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# Standardization and Safety: Evaluation of Inpatient Nurse Huddle Routines and Practices at an Academic Health Care System during the COVID-19 Pandemic

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### **Abstract**

Aim: We assess the impact of COVID-19 on the practice and structure of nurse safety huddles in an academic medical center

**Background:** Daily safety huddles improve patient safety, worker efficiency and promote a culture of safety within a healthcare system. Huddles are most effective when they are short, well-attended and follow a consistent script.

**Method:** We distributed two independently designed 18-question surveys to inpatient nursing staff within Virginia Commonwealth University Health System before and during the pandemic to assess safety huddle structure and attendance.

**Results:** We did not detect any change in attendance of safety huddles during the COVID-19 pandemic. We observed inconsistent implementation and structure of nursing huddles as well as an opportunity for infection prevention and antibiotic stewardship initiatives within safety huddles.

**Discussion:** Safety huddles remain non-standardized and variably implemented, despite heightened infection prevention concerns in the face of COVID-19. This is the first study to review safety huddles during a pandemic when safety concerns are at a premium. Standardization of safety huddles across the system should be instituted.

### **Keywords**

Huddle, Patient safety, Infection control

# **Background**

Safety huddles, including daily interdepartmental briefings, unit planning sessions or presurgical timeouts, improve patient safety and communication between healthcare workers (HCW) [1]. Daily, brief, non-hierarchical huddles including all members of the healthcare team lead to improvements in safety culture among HCW [2-4]. Effective safety huddles must be standardized and routine to accommodate competing priorities [3]. Huddles should be no more than fifteen minutes, include events from the past 24 hours and focus on safety concerns [1,5,6]. The working climate, inter-professional

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communication and trust among team members may improve through the implementation of daily safety huddles [7]. Safety huddles are not only beneficial for healthcare workers: Patients and healthcare systems also benefit through decreased length of hospital stays and enhanced patient satisfaction [8]. Hospitals may also save money via decreasing costly redundancies and improving efficiency [9].

Perceptions vary regarding the value of safety huddles. Less experienced HCWs may feel unwelcome or unnecessary at huddles [4]. All staff may feel their workload prohibits them from attending safety huddles [4]. Healthcare staff who fail to attend huddles may not observe any benefits to them [4].

Crises often drive change. During the 2002-2004 Severe Acute Respiratory Syndrome (SARS) outbreak, Chinese policy makers sought to reform healthcare system policies, improve safety measures and prevent the spread of communicable diseases. This included standardizing leadership roles and implementing consistent guidelines for quarantine and treatment of patients [10]. In Britain, HCWs' willingness to undergo vaccinations for the safety of their patients increased following the 2009 H1N1 influenza pandemic [11]. It is our hypothesis that healthcare systems and individual workers may be more likely to improve safety practices after experiencing outbreaks or a pandemic. The impact of SARS-CoV-2 or COVID-19 pandemic on safety huddles is unknown. This is the first study to review safety huddles during a pandemic. We assessed the impact of COVID-19 on the prevalence and attendance of safety huddles as compared to the previous year via questionnaire to HCWs.

### Methods

Virginia Commonwealth University Health System (VCUHS) is an 864-bed tertiary care hospital that employs approximately 4100 inpatient nursing staff members (including both nurses and nursing support staff). From October-December 2019 and May-June 2020, we surveyed all inpatient nursing staff about safety huddles on their units. The survey is an independently designed 18-question survey (Appendix 1) and was accessed in the Research Electronic Data Capture (RED Cap) system [12,13]. The survey indicated assessment of the 'safety huddle' as opposed to other huddles units may deploy, specifically focused on attendance and content of daily safety huddles. It was originally designed to assess safety huddles at our institution. Inpatient nursing staff had the opportunity to answer the survey prior to and during the COVID-19 pandemic, allowing the study team to assess if prevalence and content of safety huddles changed.

