

Oncology Interdisciplinary Early Goal-Directed Sepsis Management Protocol for IPOP & HIPOP Clinic

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1 Background

Sepsis is a serious and life threatening condition, and among patients with cancer it is the leading cause of non-cancer death (Baden et al, 2013; Center for Transforming Healthcare, the Joint Commission, 2012).

When an oncology patient develops occult sepsis, they are seen by their provider in the oncology clinic. Early detection and treatment of sepsis in oncology patients is key for good outcomes but the clinic setting may not be an ideal environment for rapid triage and intervention (Baden et al., 2013).

Research suggests that a formalized process for the implementation of early goal-directed sepsis interventions reduces mortality. Below is a summary of selected evidence based strategies for educating staff on sepsis best practices.

Method	Total Studies & Evidence level (1-5)	Quality of Evidence
Combined interventions/ Bundled Sepsis Interventions	3 total studies Level 2: 1 Level 3: 2	Medium: 3
Algorithm development	9 total studies Level 2: 6 Level 3: 2 Level 5:1	High : 1 Medium: 7 Low: 1
Extensive staff education	7 total studies Level 2: 4 Level 3: 3	High : 1 Medium: 4 Low: 2
Unit Champions	2 total studies Level 2: 1 Level 4:1	Medium: 1 Low: 1

This quality improvement project at The Sydney Kimmel Comprehensive Cancer Center at Johns Hopkins Hospital aimed to implement an interdisciplinary oncology sepsis management protocol for the IPOP/HIPOP (Inpatient/outpatient) clinic servicing patients with hematologic malignancies. The protocol was designed to streamline identification and treatment of sepsis. Need for improvement was identified through case analysis and review of 45 randomly selected admissions during a 9 month period July 2012- March 2013 (Sidney Kimmel Comprehensive Cancer Center, 2013). The first step in this process was an assessment of staff knowledge followed by education on the protocol.

2 Objectives

- Educate all staff on sepsis identification, diagnostic testing, and management.
- Create learning tools such as quick reference cards for screening criteria.

3 Staff education on the Sepsis Management Protocol

Mixed methods approach to education intervention

- Face-to-face in-service education
- Interdisciplinary Clinical practice Protocol
- Management algorithms for identification and treatment of sepsis
- Quick reference cards for screening, and management of sepsis.

Educational modules

- 30-45 minute inservices
- Handouts with visual cue cards for screening, acuity scoring, and management algorithm
- Content included evidence-based sepsis strategies and oncology specific risks and outcomes.

Evaluation of Learning

- Voluntary participation in evaluation of learning at session
- Pre-test/ Post-test format
- Participant chosen unique identifier
- Collection of tests, matching, and data entry by an unbiased research assistant.

Data Collected on Pre-test/ Post-test

- Experience in nursing /intermediate/ critical care (Figure 1).
- Self assessment knowledge and experience with sepsis.
- Individual's belief that their knowledge of sepsis is adequate for their role.
- Familiarity with the "Surviving sepsis" recommendations, or "Sepsis Six Bundle" (Figure 2).
- Non-validated, researcher-developed twelve question test on identification, diagnostics, and management of sepsis.

4 Results

A total of 167 staff were educated, with 153 matched pre-tests and post-tests. Of 12 knowledge questions, the mean pre-test score was 4.2, and the mean post-test score was 7.7. This mean increased knowledge score of 3.5 was statistically significant by matched pairs t-test ($p = .000$)

The education module and test were administered to twelve clinical experts familiar sepsis management. Internal consistency assessed using Cronbach's alpha was poor; with slight improvement using the Kuder-Richardson correction for multiple choice testing (Pre-test alpha .256; Post-test alpha .354). These results demonstrated poor internal consistency in the instrument.

