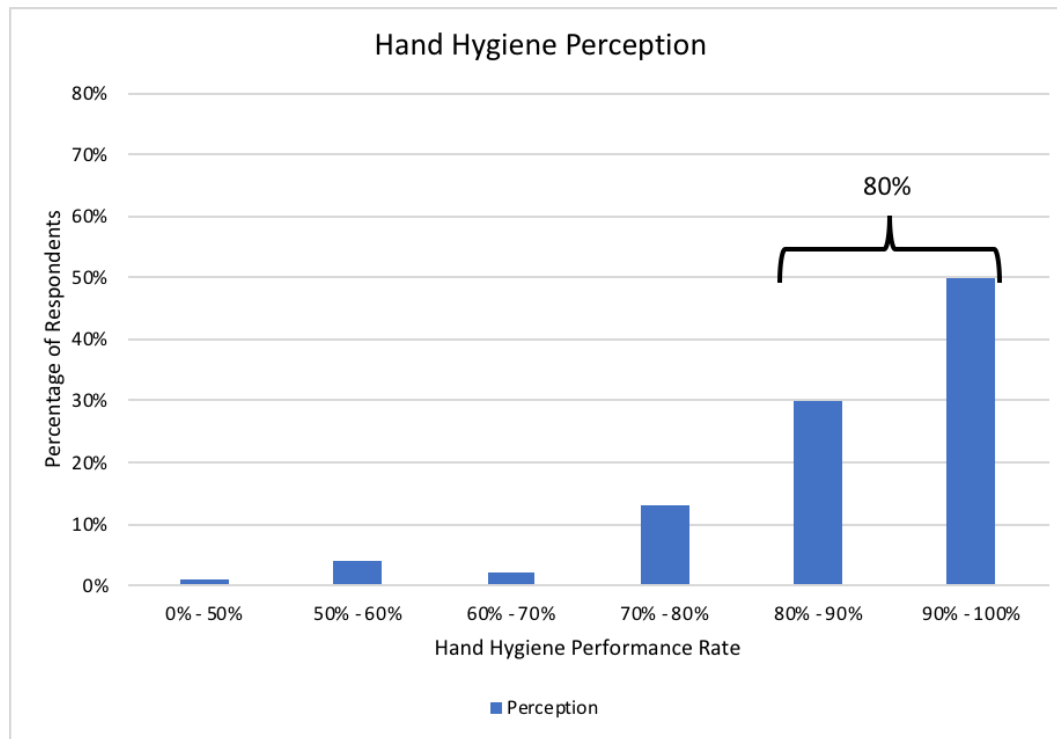


The ABCs

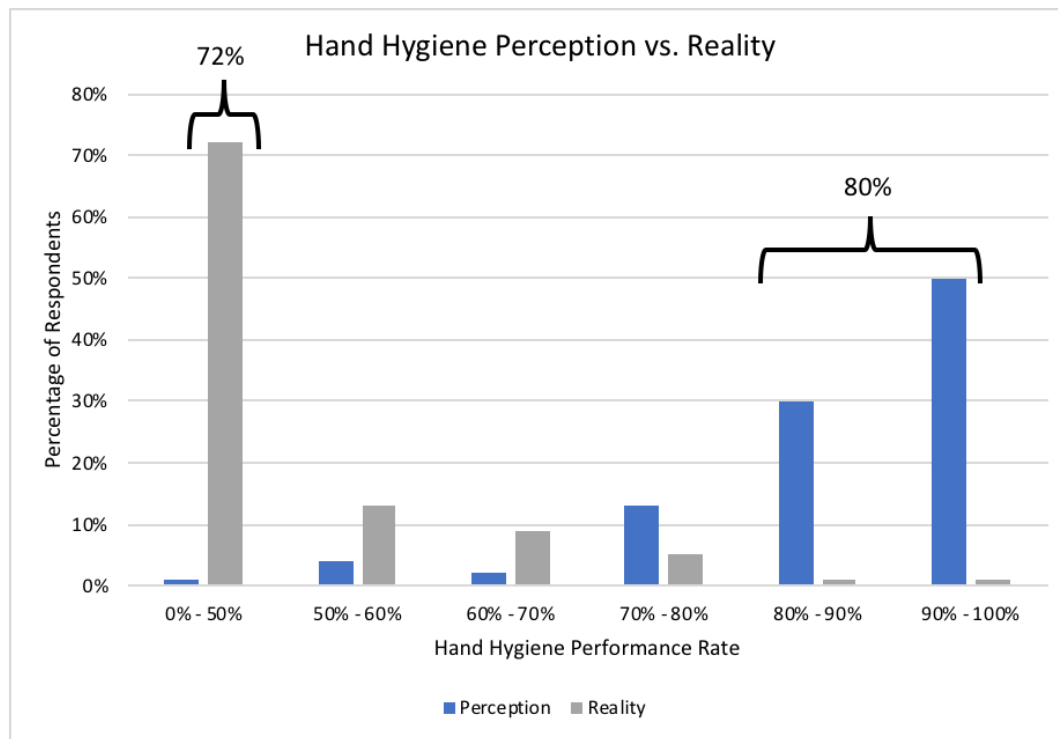


- Awareness
- Busyness
- Craziiness

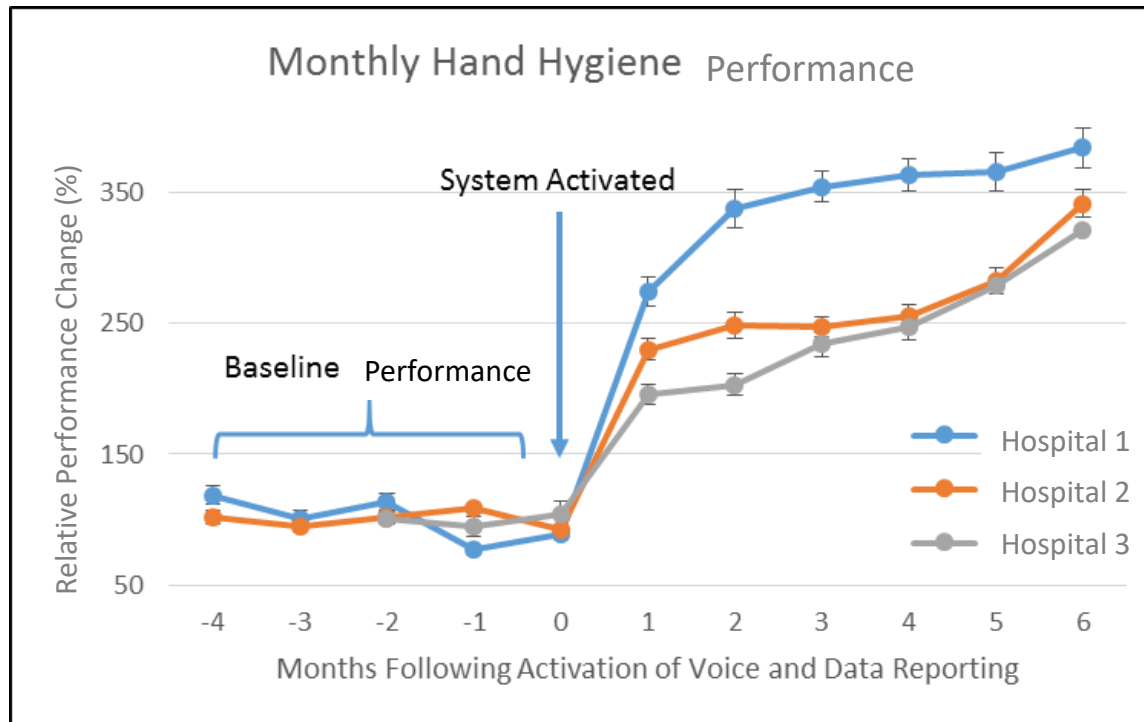
Perception vs. Reality



Perception vs. Reality



Awareness: Voice Reminder



