EFFECTS OF EDUCATION ON CORRECT PROCEDURES AND DOCUMENTATION IN SPONTANEOUS AWAKENING TRIALS

by

Jenna LeMond

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GRADUATE COLLEGE

As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Jenna LeMond, titled Effects of Education on Correct Procedures and Documentation in Spontaneous Awakening Trials, and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

Courtney Bartlett
_____ Date: 11/18/2025
Courtney Bartlett, DNP, AGACNP-BC

Joseph DeBoe (Nov 18, 2025 08:36:12 MST)
_____ Date: 11/18/2025
Joseph DeBoe, DNP, ACNPC-AG, CCRN

Pritesh Patel (Nov 18, 2025 08:39:36 MST)
_____ Date: 11/18/2025
Pritesh Patel, MD

Final approval and acceptance of this DNP project are contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

Courtney Bartlett
_____ Date: 11/18/2025
Courtney Bartlett, DNP, AGACNP-BC
DNP Project Committee Chair
College of Nursing

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I truly appreciate my committee chair, Dr. Bartlett, for her incredible guidance, support, and insights throughout this whole project. Her mentorship has been a vital part of helping me shape and improve my ideas. I sincerely thank my committee members, Dr. DeBoe and Dr. Patel, for their valuable expertise, insightful feedback, and dedication to helping this project succeed. Their support has played a crucial role in shaping my journey and growing into a future nurse practitioner.

LAND ACKNOWLEDGEMENT

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

DEDICATION

This project is truly dedicated to my family and friends who have stood by me, providing constant support, encouragement, and love throughout this challenging yet rewarding journey. I am deeply grateful to my husband, Clint, whose unconditional love, patience, and unwavering support carried me through difficult times and enabled me to persevere over the past two and a half years, making this achievement possible.

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Abstract

Background: Prolonged use of sedative and analgesic medications in patients requiring mechanical ventilation has been linked to several adverse clinical outcomes. The nurse-led sedation protocol can lead to positive outcomes, such as reduced mechanical ventilation time, shorter ICU stays, and fewer sedation needs, along with increased spontaneous awakening trials conducted (Green & Staffileno, 2021).

Purpose: The project aimed to educate nurses on the proper use of spontaneous awakening trials (SATs) and their documentation. The goal was to improve the number of ventilator-free days and length of ICU stay, and to enhance nurses' understanding of the SAT, while decreasing the use of unnecessary sedatives and analgesic medications for prolonged periods.

Methods: Utilizing a pre-post intervention design, the study examined the effectiveness of education surrounding a nurse-driven SAT protocol. The project aimed to increase the number of successful documentations regarding the completion and implementation of the SAT.

Results: Thirteen responses were collected from the pre-survey (n=13), and nine from the post-survey (n=9). Most participants improved their SAT knowledge and confidence. Confidence in performing SATs, eligibility, sedation guidelines, and practices increased significantly from pre- to post-survey. Confidence in documenting and performing SATs also improved, though not statistically significant. Ten chart audits showed significant improvements across all metrics, indicating effective measures and strong adherence to standards.

Conclusions: Formal education on SATs improves ICU RNs' knowledge and confidence in eligibility, sedation, documentation, and performance. The QI (Quality Improvement) project

successfully enhanced critical care nurses' understanding of SATs, leading to better patient care and increased confidence among nursing staff.

