POST-TRAUMATIC STRESS DISORDER IN ICU PATIENT SURVIVORS: AN EDUCATION STRATEGY FOR REGISTERED NURSES WORKING IN THE INTENSIVE CARE UNIT

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ABSTRACT

The need for critical care and the experience of being treated in the intensive care unit (ICU) may be a traumatic event with long lasting psychological consequences for patients and their families (Hatch, McKechnie, & Griffiths, 2011). Post-Traumatic Stress Disorder (PTSD) does not manifest itself while the patient is still in the ICU, therefore Registered Nurses (RN) do not have an awareness that it occurs days, months, even years following discharge. This project's purpose was to develop an interactive, evidence-based one-hour education session to increase awareness of PTSD and build the capacity of RN's working in the critical care environment. The findings concluded that there is a need for this education, and that by building capacity in RN's there is potential to improve safety, outcomes, and quality of life for ICU patient survivors.

Key Words: Posttraumatic Stress Disorder (PTSD), Intensive Care Unit (ICU), Critical Care, Alberta Health Services (AHS)

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Chapter 1: Introduction

Project Rationale

A rationale for the development of an educational resource for Registered Nurses (RNs) on Post Traumatic Stress Disorder (PTSD) in Intensive Care Unit (ICU) survivors.

The need for critical care and the experience of being treated in the Intensive Care Unit (ICU) may be a traumatic event with long lasting psychological consequences for patients and their families (Hatch, McKechnie, & Griffiths, 2011). Patient survivors discharged from the critical care environment not only live through critical illness, but also physical disability and psychological trauma that may render them depressed, anxious, and unable to return to work. Some studies suggest that up to 64% of ICU patients experience PTSD (Long, Kross, Davydow, & Curtis, 2014). Various studies have found that because PTSD does not manifest while the patient remains in the ICU, RN's do not have an awareness that it occurs days, months, or even years following discharge (Khitab, Reid, Bennett, Adams, & Balbuena, 2013; Long et al., 2014; Myhren, Ekeberg, & Stokland, 2010; Myhren, Ekeberg, Tøien, Karlsson, & Stokland, 2010). For this reason, few strategies exist for healthcare providers to develop knowledge, understanding, and awareness of PTSD post critical illness.

The Canadian Mental Health Association (2019) defines PTSD as a "mental illness that occurs as a result of exposure to trauma involving death or the threat of death, serious injury, or sexual violence" (para.2). An event is considered traumatic when it is unexpected, frightening, and causes significant distress. PTSD causes intrusive symptoms such as vivid nightmares, flashbacks, re-living the event, or thoughts of the event that can

come from nowhere (Canadian Mental Health Association, 2019). These disturbing thoughts and feelings related to the experience can last long after the traumatic event has ended. People with PTSD often cannot return to work, are anxious, have trouble sleeping, concentrating, or finding enjoyment in their life – all of which can profoundly affect their quality of life (McMaster Optimal Aging Portal, 2016).

The Alberta Health Service mission statement reads: "to provide a patient-focused, quality health system that is accessible and sustainable for all Albertans" (Alberta Health Services, 2017).Within the ICU environment, the work seems simple: healthcare providers work to save lives and at the very least, sustain and manage life. In a typical workday, RN's go from crisis to crisis not always cognizant of the long-term impact being made on the patients they care for. Once the patient is deemed stable, they are transferred out of the ICU, never to be seen again. While there is a large amount of evidence stating that critical illness survivors have high rates of psychiatric disorders such as PTSD, and resultant poor quality of life, there is a profound gap in RN knowledge and understanding of this. This becomes very troubling when noting the prevalence of ICU patient survivors who experience PTSD is as high as one in three to the general population who experience PTSD at one in 12 (Statistics Canada, 2017). As previously stated in the AHS mission statement, health is to be sustainable to all Albertans, but the development of PTSD in critical illness survivors becomes the antithesis of that assertion.

While there is an abundance of inquiry and evidence (Davydow, Gifford, Desai, Bienvenu, & Needham, 2009; Long et al., 2014; Parker, Parker, Sricharoenchai, Raparla, & Schneck, 2015; M. B. Patel, Jackson, Morandi, & Girard, 2015) directed at healthcare providers establishing the severity and incidence of PTSD following critical illness, there is very little in the way of educational tools and resources that develop this knowledge

and understanding for healthcare providers. With more than 230,800 adults in Canada annually requiring ICU level care (Canadian Instituite of Health Information, 2016), "it's clear that those who care for ICU patients need to be aware that there could be long term consequences of critical illness and lifesaving treatments, including PTSD, which can significantly limit a patient's quality of life well after discharge" (John Hopkins Medicine News and Publications, 2015, para.11). For this reason, the development of an evidence-based education session to increase knowledge and understanding of PTSD post critical illness, will allow RN's in the ICU to identify patients at risk, utilize prevention strategies, and educate patients and families of the potential for PTSD.

Nursing Practice Problem

Research, theory, and practice are the foundation of nursing care. Their association should be consistent and ongoing, but often there is a gap where research meets practice (Saleh, 2018). While there is strong research showing the high prevalence of PTSD post critical illness, RN's at the Chinook Regional Hospital and Medicine Hat ICU in Alberta, Canada have not been provided with the education to build their capacity and understanding. Knowledge of PTSD and the patients at risk for developing PTSD, would allow ICU nurses to build competence and incorporate PTSD prevention strategies into the patient's care. This practice issue is based on two concepts: the high prevalence of PTSD post critical illness, and the theory practice gap that occurs in the healthcare environment. For the purposes of this project, I will focus on Registered Nurses working in the Medicine Hat ICU as the target audience.

Purpose of the Project

The purpose of this project is to build capacity in the RN's working in the ICU environment through the development and implementation of an evidence-based education session on PTSD in ICU patient survivors. This education session will increase knowledge and understanding for the RN to identify patients at risk, build capacity within their ICU team to incorporate PTSD prevention strategies into their nursing practice, and improve the overall care and holistic treatment of the critically ill patient. This project will evaluate each RN's knowledge after the education session with the end goal of determining if the current knowledge base of the RN was enhanced, to identify areas for improvement to the education session, as well as inform future educational needs for the RN working in the ICU setting.

Chapter 2: Literature Review

A systematic review of the literature was conducted using both the University of Lethbridge Library and the Knowledge Resource Centre Alberta Health Services databases including Google Scholar, Medline, CINAHL, and PubMed. The key words used included PTSD, PTSD following critical illness, PTSD in the ICU, post ICU syndrome, critical care, anxiety, depression, theory practice gap, evidence-based practice, and best practice. This literature review was conducted from January 2017 to April 2019 and was limited to health-related, medical, and nursing research. The predominant findings were that the diagnosis of PTSD post critical illness was prevalent with variable rates from 5-64% (Davydow, 2015; Davydow et al., 2009; Long et al., 2014; M. B. Patel et al., 2015) and although there was an abundance of evidence, there is a gap in care in putting this evidence into clinical practice. The following themes categorize this literature review: (1) The high prevalence of PTSD post critical illness, (2) The theory/research practice gap that occurs with RNs in their work environment, (3) Case Study development, (4)PTSD risk factors and treatment, (5) the ADDIE model of Instructional Design as a theoretical framework for the development of the education session, and (6) Bloom's Taxonomy.

Prevalence

Post Traumatic Stress Disorder (PTSD) is defined as "a mental health condition that's triggered by a terrifying event, either experiencing it or witnessing it. Symptoms may include flashbacks, nightmares, severe anxiety, as well as uncontrollable thoughts about the event" (Mayo Clinic, 2018, para.1). This disorder is so prevalent that in 2014, the World Health Organization (WHO) added this to the Mental Health Gap Action Program (mhGAP) document for healthcare providers to ensure consistency, direction,

and evidence-based practices in the treatment and management of people experiencing PTSD (Tol, de Jong, Souza, & van Ommere, 2014). The Government of Canada and Veterans Affairs Canada (2016) have added to their mental health criteria that PTSD can occur following a traumatic event such as "experiencing a sudden, catastrophic medical incident" which is consistent with critical illness requiring ICU care. The Diagnostic and Statistical Manual of Mental Disorders - 5 (The American Psychiatric Association, 2013, p. 265) is uniform with this messaging in Criterion A which states that "a person can experience symptoms of PTSD if exposed to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence."

Statistics Canada (2017) notes that the prevalence of PTSD in Canada is about 8% occurring more frequently in women than men, and 2.5 million adult Canadians have suffered from PTSD in their lifetimes (Journal of Community Safety & Well-Being, 2016; Statistics Canada, 2012). In addition to the physical and mental burden of post critical illness PTSD, there is also a significant economic cost, as only 50 % of patients return to work in the first year after discharge from hospital. While it was difficult to find studies on the economic cost of PTSD specifically, the total financial burden in Canada under the umbrella of mental illness, results in productivity losses of 51 billion dollars each year (The Center for Addiction and Mental Health, 2016).

In a systematic review of PTSD in ICU survivor evidence, Davydow et al. (2009) established that the prevalence of psychiatrist diagnosed PTSD post critical illness was 44% at the time of hospital discharge and this decreased to 25 and 24 % at the five and eight year follow-up, respectively. In this same review the authors (Davydow et al., 2009) found three very important themes: 1) approximately one-fifth of patients had either

substantial PTSD symptoms or clinician-diagnosed PTSD, 2) benzodiazepine sedation was associated with increased risk of post-ICU PTSD, and 3) post-ICU PTSD was associated with worse health-related quality of life (HRQOL). Another meta-analysis done by Parker et al. (2015) looking at 40 different studies, all utilizing a validated Post Traumatic Stress Disorder scoring instrument, found that between 25 and 44% of people had PTSD symptoms at the one to six month follow up, and 17 to 34% had PTSD symptoms at the seven to twelve month follow up. In synthesizing this data, Parker et al. (2015) also concluded that PTSD continued in one fifth of critical illness survivors at the one year follow up with a higher incidence with those patients with pre-existing psychiatric disorders, those who received benzodiazepines in the ICU, and those that had frightening memories of the ICU. Long et al. (2014); Myhren, Ekeberg, Tøien, et al. (2010) and Twigg, Humphris, Jones, Bramwell, and Griffiths (2008) have all concluded much the same thing: a large majority of patients that experience the trauma of ICU care struggle with mental health issues that can be pervasive and long lasting. The causes are related to medications received in the ICU, poor pain management, restraint use, perceived threats while in the ICU, and the presence of frightening delusional memories while in the ICU.