Awareness: Huddleboard

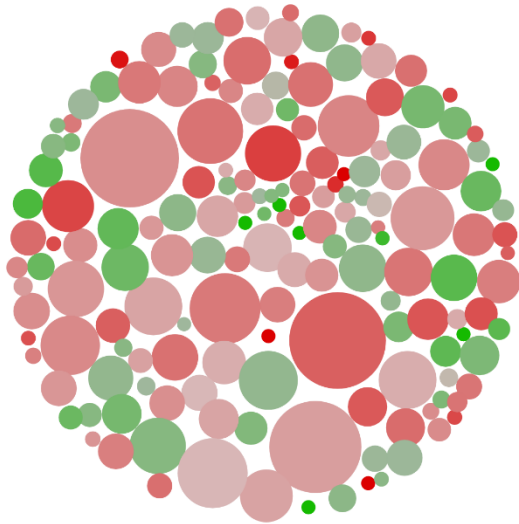


Top Scoring Providers

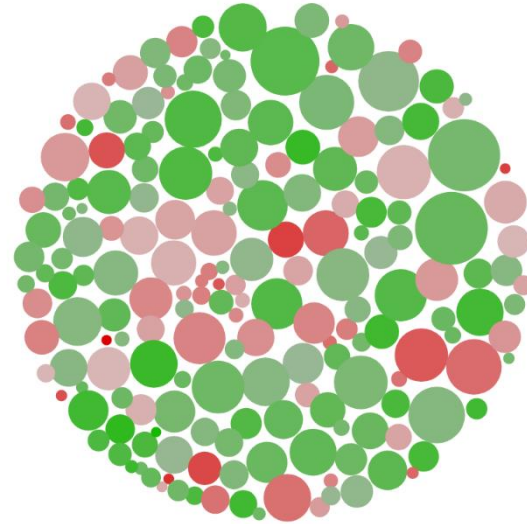
User	Performance	Group
Anonymous User	83.4%	RT
Anonymous User	81.5%	RT
Anonymous User	76.0%	RT
Anonymous User	51.7%	RT

