Getting to zero: CLABSI Understanding Your Defects

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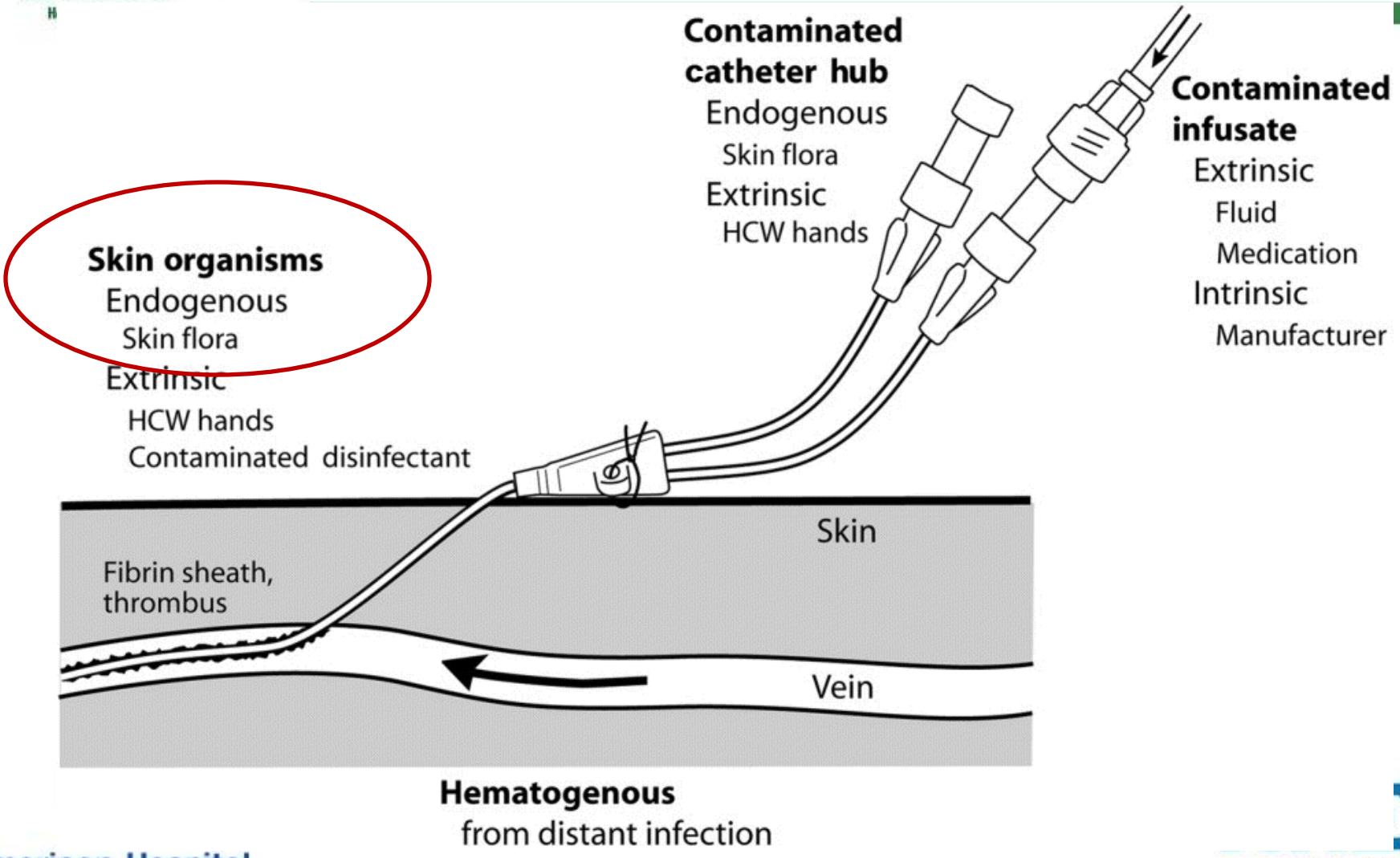
HEALTH RESEARCH & EDUCATIONAL TRUST
In Partnership with AHA

Session Overview: CLABSI

- Review causes of CLABSI
- Learning from your defects
- CHG bathing to reduce CLABSI
- Implementation Strategies

Potential Sources of Infection for Intravascular Devices



Clin Infect Dis 2002;34:1232-42

CUSP & CLABSI Interventions

Adaptive /Cultural

CUSP

1. Educate on the Science of Safety
2. Identify Defects (Staff Safety Assessment)
3. Senior Executive Partnership
4. **Learn from Defects**
5. Implement Teamwork & Communication Tools

Technical

CLABSI

1. Insertion
2. Maintenance
   a. Assessment & Site Care
   b. Tubing, Injection Ports, Catheter Entry

Learning from Defects

- What happened?
- Why did it happen (system lenses) ?
- What could you do to reduce risk ?
- How do you know risk was reduced ?
  - Create policy / process / procedure
  - Ensure staff know policy
  - Evaluate if policy is used correctly