Introduction

The prolonged administration of sedative and analgesic medications in patients requiring mechanical ventilation has been noted to correlate with adverse clinical outcomes, including an increased risk of delirium, extended duration of mechanical ventilation, and elevated mortality rates. Still, the opportunity for improved patient outcomes is within reach. According to Girard et al., A wake-up and breathe protocol, which combines daily spontaneous awakening trials with daily spontaneous breathing trials, leads to improved outcomes for mechanically ventilated patients in intensive care compared to current standard practices and should be adopted as routine practice (2008). The excessive and continuous utilization of these medications directly influences the overall prognosis for patients, potentially resulting in extended periods of stay in the intensive care unit, an increased risk of adverse reactions, and a heightened likelihood of medical errors. The continuous infusion of sedatives, often called “autopilot,” is linked to increased mechanical ventilation times and more extended periods spent in the intensive care unit (Curtis, 2004). This situation can directly and significantly impact patients' health in critical care settings. Without a standardized sedation process or well-defined objectives, patients often experience inadequate sedation, leading to a tendency toward oversedation (Ackrivo et. al., 2016).

The primary purpose of this Doctor of Nursing Practice (DNP) quality improvement project (QI) was to educate nurses on the proper use of spontaneous awakening trials (SAT) and documentation to increase the number of SATs completed overall and ensure adequate documentation to reflect the work being done. A protocol that integrates daily spontaneous awakening trials with spontaneous breathing trials yields improved outcomes for mechanically

ventilated patients in intensive care, surpassing the current standard methods (Girard et. al., 2008). The overall goal was to improve consistency in documentation and the knowledge and understanding of the SAT process in the critical care unit. The completion of SATs and SBTs has been shown to synergistically reduce the duration of mechanical ventilation, the intensive care unit (ICU) stay, and the overall hospital stay (Toban et al., 2023). The number of days on the ventilator and the length of stay in the ICU will be a potential benefit to the educational initiative, increasing awareness and patient safety in our critical care settings.

Background Knowledge and Significance

Spontaneous awakening trials can effectively reduce mechanical ventilation duration, length of stay in the intensive care unit, and the risk of sedation-induced tracheostomy and ventilator-associated pneumonia in ICU patients (Chen et al., 2021). Spontaneous awakening trials also enable nursing staff and physicians to assess the patient's neurological status, develop a plan to adjust or reduce the required medication dosage to maintain comfort, and evaluate readiness to withdraw ventilator support. According to Sneyers et al., (2017), research is crucial to enhance adherence to strategies that minimize sedation and identify challenges to knowledge translation. A program designed to educate critical care nurses about the Spontaneous Awakening Trial and its expectations can help bridge the gap between task completion and proper documentation, ensuring that every appropriate mechanically ventilated patient receives the minimum amount of sedation and analgesia. Inconsistent practices regarding sedation vacation have resulted in patients remaining sedated for more extended periods, being overly stimulated on light sedation, or receiving excessive sedation from maintaining high doses of the same sedative without evaluating sedation options (Tizon, 2015). The lack of proper education

among critical care nurses, combined with inconsistent practices in SATs, results in inadequate care for the most vulnerable patients. This issue highlights the importance of comprehensive training and standardized procedures to ensure that all individuals receive high-quality care within the intensive care unit. Without foundational knowledge and a uniform approach, the risk of poor care increases, ultimately affecting the well-being of patients. The SAT/SBT is a protocol led by nurses, making critical care nurses vital in reducing the harmful effects of prolonged mechanical ventilation and enhancing patient outcomes (Jones & Shivji, 2023).

Theoretical Framework

Plan-Do-Study-Act (PDSA) Model

The Plan-Do-Study-Act (PDSA) Model is a structured, iterative framework commonly used in healthcare and quality improvement (QI) initiatives. It is widely acknowledged that evidence-based practice (EBP) enhances the quality, safety, and outcomes of healthcare while also promoting active clinician engagement in their practices. “Although the positive impact of EBP has been demonstrated through multiple studies, major barriers exist that prevent EBP from becoming the standard of care throughout the world” (Melnyk et al., 2017). Conducting spontaneous awakening trials in the ICU is essential for managing critically ill patients and represents the most up-to-date evidence-based practice. This approach ensures minimal sedation, which can decrease both ventilator days and complications associated with prolonged ICU admissions. The team of critical care nurses will use the PDSA model to address challenges in education related to completing and documenting the SAT. Their focus was on improving both the completion and documentation of the SAT, gaining a clearer understanding of the streamlined process, and performing a SAT on their critically ill patients.