Individual Provider Impact

Silent Period

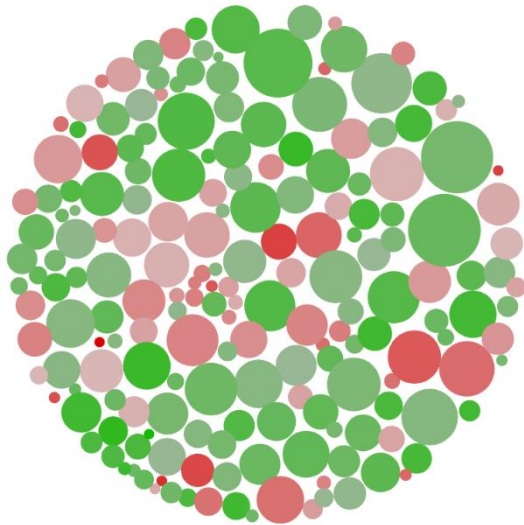


Voice + Competition



Identifying Individuals

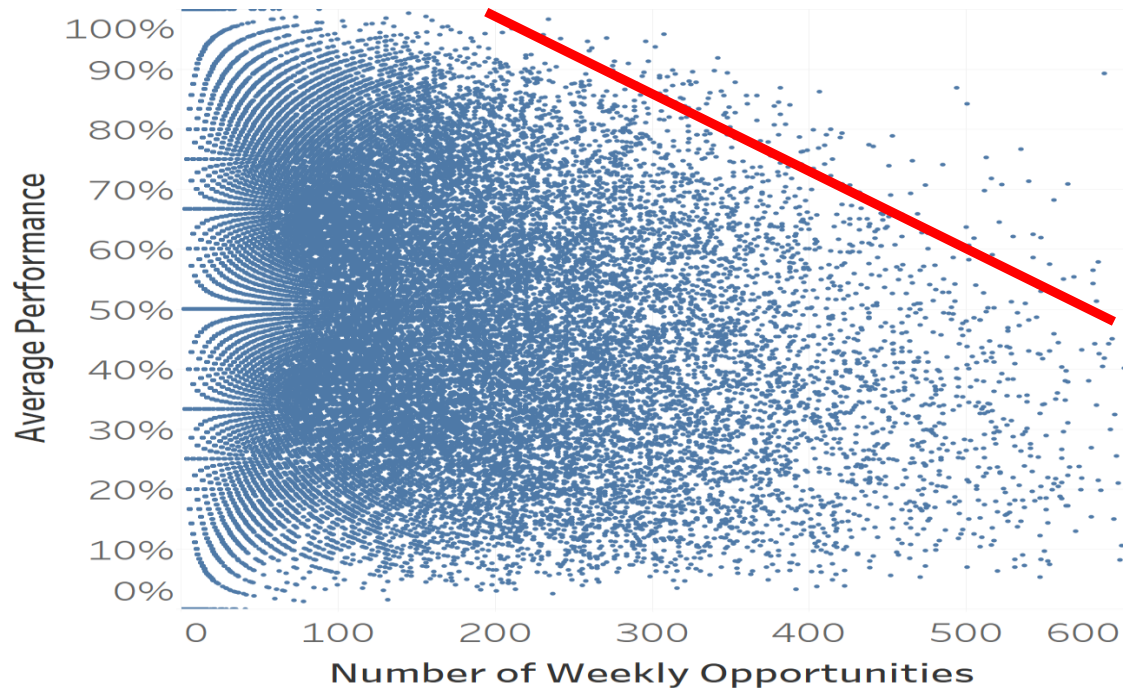
Everyone



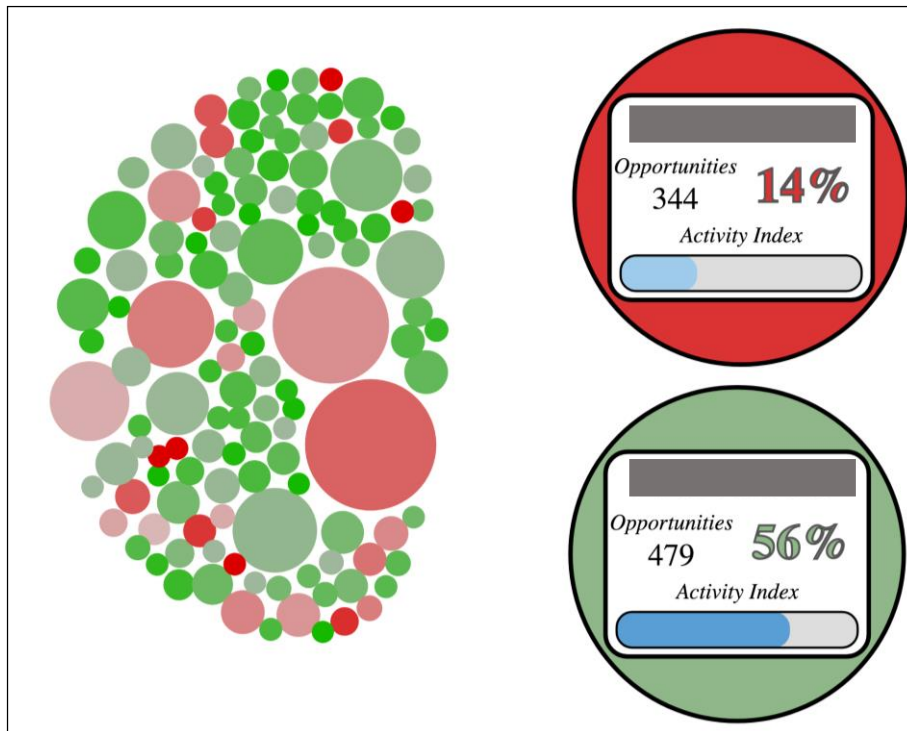
5% of Staff =
25-50% of Missed Opportunities



