Decolonization to Prevent Infections and MDROs: *Clinical Trials Across the Continuum of Care*

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Disclosures

- Conducting clinical studies in which participating nursing homes and hospital patients receive contributed antiseptic products from Xttrium
- Companies had no role in design, conduct, analysis, or publication

Healthcare-Associated Infection (HAI) Pathogens

Pathogens by HAI Type, 2015-17

Central Line-Associated Bloodstream Infection

	Hospital Wa	Hospital ICUs ^a			
Pathogen	No. (%) Pathogens	Rank	No. (%) Pathogens	Rank	
Staphylococcus aureus	5,386 (15.5)	1	2,497 (9.1)	3	
Coagulase-negative staphylococci	3,792 (10.9)	2	3,789 (13.8)	1	
Selected Klebsiella spp	3,344 (9.6)	3	1,708 (6.2)	8	
Enterococcus faecalis ^d	2,636 (7.6)	4	2,117 (7.7)	5	
Candida albicans ^d	2,469 (7.1)	5	2,844 (10.4)	2	
Escherichia coli	2,279 (6.6)	6	1,129 (4.1)	9	

Weiner-Lastinger LM et al. Infect Control Hosp Epidemiol. 2020;41(1):1-18.

Pathogens by HAI Type, 2015-17

Ventilator-Associated Pneumonia

	Hospital IC	CUs ^d	Hospital Wards ^{a,c}		
Pathogen	No. (%) Pathogens	Rank	No. (%) Pathogens	Rank	
Staphylococcus aureus	2,673 (28.8)		58 (20.1)	2	
Pseudomonas aeruginosa	1,192 (12.9)	2	63 (21.8)	1	
Selected Klebsiella spp	936 (10.1)	3	38 (13.1)	3	
Enterobacter spp	781 (8.4)	4	18 (6.2)	4	
Haemophilus influenzae	550 (5.9)	5	10 (3.5)	8	
All Streptococcus sppe	527 (5.7)	6	6 (2.1)	10	

Weiner-Lastinger LM et al. Infect Control Hosp Epidemiol. 2020;41(1):1-18.

Pathogens by HAI Type, 2015-17

Surgical Site Infection

	All Surgery Types ^b			
Pathogen	No. (%) Pathogens	Rank		
Staphylococcus aureus	26,970 (17.5)			
Escherichia coli	21,746 (14.1)	2		
Enterococcus faecalis ^g	12,267 (8.0)	3		
Coagulase-negative staphylococci	11,106 (7.2)	4		
Pseudomonas aeruginosa	8,956 (5.8)	5		
Selected Klebsiella spp	7,789 (5.1)	6		

Weiner-Lastinger LM et al. Infect Control Hosp Epidemiol. 2020;41(1):1-18.

CDC Surveillance Network: U.S. COVID Impact

	2020 Q1	2020 Q2	2020 Q3	2020 Q4
CLABSI	-11.8%	27.9%	16.4%	1 47.0%
CAUTI	-21.3%	No Change ¹	12.7%	18.8%
VAE	11.3%	1 33.7%	1 29.0%	144.8%
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%	133.8%
Laboratory-identified CDI	-17.5%	-10.3%	-8.8%	-5.5%

Weiner-Lastinger LM et al. ICHE. 2021;41(1):1-18

U.S. Antimicrobial Resistance Progress Erased by COVID

- 80% of COVID patients received antibiotics in 2020
- Hospital-onset MDROs between 2019 to 2020

CRAB	increased 78%
Candida auris	increased 60%
CRE	increased 35%
ESBL	increased 32%
MDR-Pseudomonas	increased 32%
VRE	increased 14%
MRSA	increased 13%



https://www.cdc.gov/drugresistance/pdf/covid19-impact-report-508.pdf

Human Pathogen Transmission: Cascade of Unfortunate Events

- Shedding of pathogens
 - Environmental contamination
 - Contamination persists
 - 🗧 Failure to clean or disinfect
 - Staff acquires
 - Staff fails to remove
 - ≽ Transfer to patient
 - Risk for infection

Human Pathogen Transmission: Cascade of Unfortunate Events



Decolonization Prevents a Cascade of Unfortunate Events

Shedding of pathogens



-
- Environmental contamination
 - Contamination persists
 - 🗧 Failure to clean or disinfect
 - Staff acquires
 - Staff fails to remove
 - Transfer to patient

Broad solution for all MDROs Benefits carriers too Risk for infection

What is Topical Decolonization?

- Topical antiseptic or antibiotic agents to remove commensals or pathogens from the skin or nose
- Most studied products:
 - Skin: chlorhexidine
 - > Nose: mupirocin, iodophor
- Strong safety record
- Targeted and universal uses

- Antiseptic uses in healthcare
 - Hand antisepsis at 2% and 4%
 - Dental hygiene
 - > 1990s: Cleaning of skin prior to line insertion
 - 1990s: Pre-operative bathing
 - 2000s: Surgical prep
 - > 2000s: Pre-op *S. aureus* carriers
 - 2010s: Universal ICU bathing
 - > 2019: CHG for non-ICU bathing
 - > 2019: Post-discharge for MRSA carriers
 - > 2023: Nursing homes

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Skin antisepsis with chlorhexidine-alcohol versus povidone iodine-alcohol, with and without skin scrubbing, for prevention of intravascular-catheter-related infection (CLEAN): an open-label, multicentre, randomised, controlled, two-by-two factorial trial

THE LANCET



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INTRANASAL MUPIROCIN TO PREVENT POSTOPERATIVE STAPHYLOCOCCUS AUREUS INFECTIONS

TRICH M. PERL, M.D., JOREPH J, CULLEN, M.D., RICHARD P, WENZEL M.D., M. BRINDET ZIMMERMAN, Ph.D., MICHAEL A, PFALLER, M.D., DEBORAH SHEPVAND, JENNIFER TWOMBLEY, R.N., PANELA P, FRENCH, M.D., M.P.H., LUREEN A, HERWALDT, M.D., AND THE MURRISON AND THE RISK OF STARWINGCONDUS AURULE STUDY TEAM*

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ORIGINAL ARTICLE

Effect of Daily Chlorhexidine Bathing on Hospital-Acquired Infection

Michael W. Chew, M. D., Deburale L. Volney, M. D., M.P.A., David E. Warney, M. C., Diarcell, Perc, M. D., McLower Bodon, M. C., Linden & Haward K. W. D., Bosteri A. Warnshner, M.D., Berni A. Spremeltz, M.D., Janni A., Jinegari, M.D., Galorian Z. Managari, M.S., and Zaharad S. Wayne, M.D.

