

MRSA Infection Prevention Updates

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Objectives:

1. Describe why prevention of MRSA infection in healthcare settings is a CDC priority
2. Describe the rationale for transmission-based precautions related to MRSA
3. List additional MRSA control interventions, in addition to contact precautions
4. List process measures related to MRSA prevention that should be tracked and reported to stakeholders
5. Describe available resources to assist in MRSA prevention

MRSA is a “Bad Bug”

- 60 y/o woman with renal disease on hemodialysis via an AV graft – develops chills with dialysis sessions.
- Admitted for further work up, found to have high-grade MRSA bacteremia, vegetation on her tricuspid valve, septic pulmonary emboli to the lungs, possible osteomyelitis/discitis of the lumbar spine, and involvement of the AVG requiring vascular surgery intervention –
- Prolonged hospital stay for sepsis and work up/treatment as above- discharge to SNF on long term IV antibiotics

MRSA Infections are Common, Aggressive, (often) Preventable:

Types of Infections:

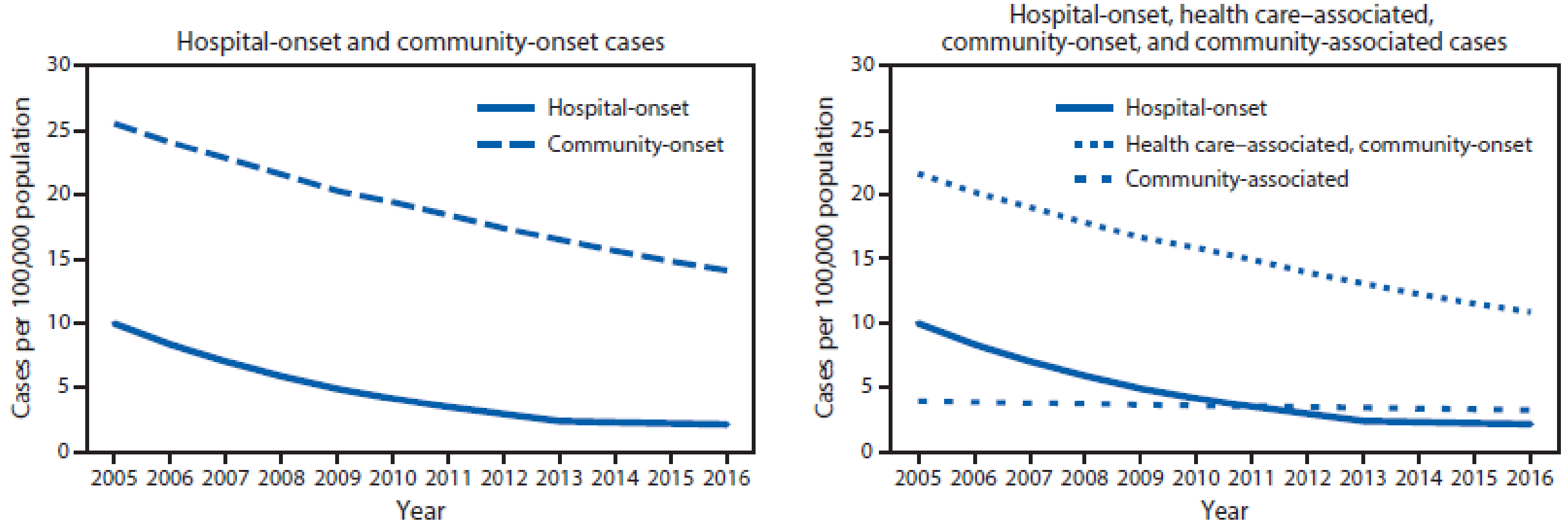
- Skin and soft tissue infections
- Bloodstream infection
- Sepsis
- Surgical site infections
- Pneumonia
- Bone and joint infections
- Endocarditis

Patient at Increased Risk:

- Central lines or other medical devices
- Surgery
- Dialysis
- IVDU
- Burns

MRSA Rates overall Declining*

FIGURE 1. Adjusted* methicillin-resistant *Staphylococcus aureus* bloodstream infection rates from population based surveillance — six U.S. Emerging Infections Program sites,† 2005–2016



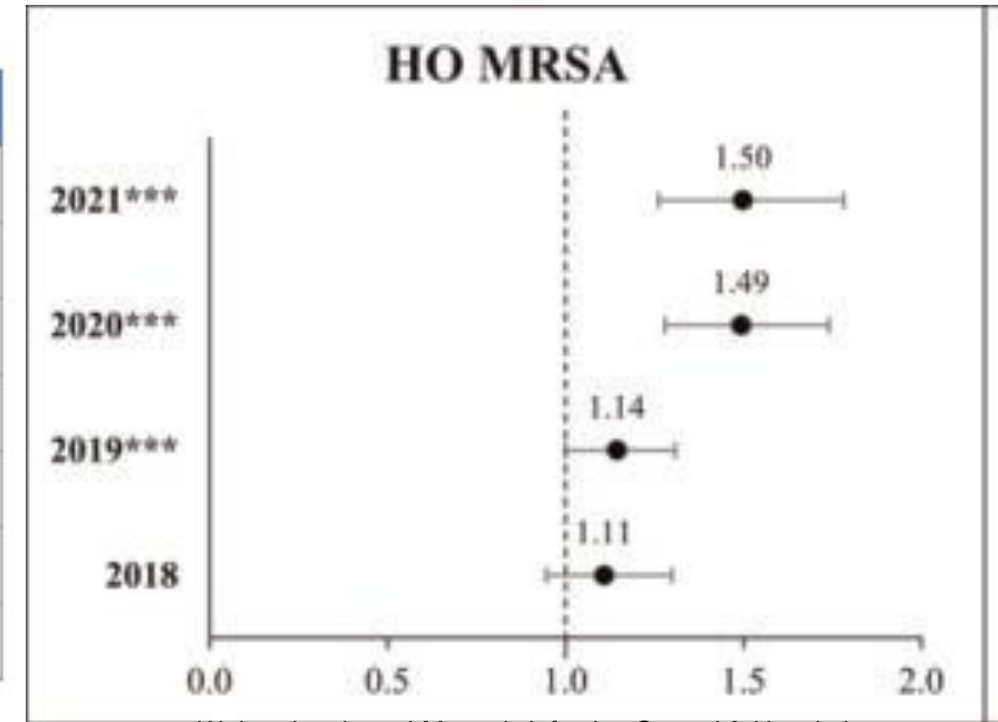
*Increase secondary to COVID-19

Kourtis AP, et al. MMWR Morb Mortal Wkly Rep 2019;68:214–219.
DOI: <http://dx.doi.org/10.15585/mmwr.mm6809e1>

Stressors Increase MRSA Rates:

Changes in 2020 NHSN SIRs for Acute Care Facilities:

	2020 Q1	2020 Q2	2020 Q3	2020 Q4
CLABSI	↓ -11.8%	↑ 27.9%	↑ 46.4%	↑ 47.0%
CAUTI	↓ -21.3%	No Change ¹	↑ 12.7%	↑ 18.8%
VAE	↑ 11.3%	↑ 33.7%	↑ 29.0%	↑ 44.8%
SSI: Colon surgery	↓ -9.1%	No Change ¹	↓ -6.9%	↓ -8.3%
SSI: Abdominal hysterectomy	↓ -16.0%	No Change ¹	No Change ¹	↓ -13.1%
Laboratory-identified MRSA bacteremia	↓ -7.2%	↑ 12.2%	↑ 22.5%	↑ 33.8%
Laboratory-identified CDI	↓ -17.5%	↓ -10.3%	↓ -8.8%	↓ -5.5%



Weiner-Lasting LM, et al. *Infection Control & Hospital Epidemiology*. 2022;43(1):12-25. doi:10.1017/ice.2021.362

Rose A, et al. Trends in Staphylococcus aureus Bacteremia Rates among U.S. Acute Care Hospitals, January 2017- June 2021. OFID 2022:9(S2). IDSA abstract ofac492.1493.