While most of this research is conducted by surveys and questionnaires, the limitations of this work lie in the fact that different follow-up survey tools are utilized worldwide to measure PTSD. That said, not only is the PTSD assessment tool different, but the way in which the data is gathered varies as well. Some researchers send out surveys via mail or email, while others prefer face to face interviews. The time that research is conducted varies from one-month follow-up, to every three months for a year,

to one, six, twelve, and twenty-four month follow up. Finally, if consistent guidelines and assessment tools could be made for this research, the data would undoubtedly be more robust, easier to collate, and more refined conclusions could be developed. Parker et al. (2015) validates this view by indicating the need to develop a standardized assessment tool to mitigate this variability.

Theory Practice Gap

While there is an abundance of theories and research on PTSD in ICU survivors, the gap found is in the RN's knowledge and understanding PTSD and how it relates to their clinical practice in the ICU environment.

The significance of current and relevant evidence-based research for quality improvement, and safe and effective care of patients is well established. Education attempts to close the gap between research and practice with the end goal being quality patient care. While research evidence is being produced at an ever-increasing rate, "change in clinical practice to reflect this evidence has lagged behind (Curtis, 2016, p. 863)." Ajani and Moez (2011) describe theory as a set of "statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena. The term practice is defined as the act or the process of doing something; performance or action" (p. 1). In a study by Corlett (2000), nurses were unable to separate definitions of theory and practice; "one was dependent upon the other, theory being defined as the principles and knowledge needed to understand the why of practice" (p. 504).

To understand why this theory practice gap occurs, it is important to recognize that nurses can hold one or more basic set of epistemological beliefs that guide their perspective about the nature of knowledge. Appreciating this can be an opportunity to bridge how theory is learned and how it relates to nursing practice. For example, if a nurse holds a postpositivist world view of knowledge, the belief is that causes determine the outcomes (Creswell, 2014, p. 9; Schraw & Olafson, 2002), therefore, this nurse may favor research like clinical practice guidelines or best practice guidelines to guide their patients' care. Another nurse may find meaning in transformative research that holds philosophical assumptions that considers preconceptions, assumptions, and self-reflection to guide clinical practice (Owen, 2016). The nurse that holds a social constructivist worldview may value knowledge that is generated through their interaction with other nurses, patients, and the multidisciplinary team in the setting in which they work (Schraw & Olafson, 2002). In order to understand the theory practice gap, it is important to acknowledge that nurses are lifelong learners with each nurse being unique, meaning, the type of knowledge they value guides their practice and how they acquire and retain it may be different from others.

When looking at the historical overview of nursing, it is clear "…that nursing has transitioned from an apprenticeship based craft to a skilled, thinking profession (Aimei, 2015, p. 13)." In the 1800's, Florence Nightingale became the founder of modern nursing, and was one of the first nursing theorists. Nightingale focused on patient care, hygiene, and the collection of epidemiological data to guide clinical decision making in the healing of patients (White, 2016, p. 3). Over the last 50 years, nursing has evolved to require an even stronger scientific base, and the need for theories and research to guide practice (Marrs & Lowry, 2006). Nurses can no longer rely on their clinical experiences alone to

provide quality patient care. This transformation of nursing over the years could account for some of the disconnect between theory and practice: the age-old idea that nursing is one thing only, a practice-based profession (in hospitals), or a theory-based profession (in universities). As White (2016) has outlined, the nursing process has served nurses well in problem solving, but the evaluative piece could go one step further in incorporating evidence to improve the efficacy and quality of care.

Classroom Based Education

The strategy used in this project to bridge the theory practice gap was a classroom-based education session utilizing myself as an expert lecturer disseminating knowledge combined with a case study that actively allowed learners to construct new knowledge. In an article by Buckley (2003), it was noted that classroom based learning when compared with other modes of learning was both effective and showed good outcomes for learners. Chen and Hubinette (2017) also noted that the mentoring and the shared learning that occurs in the classroom setting "fosters peer support as well as resilience (p. 879)." For these reasons and the time constraints of the semester, an education session was decided to be the most practical approach to bridge this knowledge gap.

Case Study

Case studies are used as a teaching tool to synthesize information, theories, or concepts by applying them to real life situations. They also have an important role in developing knowledge, skills, and the higher ordered thinking that takes place in the experienced RN. Griffen (2019) states that case studies used in nursing consist of a patient scenario that usually includes information about the patient's medical history, symptoms, treatments and procedures, and information from the physical assessment.

With this information, the learner then tries to integrate this information with learnings to make a patient diagnosis. Case studies have typically been used to create connections between knowledge and clinical practice (Foster, 2008). In the revised Bloom's Taxonomy, case studies can be utilized to meet both the comprehension and knowledge dimensions (Bowman, 2017). In this, the learner must take their previous learnings and the factual knowledge from the case study and apply and analyze to generate a diagnosis. Bowman (2017) also states that case studies help to develop the critical reasoning skills so important to the clinical areas of the hospital setting. For this reason, a case study was developed and utilized as part of the education sessions for the Medicine Hat ICU RNs.

PTSD, Risk Factors, and Prevention

The following four assumptions have been made in the development of an education session for RN's. First, understanding PTSD and how it relates to the critically ill patient is paramount, as well as the fact that it typically manifests itself three months after the traumatic event (Long et al., 2014). PTSD is a mental health condition with long lasting mental health effects that includes nightmares, flashbacks, anxiety, depression, as well as uncontrollable thoughts (Mayo Clinic, 2018; The American Psychiatric Association, 2013). Second, RN's must be able to understand who is at risk in developing symptoms of PTSD. Hatch et al. (2011); Jones et al. (2007); Long et al. (2014) have identified multiple risk factors in the development of PTSD post critical illness. Long et al. (2014) divided these risk factors up into modifiable and non-modifiable. Non-modifiable risk factors include previous psychological distress or mental illness prior to ICU admission, longer length of stay in the ICU, age, and gender. Modifiable factors for patients while in the ICU are listed as high levels of agitation, use of physical restraints, paranoid delusions, delirium, hallucinations, sedative administration, lack of sleep,

anxiety and/or depression in the immediate post-ICU period (Kredentser, Kredentser, Blouw, Marten, & Sareen; Myers, Elizabeth, David, Steven, & Lewis). Third, strategies to prevent PTSD are essential in mitigating factors for those at risk. This includes avoiding over-sedation of patients particularly in benzodiazepine usage; utilizing a family centered care model (Alberta Health Services, 2019); improving sleep hygiene (Elliott, McKinley, & Cistulli, 2011; Honkus, 2003); identifying delirium; introducing psychological support in the ICU for high risk patients; and creating ICU diaries (Hatch et al., 2011; Jacobson & Joy; Kredentser, Kredentser, Blouw, Marten, & Sareen). Finally, though the patient's PTSD symptoms manifest after leaving the ICU, RN's should be able to offer guidance and resource information to patients and families prior to transfer or discharge from the ICU.

Theoretical Framework

The theoretical framework to be utilized in developing the education session for ICU RN's is the ADDIE (analyze, design, develop, implement, and evaluate) Model of Instructional Design. This instructional design model is an iterative process that assists educators in developing learning objectives, managing guidelines, and allows organizational flexibility in the design and development with the end goal of developing a meaningful curriculum (Cheung, 2016; Woo, 2018). In a review of the literature (Instructional Systems College of Education Penn State University, 2000) (Lu, Cheng, & Chan, 2016; S. R. Patel, Margolies, Covell, Lipscomb, & Dixon, 2018; Woo, 2018), it was found that this model has had great success in both the development of educational programs and in the learner outcomes. In a pre-test/post-test evaluation, Cheung (2016) reports that prior to implementation of the ADDIE model, learners reported that their overall learning on chest radiography education was 77.5% not useful to useful, and

following the implementation of the ADDIE model in curriculum development, learners reported that education on the same topic was 100% useful to very useful. For this project, the health education strategy that will be designed and developed is a face to face education session with a post evaluation. As the ADDIE model allows flexibility in its design, decisions and changes can be made at every step in the development of the learning strategy, the education session will be a good fit to ensure a complete and thorough education plan that builds capacity and understanding of PTSD in the ICU patient survivor.

Education Model

Bloom's Taxonomy is an education model first developed by Benjamin Bloom in the 1950's to describe the cognitive processes of learning and understanding (University of Michigan: College of Literature, 2019). There is a set of three hierarchical models that classifies educational learning by dividing them into cognitive, affective, and sensory fields. The goal of an educator in using this model is to encourage higher ordered thinking by building from lower level cognitive abilities (Krau, 2011; Vanderbilt University: Center for Teaching, 2019). Although this model was revised in 2001, for nursing, the original trio of knowledge, skills, and attitude remains current and at the forefront of nursing education (Doyle, Hungerford, & Cruickshank, 2014). The 2001 revised version of Bloom's Taxonomy was utilized in this paper to construct learning objectives and the idea that knowledge is created based on six cognitive processes. These six cognitive processes from the lowest to the highest order are: remember, understand, apply, analyze, evaluate, and create (Vanderbilt University: Center for Teaching, 2019).

For this project, Bloom's Taxonomy was utilized in the design, development, implementation and evaluation phases of all education sessions.

Finally, this exhaustive review of the literature combined multiple ideas. First, there is a high prevalence of PTSD in the ICU patient survivor. Second, there is a knowledge gap that has occurred for RN's working in the ICU environment related to the theory practice gap. Third, there is evidence that both an education session and case study are effective tools to build knowledge and understanding. Four, both the theoretical framework and education model were appropriate for this type of learning and were utilized from the development to the evaluation stages of this project. Overall, the intent of this project was to develop a strategy to address a practice issue and improve knowledge translation related to the prevention of PTSD in ICU patient survivors.

CHAPTER 3: PROJECT DESCRIPTION

Background and Planning

The purpose of this project is to build capacity in the RN's working in the ICU environment through the development and implementation of an evidence-based education session on PTSD in ICU patient survivors. This education session will increase knowledge and understanding for the RN to identify patients at risk, build capacity within their ICU team to incorporate PTSD prevention strategies into their nursing practice, and improve the overall care and holistic treatment of the critically ill patient. This project will evaluate each RN's knowledge after the education session with the end goal of determining if the current knowledge base of the RN was enhanced, to identify areas for improvement to the education session, as well as inform future educational needs for the RN working in the ICU setting.

Project Goals

1. Build the capacity of the Registered Nurses working in the Intensive Care Unit (ICU) environment about PTSD in ICU patient survivors.
2. Build knowledge and understanding of the ICU RN's to identify patients at risk of developing PTSD and how to mitigate PTSD.

