



Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Brief Report

Chlorhexidine gluconate bathing: Patient perceptions, practices, and barriers at a tertiary care center

Ginger Vanhoozer BSN, RN, CCHM^{a,*}, Ian Lovern BS^a, Nadia Masroor MPH^a, Salma Abbas MBBA^a, Michelle Doll MD, MPH^{a,b}, Kaila Cooper MSN, RN, CIC, CCHM^a, Michael P. Stevens MD, MPH^{a,b}, Gonzalo Bearman MD, MPH, FACP, FSHEA, FIDSA^{a,b}

^a Virginia Commonwealth University Hospital, Richmond, VA^b Virginia Commonwealth University School of Medicine, Richmond, VA

Key Words:

CHG
Skin cleansing
Non-Intensive Care Units
Self-care patient
Decolonization
Electronic Medical Record Review

Many studies indicate that daily chlorhexidine gluconate (CHG) bathing reduces the risk of hospital-acquired infections. In this study, we found that patient perceptions can be a barrier to bathing practice, and many independent-care patients do not use CHG bathing products correctly. Furthermore, electronic medical record documentation may be a reliable tool to assess CHG bathing compliance.

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Current literature indicates that chlorhexidine gluconate (CHG) bathing reduces the risk of hospital-acquired infections.^{1–5} Few horizontal infection prevention interventions are as dependent on patient participation as CHG bathing, especially outside the intensive care unit (ICU). Given that no gold standard exists, some institutions have leveraged technology, such as electronic medical record (EMR) documentation, to assess compliance with CHG patient bathing. Yet it is unknown if EMR documentation accurately reflects clinical practice. In this study, we assessed patient and health care provider knowledge and barriers to CHG bathing and compared patient CHG bathing self-report with EMR documentation by staff.

METHODS

We administered an institutional review board–approved, voluntary, cross-sectional survey to adult patients in 5 acute and general care units at an 865-bed, urban, academic medical center. Over 24 days, patients with a length of stay longer than 2 days were interviewed using a systematic survey that assessed hospital bathing techniques, CHG bathing compliance, and patient perceptions of hospital baths. Exclusion criteria included patients previously enrolled, refusals, and nonalert and nonoriented patients. Summary statistics and Pearson χ^2 analyses were conducted using SAS version 9.4 (SAS Institute, Cary, NC).

* Address correspondence to Ginger Vanhoozer, BSN, RN, Health System Prevention Program, Virginia Commonwealth University Hospital, 1300 E Marshall St, Richmond, VA 23298.

E-mail address: ginger.vanhoozer@gmail.com (G. Vanhoozer).

Conflicts of interest: None to report.

RESULTS

Of the 659 patients who met the inclusion criteria, 66% (n = 437) of eligible patients were assessed by research staff and included in the EMR analysis. Of the patients assessed by staff, 82% (n = 359) were alert and oriented and able to complete the interview. EMR analysis of bathing documentation found that 74% (n = 323) of patients had a documented hospital bath within the previous calendar day, whereas 75% (n = 269) of interviewed patients confirmed having a hospital bath during the same time.

Table 1 compares the effect of patient education on CHG bathing knowledge. Thirty-seven percent (n = 130) of interviewed patients reported receiving education on how CHG bathing may reduce the risk of hospital-acquired infections. Two percent (n = 8) of patients completed all questions but the last one, and their data are included in other sections. Patients educated by staff better verbalized the correct method for using CHG bathing products (26% vs 15%, $P = .016$). However, patients who reported receiving education from staff were more likely to use basins for bathing (19% vs 13%, $P = .095$) and use non-hospital-approved bathing products (27% vs 20%, $P = .128$) than patients who did not receive staff education. Although the increased use of basin and nonhospital products was not statistically significant, it does raise questions for future study about how staff educate patients and a lack of standardization in that process.