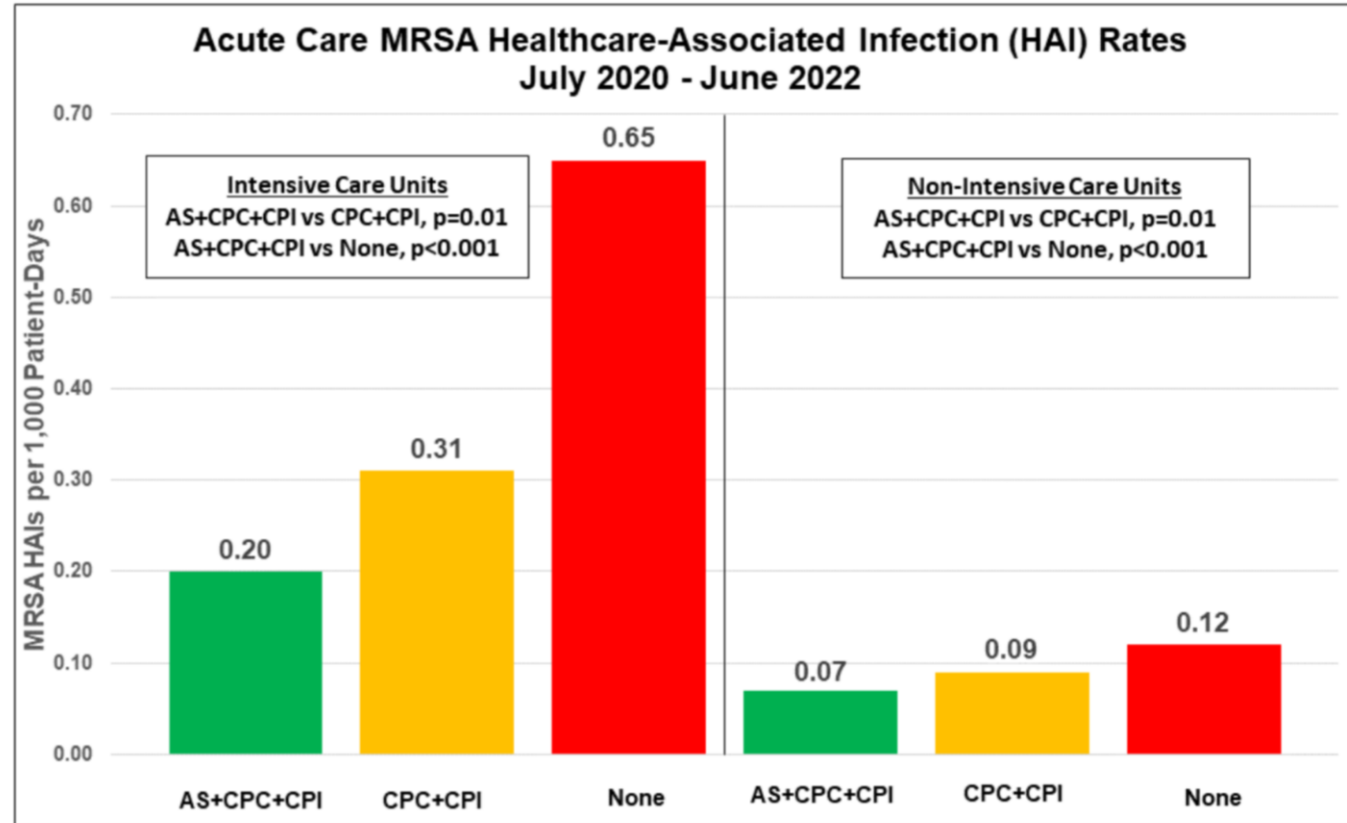
COVID-19 and Healthcare Under Stress:

- Data from all 123 acute care VA facilities: 917,591 admissions, >5,000,000 patient days, and 568 MRSA HAIs:

- Similar facility types*
- Similar patient populations
- Similar other IP procedures
- **Same Timeframe**

- CAUTI rates unchanged

*Adjusted for facility complexity and monthly COVID19 admissions – NO difference in these relationships



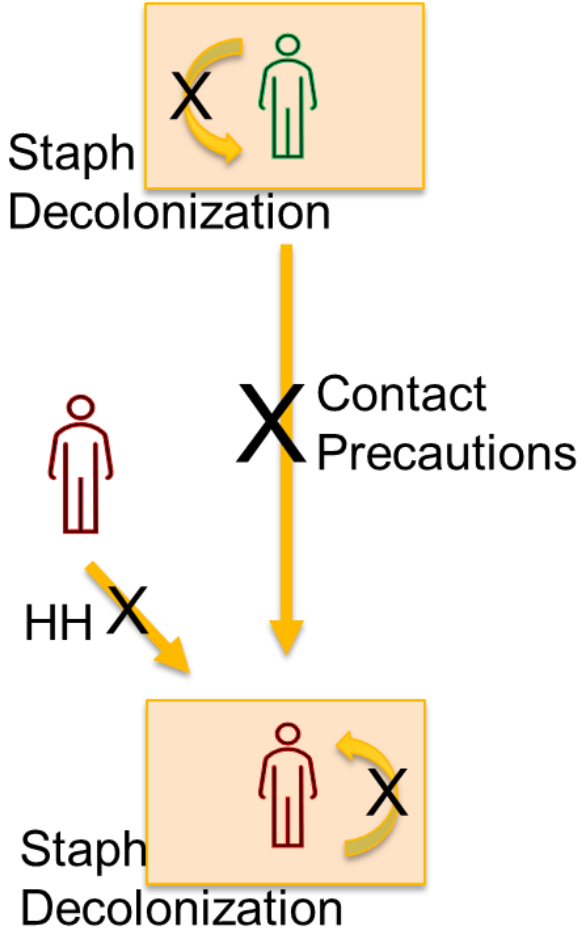
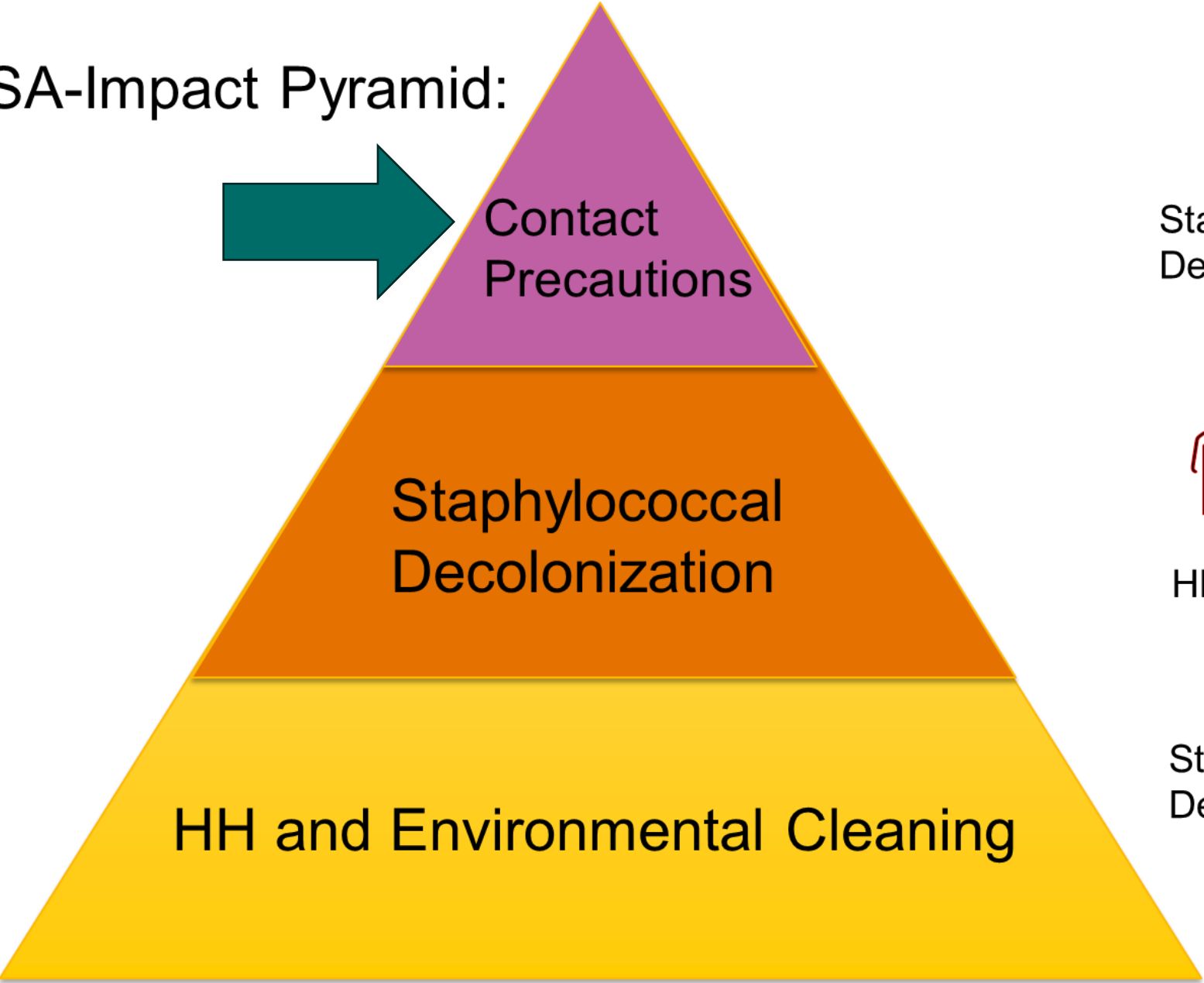
Evans ME, et al. Clin Infect Dis. 2023 Nov 17;77(10):1381-1386. doi: 10.1093/cid/ciad388.

CDC MRSA Prevention Guidance:

1. Follow Existing Guidance for Prevention of:
 - CLABSI
 - SSI
 - Dialysis BSI
 - VAP
2. Decolonization
 - ICU, CVCs, High Risk Surgery (Ortho/Neuro/CT)
3. Monitor and Feedback **HO-Staph aureus** (MRSA or MSSA)
 - Ensure HH, PPE adherence, CP, environmental cleaning

<https://www.cdc.gov/staphylococcus-aureus/hcp/prevent-in-acute-care-facilities/index.html>

The MRSA-Impact Pyramid:

