Journal of Acute Care Occupational Therapy
Volume 4, Issue 1

Volume 4 Issue 1 Educational Topic

Training on Intensive Care Unit Related Delirium: An Education Topic

Author

Kate Heyman, OTD, OTR/L

Author Contact Information

Email: kheyman@umm.edu

Recommended Citation:

Heyman, K. (2022). Training on intensive care unit related delirium: An educational topic. *Journal of Acute Care Occupational Therapy, 4*(1), 1-39. https://doi.org/10.64517/JHZS2779

Abstract

The intensive care unit (ICU) setting has a prevalence of ICU delirium, which has been associated with increased morbidity, mortality, days on a ventilator, and hospital length of stay. Occupational therapy (OT) practitioners embody the skill set that is needed to help prevent ICU related delirium, as well as provide interventions to treat ICU delirium. However, at this institution there was no formalized education surrounding ICU delirium in the Department of Rehabilitation Services. This project aimed to address the current knowledge and training gap that existed by implementing ICU delirium education for ICU OT practitioners. An asynchronous presentation was developed, and included information on risk factors, signs and symptoms, types of delirium, functional outcomes, prevention and treatment methods, and the role of OT. Additionally, a supplemental ICU delirium orientation checklist was created to support training and orientation to this specialized area of the hospital. Results of a post-presentation questionnaire were positive and had many commonalities in feedback. The results support the need for ICU delirium education as part of the standard ICU orientation process. This education would be beneficial across rehabilitation disciplines, as well as across other campuses within this health care institution. In this scholarly education topic, considerations for developing educational resources related to ICU delirium monitoring and management will be explored.

Introduction

Intensive Care Unit (ICU) delirium may be described as an acute complication from an ICU stay where an individual has decreased awareness of their surroundings and disturbances of consciousness (Deng et al., 2020; Krewulak et al., 2020; van den Boogaard & Slooter, 2019). Although acute in nature, ICU delirium may have a lasting impact on an individual's cognitive functioning and occupational performance (Deng et al., 2020; Krewulak et al., 2020). ICU Delirium has been associated with reduced capacity in performing activities of daily living (ADLs), and impairments in motor-sensory function (Brummel et al., 2014), global cognition, executive function, memory, information processing speed, and naming (Girard et al., 2010; Mitchell et al., 2018; Pandharipande et al., 2013; van den Boogaard et al., 2012). Long-term cognitive impairment, physical disability, and death can be predicted based on the amount of time an individual was delirious in an ICU, even up to a year following hospital discharge (Brummel & Girard, 2013). Altered cognition, specifically attention and awareness, is one of the common characteristics of ICU delirium (Deng et al., 2020; van den Boogaard & Slooter, 2019). Other signs and symptoms of delirium include confusion, fluctuation in level of consciousness, disorientation, withdrawal, decreased responsiveness, emotional lability, inability to sustain attention, short term memory impairment, agitation, irritability, hallucinations, and incoherent or irrelevant speech (Ramírez Echeverría & Paul, 2020).

The key to minimizing the negative functional effects of delirium is to implement strategies for early prevention, detection, and diagnosis by recognizing patient and environmental factors and executing treatment strategies. Multicomponent interventions

have been shown to be the most beneficial approach in addressing delirium due to the numerous risk factors that are present in the ICU setting (van den Boogaard & Slooter, 2019; Zaal & Slooter, 2012). The Society of Critical Care Medicine (SCCM) 2018 Clinical Practice Guidelines recommend “using a multicomponent, nonpharmacologic intervention that is focused on (but not limited to) reducing modifiable risk factors for delirium, improving cognition, and optimizing sleep, mobility, hearing, and vision in critically ill adults” (Devlin et al., 2018, p. e848). The Awakening and Breathing Coordination, Delirium Monitoring and Management, and Early Exercise and Mobility (ABCDE) bundle is one example of this type of intervention approach and sheds light on the topic and recommends the regular use of delirium screening tools (Brummel & Girard, 2013).

Prior to implementing a delirium screening tool, consciousness, which consists of arousal and content, needs to be determined (Brummel et al., 2013). Arousal level may be determined by using the Richmond Agitation Sedation Scale (RASS). The RASS is a quick assessment of consciousness and helps to determine an individual’s level of sedation (Chester et al., 2012). To assess content using a screening tool, an individual must first be at least arousable to voice, or a RASS-3 (Brummel et al., 2013).