Plan

The project focused on planning and creating a multifaceted approach to educating the critical care nursing team to improve the number of SATs completed and documented. Over the course of four weeks, various educational tools were provided, including informational posts on the Daily Management System (DMS) boards (Appendix E) and an educational PowerPoint presentation (Appendix K). The current science regarding daily sedation interruptions may be confusing, so keeping nurses updated on continuous sedation in mechanically ventilated patients is a priority (Hogue & Mamula, 2013). Additionally, pre- and post-education surveys were used to assess the understanding of SAT and its educational context (Appendix O).

Do

During the "Do" phase, critical care nurses used various educational methods to strengthen their understanding of the SAT's purpose. Prior to starting the education, nurses were invited to complete a pre-educational survey (Appendix O). Once the pre-survey phase concluded, the four-week educational period was initiated. In addition to the pre-survey, a post-educational survey was administered at the end of the four-week period.

Study

In the "Study" phase of the initiative, the survey results were analyzed to assess the effectiveness of the educational materials and training related to the streamlined process of documenting and completing the SAT.

Act

In the final "Act" phase, the project lead will advise the critical care leadership team on how to enhance our documentation and completion process for the SAT, informed by the

feedback and data collected from the nurses. This process ensures not only that the streamlined process of documenting and completing the SAT is performed shift-to-shift, but also that the SAT is recognized and valued within our critical care nursing team, establishing the foundation for safety and best practice in the ICU.

Purpose

The project aimed to educate nurses on the appropriate implementation of spontaneous awakening trials and documentation practices. The goal was to increase the overall completion rate of SATs and ensure that adequate documentation accurately reflects the completed work. This could reduce ventilation time, shorten ICU stays, and improve nurses' understanding of the SAT, while also limiting the unnecessary prolonged use of sedative and analgesic medications. Studies focused on interventions to prevent sedation interruptions have shown better physiological and psychological outcomes in patients than standard sedation management (O'Connor et al., 2009).

The DNP project took place at Banner Estrella Medical Center (BEMC), a non-academic facility under the Banner Health umbrella. Using a pre-post intervention design, it examined the effectiveness of education on a nurse-driven SAT protocol. Green & Staffileno (2021) report that implementing a nurse-driven sedation protocol led to positive outcomes, including shorter mechanical ventilation times, reduced ICU stays, shorter continuous sedation duration, and more spontaneous awakening trials. The goal of the project was to enhance the number of successful, documented, and completed SATs, which will help create consistency within the team and ensure a more standardized process. The SAT/SBT is guided by nurses, meaning that critical care nurses are essential for reducing the harmful effects of prolonged mechanical ventilation

and enhancing patient outcomes (Jones & Rozmeen, 2023). A comprehensive chart audit tool (Appendix C) thoroughly assessed the completion rates and documentation quality in the spontaneous awakening trial. Additionally, pre- and post-survey instruments were used to evaluate and measure the critical care nurses' understanding and awareness of the SAT process, highlighting any changes in knowledge resulting from training or experience during the assessment period.

This initiative encompasses the development of an educational curriculum and collaboration with the critical care doctors in the Intensive Care Unit (ICU). It was executed in accordance with established objectives and a prescribed timeline (Appendix B). The primary objective was to investigate whether educating critical care nurses about the importance of SATs and proper sedation methods would increase the number of completed and documented SATs and enhance team consistency through a more standardized approach. “Inconsistency in how sedation vacations are performed has led to patients being kept on sedation for longer periods, being excessively sedated, or receiving light sedation due to the continued use of high doses of the same sedative without proper assessment of their choice of sedation” (Tizon, 2015).

Methods

Site

The setting for this QI initiative was BEMC, located in Phoenix. BEMC is a non-academic medical campus with nearly 300 beds. The campus features one central ICU with 24 beds accommodating medical and cardiac patients.