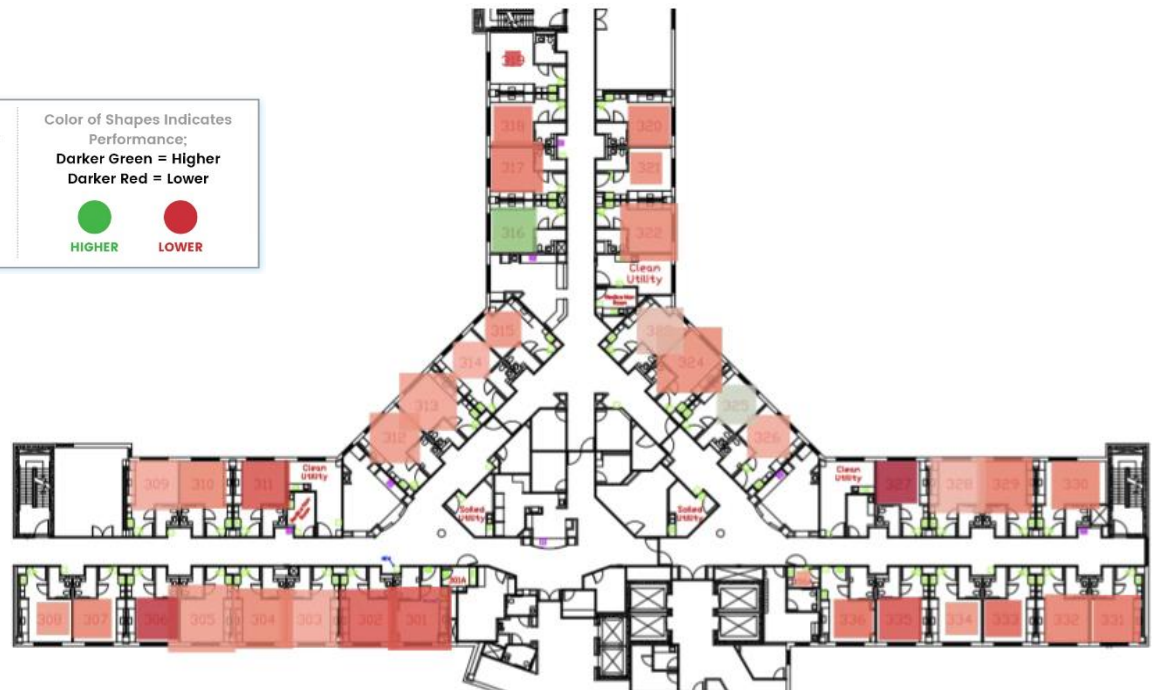
Busyness: Workflow-Adjusted Performance



Busyness: Workflow Impact



Craziness: Patient-Provider

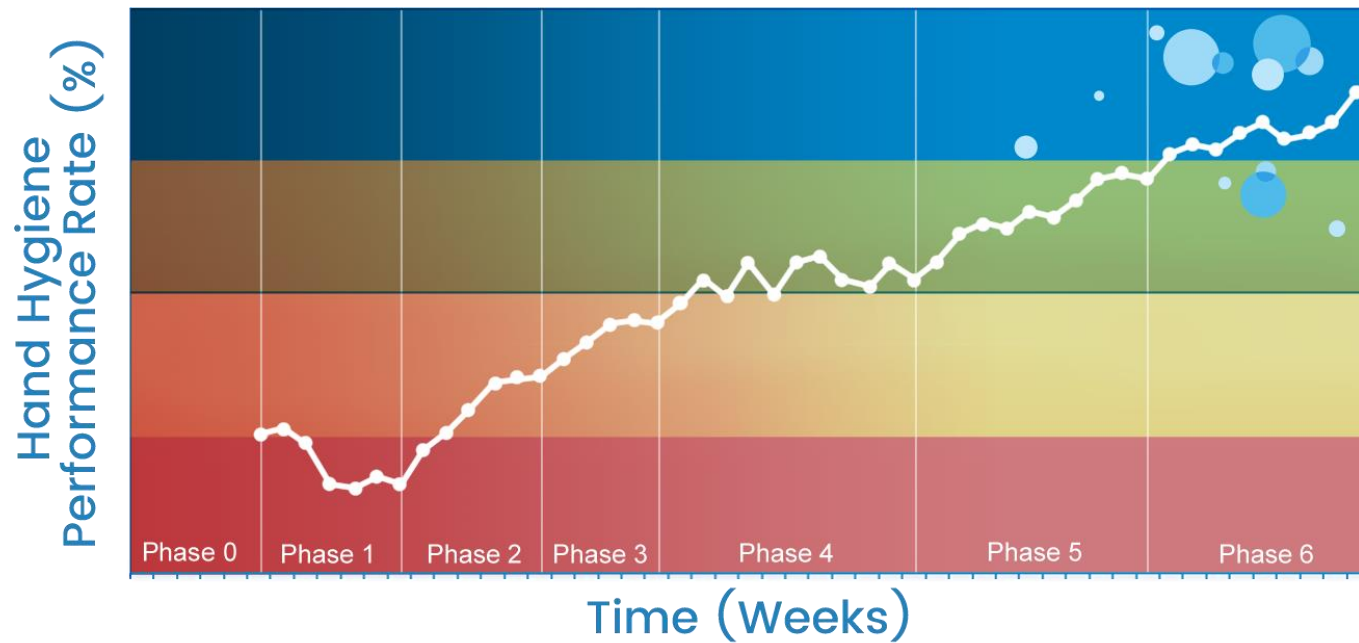


Real-Time Text Message

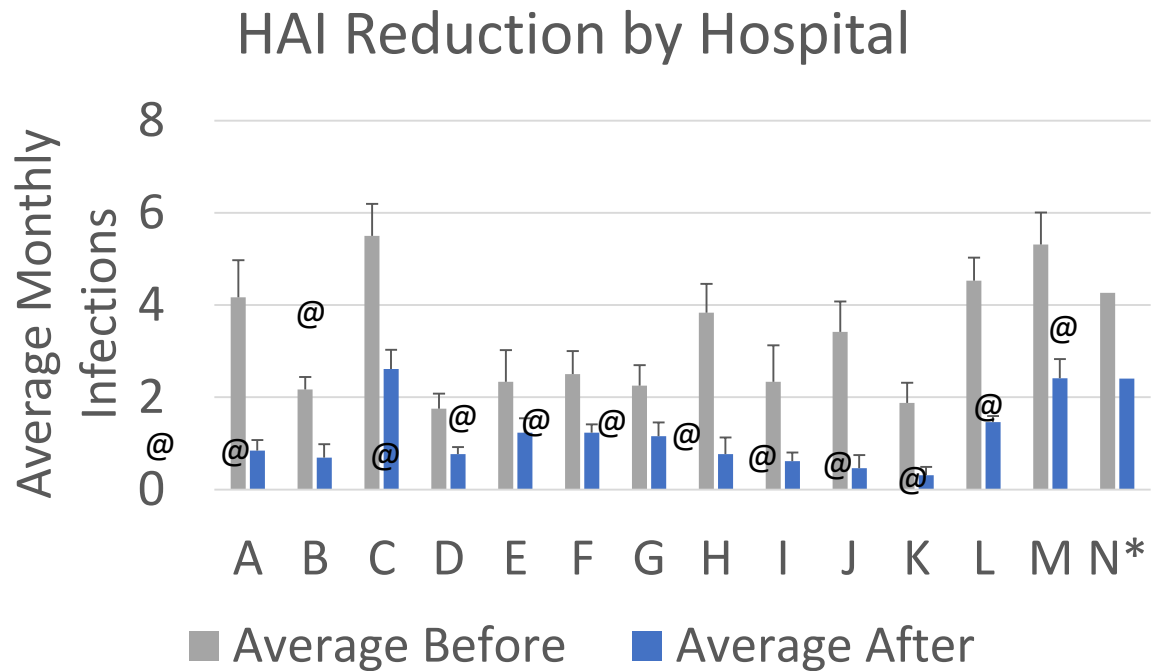
<p>Symbol in Each Room Represents Patient Condition; I.e Normal, Isolation, <i>C. diff</i>, or Silenced</p> <p> ISOLATION  <i>C. diff</i>  NORMAL</p>	<p>Size of Shape Represents the Number of Missed Hand Hygiene Opportunities; Larger Shape = More Clinician Entries and Exits</p> <p> FEWER  MORE</p>	<p>Color of Shapes Indicates Performance; Darker Green = Higher Darker Red = Lower</p> <p> HIGHER  LOWER</p>
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Pattern to a Repeatable Process