### **Results**

Both surveys were sent to a total of 4114 recipients. The first survey received 628 responses (15% response rate) (Table 1), while the second survey received 415 (10% response rate). Both the first (n = 86, 14%) and second surveys (n = 61, 14%) 15%) reported that safety huddles were not always mandatory for nursing staff. Most respondents indicated that bedside nurses (n = 570, 94%; n = 365, 92%) and charge nurses (n = 567, 93%; n = 373, 94%) typically attended huddles. Less frequent attendants included care partners (n = 472, 78%; n =

Survey Ouestion Survey 1. Fall 2019 (n = 628) Survey 2. Spring 2020 (n = 415)

Survey Question	Likert Scale	Survey 1, Fall 2019 (n = 628)	Survey 2, Spring 2020 (n = 415)
My report at shift change addresses safety concerns.	Always	451 (72%)	299 (72%)
	Very Often	127 (20%)	70 (17%)
	Sometimes	40 (6%)	30 (7%)
	Rarely	5 (1%)	5 (1%)
	Never	5 (1%)	10 (2%)
During daily rounds with the team	Always	335 (54%)	235 (57%)
we address safety concerns.	Very Often	171 (27%)	107 (26%)
	Sometimes	94 (15%)	54 (13%)
	Rarely	18 (3%)	10 (2%)
	Never	9 (1%)	8 (2%)
My unit has a team huddle which addresses safety concerns, among other topics.	Always	484 (77%)	314 (76%)
	Very Often	92 (15%)	53 (13%)
	Sometimes	30 (5%)	27 (7%)
	Rarely	6 (1%)	6 (2%)
	Never	15 (2%)	13 (3%)
We follow a consistent script/ structure to our team huddle.	Always	352 (58%)	210 (53%)
	Very Often	186 (30%)	131 (33%)
	Sometimes	48 (8%)	34 (9%)
	Rarely	20 (3%)	9 (2%)
	Never	5 (1%)	10 (3%)

Table 1: Survey 1 and Survey 2 Questions and Answers.

We talk about central line	Always	111 (18%)	69 (18%)
necessity at the team huddle.	Very Often	68 (11%)	46 (12%)
	Sometimes	69 (11%)	60 (15%)
	Rarely	90 (15%)	62 (16%)
	Never	120 (20%)	47 (12%)
	N/A	152 (25%)	111 (28%)
When we talk about removing a central line, the central line gets removed that day	Always	66 (20%)	51 (22%)
	Very Often	136 (40%)	78 (33%)
	Sometimes	83 (25%)	74 (31%)
	Rarely	39 (12%)	22 (9%)
	Never	14 (4%)	11 (5%)
We talk about Foley catheter	Always	109 (18%)	66 (17%)
necessity at the team huddle.	Very Often	73 (12%)	47 (12%)
	Sometimes	76 (12%)	66 (17%)
	Rarely	73 (12%)	45 (11%)
	Never	121 (20%)	53 (13%)
	N/A	159 (26%)	118 (30%)
When we talk about removing a	Always	94 (28%)	60 (27%)
Foley catheter, the Foley catheter gets removed that day.	Very Often	145 (44%)	88 (39%)
gets removed that day.	Sometimes	65 (20%)	62 (28%)
	Rarely	24 (7%)	13 (6%)
	Never	3 (1%)	1 (0%)
We talk about changing from IV to	Always	44 (7%)	31 (8%)
PO antibiotics at the team huddle.	Very Often	50 (8%)	33 (8%)
	Sometimes	96 (16%)	72 (18%)
	Rarely	102 (17%)	86 (22%)
	Never	319 (52%)	172 (44%)
We talk about antibiotic duration	Always	52 (9%)	33 (8%)
at the team huddle.	Very Often	54 (9%)	36 (9%)
	Sometimes	87 (14%)	73 (19%)
	Rarely	90 (15%)	79 (20%)
	Never	327 (54%)	173 (44%)
My workflow allows me to attend	Always	272 (45%)	161 (41%)
the team huddle.	Very Often	237 (39%)	169 (43%)
	Sometimes	79 (13%)	57 (14%)
	Rarely	10 (2%)	6 (2%)
	Never	12 (2%)	4 (1%)
My workflow allows me to	Always	277 (44%)	196 (47%)
voice concerns about infection prevention issues to the primary	Very Often	198 (32%)	138 (33%)
team.	Sometimes	101 (16%)	55 (13%)
	Rarely	24 (4%)	12 (3%)
	Never	27 (4%)	13 (3%)

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I feel comfortable voicing concerns about safety issues, like infection prevention, to the primary team.	Strongly agree	395 (63%)	251 (61%)
	Agree	195 (31%)	127 (31%)
	Neutral	28 (5%)	27 (7%)
	Disagree	6 (1%)	6 (1%)
	Strongly Disagree	4 (1%)	3 (1%)
Are team huddles mandatory for nursing staff?	Yes	524 (86%)	336 (85%)
	No	86 (14%)	61 (15%)