If an individual has a RASS-3 or better, then the Confusion Assessment Method for the ICU (CAM-ICU) can be utilized as a screening tool. The CAM-ICU is a brief assessment that can be administered in less than two minutes and is designed to assess four features in critically ill adults (Brummel et al., 2013; Gélinas et al., 2018; van den Boogaard & Slooter, 2019). The four features consist of acute change or fluctuating mental status, inattention, altered level of consciousness, and disorganized thinking

(Gélinas et al., 2018; Kahn et al., 2017; Ramírez Echeverría & Paul, 2020; van den Boogaard & Slooter, 2019). The CAM-ICU has a reported sensitivity of 47% to 100% and specificity varies from 81% to 100% (Gélinas et al., 2018; Gusmao-Flores et al., 2012; Ho et al., 2012; Neto et al., 2012; Ramírez Echeverría & Paul, 2020; van den Boogaard & Slooter, 2019).

Training and Education

Delirium literature indicates multiple types of staff education strategies that may be utilized including face-to-face, e-learning and online modules, simulations, and skills checks (Detroyer et al., 2016; Lee et al., 2020; Solberg et al., 2021; Yanamadala et al., 2013). Lee et al. (2020) completed a systematic review of education interventions for healthcare workers employed in hospital inpatient settings to determine delirium best practice. Lee and colleagues found that most studies were of good quality and demonstrated improved outcomes, therefore healthcare worker education is beneficial for delirium management.

Most delirium education focuses on nursing staff as they are the healthcare workers who spend the most time at an individual's bedside (Volland et al., 2020). Solberg et al. (2021) found that a three-step nursing educational program that consisted of a self-directed online module, a dementia simulation experience, and a multi-station delirium skills fair, that was focused on screening, documenting, and treating delirium, improved knowledge and recognition of delirium as well as staff attitudes, both immediately and during a four-month follow-up. Yanamadala et al. (2013) found that interactive formal teaching in combination with empowering and supportive strategies,

including engaging leadership, is more effective in the recognition of delirium than solely education directed at recognition.

Detroyer et al. (2016) found that an interactive delirium e-learning tool was effective at increasing healthcare workers' delirium recognition and knowledge. The tool consisted of 11 e-modules that were completed over two months that aimed to increase skills and knowledge related to delirium detection, prevention, and management (Detroyer et al., 2016). The authors noted that e-learning allows for standardization in training materials, flexibility in the time of training, efficiency with large groups, and low cost (Detroyer et al., 2016).

Although most education is focused on nursing staff, it has been suggested that training other healthcare workers outside of nursing staff to screen for delirium may be beneficial (Duggan et al., 2021). Kacmarek (2013) expressed the importance of respiratory therapists recognizing the effects of sedatives and narcotics on ventilatory function and how these medications may have an impact on the development of delirium. Training healthcare workers outside of nursing staff is also consistent with the guidance offered by Kho et al. (2020) who stated that occupational therapy (OT) considerations for acute care individuals with Coronavirus disease (COVID-19) should include prevention, detection, and monitoring of delirium.

An interdisciplinary approach to management also requires increased education on the role and scope of OT in the ICU. In a survey, McClellan (2018) found that 74% of ICU nurses were not aware of OT practitioners' role in cognitive assessment and therapy and that OT was often misunderstood and underutilized in delirium

management. Increased interprofessional education and collaboration may also help to reduce barriers and promote inclusion (Foidel et al., 2020).

Literature also indicates that healthcare providers' lack of awareness and knowledge about delirium is a barrier to implementing improved practice (Boockvar et al., 2016; Palacios-Ceña et al., 2016). OT practice in the acute care setting is limited by a need for increased OT practitioner education in ICU practice, including education on the three categories of delirium assessment, prevention, and management techniques (Foidel et al., 2020). Foidel et al. (2020) examined the perspectives and experiences of OT practitioners with delirium assessment, prevention, and management in acute care and found that when questioned about preparedness for each category, most participants reported that they felt "moderately prepared" or "prepared" (Foidel et al., 2020). Although most participants felt that way, it is important to note that 14% and 11% respectively still indicated feeling not prepared to slightly prepared in the assessment category (Foidel et al., 2020). This finding suggests that the greatest area for improving preparedness relates to increased education on assessment. Despite the documented need for interdisciplinary education and management of ICU delirium, the literature lacks evidence on the training of healthcare workers beyond physicians and nursing staff, which is problematic when addressing long term outcomes.

