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Improving Delirium Assessment in Critical Care

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Improving Delirium Assessment in Critical Care

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A project submitted to the faculty of

Gardner-Webb University Hunt School of Nursing

in partial fulfillment of the requirements for the degree of

Doctor of Nursing Practice

2021

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7/25/2021   7/25/2021
Date   Date

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Acknowledgements

First, I would like to acknowledge and thank my husband, Nick, and my children, Maddie and Landon for their support and encouragement during this journey. I am very grateful to my project chair, Dr. Yvonne Smith, for her continued support and guidance throughout the trials and triumphs of this project. I am also thankful to my committee partners, Karen Marshall, and Lyndsey Couch, who collaborated with me to develop and implement this project.

Improving Delirium Assessment in Critical Care

Abstract

The objective of this project was to identify barriers that impact nurses completing delirium assessments and to improve compliance rates with delirium assessments. The design was an observational, single group pretest-post-test. The preliminary results demonstrated an educational intervention, using the Knowledge-to-Action theory, improved nurses' compliance with delirium assessments.

Key Words: ICU delirium, delirium, ICU psychosis, psychosis, knowledge-to-action

Delirium in the intensive care unit (ICU delirium) is a common complication that impacts many critically ill patients. The American Psychiatric Association's fifth edition of the Diagnostic and Statistical Manual of Mental Disorders defines delirium as a brain dysfunction featured by disturbances in cognition, awareness, and attention.[1] This condition affects between 20%-50% of nonintubated patients and 60%-80% of ventilated patients.[2] ICU delirium is associated with increased length of stay, increased morbidity, mortality, and increased cost of care.[3.] Patients on ventilators who experience delirium are more difficult to wean from the ventilator and experience increased days on the ventilator.[4]

Assessment and identification of delirium is imperative to the treatment and resolution of the condition. The latest clinical practice guidelines by the Society of Critical Care Medicine for the assessment and treatment of ICU delirium recommends regular assessment utilizing a valid tool.[5] Hospitals that have implemented regular delirium assessments typically assess daily or twice daily and two common assessment tools are the Confusion Assessment Method for the ICU (CAM-ICU) and the Intensive Care Delirium Screening Checklist (ICDSC). These two validated tools are recommended and supported by the Society of Critical Care Medicine and have been widely used in practice and research.

ICU delirium screening is most often assessed by the bedside nurse. Many intensive care units have implemented a bundle set forth by the Society of Critical Care Medicine: The Pain, Agitation, and Delirium (PAD) assessment and guidelines. Variability with compliance assessing patients for delirium is a common occurrence across the United States and in many ICU settings. The project setting implemented this

guideline several years ago with inconsistency in compliance. This phenomenon is not unique to the project site, and many studies have been conducted to identify barriers to nurses' assessment of delirium.[6,7,8,9]

Literature review

A synthesis of research on the topic was conducted searching the following databases: CINAHL, PubMed, and ProQuest. There were limited numbers of studies conducted within the last five years, therefore the search was extended to 2012-2020, as additional studies were conducted prior to 2016. It is also of interest there was a host of studies conducted on this topic in the 2003-2008 timeframe. Since 2003, however, this problem still exists in many ICUs, despite the focused attention on this clinical concern. Studies that were not in English were excluded from the literature search.

Many hospitals have protocols and guidelines in place for the assessment of ICU delirium, yet compliance rates are low. Studies have been conducted to assess the impact of educational interventions on delirium assessment compliance. Multidimensional educational interventions have been shown to increase compliance with assessing for delirium and with compliance with evidence-based guidelines.[6,9,10]

Several studies cite intubated patients as a barrier for the assessment of delirium. Many nurses are unsure how to assess an intubated patient for delirium and some believe the intubated patient cannot be assessed. In a 2012 Australian study, the assessment of intubated patients was cited as one of the top two barriers for non-compliance with ICU delirium assessment.[11] A British survey of 31 nurses showed the highest scoring barrier to delirium assessment was the intubated/non-verbal patient.[9]

An additional barrier identified in the literature is nurses not seeing delirium as a priority for patient care.[8,11] Some nurses believed their focus should be more on the physical issues as opposed to assessing for delirium. Other nurses felt a structured assessment tool is unnecessary and the delirium would be identified during the course of the ICU stay. A related barrier in the literature search was nurses' perceived lack of time to complete the delirium assessment.[12,13] Nurses' perception of the time required to complete the assessment and not seen as a priority contribute to inconsistent assessment compliance.

The priorities of other members of the healthcare team can both positively and negatively impact the importance nurses place on certain aspects of care. Nurses' interpretation that providers do not prioritize the delirium assessment was documented as a barrier to the nurse completing the assessment.[8,14] Much like nurses who placed little importance to ICU delirium over the physical aspects, nurses often perceived providers were also more focused on the physical aspects of care over psychological needs.

