



How Identification and Therapeutic Communication Can Decrease Sepsis Cases in Pediatric Oncology Patients

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Background

- Sepsis is the second leading cause of death in intensive care units and the tenth overall cause of death in the United States (Moore et al., 2019).
- It has been found that time is the biggest factor when dealing with a septic patient, where each hour that the antibiotics are delayed, there is an increase in the risk of mortality by 8% (Oakley et al., 2016; Sepsis Alliance, 2017).
- Sepsis is a condition that is very treatable when caught early, but each year 270,000 lives are lost where 80% of them could have been prevented (Sepsis Alliance, 2017).
- A needs assessment at Cincinnati Children's Hospital on the oncology floor identified a gap in the recognition of signs and symptoms of sepsis, ineffective communication with providers, causing a delay in starting treatment with the sepsis algorithm among new graduate nurses. Data collected from 2019 and 2020 Fiscal Year audits was utilized for this project and how that gap in learning can be addressed through an educational offering.

Theoretical Frameworks

Weiner & Dodd's Theory of Illness Trajectory

- Serves as the foundation of the education developed on how patients living with chronic illnesses such as cancer endure the uncertainty of their illness and complications such as sepsis (Wiener & Dodd, 1993).
- The Theory of Illness Trajectory utilized in this educational session guided new graduate nurses in their understanding of how a cancer diagnosis affects the patient and their family and how working alongside other members of the healthcare team will determine the patient's outcome.

Lewin's Change Theory

- The method of unfreezing, changing/moving, and refreezing allow for new graduate nurses to see the current issues that the unit is facing regarding sepsis, identify the benefits of utilizing the sepsis algorithm, effectively communicate with providers, and solidify what they have learned (Wojciechowski, et al., 2013).

Purpose

To evaluate the effectiveness of an educational offering on the signs and symptoms of sepsis and effective communication techniques to new graduate nurses to begin treatment in a timely manner to decrease ICU transfers leading to better outcomes for patients.

Learner Objectives

- New graduate nurses will identify 5 signs and symptoms of sepsis in an oncology patient.
- New graduate nurses will state the sequential steps of the sepsis algorithm to treat a septic patient.
- New graduate nurses will effectively communicate with providers about their concerns regarding a septic patient.

Evaluation Methods

Pre/Post Test and Confidence Level Survey

- The pre-/post-test format was deemed the most effective way to determine if the information presented was retained and the learning objectives were met.
- Multiple-choice format allows for several answers to be chosen from but only one is correct.
- 9-question pre/post test was utilized to determine whether the information provided during the educational session was retained.
- A confidence level survey was also distributed to assess confidence in their ability to reach out to providers when needed.

Appendix A: Pre/Post Test

Pre/Post Test

- What is the number one cause of sepsis?
 - Infection
 - Injury
 - Alcohol Intoxication
 - Blood Product Reaction
- Changes in vital signs in sepsis include all of the following except
 - Tachycardia
 - Hypertension
 - Tachypnea
 - Fever
- When a patient is suspected of sepsis, only the provider can be the one to implement the sepsis algorithm
 - True
 - False
- Antibiotics should be administered within 1 hour of a new fever or suspected sepsis.
 - True
 - False
- At what point is a patient considered to be neutropenic?
 - ANC < 500
 - ANC 0
 - ANC 1000
 - ANC 5000
- On the oncology floor, which temperature is considered a fever?
 - 38.0
 - 38.3
 - 37.9
 - None of the above
- You are caring for a 10-year-old male patient: his vital signs read HR 136, RR 30, BP 100/58 (60), and temp 38.2. What is appropriate to notify the provider of?
 - Notify the provider of only the patient's temperature
 - Notify the provider of all of the patient's vital signs
 - Notify the provider that you are concerned that your patient may be septic
 - Do not notify the provider
 - Answer B and C
- Your patient is currently a watcher for potential sepsis and has been having fevers, tachycardia, and increased work of breathing that has progressed over the past hour. Two of your MRT criteria have been met but the physician wants to continue to watch him and orders a NS bolus over an hour and then says he will reassess after. If you are concerned, you have the ability to call the MRT on your own.
 - True
 - False
- Antibiotics should be administered prior to drawing blood cultures.
 - True
 - False