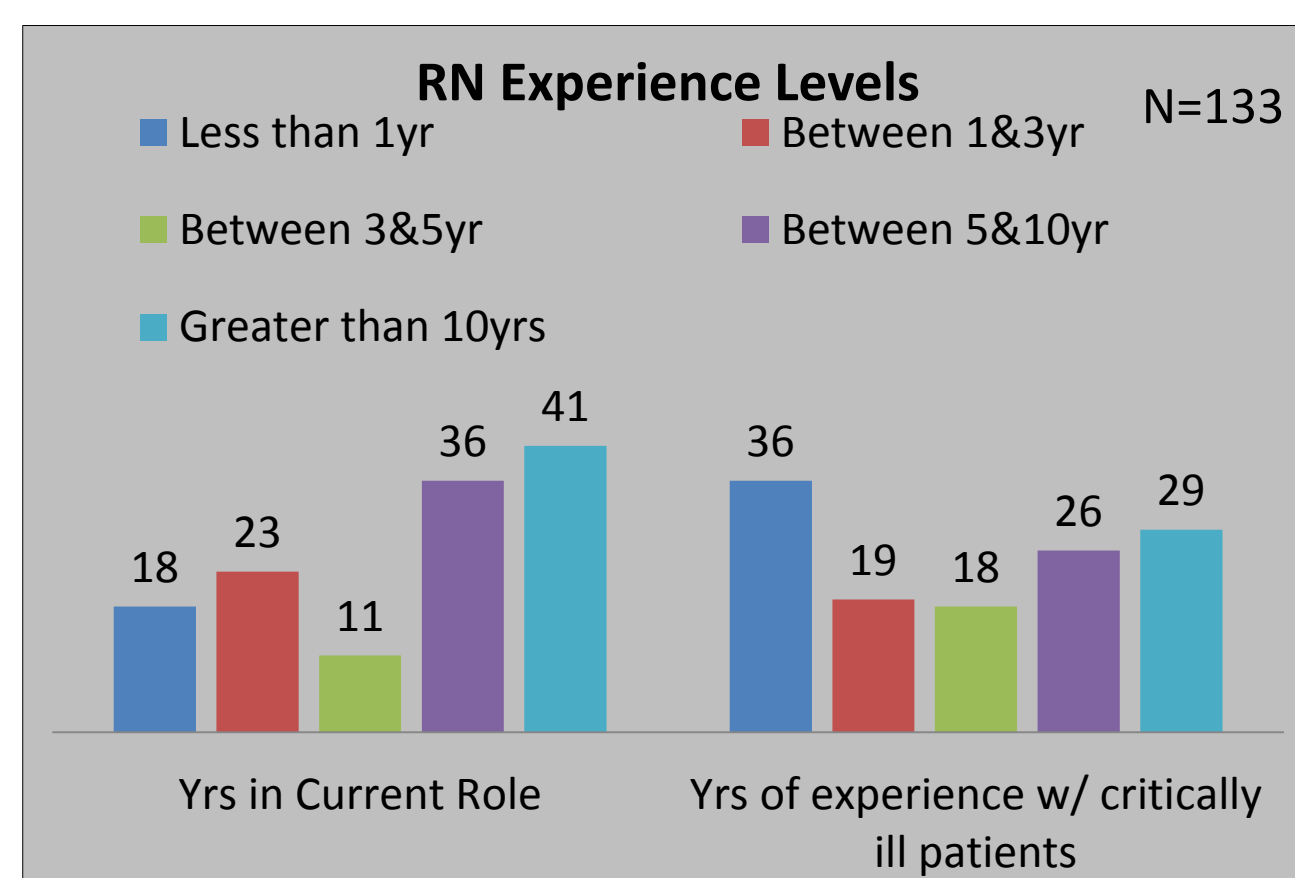


Fig 1. Overview of RN experience levels from pre-test. Likert scale questions were used to identify experience ranges.