Knowledge is the cornerstone to nursing care. Several studies identified a barrier for nurses' lack of delirium assessment was a lack of knowledge and a lack of education on delirium.[12,13,14,15] Nurses may have some basic knowledge of delirium, but many stated they had no formal education on delirium, complications of delirium, and possible effects of sedative medications.

Limitations in the literature exist and include small sample sizes, limited studies identifying nurse barriers to delirium screening, few studies demonstrating interventions to increase compliance, and a lack of studies with documented sustained improvements in delirium assessment.

Setting and sample

The setting is a 10-bed ICU in a rural, community hospital in the southeastern United States. The ICU is a general medical/surgical intensive care unit. The average census during the project period was 8 patients per day. The patient population included all adult ICU patients during the project period. The inclusion criteria for the nursing population were all bedside nurses in the intensive care unit employed in the unit at the start of the project. At the onset of the project, 25 nurses were eligible and invited to participate in the project.

Methods

This quality improvement project design was an observational pretest-posttest design and involved descriptive statistics to analyze results and findings. 25 registered nurses were employed in the ICU at the time of the project implementation and were invited to participate. The pre-assessment chart review period was September 2020 to May 2021. The project implementation was during March and April of 2021. Post-intervention data was collected in May and June of 2021.

The pre-implementation phase, six months prior to the project implementation, involved collecting baseline data on delirium assessment and incidence of delirium in the project site ICU. Delirium assessment was assessed twice per day at 4am and 4pm. Assessments were considered compliant if a delirium assessment was entered between 2am and 7am, and 2pm and 7pm.   Incidence of delirium was calculated if one of the delirium assessments was greater than or equal to four. No identifying patient information was collected.

The initial phase of the project focused on assessing ICU nurses' perceived barriers to delirium assessment. The America Nurses Association (ANA) Delirium Workgroup Survey, minus demographic information, was voluntarily administered to the nurses working in the ICU. This ANA survey, administered to over 1500 nurses, was developed by a workgroup to understand the ICU nurses' barriers to delirium assessment and tools necessary to improve assessment.[16] Permission to utilize this survey was obtained from the ANA. Nurses were invited via email and huddle notification to participate in the project. The survey period was two weeks with no demographic or identifying information collected and was anonymous. Completion of the survey was considered consent to participate in this quality improvement project.

Phase two of the project involved a one-hour, mandatory educational session for the nurses. The educational sessions included a slide presentation which provided information on topics related to delirium, including the definition of delirium, risk factors, prevention strategies, personal stories of patients who experienced delirium, post-ICU delirium syndrome, compliance data, and a case study for staff to demonstrate knowledge. The educational sessions were provided for a three-week period following the ANA Delirium Workgroup Survey period. At the conclusions of the educational sessions, an anonymous educational evaluation form was distributed. Evaluations of educational offerings is an expectation of the project site facility.

The third phase of the project began at the end of the educational sessions and continued for two months. Data was collected on delirium assessment compliance and the incidence of delirium. Also, during this timeframe, a voluntary survey, ICU Delirium Post Education Intervention Survey, was distributed to the ICU nurses who attended an

educational session. The four-question survey was created by the project leader in conjunction with the team and DNP project chair. There was no validated tool available, therefore, a simple post-education survey was created to assess nurses' knowledge and attitudes regarding delirium assessments. The survey period for the post-educational in-service assessment lasted for two weeks.

Theoretical framework

The knowledge-to-action (KTA) framework was the overall guiding theory for this project. The KTA framework is a process of planned action that facilitates knowledge translation.[17] This theory was developed by Ian Graham and colleagues after evaluating 31 planned action theories. This theory has been applied many times in healthcare to assist in applying research and knowledge into practice.[18]

The KTA framework is composed of two parts: (1) Knowledge Creation, and (2) the Action Cycle. Knowledge creation is the synthesis and production of knowledge. Knowledge creation encompasses research findings and the generation of practice guidelines.[19] Knowledge is refined and summarized to be more useful for the recipient. The creation of knowledge is further broken down into three phases: (1) knowledge inquiry, (2) knowledge synthesis, and (3) the creation of knowledge tools and products. Each of these stages can be tailored and adapted to the audience.

Knowledge inquiry refers to primary studies that have not been verified and is not ready to be translated into practice on a broad scale. Knowledge synthesis, also known as secondary knowledge, involves the synthesis of studies and considering the widespread implementation of the knowledge. Examples of knowledge synthesis include systematic reviews and meta-analyses. Knowledge tools and products is also known as third

generation knowledge. The creation of knowledge tools and products utilizes synthesized knowledge to present knowledge in a user-friendly and tailored manner. This third-generation knowledge can include videos and clinical practice guidelines.