Each CLABSI is considered a DEFECT, and you must learn from each one

Learning from Defects

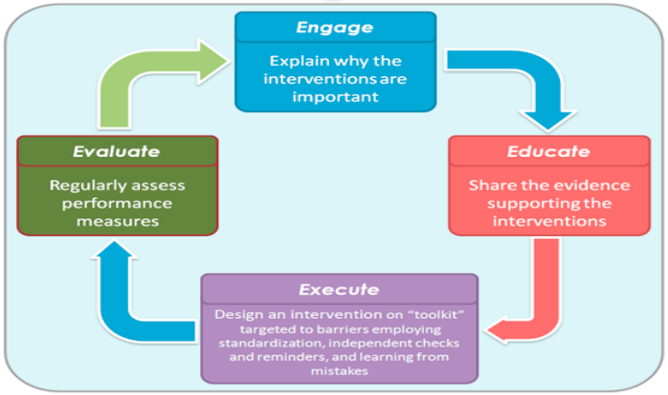
- **What happened?**
  - 3 CLABSIs
- **Why did it happen (system lenses) ?**
  - Reviewed compliance with insertion and maintenance bundles on each of these patients----done well
  - Common theme in patients: significantly immunocompromised
- **What could you do to reduce risk ?**
  - Review of literature and found research on using CHG bathing to reduce CLABSI
  - Implement CHG bathing as an intervention to reduce CLABSI in the ICU
- **How do you know risk was reduced ?**
  - Auditing compliance with new bathing procedure and bathing supply use
  - Monitor for reduction in CLABSI rate

Translating Evidence into Practice (Johns Hopkins model)

Translating Evidence into Practice

- Envision the problem within the larger health care system
- Engage Collaborative multi-disciplinary teams centrally (stages 1,2 & 3) and locally (stage 4)

1. Summarize the Evidence
   - Identify Interventions associated with improved outcomes
   - Select interventions with the largest benefits and lowest barriers to use
   - Convert interventions to behaviors
2. Identify local barriers to implementation: understand the process and context of work
   - Observe staff performing the interventions
   - "Walk the process" to identify defects in each step of intervention implementation
   - Enlist all stakeholders to share concerns and identify potential gains / losses associated with intervention implementation
3. Measure Performance
   - Select Measures (Process and/or outcome)
   - Develop and pilot test measures
   - Measure Baseline Performance
4. Ensure all patients receive the interventions



Summarize the Evidence

- Traditional bathing with basins
- CHG bathing

Traditional Bathing

Spreading Microorganism

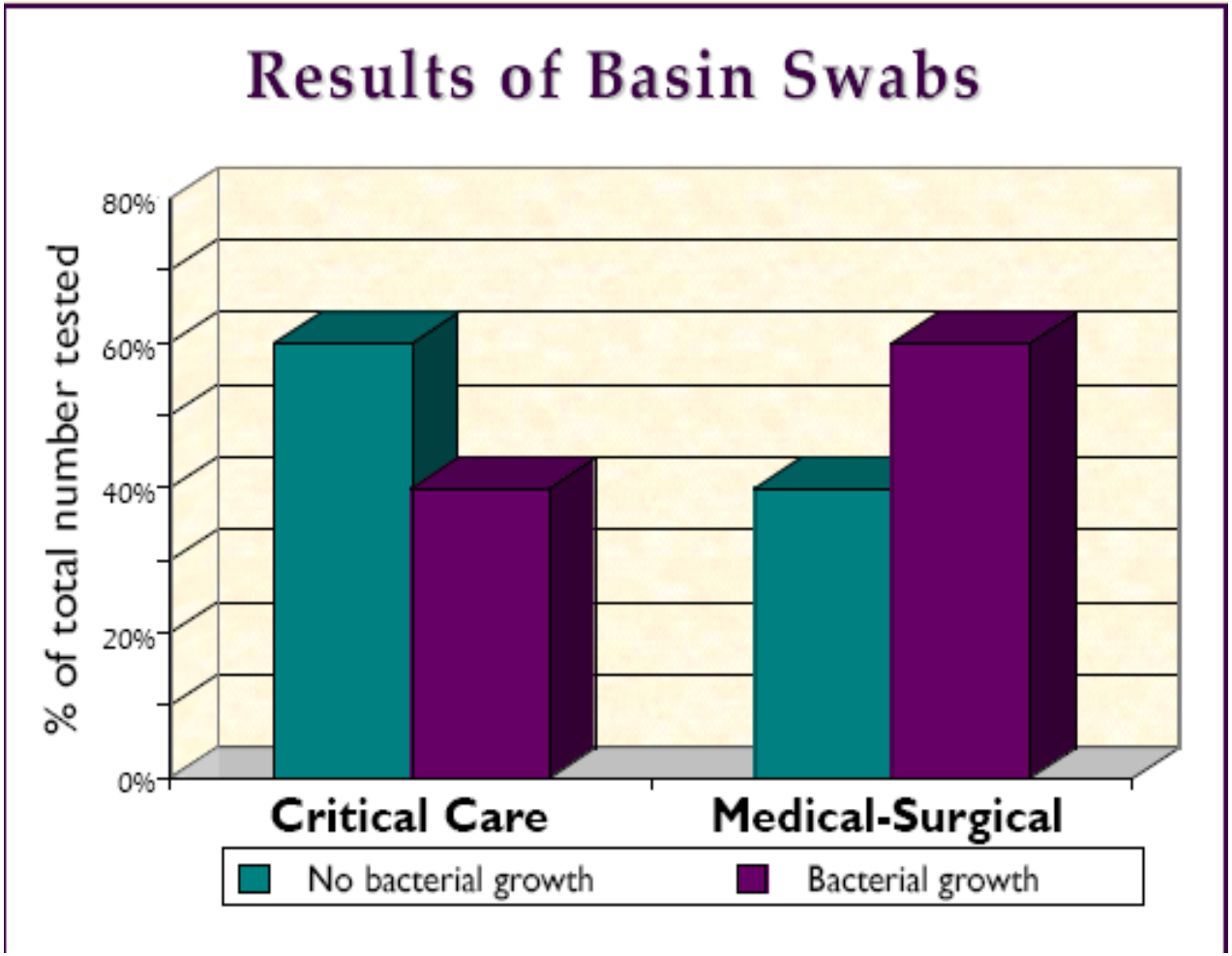
Bath Water: A Source of Health-Care Associated Microbiological Contamination