Audience

The target audience is the Registered Nurses working in the Medicine Hat Hospital Intensive Care Unit. Stakeholders include the ICU Clinical Nurse Educator (CNE), the Director and Senior Operating Officer of Critical Care Services, and an ICU survivor (SME). Indirect stakeholders are the ICU patients and their families, the institution of Medicine Hat Hospital, and the umbrella institution of Alberta Health Services. Permission was granted by the Senior Operating Officer, Director, and Manager of Critical Care services of the Medicine Hat Hospital to provide education sessions to the Medicine Hat ICU. A skype meeting was held on June 3, 2019 with the Medicine Hat ICU manager and CNE to discuss the best dates, times, and number of projected RNs that would participate. Once this was complete, an email invitation and recruitment poster were sent to the Medicine Hat ICU manager and CNE which were then disseminated to the Medicine Hat ICU staff. A series of two lunch and learn sessions/day were planned for June 26 and 28, 2019. A reminder email was sent out two days prior to each education session clearly articulating the project goals as well as encouraging participation. The participants were also made aware that this education could be utilized in their CARNA continuing competency.

Ethical Considerations

A pRoject Ethics Community Consensus Initiative (ARECCI) assessment was completed (see Appendices A). The ARECCI screening tool is used for non-research projects to ensure that there is no harm or ethical risk to the people participating and their information handled appropriately. When completing the initial assessment to conduct the project at the Chinook Regional Hospital with ICU nurses, it was noted that the purpose of this proposal was quality improvement. When determining the category of risk to

participants it revealed that there was a low risk. This risk was related to a power relationship between the investigator (myself) and participants (Lethbridge's Chinook Regional Hospital ICU Registered Nurses) as the relationship was deemed manager/employee. The ARECCI tool showed a score of 13 which means that the project involves somewhat more than minimal risk and should be reviewed by a Second Opinion Reviewer. After discussion and brainstorming regarding this 'red flag' with both my project nursing instructor and the nursing faculty attending the project colloquium, the decision was made to present to another group of RN's in the Medicine Hat ICU. Presenting in Medicine Hat would mitigate the risk of a power differential/relationship. With this plan in place, another ARECCI screening tool (Appendices B) was completed and the score was 0, indicating that this project involves minimal risk.

Incentive for attending this education session is based on the concept of reciprocal altruism (Manthey, 1994), whereby the RN can add this completed education session to their continuing competency standards for CARNA (College and Association of Registered Nurses of Alberta), as this is a crucial part of their professional responsibility in providing high standards of patient care and safety, and providing care based on current research and best practices (CARNA, 2019). Another incentive for RNs attending the education session was a light lunch was available as these sessions occurred during the time that would have been their lunchtime meal break.

ADDIE Model of Instructional Design

The ADDIE model (Figure 1) guided the development and ongoing work for this project with the end goal of building the capacity of RN working in the ICU environment. This model is a systematic approach to solve an instructional problem and consisting of five steps: analysis, design, development, implementation, and evaluation. Instructional

design aims for a learner centered approach as opposed to a teacher centered approach, with the effective learning being the objective (Association of College and Research Libraries, 2013; Instructional Systems College of Education Penn State University, 2000). This framework is an iterative process, where the results of formative evaluation of each phase may lead the investigator back to any previous phase (Instructional Systems College of Education Penn State University, 2000).

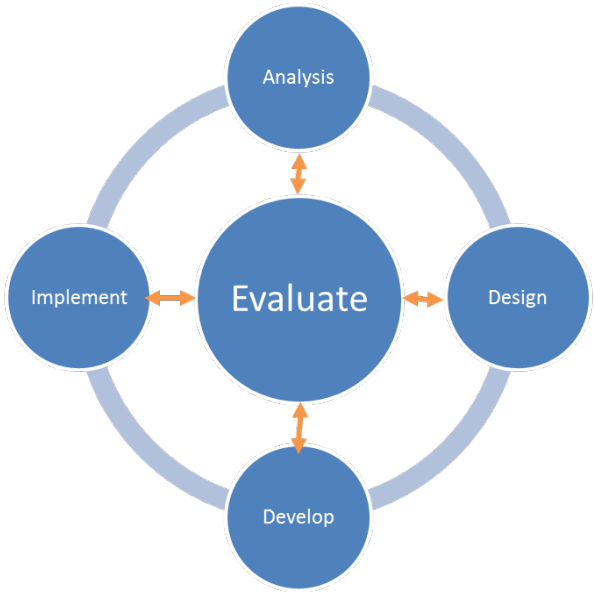


Figure 1: **ADDIE Instructional Design Model**

Project Development

The following tables have been added to demonstrate the relationship between the phases of the ADDIE model and the strategies involved in developing the project and moving on to the next phase or refining the current phase. This five-phase approach to this project development: 1) analyze, 2) design, 3) develop, 4) implement, and 5) evaluate (Branch, 2009).

Table 3.1: ***Analyze***

Analyze		
Instructional Goals	Target Audience	Required Resources
To build the capacity of Registered Nurses working in the Intensive Care Unit (ICU) environment about PTSD in ICU survivors.	Registered Nurses working in the Intensive Care Unit. Intensive care unit (ICU) RNs provide care for patients with life-threatening medical conditions. These RN's typically have years of experience and advanced classroom and clinical training in order to work in the ICU environment.	1. Lesson Plan 2. Laptop and Power point program 3. Post-testing/Questionnaire paper resources 4. Projector 5. Meeting Room 6. Lunch and Learn session – providing a light lunch.

Table 3.2: ***Design***

Design		
Learning Objectives	Instructional Strategies	Testing Strategies
Registered Nurses working in the ICU environment will develop knowledge and understanding of patient related PTSD post critical illness: • Define PTSD as it relates to critical illness. • Understand and identify patients at risk. • Understand and utilize prevention strategies.	• In-service lunch and learn sessions x 4, each session was 45 minutes in duration. • Case study • Seven-minute video presentation.	• Subject Matter Experts x 2: Clinical Nurse Educator and an ICU patient survivor with lived experience. • Post-test questionnaires at education sessions

Pre-test with Subject Matter Experts occurred on May 26, 2019 with an ICU patient survivor and June 26 with a clinical nurse educator. Following a review of the education session and feedback for the SME, a few small revisions were made, and information added based on their feedback.

Table 3.3: *Develop*

Develop		
Learning Resources	Validation	Pre-test
• PowerPoint presentation • PowerPoint and session notes • Video presentation • Case Study • Lesson Plan	• Subject Matter Expert review x 1 • Key Informant Interview x 1	• 4 Inservice Lunch and Learn Sessions with Medicine Hat ICU RNs

Table 3.4: *Implement*

Implement	
Participant Engagement	Preparation
• Approvals received by hospital leadership. • Medicine Hat ICU RN's notified by email as well as posters. • Sign-up sheet made prior to session that was posted in the Medicine Hat ICU break room.	• Schedule for sessions created and approved by manager of the Medicine Hat ICU. • Presentation validated by SMEs, revisions made, and ready to present.

Table 3.5: *Evaluate*

Evaluate	
Formative Evaluation	Summative/Post Questionnaire Evaluation
• Subject Matter Expert: CNE • Subject Matter Expert: ICU patient survivor with lived experience.	• Level 1: Perception – measuring degree of participant satisfaction. • Level 2: Learning -measures acquisition of knowledge. • Level 3: Performance – not measured in this project.

During the design phase of the ADDIE model, the educational theory that was utilized is Bloom's Taxonomy. In this theory there are three domains of learning but only two domains will be utilized to construct the education sessions and case study: cognitive (thinking), and affective (emotion/feeling). The tables below show how each of these domains is linked to the education session.

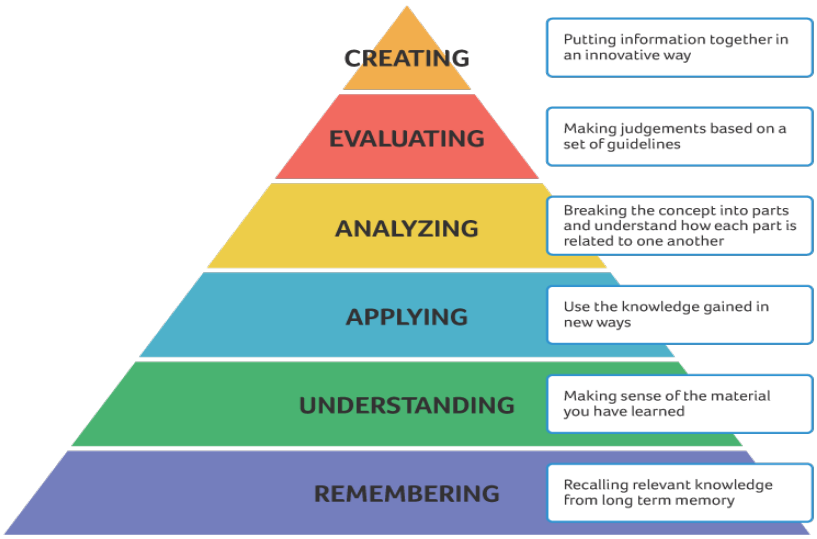


Figure 2: **Bloom's Taxonomy**

Table 3.6: *Bloom's Taxonomy* (Duan, 2006)

Cognitive Domain	Linkage to education session
Knowledge/Remembering	Accomplished through in-service session. Student recall, define by incorporating knowledge into case study
Comprehension/Understanding	Ability to understand the gap in knowledge of PTSD, understand who is at risk and prevention strategies and applying this to case study.
Application	Learners can apply this education to the case study and use it in their practice to employ different ways of working with patients at risk of developing PTSD.
Analyze	Learners begin to distinguish and differentiate who is at risk and the ability to incorporate PTSD prevention strategies. Learners show the ability to solve problems when posed in the education session
Synthesis/Evaluate	Learners develop the ability to evaluate their practice and identify new learning needs in this area.

Table 3.7: *Bloom's Taxonomy* (Doyle et al., 2014)

Affective Domain	**Linkage to education session**
Receiving	The learner will listen respectfully to education and other learners in the session.
Responding	The learner answers questions and participates in discussion in education session in order to fully understand.
Valuing	The learner is sensitive towards individual and cultural differences (value diversity and organizes own values). Values engagement in the learning process with others.
Organization	The learner accepts and prioritizes evidence-based learning and upholds professional ethical standards.
Internalizes Values	The learner co-operates in group discussion. Displays a professional commitment to ethical practice daily. Revises judgments and may change behavior considering new evidence presented in the in-service.

Project Implementation

The education sessions were organized according to when the most staff would be available to attend. The Medicine Hat ICU RNs have two lunch breaks therefore the decision was made to offer the sessions to the RNs at each lunch break on two separate days to maximize reach and recruitment.

Learning Objectives

Registered Nurses working in the ICU environment will develop knowledge and understanding of patient related PTSD post critical illness:

- Define PTSD as it relates to critical illness.
- Understand and identify patients at risk.
- Understand and utilize prevention strategies.