Occupational Therapy and ICU Delirium

OT services in acute care have been longstanding, however, the delivery of OT services in the ICU setting has been a more recent practice for many medical institutions. Multiple types of interventions have been described that fall directly under the scope of OT. Costigan et al. (2019) completed a scoping review of 221 documents

related to OT in the ICU, with 174 of the articles being published since 2010. Twenty-one different types of interventions were identified and placed into six categories: physical, social or emotional, environmental, sensory, cognitive, and communication (Costigan et al., 2019). Although the most reported interventions were mobility, physical rehabilitation, and ADLs, Costigan et al. (2019) stated cognitive interventions are a potential core skill of an OT practitioner in the ICU. Despite current interventions being mostly physical in nature, this review indicated the increasing role that OT practitioners have in cognition and delirium prevention and care (Costigan et al., 2019).

OT practitioners take a holistic approach and are trained to provide client-centered interventions that address the physical, cognitive, and emotional needs of their clients. Through engagement in functional tasks and ADLs, OT practitioners promote health and wellness (Álvarez et al., 2017). OT practitioners are also skilled at modifying environments to promote improved function and safety. Regularly provided OT interventions in the ICU setting consist of multisensory stimulation, positioning, cognitive stimulation, mobility, family involvement, training in basic ADL tasks, and motor stimulation of the upper extremities (Costigan et al., 2019; Tobar et al., 2017). Costigan et al. (2019) indicated that due to this broad scope of practice and the multiple needs of individuals in the ICU, there is an opportunity for growth among OT practice. Prevention and treatment of ICU delirium is one area of growth that has been identified.

In 2019, multiple scientific societies across Europe, including the Council of Occupational Therapists for European Countries, developed a statement paper on an interdisciplinary approach to the prevention and management of delirium (Morandi et al., 2019). Goals of interdisciplinary collaboration included environmental adaptation,

evaluation of assistive devices, improvement of autonomy and involvement in everyday activities, and family education (Morandi et al., 2019). OT practitioners understand how client factors such as body functions, which include specific and global mental functions, may impact an individual's occupational performance (American Occupational Therapy Association, 2020).

The OT scope of practice places OT practitioners in a unique position to assess provide interventions to help reduce and treat delirium (Monaghan et al., 2020; Needham et al., 2010; Patel et al., 2014; Pozzi et al., 2020; Schweickert et al., 2009). Non-pharmacologic, multi-component and environmental interventions are the most common interventions utilized across disciplines to address ICU delirium. Some examples of interventions include exercise, mobilization, positioning, patient education, family participation, sleep promotion, sensory stimulation, cognitive stimulation, staff education, music therapy, daily sedation interruption, stress avoidance, pain management, noise and light reduction, and reorientation (Álvarez et al., 2017; Collinsworth et al., 2016; Deng et al., 2020; Herling et al., 2018; Hshieh et al., 2015; Kang et al., 2018; Lee et al., 2020; Monaghan et al., 2020; Rains & Chee, 2017; Tobar et al., 2017; Trogrlic, et al., 2015). The SCCM 2018 Clinical Practice Guidelines recommend utilizing multicomponent, nonpharmacologic interventions that include "strategies to reduce or shorten delirium (e.g., reorientation, cognitive stimulation, use of clocks); improve sleep (e.g., minimizing light and noise); improve wakefulness (i.e., reduced sedation); reduce immobility (e.g., early rehabilitation and mobilization); and reduce hearing and/or visual impairment (e.g., enable use of devices such as hearing aids or eye glasses)" (Devlin et al., 2018, p. e848). A systematic review with

hospitalized elderly adults concluded that OT intervention was effective in reducing delirium, as well as improving cognitive function (Cuevas-Lara et al., 2019). Additionally, Álvarez et el. (2017) found that a structured OT program, in a non-ICU setting, reduced incidence and duration of delirium and improved functionality of elderly adults.

Applicable Cognitive Screens for Intensive Care

Implementing OT-specific cognitive screens allow for improved practice and monitoring of ICU delirium as it relates to OT. The Orientation-Log (O-Log) and Cognitive-Log (Cog-Log) are two brief cognitive screens that may be utilized in the acute care setting. The O-Log can be employed as a serial assessment of orientation that focuses on place, time, and circumstance (Novak, 2000). The Cog-Log is a companion measure to the O-Log and is a measure of general cognitive abilities (Novak, 2004). The Cog-Log focuses on concentration, memory, and executive skills (Novak, 2004). Both assessments consist of 10 questions that are objectively scored on a 3-point scale and can be administered in five to 10 minutes (Novak, 2000; Novak, 2004). The O-Log is administered upon initiation of treatment, and then the Cog-Log may be added when O-Log scores consistently reach 15 (Novak, 2004). However, when O-Log scores reach 25 for two consecutive administrations, it is then discontinued, and the Cog-Log is then administered alone (Novak, 2004).