- Compared normal bath water with chlorhexidine bath water on 3 wards
- Without Chlorhexidine: All samples + for bacterial growth (14/23 > 10^5 cfu/ml)
- With Chlorhexidine: 5/32 grew bacteria with growth 240 to 1900 cfu/ml
- Gloved hands/bathing: objects touch grew significant numbers of bacteria

Shannon RJ. et.al. Journal of Health Care, Compliance & Safety Control. 1999;3(4):180-184

Dry Basin Study: Level of Bacterial Growth

- 25 basins (children's hospital)
- 52% + for organisms
- 62% of those + had multiple organism present
- > multiple organisms present in the CCU



O'Flynn, J. APIC Meeting June 2007
Kosair children's Hospital

Waterborne Infections Study

- Hospital tap water is the most overlooked source for Health-care associated pathogens
- 29 evidenced-based studies present solid evidence of waterborne Health-care associated infections
- Transmission occurs via drinking, bathing, items rinsed with tap water and contaminated environmental surfaces

Anaissie E. et. al. Arch Int Med. 2002;

Waterborne Infections Study

- Conservative estimates suggest significant morbidity and mortality from waterborne pathogens
- Immunocompromised patients are at the greatest risk
- Recommendation I: Minimize patient exposure to hospital tap water via bottled water and pre-packaged, disposable bathing sponges

Anaissie E. et. al. Arch Int Med. 2002; 162:1483-92

Guidelines for Environmental Infection Control

- Practice hand hygiene to prevent the hand transfer of water borne pathogens and use barrier precautions (Cat 1A)
- Eliminate contaminated water or fluid environmental reservoirs wherever possible (Cat 1B)
- Clean and disinfect sinks & wash basins on a regular basis using an EPA-registered product (Cat 2)
- Evaluate for possible environmental sources ie colonization after use of tap water in patient care (Cat 1B)