A PowerPoint presentation was developed to guide the session as well as the group discussion. A very informative seven-minute video presentation was utilized as well as an interactive case study presentation to consolidate information learned. Case studies have typically been used to create connections between knowledge and clinical practice (Foster, 2008) The idea behind this was that learners could apply their own background knowledge and new learnings to solve a problem. Following the case study, 5-10 minutes were given for a question and answer period, and then a questionnaire was given to each participant with the end goal of engaging participants in self-reflection of their own knowledge of PTSD, evaluate knowledge gained, and providing feedback on opportunities and challenges in the session for quality improvement purposes.

Accompanying the power point (Appendix E) was the lesson plan (Appendix C) which ensured a framework for guiding the session and discussion.

Pilot 1. On June 26, 2019 the first pilot was conducted with the first group of RNs from the Medicine Hat ICU. This session included seven RNs and was held at a meeting room at the Medicine Hat Hospital. The facilitator, while presenting also engaged in direct observation throughout the session to identify strengths, weaknesses, opportunities, and threats.

Pilot 2. On June 26, 2019 the second pilot was conducted with five RNs from the Medicine Hat ICU. This session was held at a meeting in the Medicine Hat Hospital and a SWOT analysis (Appendix E) was conducted following facilitator direct observation during the session.

Pilot 3. On June 28, 2019 the third pilot was conducted with two RNs from the Medicine Hat ICU. After direct observation, a SWOT analysis (Appendix E) was completed. This education session was held at a meeting room at the Medicine Hat Hospital.

Pilot 4. On June 29, 2019 the fourth pilot was to be conducted. Unfortunately, the Medicine Hat ICU RNs were having a very busy shift and relayed that they "had a patient crashing" and because of this were unable to send any nurses to this final pilot test.

Evaluation Methodology

Formative evaluations were conducted during project development and prior to implementation. This evaluation strategy was part of the ADDIE model of Instructional Design. Evaluation with Subject Matter Experts (SME) prior to implementation of the project was completed in order to determine whether the quality of learning resources was sufficient and learning goals would be met (Branch, 2009). This included one-on-one conversation/discussions with two SMEs, an ICU educator and a ICU patient survivor, reviewing the material compiled for the education session. After gathering their insight into this project and synthesizing their feedback, revisions were made.

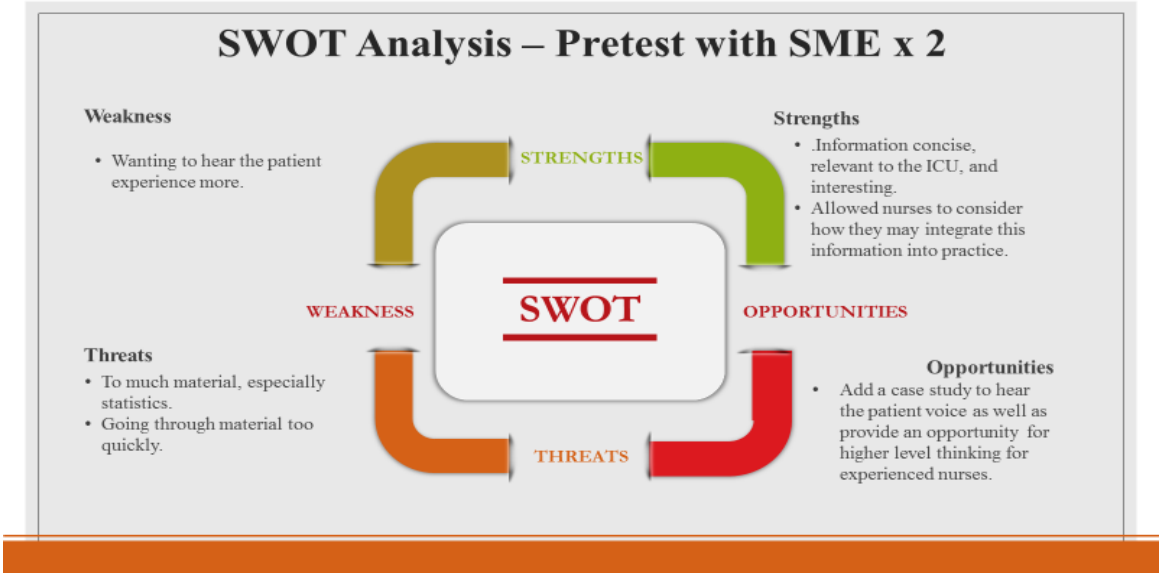
Summative evaluation, in the form of a post education session questionnaire, was conducted after implementation of the project and with each pilot test. This mixed methods questionnaire included six 5-point Likert scale questions with two qualitative questions asking participants to comment on strengths and weaknesses of the education session pilot. The questionnaire was created utilizing the ADDIE model with the first five questions considering perception and learning (Branch, 2009), and the sixth question rating the confidence of the learner. The Likert scale was chosen not only because it is often used in social sciences (Subedi, 2016) to evaluate attitudes but also because it is an orderly way of conducting quantitative evaluation of the RNs in the degree that they agree or disagree with their learning. Interestingly, the Likert scale was developed in 1932 by Rensis Likert and continues to be readily adopted by researchers as it is very easy to re-create this attitudinal scale (Edmondson, 2005). With all pilot tests and evaluations, no identifiers were collected on individual RNs, to ensure anonymity and subsequent improved cooperation and honestly in the evaluation process.

Data Collection Results

The findings from this project are in alignment with the literature stating that PTSD in ICU patient survivors is prevalent, and with education RNs can recognize those at risk, use strategies to mitigate PTSD, and therefore the potential to improve patient outcomes and quality of life is possible to accomplish through educational sessions such as this project.

Below are the key findings from the SME's formative assessment. A SWOT analysis was utilized to synthesize the feedback received. The SWOT analysis is a simple framework used to analyze strengths, weaknesses, opportunities, and threats in an objective manner. For example, one SME indicated the evidence-based information presented was very useful and would be easy for ICU RNs to implement into clinical practice, the other SME noted they wanted to hear more of the patient voice. Considering the SME's feedback, a balance of evidence-based information and lived experience was build into the education session to avoid the threat of information overload, and a case study was added to the end of the PowerPoint presentation to leverage an opportunity identified to help learners consolidate the information.

Table 3.8: ***SWOT Analysis of Subject Matter Expert's Feedback***



Below are the key finding from the summative assessment of the four pilot sessions. A mixed methods methodology was utilized in the post session questionnaire with six Likert questions and two qualitative questions. The responses from all four sessions were collated and are presented as aggregate results with n = 15 participants in total.

