ASK THE QUESTION

**Question 1:** What non-antiseptic bathing method (e.g., basin bathing with liquid soap and water, bag bath, comfort bath, bath-in-a-bag, traditional vs disposable bed baths, etc.) is most effective in preventing infections and/or preserving skin integrity in children and adults?

**Question 2:** What bathing method is most effective in preventing infections and/or preserving skin integrity in neonates?

**Question 3:** Is using a bath basin repeatedly appropriate? If so, how should the basin be cared for, disinfected and stored?

SEARCH FOR EVIDENCE

**Databases** included PubMed, Scopus, CINAHL, Cochrane Database of Systematic Reviews, Google Scholar

**Key words/terms** included bath, non-antiseptic, basin, soap, bag bath, bath-in-a-bag, comfort bath, disposable bath, infection, skin disease, skin integrity

Note: Keywords were truncated so all possible derivations of the root words were retrieved.

**Existing External Guidelines/Pathways/Order Sets**

<table>
<thead>
<tr>
<th>External Guideline/Pathway/Order Set</th>
<th>Organization and Author</th>
<th>Last Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Practice for Infant Cleansing</td>
<td>European Round Table Meeting</td>
<td>2009</td>
</tr>
<tr>
<td>Clinical Guidelines and Evidence Review for Post Natal Care: Routine Postnatal Care of Women and Their Babies</td>
<td>National Collaborating Centre for Primary Care and Royal College of General Practitioners (Demott et al.)</td>
<td>2006</td>
</tr>
</tbody>
</table>
The three published clinical guidelines have been evaluated for this review using the University of Pennsylvania’s Center for Evidence-Based Practice Trustworthy Guideline rating scale. The scale is based on the Institute of Medicine’s “Standards for Developing Trustworthy Clinical Practice Guidelines” (IOM), as well as a review of the AGREE Enterprise and Guidelines International Network domains.

### Guideline Evidence Evaluation Systems

<table>
<thead>
<tr>
<th>European Round Table</th>
<th>National Collaborating Centre for Primary Care and Royal College of General Practitioners</th>
<th>Association of Women’s Health, Obstetric and Neonatal Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Best Practice for Infant Cleansing</strong> <em>(2009)</em></td>
<td><strong>Clinical Guidelines and Evidence Review for Post Natal Care: Routine Postnatal Care of Women and Their Babies</strong> <em>(2006)</em></td>
<td><strong>Evidence-Based Clinical Practice Guidelines: Neonatal Skin Care</strong> <em>(2010)</em></td>
</tr>
</tbody>
</table>

**Methods for evidence evaluation were not discussed. Levels of evidence for recommendations were not provided.**

**A:** At least one meta-analysis, systematic review, or randomized controlled trial (RCT) that is rated as 1++, and is directly applicable to the target population, or

- A systematic review of RCTs or a body of evidence that consists principally of studies rated as 1+, is directly applicable to the target population and demonstrates overall consistency of results, or
- Evidence drawn from a NICE technology appraisal

**B** • A body of evidence that includes studies rated as 2++, is directly applicable to the target population and demonstrates overall consistency of results, or

- Extrapolated evidence from studies rated as 1++ or 1+

**C** • A body of evidence that includes studies rated as 2+, is directly applicable to the target population and demonstrates overall consistency of results, or

- Extrapolated evidence from studies rated as 2++

**Methods for evidence evaluation were not discussed. Levels of evidence for recommendations were not provided**
### CRITICALLY ANALYZE THE EVIDENCE

**Question 1:** What non-antiseptic bathing method (e.g., basin bathing with liquid soap and water, bag bath, comfort bath, bath-in-a-bag, traditional vs disposable bed baths, etc.) is most effective in preventing infections and/or preserving skin integrity in children and adults?

**Guideline Recommendations:**

There were no guidelines found directly relating to this clinical question.