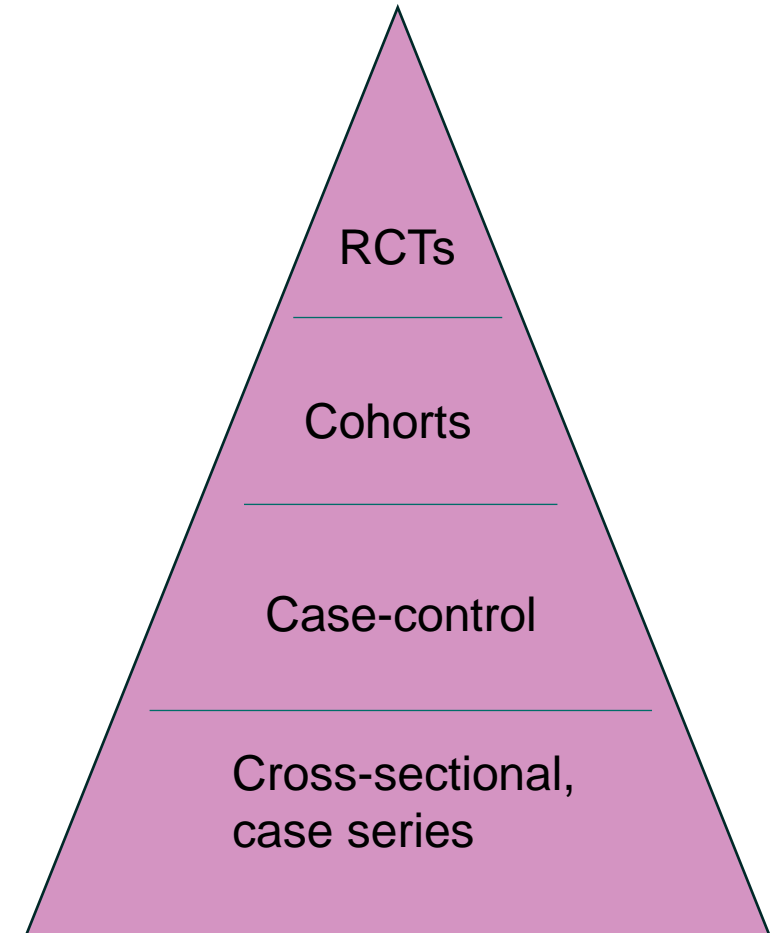


Contact Precautions for MRSA

- Increasingly Controversial – BUT is still a CDC and SHEA*/APIC Core Recommendation for Acute Care Facilities
- Gown and gloves for all patient encounters if infected OR colonized with MRSA
- In LTC, Enhanced barrier precautions would be the approach: Gown and gloves for contaminating activities with the colonized/infected resident

Why the Drama?

- High-quality data to support benefit of CP in preventing MRSA is lacking: largely observational*
- Because MRSA is common, “endemic”, it equates to A LOT of CPs, and adherence becomes increasingly difficult with increasing burden of CP
- Concerns about healthcare waste and sustainability are gaining traction



RE: Environmental Impact

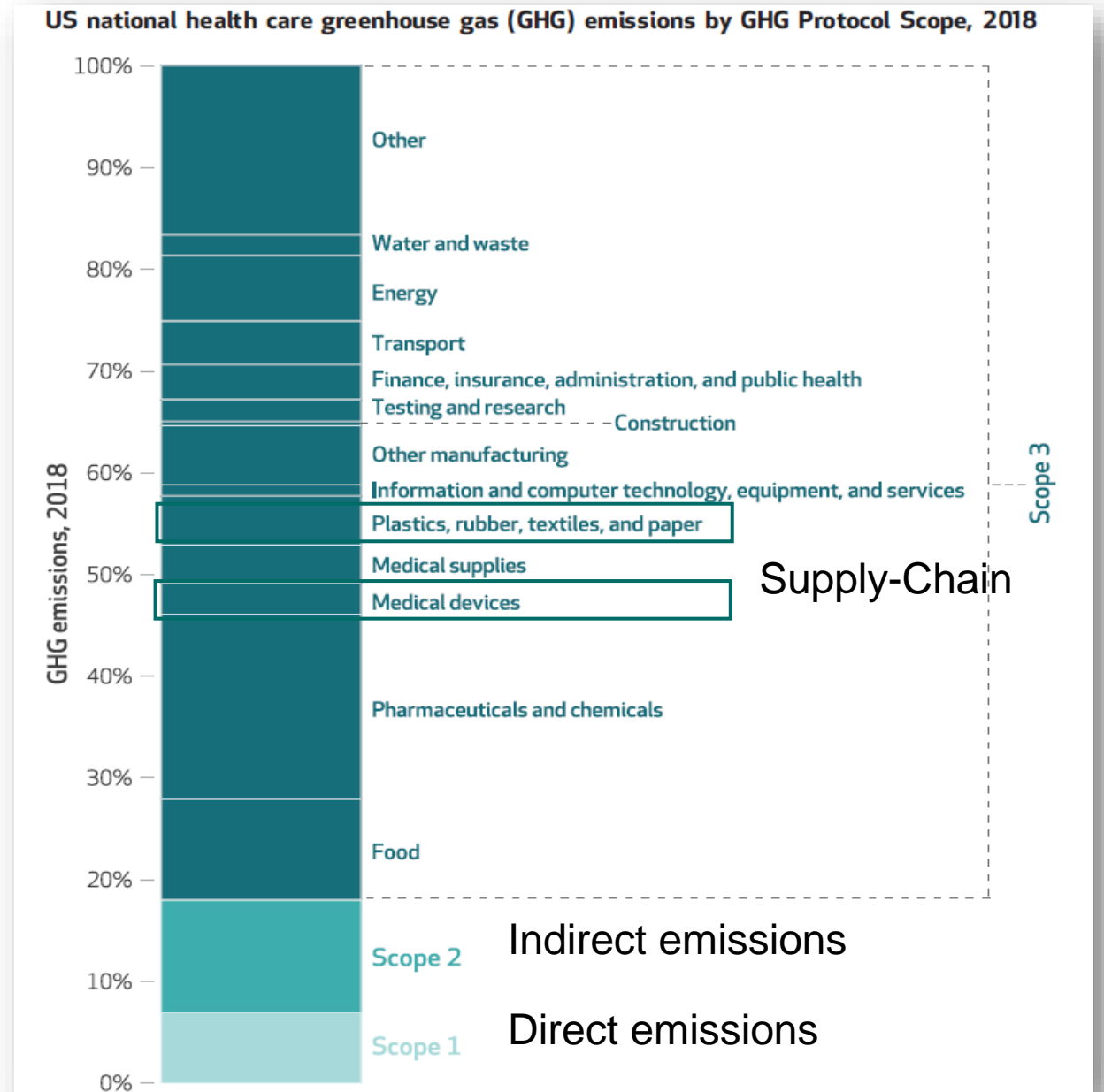
PPE is a *fraction* of Healthcare-associated waste:

Nevertheless, PPE appears in 100% of the articles written on HC-associated waste.

Lack of conversation about more sustainable PPE options.

Lack of conversation about other opportunities to mitigate waste at all levels of the system.

Eckelman MJ, et al. Health Care Pollution And Public Health Damage In The United States: An Update. Health Aff (Millwood). 2020 Dec;39(12):2071-2079. doi: 10.1377/hlthaff.2020.01247.



“Perfect Epidemiologic Studies are rare.
Find available data that is not fatally
flawed and use it to improve public
health”

– Dr. Geoffrey Rose, London School of Hygiene & Trop Med.

Farr BM. ICHE 2006;27(10):1096-1106

BUGG Study

Design:

- Cluster-randomized Universal Gown/Gloving vs. standard practice*,
- 20 adult ICUs
- 26,180 patients

Finding:

- Decrease of 2.98 MRSA acquisitions per 1000 patient days with UGG vs. Standard
- Less HCP room entries with improved HH in intervention ICUs

*Standard practice = CP for known MRSA infected/colonized (ie in absence of active surveillance data)

Harris AD, et al. *JAMA*. 2013 Oct 16;310(15):1571-80. doi: 10.1001/jama.2013.277815

Do Gowns and Gloves prevent MRSA = **YES**,
Based on the BUGG Study:
At approximately 3 Less MRSA Acquisitions per 1000
patient days

- MRICU + STICU = 1500 patient days / month
- 4.5 less MRSA acquisitions / month across these 2 units

PPE as MRSA Prevention in LTC:

- 12 nursing homes split into 2 groups: Cluster-randomized by facility:
 - Group 1: Standard precautions, passive surveillance MDROs
 - Group 2: Gown/gloves for care of patients with urinary catheters and/or feeding tubes*, active surveillance for MDROs, Staff education/HH
 - NOT isolated – continued to attend group activities, meals etc
 - TBP in both groups per NH policy (ie yes isolation for C. auris or influenza for example)
- FINDINGS:
 - Less MDRO prevalence in patients with devices in intervention NHs
 - Less MRSA acquisition
 - Less clinically diagnosed UTIs

Mody L, et al. A Targeted Infection Prevention Intervention in Nursing Home Residents with Indwelling Devices: A Randomized Clinical Trial. JAMA Internal Medicine 2015;175:714-23.

SHEA Compendium: MRSA Update 2023

Essential practices	
1	Implement a MRSA monitoring program. (Quality of evidence: LOW)
2	Conduct a MRSA risk assessment. (Quality of evidence: LOW)
3	Promote compliance with the CDC or WHO hand hygiene recommendations. (Quality of evidence: MODERATE)
4	Use contact precautions for MRSA-colonized and MRSA-infected patients. A facility that chooses or has already chosen to modify the use of contact precautions for some or all of these patients should conduct a MRSA-specific risk assessment to evaluate the facility for transmission risks and to assess the effectiveness of other MRSA risk mitigation strategies (eg, hand hygiene, cleaning and disinfection of the environment, single occupancy patient rooms), and establish a process for ongoing monitoring, oversight, and risk assessment. (Quality of evidence: MODERATE)
5	Ensure cleaning and disinfection of equipment and the environment. (Quality of evidence: MODERATE)
6	Implement a laboratory-based alert system that notifies HCP of new MRSA-colonized or MRSA-infected patients in a timely manner. (Quality of evidence: LOW)
7	Implement an alert system that identifies readmitted or transferred MRSA-colonized or MRSA-infected patients. (Quality of evidence: LOW)
8	Provide MRSA data and outcome measures to key stakeholders, including senior leadership, physicians, nursing staff, and others. (Quality of evidence: LOW)
9	Educate healthcare personnel about MRSA. (Quality of evidence: LOW)
10	Educate patients and families about MRSA. (Quality of evidence: LOW)
11	Implement an antimicrobial stewardship program. (Quality of evidence: LOW)

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. doi:10.1017/ice.2023.102

SHEA Compendium: MRSA Update 2023

- Consider your population when determining and implementing your MRSA control program
 - Burn units?
 - NICU?
 - Expanding service lines? Surgeries?
- One hospital's experience will not necessarily transfer to yours
 - Importance of foundational practices
- Note: the Appendix of the document contains implementation guidance for Active Surveillance and Decolonization strategies