The NEW ENGLAND JOURNAL of MEDICINE

Targeted versus Universal Decolonization to Prevent ICU Infection

Staar & Francis, M.D., M.F.M., Schultz Pagerstal, H.D., Die Merrine, S. S. Jani, Bandy, H.J., Janis Manni, M.S.M., FD, Mahar R. Kong, M.L., Jani, prefamil, H.F.K., Mitjung Cardinan, H.J., Martin, M.M., Kalanis, and M.S. Way, L. Konato, M.A., Jano, M., Kang, A., Martin, A., Mattara, M., Janima, J. Hann, M.S., Kolamis and Bendin, J.J., Hu, G. M., Son, H. A., Mangara, D.A., Goren Jones, H.J., Janima, B. Parto, M.S., W.D., and Khatar H.M., M.S., Son Hall C.K. Pomorana Environment Reports and D. Harris, C.C.L. Human, and A. Son, M.S. Son, M.C.C. Pomorana Environment Reports and D. M. Harris, C.C.L. Human, and A. Son, M. S. Son, M. C. Pangarana, J. K. San, M. S. San, M. S. Son, M. S. San, M. San, M

THE LANCET

Daily chlorhexidine bathing to reduce bacteraemia in critically ill children: a multicentre, cluster-randomised, crossover trial

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Chlorhexidine versus routine bathing to prevent multidrug-resistant organisms and all-cause bloodstream infections in general medical and surgical units (ABATE Infection trial): a cluster-randomised trial

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	URIGINAL AUTICLE
1	Decolonization in Nursing Homes to Prevent Infection and Hospitalization
LiG M Mend K.S S.K. Gul A. Mini	Har, J.A. McKinnel, R.D. Singh, G.M. Guzsen, K. McKinnen, H. Szavedya, ez. T.O. Catuna, J. Felix, J. Orang, L. Hierri, R. Franco, T. Tjos, N.J. Senet Jainberg, N. Berethami, J. Meingareury, D.A. Wallen, S. Rath, S. Tam, H. P.A. Robinson, M. Scherez, B. Leeve, J.A. Shamabakaro, G. Tofeshallan et. C. Torres, K.D. Barm, G.C. Billemourk, J. Hei, E. Lee, C. Nedelcal, J. L. S. Agrawal, S.G. Standonant, F. Peterson, and S.S. Haang.



Indian (A. Tanarana), M.J. Mary Yi. Housin, M.D. Markari Y., Ju, M.J. Mire (1997) and Partman. 2023. Consume in Microsophy (M). Source: Housing (M2) Microsophic ID (2014) and Housing an Epidemiology Proceeding Journal - Discontinence (D) (2014) Program.

Decolonization in ICUs

Universal CHG Decolonization in Academic ICUs

- 12 Adult ICU cluster randomized cross-over trial
- 1 hospital dropped out \rightarrow 9 ICUs, 7,727 patients in 6 hospitals
 - ICUs: daily CHG baths & routine soap for 6 months each
 - o As-treated analysis
 - ✓ Reduced MRSA and VRE acquisition by 23%
 - ✓ Reduced bacteremia by 28%
 - ✓ Reduced CLABSI by 53%
- No evidence of CHG resistance

Pediatric SCRUB Trial

Universal CHG in 10 Academic PICUs

- Randomized cross-over trial of universal CHG bathing, N=1,547
- Two-thirds of parents consented
- As-treated analysis, 36% reduction in bloodstream infections



Milstone AM et al. Lancet 2013:381(9872):1099-106

Reducing MRSA and Bloodstream Infections in Community ICUs

REDUCE MRSA Cluster Randomized Trial of Hospitals

<u>R</u>andomized <u>E</u>valuation of <u>D</u>ecolonization vs. <u>U</u>niversal <u>C</u>learance to <u>E</u>liminate MRSA

- Arm 1: Routine Care
 - Screened all patients; isolated known MRSA+
- Arm 2: Targeted Decolonization
 - Screened all patients; isolated known MRSA+
 - Decolonized if MRSA+ (5 days mupirocin, 5 days CHG)
- Arm 3: Universal Decolonization
 - No screening; isolated known MRSA+
 - Decolonized all (5 days mupirocin, daily CHG)

Baseline and Intervention Periods

43 HCA Healthcare hospitals (formerly Hospital Corporation of America)
74 adult ICUs
74,256 patients and 282,803 ICU patient days



MRSA Clinical Cultures



MRSA Bloodstream Infection



Overall P=0.11

All Pathogen Bloodstream Infection



Overall P<0.0001

Arm 2 vs 1 P=0.04 Arm 3 vs 1 P<0.0001 Arm 3 vs 2 P=0.003

Additional Decolonization Impact

- Universal decolonization with mupirocin and CHG
 - Highly cost-effective and prevents need to screen ¹
 - Reduces blood culture contamination²
 - Reduces bacteriuria and candiduria in men³
 - No emergence of CHG or mupirocin resistance in trial ⁴
 - CLABSI benefit seen with rapid adoption in 95 hospitals ⁵
- By 2021, 63% of US hospitals adopted universal ICU decolonization⁶

¹ Huang SS et al. ICHE 2014; 35 S3:S23-S31 ² Septimus EJ et al. ICHE 2014; 35 S3:S17-S22. ³ Huang SS et al. Lancet ID 2016;16(1):70-9

⁴ Hayden M et al. JCM 2016; 54(11):2735-42 ⁵ Septimus ES et al. CID 2016;63(2):172-7 ⁶ NHSN survey, 2021

Decolonization Outside of ICUs

ABATE Infection Project

Active Bathing to Eliminate Infection

Trial Design

- Cluster randomized trial with HCA Healthcare
- 53 hospitals, 194 adult non-critical care units
- Includes: adult medical, surgical, step down, oncology

Arm 1: Routine Care

• Routine policy for showering/bathing

Arm 2: Decolonization

- Daily 4% rinse off CHG shower or 2% leave-on CHG bed bath
- Mupirocin x 5 days if MRSA+ by history, culture, or screen

Outcomes and Study Period

- Primary Outcome
 - Any MRSA or VRE isolate attributed to unit
- Key Secondary Outcome
 - Any bloodstream isolate attributed to unit (2 positives for skin commensals)
- 339,904 patients, 1,294,153 patient days (intervention)

	Baselin	e j	Phas	e	Intervention)	
	12 mont	:hs	In		21 months		
Μ	ar 2013	Apr	2014	Ju	ın 2014	Feb	2016

Huang SS Lancet 2019;393(10177):1205-1215

Results: Decolonization Outside of ICUs

- No overall population benefit, unlike ICU trials
 - Lower risk and smaller effect size
 - 8.7% non-significant reduction for MDROs
 - 6.2% non-significant reduction in bloodstream infection
- Benefit seen in higher risk patients with lines and devices

 37% reduction in MRSA and VRE clinical cultures
 32% reduction in all pathogen bloodstream infection

Medical Devices: Attributable Impact

- Benefit seen in higher risk patients with lines and devices
 - o 10% of population, but a third of MRSA+VRE cultures
 - o 10% of population, but 60% of bloodstream infections

Importance of Nasal Decolonization

S. aureus and MRSA Infections in ICUs

- Adult ICU infections assessed in single-day multi-center chart review
- 1150 centers in 88 countries

Causal Agent	Africa	America (North)	America (Central/South)	Asia/ Middle East	Australasia	Europe (Eastern)	Europe (Western)
S. aureus	8%	23%	17%	10%	17%	16%	15%
MRSA	5%	10%	7%	5%	4%	6%	2%

Vincent JL, et al. JAMA. 2020;323(15):1478-1487
S. aureus Invasive Disease in U.S.