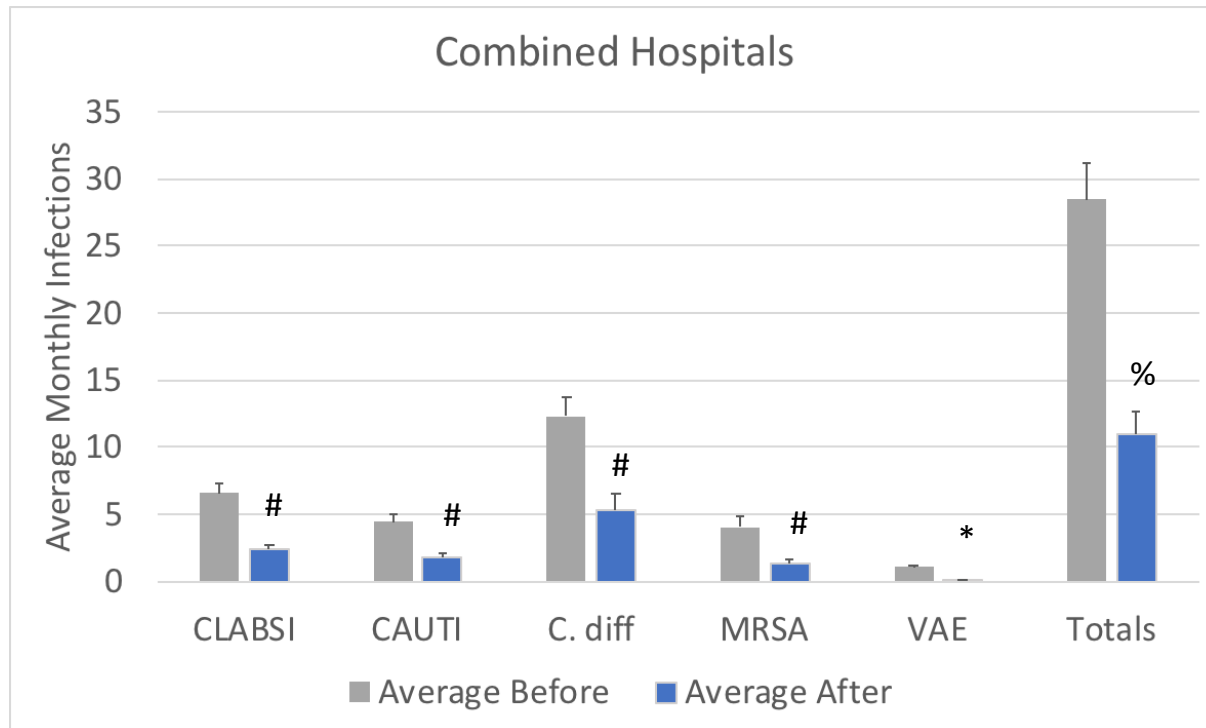


HAI Reduction in 14 Consecutive Hospitals



@ = p<0.05 vs. before voice

HAI Reduction by Type

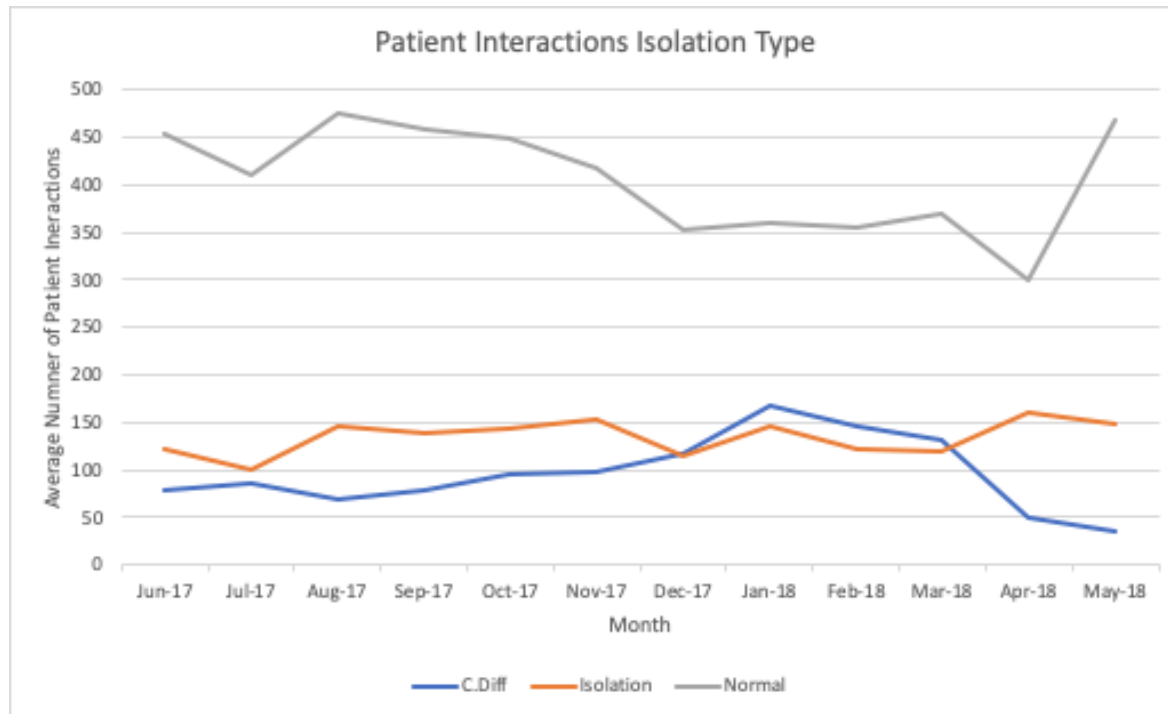


*= $p < 0.05$, #= $p < 0.001$, %= $p < 0.0000001$

Additional Applications: Clinical Intervention Data



Patient Experience in Isolation

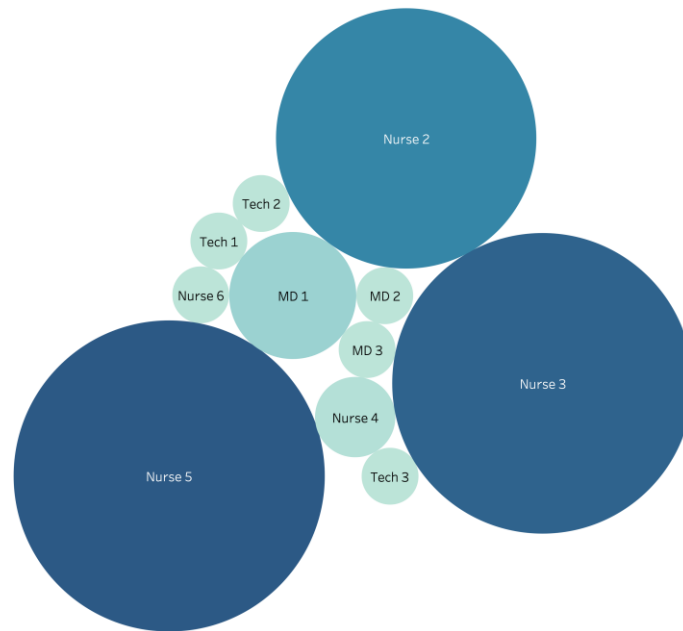