The interrater reliability (.993) and internal consistency (.922) of the O-Log have both been shown to be excellent (AbilityLab, 2012b; Novak, 2000). Concurrent validity was also excellent (r = .90) when correlating the O-Log to the Galveston Orientation and Amnesia Test (AbilityLab, 2012b; Novak, 2000). The interrater reliability (.749–1) of the Cog-Log is adequate to excellent, while the internal consistency (.778) is excellent

(AbilityLab, 2012a; Novak, 2004). The Cog-Log was also found to significantly correlate (r = .75) to the Mini Mental State Exam (AbilityLab, 2012a; Novak, 2004).

Duggan et al. (2021) reported that an interdisciplinary approach to screening for delirium is beneficial. Cognition and delirium have been identified as areas of growth in OT practice. It is imperative to ensure OT practitioners are receiving education and training to address these areas to possess the skill set needed to contribute to the interdisciplinary team. To ensure that this training is occurring, institutions may develop training modules for OT practitioner growth.

Education Need

At a large medical institution, there are eight adult inpatient ICUs where the ABCDEF (family engagement and empowerment) bundle and Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption (PADIS) guidelines were utilized. Within the ICU, the Department of Rehabilitation Services provided early rehabilitation in collaboration with nursing. At the time of the performance project, delirium was not formally assessed or addressed by therapy services. Furthermore, practitioner orientation did not include formal education and training on delirium management.

Practitioners need to be equipped to help prevent and manage delirium, ultimately improving patient care and hospital outcomes. To address the need regarding delirium management and assessment, practitioners needed more background education on the signs and symptoms of delirium as well as screening tools so that delirium can be recognized and treated earlier. Additionally, practitioners needed to be familiar with the most commonly used cognitive screening tool, the CAM-ICU, as well as

how to assess arousal utilizing the RASS. Additionally, further cognitive screening tools needed to be explored to provide breadth to the OT practice the intensive care unit.

Aim

The education topic focused on developing an asynchronous educational resource regarding the topic of delirium assessment, monitoring, and management for practitioners delivering occupational therapy services to adults in the ICU. This knowledge need was considered a performance improvement project. The project was reviewed by the facilities Institutional Review Board (IRB) and determined that the submission does not require IRB review as it is considered Not Human Subjects Research (NHSR) (ID # HP-00099367).

Educational Intervention

Presentation

An extensive literature review was conducted to determine how to best address the need for education and training related to delirium for the OT practitioner. To develop the PPT presentation, a literature review was completed that provide background knowledge on OT in managing delirium, training considerations, and education methods. All literature used to frame the presentation and content was within the last five years.

The Person Environment Occupation (PEO) model was utilized to guide OT practitioners on how the cognitive impacts of delirium may hinder the occupational performance of a hospitalized individual in an ICU setting. Occupational performance is the result of the transactional relationship between an individual, the environment, and a task (Law et al., 1996). This relationship is well described in the PEO model, which

focuses on client-centered practice and environmental considerations (Law et al., 1996). The PEO model emphasizes the complexity of occupational performance, which can guide OT practitioners with clinical decision-making. This client-centered approach views the individual as the focal point and examines how both internal and external factors impact the individual's performance (Law et al., 1996). When engaging with individuals who are at risk for, or are displaying signs of, ICU delirium, it is crucial for OT practitioners to understand how different factors negatively and positively impact occupational performance. Therefore, the PEO model was introduced at the beginning of the PPT to structure the content from this perspective and examples related to ICU delirium were provided for each component of the model to increase staff comprehension with applying theory to practice.

To accomplish the aim of increasing OT practitioner knowledge of the role of OT in ICU delirium monitoring and management, five objectives were created (Table 1). Based on the objectives, the presentation included information pertaining to delirium overview, risk factors, signs and symptoms, types of delirium, functional outcomes, diagnosis and screening tools, pharmacologic and nonpharmacologic prevention and treatment methods, the role of OT in ICU delirium, OT-specific assessments, and a conclusion.

Table 1

Learning Objectives

Objectives
1. **Summarize** the risk factors for delirium, signs and symptoms of delirium, and types of delirium.
2. **Understand** the functional outcomes of delirium.
3. **Determine** the appropriate screening tools for delirium assessment.
4. **Articulate** the appropriate prevention and treatment methods for delirium management.
5. **Identify** the role of OT in ICU delirium management.

The diagnosis and screening tool section of the PPT focused on the RASS and the CAM-ICU, as they are most frequently utilized in the ICUs and are important for OT practitioners to comprehend. The O-Log and the Cog-Log were introduced as OT-specific assessments that may be utilized in a future state. These assessments are not common practice amongst the OT practitioners, and therefore administration and scoring were reviewed. Links for each tool were also provided so that additional information may be obtained. Content checks for each objective were integrated throughout the presentation with a total of ten multiple-choice questions (Table 2).