Table 2 compares CHG bathing practice and EMR documentation between self-care patients (n = 202) and those assisted by hospital staff (n = 132) and excludes 25 patients who had not received a bath

Table 1
Patient education on CHG bathing and self-reported knowledge of bathing practice

Practice	Recall being educated on CHG bathing (n = 136), % (n)	Do not recall being educated on CHG bathing (n = 215), % (n)	P value
Patient-reported correct CHG use during most recent bath	26 (35)	15 (33)	.016
Patient used a basin to bathe	19 (26)	13 (27)	.095
Patient used non-hospital-provided soap or lotion	27 (36)	20 (42)	.128

CHG, chlorhexidine gluconate.

during this admission. Patients assisted by hospital staff for their bath were less likely to use non-hospital-approved bathing products (14% vs 30%, $P = .001$) and had an overall higher daily bathing self-reported compliance (87% vs 77%, $P = .03$) than self-care patients. Assisted patients had a greater frequency of EMR CHG bath documentation than self-bathed patients (79% vs 54%, $P < .001$). For their last hospital bath, 42% ($n = 359$) of patients did not receive staff assistance, and only 22% ($n = 151$) could verbalize the correct method for using CHG bathing products.

DISCUSSION

Much of the evidence in support of CHG bathing is in ICU populations.^{2,3,5-7,8} In non-ICU settings, CHG bathing is frequently dependent on patient participation. We studied patient perceptions and barriers to CHG bathing and compared patient self-reported bathing with EMR bathing documentation by health care workers.

We asked if patients could recall being educated on the benefits of CHG bathing. When patients could recall any CHG bathing education, bathing compliance significantly improved. However, no standard patient CHG bathing education tools exist to aid health care workers. Hospital staff may benefit from a standardized information tool to aid in the patient bathing education process and ensure quality and reliability. Considering that only about 1 in 5 self-care patients were able to verbalize the correct use of the CHG product used for their last

Table 2
Comparison of CHG bathing practice and EMR documentation between self-care and assisted patients

Practice	Self-care bath (n = 202), % (n)	Staff-assisted bath (n = 134), % (n)	P value
Patient self-reported bath within the last 24 hours	77 (156)	87 (116)	.03
Patient self-reported correct CHG use during last bath	21 (43)	20 (27)	.80
Patient self-reported basin use to bathe during current admission	13 (27)	19 (26)	.14
Patient self-reported use of non-hospital-provided soap or lotion during current admission	30 (61)	14 (19)	.001
Patient's most recent bath was properly documented in the EMR	54 (110)	79 (106)	<.001

CHG, chlorhexidine gluconate; EMR, electronic medical record.

bath, opportunities exist for increasing patient awareness on both the process and value of CHG bathing treatments.

We found that only a minority of self-care patients was able to correctly verbalize the CHG bathing process, suggesting that a standardized and structured approach to patient self-initiated CHG bathing is needed. The highest levels of CHG bathing compliance were observed in patients who were assisted by hospital staff during bathing.

EMR documentation was a valuable indicator of a unit's bathing compliance. EMR patient bathing documentation was greater for patients who were assisted with a bath. In addition, EMR CHG bathing compliance documentation was less than patient self-reported bathing. The EMR may serve as a useful CHG bathing process-of-care measure, provided that documentation is standardized and optimized to capture both patient self-care and assisted CHG baths.

A potential study limitation was the inclusion of patients in semiprivate rooms where perceptions or answers from one survey respondent could influence the other occupant. In addition, the single-center design across a handful of hospital units may not be representative of the entire institution and may also not be generalizable to other settings. Study strengths include a structured interview and data collection process with a large sample of eligible non-ICU participants.

Our study adds to the body of literature on the implementation of CHG patient bathing in non-ICU settings. All patients reported low frequency of correct use of CHG bathing products, and staff should be more aware of a patient's understanding before the patient performs a CHG bath independently. Standardized and targeted education practices are needed to enhance patient understanding, participation, and practice with CHG baths. Patients receiving assistance from staff were more likely to report the receipt of a bath and more likely to have a CHG bath documented in the EMR. Future studies are needed to assess the optimal way to reflect and document best practices in the EMR. Further studies are needed to assess the effect of enhanced CHG bathing patient and staff education and EMR documentation on both process-of-care and patient-centered clinical outcomes.

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