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Major Article

Reduction in patient refusal of CHG bathing

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Background: Daily chlorhexidine gluconate (CHG) bathing is a well-supported intervention to reduce patient's risk of central line associated bloodstream infection (CLABSI); however, compliance with this practice is suboptimal. One major barrier is patient refusals of CHG bathing. The purpose of this project was to implement tailored interventions to mitigate this barrier. The specific aims were to reduce patient refusals, increase compliance with CHG bathing, and evaluate CLABSI rates and nursing staff's knowledge of CHG bathing.

Methods: Iterative Plan-Do-Study-Act (PDSA) cycles were implemented over the course of 6 months. Run charts were used to identify signals of improvement. Interventions included printed educational flyers for staff and patients, educational sessions, an electronic learning module, and a "badge buddy."

Results: We saw a reduction in the median percentage of patient refusals documented, from 23% to 8% after the PDSA cycles. Documentation compliance with CHG bathing increased only slightly from 46% to 47%. CLABSI rates decreased 6% from 0.69 to 0.65.

Discussion: Using interventions tailored to the clinical setting can impact patient outcomes. Other health care systems should consider implementing PDSA cycles to improve evidence-based practices.

Conclusions: Using PDSA cycles can result in a reduction in patient refusal documentation, and may slightly improve CHG bathing compliance and CLABSI rates.

INTRODUCTION

Daily chlorhexidine gluconate (CHG) baths, using prepackaged cloths, is a well-supported evidence-based practice to reduce patient's risk of acquiring a central line associated bloodstream infection (CLABSI).[1-3] However, compliance with this practice is suboptimal. Previous publications have identified barriers to daily CHG bathing among health care workers, including a lack of time, knowledge deficits regarding the benefits of CHG bathing, and lack of priority given to CHG bathing.[1,4,5]

In previous articles, it has been noted that patient refusals are also a barrier to performing daily CHG bathing.[5-7] Indeed, Caya et al[8] found that compliance with daily CHG bathing averaged 78%, with patient refusal of CHG bathing ranging from 3% to 29% across all units within a 505-bed hospital. According to patient interviews, reasons for refusing a CHG bath included a low perception of susceptibility to infection and low knowledge of the benefits of CHG bathing. There were no concerns related to the CHG product itself.[8] Similarly, Reynolds[9] noted that providing patients education on the importance of bathing while hospitalized may help improve compliance with this practice.

On a surgical unit at our local hospital, compliance with daily CHG bathing was 46%, below the internal target of 95%. Per the health system's policy, all patients with a central line on a noncritical care unit should receive a daily CHG bath treatment. A major barrier noted during electronic health record (EHR) reviews and in discussion with nurses, was patient refusal of daily CHG bathing. Recommendations from previous literature shows that patient education regarding the benefits of CHG bathing may help reduce patient refusal of this evidence-based practice.[8,9] However, to date, there have been no studies focusing specifically on reducing patient refusals of CHG bathing through targeted education. The purpose of this project was to implement a multifaceted education program regarding the benefits of CHG bathing on a surgical unit. The specific aims of the project were to reduce patient refusals and increase compliance with CHG bathing. A secondary aim was to evaluate nursing staff's knowledge of CHG bathing and CLABSI rates.

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METHODS

Design, setting, and sample

Plan-Do-Study-Act (PDSA) cycles over the course of 6 months were used for this quality improvement project (March 2021-August 2021). This project took place on a 26-bed surgical unit at a community hospital that is a part of a large academic medical system in the Southeastern United States. This unit admits a variety of patients with surgical diagnoses, such as bariatric, abdominal, urology, and vascular surgeries. Patients on the unit have an average length of stay of 4.62 days.

Project planning

This project was led by a clinical nurse on the surgical unit, with mentorship and guidance provided by the unit's Assistant Nurse Manager, Clinical Nurse Specialist (CNS), and an Infection Prevention CNS. The nurse, who is considered a local opinion leader[10] and resource for staff regarding infection prevention initiatives, was a part of a system-wide, yearlong Evidence-Based Practice Fellows Program, described previously.[11] During this program, the nurse was charged with improving compliance with CHG bathing through implementing evidence-based strategies, based on opportunities for improvement identified on the unit. Through EHR reviews of daily CHG bathing compliance, and in speaking with other nursing staff on the unit, the nurse identified that one of the largest barriers was patient refusal of CHG bathing. As such, a multifaceted education program was implemented to help improve nurse's understanding of CHG bathing so they could in turn help improve patient's knowledge of and adherence with CHG bathing.