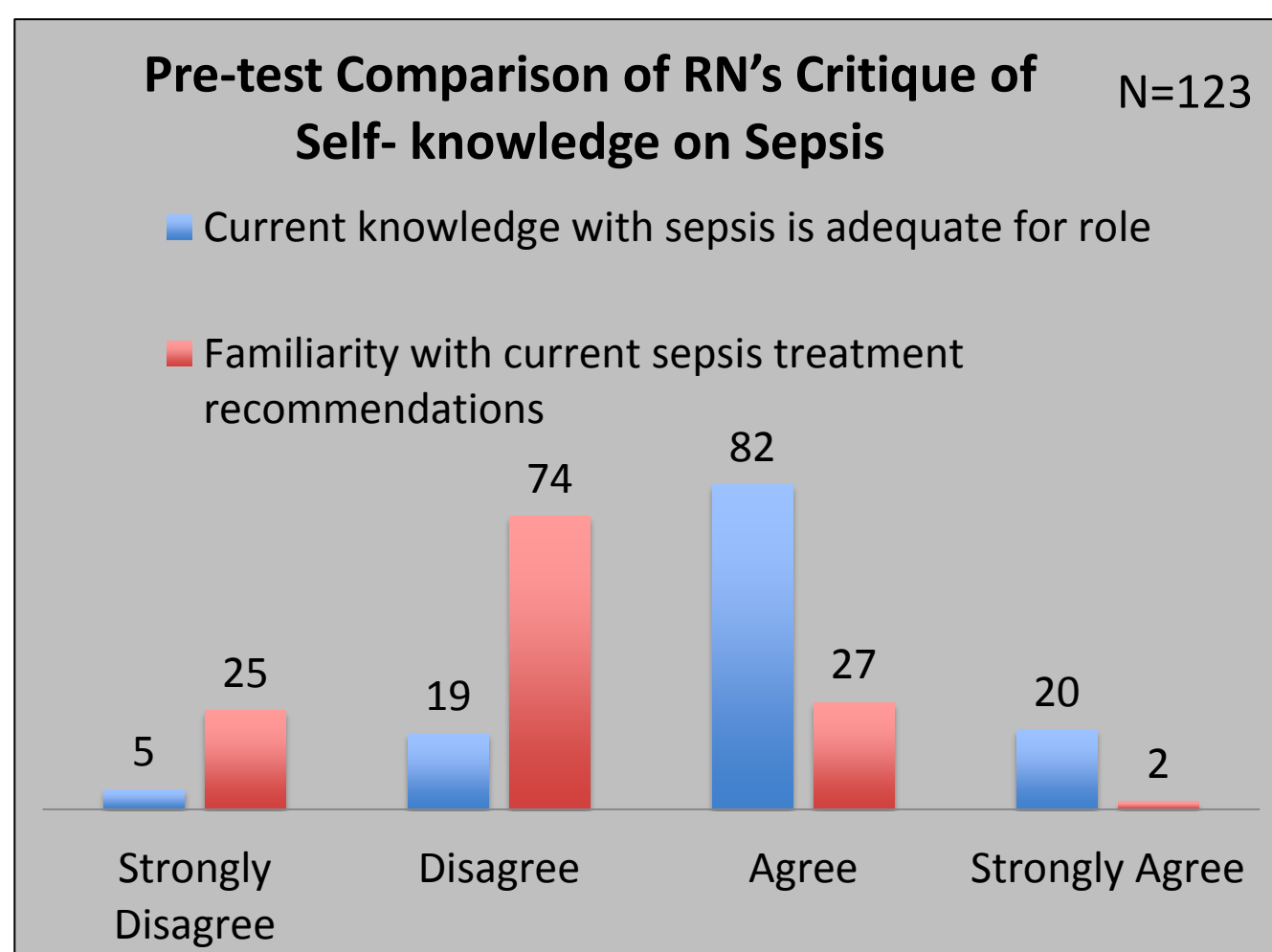


Fig 2. Comparison of answers on pre-test of RN's. Ten (10) surveys were not completed. This shows the belief that knowledge was adequate but clinicians were unaware of the current evidence-based recommendations