**Primary Literature:**

<table>
<thead>
<tr>
<th>Author/Date/ Journal</th>
<th>Purpose of Study</th>
<th>Study Design</th>
<th>Sample &amp; Setting</th>
<th>Outcomes</th>
<th>Design Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carruth 1995 Nursing Management</td>
<td>To compare the cost of a traditional bed bath to a bag bath</td>
<td>Financial analysis to compare the cost of a traditional bed bath to a bag bath</td>
<td>1 hospital</td>
<td>From time studies conducted, 10 minutes were saved for each bath (usual time, 25-30 minutes). Additional savings included (1) eliminating the need for a washbasin, and (2) purchasing and laundering far fewer towels. It was estimated that $42,752.20 could be saved each year</td>
<td>Study Limitations = ☑ None ☐ Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI) ☐ Insufficient sample size ☐ Study methods not clearly described ☐ Methods or instruments used to measure the outcomes were not reliable or valid ☐ Variables (confounders, exposures, predictors) were not described</td>
</tr>
</tbody>
</table>

**Lower Quality Rating if:**

- Studies inconsistent (When there are differences in the direction of effect, the size of the differences of effect, and the significance of the differences that cannot be reasonably explained)
- Studies are indirect (Your PICO question is quite different from the available evidence in regard to population, intervention, comparison, or outcome)
- Studies are imprecise (When studies include few patients and few events and thus have wide confidence intervals and the results are uncertain)
- Publication Bias (e.g. pharmaceutical company)
Outcomes were not clearly described
☐ Large losses to FU, if applicable

Level of evidence for studies as a whole:
☐ High
☐ Moderate
☐ Low
☒ Very Low

References

Question 2: What bathing method is most effective in preventing infections and/or preserving skin integrity in neonates?

Guideline Recommendations:

Safety During Bathing:
- European Academy of Dermatology and Venereology 2007 guideline states:
  • Bathing does not harm the baby
  • Routine bathing may begin before the umbilical cord has fallen, but there may be advantages associated with waiting
  • Bathing is better than washing with a cloth
  • Bathing in the evening can help to calm the baby and improve sleep
  • For newborns, the bath should last 5–10 min
  • Bathing should be carried out 2–3 times per week until the baby is crawling, or as often as required by local culture (Level of Evidence not provided)

Bathing:
- European Academy of Dermatology and Venereology 2007 guideline states:
  • The bath should be placed in a safe place
  • The bath and any bath toys should be disinfected to avoid microbiological contamination
  • Water temperature should be 37–37.5 °C
  • Water depth should be to the infant’s hips
  • A wash cloth may be used to cover or splash water onto the belly to maintain body heat
  • Room air temperature should be 21–22 °C
  • The baby should not be left alone while in the bath, and young children should not be allowed to wash the baby
  • If oils are used, a mat should be placed in the bath, which should also be disinfected regularly (Level of Evidence not provided)
Use of Liquid Cleansers
- European Academy of Dermatology and Venereology 2007 guideline states:
  a) Benefits of liquid cleansers over water
     • A randomized study of a liquid cleanser suggested that washing with water alone may have a more drying effect on skin compared with use of a mild cleanser
     • In children, hardness of local water is linked to the incidence of atopic dermatitis
     • Liquid cleansers that contain emollients provide further protective effects on skin that cannot be provided by water
     • Liquid cleansers can cleanse and hydrate the skin better than water in adults, further studies are required in newborns and infants
  b) Selecting liquid cleansers for routine bathing
     • A hypothetical ‘ideal cleanser’ is one that does not alter the normal pH of the skin, cause skin irritation, or cause irritation or stinging of the eyes
     • Liquid cleansers should not alter the normal pH of the skin, cause skin irritation, or cause irritation or stinging of the eyes
     • Parents and carers must read the product instructions and abide by them
     • Products should be selected on the basis of evidence acquired in practical use conditions
     • Liquid cleansers should contain adequate and appropriate preservatives
     • Soap-free liquid cleansers have properties suggesting that they are preferable to soaps
     • Liquid preparations, which often contain emollients, are preferable to bars (Level of Evidence not provided)