Table 2

Learning Objectives and Corresponding Content Questions

Objective	Question
One	What is TRUE about risk factors for delirium? *Answer: Predisposing risk factors cannot be changed; precipitating risk factors can be changed*
Two	ICU delirium may lead to all the following except: *Answer: Decreased length of stay*
Three	When performing a RASS assessment, which step below is incorrect? *Answer: If the individual is agitated, give a physical stimulation*
Four	When attempting to prevent delirium, it is important to do all the following, except: *Answer: Wake the individual every two hours to reorient them*
Five	As an OT treating individuals with ICU delirium, it is important to do the following except: *Answer: Provide the same ICU delirium interventions for all patients*

Note. Questions were multiple choice

At the time of this performance improvement project, in-person meetings had been suspended; therefore, an automated, voice-recorded Microsoft PowerPoint (PPT) presentation was determined as the best method to deliver the knowledge. Guidelines set forth by the American Disabilities Act (ADA) were reviewed and utilized when

constructing the PPT (i.e., high contrast, font size, font type). Visual impairment considerations were addressed by providing a voice-over. Auditory impairment considerations were accounted for by having the voice-over written out in full text in the notes section. The PPT presentation was approximately 40 minutes in length. The completed PPT presentation was reviewed by the Department of Rehabilitation Professional Advancement Commitment and approved to be presented to staff.

Orientation Checklist

Within the orientation process at a large medical institution, orientation checklists are utilized for all new staff onboarding, as well as continued training throughout employment. Currently, there is one orientation checklist for both occupation and physical therapy practitioners who are training in the ICU, titled “ICU/Critical Care Orientation (PT/OT).” To prioritize ICU delirium education and make it an enduring focus, a line item was added to the ICU orientation checklist that states “Delirium monitoring and management.” An ICU delirium supplemental orientation checklist was created to provide further guidance and expectations for this line item. The orientation checklist details general and clinical evaluation and treatment components, related to delirium, and provides an opportunity for skills check to be completed with a mentor. The components of PEO are again outlined on the orientation checklist to ensure that OT practitioners are utilizing theory to guide clinical practice. To keep with department consistency, this checklist was formatted identical to all other departmental orientation checklists, as well as reviewed by a senior OT practitioner. The checklist is designed to be utilized in conjunction with the PPT presentation during future OT practitioner ICU orientations. See Appendix for a copy of the ICU Delirium Orientation checklist. To

support the need for continued ICU delirium education, as well as potential future use of an ICU delirium checklist, a post presentation questionnaire was created.

Procedure

All full-time and per diem ICU trained OT practitioners (N=18) were emailed instructions for accessing the PPT presentation, procedures for completing the educational learning, a link to the post presentation questionnaire, and a timeline for completion. The presentation and checklist were also accessible on department electronic drives (i.e., Google Drive). OT practitioners were allotted two-weeks to complete the education and questionnaire.

Measurement of Effectiveness

A post presentation electronic questionnaire (i.e., SurveyMonkey®) was created with the purpose of evaluating practitioners' perception of the content and knowledge they gained from the asynchronous PPT presentation. It also provided an opportunity to gather feedback for future training modules and department needs. OT practitioners working in the ICU were instructed to complete the five to ten-minute questionnaire following completion of the learning module. The questionnaire was formatted to require responses for all questions for it to be submitted as complete.

The questionnaire consisted of ten questions. The first five questions pertained to how clearly the presentation objectives were met using a five-point Likert scale ranging from "not at all clear" to "extremely clear." Three additional questions utilizing a five-point Likert scale were utilized to assess learning needs, learning style, and the future state of ICU orientations. All questions also included a comment box. Two open-ended

questions were also utilized to determine likes and dislikes, as well as additional feedback.

Results

Participant Demographics

There were a total of 18 eligible OT practitioners that were trained in delivering OT services in the ICU, that met the requirements for completing the presentation and post-presentation questionnaire. Of the 18 eligible practitioners, 14 were full-time staff members (78%), as well as four per diem staff members (22%) ranging in years of experience being 1.75 to 14 years. Of the 14 full-time staff members, one was a senior OT practitioner, five were advanced OT practitioners, and seven were staff OT practitioners. One of the advanced OT practitioner's primary practice area was pediatrics; however, they are cross trained to treat in the adult ICUs as well. The additional full-time staff member was an OT practitioner currently in the job role of Safe Patient Handling and Mobility Specialist. It is important to note that one OT practitioner was actively completing the two-week ICU orientation process during the time of the PPT presentation and questionnaire. Although not yet formally an ICU competent OT practitioner, the decision was made to still include this practitioner, as one aim of the project is to enhance future OT practitioner ICU orientations by including this educational resource. Of the 18 eligible practitioners, 15 completed the presentation and post-education questionnaire.

