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Improving Hourly Rounding on an Orthopaedic/Trauma Unit

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Hourly rounding impacts multiple patient care outcomes. The task of rounding has several obstacles and is made more time-consuming by donning and doffing protective personal equipment kits, especially in the setting of the COVID-19 pandemic. To improve the frequency of hourly rounding performance on the unit, nurses and unlicensed assistive personnel on an orthopaedic/trauma unit at an academic hospital in the Midwest United States were introduced to potential interventions in several PDSA (Plan-Do-Study-Act) cycles using quality improvement methodology. Methods included chart auditing, repetitive interventions designed by evaluating previous iterations, creation of educational material, and changing unit policy by communication during unit huddle. Results found a 10-percentage point improvement of hourly rounding compliance, from 77.3% to 87.3%, with use of a "redline" policy for isolation precautions. The policy implementation was a success. Future research may consider the expansion of this policy to other units.

Introduction

An improvement project regarding hourly rounding was performed by the author in an orthopaedic/trauma inpatient unit at an adult acute care academic hospital in the Midwest United States in 2021. The aim of the project was to improve hourly rounding compliance by five percentage points within the first 6 months of the project for the patient population overall.

Hourly rounding has a significant body of evidence behind it, showing that it is effective in improving patient safety by reducing falls, improving patients' satisfaction with nursing responsiveness, decreasing the frequency of call light usage, and also helping with workflow to allow more time for a nurse to manage other tasks. When rounding is not performed consistently, it can also affect cost outcomes due to the link between patient satisfaction and reimbursement. Rounding on patients regularly remains important during the global COVID-19 pandemic, and it is possible for staff to round on patients who have tested positive for COVID-19 without unnecessarily wasting protective personal equipment (PPE).

Systematic reviews show the great value of hourly rounding. Sims et al. (2018) found that hourly rounding helped staff to be "proactive in anticipating patient needs, as opposed to being reactive to patient call bells/requests for help" (Sims et al., 2018, p. 753) and "enable[d] nurses to intervene earlier when a patient's medical condition was deteriorating, potentially preventing the need for higher levels of medical intervention" (Sims et al., 2018, p. 753). Hourly rounding improves patient satisfaction, how patients rate nursing responsiveness, results in statistically significant decreases in the frequency of call light usage, decreases in the rate at which patients fall, which did not always meet the criteria for statistical significance, and has statistically significant superiority with hourly rounding when compared with rounding every 2 hours (Mitchell et al., 2014, p. 5).

In addition to the systematic reviews, a case study found that rounding effectively increased patient satisfaction by an average of 8.9 percentage points and decreased call light usage by 38% (Blakley et al., 2011). When an official rounding system was introduced and formalized on a medical-surgical unit, patient satisfaction rose in the first 3 months, staff said that the patients were using their call lights less frequently, and patient complaints of staff rudeness decreased by 43% (Blakley et al., 2011).

The state of the literature regarding hourly rounding has several weaknesses. No randomized controlled trials were found regarding the efficacy of hourly rounding. Many of the articles cited have limited applicability or lesser evidence hierarchy. Articles with greater evidence hierarchy, the systematic reviews, failed to maintain a population of inference. Although a number of projects to improve the quality of hourly rounding (e.g., with 5P methodology; Mitchell et al., 2014) can be found in the literature, there are few articles describing successful efforts to improve the frequency at which rounding is performed. Despite these flaws, the literature overall shows strong evidence for the efficacy of hourly rounding (Mitchell et al., 2014).

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In the hospital in which this project was performed, staff must observe droplet and contact precautions when treating a patient who had COVID-19 and staff wear surgical masks for their entire shift. Thus, when hourly rounding is going to be performed by a nurse or unlicensed assistive personnel (UAP), they take the time to wear a gown and face shield before entering the patient's room per hospital policy. Is it necessary to physically enter the patient's room in order to perform rounding?