Participants and Recruitment

The success of the educational QI initiative depends heavily on ICU nurses' involvement and participation. It is crucial to ensure their active engagement and dedication to deepening their understanding of the SAT process and the significance of documentation, as this will be vital for enhancing the consistency of the SAT process. The process utilized the following inclusion criteria: full-time and part-time critical care nurses with varying years of ICU experience, currently employed in BEMC's ICU. A total of 56 nurses, including those on both day and night shifts, will meet the inclusion criteria. The exclusion criteria are any personnel who are not part of the critical care nursing team.

BEMC's leadership team emailed an invitation (Appendix G) to participate in the pre-educational survey, along with a letter of invitation from the project lead (Appendix H) to join the QI initiative. Participation in the pre-educational survey (Appendix O) was entirely voluntary. Each nurse participating in the pre-educational survey was self-assigned a random code they created based on the year they became a nurse and the first initial of their mom's first name. This same code would be used on the post-survey, allowing the pre- and post-surveys to be matched and enabling accurate analysis of the collected data. Recognizing that ICU nurses have demanding schedules that can vary from shift to shift, various educational tools were utilized to deliver the education. These tools included a PowerPoint presentation and daily rounds on the DMS boards. One-on-one education occurred when nurses proactively approached the project lead with questions.

Intervention

The proposed QI education project's initial steps began on September 2nd, 2025. A pre-education survey was conducted and sent to all BEMC ICU nursing staff. Once the pre-education survey was completed, the education process started, tailored to the specific needs of ICU nurses. An educational pre-recorded PowerPoint presentation (Appendix K) was distributed to all ICU nurses via email by the ICU leadership team (Appendix I). Additionally, weekly educational posts on a DMS board (Appendix M & N) for the daily ICU huddle highlighted a different SAT topic each week. After the four-week implementation period, the ICU leadership team emailed a follow-up survey to ICU nurses (Appendix J) to evaluate the project rollout and gauge their understanding of the SAT process. A site confirmation letter has been acquired (Appendix G), granting permission to proceed with the QI education project at BEMC. A literature review was performed to thoroughly explore the SAT process, identify risk factors, and enhance understanding of patient safety.

Evaluation Measures

Multiple tools were identified to illustrate success following the initiation of the nurse-driven SAT. Two specific metrics were used to evaluate the educational outcomes: the accurate documentation of SAT completion in patient charts and a higher confidence rate in the post-education survey. A chart audit tool (Appendix C) was used to assess completion of the SAT by auditing 10 randomly selected ventilated patients, comparing documentation before and after the educational survey to identify areas for improvement. Additionally, the surveys were analyzed to assess confidence and knowledge ratings. Together, these tools provided insights into the trial's outcomes and the effectiveness of the new educational protocol.

Analysis

Data analysis occurred after the post-survey closed. The pre- and post-surveys were compared to understand the full spectrum of results and intended improvement. The survey data was matched anonymously by utilizing the unique ID code the participant created (mother's first initial & year they received their nursing license). Surveys were analyzed to compare pre- and post-education data, allowing us to identify improvements in knowledge and understanding of the educational objectives relative to baseline knowledge, specifically ICU nurses' confidence

In the survey data, responses were interpreted using a 5-point Likert scale: 1=not at all confident/not at all familiar, 2=somewhat confident/slightly familiar, 3=moderately confident/familiar, 4=very confident/very familiar, and 5=extremely confident/extremely familiar. These numbers were compared and analyzed to assess improvements in knowledge and confidence among ICU nurses before and after the intervention. A paired t-test was used to compare the median confidence scores between the pre- and post-surveys. The project lead then presented the findings to the Director of the Critical Care Unit, and the critical care leadership team will decide on any future practice changes.