Questionnaire Results

Presentation Objectives

Respondents were asked to rate each objective based on a 5-point Likert scale from 1 *(not at all clearly*) to 5 (*extremely clearly*). Responses ranged from a minimum of three to a maximum of five, suggesting that all objectives were met. Three objectives had a median of five, whereas two objectives had a median of four (Table 3).

Table 3

Respondents' Perception of Meeting Objectives

Learning Objective	Mean	SD
1. **Summarize** the risk factors for delirium, signs and symptoms of delirium, and types of delirium.	4.53	0.50
2. **Understand** the functional outcomes of delirium.	4.33	0.60
3. **Determine** the appropriate screening tools for delirium assessment.	4.47	0.62
4. **Articulate** the appropriate prevention and treatment methods for delirium management.	4.27	0.62
5. **Identify** the role of OT in ICU delirium management.	4.47	0.62

Note. 5-point Likert scale of 1 = *not at all clear*, 2 = *not so clear*, 3 = *somewhat clear*, 4 = *very clear*, and 5 = *extremely clear.*

Objective 3, which pertained to screening tools, had multiple additional comments including a desire for "physical practice" with the CAM-ICU, inquiries on how to obtain the O-Log and Cog-Log assessments, completion time estimates for the O-Log and Cog-Log, and a suggestion "to oversee/guide ICU therapists in administering these assessments." Additional comments for Objective 4, which related to prevention and treatment, included wanting more information on how to address environmental factors in the ICU setting. Comments for Objective 5, which referred to the role of OT, included wanting additional information on suggested practice changes, as well as

examples of “functional goals related to delirium management and/or the assessment results.”

Presentation Content

Question 6 aimed to determine satisfaction with how well the PPT presentation met overall learning needs. Overall, respondents felt “very satisfied” with the content of the presentation (mean of 4.60). Additional participant comments included “excellent review” of assessment tools and “very professional and informative.”

Asynchronous learning through the institution’s electronic share drive, addressed in Question 7, was found to be useful, with a mean of 4.47. Practitioner comments included ease of access to the asynchronous PPT was supportive of their learning. There was an additional comment that stated how asynchronous learning allowed for flexibility in schedules, but that in-person would be useful to “clarify any questions in real time, give more opportunities for practice, and give feedback on our administration and scoring.” Question 8 sought to determine if the information provided would be helpful to incorporate into future ICU orientations. All respondents reported that it would be “extremely helpful” or “very helpful” to incorporate this knowledge tool into the site’s ICU training (mean of 4.60).

Participant Perception

The last two questions of the questionnaire were open-ended responses that provided an opportunity for practitioners to provide their feedback on what they liked and what improvements could be made to the content of the presentation. These comments were descriptively reviewed. There were three commonalities noted in the respondent comments pertaining to what was liked about the presentation: content

checks, assessment tools, and PPT presentation construction. Respondents felt that the content checks were “helpful” and ensured that information was being “retained.” Several respondents commented positively on the introduction of new assessment tools. The descriptions were stated to be thorough, and links to the assessment tool websites were helpful. Respondents were interested in further incorporating the assessment tools into current practice. Comments about the overall construction of the PPT presentation included that it was “organized,” “detailed,” and “thorough.” Respondents also reported that the voice-over made the presentation more engaging and easier to follow. The layout was felt to be “professional” and appealing, and there was overall ease of access with the PPT presentation being placed on the department’s electronic shared drive.

When analyzing the dislikes, it is important to note that 40% of respondents stated “none” or “N/A.” Two commonalities were noted from the remaining responses included examples and presentation style. Respondents reported on the need for additional examples of assessment scoring/results, goal writing, and ADL interventions. Pertaining to the presentation style, there was feedback that it was “slightly lengthy,” “repetitive,” incorrectly formatted (however the respondent noted it may be that individual browser), and “did not utilize audio function.” One respondent also suggested that it would have been helpful to have completed the education in-person. There was one additional comment inquiring to the carry over between disciplines for the RASS and CAM-ICU. The results of the questionnaire allow for further discussion related to the aim of the project.