- The NICE National Collaborating Centre for Primary Care’s 2006 guideline recommends: parents should be advised that cleansing agents should not be added to a baby’s bath water nor should lotions or medicated wipes be used. The only cleansing agent suggested, where it is needed, is a mild non-perfumed soap. [Level of Evidence D (GPP)]

Emollients
- The 2000 AWHONN/NANN Evidence-Based Clinical Practice Guideline recommends that aquaphor ointment be used twice daily for infants less than 32 weeks during the first 2-4 weeks; and to use as needed for dryness in other patients (Level of Evidence not provided)

Disinfectants
- The 2000 AWHONN/NANN Evidence-Based Clinical Practice Guideline recommends that using providone-iodine or chlorhexidine, and to remove completely after the procedure. Isopropyl alcohol is discouraged because it less effective, and more drying to skin (Level of Evidence not provided)

Primary Literature:

<table>
<thead>
<tr>
<th>PICO Question # 2: What bathing method is most effective in preventing infections and/or preserving skin integrity in neonates?</th>
<th>Lower Quality Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author/Date/ Journal</strong></td>
<td><strong>Purpose of Study</strong></td>
</tr>
</tbody>
</table>
| Bartels 2000 Skin Pharmacol Physiol | To compare the effects of 2 standard cleansing procedures on skin barrier | RCT | Pts assigned to either a bathing group (group B; n = fifty-seven healthy full-term neonates aged < or = 48 h) | Group B showed significantly lower TEWL on the buttock and higher SCH on the abdomen and forehead compared to group W at day 28. CONCLUSIONS: Both skin care regimens do not harm the adaptation of the skin barrier in healthy | Study Limitations =  