Providers are 3.3x more likely to visit normal patients than isolation, and 4.2x more likely than C. diff patients



Exposure Tracking

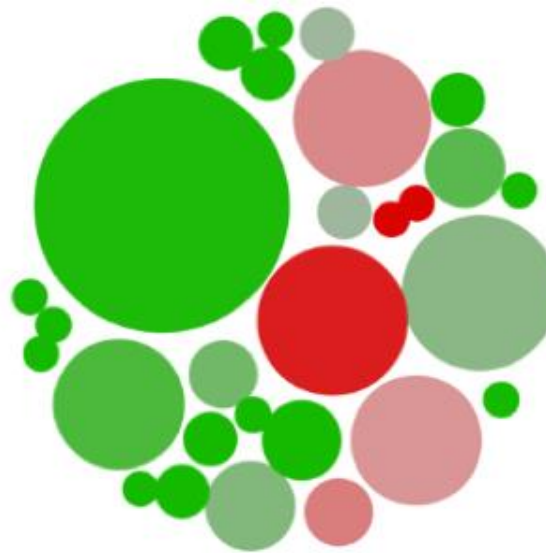
A Neisseria meningitidis exposure occurred. Data showed only three providers needed to be treated with antibiotics, as opposed to the entire unit



Contact Tracing



Left: CLABSI – hand hygiene probably not a factor.