PDSA cycle 1

During PDSA Cycle 1 (March 2021), flyers that provided an overview of the benefits of CHG bathing were posted around the unit for nursing staff. These flyers included information regarding the benefits of CHG bathing, how to appropriately complete a CHG bath, and guidance for what to do if patients refused a CHG bath. Additionally, a 3-question electronic presurvey was sent out to nursing staff to understand nursing's knowledge of the CHG bathing policy.

PDSA cycle 2

Based off nursing feedback from PDSA Cycle 1, nurses reported that they would benefit from additional education on what to do if a patient refused a CHG bath treatment. During PDSA Cycle 2 (June–July 2021), in-person educational sessions and an electronic learning module were implemented. The in-person educational sessions were conducted by the nurse, Assistant Nurse Manager, and Clinical Educator during shift-change huddles. These sessions educated nurses on an escalation pathway to follow if a patient refused their CHG bath. If a patient refused, the nursing assistants were directed to make the registered nurse (RN) aware. The RN would then discuss with the patient their rationale for refusing the bath and the benefits of CHG bathing. Nurses were provided with "words that work" for patients that refused. For example, if the patient refused because they did not want their bath at that specific time, RNs were educated on redirecting the patient to complete the CHG bath at a later time. The electronic learning module included a short video educating staff on the purpose of the CHG cloths. At the end of the electronic module, nurses were provided with case studies with questions on how to use the cloths per policy. The nursing staff were required to answer associated quiz questions with a passing score of 80%. If nurses did not achieve an 80%, they were required to re-take the quiz. The electronic module was also added as a requirement during the unit's annual skills revalidation in the fall of 2021. A post-knowledge survey was also sent out to staff in July 2021.

PDSA cycle 3

Nurses provided feedback after PDSA Cycle 2 that it would be helpful to implement a better process for providing education to patients regarding CHG bathing treatments. During PDSA Cycle 3 (August 2021), a badge buddy was developed and a patient educational document was implemented. The badge buddy, which was a small, laminated document that nurses could wear on their badge reel, including information on the number of CHG cloths and where to use them, along with a schematic of the appropriate process for completing a CHG bath. Being on the nurse's badge allowed for easy access to this information. A patient education document on CHG bathing was previously developed by the clinical education and infection prevention departments. This document included an overview of what CHG was, the benefits to CHG bathing, and how to complete a self-administered CHG bath. These documents were printed out and placed in a folder at the nurses' stations. If patients were competent and able to provide their own bath, the nurses were instructed to provide this educational document to them and review the CHG bathing process.

Data collection and analyses

Patient refusals and CHG bathing compliance were both measured via EHR documentation. Data were pulled from the EHR from January 2020 (when CHG bathing began on the surgical unit) through September 2022. Within our EHR, there is a specific section to document daily CHG Bath Treatments; options include: completed by staff, completed by patient/family, not due this shift, patient refused, or not done (eg, due to a CHG allergy, end of life). A worklist task fires each shift reminding nurses to either complete the bath or ensure that the bath was completed the prior shift. Patient refusal was calculated as the number of times "patient refused" was documented out of all of the documented choices per month. CHG bathing compliance was calculated as the number of times "completed by staff" or "completed by patient/family" was documented out of all of the documented choices per month. Data were plotted on a run chart and analyzed using standard quality improvement run chart rules.[12] Nursing knowledge was collected via a 3-question pre/post-electronic survey sent to all RNs and nursing assistants on the unit. Questions were related to how often a CHG bath treatment should be completed (every 24 hours), the number of cloths that should be used to bathe an adult patient (6 cloths), and whether tubing (eg, drains, urinary catheters, chest tubes, rectal tubes) should be cleaned within 6 inches of the patient (true). An independent sample t test and descriptive statistics were used to evaluate pre and postsurvey results. CLABSI data were retrieved from the hospital's infection prevention department, and collected per standardized National Healthcare Safety Network (NHSN) criteria.[13] CLABSI data were collected as a rate of number of CLABSIs per 1,000 central line days (number of CLABSIs divided by number of central line days times 1,000).