☐ None  

☐ Insufficient sample size  

☒ Lack of blinding  

☒ Studies inconsistent (When there are differences in the direction of effect, the size of the differences of effect, and the
<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Participants</th>
<th>Setting</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Outcomes</th>
<th>Limitations</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryanton 2003 JOGNN</td>
<td>RCT</td>
<td>One hundred two mother-baby pairs were randomly assigned to an experimental tub bath or a sponge bath control group.</td>
<td>The maternity unit of an eastern Canadian hospital.</td>
<td>Tub-bathed babies experienced significantly less temperature loss (t = 4.79, p = .00) and were significantly more content (t = 6.48, p = .00) than were those who were sponge bathed. No differences in cord healing scores were found. Mothers of tub bathed babies rated their pleasure with the bath significantly higher than did mothers of sponge bathed babies (t = 4.15, p = .00). No differences in maternal confidence were noted</td>
<td>None</td>
<td>Study Limitations = □ Insufficient sample size □ Lack of blinding □ Stopped early for benefit □ Lack of allocation concealment □ Selective reporting of measures □ Large losses to F/U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dizon 2010 Indian Pediatrics</td>
<td>RCT</td>
<td>180 healthy infants (60 in each group) were enrolled and JTT Sebamed Baby Liquid cleanser (SM), and lukewarm tap water were used on the</td>
<td>The maternity unit of an eastern Canadian hospital.</td>
<td>180 healthy infants</td>
<td>There was no significant erythema, edema, dryness, or scaling elicited by any of the three test components. Parents did not report any side-effects. All the three studied interventions used as whole body cleansers were efficacious and well tolerated by infants</td>
<td>None</td>
<td>Study Limitations = □ Insufficient sample size □ Lack of blinding □ Stopped early for benefit □ Lack of allocation concealment □ Selective reporting of measures □ Large losses to F/U</td>
<td></td>
</tr>
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Significance of the differences that cannot be reasonably explained. Studies are indirect. (Your PICO question is quite different from the available evidence in regard to population, intervention, comparison, or outcome) Studies are imprecise. (When studies include few patients and few events and thus have wide confidence intervals and the results are uncertain) Publication Bias (e.g. pharmaceutical company sponsors study on effectiveness of drug) Increase Quality Rating if: □ Large Effect Level of evidence for studies as a whole:
<table>
<thead>
<tr>
<th>Source</th>
<th>Study Objectives</th>
<th>Study Design</th>
<th>Setting</th>
<th>Participants</th>
<th>Findings</th>
<th>Study Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franck 2000</td>
<td>To determine if less frequent bathing alters colony count or type of organism in skin flora of preterm infants</td>
<td>Descriptive, repeated measures study</td>
<td>Setting: A regional neonatal intensive-care unit. Participants: Forty-five preterm infants, 31 weeks mean gestational age (SD ± 1.6 weeks) and 17 days mean postnatal age (SD 2.3.7 days).</td>
<td>Normal skin flora CFU count, predominantly coagulase-negative staphylococci, increased within 48 hours after bathing compared to values 30 minutes after bathing. There were no differences in normal skin flora CFU on Days 2, 3, and 4. Pathogens were identified in 12 infants for at least one time point during the study. Significantly fewer pathogens were found in the cultures over time, despite longer interval since bathing, and no infant developed symptoms of infection during the study period. Conclusion: Findings from this study suggest that the frequency of bathing of preterm infants can be reduced without increasing the risk of infection.</td>
<td>Study Limitations = None Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI) Insufficient sample size Study methods not clearly described Methods or instruments used to measure the outcomes were not reliable or valid Variables (confounders, exposures, predictors) were not described Outcomes were not clearly described Large losses to FU, if applicable</td>
<td></td>
</tr>
<tr>
<td>Lane 1998</td>
<td>To assess the risk and benefits of using emollient cream moisturizers in premature newborns in neonatal intensive care units</td>
<td>RCT</td>
<td>Setting: The study was completed in a neonatal intensive care unit on neonates admitted for respiratory distress and/or possible sepsis. Patients: Thirty-four neonates, between 29 and 36 weeks estimated</td>
<td>The neonates treated with emollient cream demonstrated statistically less dermatitis of their hands (day 2 through day 11), their feet (day 2 through day 16), and their abdomen (day 7 through day 11). Fungal cultures and quantitative bacterial cultures of the abdomen and axilla were equivalent in both groups. CONCLUSIONS: These studies document that emollient cream moisturizer therapy of premature neonates decreases dermatitis without changing the microbiological flora.</td>
<td>Study Limitations = None RCT Insufficient sample size Lack of blinding Stopped early for benefit Lack of allocation concealment Selective reporting of measures Large losses to FU, if applicable</td>
<td></td>
</tr>
</tbody>
</table>
To conduct a pilot study as a prequel to designing an optimum trial to investigate whether bathing with a specific cleansing product is superior to bathing with water alone. The aims were to produce baseline data which would inform decisions for the main trial design (i.e. population, primary outcome, sample size calculation) and to optimize the robustness of trial processes within the study setting.

RCT

Forty nine babies were randomized to cleansing product, 51 to water

100 healthy, full term neonates aged ≤24 hours were randomly assigned to bathing with water and cotton wool (W) or with a cleaning product (baby top- totoe™ wash)

The 95% confidence intervals (CI) for the average transepidermal water loss measurement at each time point were: whole sample at baseline: 10.8 g/m²/h to 11.7 g/m²/h; CP group 4 weeks: 10.9 g/m²/h to 13.3 g/m²/h; 8 weeks: 11.4 g/m²/h to 12.9 g/m²/h; W group 4 weeks: 10.9 g/m²/h to 12.2 g/m²/h; 8 weeks: 11.4 g/m²/h to 12.9 g/m²/h.

Conclusion: This pilot study provided valuable baseline data and important information on trial processes. The decision to proceed with a superiority trial, for example, was inconsistent with our data; therefore a non-inferiority trial is recommended.

