

Improving Nurse Recognition of Deterioration in the Acute Care Setting

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Background

- Pneumonia is a preventable adverse medical event that contributes to 250,000 hospital visits each year and 55,672 annual deaths (Centers for Disease Control and Prevention 2019; Medicare, 2020; National Center for Health Statistics, 2017).
- The impact of hospital-acquired pneumonia at a small community hospital located in the U.S. Midwest revealed a 30-day death rate slightly higher than the national average (16.5% versus 15.6%) (Medicare, 2020).
- Gaps in acute care nurses' identification of respiratory distress increases the overall incidence of permanent disability and in-hospital mortality for patients with hospital-acquired pneumonia.

Purpose

This quality improvement project sought to improve nurses' early recognition of respiratory distress secondary to hospital-acquired pneumonia in the acute care setting.

Aims

- (1) Determine the effect of an evidence-based simulation case on nurses' clinical performance
- (2) Determine the influence of an evidence-based simulation case on nurses' early identification of patient deterioration
- (3) Determine the acceptability of simulation delivered directly in the acute care setting, or "in-situ."

Methods

- **Design:** Usual practice versus intervention group
- **Setting:** 16-bed adult medical-surgical acute care unit at a rural tertiary hospital located in the U.S. Midwest
- **Sample:** Convenience sample included 19 registered nurses providing direct patient care on the unit
- **Intervention:** Over the course of three months, a 15-minute respiratory failure simulation case was implemented a total of six times directly on the unit. The first three drills uncovered practice gaps that directly informed the multi-modal educational intervention, which was distributed to all nursing staff via 'Lessons Learned' emails and emphasized at a mandatory staff meeting through interactive PowerPoint presentation.
- **Data Collection:** Objective Structured Clinical Examination (OSCE) checklist of 8 critical nursing actions and Simulation Effectiveness Tool – Modified (SET-M)

Sample Demographics

Demographics	(n = 9)
Sex, n (%)	
Female	9 (100)
Male	0
Prefer not to disclose	0
Age, n (%)	
18-25 years	0
26-35 years	4 (44.4)
36-45 years	2 (22.2)
56-65 years	3 (33.3)
Years of experience, n (%)	
Less than 1 year	0
1-5 years	4 (44.4)
6-10 years	0
10+ years	5 (55.6)
Advanced cardiac life support (ACLS), n (%)	
Yes	6 (66.7)
No	3 (33.3)
Highest level of education, n (%)	
ADN	*
BSN	5 (55.6)
MSN	1 (11.1)
PhD and/or DNP	*
Not applicable	*

*missing data

Results

- **Aim 1:** The usual practice median OSCE score was 5 (IQR zero). The intervention median OSCE score was 5. (IQR 1). Using a two-tailed Mann-Whitney *U* test, a statistically significant difference was not found in the median OSCE scores (p value .757).
- **Aim 2:** Approximately 25% of usual practice participants (n = 3) activated the rapid response team (RRT). This increased to 42.9% (n =3) in the intervention group. Utilizing a two-tailed Fisher's Exact test, this increase does not prove to be statistically significant (p value .617).

	Usual Practice N (%)	Intervention N (%)	Fisher's Exact Test (2-sided) Significance p-value
Done	3 (25)	3 (42.9)	.617
Not Done	9 (75)	4 (57.1)	
Total	12 (100)	7 (100)	

- **Aim 3:** The majority of participant (n = 8) felt empowered to make clinical decision, felt more confident providing interventions that foster patient safety, and agreed that debriefing improved clinical judgement.

Survey Question	Agree N (%)	Disagree N (%)
I felt empowered to make clinical decisions	8 (88.9)	1 (11.1)
I am more confident in providing interventions that foster patient safety	8 (88.9)	1 (11.1)
Debriefing was valuable in improving my clinical judgment	8 (88.9)	1 (11.1)
I had the opportunity to practice clinical decision-making skills	7 (77.8)	2 (22.2)
I am more confident in reporting information to the team	6* (75)	2 (25)

*missing data

Conclusion

In-situ simulation is an effective method for identifying practice gaps in the acute care setting. The increased percentage of participants escalating patient care following the intervention is clinically relevant, suggesting improved nurse recognition and response to clinical deterioration.

References available upon request: lantho10@jhu.edu