In research described by a review article by Setti et al. (2020), samples of air in several different hospitals were tested and particles containing RNA from SARS-CoV-2 were found up to 10 m away from patients, up to several hours after a patient coughed or sneezed without wearing a mask (Setti et al., 2020). In a study by Jayaweera et al. (2020), the fluid dynamics and airflow of a healthcare environment were analyzed and it was found that, when a patient is not wearing a mask and they cough or sneeze, "aerosol-generating plumes cause long-range transmission within the confined space" (Jayaweera et al., 2020, p. 14). If the patient does not wear a mask and they cough, the entire confines of their room can be expected to be exposed to aerosolized droplets.

Jayaweera et al. (2020) found that individuals wearing a surgical mask correctly can expect to reduce their exposure to any lingering aerosolized droplets by a factor of 6. It has been estimated that the risk of transmission of SARS-CoV-2 could be 2–10 times greater at a distance of 1 m when compared with a distance of 2 m (Jones et al., 2020, p. 4). Thus, the 2-m distance rule applies when a patient is wearing a mask and a nurse or UAP should not enter a patient's room when the patient is maskless unless the nurse/UAP is using droplet/contact PPE.

Best practice for protection against COVID-19 at distances greater than 2 m is to wear face masks:

> Face masks represent a barrier useful to contain viral droplets nuclei exhaled by infected people as well as adequate to reduce probability of inhalation of such droplets by the surrounding healthy persons…. In the case of the common use of face masks, the distance among persons could be reduced to 2 m. (Setti et al., 2020, p. 4)

Thus, if a nurse or UAP opens the door to a patient's room, remains at least 2 m from the patient's mouth/nose, and both the nurse/UPA and the patient are wearing surgical masks, they should be reasonably safe. The additional protection of a face shield and gown is only necessary if they must actually come within 2 m of the patient, for example, to fix a problem with an intravenous pump or to prevent an unsafe activity.

Methods

The improvement project was performed on an orthopaedic/trauma unit with 24 rooms, each of which has only one bed, with a distance of 2.5 m between the bed and the door to the hallway. During the course of the improvement project, the unit was at maximum capacity with 24 patients at a time, typically including three to five patients who tested positive for COVID-19. A typical shift had staffing consisting of a charge nurse, six nurses, and three UAPs, as well as providers.

The unit's hourly rounding goal is for nurses or UAPs to see patients 12 times during the day shift (every hour) and six times during night shift (every 2 hours). The main outcome variable measured in the study was the frequency at which staff rounded on patients within 35 minutes of when they were supposed to, with 18 instances in 24 hours being 100% compliance. To begin the implementation of interventions, the project required baseline data to assess the compliance rate for hourly rounding. On randomly selected days, the electronic medical records were accessed to audit charting for all the isolation patients and a random selection of non-isolation patients on the unit. This was performed for 1 month to gather baseline data and continued throughout the project in order to evaluate the outcome variables. The data were anonymized, no formal ethics review was needed for this quality improvement project, and no funding was used. Data from the patients' electronic medical records showed that, at the start of the study, zero patients were rounded on all 18 times in any given day. On average in the first month, staff rounded on non-isolation patients 73.4% of the time and rounded on droplet isolation patients only 69.4% of the time. The rounding compliance for each time period was determined by adding up the total number of times that hourly rounding was performed in that specified time and dividing by [18 multiplied by the number of patient-days audited]. The increase or decrease of compliance rates was not evaluated by determining percentage change but, instead, was evaluated by the arithmetic percentage point change. No advanced statistical analysis was performed to determine the efficacy of any individual intervention.

To evaluate the project's success or failure, the frequency at which hourly rounding was performed after each intervention was compared with the baseline frequency seen beforehand, with a goal of 85% compliance. No process measures were used. Rounding was judged to be compliant if any entry was made in the nursing flow sheets within 35 minutes of each specified time. Data regarding hourly rounding were recovered via chart audits, stored in an anonymized database to protect patient confidentiality, and then examined in aggregate and by class of isolation. Plan-Do-Study-Act (PDSA) cycles were evaluated by examining any trend in rounding frequency at the end of each week.