P. aeruginosa Outbreak: Tap Water the Culprit

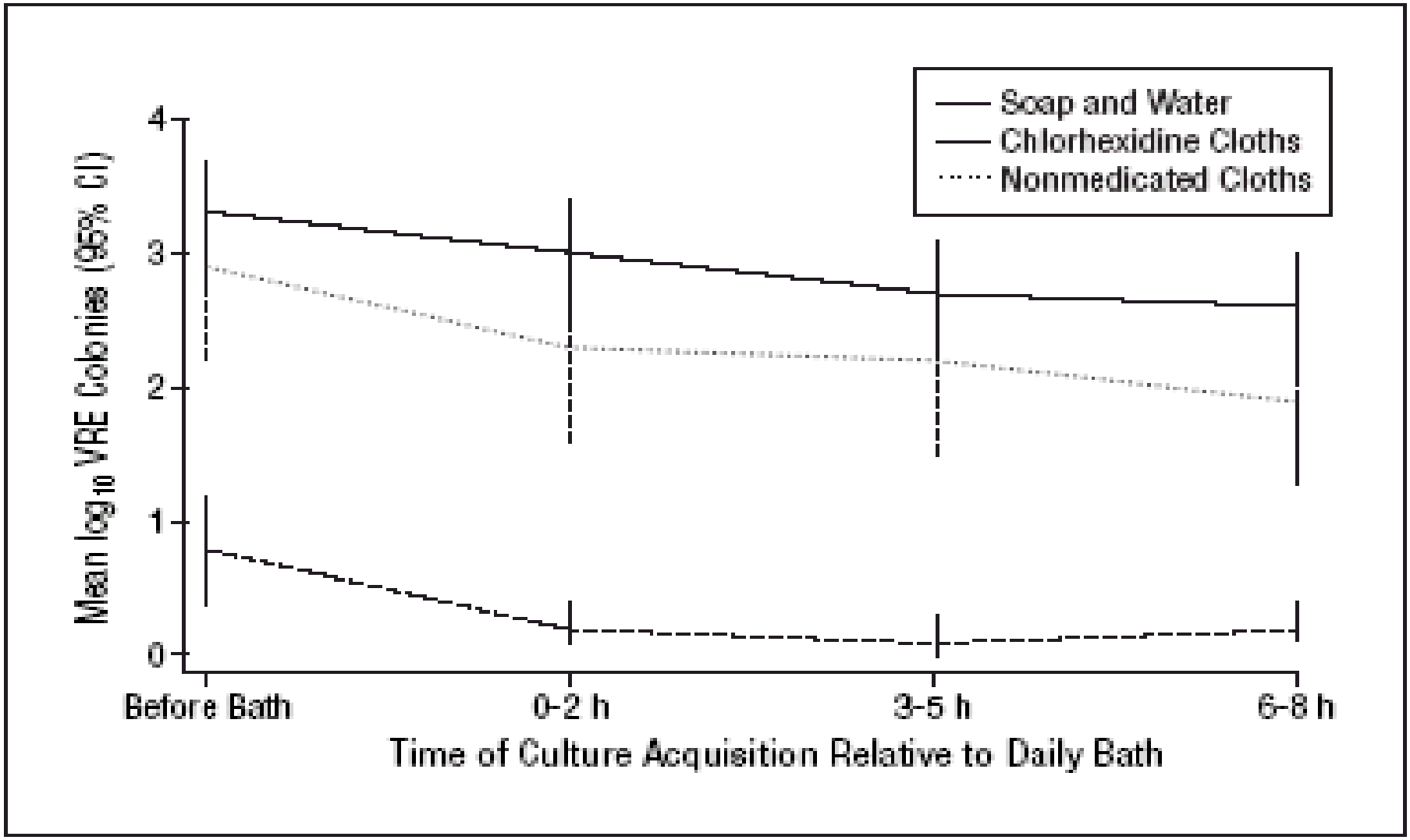
- Single genotype
- 59 burn patients (hydrotherapy tank)
- 19 adult ICU patients (wash basins & water taps)
- 13/31 ICU patients (tap water)
- 5/14 surgical unit patients (tap water)

Trautmann M, et al. Infect Control.2005;33:S41Y9.

Bathing with CHG Basinless Cloths

- Prospective sequential group single arm clinical trial
- 1787 patients bathed
  - Period 1: soap & water
  - Period 2: CHG cloth cleansing
  - Period 3: non-medicated basinless cloth bath

Veron MO et al. Archives Internal Med 2006;166:306-312



26 colonization's with VRE per 1000 patients days with soap and water bathing vs. 9 colonization's per 1000 patient days with CHG bath

Table 3. Percentage of Environmental Surface Culture Specimens That Were Positive for Vancomycin-Resistant Enterococci During the 3 Study Periods*

Site Where Culture Specimen Was Obtained	Study Period		
	Soap and Water (n = 311)	Chlorhexidine (n = 307)†	Nonmedicated Cloth (n = 140)‡
Table	10 (3)	4 (1)	13 (9)
Bed rail	33 (11)	13 (4)	23 (16)
Pull sheet	63 (20)	17 (6)	43 (31)

CHG Bathing Reduces CLA-BSI's (II)

