Using Simulation to Demonstrate Competency and Build Confidence in Sepsis Recognition and Utilization of a Nurse-Driven Sepsis Protocol

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BACKGROUND

- Sepsis is the leading cause of death in hospitalized patients in the U.S., accounting for 220,000 deaths per year, $17 billion in healthcare costs, and a mortality rate of 25-50% [1].
- Patients hospitalized outside of the intensive care unit (ICU) are twice as likely to die from lack of timely recognition [2], and each hour delay in antibiotic administration decreases likelihood of survival by 7.6% [3].
- Need to focus on early recognition by the nurse and bedside screening with the quick Sepsis Organ Failure Assessment (qSOFA), intended for screening patients outside the ICU [4].
- The project site had a higher than desired sepsis mortality rate and significantly delayed antibiotic administration time.

LITERATURE REVIEW

- Sepsis simulation was effective in improving sepsis-related knowledge in nurses and reinforcing evidence-based practice guidelines [5].
- Nurses’ feelings of competence in caring for septic patients increased [6, 7].
- Positive correlation found between the number of nurses who went through Sepsis simulation and the reduction in time to antibiotic administration [8].

PROJECT PURPOSE & AIMS

Purpose: To utilize simulation education to evaluate adult medical-surgical nurses’ competence and build confidence in early sepsis recognition using qSOFA, utilization of a nurse driven sepsis-protocol, and the effect on the average time to antibiotic administration.

Aim 1: To evaluate nurses’ knowledge with a post-intervention knowledge assessment

Aim 2: To determine the confidence of nurses using a Likert-based scale

Aim 3: To determine the average time to antibiotic administration for identified septic patients, as measured by chart review for 16 weeks following the intervention.

METHODS

- Study design: Quality improvement project; post-test only design
- Setting: 28-bed adult medical-surgical telemetry unit within an urban government medical center providing tertiary care to Veterans
- Sample: 30 nurses in the adult medical-surgical unit; 81% participation rate
- Statistical analysis: Descriptive statistics
- Intervention: 30-minute high-fidelity simulation implemented over 6 weeks

MEASURES

- 9-question knowledge assessment developed from facility protocol
- 6-question 5-point Likert scale confidence instrument; modified from NLN’s “Student Satisfaction and Self-Confidence in Learning” instrument [9]
- Facility chart review of sepsis cases on the unit

RESULTS

- Aim 1: Knowledge
  - Mean score: 7.97 of 9 (SD = 1.16)
  - Of the 30 RNs, 27 (90%) had a summary score of ≥ 24, indicating they felt favorably on all items
  - No qualitative responses reported

- Aim 2: Confidence
  - Mean summary score: 27.05 of 30 (SD = 3.5)
  - Of the 30 RNs, 27 (90%) had a summary score of ≥ 24, indicating they felt favorably on all items
  - No qualitative responses reported

- Aim 3: Screening and Time to Antibiotic
  - Total of 3 identified cases of sepsis
  - Mean score: 7.97 of 9 (SD = 1.16)
  - Of the 30 RNs, 27 (90%) achieved passing score of 7 of 9 or higher

CONCLUSION

- Nurses were able to demonstrate skill and knowledge competency for qSOFA screening, and felt confident in their abilities to screen for, recognize, and treat sepsis
- Preliminary chart review showed improvements in time to antibiotic
  - Due to favorable findings on this pilot unit, it is recommended that this simulation be used in other units in the hospital, and further integrated into the organization’s existing continual “Emergency Mock” education

- Further studies needed with larger number of participants and longer evaluation time period to assess impact on patient outcomes and knowledge/skill retention

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REFERENCES