	Day of the Week	Survey 1 (n = 628)	Survey 2 (n = 415)
Which days of the week do you have your team huddle?	Sunday	476 (78%)	299 (76%)
	Monday	595 (98%)	385 (97%)
	Tuesday	585 (96%)	380 (96%)
	Wednesday	589 (97%)	383 (97%)
	Thursday	587 (96%)	379 (96%)
	Friday	584 (96%)	378 (96%)
	Saturday	473 (78%)	301 (76%)

	Time of Day	Survey 1 (n = 628)	Survey 2 (n = 415)
When do you have your team huddle?	Morning	586 (96%)	372 (94%)
	Afternoon	63 (10%)	49 (12%)
	Evening	254 (42%)	165 (42%)
	Night	160 (26%)	118 (30%)

	Role	Survey 1 (n = 628)	Survey 2 (n = 415)
Who usually attends the team huddle?	Nurse Manager	224 (37%)	147 (37%)
	Assistant Nurse Manager	81 (13%)	59 (15%)
	Nurse Clinician	150 (25%)	120 (30%)
	Charge Nurse/Clinical Coordinator	567 (93%)	373 (94%)
	Bedside Nurse(s)	570 (94%)	365 (92%)
	Care Partner(s)	472 (78%)	312 (79%)
	Social Worker(s)	57 (9%)	31 (8%)
	Physical Therapy	17 (3%)	10 (3%)
	Occupational Therapy	12 (2%)	10 (3%)
My primary role is	Nurse Manager	22 (4%)	15 (4%)
	Assistant Nurse Manager	3 (1%)	2 (1%)
	Nurse Clinician	20 (3%)	14 (3%)
	Charge Nurse/Clinical Coordinator	93 (15%)	43 (10%)
	Bedside Nurse(s)	425 (68%)	246 (59%)
	Care Partner(s)	26 (4%)	55 (13%)
	Social Worker(s)	0 (0%)	4 (1%)
	Physical Therapy	1 (0%)	0 (0%)
	Occupational Therapy	0 (0%)	0 (0%)
	Other	37 (6%)	36 (9%)

<sup>\*</sup>None of the survey questions were mandatory to answer, therefore the total respondents (n) to each question varies.

312, 79%), with a steep drop in attendance for social workers (n = 57, 9%; n = 31, 8%), physical therapists (n = 17, 3%; n = 10, 3%), and occupational therapists (n = 12, 2%; n = 10, 3%). The majority of survey respondents were bedside nurses.

According to both surveys, most respondents indicated that the safety huddles were held in the morning. Approximately 10% reported that huddles occurred in the afternoon. When considering day of the week, huddles were least likely to occur on the weekend. Results of the second survey showed similar trends.

Approximately half of respondents (45%) felt their workflow "always" allowed them to attend the huddle, with a slight decrease (41%) during the pandemic. Fewer respondents (16%) felt their workflow "sometimes," "rarely," or "never" allowed them to attend the huddles. Similarly, 44-47% felt their workflow "always" allowed them to voice concerns about infection prevention issues, while 19-24% felt that their workflow "sometimes," "rarely," or "never," allowed them to do so.

Over half of respondents (58%) reported that they "always" followed a consistent script or structure in their huddles; this dropped to 53% during the pandemic. Twelve to 13% reported that they followed a consistent script or structure "sometimes," "rarely," or "never."

According to both surveys approximately 75% of respondents reported that they "always" addressed safety concerns during huddles. Fifty-one respondents (8%) reported that they only addressed safety concerns "sometimes," "rarely," or "never" during huddles. When comparing discussion of safety concerns at shift change rather than during the huddle, 70% reported that they "always" addressed safety concerns at shift change, while 8-10% replied that they addressed safety concerns at shift change "sometimes," "rarely," or "never." 53-56% reported that they "always" addressed safety concerns during daily rounds, while 17-19% reported that they addressed safety concerns during daily rounds "sometimes," "rarely," or "never."

When considering infection prevention related topics, only 24% reported "always" addressing central venous catheter (CVC) necessity during huddles, while 46% "rarely" or "never" addressed CVC necessity during huddles. Even when CVC removal was discussed, only 20-23% reported that it was "always" removed the same day. Similarly, 23-24% "always" addressed urinary catheter necessity at the team huddle; almost half reported "rarely" or "never" addressing urinary catheter necessity. Changing antibiotics from intravenous (IV) to oral (per os, PO) or duration of antimicrobial agents were seldom discussed within huddles.