Table 3.9: ***Question 1***

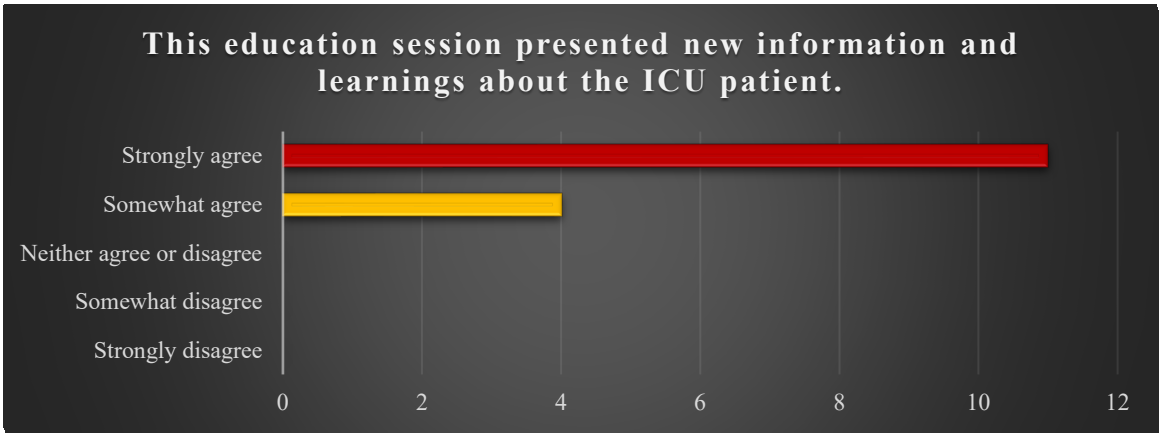


Table 3.10: ***Question 2***

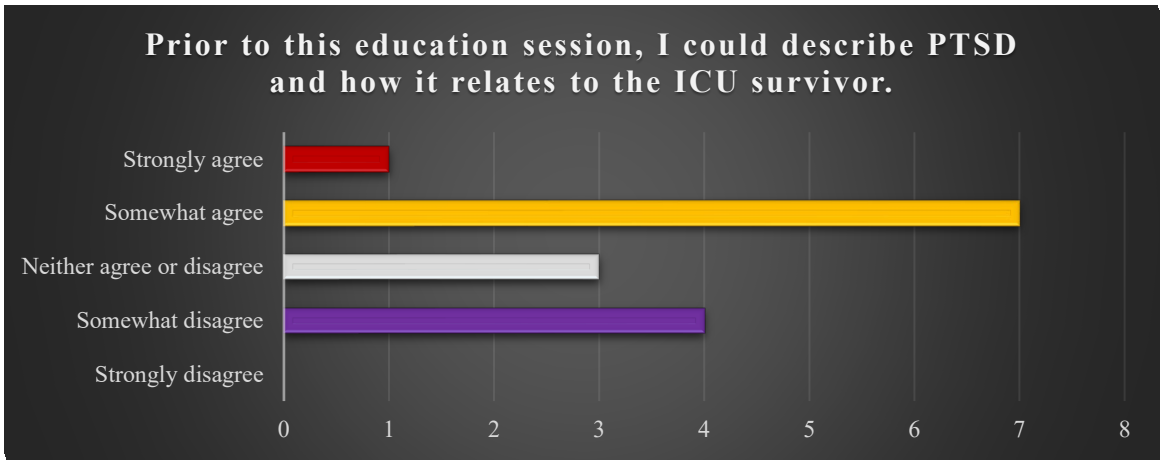
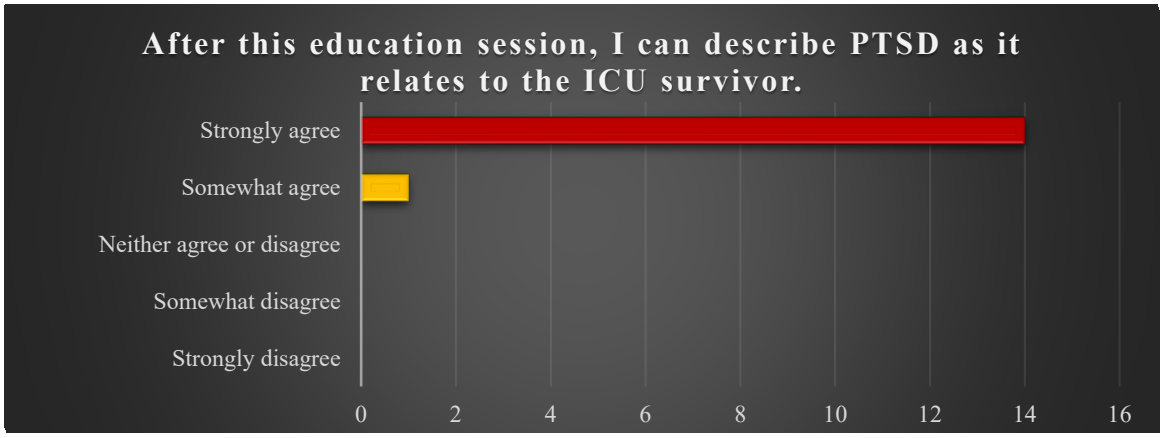
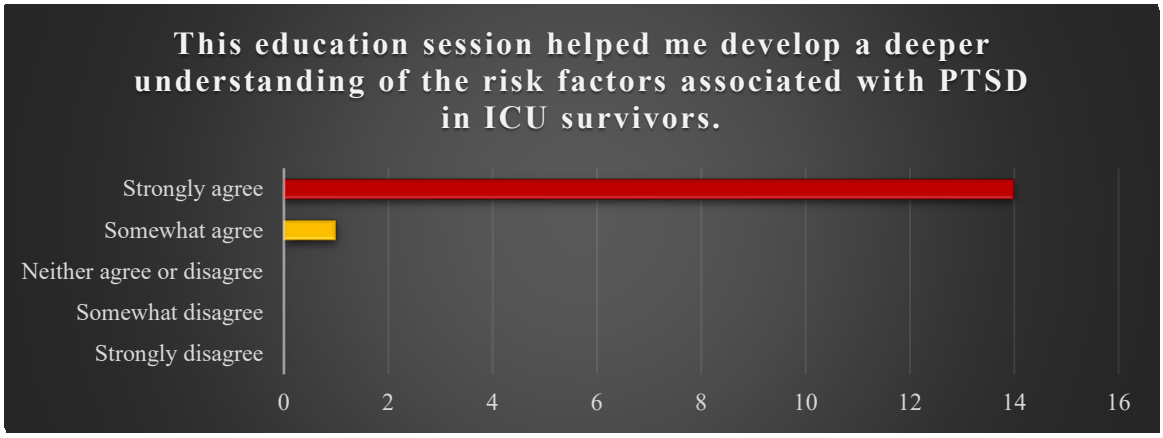


Table 3.11: ***Question 3***



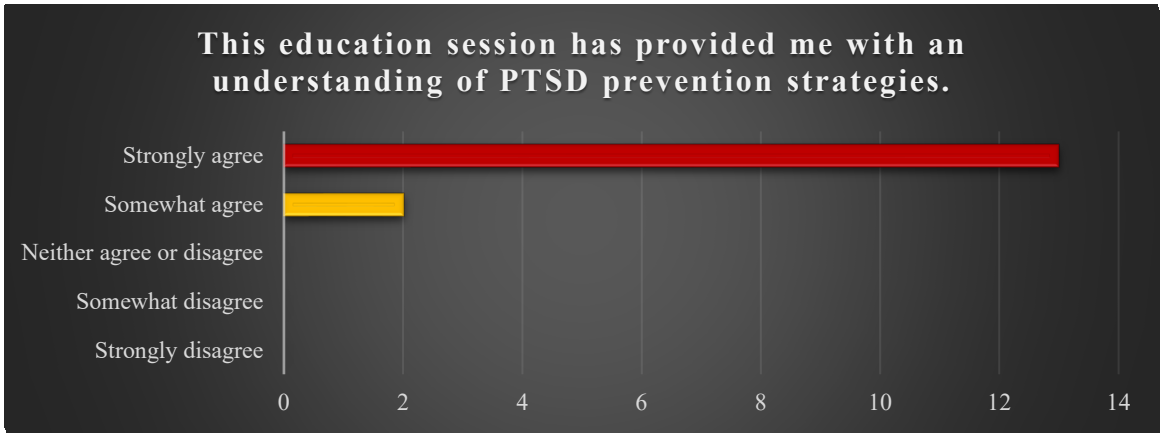
Learning objective one was to increase awareness, knowledge, and understanding of PTSD and how it relates to critical illness survivors. The results from question two were variable (from somewhat disagree to strongly agree) in asking if nurses could describe PTSD as it relates to ICU patient survivor prior to this session. Following the session, 15/15 RNs somewhat agreed or strongly agreed that they were able to describe PTSD. Based on this feedback this objective was achieved.

Table 3.12: ***Question 4***



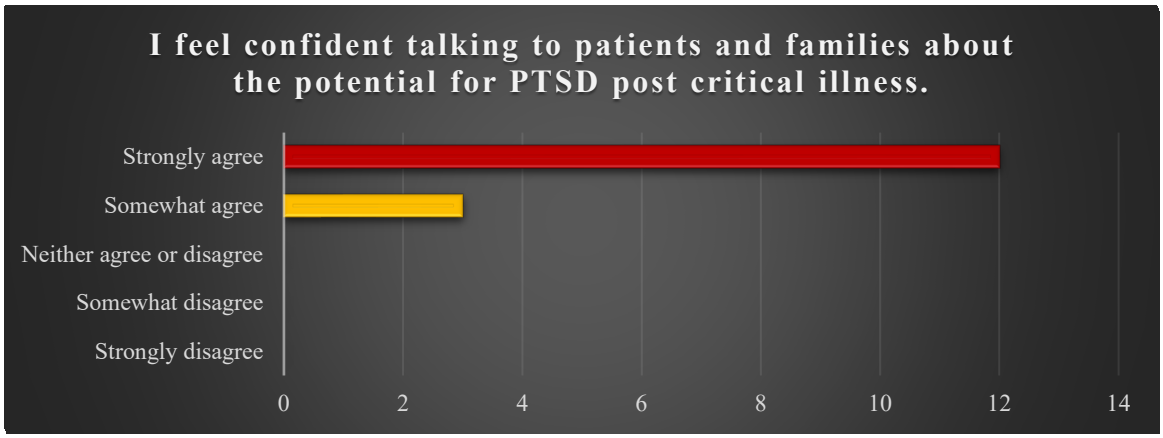
Learning objective number two was to increase knowledge and understanding of both modifiable and non-modifiable risk factors for PTSD and with this, develop an awareness of which patients are at risk. According to question four 15/15 RNs felt that they agreed and strongly agreed that they understood the risk factors of PTSD. This was achieved through reflection, group discussion, and the case study. The case study included a patient with modifiable risk factors. Questions posed to the group of learners during the case study: "what could we modify in the patient's care to reduce the risk of developing PTSD?" Overall, the feedback participants provided indicated that learning objective number two was met.

Table 3.13: ***Question 5***



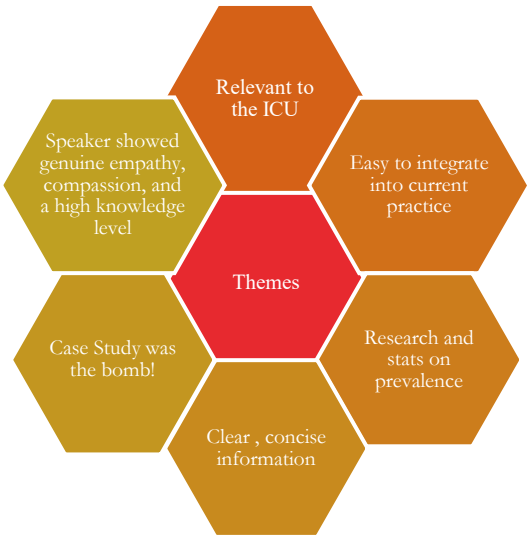
Learning objective number three was to increase knowledge and understanding of PTSD prevention strategies. Question five on the feedback questionnaire showed that this was achieved as 15/15 nurses either somewhat agreed or strongly agreed with this statement. Again, this was achieved through didactic knowledge, robust class discussion, and learners reflecting on their own experience and knowledge. The case study solidified this learning and learners showed both knowledge and comprehension when answering questions and continued to ask relevant questions at the end of the education session. Feedback from participants indicated that learning objective number three was met.

Table 3.14: ***Question 6***



Question 6 was added to rate the confidence of learners in articulating what they had learned in the education session to patients and families. The responses indicated that 15/15 somewhat agree to strongly agreed that they have confidence talking to patients and families about the potential for PTSD post critical illness.

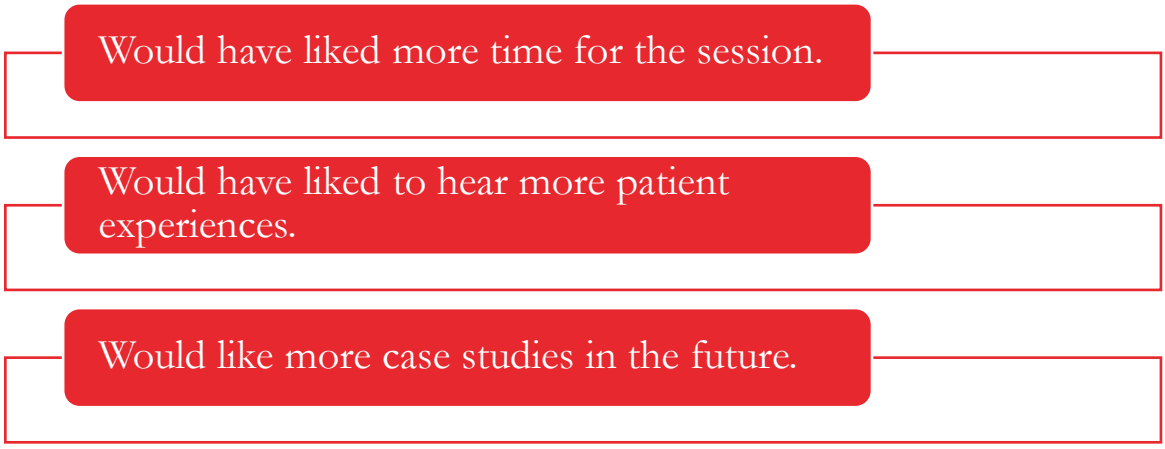
Table 3.15: ***Question 7 - What were the strengths of this education session?***



Feedback from this question was collated into themes:

- 7/15 noted that information presented would be easy to integrate into current practice.
- 6/15 noted that sessions were relevant to the ICU.
- 6/15 reported that they really enjoyed the case study at the end as it solidified learnings.
- 5/15 reported liking the speaker, stating I was a good speaker, high knowledge level and had obvious empathy and compassion for patients.
- 4/15 stated that understanding the prevalence through statistics made the information more meaningful.
- 3/15 reported that information was easy to follow, clear, and concise.