RESULTS

From January 2020 through February 2021, the median percent of patient refusals was 23% (range: 14%-44%, IQR: 12%; Fig 1). Per run chart rules,[12] this median was frozen after February 2021 and extended through September 2022 to identify signals of improvement. After beginning the PDSA cycles, a shift, defined as 6 or more data points above or below the median, was observed from February 2021 through September 2022 (20 data points below the median).

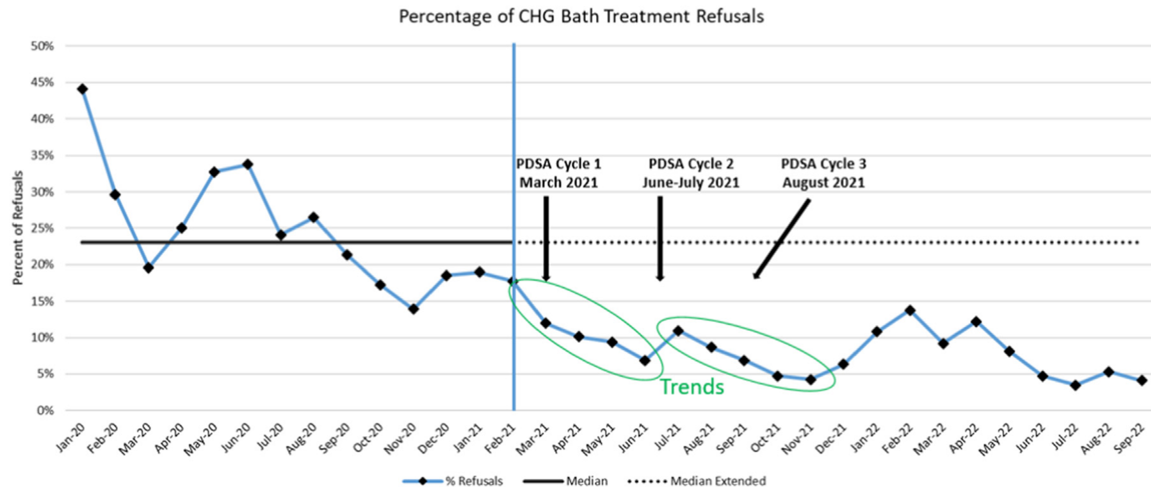

Fig 1. Percentage of CHG bath treatment refusals.

Additionally, a trend, defined as 5 or more data points all going in the same direction, was noted from February to June 2021, as well as from July to November 2021. The median percentage dropped to 8% from March 2021 to September 2022 (range: 3%-14%, IQR: 6%; Fig 1).

From January 2020 through February 2021, the median percent of CHG compliance ("completed by staff" or "completed by patient/family" documented) was 46%. After beginning the PDSA cycles, a shift was identified, with 6 data points above the median from May to October 2021. A trend was also identified from April to August 2022, with all 5 data points increasing. The median percentage increased slightly to 47% from March 2021 to September 2022 (Fig 2). A total of 27 nursing staff completed the CHG bathing knowledge presurvey, with 8 completing the postsurvey. There were no significant improvements in knowledge for any question.

Lastly, CLABSIs were evaluated before and after beginning PDSA cycles. Prior to the PDSA cycles beginning (January 2020 through February 2021), the surgical unit had a CLABSI rate of 0.69 per 1,000 central line days. After PDSA cycles began (March 2021 through September 2022), the CLABSI rate decreased slightly to 0.65 per 1,000 central line days, a 6% reduction.

DISCUSSION

We found signals of improvement, with a reduction in patient refusals and a slight increase in CHG bathing compliance per documentation, after implementing multifaceted education through PDSA cycles. Whereas patient refusals has been identified as a barrier to CHG bathing in the literature,[5-7] this is the first project we are aware of that specifically focused on addressing this barrier. From previous literature[8,9] and opportunities identified on this surgical unit, we provided focused education to nurses on how to handle patient refusals, which appeared to influence the refusal rate. Whereas "patient refusal" documentation was already decreasing from its height of 44% in January 2020, there was still room for improvement. Our PDSA cycles showed that targeting patient education and explaining the benefits of CHG bathing can improve their adherence with this important evidence-based practice. Future projects should consider involving family members and/or caregivers in the CHG bath treatment education to further help improve compliance.

