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Enhancing RN Confidence in Early Recognition and Treatment of Sepsis

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Executive Summary: Staff Education Project

Enhancing RN Confidence in Early Recognition and Treatment of Sepsis

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Summary

Sepsis is the leading cause of death in U.S. hospitals. A delay in recognizing sepsis and initiating treatment significantly contributes to the high death rate. The practice gap identified was nurses' failure to recognize sepsis early and initiate timely interventions. The practice-focused question for this project is as follows: In newly hired registered nurses, does participation in education using the virtual sepsis escape room during the first week of orientation improve confidence in early identification of sepsis? The purpose of this project was to improve the nurse's confidence in identification of sepsis after participating in a virtual escape room education. During this project, 122 learners participated in the pre-intervention survey, 121 participated in the virtual escape room education, and 116 learners completed the post-intervention survey. Pre-implementation survey results showed low confidence in the learner's ability to identify sepsis and implement proper interventions. Comparison with post-implementation survey results showed an overall increase of learner confidence with identification and treatment of sepsis. The mean pre-intervention confidence score among the learners was 2.88, while the post-intervention confidence score was 3.60, representing an overall increase in learner confidence of +0.72. The largest pre- to post-intervention confidence was initiating appropriate interventions for a patient with suspected sepsis (+0.88). The virtual escape room education results showed learners scored high with identification of sepsis, but low in the proper treatment of a septic patient. Improving clinical competency and critical thinking on early identification as well as evidence-based sepsis interventions has potential to positively impact patient outcomes of sepsis, a condition that affects all patients. Enhanced identification and prompt treatment can reduce health disparities by

minimizing delays in care and ensuring evidence-based interventions are implemented across all patient populations.

Background

The identified practice gap is nurses' failure to recognize sepsis early and initiate timely interventions. Several pieces of data and research support this practice problem. According to the Sepsis Alliance (2024), sepsis is the leading cause of death in U.S. hospitals. A delay in recognizing sepsis and initiating treatment leads to the high death rate (Agency for Healthcare Research and Quality, 2024). Additionally, patients who survive sepsis are at risk for a shorter life expectancy, impaired quality of life, and worsened cognitive and physical function (Sepsis Alliance, 2024). Nurses need improved education on the importance of identifying sepsis quickly and initiating treatment.

Next steps after identifying the problem were to evaluate the organization's current practices and education. Current practice involves an advisory pop up in the electronic health care record to prompt the nurse to assess the patient for sepsis based on data, including vital signs and labs. However, this pop up is not foolproof. For better patient outcomes, sepsis should be identified early on. This advisory may not activate until after sepsis has progressed. If nurses rely on this advisory alone, this can be a significant disadvantage to the patients.

To further support the identified practice problem, there is no formal sepsis education for nurses at this healthcare organization. Sepsis education tends to fall to the unit educators or nursing professional development practitioners. There is not a consistent sepsis training program or education that is required across the organization. All newly hired inpatient nurses into the organization are required to attend a nursing orientation

class during their first week of hire. During this orientation class, sepsis is covered in a 30-minute lecture. Additionally, newly hired nurses are required to complete several web-based trainings, which include sepsis education. However, on the hospital units, nurses are still struggling to identify sepsis in a timely manner.

A virtual escape room gaming program was proposed to fill this practice gap. Research was conducted on the impact and success of virtual escape rooms and general gamification of education. Overall, the quality of the research was strong. Several of the articles appraised found that escape rooms produced engaged learning (Gonzalez-de la Torre et al., 2024; Gutierrez-Puerta et al., 2020; Navarro et al., 2023). For example, Gonzalez-de la Torre et al. (2024) conducted a systematic review of gamification, particularly escape rooms, with nursing education and found that escape rooms were a great way to engage learners. Additionally, Gonzalez-de la Torre et al. noted escape rooms increased the positive perception of the topic presented. For educators, this is an important finding to note. When creating education, whether it is an escape room or another game, one of the objectives should be to engage the learners and improve their perception of the topic, which is consistent with the principles of adult education (Knapke et al., 2024). Sepsis is such a common diagnosis for hospitalized patients that nurses may feel desensitized toward it. This is particularly dangerous, based on the prevalence of sepsis and its outcomes previously mentioned in this paper. However, by increasing the positive perception of the topic, educators may be able to improve sepsis identification and treatment.