Study Limitations = None

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<table>
<thead>
<tr>
<th>Study Funded by Johnson and Johnson</th>
<th>NICU and well-baby units in 51 hospitals located throughout the United States. Participants: Member site coordinators (N = 51) and the neonates (N = 2,820) observed during both the pre- and postimplementation on phases of the project. Fifty-one site coordinators made 11,468 systematic assessments of 2,464 NICU and SCU newborns and 356 well newborns. Baseline skin scores were better in well newborns compared with premature newborns. After implementation of the guideline, skin condition was improved, as reflected by less visible dryness, redness, and skin breakdown in both the NICU/SCU and well newborns. The guideline was integrated into care, as evidenced by increased use of emollients, particularly with premature infants, and decreased frequency of bathing. A relationship was shown between selected aspects of the environment and alterations in skin integrity.</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lund 2001 JOGNN</td>
<td>To test the effectiveness of an evidence-based clinical practice guideline for neonatal skin care on selected clinical outcomes for newborns in neonatal intensive-care units (NICU), special-care units (SCU), and well-baby nurseries</td>
<td>Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI)</td>
</tr>
<tr>
<td>Quinn 2005 JOGNN</td>
<td>To evaluate the effect of less frequent bathing on skin flora of premature infants</td>
<td>Insufficient sample size</td>
</tr>
<tr>
<td><strong>RCT</strong> comparing the impact of every other day bathing to every 4th day bathing on skin flora type and colony count.</td>
<td><strong>SETTING:</strong> University of California, San Francisco, Medical Center Level IV neonatal intensive-care unit. <strong>PARTICIPANTS:</strong> 53 premature infants less than 37 weeks gestational age, 14 days or older, and receiving a bath. <strong>CONCLUSION:</strong> Every 4th day bathing of premature infants appears to be safe.</td>
<td>Insufficient sample size</td>
</tr>
<tr>
<td>**Repeated-measures ANOVA was used to test the main effect of group, time, and Group x Time interaction. These factors were not statistically significant; group F(1,21) = 1.842, p = .189; time F(3,63) = 1.359, p = .263; Group x Time interaction F(3,63) = 0.753, p = .525. None of the infants developed an infection as a result of participating in the study protocol.</td>
<td></td>
<td>Insufficient sample size</td>
</tr>
</tbody>
</table>
To test the hypothesis that baby diaper wipes with emollient cleansers and a soft cloth would minimize skin compromise relative to cloth and water

RCT

Funded by Procter and Gamble

130 NICU infants (gestational age 23–41 weeks, at enrollment 30–51 weeks)

Perineal erythema and transepidermal water loss were significantly lower for wipes A (Pampers Sensitive Wipes, Procter & Gamble, Ohio, USA) and B (Allegiance General-Use Sponges, Cardinal Health, Ill., USA and Similac Water, Sterilized, Ross Pediatrics, Ohio, USA) than cloth and water beginning at day 5 for erythema (scores of 1.11 ± 0.05, 1.2 ± 0.05, and 1.4 ± 0.06, respectively) and day 7 for TEWL (28.28 ± 1.6, 28.8 ± 1.6, and 35.2 ± 1.6 g/m²/h, respectively).

Wipe B produced a significantly lower skin pH (day 5, 5.47 ± 0.03) than wipe A (5.71 ± 0.03) and cloth and water (5.67 ± 0.04).

The starting skin condition, stool total, age and time on current standard impacted the outcomes.

Conclusions: Both wipes are appropriate for use on medically stable NICU patients, including both full and preterm infants, and provide more normalized skin condition and barrier function versus the cloth and water standard. Wipe B may facilitate acid mantle development and assist in colonization, infection control and barrier repair. Neonatal skin continues to change for up to 8 weeks postnatally, presumably as it adapts to the dry extra-uterine environment.

Study Limitations =
- None
- RCT
- Insufficient sample size
- Lack of blinding
- Stopped early for benefit
- Lack of allocation concealment
- Selective reporting of measures
- Large losses to F/U

Question 3: Is using a bath basin repeatedly appropriate? If so, how should the basin be cared for, disinfected and stored?
### Guideline Recommendations:

There were no guidelines found directly relating to this clinical question.