Discussion

Implications for Practice

Literature indicated that a lack of knowledge of delirium is a barrier to implementing improved OT practice (Boockvar et al., 2016; Palacios-Ceña et al., 2016). Volland et al. (2020) reported that ICU delirium training and education are predominantly focused on physicians and nursing staff. This literature finding is similar to the training culture see within a large medical institution, as there was no formal education that existed in the Department of Rehabilitation Services regarding delirium. Duggan et al. (2021) and Kho et al. (2020) suggested delirium screening training for other healthcare workers outside of nursing staff may be beneficial.

The aim of the project was to implement an educational in-service to enhance OT practitioner knowledge of ICU delirium assessment and intervention elements. When Foidel et al. (2020) examined the perspectives and experiences of OT practitioners with treating delirium in acute care, it was suggested that the greatest area for improving preparedness related to increased education on cognitive evaluation. The PPT presentation created for this performance improvement project had an emphasis on assessment. The presentation reviewed the CAM-ICU and RASS, as well as introduced two new OT-specific screens, the O-Log and Cog-Log. A frequent statement noted by respondents in the questionnaire comments was the value of the OT-specific screening tools. This finding suggests consistency with the literature; OT practitioners at the medical facility found increased education on cognitive evaluation to be of high importance.

Costigan et al. (2019) indicated that there is an opportunity for growth among OT practice in the ICU setting to meet the complex needs of individuals receiving ICU level care. Providing specialized education on ICU delirium monitoring and management supports the profession in achieving continued growth. Additionally, it allows for OT practitioners to maintain critical care skills, as well as advance their practice. The findings of the questionnaire suggest that it would be helpful to have ICU delirium education as a part of the standardized ICU training.

Detroyer et al. (2016) and Yanamadal et al. (2013) found interactive e-learning tools and interactive formal teaching, respectively, were effective at improving healthcare workers' delirium recognition and knowledge. These teaching methods were taken into consideration when developing the educational resource for this scholarly project. Content checks were embedded throughout the PPT presentation to bring an interactive element to the training. Based on the literature and respondent feedback, incorporating additional interactive opportunities, specifically reviewing and scoring an assessment, would be beneficial.

Providing the educational resource in an asynchronous electronic format allowed for OT practitioners to continue to participate in growth and development opportunities. Allotting a two-week period to complete the education allowed for flexibility among OT practitioner schedules. Limiting the PPT presentation to approximately 40 minutes was helpful to support staff efficiency and productivity standards within acute care. The results of the questionnaire suggest that asynchronous learning is a beneficial teaching method in the hospital setting. The combined mean for meeting all five stated learning

objectives was 4.39. This finding indicated that the presentation met all the stated learning objectives.

Future Considerations

There are several future considerations resulting from this project. First, for educators, it is important to understand learners' needs and preferences. Although it was helpful to have the learning asynchronous, a face-to-face presentation may have allowed for real-time questions and feedback. Offering a combination of both learning platforms may be more beneficial to meet all learners' preferences.

Based on the feedback about the new cognitive screening tools, the O-Log and Cog-Log, another learning resource should be created. Additional time needs to be dedicated to the education and clinical implementation of these cognitive screening tools. This would allow for more thorough descriptions and examples, as well as practice. Goal writing based on assessment results could also be introduced.
All participants felt that this education would be *very helpful* to *extremely helpful* to incorporate into future ICU orientations. This feedback result was the most important implication of the project as it drives the need for a change within the current ICU orientation. Based on this result, it is suggested that this education becomes a standard part of the ICU orientation process. The PPT presentation and supplemental ICU delirium checklist should be utilized in conjunction to guide this education. Preceptor training to ensure proper clinical implementation would also be necessary.

Other considerations for education within this institution were to expand beyond ICU OT practitioners and explore the application to OT practitioners working in community hospitals. Although this project was aimed at ICU OT practitioners, this

education could be beneficial to other rehabilitation professionals, such as physical therapy or speech language pathology.

Lastly, if continuing to present in an asynchronous format, it is important to consider increasing the interactive components of the presentation to engage learners more actively. Integrating opportunities for applying the course material may also increase teaching effectiveness. It is also important to explain to learners why the material is important and actively seek feedback to better gauge the learners' needs. Additionally, based on participant feedback, more emphasis should be placed on intervention.

Conclusion

This performance improvement project aimed to address the current knowledge and training gap that existed regarding delirium assessment and intervention among occupational therapists providing services in the ICU. An asynchronous PPT presentation, framed in the PEO model, was created to increase knowledge on ICU delirium. Additionally, a supplemental ICU delirium orientation checklist was created for future use. Post presentation questionnaire results were analyzed and determined to support the need for ICU delirium education as part of the standard ICU orientation process. Future ICU orientations should utilize the ICU delirium orientation checklist to guide the educational process. This education would be beneficial across rehabilitation disciplines, as well as across other campuses within this health care institution.

