Improving Nurses' Knowledge, Confidence, and Sepsis Patient Care Through Escape Room Education

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Problem

Sepsis Mortality
- There were 41,198 sepsis-related deaths in U.S. in 2021; of those 1,669 occurred in North Carolina.
- 27% of the total sepsis mortality cases at the project site occurred in non-ICU medical-surgical units in the medical service line.

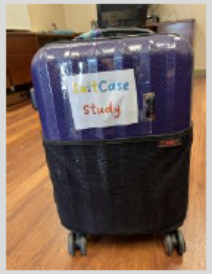
Delayed Recognition
- Clinical deterioration signs were missed in patients who acquired infections while hospitalized.
- Delayed recognition was the leading cause of sepsis mortality at the project site.

ICU Transfers
- 20% of all ICU transfers occurred due to a rapid response called on non-ICU medical-surgical units in the medicine service line.
- These patients were transferred to a higher level of care where the patient unfortunately passed due to delayed recognition and untimely management.

Sepsis Education
- Predominant focus of sepsis education is delivered in the ICU and ED settings even though these units only account for 1/3 of sepsis patients.

Objectives

- To decrease ICU transfers and sepsis mortality
- To increase nurse knowledge and confidence in identifying and managing sepsis patients and systemic inflammatory response syndrome (SIRS) criteria



Suitcase Escape Room

Methods

Design
- Quality improvement; a two-group pre-/post-test design

Setting
- 874-bed research, tertiary care, and academic medical center
- Project units were medical units compared with non-project surgical units.

Sample
- Seventeen nurses on the non-ICU medical-surgical units in the medicine service line

Collected Data
Subjective
- Nurse feedback
- Nurse confidence and awareness of sepsis

Objective
- Knowledge surveys: Nurse Sepsis Awareness Questionnaire (NSAQ)
- ICU transfers, sepsis mortality

Intervention
- Interactive escape room education event

Education Intervention
- NSAQ
- Patient information/case study provided to the participants

Rolling Suitcase Escape Room
- Locked on the outside with 5 locked compartments inside
- Box filled with tools to assist with answering clues

Clues and Riddles
- Each box contains clues or riddles
- As it was solved, the answer unlocked a padlock on the exterior of a box

Suitcase Escape Room Flowchart

Results

Characteristics of Sample
- 58.8% of nurses had more than 6 years of nursing experience
- 64.7% were bachelor's prepared nurses
- 64.7% had received prior sepsis education

Nurse Knowledge and Confidence Results
- Increase in nursing knowledge between pre-intervention (M=77.4, SD=13.7) and post-intervention (M=82.4, SD=14.3), but not statistically significant (p=.068).
- Significant improvements in self-reported knowledge and confidence for sepsis patient identification (p=.02), monitoring of sepsis patients (p=.007), and initial management of sepsis patients (p=.008).
- Highest increase in knowledge and confidence among BSN-prepared nurses and nurses with 3-5 years' experience.

ICU Transfer Volumes
- Observed a decrease in ICU transfers in the project units pre-/post-intervention.
- Paired t-test showed no significant differences in ICU transfer volumes.

Sepsis Mortality
- No change in sepsis mortality observed-to-expected ratio (O/E) pre-/post-intervention.

	Pre-intervention		Post-intervention			
	M	SD	M	SD	z	p-value
Overall Knowledge Scores	77.6	13.7	82.4	14.3	1.86	.068
Overall Confidence Scores	3.88	.911	4.25	1.00	2.68	.007

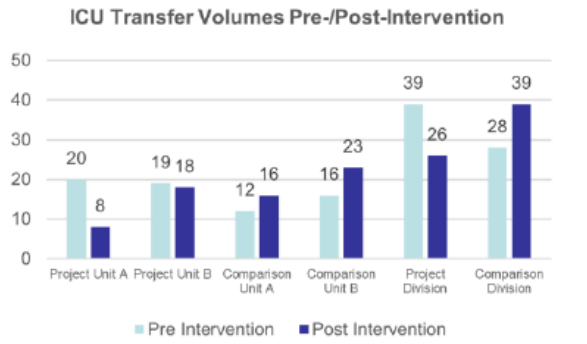
Wilcoxon-Signed Rank Analysis of Knowledge and Self-Reported Confidence Pre- and Post- Intervention (n=17)

	Pre-intervention		Post-intervention			
	M	SD	M	SD	z	p-value
Identifying sepsis	3.76	1.03	4.18	1.02	2.33	.020
Clinical assessment of sepsis	3.82	1.02	4.12	.933	1.67	.096
Escalating care to the provider	4.18	1.02	4.35	1.06	1.34	.180
Knowing how and what to monitor in sepsis patients	3.82	.883	4.35	1.06	2.71	.007
Knowing initial management of sepsis patients	3.82	.883	4.24	1.03	2.64	.008

Results

Variables	N	Total sepsis knowledge score Mean (SD) Pre-Intervention	Total sepsis knowledge score Mean (SD) Post-Intervention	p-value	Total self-confidence score Mean (SD) Pre-Intervention	Total self-confidence score Mean (SD) Post-Intervention	p-value
Years of Nursing Experience							
<1 year	0	-	-	-	-	-	
1-2 years	3	77.7(3.8)	86.6(11.5)	.383	4.33(.56)	4.53(.50)	.423
3-5 years	3	81.6(8.3)	91.6(6.3)	.103	4.05(.19)	4.65(.47)	.046
6-10 years	4	85.0(13.7)	80.0(10.8)	.661	4.15(.83)	4.55(.52)	.353
>11 years	6	70.0(17.7)	75.5(19.1)	.185	3.36(1.24)	3.63(1.5)	.082
Highest Level of Education							
Associate's	4	83.3(11.5)	78.3(13.7)	.661	4.00(.28)	4.25(.30)	.368
Bachelor's	11	73.3(13.9)	82.4(15.2)	.008	4.00(1.1)	4.36(1.2)	.011
Master's	2	90.0(4.7)	90(14.1)	1.00	3.0(.0)	3.6(.84)	.500
PhD/Doctorate	0	-	-	-	-	-	
Received Sepsis Education in the Last Year							
Yes	11	81.2(15.7)	84.8(15.8)	.412	3.65(1.0)	4.12(1.2)	.009
No	6	71.1(5.4)	77.7(10.8)	.253	4.30(.54)	4.46(.45)	.188

Paired t-test Analysis of Sepsis Knowledge and Confidence Based on Workplace Characteristics



References

Available upon request.

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