The action cycle is an iterative process that is non-sequential. Movement can occur between the knowledge creation phase and the action cycle. The process includes deliberate activities necessary for knowledge implementation. One should begin with the identification of the problem. A comparison should take place between what is known about a problem and whether there is a gap in knowledge or practice. Knowledge must be adapted to the audience, barriers to knowledge must be uncovered, and interventions should be tailored. Tailoring an intervention is defined as ensuring the intervention addresses a specific issue and addresses a specific audience. Once the education has been delivered, monitoring and follow-up should occur. The use of the knowledge must be monitored, outcomes evaluated, and assessments the sustained use of the knowledge.

Four phases of the KTA framework were specifically be utilized for this project. First, barriers to knowledge use (i.e.: performing a delirium assessment) were conducted. Secondly, a tailored educational intervention was developed and implemented. Following the educational intervention, knowledge use was monitored. Lastly, for a two-month period, an evaluation of outcomes was conducted.

Results

The delirium assessment compliance from September 2020 to February 2021 ranged from a low of 71.1% to a high of 78.3%. The 4th quarter of 2020 result was 73.5%. The incidence of delirium from September 2020 to February 2021 ranged from 20.5% to a high of 40.5%. The 4th quarter 2020 incidence of delirium was 31.9%.

Following the project intervention, the delirium assessment compliance was 79.8% and the incidence of delirium was 23.7% (See *Table 1*).

Responses to the initial ANA survey were reviewed for level of knowledge and barrier identification. The participation rate was 72% (n=18). 72.2% of respondents stated they cared for patients with delirium on a daily or weekly basis. More than half of the nurses (55.6%) felt comfortable or confident and 38.9% felt very comfortable or very confident in identifying/detecting persons at risk for delirium (See *Table 2*). 50% of the nurses felt comfortable or confident and 27.8% felt very comfortable or very confident recognizing early signs and symptoms of delirium (See *Table 3*). 94.4% of nurses stated they routinely used a formal tool to screen for delirium. The top five ways nurses felt the organization prevents, detects, and/or treats delirium were: standardized assessment/screening using a validated, reliable tool, screening programs for delirium, mobilization, sedatives, and protocols (See *Table 4*). The nurses felt the greatest challenge for nurses preventing, detecting, and treating the onset or presence of delirium was lack of or ineffective communication among interdisciplinary team members (See *Table 5*). The top three products that were most needed by the nursing profession in the areas of delirium prevention, detection, and treatment were: family/patient education, identification tools, and a delirium prevention checklist or model assessment (See *Table 6*).

The educational sessions were attended by 100% of eligible nurses (n=25). The sessions lasted approximately one hour and included lecture, video, and a case study for staff involvement. A post-educational in-service evaluation was completed as a requirement for the facility.

Two months following the educational sessions, an anonymous and voluntary post-educational survey was sent to the nurses. The survey period lasted for two weeks. 19 nurses out of 25 who attended the educational sessions completed the survey. 52.6% (n=10) of the nurses strongly agree and 42.1% (n=8) nurses agree their knowledge about delirium in the ICU patient has increased. 63.2% (n=12) nurses strongly agree and 36.8% (7) agree they are comfortable assessing their patient for ICU delirium. Lastly, each nurse was asked to list three interventions that can be used to prevent or decrease the duration of delirium in ICU patients. All respondents were able to correctly list at least three interventions. The top three interventions listed were related to maintaining a day/night routine, minimizing noise and limiting sleep interruptions, and mobilizing the patient.

Discussion

Delirium is a significant concern in the intensive care unit population of patients. This quality improvement project aimed to understand the barriers to delirium assessment, increase nurse compliance with delirium assessment, and to assess for the decreased incidence of delirium. The overall compliance with delirium assessments increased following the educational sessions by 8.6% and the incidence of delirium decreased 25.7%.

The ANA survey provided information regarding nurse barriers regarding delirium assessment and requested tools for improvement. Based on the results of the study, comfort levels in identifying/detecting persons at risk for delirium and knowledge of delirium increased following the multimodal educational sessions. Sustaining this knowledge and the practice of delirium assessment and prevention will take dedicated

efforts by the educators and leaders of the ICU. This survey and educational intervention were at point in time and a sustainment plan will need to be developed.