# **Discussion**

Using a survey to assess huddle practices at an academic medical center, we report that most units utilize safety huddles. We found compelling variation in practice, attendance and implementation of identified priorities within the huddle. The crisis of COVID-19 did not impact huddle practices as judged by the survey responses.

Our results indicate that only 53-56% of huddles consis-

tently followed a structure, despite research indicating that a consistent structure is essential to the functioning of huddles [1,6,9]. These findings support the need for structured implementation of safety huddles, including clear roles for the staff, who will lead the discussion, top focused priorities and frequency of huddle meetings [6]. This is a goal for further projects at our institution, implemented via a Plan-Do-Study-Act (PDSA) cycle.

Encouragingly, most nurses felt enabled to voice concerns about infection prevention at the huddles. This finding is consistent with the non-hierarchical nature of the huddle which should empower anyone to speak up regarding safety concerns. Huddles did not occur frequently during evening/night shifts and weekends, which may decrease "off-shift" HCWs' ability to voice their concerns. Once the first PDSA cycle is complete, this could be a focus of additional cycles.

Our survey findings suggest that social workers, physical therapists, and other support staff attended safety huddles infrequently. Others report of greater huddle attendance diversity, linked with increased patient satisfaction, decreased length of stay, and enhanced efficiency [8]. With heterogeneous attendance, huddles foster conversations between team members who may not otherwise communicate [1]. Huddles further enhance understanding of others' roles, helping break down silos in healthcare [1,14]. They also allow staff to form joint patient care plans involving all members of a healthcare team [4]. More diverse attendance at safety huddles remains a target for improvement. A start may be to not consider them "nursing huddles" but truly "safety huddles."

Our primary focus in surveying staff was to assess infection prevention topics, including removal of unnecessary devices for preventing hospital-acquired infections (HAIs). To reduce HAIs, huddles should include discussions regarding removal of CVC and urinary catheters when no longer necessary. We found that less than 20% of huddles "always" discussed removal of invasive devices with 10-20% of huddles "never" discussing removal. The device might not be removed even if removal was discussed. In fact, according to almost half of respondents, central lines were removed only sometimes, rarely, or never when removal was discussed that same day. Sixty-five-70% of CLABSI and CAUTI may be preventable with strategies like assessing daily need for CVC or urinary catheter [15]. Castaldi, et al. [9] reported that bladder catheter days in non-ICU adult inpatient units decreased by 28% (p = 0.011) and in ICU units by 19% (p = 0.075) after implementation of discussion in a huddle. Device removal may also improve patient satisfaction and reduce hospital costs, as estimates put central line associated bloodstream infections (CLABSI) at \$45,814 and catheter-associated urinary tract infections (CAUTI) at \$896 [16]. This monetary and quality care argument may be compelling for stakeholders.

We identified opportunities to incorporate antimicrobial stewardship discussions in huddles. The bedside nurses are most familiar with the patient's ability to tolerate oral intake and thus play a critical role in aiding the transition of the patient off IV to PO medications when possible. Of note, 44-52% of nurses reported "never" discussing transitioning antimi-

crobials and 44-54% reported "never" discussing antibiotic duration. Antimicrobial stewardship is critical to improving the appropriate use of antibiotics and the potential role of the bedside nurse in enhancing this stewardship mission is an area of further research.

The survey responses during the COVID-19 pandemic were not different from prior responses. Respondents likely did not perceive safety huddles as relevant to the crisis of COVID-19, unlike the safety changes seen after the 2002-2004 SARS outbreak or the 2009 H1N1 influenza pandemic [10,11]. Many aspects of infection prevention may not seem obviously tied to safety strategies in HCWs daily tasks [17]. Staff may not see the importance of continuing daily huddles when confronted with other additional tasks in crises situations. Prevalence of safety huddles may increase during the pandemic if medical staff develop a greater understanding of the effect that huddles have on patient safety.

Study strengths include a structured survey tool that was employed consistently across multiple inpatient nursing units. Study limitations include a convenience sample survey of the nursing staff and the low response rate. In addition, the survey was designed by the study authors and has not been externally validated, thus these results may not be generalized. However, the findings may be compelling to healthcare systems of similar size looking to implement similar PDSA quality improvement projects.