### Primary Literature:

<table>
<thead>
<tr>
<th>Author/Date/ Journal</th>
<th>Purpose of Study</th>
<th>Study Design</th>
<th>Sample &amp; Setting</th>
<th>Outcomes</th>
<th>Design Limitations</th>
</tr>
</thead>
</table>
| Danielson 2013 American Journal of Infection Control (poster abstract) | To culture bath basins for VRE and MRSA | point prevalence study | twenty BBs from three different nursing units. Only bed bound patients were used for this study. | The analysis revealed 60% of the ten basins cultured in the Medical/Surgical Intensive Care Units contained fecal flora, including 50% with VRE. Cultures from the Medical/Surgical floor found 80% of the ten basins cultured contained fecal flora, including 70% with VRE. Staphylococcus aureus was not detected. The culturing process did not include yeast or Clostridium difficile, but one could assume they were present with the other fecal flora. | Study Limitations =  
- None  
- Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI)  
- Insufficient sample size  
- Study methods not clearly described  
- Methods or instruments used to measure the outcomes were not reliable or valid  
- Variables (confounders, exposures, predictors) were not described  
- Outcomes were not clearly described  
- Large losses to FU, if applicable |
| Hadas 2011 Critical Care Nursing (poster abstract) | To measure the amount of time it took to do a disposable bath, which bath method was more hygienic and thorough, and which was the preferred method | Survey and QI study | Nurses within Adventist Health System, number of respondents not reported | After a 2-week evaluation, 98% of nurses favored the disposable basin over basin baths, and bath times decreased valuable nursing time from approximately 30 to 10 minutes. An annual cost savings of $6700 was achieved by eliminating the current products. When nursing time was factored in, a total of $60 700 in annual savings was calculated. Results of the product evaluation were presented to the nursing equipment committee and disposable baths were adopted for all 7 campuses as well as the entire Adventist Health System. | Study Limitations =  
- None  
- Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI)  
- Insufficient sample size  
- Study methods not clearly described  
- Methods or instruments used to measure the outcomes were not reliable or valid  
- Variables (confounders, exposures, predictors) were not described  
- Outcomes were not clearly described  
- Large losses to FU, if applicable |
| Johnson 2009 AJCC | To identify and quantify bacteria in | Prospective descriptive | 3 acute care hospitals, 92 | Some form of bacteria grew in 98% of the samples (90 sponges), either by plating or | Study Limitations =  
- None  
- Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI) |

**Lower Quality Rating if:**
- Studies inconsistent (When there are differences in the direction of effect, the size of the differences of effect, and the significance of the differences that cannot be reasonably explained)
- Studies are indirect (Your PICO question is quite different from the available evidence in regard to population, intervention, comparison, or outcome)
- Studies are imprecise (When studies include few patients and few events and thus have wide confidence intervals and the results are uncertain)
- Publication Bias (e.g. pharmaceutical company sponsors study on effectiveness of drug)