Ethical Considerations

Ethical considerations are crucial to the proposed educational QI initiative aimed at enhancing ICU nurses' knowledge and understanding of SATs. These considerations included transparent evaluations and sharing of findings, complying with regulations, and obtaining ethical approval when necessary. Before launching the educational initiative, permission was obtained from the University of Arizona project committee. Furthermore, a request for approval

of the initiative was submitted to the Banner Health Research Determination Committee (RDC), and the Banner Institutional Review Board also approved the project proposal.

IRB Review and Approval

A request for initiative approval was submitted to the Banner Health Research Determination Committee (RDC), which, along with the Banner Institutional Review Board, approved the project proposal (Appendix D). The Banner Institutional Review Board reviewed all the project recruitment and educational materials and determined that the project does not contain any human research. The evidence-based practice council approved the completion of the project, subject to the condition that the study results be shared with the committee and the department in which the project was conducted.

Results

Following the invitation to participate, 13 ICU nurses at BEMC completed the pre-survey before the education program was implemented. After the educational program was delivered and accepted by all nurses, a post-survey invitation was sent, yielding nine responses. Of the total responses to both pre- and post-surveys, only two nurses completed both. The remaining responses included 11 nurses who completed only the pre-survey and seven who completed only the post-survey. Because of this limited overlap, the data was analyzed as independent groups rather than paired responses. Due to the small sample size and the lack of paired responses, the analysis could potentially have limited statistical power.

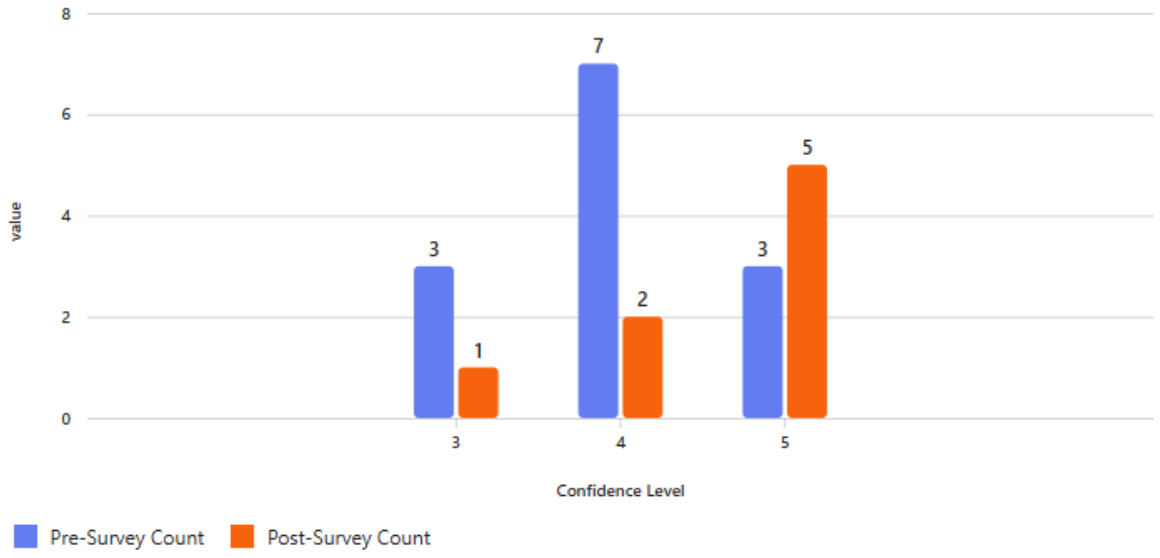
Outcomes

Questions two through eight of the pre- and post-surveys aimed to evaluate nurses' knowledge and confidence in current SAT practices. Figure 1 shows that confidence in

performing the SATs increased from the pre-survey to the post-survey. In a statistical analysis, the pre-survey average confidence was 4.00, while the post-survey average confidence was 4.50. While the average confidence increased by 0.50 points, the p-value of 0.1534 indicates that this improvement is not statistically significant at the conventional 0.05 threshold. This means that we cannot confidently conclude that the observed increase is due to the intervention rather than random variation. The intervention boosted nurses' overall confidence in performing SATs, as evidenced by higher ratings and a higher average confidence. However, since the results are not statistically significant, we can't definitively link this improvement to the intervention. In the future, a larger sample size or additional training might be necessary to observe a clear, statistically significant effect.