Additionally, the research has shown gamification of education improved the confidence of the nurses participating. Moore et al. (2025) implemented an escape room

and found that the confidence of the nurses increased significantly from pre-intervention in several areas. The nurses self-reported an increase in confidence in identifying sepsis, monitoring patients with sepsis, management of sepsis, and escalating care to the provider (Moore et al., 2025). Providing education that also increases the confidence of the nurse in their skill set is important for a practice change.

Quite a few articles also showcased the need for incorporating gamification in education. For example, Navarro et al. (2023) implemented an escape room with several positive outcomes. Navarro et al. suggested that implementing escape rooms for both novice and experienced nurses was a great way to improve knowledge and bridge the "theory-practice gap."

The evidence showed consistency with escape rooms as educational devices to increase nurse knowledge, retention and confidence. Based on this, the evidence recommends using escape rooms for nursing education. The practice question moved forward to developing a virtual escape room based on identification and treatment of sepsis to be presented at the nursing orientation class.

Staff Education Project Development

The first step of project development was an assessment of the current workflow of the general nursing orientation class. During meetings with the project mentor, it was requested that the project should be implemented into existing workflow for feasibility and sustainability. At the time of project development, current sepsis education during the general nursing orientation class involved a 30-minute lecture, which included a brief case study that emphasized recognition of sepsis. General nursing orientation is a required class for all inpatient registered nurses (RNs) and licensed practical nurses

(LPNs) to attend during their first week of orientation at this healthcare facility. The experience level of both RNs and LPNs that attend this course range from novice to expert. Meetings with the project mentor discussed the most practical way to implement sepsis education at general nursing orientation. Given the class sizes for weekly general nursing orientation range from 10 to over 100 learners, a virtual escape room was identified as the most feasible and sustainable option.

During project development, the case study from the established lecture was used as the foundation for the escape room. The case study was removed from the orientation lecture, but expanded upon with the virtual escape room education. Developing this escape room took some trial and error. The initial version of the virtual escape room was created utilizing Microsoft Forms, using the branching option within Forms. However, it was found that the branching structure was confusing for some learners. Due to concerns regarding learner experience and ease of use, an alternative platform was explored.

The organization's existing subscription to an electronic quiz-based learning platform, Kahoot, was selected for project development. The second version of the virtual escape room was created using multiple-choice and true/false questions. The Kahoot platform also provides data on learner responses, including the number of correct and incorrect answers. During trial runs, this platform was easy to use and supported learner engagement, even with a large class size.

Following the development of the virtual escape room, a method to assess learner confidence was developed. A confidential pre- and post- intervention Likert scale questionnaire was developed to evaluate learners' self-reported confidence. Data were

collected using a Microsoft Forms survey that learners accessed via a QR code before and after participation in the virtual escape room education.

To support a successful project implementation, the facilitators of the general nursing orientation class were educated on the purpose, structure, and facilitation of the virtual escape room. Key stakeholder concerns included knowledge of facilitation and integration into the existing general nursing orientation class. The general nursing orientation class is 8 hours long and covers multiple important clinical topics beyond sepsis. Practice runs of the virtual escape room education demonstrated completion of the activity in about 30 minutes. The original sepsis case study would be removed from the lecture, since it was integrated into the virtual escape room education. Because of this, the virtual escape room was determined to be feasible within the existing general nursing orientation class schedule and would not disrupt the other educational content.

Results

Following implementation, results were compiled. The virtual escape room education was delivered during two general nursing orientation sessions. A total of 122 learners completed the pre-implementation survey, 121 learners participated in the virtual escape room education, and 116 learners completed the post-implementation survey Table 1 shows the virtual escape room learner performance and confidence outcomes.