- 120,000 S. aureus bloodstream infections / year
- 20,000 associated deaths / year



Kourtis AP et al. MMWR. 2019;68(9):214-219.

Rationale for Mupirocin-Iodophor Swap Out Trial

- Adoption of nasal mupirocin for universal ICU decolonization is variable despite burden of *S. aureus* ICU infections
- Some are concerned universal ICU mupirocin will elicit resistance
- Iodophor and other antiseptics are less likely to lead to resistance
- Swap Out Trial: **non-inferiority cluster randomized trial** to assess if iodophor is as effective as mupirocin in preventing *S aureus* cultures when combined with CHG baths for ICU universal decolonization

Mupirocin-Iodophor Swap Out Trial

- 18 Month cluster-randomized ICU non-inferiority study
- 137 HCA hospitals, 233 adult ICUs
 - Mupirocin Arm: Daily CHG & 5 days twice daily 2% mupirocin
 - **Iodophor Arm:** Daily CHG & 5 days twice daily 10% iodophor
- Outcomes
 - S. aureus (MRSA & MSSA) ICU clinical cultures (primary)
 - MRSA clinical cultures
 - All-cause bacteremia
 - Emergence of resistance to mupirocin, iodophor

Baseline and Intervention Periods

	Arm 1 Mupirocin-CHG	\rightarrow		Mupirocin-CHG	7
	Baseline	Phase-in		Intervention	
N/av	24 months			18 months	I
iviay	Arm 2 Mupirocin-CHG	- 2017 Nov	V 2017	Iodophor-CHG	Apr 2019



ICU-Attributable *S. aureus* Clinical Cultures As Randomized: Crude Event Rates



Provided rates are crude rates summed across all participating hospitals. Patient-days after each event were excluded

ICU-Attributable *S. aureus* Clinical Cultures As Randomized Clustered Analysis



As Randomized Conclusion: Mupirocin superior to iodophor 18% fewer *S. aureus* cultures P<0.001

ICU-Attributable MRSA Clinical Cultures As Randomized Crude Event Rates



Provided rates are crude rates summed across all participating hospitals. Patient-days after each event were excluded

ICU-Attributable MRSA Clinical Cultures As Randomized Clustered Analysis



ICU-Attributable Bloodstream Infections As Randomized Crude Event Rates



Provided rates are crude rates summed across all participating hospitals. Patient-days after each event were excluded Huang SS et al. JAMA 2023; 330 (14):1337-47

ICU-Attributable Bloodstream Infections As Randomized Clustered Analysis



REDUCE MRSA & Swap Out Trials Cumulative Hazard of *S. aureus* **Clinical Cultures**



REDUCE MRSA & Swap Out Trials Cumulative Hazard of *S. aureus* Clinical Cultures



REDUCE MRSA & Swap Out Trials Cumulative Hazard of *S. aureus* **Clinical Cultures**



REDUCE MRSA & Swap Out Trials Cumulative Hazard of MRSA Clinical Cultures



REDUCE MRSA & Swap Out Trials Cumulative Hazard of Bloodstream Infection



Importance of ICU Nasal Decolonization for MRSA

- S. aureus remains a formidable pathogen in ICUs
- Superiority of mupirocin over iodophor supports value of nasal decolonization
- Iodophor is superior to no nasal decolonization. May be preferred if mupirocin resistance is high or prescription logistics are problematic
- Mupirocin-CHG effect in reducing *S. aureus,* MRSA, and bloodstream infections persisted over 10 years, suggesting minimal emergence of resistance

Mupirocin Alone Works

45% Inosocomial MRSA infection among treated carriers

Study or subgroup-	Mupirocini	Control	Risk Rabo M-H/Fixed,95% CL	Weght	Hak Ratio Mill/Fored 958, O
Boebert 1989	1/17	6/18	÷	3.9 %	0.18[0.02,1.32]
Gardia 2003	((13)	3/34	()	15%	037[004.333]
Harburth (999	3448	7/50		4.0 %	0.45 [0.12 1.63]
Kalmeger 2002	2/95	5/86		35 %	036[007.182]
Konvalinka 2006	5/(30	4/127	_	27%	1 22 [0,34. 4.44]
Mup Study Group 1996	32/134	68/) 33	-	45.7.%	0.47 [0.13, 0.66]
Pert 2002	(7/430	34/439		22.5 %	051 [029,090]
Win them 2004b	21/793	21/809		15.2 %	093[052.167]
Total (95% CI) Total events: 82 (Muprescin), 15 Hotorogeneity: $Chi^2 = 7.24$, d = Test for overall effect: Z = 4.77	1678 G (Control) = 7 (P = 0.40); ^{p2} = 39 (P < 0.00001)	1696	•	100.0 %	0.55 [0.43, 0.70]
			0 0 0 0 0 0 0 0		

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van Rijen M et al. Cochrane DSR. 2008;(4):CD006216

Role of CHG for MRSA and Disease Prevention

- As solo agent, CHG
 - Does not sufficiently clear MRSA for individual carriers ¹⁻²
 - Does reduce skin burden and transmission to others
 - Is active against other MDROs and pathogens

¹ Harbarth et al. AACT 1999:43(6):1412-16 ² Fritz et al. ICHE 2011:32(9):872-80

Decolonization Beyond the Hospital



- Individual randomized clinical trial
- MRSA+ patients on hospital discharge
- Education vs decolonization
- Follow up for 1 year for infection

Post-Discharge MRSA Infection Risk

Figure 1. Distribution of Weeks Between Previous Hospitalization and Current Admission Date, Stratified by Long-term Care Facility Residence 64% 30-25 12 Nondialysis HACO Infections, 50Non-long-term care facility resident (n=1170) 40 Long-term care facility resident (n=452) Cumulative percentage 30 10 10 15 24 33 36 19 47 45 48 -60 63 65 69 77 75 375 30 51 54 57 Weeks Between Previous Hospitalization and Current Admission Date Table 3. National Estimated Incidence and Mortality of Invasive MRSA Infections,^a United States, 2005 and 2011

Dantes et al. JAMA Int Med 2013;173(21):1970-8

Project CLEAR Trial

- 2,121 inpatients, ~535,000 days of follow up
- Two Arms
 - Arm 1: Hygienic Education
 - Arm 2: Hygienic Education + Repeated Decolonization
- Inclusion Criteria
 - \geq 18 years old
 - Hospitalized within the past 30 days
 - > MRSA+ culture within 30 days of hospitalization