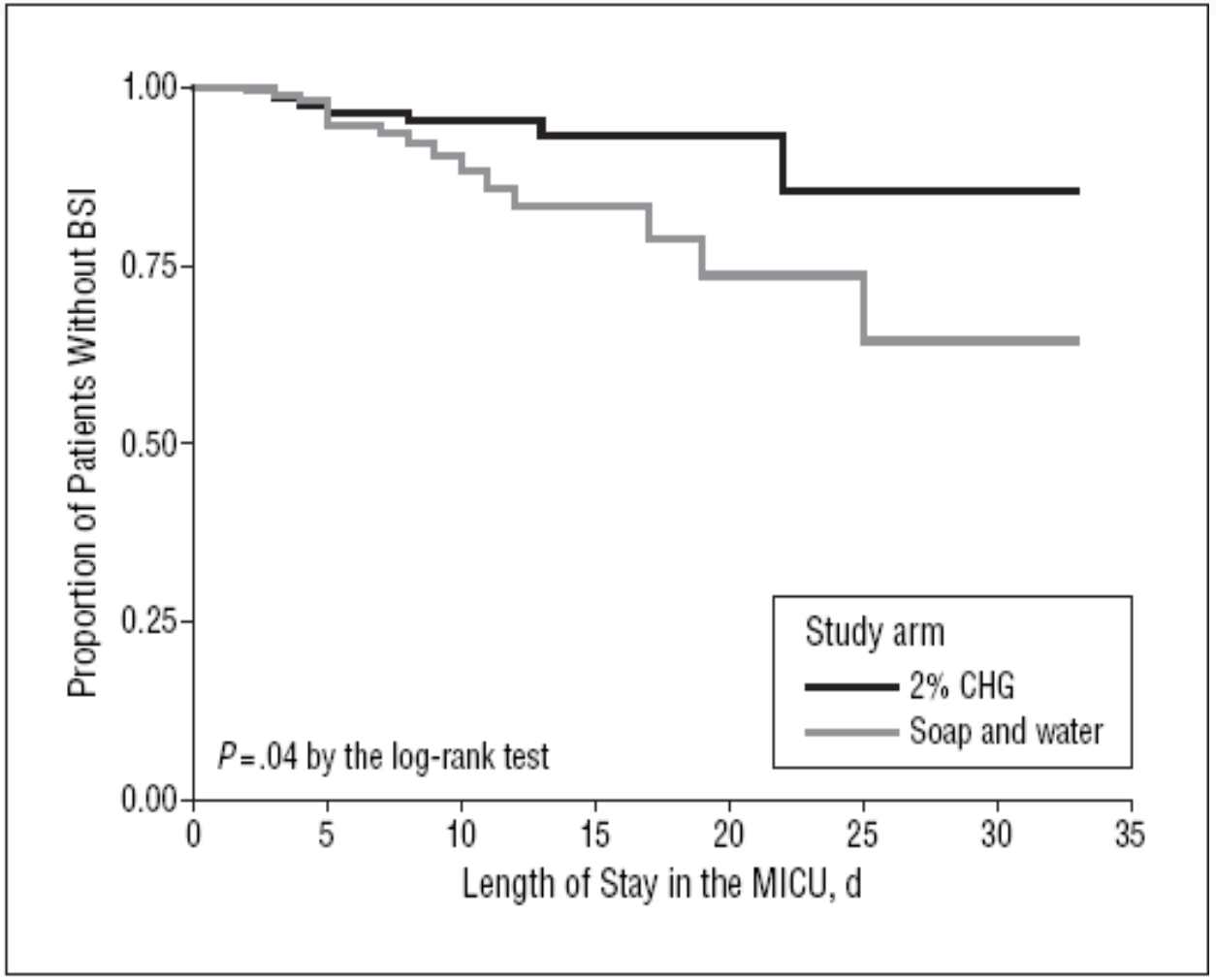
- 52 week, 2 arm, cross-over design clinical trial
- 22 bed MICU with 11 beds in 2 geographically separate areas
- 836 MICU patients
  - 1st 28 weeks: 1 hospital randomize to bathe with (Sage 2%) CHG cloths & the other unit bathe with soap & water
  - 2 week wash out period
  - 2nd 24 weeks: methods were crossed over
- Measured: Primary outcomes: incidence of CA-BSI's & clinical sepsis. Secondary: other infections

Bleasdale SC. et al. Arch Internal Med, 2007;167(19):2073-2079

CHG Bathing Reduces CLA-BSI's (II)

Results:

- CHG arm were significantly less likely to acquire a CA-BSI 4.1 vs. 10.4 infections per 1000 patient days
- Benefit against primary CA-BSI's by CHG cleansing after 5 days in MICU
- No difference in clinical sepsis or other infections



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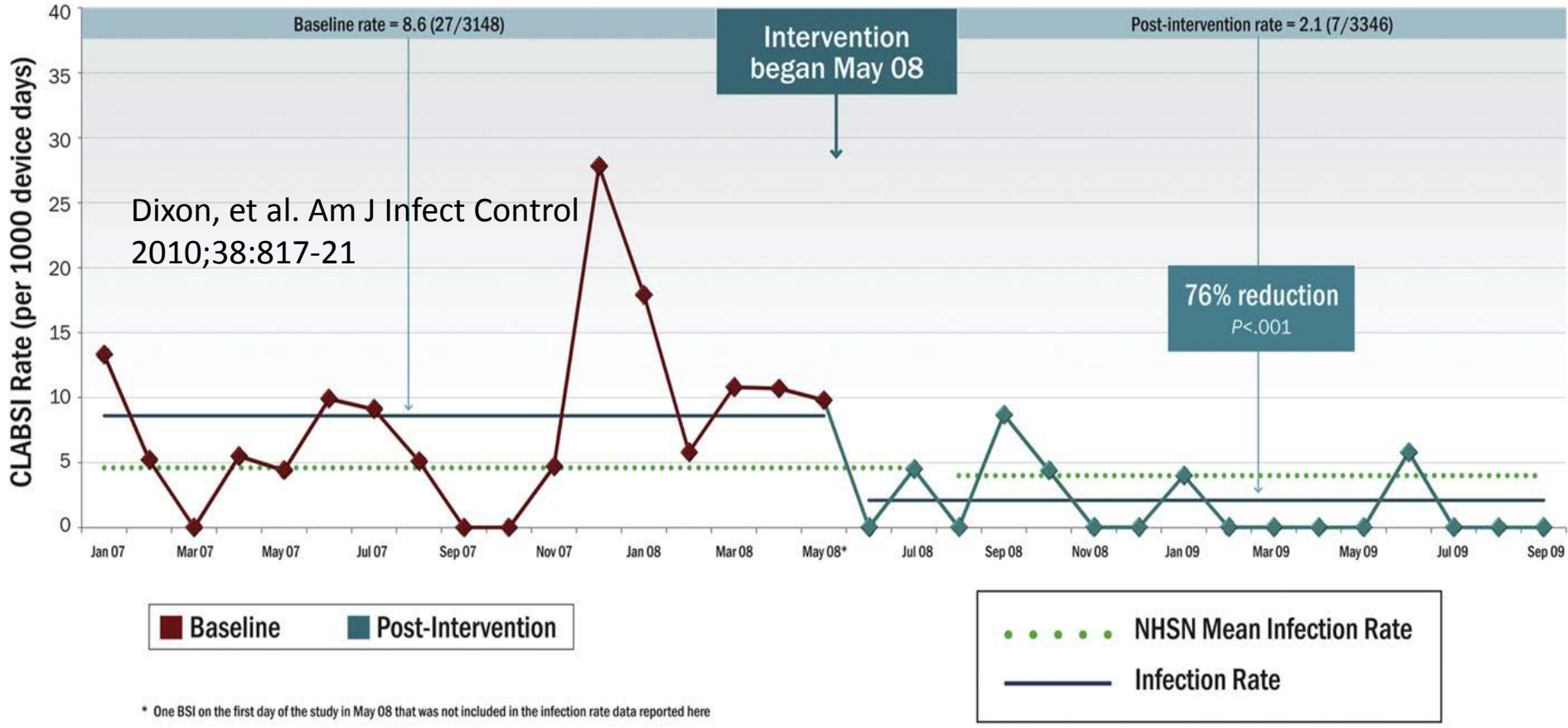
CHG Bathing: Pre & Post Intervention