The knowledge-to-action framework was utilized to structure the quality improvement project. The barriers the nurses identified in the ANA survey were addressed during the multimodal educational offering. Throughout the nursing educational sessions, nurses indicated they did not know about the syndrome know as Post Intensive Care Syndrome (PICS). This impacts many patients who have suffered ICU delirium and can cause lasting debilitative states. These range from clinical declines to cognitive function that can lead to the individual no longer being able to work or complete simple tasks like balancing a check book. There was discussion during each session about the correlation between assessing for delirium, performing targeted interventions to prevent and treat delirium, and preventing PICS. The results demonstrate the nurses did assess more consistently for delirium and this knowledge could have led to the incidence of delirium decreasing during this quality improvement period. A long-term educational plan needs to be developed to train new staff and update staff on the latest trends in delirium assessment and treatment.

Finally, this project took place during the COVID-19 pandemic, and it is unclear, but probable, the delirium assessment and the incidence of delirium was impacted by this patient population. The patient volume was above average and most days the ICU was at capacity. Nurses who did not typically work in the ICU were provided minimal training to assist in staffing the ICU, which could have attributed to the lower compliance with delirium assessments. Nurses were also often taking more than the standard nurse to patient ratio of 2:1 and were most days at a 3:1 ratio.

Limitations

This study had several limitations that could affect its generalizability to other intensive care units. First, this study was conducted at a single community hospital ICU in the southeastern United States and the size of the nursing staff was small. The patient population and staff makeup may not be translatable to ICUs across the country. Similar results may not be observed in other ICU settings.

The data obtained following the educational in-service was only a two-month sample. This was a limited amount of time and may not demonstrate enough time to assess adherence to delirium assessments. Additional months of data would further strengthen the results of this quality improvement project.

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Table 1

Delirium Assessment and Incidence

Quarter	4th Quarter 2020	1st Quarter 2021	2nd Quarter 2021
Assessment	73.5%	75.6%	79.8%
Incidence	31.9%	32.4%	23.7%

Table 2

Item responses for: "How comfortable or confident do you feel in identifying/detecting persons at risk for delirium?"

Very comfortable or very confident	Comfortable or confident	Somewhat comfortable or somewhat confident	Somewhat uncomfortable or not very confident	Very uncomfortable or not confident at all
38.9% (n=7)	55.6% (n=10)	5.5% (n=1)	0	0

Table 3

Item responses for: "How comfortable or confident do you feel in recognizing early signs and symptoms of delirium?"

Very comfortable or very confident	Comfortable or confident	Somewhat comfortable or somewhat confident	Somewhat uncomfortable or not very confident	Very uncomfortable or not confident at all
27.8% (n=5)	50% (n=9)	22.2% (n=4)	0	0

Table 4

Item responses for: "Currently, how does your organization prevent, detect and/or treat

delirium." Check ALL that apply.

Answer	Response (18 respondents)	%
Physical Activity (mobilization)	15	83.3%
Sedatives	13	72.2%
No prevention strategies	0	0
Non-sedative medications	10	55.6%
Standardized assessment/ screening using a validated, reliable tool	17	94.4%
Cognitive stimulation activity	7	38.9%
Screening programs for delirium	16	88.9%
Protocols	12	66.7%
Delirium prevention bundles/ order sets	9	50%
Screening programs for precipitating factors that can lead to delirium	5	27.8%
Specialized team	0	0
Champions	1	5.6%

Table 5

Item responses for: "In your workplace, what is the greatest challenge for nurses in

preventing, detecting, and treating the onset or presence of delirium?" Choose ONE.

Answer	Response	%
Lack of continuity in assigning nurses to patients	3	17.6%
Lack of knowledge about the risk factors, signs, symptoms, and treatment of delirium	3	17.6%
Lack of quick and easy to use screening tools	0	0
Lack of or ineffective communication among interdisciplinary team members	6	35.3%
Lack of or ineffective collaboration among interdisciplinary team members	4	23.5%
Institutional/organizational policies that prevent or delay delirium screening	1	5.9%

Table 6

Item responses for: "Choose the top 3 products that are most needed by the nursing

profession in the areas of delirium prevention, detection, and treatment."

Answer	Response	%
Delirium prevention checklist or model assessment	7	41%
Professional policy document such as standards, best practices or position statement	6	35.3%
Identification tools	8	47%
Continuing education program-webinar	0	0
Family/patient education	10	58.8%
Education campaign	5	29.4%
Nursing student curriculum	1	5.9%
Continuing education-face to face/workshop	3	17.6%
Sample health care facility policies	1	5.9%
Sample care plan templates	1	5.9%
Tip cards	4	23.5%
Conference (for all interested parties)	0	0
Improvement measures	3	17.6%
Transition in care resources	1	5.9%
Mobile apps	0	0
Continuing education-paper module	0	0
Dedicated topic page on nursingworld.org	0	0
Summit (for thought leaders)	0	0
Infographic	1	5.9%
Booklet	0	0
Book	0	0