Table 3.16: Question 8 – *What were the weaknesses of this education session?*



The results from this question indicate that there should be future consideration in increasing the time allotment for the education session and to add more case studies to enhance learning and the overall quality of the session.

Feedback Analysis

Overall, the feedback questionnaire supported the significance of the education sessions. The high number of similar responses in questions three, four, five, and six indicate that knowledge translation has occurred and the session goals and learning objectives were met.

Question one indicated that knowledge regarding PTSD was variable confirming that learnings in the education session were new for some of the RN participants. This made the feedback from the qualitative portion of the questionnaire very valuable and validating as it revealed that overall the RN's really liked the education session and found it to be relevant to their practice. The case study presented was very popular and 6/15 participants asked for more case studies and to hear more anecdotal stories in the future as these solidified learnings. Participants also valued the significance of statistics, including

current Canadian statistics to understand the prevalence of PTSD in the ICU patient population when comparing to the general population.

In conclusion, the feedback from the education session mixed methods questionnaire indicates that this evidence-based education strategy has successfully addressed the gap in RN knowledge related to PTSD in the ICU patient survivor, therefore, the overall purpose of this project has been accomplished.

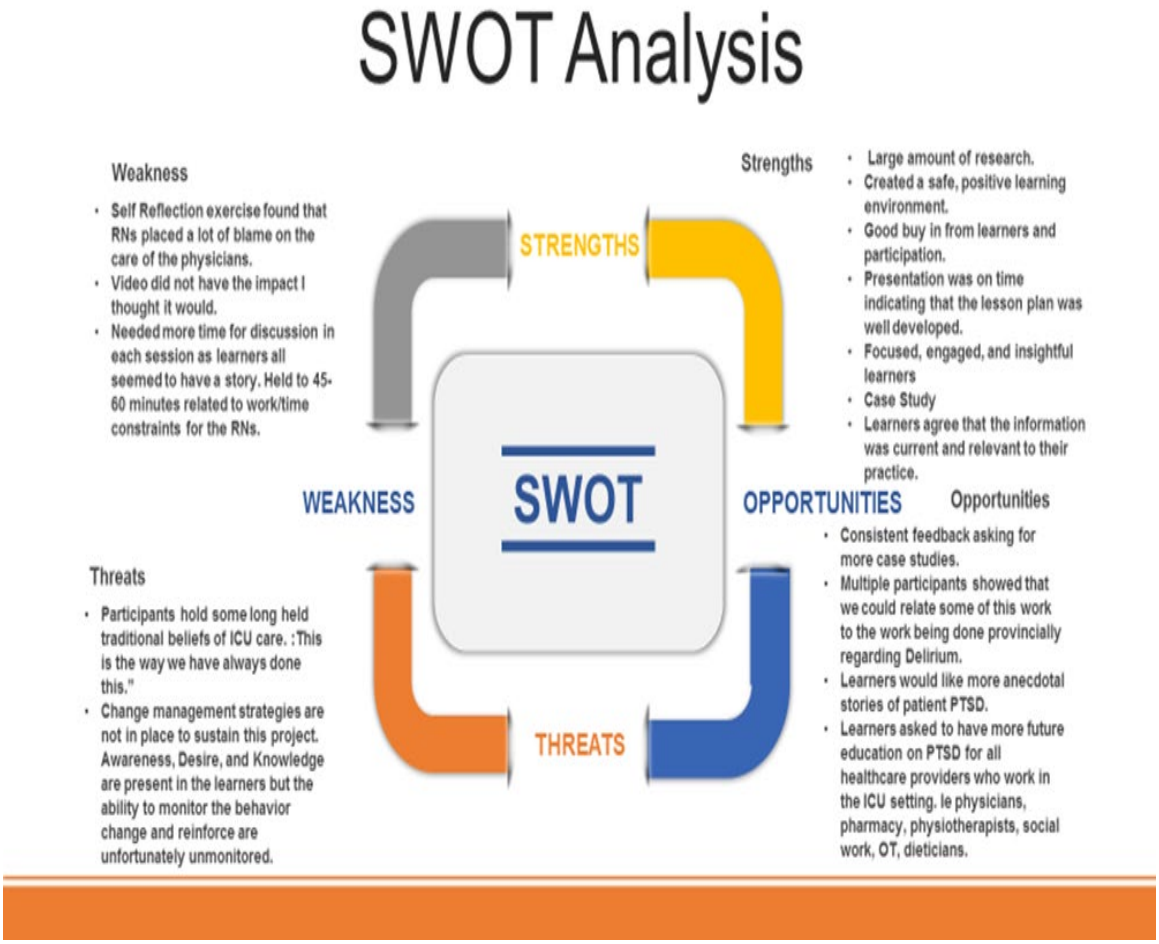
CHAPTER FOUR: REFLECTION

Project Development

The purpose of this project was to bridge the knowledge gap of RN's working in the ICU environment on the topic of PTSD in the ICU patient survivor. A broader goal was to contribute to the growing evidence that the theory practice gap in clinical care is prevalent. While the initial ethical challenges proved to be tricky, the insight of reaching out to teachers and student colleagues proved invaluable in helping to mitigate the ethical 'red flags' that occurred in the original ARECCI screening tool to implement the project in Lethbridge, Alberta. When the decision was made to pilot this project in Medicine Hat, there were worries about how well the sessions would be attended and how the sessions would be promoted without my involvement in recruitment. As it turned out, the attendance was very good, and the Medicine Hat ICU nurses were engaged and motivated to learn. Consistent feedback was they appreciated the education as the learnings were current, relevant, and could be translated to their work environment. I found the feedback from the RNs very validating because a large part of my project work and literature review was based on the research practice gap that occurs in nursing. The ability to close this gap is extraordinarily satisfying for educators. Evidence and best practice standards are changing rapidly and for this reason education is an essential and effective component of nursing practice. This project demonstrated that with the development of a comprehensive education strategy, knowledge translation can and does occur.

A SWOT analysis was developed based on the direct observation and post session reflections.

Table 4.1: Direct Observation and Reflection SWOT Analysis



Lessons Learned

Awareness, knowledge, and desire to change practice were all present in the learners but the threat that I see when reflecting on the sessions, is in the ability to monitor the behavior change in practice and reinforce the change (see table 4.1). Because of this, I have shared my learnings and this project work with both the manager and clinical nurse educator of the Medicine Hat ICU with the hope that they will monitor this change.

Utilizing case studies are a very important way of synthesizing and evaluating knowledge and comprehension of experienced RNs. The nurses were very engaged in this type of learning and in the feedback 6/15 stated that they would like more case studies. Anecdotally, three nurses spoke to me following the session about the case study presented as they had similar patient stories. While time constraints did not allow all nurses to tell these stories, it did show that they had an excellent comprehension of the education. I also learned that RNs want to tell their stories, yet they do not always have the opportunity do so in a meaningful and therapeutic way. The final lesson learned was to keep video presentations short as some of the learners appeared to be bored or distracted.

For this project, I have learned that a theoretical model is essential in developing a robust learning plan for an education session and Bloom's Taxonomy is a comprehensive education model that meets the learner where they are at regarding their own knowledge and ways of learning. Prior to this Master of Nursing program at the University of Lethbridge, I had very little understanding of proposal and project development and the work involved in the design, implementation, and evaluation phases of a project. While the process was never easy, it was always full of learnings and new insights. My mantra moving forward in this project was always to "respect the process."

Research has become part of my life whether it is working on this project, at my job, or home. Reading research and understanding the data of scholarly journals, grey literature, clinical trials, meta-analysis, and systematic reviews has guided me in finding the gaps in clinical practice and in becoming an expert for my project. Retrieving and utilizing evidence to guide practice has now became very straightforward and a part of my day to day life and work.

Implications for Nursing Practice

This project and the feedback results highlight the fact that with evidence-based education, RN's have the potential to impact patient outcomes and quality of life by recognizing those at risk and mitigating the treatments that may cause PTSD while receiving care in the ICU. Through this process I also discovered that continuing education and building capacity is an effective way to empower nurses to understand and articulate research with the objective of patient advocacy, and providing safe, holistic care of the ICU patient survivor. The development of education sessions, in-services, module education, and continuing competency is well supported in the literature, the concern is always how that knowledge is translated into clinical practice. For the purposes of this project, utilizing the ADDIE model as a framework to guide knowledge translation in the RNs was essential as it gave a starting point and guidance through to the evolving end point, all while gathering evidence to support. White (2016) establishes that a "systematic approach to using evidence is necessary (pg. 7)" and that there are multiple frameworks and models that can be utilized in using evidence to guide nursing practice. A well-developed education strategy teaches nurses to translate and apply new learning into practice. Design, development, implementation, and dissemination of new knowledge must be guided by evidence (White, 2016). Interestingly, Melnyk, Fineout-Overholt, Giggleman, and Cruz (2010) note that there is increased nurse and job satisfaction when the work environment and organizational culture support evidence-based practice.

Future Research

While implementing this project, it was noted that there was not enough time in our education session for the target audience to tell their stories. There were multiple incidences of nurses wanting to tell their story of PTSD whether it was related to a patient

experience or their own personal experience. For this reason, I believe that hearing the nurse's voice regarding their personal experience with PTSD is an area for future research.

It was also observed in the implementation of this project, that the education pilot sessions were very well supported by the RN's from the Medicine Hat ICU. This was a pleasant surprise! Two of the nurses stated following the first pilot session that "they didn't get a lot of education outside of the mandatory ICU education," so they were very excited to attend. This made me wonder whether rural nurses or ICU nurses working at regional sites (like Medicine Hat and Lethbridge, Alberta) receive less education? If this is the case, what is the effect on their knowledge, skills, and attitude when compared to nurses living in the urban sites?