Qualitative data were gathered from nurses and UAPs using interviews, an anonymous drop box, and practice shadowing to evaluate failure modes. Notably, the quality of rounding when performed was found to not be a problem, as nurses used 5P methodology (Meade et al., 2006) to assess patient needs. Creative brainstorming was used to craft several interventions for the failure modes identified. Interventions were then tried with PDSA techniques. The first six interventions were attempted over the course of 6 weeks using PDSA methodology and were each discarded after showing no effect or only transient improvement.

The final intervention, called the "redline" policy, was to change unit isolation policy so that staff may round on patients by slightly opening their door and speaking with the patient without entering the room and without wearing isolation PPE. The rationale of this intervention was that if rounding was made easier and less time-consuming, it may be performed more frequently. This intervention required first meeting with the infection control manager and having them gain approval from the Infectious Disease physicians. After that, the change was put into effect by having the unit manager describe the new policy in staff huddle each day for 1 week, a time commitment measured at 2 minutes each day.

Results

The redline policy significantly improved hourly rounding compliance. The baseline rounding compliance for the unit averaged 77.3% between the start of the project and the implementation of the policy. The redline policy was introduced in the second week of Month 5 of the project, with rounding compliance improving to 84.9% in the next 2 weeks and then improving to 87.3% in the final month of the project. See Table 1.

The project was a success, with measurable improvement of hourly rounding performance upon implementation of the redline policy. Interestingly, the benefit of this intervention, which was aimed at improving rounding performance with droplet isolation patients, was not limited to isolation patients and instead had an unexpected benefit across all patient populations. At the start of the project, preliminary data suggested a difference in rounding performance between non-isolation patients, droplet isolation patients, and contact isolation patients. Interestingly, this difference disappeared upon statistical analysis of the entire multiple-month data set. At the conclusion of the project, no statistically significant difference could be found between non-isolation and droplet isolations patients ($p = .14$) or between non-isolation and contact isolation patients ($p = .27$).

The reason for the substantial, measurable success of the redline policy was not discovered during the course of the project. No contextual elements were identified as having interacted with the intervention at or around the time that the policy was introduced. The only other unit-wide quality improvement project (a fall prevention measure) is suspected to have not contributed, as it had ended partway through the second month of the project and the redline policy was not introduced to staff until the second week of the fifth month of the project.

Table 1. Rounding Data

	Overall Rate of Rounding Compliance
Month 1	73.4%
Month 2	77.8%
Month 3	75.8%
Month 4	77.8%
Month 5, Weeks 1–2	79.6%
Month 5, Weeks 3–4	84.9%
Month 6	87.3%

Discussion

The redline policy was a success, with improvement exceeding the specific aim of five percentage points. It is conceivable that this improvement may indicate accuracy of its rationale, that rounding is performed more frequently when it becomes easier and less time-consuming. This project's particular strength was that it improved the frequency at which hourly rounding is performed, with no funding and a management time investment estimated at 2 minutes per day for 1 week. The author has not found a similar intervention in the literature with which to compare results and eagerly awaits attempts at replication.

At the conclusion of the project, the author recommended that the redline policy be maintained on the unit. Suspecting a possible contribution of the Hawthorne effect (Sedgwick & Greenwood, 2015), it was also recommended that chart audits be continued for several months in order to clarify the effectiveness of the policy and make sure that the improvement does not disappear over time. Future efforts may include the introduction of a redline policy on other units to determine if it might yield broader benefits, as well as exploring the possibility of the Hawthorne effect. The main limitation of the study is that its narrow patient population, owing to the unit's nature as an adult acute care orthopaedic/trauma unit, limiting its generalizability. No efforts were made to assess how the characteristics of this patient population may have impacted the success of the interventions attempted.

The redline policy should be easily sustained in perpetuity on its original unit by including the policy in the training of new nurses and by occasionally reminding nurses when they are assigned a patient with droplet isolation. All that should be required to sustain it is for the unit manager to remain supportive, for the door of each room to open directly to the hallway within speaking distance of the bed, for the rooms to have only one patient each, and for the unit to continue caring for droplet isolation patients often enough that the policy remains relevant.

In summary, using a redline policy for patients with droplet isolation was effective on this unit and should be considered for other units. The redline policy resulted in improvement of hourly rounding performance and was well received by staff. Its continued performance is expected to be easily tracked and sustained in the future.

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