Figure 1

Confidence in Performing SATs: Pre- vs Post-Survey



Questions two, three, five, six, seven, and eight looked at familiarity with guidelines and sedation practices, the importance of SATs to patient outcomes, as well as confidence in

identifying eligibility and documenting SATs. Figure 2 below displays the average difference in scores between the pre- and post-surveys for the SAT metrics measured.

Familiarity with sedation guidelines and practices significantly improved, with scores rising from 3.7 to 5.0. This was addressed through the DMS huddle board intervention, which increased awareness of the guidelines and boosted the average score.

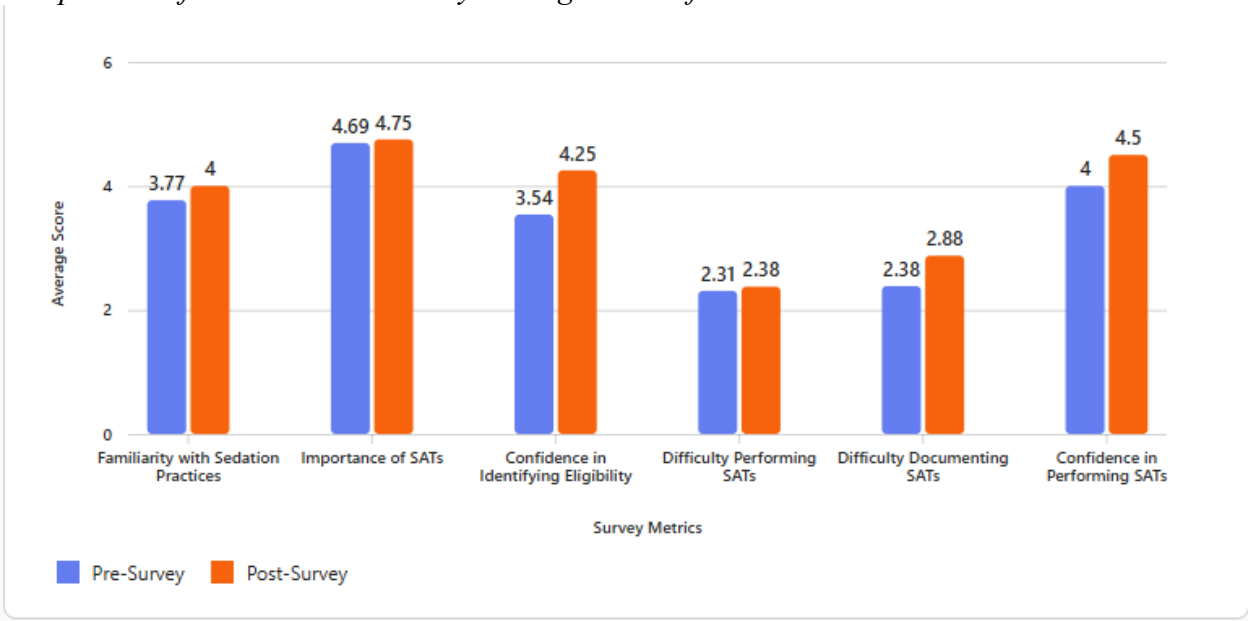
Confidence in recognizing patient eligibility for Spontaneous Awakening Trials (SATs) also saw a notable increase, from 3.54 to 4.25. The intervention mainly covered this in the PowerPoint presentation and during the DMS huddle.