There are several considerations when developing educational resources. Presentation format must be determined to best meet the audience and institution's needs. Although there are benefits to face-to-face presentations, an asynchronous

presentation allows for a more enduring resource. It is important to incorporate interactive opportunities to keep the audience engaged and be mindful of lengthiness of the presentation. Additionally, developing a skills and knowledge based orientation checklist or guide component may help to ensure practical carry over of the information. With increased education, OT practitioners will be better equipped to engage in interdisciplinary monitoring and management of ICU delirium, ultimately improving patient care outcomes.

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Acknowledgements

I would like to thank Hannah Oldenburg, EdD, OTR/L, BCPR for her mentorship and guidance as my capstone advisor regarding the content for this educational topic.

Appendix

INTENSIVE CARE UNIT: DELIRIUM ORIENTATION

EMPLOYEE: _____
Critical Care Orientation Dates: _____

Purpose: This document is to be used by preceptors to orient new and rotating staff members. Proper use of this tool should ensure that all major orientation categories/items pertaining to ICU delirium have been addressed during the orientation period.

Expected Outcome: The employee will demonstrate independent knowledge and integration of items listed by the end of the orientation period.

Use: This document allows for use by multiple preceptors.

Note to preceptor- please refrain from dating line items as "demonstrated" until end of orientation period and/or employee has *consistently* demonstrated understanding and safe completion of skill.

General ICU Delirium Information	Date Completed	Initials
Staff Resources ICU delirium orientation packet, education module on S: drive		
Risk Factors Predisposing, precipitating		
Types of Delirium Hyperactive, hypoactive, mixed		
Functional Outcomes of Delirium		
Diagnosis Screening tools, standardized assessments		
Role of OT in ICU Delirium Prevention, treatment		
Pharmacologic Approaches Prevention, treatment		
Non-pharmacologic and Multi-component Approaches Prevention, treatment		

Evaluation/Treatment Components				
General	**Discussed**	**Initials**	**Demonstrated**	**Initials**
Comprehensive review of medical chart Basic understanding of information (diagnoses, tests/procedures, etc.) Integration of prior medical history and hospital course related to patient current presentation				
Communication with nursing / medical regarding patient status (before and after session)				
Determination of initiating occupational therapy services (i.e., appropriate for OT)				
Communication with family and/or nursing staff regarding delirium management techniques				
Completes documentation appropriately, including screening tools and cognitive tests				
Creates appropriate discipline specific short term goals demonstrating knowledge of building blocks required to meet long term goals				

Practice	Discussed	Initials	Demonstrated	Initials
General understanding of medications related to delirium (i.e., related to patient)				
Identification and interpretation of pertinent lab values (i.e., hemoglobin, lactate, potassium, platelets)				
Identification and interpretation of pertinent vital values (i.e., heart rate, oxygen, ventilation, and blood pressure)				
Determination of baseline mental status				
Assessment and interpretation of delirium screening • Arousal assessment (RASS) • Content assessment (CAM-ICU)				
Assessment of person (P) factors • Physical (i.e., strength, range of motion, sensory) • Cognitive (i.e., orientation, alertness, prior level) • Social (i.e., social habits, support system)				
Assessment of environmental (E) factors • Prior living set-up • Prior support system				
Assessment of occupation (O) factors • Prior level of function (i.e., ADL and IADL performance baseline) • Prior functional mobility level (i.e., assistive aid use)				
Interpretation of PEO factors on occupational performance				
Ability to determine and utilize appropriate therapeutic interventions • Family training • Cognitive stimulation/Re-orientation • Early physical rehab / functional mobility • Sleep enhancement				
Ability to accurately assess patient's tolerance to interventions				
Ability to determine appropriateness cognitive screens: • Orientation-Log (O-Log) • Cognitive-Log (Cog-Log)				
Administration and interpretation of Orientation Log				
Administration and interpretation of Cognitive Log				
Determine appropriate and feasible environmental modifications for prevention and management of delirium				
Demonstrates ability to educate patient, caregivers, family on delirium prevention and management.				
Demonstrates ability to implement cognitive activities that are function focused and support delirium.				
Proper and therapeutic positioning of patients for delirium prevention				

Orientation has been successfully completed. ☐
Orientation has not been successfully completed- see supporting documentation. ☐
Please sign below once all elements of this form have been completed:

Preceptor (1) Signature _____Preceptor Initials _____ Date_____

Preceptor (2) Signature _____Preceptor Initials _____ Date_____

Employee Signature _____Employee Initials _____ Date_____