Sepsis Education Pre-test & Post-test scores For RN's

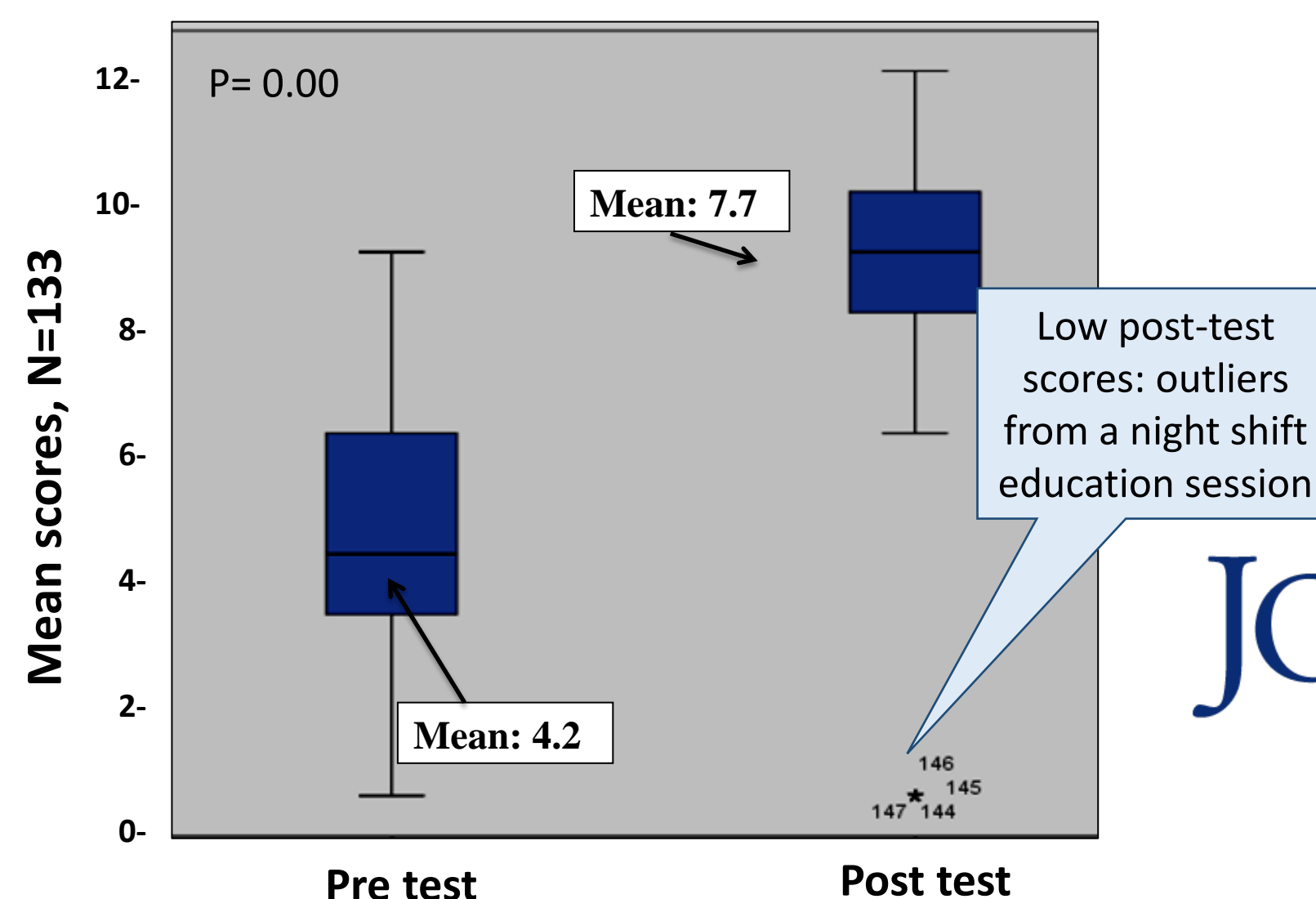


Fig 3. The mean score, standard deviation, and range for pre and post test given to RN's. The outlier scores on post test were from a night shift module. The test score improved after education.

5 Conclusions

- Perception of sepsis knowledge did not match awareness of evidence-based recommendations evidenced by self-report or pre-test scores.
- Improved knowledge of identification, diagnosis, and management of sepsis after education as evidenced by increased post-test scores.
- Clinicians are currently screening patients more closely since protocol implementation, identifying potential sepsis patients outside IPOP setting and utilizing the protocol as a resource for patient management.

Limitations

- Incomplete data from unmatched pre/post tests and incomplete tests.
- Inconsistent methodology of delivering the education module (small and large groups, audiovisuals).
- Environmental restrictions affecting education modules such as the time of day, resources available, and location the module was conducted.
- Ideal circumstances for staff education and protocol implementation would include more time for modules, and more resources available for the staff to utilize during education and initial implementation.

6 Future Directions

The end goal of this quality improvement project is the implementation of the Sepsis Management Protocol at the Sydney Kimmel Comprehensive Cancer Center. After a live trial of 80 patients who screen positive for sepsis and underwent the Sepsis Management Protocol for treatment, an analysis of outcomes is needed prior to adjustments to practice. Continued staff education for reiteration and adherence with the protocol is indicated.

Follow-up surveys of staff perceptions of the benefits and challenges regarding implementation of this protocol in the hematologic malignancies clinic is in process.

7 References

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