Serial Decolonization

- 5-day regimen twice monthly for 6 months
 - Twice daily 2% nasal mupirocin
 - > Twice daily 0.12% chlorhexidine oral rinse
 - Daily 4% rinse-off chlorhexidine bath/shower
- 1 Year follow up
 - Body swabs and surveys
 - Months 1, 3, 6, 9 post-recruitment
 - Phone exit survey at month 12

Project CLEAR Outcomes

• Primary Outcome

Time until MRSA infection (CDC criteria)

Secondary Outcomes

Time to any infection (CDC criteria)

Time to MRSA infection (ID clinical judgment)

Time to any infection (ID clinical judgment)

- Blinded assessment of 8,000+ redacted records
- Each chart reviewed by two ID physicians

Types of Infection CDC-Defined MRSA Infection

	Education N (%)	Decolonization N (%)
N (first per person)	98	67
Skin and Soft Tissue	34 (35%)	32 (48%)
Pneumonia	18 (18%)	9 (13%)
Primary Blood/Vascular	13 (13%)	10 (15%)
Bone and Joint Infection	13 (13%)	9 (13%)
Surgical Site Infection	13 (13%)	2 (3%)
Other	7 (7%)	5 (7%)
Involving Bacteremia	28 (29%)	19 (28%)
Requiring Hospitalization	83 (85%)	57 (85%)
Time to Infection, Mean (SD)	110.6 (91.1)	117.3 (93.4)

Huang SS NEJM 2019; 380(7):638-650

Types of Infection

CDC-Defined All-Cause Infection

	Education N (%)	Decolonization N (%)
N (first per person)	252	207
Skin and Soft Tissue	80 (32%)	59 (29%)
UTI	38 (15%)	46 (22%)
Pneumonia	39 (15%)	25 (12%)
Primary Blood/Vascular	20 (8%)	14 (7%)
Bone and Joint Infection	20 (8%)	14 (7%)
Surgical Site Infection	20 (8%)	8 (4%)
GI Infection	20 (8%)	21 (10%)
Involving Bacteremia	46 (18%)	37 (18%)
Requiring Hospitalization	225 (89%)	169 (82%)
Time to Infection (Mean)	103.3 (87.3)	109.6 (90.5)

Time to Infection Outcomes, Unadjusted

	Hazard Ratio (95% CI) Decolonization vs Education	P-value
CDC NHSN Criteria		
MRSA Infection*	0.70 (0.52-0.96)	0.026
Any Infection	0.84 (0.70-1.01)	0.061
Clinical Criteria**		
MRSA Infection	0.71 (0.52-0.97)	0.031
Any Infection	0.83 (0.70-0.99)	0.035

- * Primary Outcome, main unadjusted analysis
 - Proportional hazards model assumption met
- ** Blinded assessment by 2 ID physicians, redacted records

Huang SS NEJM 2019; 380(7):638-650

Primary Outcome, by Adherence Time to CDC-Defined Infection

- Adherence measured at each visit, time-varying covariate
- Cox proportional hazards model

Adherence	MRSA Infe	ection	All-Cause Infection		
Relative to Education	Est. HR (95% CI)	P-value	Est. HR (95% CI)	P-value	
- Education	1.0		1.0		
- None	1.31 (0.72,2.38)	0.383	1.68 (1.19,2.36)	0.003	
- Partial	0.64 (0.40,1.00)	0.050	0.86 (0.67,1.11)	0.241	
- Full	0.56 (0.36,0.86)	0.009	0.60 (0.46.0.78)	<.001	

- Non-adherent subjects fared worse than the average control
- Fully adherent subjects had 44% reduction in MRSA infection and 40% reduction in all-cause infections

Huang SS NEJM 2019; 380(7):638-650

Number Needed to Treat

	Overall	Full Adherence
MRSA Infection	30	26
MRSA Hospitalization	34	27
Any Infection	26	11
Hospitalization due to Infection	28	12

Huang SS NEJM 2019; 380(7):638-650

Decolonization in Long-Term Care

The Rise of MultiDrug-Resistant Organisms (MDROs)

- Methicillin Resistant Staphylococcus aureus (MRSA)
- Vancomycin Resistant Enterococcus (VRE)
- MultiDrug-Resistant Pseudomonas
- Extended Spectrum Beta Lactamase Producers (ESBLs)
- Carbapenem Resistant Enterobacterales (CRE)
- Carbapenem Resistant Acinetobacter baumanii (CRAB)
- Candida auris

10-15% of hospital patients harbor at least one of the above 64% of nursing home residents harbor at least one of the above

SHIELD OC: 35 Facility Regional Decolonization

- 28-month regional intervention: April 2017-July 2019
- Participants: 16 nursing homes (NHs), 3 long-term acute care hospitals (LTACHs), 16 hospitals with high patient sharing in Orange County, CA
- NHs and LTACHs: universal decolonization
 - ✓ Chlorhexidine (CHG) antiseptic soap for routine bathing/showering
 - ✓ Nasal iodophor for 5d on admission and every other week
- Hospitals: decolonize patients on contact precautions
 - ✓ Daily CHG bathing/showering
 - ✓ Nasal iodophor decolonization for 5 days
 - ✓ Support ongoing ICU CHG daily bathing

Nursing Home Impact: 23% MDRO Reduction



Gussin G et al. JAMA Online ahead of print. April 1, 2024

Figure 1. MDRO Point Prevalence (Screening) Among Facilities Participating in the Regional Decolonization Collaborative, Baseline and End of Intervention

	Baseline		Intervention				
Colonization	No. of MDRO- positive persons	Mean (SD) prevalence across facilities, %	No. of MDRO- positive persons	Mean (SD) prevalence across facilities, %	OR (95% CI)	Less likely to be MDRO-positive MDRO-positive	P value
Nursing homes					A A A A A A A A A A A A A A A A A A A		
Any MDRO	511	63.9 (12.2)	709	49.9 (11.3)	0.77 (0.69-0.86)	(e)	<.001
Nares	236	29.5 (7.3)	360	25.1 (8.6)	0.84 (0.71-0.99)	He-I	.04
Axilla or groin	370	46.3 (13.7)	337	24.7 (8.0)	0.51 (0.44-0.60)	++++	<.001
Perirectal	412	51.5 (13.5)	473	34.1 (11.1)	0.65 (0.57-0.74)	+m+	<.001
Any MRSA	343	42.9 (11.2)	422	29.8 (9.3)	0.68 (0.59-0.79)	1	<.001
Nares	236	29.5 (7.3)	360	25.1 (8.6)	0.84 (0.71-0.99)		.04
Axilla or groin	247	30.9 (10.5)	176	13.1 (6.5)	0.40 (0.33-0.49)	H	<.001
Perirectal	207	25.9 (9.2)	142	10.8 (5.5)	0.39 (0.31-0.48)		<.001
Any VRE	125	15.6 (7.6)	134	9.4 (6.7)	0.61 (0.48-0.78)	H.	.001
Axilla or groin	68	8.5 (5.4)	37	2.7 (3.3)	0.32 (0.21-0.48)		<.001
Perirectal	114	14.3 (7.8)	120	8.4 (5.8)	0.60 (0.47-0.78)	+	.002
Any ESBL	269	33.6 (17.2)	356	25.5 (10.5)	0.74 (0.63-0.87)	10-1	.003
Axilla or groin	167	20.9 (12.0)	163	12.1 (6.1)	0.55 (0.44-0.68)	H	<.001
Perirectal	248	31.0 (16.5)	310	22.3 (9.5)	0.70 (0.59-0.83)	He-I	<.001
Any CRE	17	2.1 (4.3)	22	1.6 (2.8)	0.78 (0.41-1.47)		.44
Axilla or groin	12	1.5 (3.5)	16	1.1 (2.0)	0.79 (0.37-1.68)		54
Perirectal	8	1.0 (2.1)	11	0.9 (1.5)	0.83 (0.33-2.09)		.70