Safety huddles remain non-standardized and variably implemented, despite heightened infection prevention concerns in the face of COVID-19. Huddles are an essential aspect of improving patient safety, hospital culture, and communication among healthcare workers. Safety huddle participants encouragingly felt empowered to voice concerns about infection prevention. Safety huddles should have a clear structure, occur regularly and have a diversity of participants with a defined leader. Further research on safety huddles should focus on implementation strategies to maximize reliability in practice and participation.

# **Implications for Nursing**

Safety huddles are inconsistently implemented with variable attendance of the healthcare team. Standardization and attendance did not improve during the COVID-19 pandemic. Nevertheless, we add to the growing body of literature on safety huddles and are the first to formally assess the impact of COVID-19 on safety huddles and infection prevention. Healthcare workers may not consider huddles as directly relevant to the pandemic, despite their importance in improving patient safety. Education about the importance of safety huddles in improving patient safety may facilitate greater attendance or standardization of safety huddles. Stakeholders may be convinced to standardize safety huddles across a healthcare institution, due to the potential for improvement in quality metrics as well as patient satisfaction. There remain compelling opportunities to incorporate HAI prevention and antimicrobial stewardship discussions in huddles.

### **Conflicts of Interest**

None to report.

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# Appendix 1

**Nursing Safety Huddle Survey** 

We are querying nursing staff across VCUHS in regards to their unit's safety processes. We are interested in a "safety huddle," or a meeting where nursing staff across the unit meet to discuss various patient safety concerns. This is different than daily rounds with the whole team (i.e. physicians, NPs, case managers, etc), though questions about daily rounds and your shift report/hand-off will also be asked.

- 1. My report at shift change addresses safety concerns.
  - a. Always/Very Often/Sometimes/Rarely/Never
- 2. My daily rounds with the team addresses safety concerns.
  - a. Strong agree/agree/neutral/disagree/strongly disagree
- 3. My unit has a daily huddle which addresses many topics, including safety.
  - a. Strong agree/agree/neutral/disagree/strongly disagree
- 4. How many days a week do you have your huddle? (Select all that apply)
  - a. Sunday/Monday/Tuesday/Wednesday/Thursday/Friday/Saturday
- 5. Do you huddle in the morning, the afternoon, or both?
  - a. Morning/Afternoon/Both
- 6. Who usually attends the huddle?
  - **a.** Nursing manager, assistant nurse manager, nurse clinician, charge nurse/clinical coordinator, bedside nurses, care partners, social workers, physical therapy, occupational therapy
- 7. Are huddles mandatory for nursing staff (excepting urgent patient care issues)?
  - a. Yes/No
- 8. We follow a consistent script/structure to our huddle.
  - a. Always/Very Often/Sometimes/Rarely/Never
- 9. We talk about central line necessity at the huddle.
  - **a.** Always/Very Often/Sometimes/Rarely/Never
  - **b.** If you talk about removing a central line, the central line gets removed that day.
- 10. Always/Very Often/Sometimes/Rarely/Never We talk about Foley catheter necessity at the huddle.
  - a. Always/Very Often/Sometimes/Rarely/Never
  - **b.** If you talk about removing a Foley catheter, the Foley catheter gets removed that day.

Always/Very Often/Sometimes/Rarely/Never

- 11. We talk about changing from IV to PO antibiotics at the huddle.
  - a. Always/Very Often/Sometimes/Rarely/Never
- 12. We talk about antibiotic duration at the huddle.
  - a. Always/Very Often/Sometimes/Rarely/Never
- 13. My workflow allows me to attend the huddle.
  - **a.** Always/Very Often/Sometimes/Rarely/Never
- 14. My workflow allows me to voice concerns about infection prevention issues to the primary team. (Specifically, outside of the huddle or daily team rounds)
  - a. Always/Very Often/Sometimes/Rarely/Never
- 15. I feel comfortable voicing concerns about safety issues, like infection prevention, to the primary team.
  - a. Always/Very Often/Sometimes/Rarely/Never
- 16. My unit has a daily nursing safety huddle.
  - a. Strong agree/agree/neutral/disagree/strongly disagree
- 17. Role: nurse manager, nurse clinician, clinical coordinator, RN, LPN, care partner
- 18. Years of experience in nursing: 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30+