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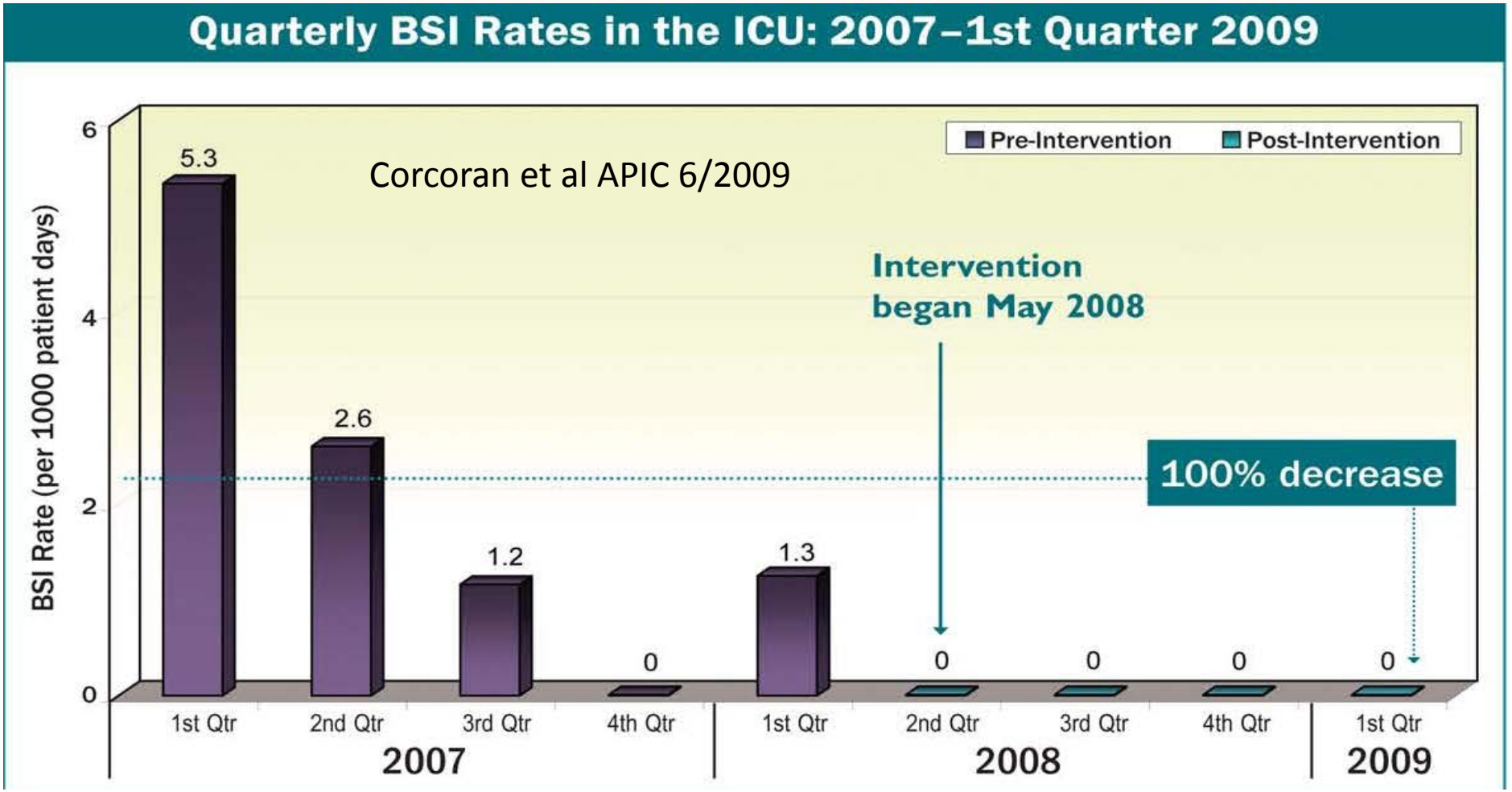