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DR (95% CI)

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Figure 1. MDRO Point Prevalence (Screening) Among Facilities Participating in the Regional Decolonization Collaborative, Baseline and End of Intervention

	Baseline		Intervention				
Colonization	No. of MDRO- positive persons	Mean (SD) prevalence across facilities, %	No. of MDRO- positive persons	Mean (SD) prevalence across facilities, %	OR (95% CI)	CI) Less likely to be More likely to be MDRO-positive	
Long-term acute car	e facilities						
Any MDRO	120	80.0 (7.2)	80	53.3 (13.3)	0.67 (0.50-0.89)	E-0-1	.01
Nares	35	23.3 (9.5)	25	16.7 (8.3)	0.71 (0.43-1.20)		.20
Axilla or groin	91	60.7 (9.0)	36	24.0 (6.0)	0.40 (0.27-0.58)		<.001
Perirectal	109	72.7 (9.5)	68	45.3 (12.9)	0.62 (0.46-0.85)		.003
Any MRSA	49	32.7 (8.3)	30	20.0 (10.6)	0.61 (0.39-0.97)	1	.04
Nares	35	23.3 (9.5)	25	16.7 (8.3)	0.71 (0.43-1.20)		.20
Axilla or groin	25	16.7 (3.1)	12	8.0 (2.0)	0.48 (0.24-0.96)		.04
Perirectal	28	18,7 (11.0)	11	7.3 (7.6)	0.39 (0.20-0.79)		.01
Any VRE	83	55.3 (5.0)	38	25.3 (10.1)	0.46 (0.31-0.67)		<.001
Axilla or groin	55	36.7 (6.4)	13	8.7 (3.1)	0.24 (0.13-0.43)	0	<.001
Perirectal	78	52.0 (5.3)	38	25.3 (10.1)	0.49 (0.33-0.72)		<.001
Any ESBL	58	38.7 (9.0)	39	26.0 (10.4)	0.67 (0.45-1.01)		.06
Axilla or groin	40	26.7 (5.8)	18	12.0 (3.5)	0.45 (0.26-0.79)		.01
Perirectal	52	34.7 (8.1)	34	22.7 (11.7)	0.65 (0.42-1.01)		.06
Any CRE	13	8.7 (1.2)	10	6.7 (3.1)	0.77 (0.34-1.76)	· · · · · · · · · · · · · · · · · · ·	.53
Axilla or groin	11	7.3 (1.2)	5	3.3 (3.1)	0.45 (0.16-1.31)		.14
Perirectal	11	7.3 (1.2)	10	6.7 (3.1)	0.91 (0.38-2.15)	1	.83

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OR (95% CI)
Figure 1. MDRO Point Prevalence (Screening) Among Facilities Participating in the Regional Decolonization Collaborative, Baseline and End of Intervention

	Baseline		Intervention				
Colonization	No. of MDRO- positive persons	Mean (SD) prevalence across facilities, %	No. of MDRO- positive persons	Mean (SD) prevalence across facilities, %	OR (95% CI)	Less likely to be MDRO-positive MDRO-positive	P value
Hospitals with patien	its in contact precau	utions					
Any MDRO	474	64.1 (8.5)	409	55.4 (13.8)	0.86 (0.75-0.98)	Het	.03
Nares	221	29.9 (6.5)	220	29.7 (10.9)	1.00 (0.83-1.21)	H.	.97
Axilla or groin	242	32.9 (10.8)	167	22.5 (14.1)	0.69 (0.57-0.84)	1- 0 -1	<.001
Perirectal	363	49.2 (9.0)	273	37.2 (13.2)	0,75 (0.64-0.88)	HOH .	<.001
Any MRSA	265	35.9 (7.6)	252	34.2 (13.3)	0.95 (0.80-1.13)	1.0-1	.60
Nares	221	29.9 (6.5)	220	29,7 (10,9)	1.00 (0.83-1.21)	FØ-1	.97
Axilla or groin	104	14.1 (7.5)	93	12.8 (11.0)	0.89 (0.68-1.18)		.43
Perirectal	105	14.3 (6.7)	88	12.1 (9.2)	0.84 (0.64-1.12)		.24
Any VRE	185	25.1 (7.1)	141	19.3 (11.9)	0.76 (0.61-0.94)	1- • -1	.01
Axilla or groin	101	13.8 (6.6)	49	6.7 (5.9)	0.48 (0.34-0.68)		<,001
Perirectal	175	23.8 (6.7)	134	18.4 (11.6)	0.76 (0.61-0.95)	1-0-1	.02
Any ESBL	202	27.3 (6.8)	143	19.3 (6.0)	0.69 (0.55-0.87)	He-I	.001
Axilla or groin	97	13.1 (5.9)	49	6.7 (3.4)	0.71 (0.57-0.88)		.002
Perirectal	181	24.5 (5.5)	125	16.9 (6.6)	0.51 (0.36-0.71)	⊢ •→1	<.001
Any CRE	18	2.4 (2.3)	15	2.1 (3.0)	0.83 (0.42-1.65)	-	.60
Axilla or groin	6	0.8(1.3)	8	1.1 (1.5)	1.34 (0.46-3.86)		.59
Perirectal	17	2.3 (2.0)	13	1.8 (2.5)	0.76 (0.37-1.57)	++	.46

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0.1

OR (95% CI)

Impact: NH Hospitalizations Due to Infection

Figure 5. Monthly Infection-Related Hospitalization Rates Among Nursing Homes Residents in Participating (Decolonization) vs Nonparticipating Nursing Homes



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NH Hospitalization-Related Costs & Deaths