Special Approaches to MRSA:

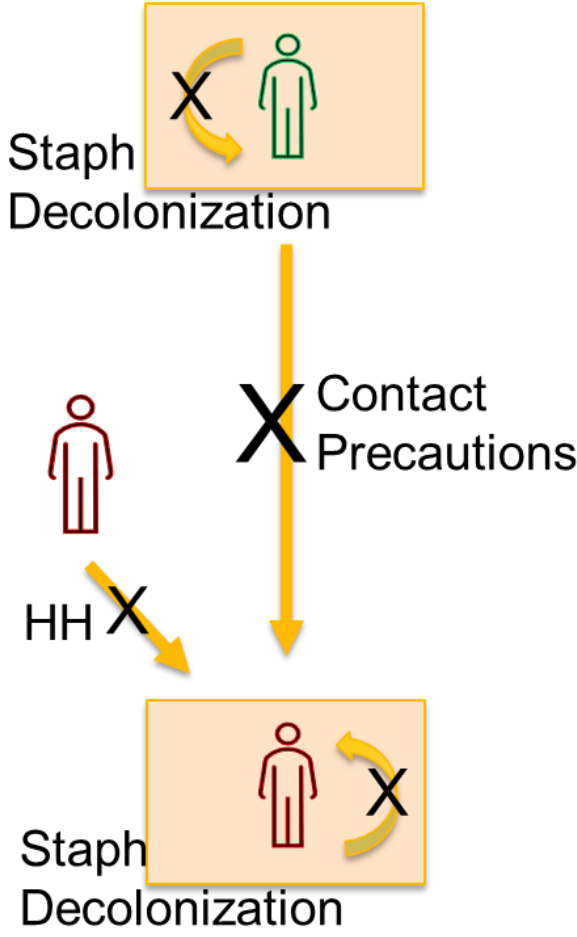
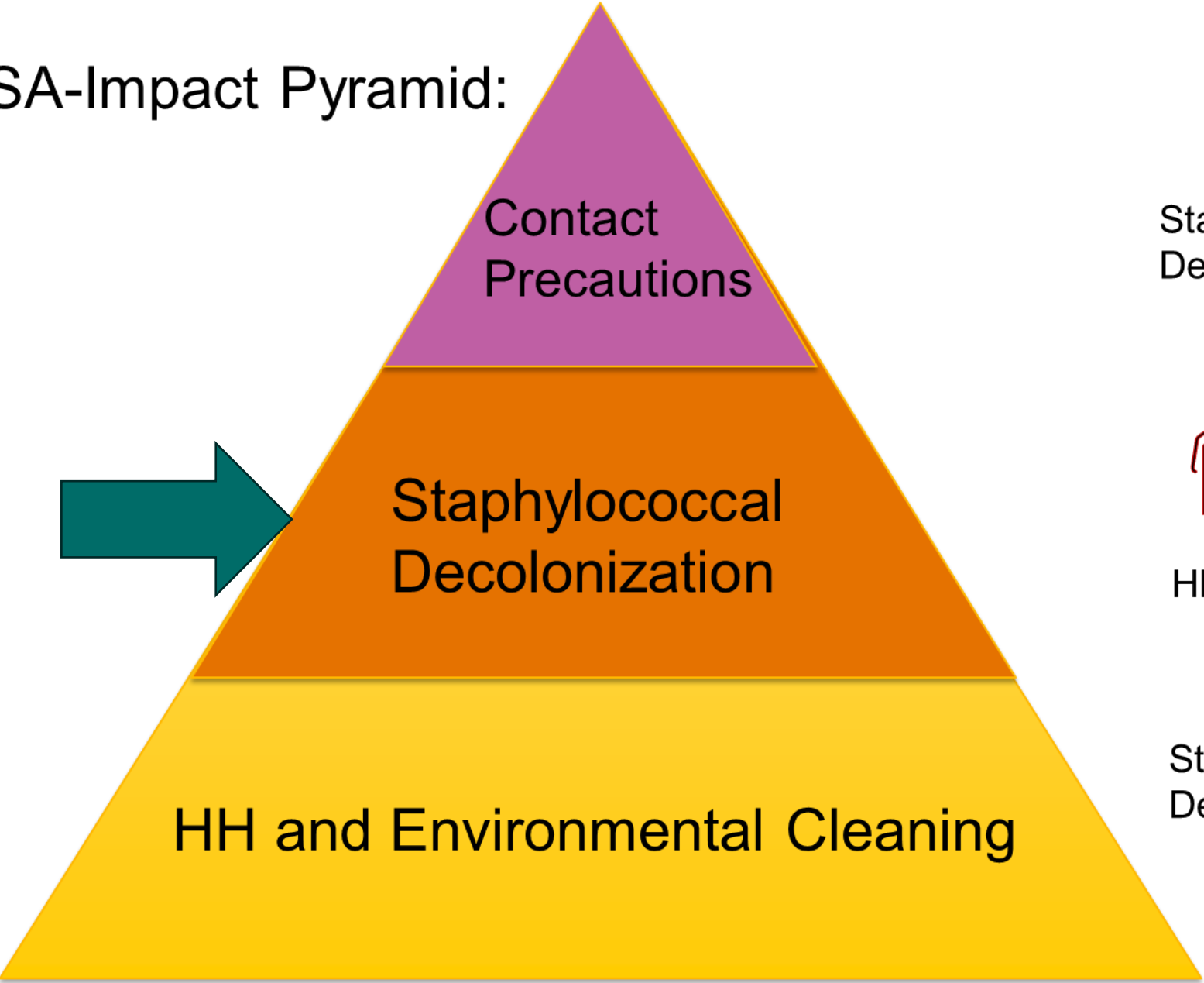
Criticism of AST, and decolonization focusing only on the MRSA-colonized is that it fails to take into account other organism(s), like MSSA:

MSSA is also aggressive, likely shares transmission factors with MRSA, and will be missed by an IP program that focuses specifically on MRSA via AST/isolation:

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. doi:10.1017/ice.2023.102

Additional approaches	
<i>Active surveillance testing (AST)</i>	
1	Implement a MRSA AST program for select patient populations as part of a multifaceted strategy to control and prevent MRSA. (Quality of evidence: MODERATE). Note: Specific populations may have different evidence ratings.
2	Active surveillance for MRSA in conjunction with decolonization can be performed in targeted populations prior to surgery to prevent post-surgical MRSA infection. (Quality of evidence: MODERATE)
3	Active surveillance with contact precautions is inferior to universal decolonization for reduction of MRSA clinical isolates in adult ICUs. (Quality of evidence: HIGH)
4	Hospital-wide active surveillance for MRSA can be used in conjunction with contact precautions to reduce the incidence of MRSA infection. (Quality of evidence: MODERATE)
5	Active surveillance can be performed in the setting of a MRSA outbreak or evidence of ongoing transmission of MRSA within a unit as part of a multifaceted strategy to halt transmission. (Quality of evidence: MODERATE)
<i>Screen healthcare personnel (HCP) for MRSA infection or colonization</i>	
1	Screen HCP for MRSA infection or colonization if they are epidemiologically linked to a cluster of MRSA infections. (Quality of evidence: LOW)
<i>MRSA decolonization therapy</i>	
1	Use universal decolonization (daily CHG bathing plus 5 days of nasal decolonization) for all patients in adult ICUs to reduce endemic MRSA clinical cultures. (Quality of evidence: HIGH)
2	Perform preoperative nares screening with targeted use of CHG and nasal decolonization in MRSA carriers to reduce MRSA SSI, in surgical procedures involving implantation of hardware. (Quality of evidence: MODERATE)
3	Screen for MRSA and provide targeted decolonization with CHG bathing and nasal decolonization to MRSA carriers in surgical units to reduce postoperative MRSA inpatient infections. (Quality of evidence: MODERATE)
4	Provide CHG bathing plus nasal decolonization to known MRSA carriers outside the ICU with medical devices, specifically central lines, midline catheters, and lumbar drains, to reduce MRSA clinical cultures. (Quality of evidence: MODERATE)
5	Consider postdischarge decolonization of MRSA carriers to reduce postdischarge MRSA infection and readmission. (Quality of evidence: HIGH)
6	Neonatal ICUs should consider targeted or universal decolonization during times of above-average MRSA infection rates or targeted decolonization for patients at high risk of MRSA infection (eg, low birthweight, indwelling devices, or prior to high-risk surgeries). (Quality of evidence: MODERATE)
7	Burn units should consider targeted or universal decolonization during times of above average MRSA infection rates. (Quality of evidence: MODERATE)
8	Consider targeted or universal decolonization of hemodialysis patients. (Quality of evidence: MODERATE)
9	Decolonization should be strongly considered as part of a multimodal approach to control MRSA outbreaks. (Quality of evidence: MODERATE)
<i>Universal use of gowns and gloves</i>	
1	Use gowns and gloves when providing care to or entering the room of all adult ICU patients, regardless of MRSA colonization status. (Quality of evidence: MODERATE)

The MRSA-Impact Pyramid:



REDUCE MRSA

Design

3 Groups:

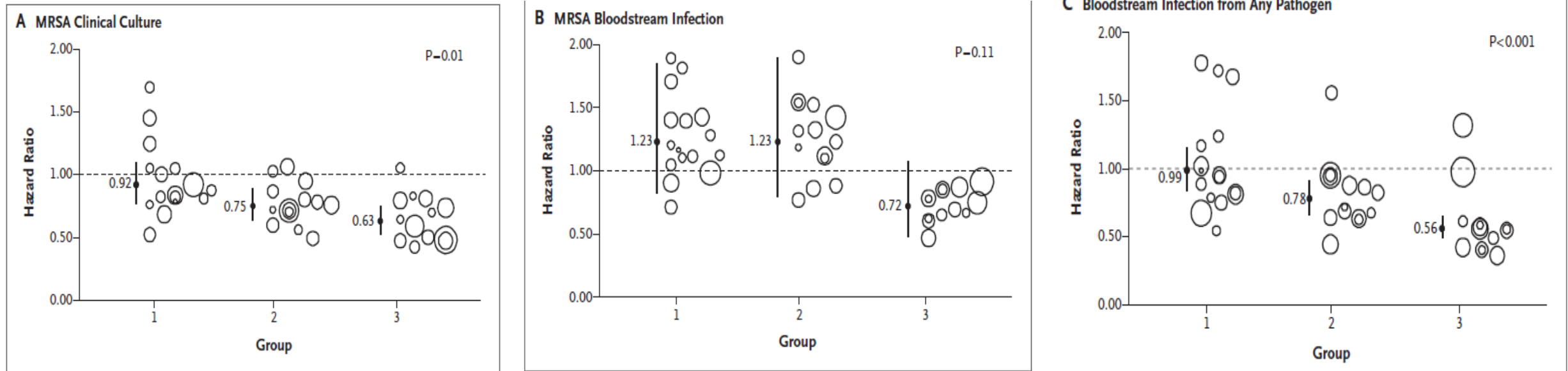
1. Admit screening/CP
 2. Admit screening/CP + Targeted Decolonization
 3. Admit screening/CP + Universal Decolonization
- 74 ICUs in 43 hospitals
 - 74,256 patients

Findings

- Universal Decolonization (Group 3) had the greatest reduction in MRSA clinical cultures, MRSA BSI, and all cause BSI

Huang SS, et al. Targeted versus universal decolonization to prevent ICU infection. N Engl J Med. 2013 Jun 13;368(24):2255-65. doi: 10.1056/NEJMoa1207290.

REDUCE MRSA



Huang SS, et al. Targeted versus universal decolonization to prevent ICU infection. *N Engl J Med*. 2013 Jun 13;368(24):2255-65. doi: 10.1056/NEJMoa1207290.

Decolonization in Nursing Homes:

Design

- Cluster-randomized
- Daily CHG Bathing + iodine nasal decolonization BID x 5 days (decolonization) on admit then every other week
- 28 nursing homes in CA
- >28,000 residents

Findings

- Decrease in MRSA and other MDRO colonization among residents
- Decrease in transfer back to acute care

Miller LG, et al. Decolonization in Nursing Homes to Prevent Infection and Hospitalization. N Engl J Med. 2023 Nov 9;389(19):1766-1777. doi: 10.1056/NEJMoa2215254.

Decolonization versus CHG Bathing?

CHG “Bathing”

- Applying 2% or 4% CHG solution or wipes to patient (or resident) skin, neck down, daily



Decolonization

- CHG bathing (may be only 5 days of, e.g. pre-operative)
- Nasal antibiotic or antimicrobial:
 - Mupirocin
 - Iodine
 - Alcohol
- *(Oral CHG rinse)*

But HOW do you “bathe”?

- Is bathing daily actually happening?
- What is the quality of the bathing?
 - Does it vary depending on who is doing?



CHG Treatment Audit- Key

Record observations when monitoring an adult patient being bathed with CHG Wipes

Circle observed bathing process:

	Correct	Incorrect	
1	Y	N	Staff wipes entire neck area well including skin folds
2	Y	N	Staff massages skin firmly with CHG wipe to ensure adequate cleansing
3	Y	N	Staff wipes armpit and back of knees well
4	Y	N	Staff wipes in between toes and fingers
5	Y	N	Staff wipes perineal area and avoids inner labia, broken skin, or mucosal tissue
6	Y	N	Staff wipes between gluteal folds
7	Y -N/A	N	Staff wipes the 6 inches of tubing, lines, and drains closest to the patient first, then moves to wipe that area of the body.
8	Y	N	In each area of the body staff wipes moving from clean to dirty areas of the body
9	Y -N/A	N	Staff wipes to the edge of any wound, drain, ostomy, line, or like dressings.
10	Y	N	Staff wipes all intact skin below the jaw line
11	Y	N	Staff uses all 6 wipes and more if needed
12	Y	N	Staff allows CHG to air dry and does not wipe off CHG
13	Y	N	Staff uses only hospital approved skin care products
14	Y	N	CHG bathing documented

Interview staff that completed above bath on bathing best practices:

Correct answers for 15-20 on audit key

15. Explain the importance of daily CHG Treatment

Correct Answer: The main goal of Daily CHG Treatments are to prevent hospital acquired infections.

Not a “Bath” but a “Treatment”

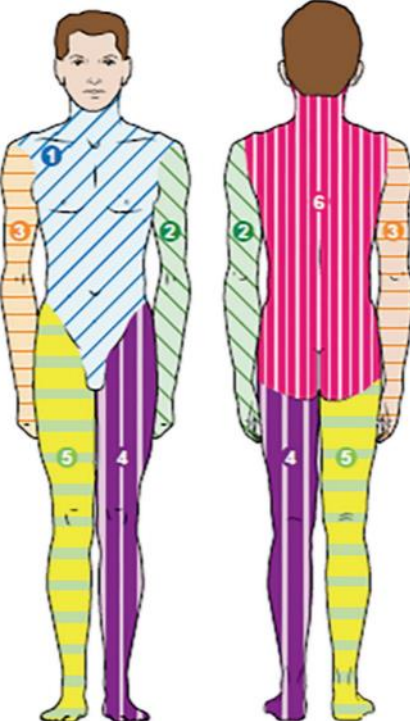
PREVENT INFECTIONS DURING YOUR HOSPITAL STAY

WHO needs a CHG Treatment?
ALL patients in the hospital

WHAT is a CHG Treatment?



- Chlorhexidine gluconate (CHG) is a product that reduces germs on your skin for up to 24 hours
- Use at least 6 cloths on your skin everyday for the daily CHG treatment
- More than 6 cloths may be needed
- Do NOT rinse
- Ask nursing staff for help in hard-to-reach areas and back
- Nursing staff will use wipes to clean lines and tubes

WHERE do I use the cloths?
Use below the jawline





Use a new wipe for each body area
More than one wipe may be needed for larger areas

- 1 Neck from jawline, chest down to groin
- 2 Left arm from shoulder to fingers
- 3 Right arm from shoulder to fingers
- 4 Left leg hip to toes
- 5 Right leg hip to toes
- 6 Back of neck down to bottom


 

WHEN do I need a CHG Treatment?
Everyday

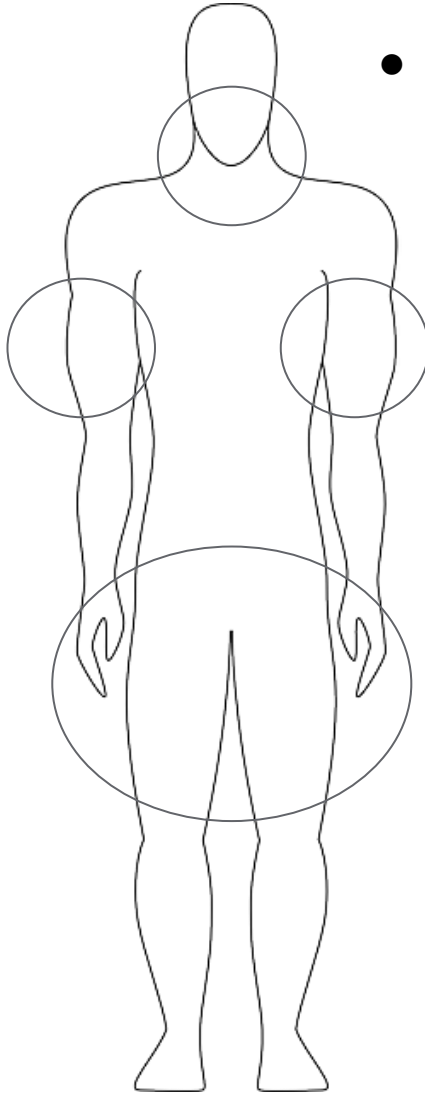
 

Use your phone camera to scan QR code to watch a short how-to video or visit vcumassey.org/chgvideo

SCAN ME



Colormetric Chlorhexidine Gluconate Assay



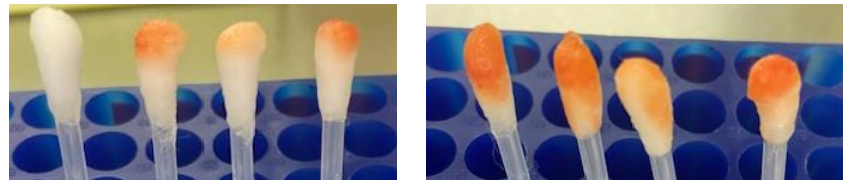
- Method adapted from USP Official Monograph for the identification of CHG solution
 - Swab skin with sterile water swab (see figure)
 - Swab saturated with freshly prepared solution cetyltrimethylammonium bromide (CTAB) + sodium hypobromide and immediately compared against the standard:



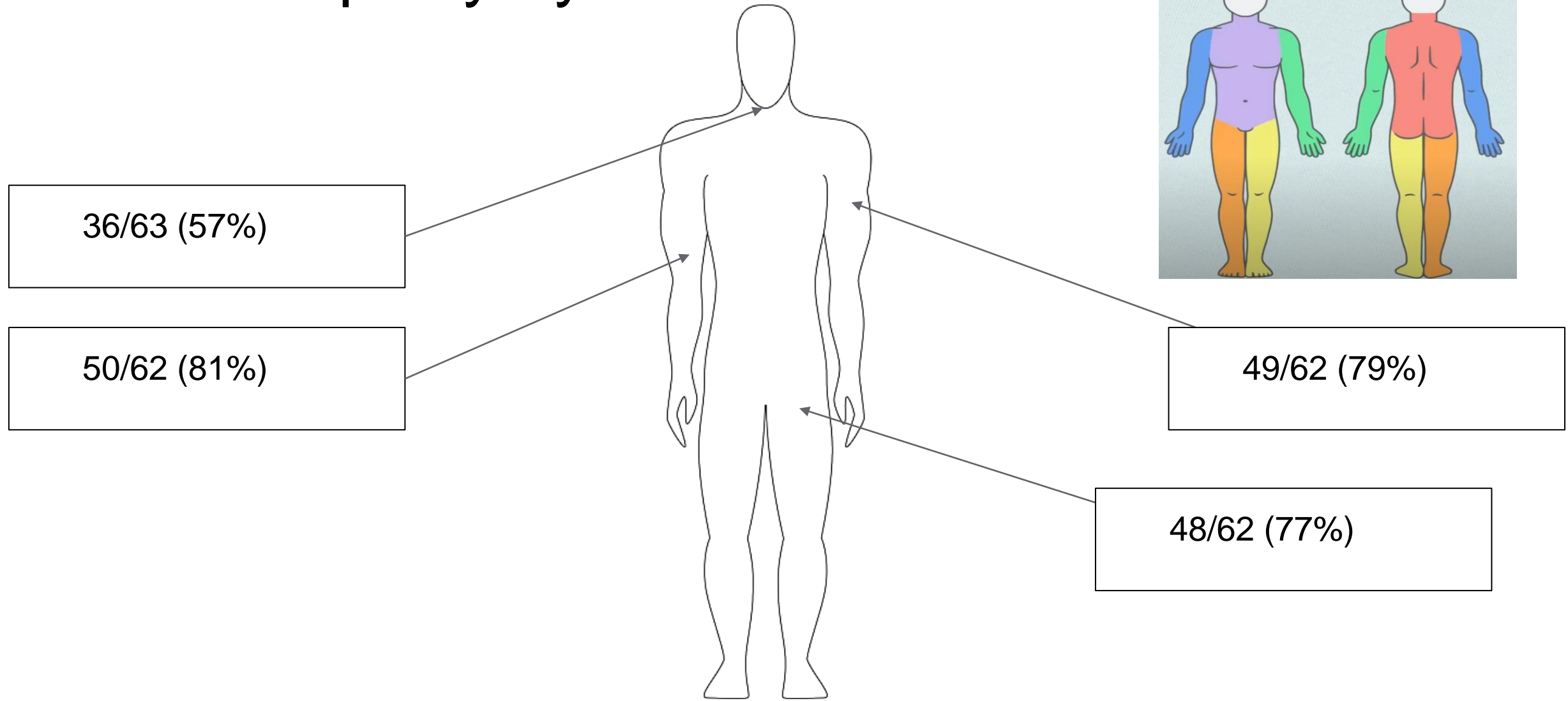
Prepared from known concentrations CHG via serial dilutions:

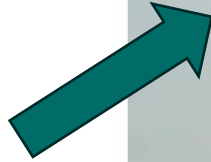
- CHG concentration reflected by the color of the swab

Eg:



CHG Adequacy by Site





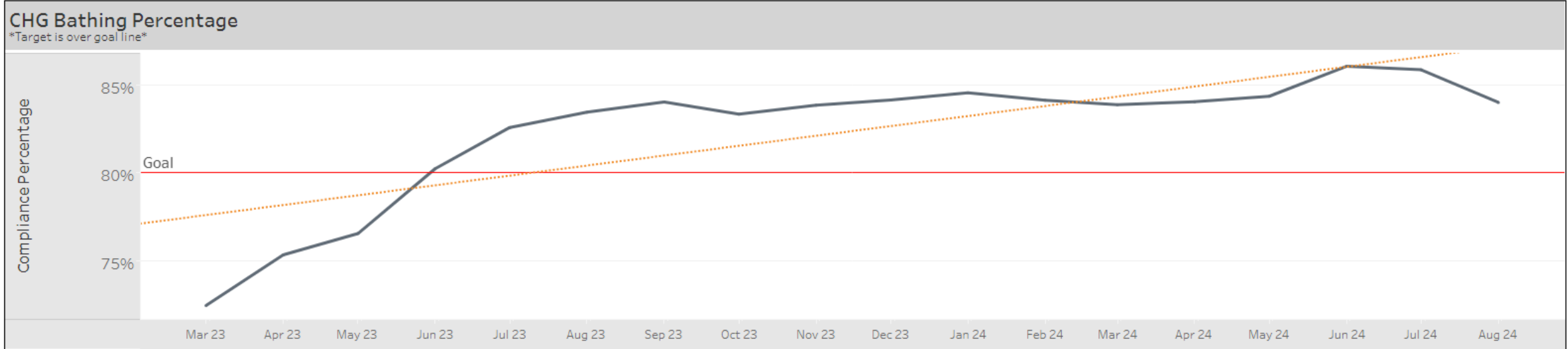
CHG Treatment: Step-by-Step Instructions for the Clinical Team

CHG Treatment: Step-by-Step for the Clinical Team:



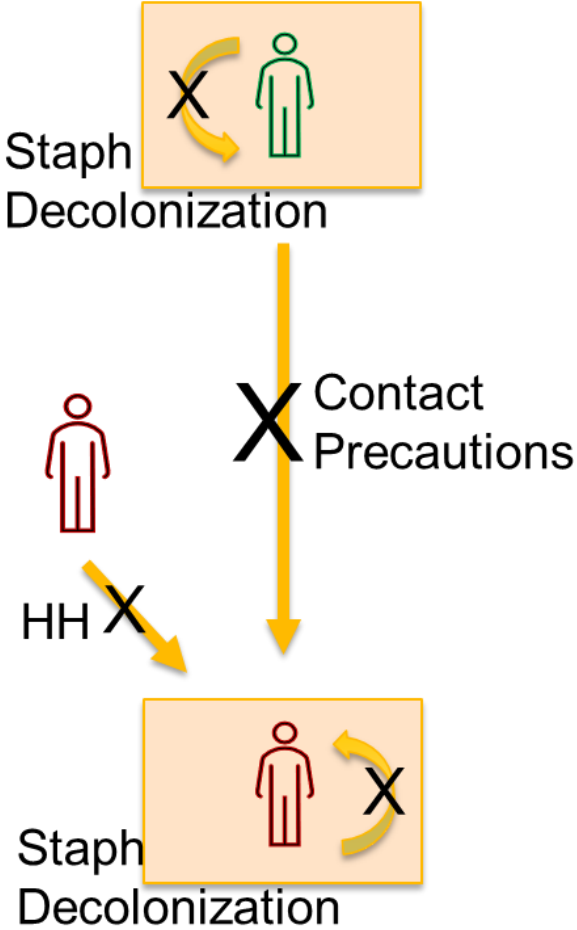
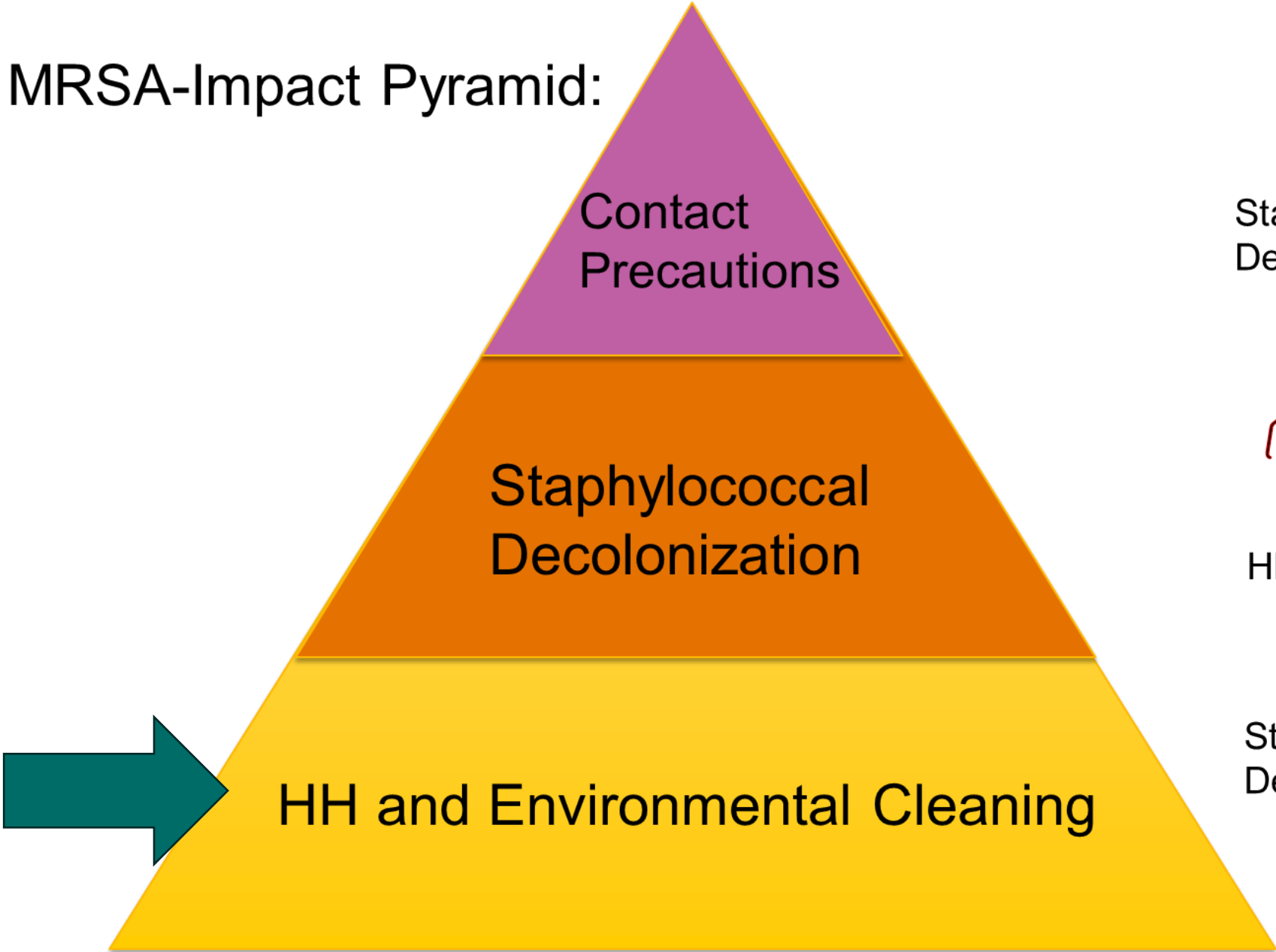
CHG Treatment: Step-by-Step Instructions for Patients:

Leadership Support is Critical:



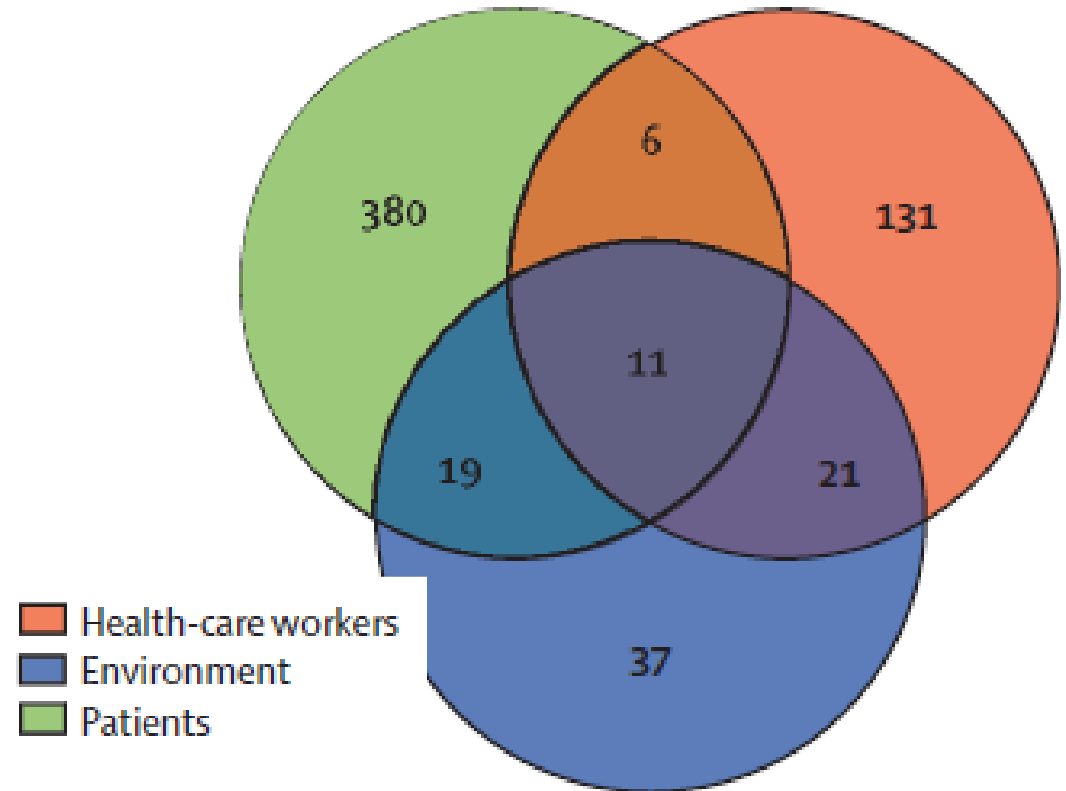
	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24
CHG Treatment	10,839	10,681	11,206	11,461	12,741	12,672	12,117	13,139	12,808	12,721	13,267	12,129	12,874	12,332	12,786	12,891	13,001	8,271
Total Opportunities	14,968	14,185	14,646	14,289	15,432	15,188	14,423	15,770	15,279	15,120	15,694	14,420	15,352	14,677	15,160	14,981	15,144	9,848
CHG Compliance %	72%	75%	77%	80%	83%	83%	84%	83%	84%	84%	85%	84%	84%	84%	84%	86%	86%	84%

The MRSA-Impact Pyramid:



Cross-Transmission Occurs from Multiple Sources:

- Longitudinal cohort over 14 months:
 - ICU in the UK
 - Sampled 198 HCPs, 40 environmental locations, 1854 patients
 - WGS on 1819 isolates:
 - 25 instances of transmission:
 - 16 patient to patient
 - 2 environ to patient
 - 7 HCP to patient

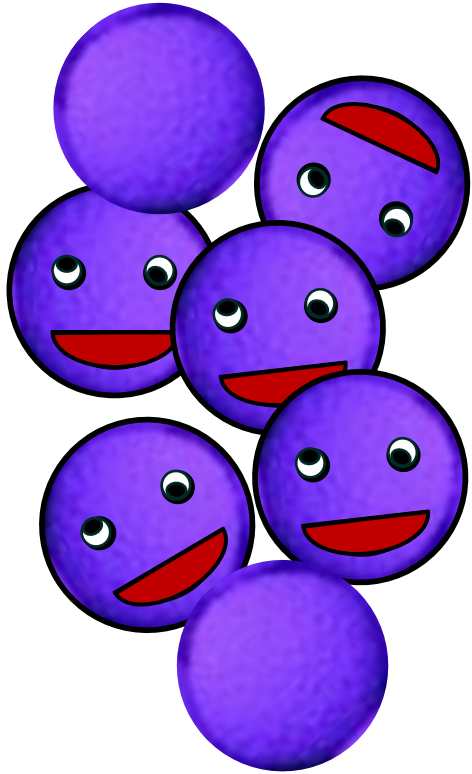


Price JR, et al. Lancet Infect Dis. 2017;17(2):207-214. doi: 10.1016/S1473-3099(16)30413-3.

Strong IP Program Throughout:

- Followed 5 moments of HH with audits
- BBE
- Nurse-patient ratio 1:1 vented, 1:2 other ICU
- MRSA active screening at admit and weekly, MRSA isolation/CPs
- 4% daily CHG treatments (all patients) with 2% mupirocin for MRSA positive
- Daily cleaning with chlorine-releasing solution
- Daily mattress/bed cleaning
- Terminal cleaning and changing of disposable curtains between patients

Price JR, et al. Lancet Infect Dis. 2017;17(2):207-214. doi: 10.1016/S1473-3099(16)30413-3.



Continuous MRSA Introduction INTO the Unit:



Decrease MRSA (and other microbial) Bioburden *to the extent possible*

YOU WILL NEVER WIN THIS GAME!



How Much Benefit?

1% increase in HH rate
= 0.035/10,000 patient
days decrease in HCA
MRSA

Table E. The final multivariate model for risk factors associated with HCA MRSA rate.

Variable	HCA MRSA Rate			
	Effect Estimate	LCL	UCL	p-value
Hand Hygiene Rate	-0.035	-0.063	-0.008	0.011
Nursing Overtime Rate	5.018	1.210	8.826	0.010
MRSA Bioburden	9.008	5.586	12.429	<.0001
Hallway Bed Utilization	0.680	0.094	1.267	0.023
Supply Room Door Closed (Reference = N)	-0.283	-0.536	-0.030	0.028
Service Type (Reference = Medicine)	-	-	-	-
Cardiac	-0.179	-0.637	0.279	0.443
Critical Care	-0.191	-0.513	0.131	0.245
Maternal, Infant, Child and Youth	-1.212	-2.027	-0.397	0.004
Older Adult	0.395	-0.078	0.868	0.101
Patient Assessment and Transition to Home	-0.359	-0.740	0.022	0.065
Rehabilitation	0.643	0.162	1.124	0.009
Surgery	0.066	-0.248	0.380	0.680

Wang X, et al. Organizational and Infrastructural Risk Factors for Healthcare-associated *Clostridioides difficile* Infections or Methicillin-resistant *Staphylococcus aureus* in Hospitals. *Am J Infect Control*. 2024 Aug 15:S0196-6553(24)00659-X. doi: 10.1016/j.ajic.2024.08.013.

Healthcare Providers *Dramatically* Overestimate HH Performance:

Table 2 (a) Self-reported and (b) observed hand hygiene compliance among physicians and nurses by WHO-5 indications

		(a) Self-reported compliance			(b) Directly observed compliance [#]		
		Physicians (N = 93)	Nurses (N = 225)	<i>p</i> [¶]	Physicians (N = 2421)	Nurses (N = 971)	<i>p</i> [¶]
"before patient contact"							
(0–100)	N ^{§,§}	92	218		902	294	
	(a) Mean Rate	81.0%	82.4%	0.522	56.9%	65.0%	0.014
	(b) Rate						
	95%-CI	77.0% 85.0%	80.2% 84.6%		53.6% 60.1%	59.5% 70.5%	
"before an aseptic task"							
(0–100)	N ^{§,§}	90	206		246	155	
	(a) Mean Rate	93.4%	92.7%	0.634	31.7%	55.5%	<0.001
	(b) Rate						
	95%-CI	90.7% 96.1%	91.3% 94.2%		25.9% 37.6%	47.6% 63.4%	
"after body fluid exposure"							
(0–100)	N ^{§,§}	93	215		229	135	
	(a) Mean Rate	98.0%	96.4%	0.028	52.0%	63.0%	0.041
	(b) Rate						
	95%-CI	97.1% 98.9%	95.3% 97.5%		45.4% 58.5%	54.7% 71.2%	
"after patient contact"							
(0–100)	N ^{§,§}	93	218		722	256	
	(a) Mean Rate	87.5%	87.8%	0.875	75.2%	74.2%	0.754
	(b) Rate						
	95%-CI	84.2% 90.7%	85.8% 89.7%		72.1% 78.4%	68.8% 79.6%	
"after contact with patient surroundings"							
(0–100)	N ^{§,§}	93	214		322	131	
	(a) Mean Rate	71.1%	76.8%	0.051	55.6%	67.2%	0.023
	(b) Rate						
	95%-CI	66.1% 76.2%	74.1% 79.5%		50.1% 61.0%	59.0% 75.3%	

Lamping J, et al Antimicrob Resist Infect Control. 2022 Dec 2;11(1):147. doi: 10.1186/s13756-022-01188-7.