Strategies for Bathing to Reduce Source Control & Improve Skin Defense

Basin Bath

- ↑ transmission of organisms
- ↑ time & effort
- ↑ # of supplies
- Harmful soaps
- Rough washcloths
- Cold/tepid water
- Scrubbing technique

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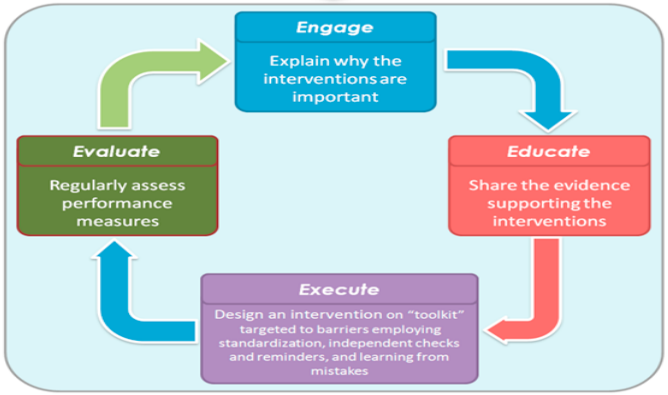


Implementation

- Define new bathing process

Patient Bathing Instructions: Chlorhexidine Gluconate Cloths

Chlorhexidine gluconate is a fast-acting, broad-spectrum antiseptic that helps reduce the number of microorganisms on your skin – a known risk factor for infection.

- KEEP CHG Cloths (Burgundy Package) out of eyes, ears, mouth, and any other mucosal areas.
- USE each cloth to thoroughly wipe each area in a circular or back and forth motion, making sure all skin is cleansed.
- Keep cloths on foam and avoiding contact with cotton sheets since CHG could leave a permanent brown stain if washed in bleach.
- DISPOSE of all cloths in a trash receptacle.
- DO NOT apply any unapproved lotions or barrier creams. These can deactivate the antiseptic.

DO NOT FLUSH CLOTHS IN TOILET

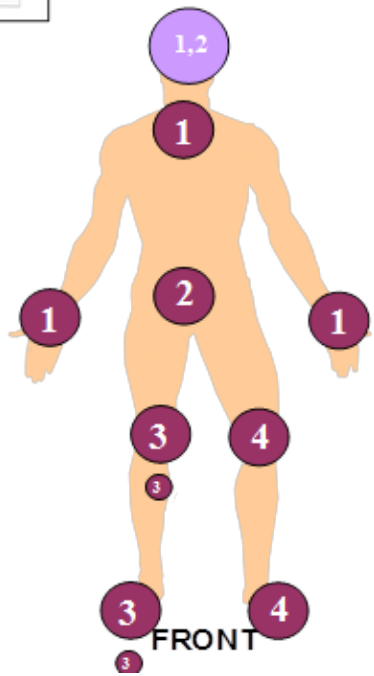
Implementation

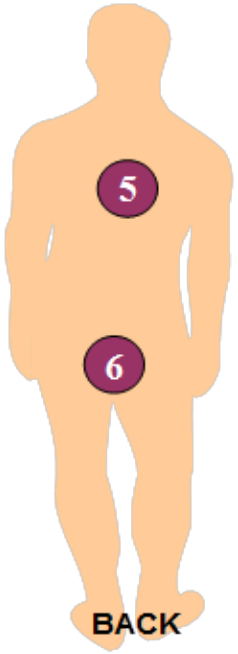
Use Sage Bathing Washcloths for face and head

1. Face & Head
2. Face & Head (If Desired)

Tear package at notch on back flap to open or cut with scissors

1. Neck (jawline down), chest, arms, hands
2. Abdomen & groin
3. Right Leg and Foot
4. Left Leg and Foot
5. Back
6. Buttocks





Implementation

- Identify barriers
  - Cost
  - Like it the current way
  - Compatibility with other skin care products
  - Are they getting clean?
- Make it easy to do the right thing
  - Equipment
  - Signs at bedside

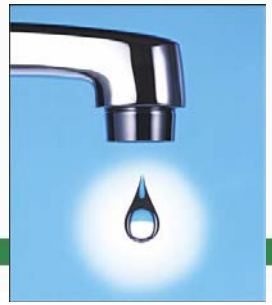
Warmer

- Packages will be used from the warmer
  - Use any baths that are flashing “Take First”
  - In no “Take First”, then select any package
- If the “Take First” is blinking, the wipes should be used in the next 24 hours or be removed from the warmer
- CHG wipes can stay in the warmer up to XX hours
  - At that time they should be removed from the warmer, allowed to cool and then can be rewarmed
- Warmers are equipped with a protective device that turns the unit off if it overheats
- Warmers will be maintained with 3 inch clearance on each side and one inch on the top