	Costs	Associ	iated with Infect	tion-Related H	lospitalization		
	Costs			Adjusted Analysis ^b			
Decolonization Group	per	1,000 F	Resident Days	Clustered	Group-By-P Interaction E	Group-By-Period Interaction Effect	
Croup	Base	eline	Intervention	Cost Ratio	% Reduction (95% Cl)	P-value	
Participant	\$64,651		\$55,149	0.96	-26.8%	<0.001	
Non-Participant	\$55	.151	\$59.327	1.31	(-26.726.9)	~0.001	
			+,		(====; ===;		
	Deaths	Asso	ciated with Infec	tion-Related	Hospitalization		
	Deaths	Asso	ciated with Infec	tion-Related Ad	Hospitalization		
Decolonization	Deaths	Assoc E\ 1,000 F	ciated with Infect vents Resident Days	tion-Related Ad Clustered	Hospitalization justed Analysis ^b Group-By-P Interaction B	eriod Effect	
Decolonization Group	Deaths per Base	Assoc Ev 1,000 F eline	ciated with Infectivents Resident Days Intervention	ction-Related Ad Clustered Hazard Ratio	Hospitalization justed Analysis ^b Group-By-P Interaction E % Reduction (95% CI)	eriod Effect P-value	
Decolonization Group Participant	Deaths per Base 0.	Assoc Ev 1,000 F eline 29	ciated with Infectivents Resident Days Intervention 0.25	Clustered Hazard Ratio 0.62	Hospitalization justed Analysis ^b Group-By-P Interaction E % Reduction (95% CI) -23.7%	eriod Effect P-value	

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The Protect Trial

Pragmatic Trial

- 28 nursing homes
- Involved nearly 14,000 residents
- All activities performed by usual nursing home staff

Group 1: Routine Care

• Usual soap for showering/bathing

Group 2: Decolonization

- CHG for all bathing/showering
- Nasal iodophor for all residents, M-F twice daily, every other week
 Miller LG et al. NEJM 2023 (Nov 9); 389:1766-1777

CHG for All Routine Bathing and Showering

- Liquid CHG for showering
 - 4% rinse off CHG
- CHG cloths for bed bathing
 - 2% leave on CHG





2% cloths for bath

Iodophor for Nasal Decolonization

- 10% povidone-iodine swabs (iodophor) to each nostril
- Facility-wide universal strategy
- Twice daily for 5 days
- On admission and M-F every other week



MDRO Carriage Reduction (Skin/Nares)

Table 3. Prevalence of MDRO Carriage during the Baseline Period and near the End of the Intervention Period.*

MDRO or sample	Prevaler Routine-C	nce in the Care Group	Prevale Decoloniz	nce in the ation Group	Risk Ratio (95% CI)†
	Baseline (N=700)	Intervention (N=650) percent (number o	Baseline (N = 700) f positive samples)	Intervention (N=550)	
Any MDRO	48.3 (338)	47.2 (307)	48.9 (342)	32.0 (176)	0.70 (0.58-0.84)
Any MRSA	37.6 (263)	36.9 (240)	36.4 (255)	25.1 (138)	0.73 (0.59–0.92)
Nostril swab sample	29.1 (203)	27.1 (176)	29.9 (209)	22.0 (121)	0.81 (0.62–1.05)
Skin swab sample	26.1 (183)	25.4 (165)	22.6 (158)	11.6 (64)	0.58 (0.42-0.79)
VRE	5.9 (41)	5.1 (33)	8.3 (58)	2.2 (12)	0.29 (0.14-0.62)
ESBL producer	15.9 (111)	17.9 (116)	16.7 (117)	9.2 (51)	0.50 (0.34–0.75)
CRE	1.4 (10)	0.6 (4)	0.4 (3)	0.4 (3)	3.53 (0.44–28.52)

Miller LG et al. NEJM 2023 (Nov 9); 389:1766-1777

Trial Outcomes

Outcome	Infection-Related Hospitalization	Any Hospitalization
Reason among hospitalizations Reason among discharges	17% reduction in infection–related hospitalizations, among hospitalized	15% reduction in hospitalizations, among discharged
Per 1,000 Resident Days	31% reduction in infection–related hospitalizations per 1,000 resident days	18% reduction in hospitalizations per 1,000 resident days
Number Needed to Treat (NNT)	9.7 residents	8.9 residents

1.9 infection-related hospitalizations averted per month per 100-bed nursing home

Miller LG et al. NEJM 2023 (Nov 9); 389:1766-1777

Training Guides & Ready-to-Use Tools

Decolonization Success Depends on Application

- Lack of training shown to yield no benefit
- Training pearls for CHG
 - o Massage firmly
 - $\circ\,$ Avoid cotton cloths
 - Clean wounds, devices, breaks in skin
 - Check lotion, skin product compatibility
 - o 4% rinse-off CHG, 2% leave-on (air dry)

Chlorhexidine Only Works If Applied Correctly: Use of a Simple Colorimetric Assay to Provide Monitoring and Feedback on Effectiveness of Chlorhexidine Application

Kundrapu, MD, MS,² Venkata Sunkesula, MD, MS,² Jennifer L, Cadrum, BS,² Michelle M, Nerandzie, BS,⁴ Myreen Tomas, MD,⁴ Curtis J, Donskey, MD²³

We used a colorimetric assay to determine the presence of chlorhexidine on skin, and we identified deficiencies in prosperative bathing and daily bothing in the intensive care unit. Both types of bathing improved with an intervention that included feedback to marsing staft. The away provides a daugh and rapid method of monitoring the performance of chlorher-idine bathing.

Infive Control Husp Epidemial 2015:00(0):1-3

Popovich KJ Int Care Med 2010;36(5):854-8 Supple L ICHE 2015;36(9):1095-7



Clinicians & Providers

Education & Training

Hospitals & Health Systems

Emergency Department

Tools and Resources

Emerciency Severity Index.

Hospital Resources

Agency for Healthcare	Research and Quality
Artvarreiner Excellence in Health Ca	IT &

Health Care Information	For Patients & Consumers	For Professionals	For Policymakers	Research Tools & Data	Funding & Grants	Centers, Portfolios & Initiatives	News & Events	AAA
Home 🤉 For P	rofessionals > 1	Hospitals & Health Sy	stems 🤉 Hospita	i Resources 🔅 Univ	ersal ICU Dec	colonization Protocol		
Previous Pag	e		Table of Co	ntents 🛄 Downland	1		Ne	ad Page 🖸

Universal ICU Decolonization: An Enhanced Protocol

Introduction and Welcome

This enhanced protocol is based on materials successfully used in the REDUCE. MRSA Trial (Rendomized Evaluation of Decolonization vs. Universal Clearance to Eliminate Methicillin-Resistant Staphylococcus aureus), which found that universal decolonization was the most effective intervention. Universal decolonization led to a 37 percent reduction in MRSA clinical cultures and a 44 percent reduction in all-cause bloodstream infections.

Publication # 13-0052-EF

C



https://www.ahrq.gov/hai/universal-icu-decolonization/index.html



Funding & Grants ~

Home > Healthcare-Associated Infections Program > Tools | Non-ICU Patients With Devices

Data 🖌

Research +

Healthcare-Associated Infections Program

Toolkit for Decolonization of Non-ICU Patients With Devices

News 4

About +

Combating Antibiotic Resistant Bacteria

Programs ~

Comprehensive Unit-Based Safety Program (CUSP)

National Scorecard Reports

Reducing Hospital-Acquired Conditions

Tools

Topics -

Ambulatory Surgery Centers Tealkit

⊆ attficile Tanikii

Genine Line Immitide Checklini

CEARSI and GAUTI Prevention in

This footkil can help hospitul infaction prevention programs implement a discolonization protocol that was found to reduce bioodstream infections by more than 30 percent in adult inpatients who were not in intensive care units (ICUs) and who had specific medical devices. It includes implementation instructions, demonstration videos, and customizable tools.