Conclusion

PTSD in ICU patient survivors is prevalent. There is a large body of evidence stating that up to 64% of ICU survivors experience PTSD post discharge. Nurses working in the ICU environment have the unique opportunity to change this, in understanding PTSD as it relates to ICU survivors, knowing which patients are at risk, and how to mitigate or prevent PTSD. This has the potential to improve patient care, patient outcomes, and quality of life after leaving the ICU. With the implementation of this education strategy, it has demonstrated the RNs working in the Medicine Hat Hospital, have the knowledge and understanding to improve patient care both inside and outside the walls of the ICU. This evidence-based project contributes to the literature showing the importance of well-developed education to raise awareness, build capacity, and change perspectives of nurses working in the clinical setting. While meeting the emotional, psychological, and physical needs of the ICU patient will always be challenging for

nurses, clinical practice based on evidence will ensure holistic care of this very vulnerable population.

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APPENDIX A: ARECCI SCREENING TOOL #1

ARECCI Screening Tool Results Link:

http://www.aihealthsolutions.ca/arecci/screening/420632/b5d6f1416d078a64df04821ffe64b8b4

APPENDIX B: ARECCI SCREENING TOOL #2

ARECCI Screening Tool Results Link:

http://www.aihealthsolutions.ca/arecci/screening/436226/38c179d2059be379545e547661faf858

APPENDIX C: LESSON PLAN

Post-Traumatic Stress Disorder Post Critical Illness Lesson Plan

Session 1: June 26 12:00 and 1:00 pm

Session 2: June 28 12:00 and 1:00 pm

Learning Objectives:

- To increase awareness, knowledge, and understanding of PTSD and how it relates to critical illness survivors.
- Increase knowledge and understanding of both modifiable and non-modifiable risk factors for PTSD. With this, develop an awareness of which patients are at risk.
- Increase knowledge and understanding of prevention strategies.

These 2 1-hour education sessions will be divided into 3 sections:

Section 1

a) Introduction of myself and project (5 minutes)

Section 2: PowerPoint presentation

a) What is PTSD? (5 min)
b) Short video on Patient survivor of PTSD (10 min)
   https://www.youtube.com/watch?v=bvm6_6vtGa4
c) What is the prevalence of PTSD post critical illness? (5 min)
d) Which patients are at risk of developing PTSD in the ICU? (5 min)
   - Previous mental health issues
   - History of exposure to previous traumas
   - Age
   - Female
   - Use of benzodiazepines in the ICU
   - Prolonged delirium in the ICU
   - Vivid memories of delusions and hallucinations during critical illness
e) What strategies can RN's utilize in the ICU to mitigate the development of PTSD? (10 min)
   - Keeping the patient awake and involved in their own care as much as possible
   - Limit the use of benzodiazepines while in the ICU
   - Pain management
   - Sleep hygiene
   - Limit or stop the use of restraints on mechanically ventilated patients.
   - Patient and Family centered care strategies
     - Keep a diary of the patient's time in the ICU

    - Use a calm voice to help the patient feel more comfortable and relaxed
    - Encourage the patient to move around as much as possible
    - Take part in the patient's bedside care by doing things like giving massages and talking about daily events

Section 3

- Case Study (10 min)

Section 4

- Short video on ICU survivors (show the end of previous video) – maybe not? Running out of time.
- Wrap up of PTSD in ICU survivors – consolidation and synthesis of the information presented. (3 min)
- Post questionnaire (2 min)

APPENDIX D: EDUCATION SESSION POSTER

PTSD IN ICU PATIENT SURVIVORS

LUNCH & LEARN SESSION

For ICU Registered Nurses

Learning Objectives:

- To increase awareness, knowledge, and understanding of PTSD and how it relates to critical illness survivors.
- Increase knowledge and understanding of both modifiable and non-modifiable risk factors for PTSD. With this, develop an awareness of which patients are at risk.
- Increase knowledge and understanding of prevention strategies.

June 26 and 28, 2019

- 1100-1145 & 1200-1245
- Level 5 RSS Meeting Room B-106

Presentation by Marci Neher-Schwengler RN BN
Master of Nursing Project
University of Lethbridge

APPENDIX E: POWERPOINT PRESENTATION PTSD IN ICU PATIENT SURVIVORS

PTSD IN ICU SURVIVORS

Marci Neher-Schwengler RN MN(c)
University of Lethbridge
Master of Nursing Project

Learning Objectives

1. To increase awareness, knowledge, and understanding of PTSD and how it relates to critical illness survivors.
2. Increase knowledge and understanding of both modifiable and non-modifiable risk factors for PTSD. With this, develop an awareness of which patients are at risk.
3. Increase knowledge and understanding of PTSD prevention strategies.

How Did I Get Here?

Where are the gaps in the ICU?

What is the prevalence of PTSD in ICU survivors?

How can we, as Registered Nurses, decrease the occurrence or mitigate PTSD?

Problem Statement

- The need for critical care and the experience of being treated in the intensive care unit may be a traumatic event with long lasting psychological consequences for patients and their families (Hatch, McKechnie, & Griffiths, 2011). Some studies suggest that up to 64% of ICU patients experience Post Traumatic Stress Disorder (Long, Kross, Davydow, & Curtis, 2014). Because PTSD does not manifest itself while the patient is still in the ICU, healthcare providers do not have an awareness that it occurs days, months, or even years following discharge (Myhren, Ekeberg, & Stokland, 2010; Myhren, Ekeberg, Tøien, & Karlsson, 2010)(Khitab, Reid, Bennett, Adams, & Balbuena, 2013). For this reason, few strategies have been put in place to develop capacity and understanding for healthcare providers. There is good evidence to show that by increasing the knowledge and understanding of PTSD post critical illness, RN's will be able to identify patients at risk, utilize prevention strategies, educate patients and families of the potential for PTSD, and how to access resources and supports available in their community following hospital discharge.

Video Presentation 

- https://www.youtube.com/watch?v=iKB5dPZU6CI

What is PTSD?

- A mental illness that occurs as a result of exposure to trauma involving death or the threat of death, serious injury, or sexual violence (The American Psychiatric Association, 2013; Canadian Mental Health Association, 2019).”

- These disturbing thoughts and feelings related to their experience can last long after the traumatic event has ended. People with PTSD often cannot return to work, are anxious, have trouble sleeping, concentrating, or finding enjoyment in their life – all of which can profoundly affect their quality of life (McMaster Optimal Aging Portal, 2016).

Post Traumatic Stress Symptoms

(Davydow, 2015; Davydow, Gifford, Desai, Bienvenu, & Needham, 2009; Long, Kross, Davydow, & Curtis, 2014)

- Nightmares or flashbacks related to the traumatic event
- Easy startling
- Hypervigilance
- Difficulty concentrating
- Memory problems
- Irritability or anger
- Difficulty sleeping
- Feeling emotionally numb
- Avoiding thinking or talking about the traumatic event

Prevalence of PTSD in ICU Survivors

44%

A 2015 meta-analysis of 40 studies looking at post-ICU PTSD symptoms identified that the prevalence of post-ICU PTSD symptoms was 25–44% at 1–6 months post-ICU, and 17–34% at 7–12 months post-ICU (Parker, Parker, Sricharoenchai, Raparla, & Schneck, 2015).

2009 systematic review reported that the prevalence of a psychiatrist diagnosed PTSD post critical illness was 44% at hospital discharge and this decreased to 25 and 24% at the 5 and 8 year follow up, respectively (Davydow, Gifford, Desai, Bienvenu, & Needham, 2009).

Some studies revealed PTSD rates as high as 65%

Prevalence

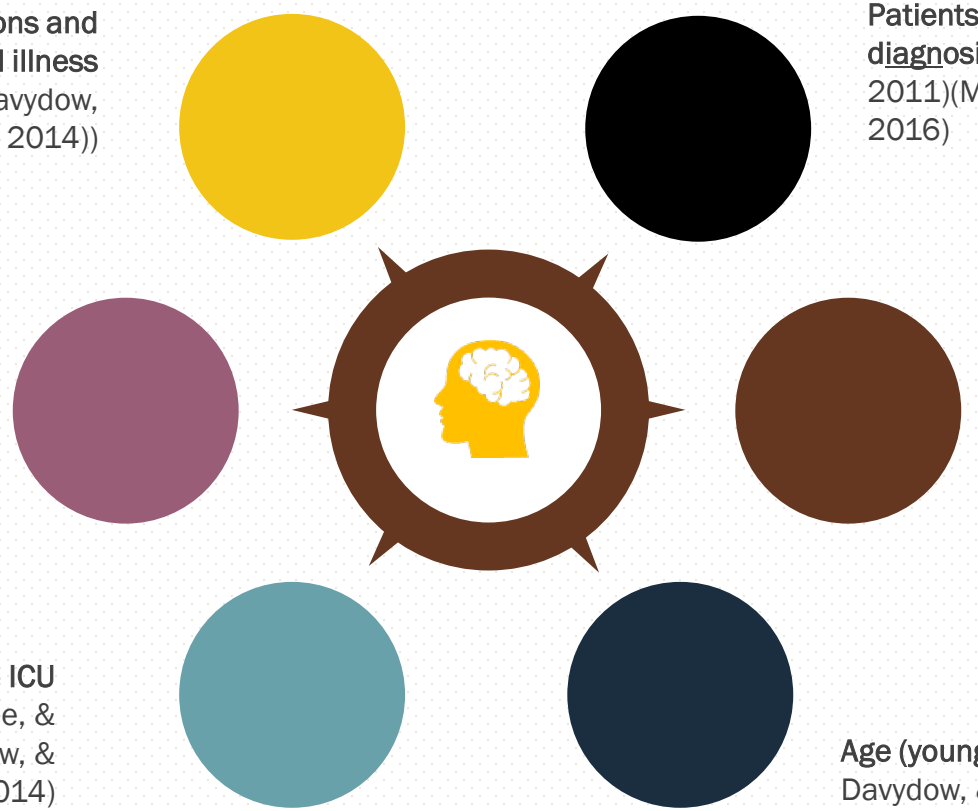
- In Canada, the occurrence of PTSD in the general population is 1 person in 12 (Statistics Canada, 2017):

- The occurrence of PTSD in ICU Survivors is 1 in 3(Long, Kross, Davydow, & Curtis, 2014)(Davydow, 2015):

PTSD – who is at risk?

Vivid memories of delusions and hallucinations during critical illness (Jones et al., 2007((Long, Kross, Davydow, & Curtis, 2014))

Patients with a previous mental health diagnosis. (Hatch, McKechnie, & Griffiths, 2011)(McMaster Optimal Aging Portal, 2016)



Prolonged Delirium in the ICU (McMaster Optimal Aging Portal, 2016)

History of previous exposure to trauma. (Hatch, McKechnie, & Griffiths, 2011)(Long, Kross, Davydow, & Curtis, 2014))

Use of Benzodiazepines in the ICU (Jones et al., 2007)(Hatch, McKechnie, & Griffiths, 2011)(Long, Kross, Davydow, & Curtis, 2014)

Age (younger is worse) (Long, Kross, Davydow, & Curtis, 2014)

Strategies to Mitigate PTSD

(Davydow, 2015; Davydow, Gifford, Desai, Bienvenu, & Needham, 2009; Long, Kross, Davydow, & Curtis, 2014; Myers, Elizabeth, David, Steven, & Lewis;(Roberts et al., 2018; Hatch, McKechnie, & Griffiths, 2011)

- Keeping the patient awake and involved in their own care as much as possible
- Limit the use of benzodiazepines while in the ICU
- Pain management
- Sleep hygiene
- Early psychological support
- Limit or stop the use of restraints on mechanically ventilated patients.