Compatible Product

- Comfort Shield Incontinence Wipes—Has a built in skin barrier
- Keri Lotion
- Aquaphor Original Formula Ointment
- Lubriderm Dry Skin Care Lotion
- Eucerin Original Lotion
- Vaseline 100% Pure Petroleum Jelly
- Alcohol foams or rubs
- Keri Oil
- Pro Shield Ointment
- Pro Shield spray

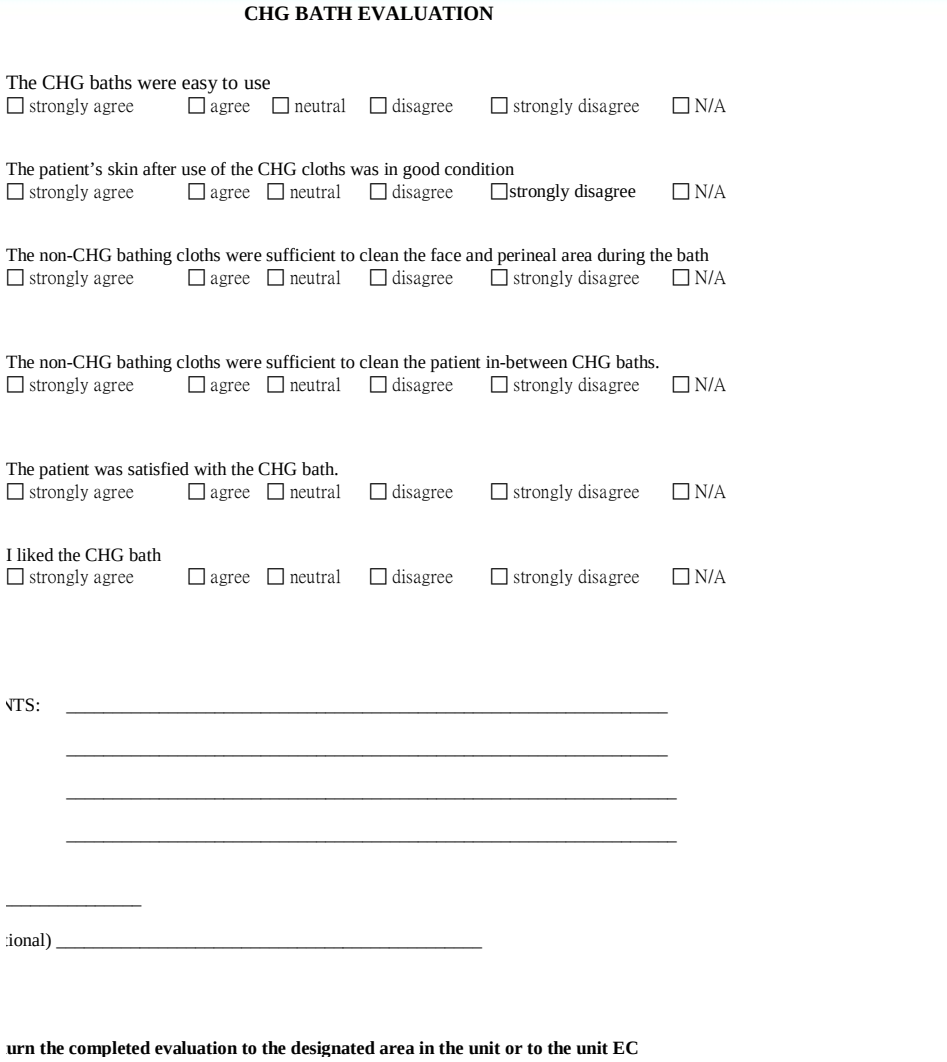
Incompatible Products



- Any other brand name lotion/bath products (ex: Bath and Body Works, Suave, etc)
- Dial Soap: Can be used just prior to CHG bath, but not again within 24 hours—Do not reuse basins
- All deodorants
- Tap Water

Measure Performance and Ensure all Patients get the Evidence

- Ease of Use
- Impact on CLABSI
  - Rate decreased from 0.9/1000 catheter days to 0.7/1000 catheter days
- Audit use of product
- Discuss issues with compliance at team meetings
- Unit nursing and medical leadership accountability



CHG BATH EVALUATION

The CHG baths were easy to use
☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree ☐ N/A

The patient's skin after use of the CHG cloths was in good condition
☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐strongly disagree ☐ N/A

The non-CHG bathing cloths were sufficient to clean the face and perineal area during the bath
☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree ☐ N/A

The non-CHG bathing cloths were sufficient to clean the patient in-between CHG baths.
☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree ☐ N/A

The patient was satisfied with the CHG bath.
☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree ☐ N/A

I liked the CHG bath
☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree ☐ N/A

NTS: _____

_____

_____

_____

_____

ional) _____

urn the completed evaluation to the designated area in the unit or to the unit EC