Regarding the difficulty performing and documenting SATs, there is a clear shift toward greater confidence in performing them after the intervention. While most participants initially rated themselves at 4.5, the post-survey shows a redistribution with a notable increase at level 5. This suggests that the training or support provided helped participants feel more capable and prepared to perform SATs. The drop in mid-level confidence (4.5) and rise in high-level confidence (5) reflect a successful outcome.

The perceived importance of SATs remained consistently high, with only a slight increase from 4.69 to 4.75. This suggests that participants already recognized their critical role in patient care prior to the intervention, leaving limited room for further improvement.

Figure 2

Comparison of Pre- and Post-Survey Average Scores for SAT Metrics



The mean differences shown in Figure 3 were used to compare pre- and post-survey metrics. The results indicate statistically significant improvements in several key areas following the intervention. ICU RNs reported increased familiarity with guidelines (mean difference = +1.31) and sedation practices (+1.23), suggesting enhanced understanding in these areas. Confidence in identifying eligibility for SATs also improved significantly (+0.71). While confidence in performing SATs showed a positive trend (+0.50). There was no significant change in the perceived importance of SATs (+0.06), and the reported difficulty in documenting SATs (+0.29) was not statistically significant.

Figure 3

Mean Differences of Pre- and Post-Survey Metrics

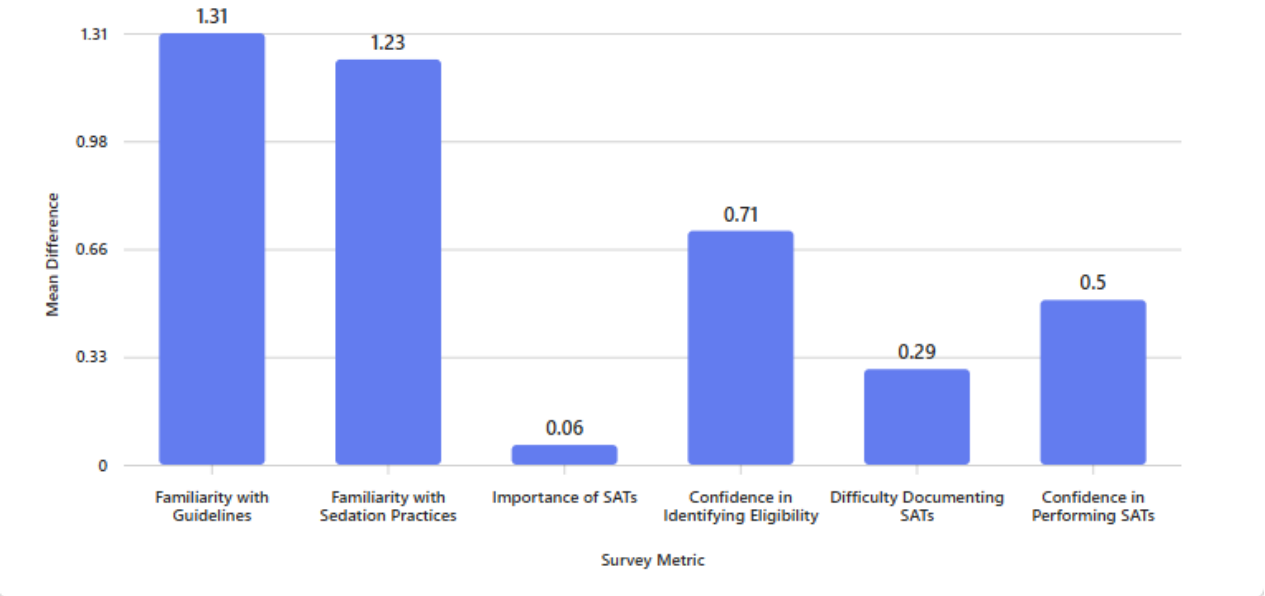


Table 1 illustrates the P-value results. Statistically significant factors include familiarity with guidelines (p=0.001), familiarity with sedation practices (p=0.002), confidence in identifying eligibility (p=0.01), and confidence in performing SATs (p=0.03). Conversely, difficulty in documenting SATs (p=0.08) and the perceived importance of SATs (p=0.45) were not significant. This might indicate a need for more targeted support or clearer documentation tools. Overall, the findings show positive progress among ICU RNs in knowledge and confidence with the intervention, providing new knowledge and skills, although some areas still require improvement and further intervention.