**Increase Quality Rating if:**
- Large Effect
- Level of evidence for
<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>Participants</th>
<th>Methods</th>
<th>Findings</th>
<th>Limitations</th>
<th>Other</th>
<th>Studies as a Whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larson 2004</td>
<td>Cross sectional</td>
<td>Patients' bath basins and evaluate the basins as a possible reservoir for bacterial colonization and a risk factor for subsequent hospital-acquired infection</td>
<td>Sterile culture sponges were used to obtain samples from the basins</td>
<td>on enrichment (95% confidence interval, 92%-99.7%). The organisms with the highest positive rates of growth on enrichment were enterococci (54%), gram-negative organisms (32%), Staphylococcus aureus (23%), vancomycin-resistant enterococci (13%), methicillin-resistant S aureus (8%), Pseudomonas aeruginosa (5%), Candida albicans (3%), and Escherichia coli (2%). Mean plate counts, in colony-forming units, were 10^187 for gram-negative organisms, 99 for E coli, 30 for P aeruginosa, 86 for S aureus, 207 for enterococci, and 31 for vancomycin-resistant enterococci.</td>
<td>Insufficient sample size, Study methods not clearly described, Methods or instruments used to measure the outcomes were not reliable or valid, Variables (confounders, exposures, predictors) were not described, Outcomes were not clearly described, Large losses to FU, if applicable</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Marchaim 2012</td>
<td>Prospective multicenter</td>
<td>To compare the traditional basin bed bath with a prepackaged disposable bed bath in terms of 4 outcomes: time and quality of bath, microbial counts on the skin, nurses' satisfaction, and costs</td>
<td>Forty patients in surgical, medical, or cardiothoracic intensive care units</td>
<td>Neither total quality scores nor microbial counts differed significantly between the 2 bath types. Significantly fewer products (P&lt;.001) and less time were used, cost was lower, and nurses' ratings were significantly better with the disposable bath.</td>
<td>Insufficient sample size, Study methods not clearly described, Methods or instruments used to measure the outcomes were not reliable or valid, Variables (confounders, exposures, predictors) were not described, Outcomes were not clearly described, Large losses to FU, if applicable</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Authors</th>
<th>Article Details</th>
<th>Outcomes</th>
<th>Study Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>O'Flynn AJJC (poster abstract)</td>
<td>To identify pathogens in patient bath basins to determine if they can be a source of bacterial colonization and increase patient risk for HAIs</td>
<td>25 patient bath basins from critical care units (CCUs) and medical-surgical (med-surg) units in a community-based hospital</td>
<td>Of the 13 (52%) basins that showed organism growth on culture, 8 (62%) demonstrated growth of multiple organisms. CCU basins were less likely than med-surg basins to show organism growth overall (40% [4/10] vs 60% [9/15], respectively), but were more likely to show growth of multiple organisms (75% [3/4] vs 56% [5/9], respectively).</td>
</tr>
<tr>
<td>Powers 2012 AJCC</td>
<td>To assess the presence of bacterial contaminants in wash basins when chlorhexidine gluconate solution is used in place of standard soap and water to wash patients</td>
<td>Descriptive study</td>
<td>Nineteen of the thirty basins (63%) that were cultured grew one or more types of bacteria. 84% (16/19) of the basins grew normal skin flora including coagulase-negative Staphylococcus, Corynebacterium species, Bacillus</td>
</tr>
<tr>
<td>Smith 2012 American Journal of Infection Control (poster abstract)</td>
<td>To examine the hypothesis that the use of a wash product formulated for newborn (&lt;1 month of age)</td>
<td>Descriptive study</td>
<td>Nineteen of the thirty basins (63%) that were cultured grew one or more types of bacteria. 84% (16/19) of the basins grew normal skin flora including coagulase-negative Staphylococcus, Corynebacterium species, Bacillus</td>
</tr>
</tbody>
</table>
bathing is not inferior (no worse) to bathing with water only

<table>
<thead>
<tr>
<th>Study methods not clearly described</th>
<th>Methods or instruments used to measure the outcomes were not reliable or valid</th>
<th>Variables (confounders, exposures, predictors) were not described</th>
<th>Outcomes were not clearly described</th>
<th>Large losses to FU, if applicable</th>
</tr>
</thead>
</table>

**Thomas 2011**
*American Journal of Infection Control* (poster abstract)

To assess whether bath basins are a source of crosscontamination of organisms to patients and lead to an increased risk of HAIs

**Descriptive study**

Twenty-four patient bath basins from a single institute were sampled from patients who were not in isolation, had been admitted > 48 hours, and were bathed at least twice

Of the 12 patient basins tested by an external source, 50% tested positive for Gram-negative bacteria, 8% for Staphylococcus aureus, 8% for methicillin resistant Staphylococcus aureus, 67% for Enterococcus, and 67% for vancomycin resistant Enterococcus (VRE). Similarly, 42% of the 12 patient basins tested by the internal lab tested positive for Gramnegative bacteria, 8% for S. aureus, 17% for Enterococcus, and 8% for VRE

**Study Limitations = **
- None
- Other (i.e. descriptive, epidemiologic, case series, longitudinal, cross sectional, QI)
- Insufficient sample size
- Study methods not clearly described
- Methods or instruments used to measure the outcomes were not reliable or valid
- Variables (confounders, exposures, predictors) were not described
- Outcomes were not clearly described
- Large losses to FU, if applicable

**References**