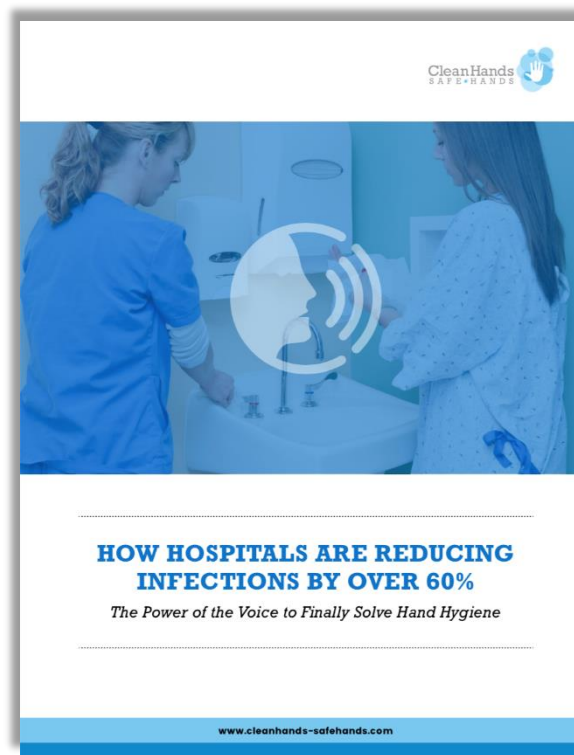


Right: C. diff spread next door – likely hand hygiene-related



Free White Paper

www.tiny.cc/handhygiene



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Questions?

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Need More Information?

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