Strategies to Mitigate PTSD

(Davydow, 2015; Davydow, Gifford, Desai, Bienvenu, & Needham, 2009; Long, Kross, Davydow, & Curtis, 2014; Myers, Elizabeth, David, Steven, & Lewis;(Roberts et al., 2018; Hatch, McKechnie, & Griffiths, 2011)

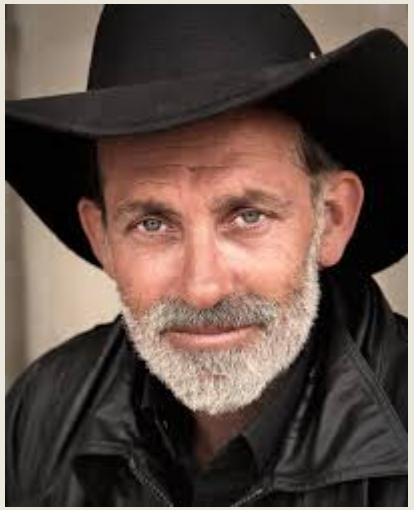
Patient and Family centered care strategies:

- Keep a diary of the patient's time in the ICU
- Use a calm voice to help the patient feel more comfortable and relaxed
- Encourage the patient to move around as much as possible
- Take part in the patient's bedside care by doing things like giving massages and talking about daily events

Case Study: Meet Tom

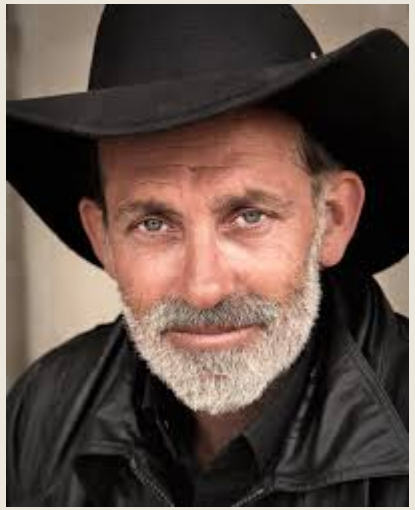
- 60 year old farmer
- Married, 2 children
- Medical History: hypercholesteremia, mild treated hypertension.
- Suffered a cardiac arrest in a local department store.
- ROSC was achieved within 20 minutes after ambulance arrived.
- Patient came to the ICU and was intubated and ventilated for 6 days.

Case Study



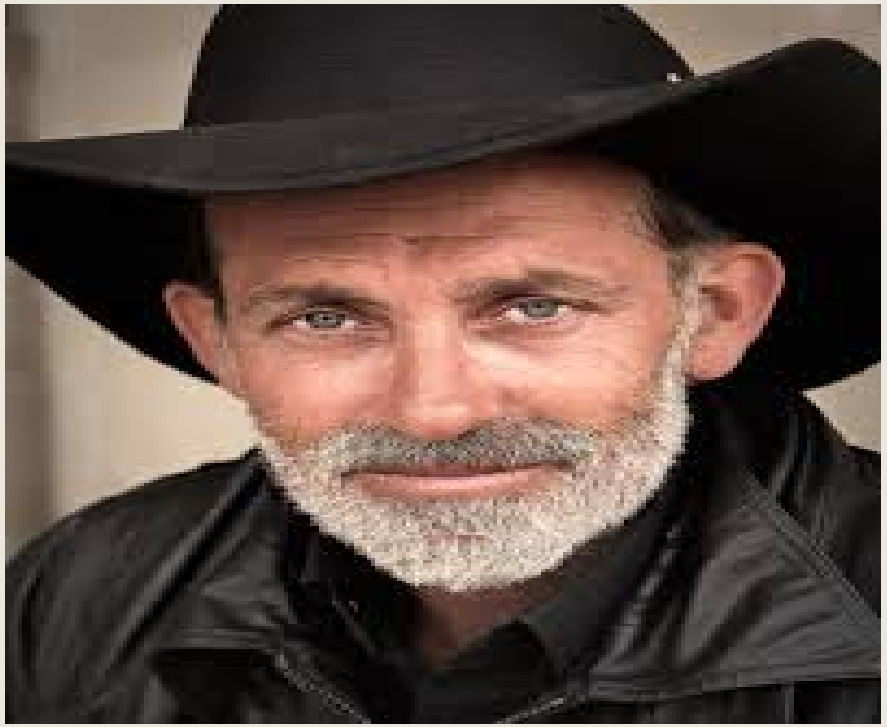
- Tom was extremely combative, agitated if any stimulation at all while intubated.
- Because of this multiple sedation regimes were trialed including Versed, Propofol, and Dexmedetomidine.
- Patient was restrained as he self extubated with a traumatic re-intubation.
- 15 procedures including intubations, insertion of CVAD, ART lines, PIV lines. Oral gastric tube.
- 12 diagnostic imaging exams, at least 24 blood draws.

Case Study



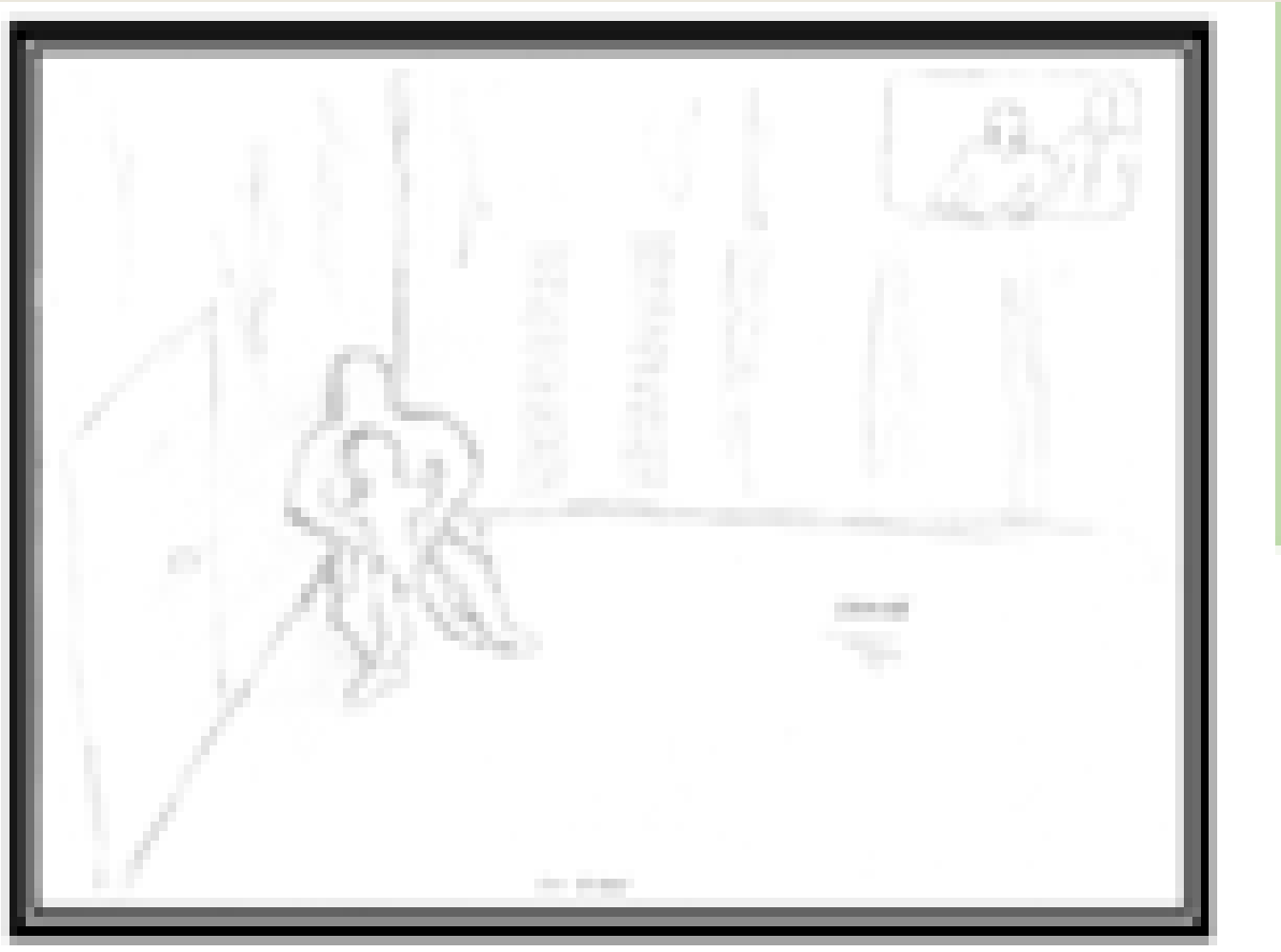
- Family was at his bedside frequently but visiting guidelines were quite strict and limiting at that time.
- Pain was controlled.
- Awakening trials difficult as patient became very agitated.
- Sink or swim extubation 6 days later.
- Patient discharged from hospital 4 days later.

Case Study



- So how do you think Tom did after he went home?
- Do you think he was at risk for PTSD?
- Yes he did indeed have PTSD!

Case Study



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Thank you!

APPENDIX F: QUESTIONAIRRE

Feedback Questionnaire: PTSD in ICU Survivors
Investigator: Marci Neher-Schwengler RN MN(c)

The following 6 questions ask you to rate your experience on a scale from 1-5. Please circle one answer.	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	S
1. This education session presented new information and learnings about the ICU patient.	1	2	3	4	
2. Prior to this education session, I could describe PTSD and how it relates to the ICU survivor.	1	2	3	4	
3. After this education session, I can describe PTSD as it relates to the ICU survivor.	1	2	3	4	
4. This education session helped me develop a deeper understanding of the risk factors associated with PTSD in ICU survivors.	1	2	3	4	
5. This education session has provided me with an understanding of PTSD prevention strategies.	1	2	3	4	
6. I feel confident talking to patients and their families about the potential for PTSD post critical illness.	1	2	3	4	

What were the strengths of this educations session:

_____

_____

_____

What are the areas of improvement for this education session: _____

_____

_____

_____