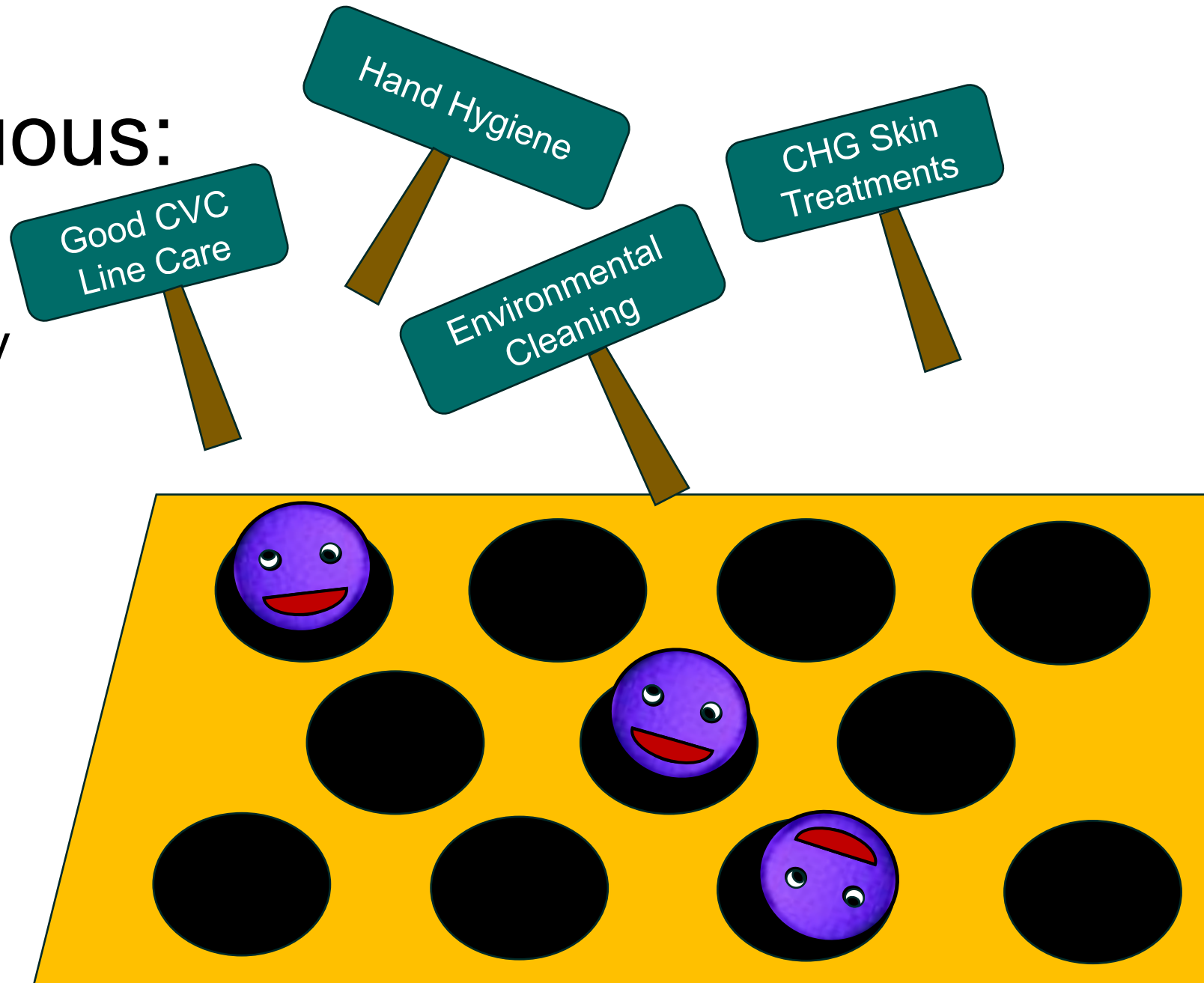
So, What Works to Improve HH?

Cochrane Systemic Review: What Works to Increase HH?

- We included 26 studies in the review. Fourteen studies assessed the success of different combinations of strategies recommended by WHO to improve hand hygiene compliance. Strategies consisted of the following: increasing the availability of ABHR, education, reminders, performance feedback, administrative support and staff involvement. Six studies assessed different types of performance feedback, two studies evaluated education, three studies evaluated cues such as signs or scent, and one study assessed placement of ABHR.
- Multimodal (combinations of) strategies that include some but not all strategies recommended by WHO may slightly improve hand hygiene compliance and slightly reduce infection rates (low certainty of evidence). Multimodal interventions that include all strategies recommended by WHO may lead to little or no difference in methicillin-resistant *Staphylococcus aureus* (MRSA) infection rates (low certainty of evidence), but it is uncertain whether such WHO-based approaches improve hand hygiene compliance or reduce colonisation rates because the certainty of this evidence is very low.
- Multimodal interventions that contain all recommended strategies plus additional strategies may slightly improve hand hygiene compliance (low certainty of evidence). It is unclear whether such WHO-enhanced interventions reduce infection rates because the certainty of this evidence is very low.

It's Not Futile, It's Just Continuous:

- Anything you do to improve HH is probably helpful, at least for awhile
- Work directly with stakeholder groups to validate/improve reliability of foundational IP
- Focus on the Positive*



Feedback Performance on Process Measures to Stakeholders:

- MRSA reportable HAI rates:
- HH compliance
- PPE adherence
- CHG treatment compliance
- Cleaning audits

	Jun 23	Jul 23	Aug 23	Sept 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24
Chair	85	80	80	90%	85%	92%		90%	90%	84%	86%	91%	89%
Room In Doorknob	82	84	85%	79%	85%	83%		86%	88%	92%	92%	85%	91%
Call Box / Button	87	90	80%	90%	91%	83%		90%	88%	91%	92%	88%	89%
Tray Table	87	85	90%	88%	85%	88%		90%	90%	92%	95%	94%	93%
Bed Rails / Controls	88	96	94%	95%	90%	83%		86%	90%	89%	89%	88%	90%
RR Handrails	91	93	90%	98%	89%	95%		93%	91%	91%	92%	91%	95%
RR Light Switch	95	90	94%	88%	90%	88%		90%	88%	86%	84%	91%	89%
telephone	88	87	94%	93%	99%	88%		88%	90%	92%	97%	91%	91%
Toilet Flush Handle	86	89	94%	91%	96%	90%		95%	93%	91%	89%	94%	91%

Bathing	3,925	92%	93%	N/A	89%	100%	99%	94%	90%	95%	94%	%	93%	89%	90%
Hand Hygiene (Direct Obs)	1,672	57%	57%	87%	73%	70%	68%	74%	60%	78%	70%	%	89%	88%	91%
Central Line Checklist	157	100%	100%	86%	100%	91%	100%	90%	90%	100%	95%				
Contact Precautions	154	68%	55%	75%	73%	82%	100%	82%	22%	93%	73%				
Head of Bed	82	100%	100%	N/A	100%	100%	100%	100%	100%	91%	99%				
Urinary Catheter Review	77	100%	100%		100%	92%	100%	100%	100%	100%	99%				
Grand Total	6,067	85%	86%	87%	84%	93%	89%	87%	83%	90%	87%				

MRSA Troubles? Review Resources:

- CDC:

<https://www.cdc.gov/mrsa/prevention/index.html>

- Virginia VDH HAIAR Program:

<https://www.vdh.virginia.gov/haiar/diseases-organisms/staphylococcus-aureus/>

- APIC:

<https://apic.org/resources/topic-specific-infection-prevention/methicillin-resistant-staphylococcus-aureus/>

- SHEA:

<https://shea-online.org/compendium-of-strategies-to-prevent-healthcare-associated-infections-in-acute-care-hospitals/>

VIPTC Related Content:

- HH, Foundational:

https://vcu.mediaspace.kaltura.com/media/Hand%20Hygiene/1_xlxqop3h

- Cleaning/Disinfection, Foundational:

https://vcu.mediaspace.kaltura.com/media/Cleaning%20%26%20Disinfection/1_ye63h4p5

- HH and Cleaning/Disinfection Modules, Intermediate Course Modules (Implementation):

<https://viptc.catalog.vcu.edu/browse/intermediate/courses/intermediate-course-infection-prevention>

- Training Video for Staff: HH:

<https://www.youtube.com/watch?v=awtSohETrQU>

Summary:

- MRSA (and MSSA) are BAD BUGs, associated with invasive, disseminated, recurrent infections that are highly morbid.
- Despite being “endemic” or prominent in the community as well as the healthcare system, MRSA acquisition events remain highly connected to healthcare settings or exposure to healthcare
 - Ie even family members of hospitalized patients have increased risk..
- MRSA Prevention Efforts are Multifaceted, and include foundational IP practices of HH, cleaning, and appropriate PPE use, as well as manipulation of the patient microbiome with CHG skin treatments and/or decolonization.