Toolkit Contents

Tools -

The toolk& contains protocols for implementing decolonization with chlothexidine pluconate antiseptic soap and muprocin along with instructional handouts for staff and patients, written and video training materials to educate staff, staff skills assessments, "huddle," documents with key reminders, and frequently asked questions for staff and patients. It is suggested that you start with introduction—Toolkit Overview and Recommended Prejaunch Activities, but use the other materials in any order or combination that meets your facility's needs.

The contents of this toplicit are below

Introduction—Toolks, Oververy, Decision Making, and Recommended Preliaunch Activities Network Protocols Instructional Handboals for Staff and Patients Staff Training Upgements and Videos Staff Training Videos Adheronice and Skills Assessment

https://www.ahrq.gov/hai/tools/abate/index.html

SHIELD MDRO Acute & Long-Term Care Toolkits

Is SHIELD Right for You?

The SHIELD intervention is right for you if:

- Your facility is experiencing cultures or infections due to MDROs
- Your facility is worried about MDROs in general
- Your facility is willing to do a campaign to reduce MDROs.
- Your facility is interested in the benefits of "decolonization" but needs "how to" help

The SHIELD program is effective against the following organisms:

- CRE: carbapenem-resistant Enterobacteriaceae.
- MRSA: methicIllin resistant Staphylococcus aureus
- VRE: vancomycin-resistant Enterococcus
- ESBL: extended spectrum beta-lactamase producers

Hospital Toolkit Nursing Ho

Nursing Home Toolkit LTACH Toolkit



Shared Healthcare Intervention to Eliminate Life-threatening Dissemination of MDROs

Nursing Home Decolonization Toolkit

Step 1: Adopt SHIELD program as Quality Assurance Performance Improvement (QAPI)

1. QAPI Project Documentation Form (PDF) (DOC)

2. Universal Plan of Care (PDF) (DOC)

3. Resident Plan of Care (PDF) (DOC)

4. Pre-Launch Checklist for the Infection Preventionist (PDF) (DOC)

Step 2: What to Expect? (PDF) (DOC)

Step 3: Communication to Residents

1. Admission Packet Letter (PDF) (DOC)

2. Resident/Ombudsman Information Sheet (PDF) (DOC Step 4: Products & Protocols

1. Products (PDF) (DOC)

2. CHG Compatibility (PDF) (DOC)

3. Protocol: Bed Bath With CHG Cloths (PDF) (DOC)

4. Protocol: Bed Bath With CHG Liquid (PDF) (DOC)

5. Protocol: Showering With CHG (PDF) (DOC)

6. Protocol: Nasal lodophor (PDF) (DOC)

7. Order Set Examples (PDF)

8. Admission - SHIELD Checklist (PDF) (DOC).

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Step 5: Staff Education & Training . 1. Paper or Computer Based Training (PDE) (PPT)

Staff Post-Training Test and Answer Key: Basin Bed Bathing
Staff Post-Training Test and Answer Key: CHG Cloths (PDF)
Physician and Staff Notification Flyer (PDF) (DOC)
Staff Handouts for CHC Bathing/Showering (PDF) (PUB)
Staff Handout for Basin Bed Bathing With CHC (PDF) (PUB)
Staff Handout for Nasal Iodophor (PDF) (PUB)
Staff Huddle Reminder Documents (PDF) (DOC)
FAQ: Ceneral (PDF) (DOC)
FAQ: CHG for Bathing (PDF) (DOC)
FAQ: CHG for Bathing (PDF) (DOC)
FAQ: Wound Care (PDF) (DOC)
FAQ: Do and Don't (PDF) (DOC)

Step 6: Resident Education & Training

1. Resident Handout for CHC Bed Bath (PDF) (PUB)

2. Resident Handout for CHG Shower (PDF) (PUB)

3. Resident Handout for Nasai Iodophor (PDF) (PUB)

4. Waterproof Shower Poster for Residents (PDF) (DOC)

5. Resident Talking Points: CHG (PDF) (DOC)

6. Resident Talking Points' lodophor (PDF) (DOC)

Step 7: Skills Assessments and Compliance Checks

I. CHC Cloth Skillis Assessment Checklist (PDF) (DOC)

2. CHG Liquid Bed Bath Skills Assessment Checklist (FDF) (DOC)

3. Resident Self-Showering Assessment (PDF) (DOC)

4. Resident Self-Bed Bath Assessment (PDF) (DOC)

Step 8: Safety and Side Effects

1. Safety and Side Effects (PDF) (DOC) 2. Side Effect Tracking Form (PDF) (DOC)

Staff Decolonization Training

Prevent infections during each nursing home stay BATHE or SHOWER with Chlorhexidine (CHG) soap

Bathe with CHG to remove germa REMINDERS and prevent infaction CHO writes butter that smap and water EBG is a protective bath CBG shifths are less drying than snap. Apply as shown below

+ Your enthusiants beins residents understand why CHG is important · Bathing on admission removes germs to protect the resident and nursing home. · CHG works for 24 hours to kill permit. · Firmly massage CHG onto skin

- Clean 6 inches of lines, drains, tubes + Sele on surface wounds, rashes, burns
- Use only CHG-compatible lotions.
- · If barrier protection needed, apply CHG then apply barrier protection

Clean all skin areas with attention tir-

- Nock
- All skin folds.
- Skin around all devices (line/tube/drain).
- · Wounts unless deep or large
- · Armpit, groin, between fingers/toes

Avoid eyes, mosth, & ear canals

STAFF

- SHOWERING with CHG soup 1. Rinse body with warm water
- 2. Wash hair and face with CHG
- 3. Avoid getting into eyes and ears.
- 4. Turn off water and lather mesh sponge with plenty of CHG
- 5. Massage CHG onto all skin areas
- 5. Leave CHC on for 2 minutes then rate

BATHING with CHG dolbs

- 1. Tell residents these cloths are their protective bath
- 2. Use all 6 cloths. More, if needed.
- 3. Firmly massage skin with cloth-
- 4. Clean over semi-permeable dressings
- 5. Clean 6 inches of lines, tubes, and draim
- 6. Air dry. Du not wipe off.
- 7. Put used cloths in trash. Do not flight.





ucihealth.org/shield

STAFF



Decolonization FAQs



Healthcare Intervention to Eliminate Life-threatening Dissemination of MDROs

Shared

Frequently Asked Questions Chlorhesiding for Bathing

What is citothexidine (EHG) and how sale is 37

Criff is an invertible-control according selection spect that height to reduce the lasgeneral are your also, rectaining and and selection are provided in the selection for the proposes. CRI is an excellent safety profile and into their heatmark for more off yours. Attriving alongs installation to DRI encrease, occur, Mate of them are landed to the view of application and rest relations can be metanow, which receives with discontrol profile.