Project Design

The Educational Offering:

- Pre-Test Survey sent out by email prior to educational session to obtain their baseline knowledge
- Informational session with the use of PowerPoint
 - Review learning objectives
 - Discuss with sepsis is
 - Signs and Symptoms in the oncology patient population
 - Poor perfusion
 - Review Steps of Sepsis Algorithm
- Role play communication scenarios
 - Educator plays the role of the provider
 - Each nurse receives a scenario in which they have concerns about sepsis in their patient
 - Nurse must provide accurate information in order to effectively communicate with the provider.
- Post test and confidence level survey to assess knowledge and ability to reach out to providers

Results/Outcomes

Table 1: First Educational Session Pre- Post-Test Results Summary
The pre-test summary had an average of 89% with the lowest score being a 67% and the highest score being 100% whereas the post-test score summary had an average of 96% with the lowest score being a 78% and the highest score of 100%. Question 1 pre-test 6/6 participants answered correctly and the post-test 6/6 also answered correctly. Question 2 pre-test 4/6 answered correctly and on the post-test 6/6 answered correctly. Question 3 pre-test 5/6 answered correctly and the post-test 5/6 answered correctly. Question 4 pre-test 4/6 answered correctly, post-test 6/6 answered correctly. Question 5, 6, 7 pre-test 6/6 answered correctly and post-test 6/6 answered correctly. Question 8 pre-test 6/6 answered correctly and post-test 5/6 answered correctly. Question 9 pre-test 5/6 answered correctly and post-test 6/6 answered correctly.

Figure 1: Pre/Post Test Results

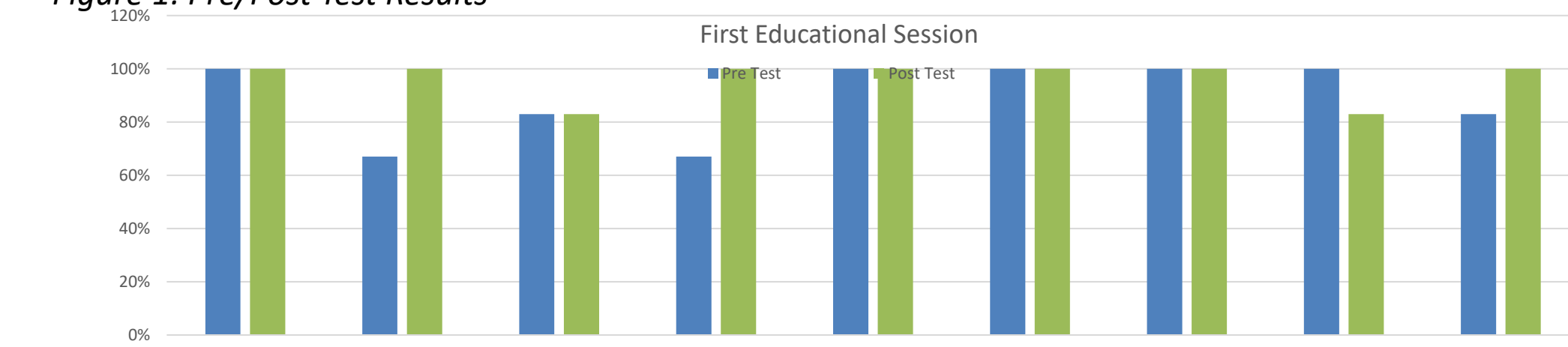
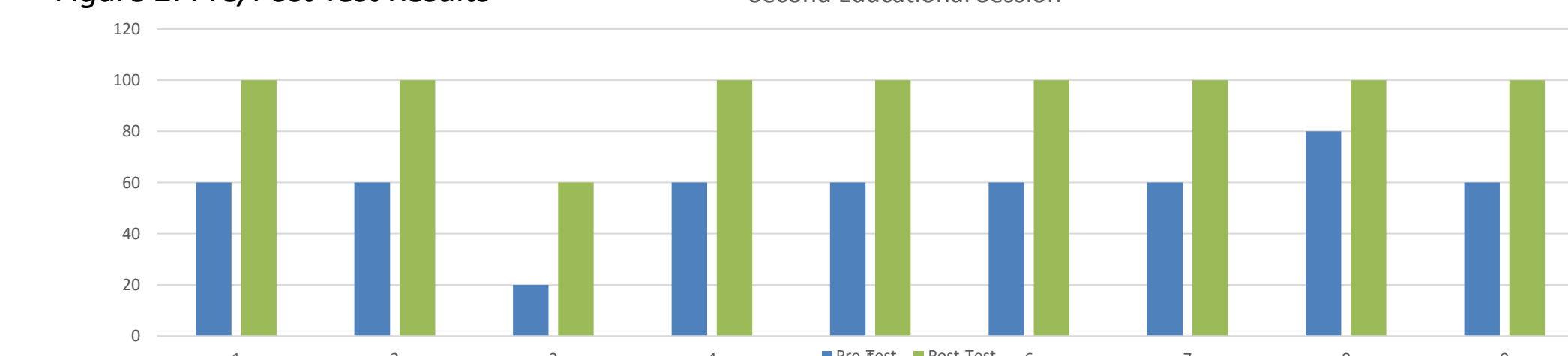