Additionally, we saw a slight increase in CHG bathing documentation compliance and a small reduction in CLABSIs over the course of the project. However, our CHG bathing documentation compliance continues to falls below the internal target of 95%, indicating that further PDSA cycles are warranted, and that other areas of opportunity exist outside of patient refusals of CHG bathing. Increasing CHG bathing compliance can help reduce CLABSI rates. As noted by Reagan et al,[14] increasing CHG bathing compliance from 60% to 90% can result in 20 averted infections and reduce healthcare-associated infection incidence by 32%.

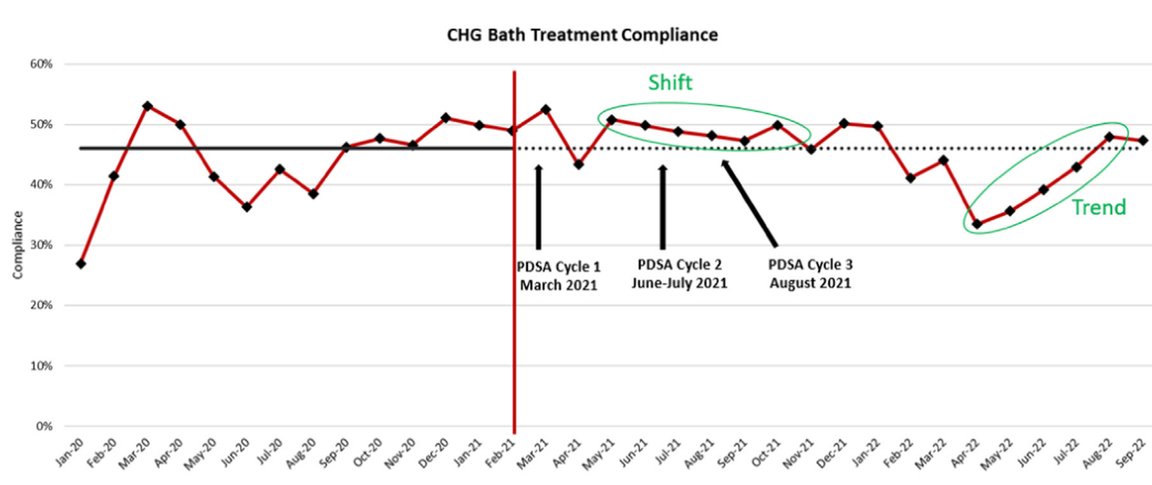

Fig 2. CHG bath treatment compliance.

Implications for practice

Based on recommendations from previous articles,[8,9] we implemented education to target patient refusals in an effort to reduce their refusal of bathing care. Other health care facilities that may be struggling with patient refusals of CHG bathing may consider a quality improvement project focused on improving nursing and patient's understanding of the benefits of CHG bathing. Collaborating with the clinical/patient education department to develop a patient-facing educational document may be beneficial. Additionally, health care systems may consider developing a patient refusal escalation pathway, which would notify the RN, charge nurse, and/or patient's provider if the patient refuses any type of medical care. As CHG bathing is considered a type of medical "treatment," it warrants escalation similar to patient refusal of a medication. Lastly, nursing attitudes, turnover rates, and use of travelers/agency nurses may also play a role in patient acceptance of CHG bathing. Future projects may seek to understand the impact of these factors in CHG bathing compliance and patient refusal rates.

Limitations

This project has several limitations. First, patient refusals and CHG bathing compliance was measured via EHR documentation, which may not always accurately reflect practice. However, our EHR had a built in worklist task to remind nurses to complete daily CHG bathing; from this task list, nurses could document directly into the CHG Bath Treatment row. As nurses received a prompt to document, this documentation may be more accurate. Future projects may seek to complete observation audits, rather than only documentation audits, to determine whether the CHG bathing process was being done appropriately, as how CHG baths are completed may also impact CLABSI rates. This project was also completed on one surgical unit at a community hospital, which may limit generalizability. Future projects should consider implementing interventions focused on patient refusals throughout a larger population. Lastly, there was a small number of nurses who completed the pre/post-knowledge surveys.

CONCLUSIONS

This project found a reduction in patient refusals of CHG bathing after PDSA cycles were initiated focused on this barrier. Continued efforts are needed to improve overall CHG bathing compliance and reduce CLABSI rates; however, this initiative showed that focused efforts to remove a significant barrier were beneficial. Other health care systems who struggle with patient refusals of CHG bathing may consider implementing similar interventions.

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