White d'my insident returns a hith?

Negatives, here, the regar to refuse one method care. Staff weed to access the member is refusing at this time loag, long, by take, instable), or whe resistent is, when all highlights will fill not indext understands. The reather value of the productive lists long to present infection claim to MESA a factories. Of previous, the resident does not web-to here the does, it is it reflexion.

If the staff member believes that the textdent is stating that it's not the lothen the staff should offer and encourage a bath at a later time. Bin

to it iskaw for my emidants to chose and use deoptacient?

Even though shaving cream and deciderant may earther EHG, we understants that residents will want to shave and all deciderant. If shaving is performed, misure that during cream only contracts body area that is being draved.

What If my resident has an incombinence opionde to maple fructuring, on throughout the day?

Ordi closes should be used for all barting successes, including to Floxing building, chaining affer saving or any other resource for additional closering such as braining up (). Do not use ways to closeries incontinent resident because rate care mathwate OHL first remove unstablied with sual incontinent eatings or data and water. Next, closer with OHL and allow to set the Dealy, explit OHL compatible larmer stratection over the same. Report or others is helder throughout the data.

My resident reports that their skin tees midly after the tath.

The sticky feering is due to the mainturship organisers in the Deli Cotto and it will go easily as 6 three. The dotto contain also news.

It is calle th use on the periodust T

res. CH6 is safe to use on the permission and external inaccess.

Is CHD rafe to use on lines, buttes, and draim."

Yes, II is very impertant to chain lines, tuber, and doales to addition to the basis summaring thread draws in order to prevent infection. The & inclusion of any later, draws, or line nearest. The body should be channel. New absorbable (very group, draws) have a solution of the basis of the Color Abb above the prior provide describes should also be used more with the Color Abb above the size in a observed.

Should gloves be when or changed during bothing with CHS clocks? Yes Although it is sale to handle the CHS cables with lare san, gives should be

acre to balling residents. If gives become used, they visual be stanged.

Section States Baldylass Barranie Grannie Diseitation of Within

Frequently Asked Questions Wound Care

The majority of size nurses and carithul nursing assistants (CRAs) hell comfortable using chlorheddine (CRG) clefts ne superficial seconds, but series do not. Here woold you suggest assing their concentra? Remed all range daff the CRS debts are able to are or toperficial woolds and stage 14.2 decalities alson. Using the backet pattern, in white non-range daff whe are confortable using CRG on superficial avoids landly us with cost who are less confortable, are also fels.

Should I so commented allocot CHG having a simplery elificit net weinersb/ Antiseptic over the countor products often contain alcohol and will strag when applied to wounds. In contains, OHG Jahrs do net, contain alcohol well will will strag. A) fact, CHG Johds contains directification and alcoh well will are multidation and alcohol wells optimised the application of the application over all and an

Will CHCS be administed if I gut it dry a wound?

There is represent to no systemic absorption when using DHG on a sugaritual wound. In addition, the DHG may be particularly important to get rid of bockers, in an open wound and prevent infection.

For what types of wounds is CHG cale?

CHS can be gettly applied to any squarkital wrant, including slage 1 and 2 identifiat utrans. We do not recommend



Healthcare Intervention to Eliminate Life-threatening Disagnimation of MDROs

Frequency Asked Questions Nasial todoption

ETH ID affect Which there multiplicate

a another stress for "position-schem," where is an own the counter that is must brown for in use is dealing increases, but, and wounds and programs in a lab EDA strength for all in the root. Provideo-orders is a counter primetric product. If has been used in final/black for your OT all objects like likes used in infrauential documents of primetry prime is the EDA, and it is writing homes is a same to prove the MEA and metholing unreader. If the end is the scheme should be primetry prime is the EDA, and it is writing homes is a same to prove the MEA and metholing unreader is a same to prove MEA and metholing unreader to the schemes and the scheme to the theory of the information. They must have the schemes and the theory of the information. They must be the scheme to the schemes the theory.

scharp read untition, name mile, and uneding its with any amiliant, rare sense allegic partitions are accus

What is the purgoin of putting # in the nam?

Addorme remeasi genera that commence has a the most including methods matural. Respirationary param, or MISA. Many studies have drawn that starting have residence and much many lawy or most participation and parameters commanity or patients in lengthals, in fact, rester tasks across many narring

SHIELD	CHG Cloth Observation Checklist Please complete for <u>THREE</u> different staff <u>per unit</u>	:
Individual G	Giving CHG Bath	
Please indicat	te who performed the CHG bath.	
Nursing As	ssistant (CNA) 🔲 Nurse 🔲 Other:	
Observed Cl	HG Bathing Practices	
Please check t	the appropriate response for each observation.	
UY UN	Patient received CHG cloth bathing handout	
	Patient told that bath is a no rinse cloth that provides protection from germs	
	Provided rationale to the patient for not using soap at any time while in unit	
	Massaged skin firm/y with CHG cloth to ensure adequate cleansing	
	Cleaned face and neck well	
	Cleaned between Hingers and toes	
	N/A Cleaned occlusive and semi-nermeable dressings with CHG cloth	
	N/A Cleaned 6 inches of all tubes, central lines, and drains closest to body	
	N/A Used CHG on superficial wounds, rash, and stage 1 & 2 decubitus ulce	rs
	N/A Used CHG on surgical wounds (unless primary dressing or packed)	
Y N	Used all 6 cloths (more if needed)	
DY DN	Allowed CHG to air-dry / does not wipe off CHG	
UY UN	Disposed of used cloths in trash /does not flush	
Query to Ba	athing Assistant/Nurse	
1. Do you ever	r use soap in conjunction with a CHG bathing cloth? If so, when?	
2. Do you reap	pply CHG after an episode of incontinence has been cleaned up?	-
3. Are you con	mfortable applying CHG to superficial wounds, including surgical wounds?	-
4. Are you con	mfortable applying CHG to lines, tubes, drains and non-gauze dressings?	-
		-



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an online education and training resource to develop knowledge and competencies for local public health



https://www.pathlms.com/naccho/courses/

Training Video for CHG Bathing

- CHG bathing and showering instructions
- Scenarios for how to encourage patients to accept bath
- Commonly missed and important protocol details (i.e., cleaning lines, tubes, drains, superficial wounds)
- Instructions for patients wishing to self-bathe



https://www.ahrq.gov/hai/tools/abate/index.html

Summary of Decolonization Trials

- Topical decolonization of skin and nose repeatedly shows benefit:
 - ✓ reduces MDROs, Gram+ and Gram-
 - ✓ reduces bloodstream infections
 - ✓ reduces hospitalizations
 - ✓ highly cost effective
- Universal application most effective in high-risk populations
- Nasal decolonization, ideally with mupirocin, is essential to reduce MRSA
- No emergence of resistance attributed to trial decolonization groups
- High value while we monitor for resistance and seek more options