Table 2: Second Educational Session Pre- Post-Test Results Summary

The pre-test summary had an average of 58% with the lowest score being 11% and the highest being 100%, whereas the post-test summary had an average of 96% with the lowest being 89% and the highest being 100%. Question 1 pre-test 3/5 participants answered correctly, and the post-test 5/5 participants answered correctly. Question 2 pre-test 3/5 answered correctly and the post-test 5/5 answered correctly. Questions 3 pre-test 1/5 answered correctly and the post-test 3/5 answered correctly. Question 4-7 pre-test 3/5 answered correctly and the post-test 5/5 answered correctly. Question 8 pre-test 4/5 answered correctly and post-test 5/5 answered correctly. Question 9 pre-test 3/5 answered correctly and post-test 5/5 answered correctly.

Figure 2: Pre/Post Test Results



Conclusion

- The educational offering provided to new graduate nurses on the hematology/oncology unit at CCHMC proved to be successful.
- The educational session provided to them allowed for an increase in their knowledge about sepsis and closed the gaps in learning that had been assessed on the unit. With the role play communication scenarios, new graduate nurses have gained confidence in their ability to reach out to providers about their concerns
- The increase in knowledge about signs and symptoms of sepsis, effective communication with providers and timely start to treatment will lead to:
 - Patients being able to be treated on the floor
 - Decrease in ICU transfers
 - Better Patient Outcomes
 - Increase in Patient and Family Satisfaction

Implications / Recommendations

- Provide sepsis education during orientation of new graduate nurses on the oncology floor
- Annual sepsis education for nurses of all experience on the hematology/oncology floor
 - Review what sepsis looks like in an oncology patient
 - Review the steps necessary for treatment of sepsis patients
- Residents to complete online sepsis education prior to starting on the unit
 - Residents rotate monthly though the unit and unaware of the sepsis order set
- Providers on the unit to meet with nursing leadership to discuss effective communication techniques
 - Ensure that both nursing and providers are aware of possible barriers causing delay in treatment and fix those to provide better patient outcomes
- Data from this education offering will be reflected in the 2021 Fiscal Year and will be compared to the 2019 and 2020 Fiscal Year data to evaluate whether this offering has continued to be successful on the hematology/oncology unit at Cincinnati Children's Hospital Medical Center