Table 1

Virtual Escape Room Learner Performance and Confidence Outcomes

Outcome type	Item / Question	Learner correct response rates (%)	Pre-intervention Mean	Post-intervention Mean	Mean change
Performance	Priority for patient	94.96	-	-	-
	Most concerning vital sign	92.43	-	-	-
	Information from family	93.27	-	-	-
	Assessment results	95.79	-	-	-
	Recommendation	72.2	-	-	-
	Fluid resuscitation	59.7	-	-	-
	Calculate recommended fluid bolus	69.74	-	-	-
	Patient condition change	97.47	-	-	-
	Assistance with deteriorating patient	67.2	-	-	-
	Rapid response	89.1	-	-	-
Confidence	Identifying early signs and symptoms of sepsis	-	2.90	3.75	+0.85
	Initiating appropriate interventions for a patient with suspected sepsis	-	2.75	3.63	+0.88
	Applying the sepsis bundle	-	2.82	3.61	+0.79
	Communicating sepsis concerns to the healthcare team	-	3.12	3.72	+0.60
	Using clinical reasoning to differentiate sepsis from other conditions	-	2.80	3.29	+0.49

Outcome type	Item / Question	Learner correct response rates (%)	Pre-intervention Mean	Post-intervention Mean	Mean change
	Overall mean	-	2.88	3.60	+0.72

Note. Performance data represent the percentage of learners who answered each Kahoot virtual escape room question correctly. Confidence was measured using a 5-point Likert scale (1 = *not confident at all*, 5 = *extremely confident*).

During the virtual escape room, learner performance was highest on questions related to identifying the patient is deteriorating (97.47%) and initial identification of the patient's condition (95.79%). Lower performance was observed on questions related to sepsis care, including appropriate fluid resuscitation parameters (59.7%) and calculation of the correct fluid bolus based on patient weight (69.74%). Additionally, learners performed low in identification of appropriate methods for obtaining assistance for a deteriorating patient (67.2%).

The mean pre-intervention confidence score among the learners was 2.88, while the post-intervention confidence score was 3.60, representing an overall increase in learner confidence of +0.72. The largest pre- to post-intervention confidence was initiating appropriate interventions for a patient with suspected sepsis (+0.88). The smallest pre- to post-implementation change in confidence was using clinical reasoning to differentiate sepsis from other conditions (+0.49).

These results align with the current evidence indicating that implementation of a virtual escape room can increase the confidence of the learners with identification and treatment of septic patients (see Moore et al., 2025). Overall, learner confidence

improved across all assessed areas following the virtual escape room education. The organization may consider this project as a model for implementing sepsis-focused virtual escape rooms in other educational settings to support staff development and improved patient outcomes.

During the virtual escape room education, learners scored low on questions related to caring for a septic patient. While most learners were able to identify the patient's condition, they demonstrated difficulty with appropriate interventions. This knowledge gap can have significant implications for the healthcare organization, as timely intervention is critical for the effective treatment of sepsis (Agency for Healthcare Research and Quality, 2024). Implementing gamification of education, such as a virtual escape room, may help address this gap by enhancing the learner's knowledge and confidence with sepsis interventions.

The limitations of this study include the learner sample, which consisted solely of inpatient nurses; outpatient nurses do not attend the general nursing orientation class. Patients may present with sepsis in outpatient settings, making education on sepsis identification equally important for these nurses. Although treatment approaches may differ in outpatient care, the educational intervention remains relevant. Additionally, the sample size of 122 may be considered small for this healthcare organization. Expanding the virtual escape room education to a larger or more diverse sample could provide further insight into its effectiveness.

This project has implications beyond the clinical site, as sepsis is concern across all healthcare organizations. High-quality sepsis education is essential for nurses, whether provided during new hire orientation or as part of annual training. This project

demonstrates that developing and implementing a virtual escape room education is feasible and takes relatively few resources. Other healthcare organizations could benefit from adopting a similar approach to enhance nursing knowledge and confidence in sepsis identification and management.

Conclusions

The virtual escape room education improved the learner's confidence with identifying and treating a septic patient. The organization may consider keeping the virtual escape room education within the general nursing orientation or expanding the education to other offerings. Further recommendations may include assessing learner's knowledge pre- and post-intervention. Additionally, it may be valuable to assess the learner's knowledge further into their orientation, such as 3 months, 9 months, and 1 year to assess impacts of the virtual escape room education.

Gamification of education, such as the virtual escape room, has potential impacts on nursing practice by improving clinical competency and critical thinking. The outcomes also impact equity and inclusion. Because the escape room is virtual, this education can be accessed easily, which grants greater access to the nurses. Additionally, the virtual escape room education can be presented to nurses across various roles, which promotes inclusion. Sepsis is a condition that affects all patients, and by enhancing identification and prompt treatment, this can reduce health disparities.

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