Table 1

Survey Metrics and P-values

Survey Question	p-value
Familiarity with Guidelines	**0.001**
Familiarity with Sedation Practices	**0.002**
Importance of SATs	0.450
Confidence in Identifying Eligibility	**0.010**
Difficulty Documenting SATs	0.080
Confidence in Performing SATs	**0.030**

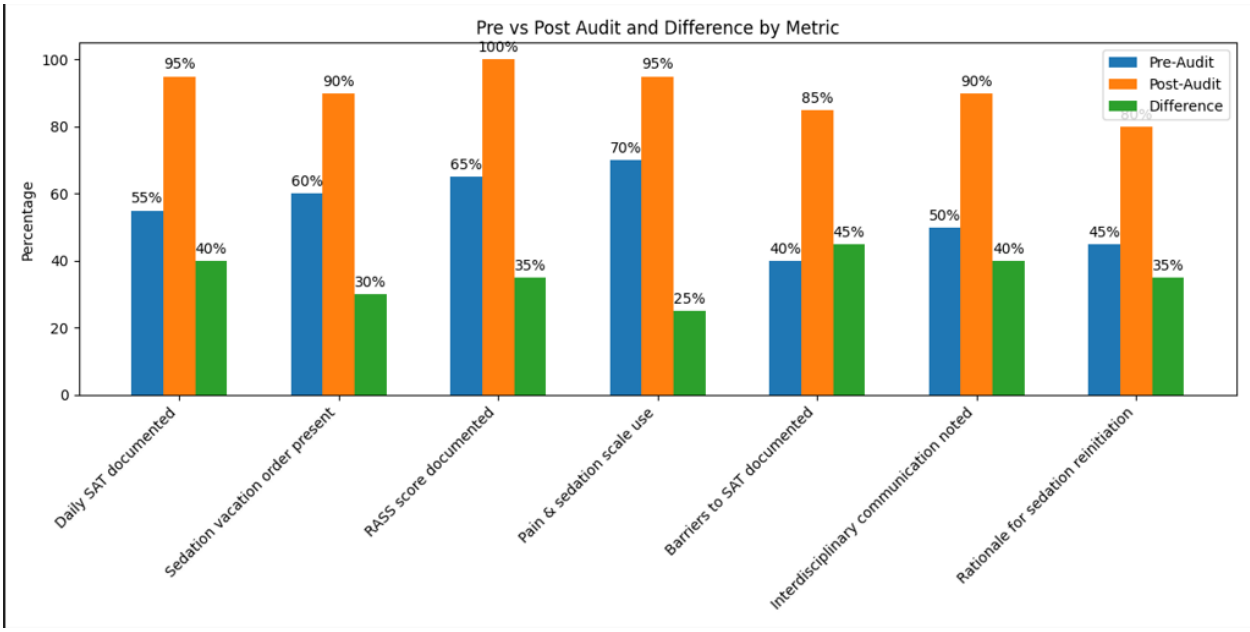
Footnote: Significance level = 0.05. Values in **bold** indicate statistically significant findings

Chart Audits

The chart audits assessed compliance with Spontaneous Awakening Trials documentation and performance indicators before and after the educational intervention. The chart tool examined key elements of adherence to sedation interruption protocols, nurse documentation, and interdisciplinary communication. Ten chart audits were completed before the intervention, and ten were completed after. The audits were conducted at random on any mechanically ventilated ICU patient. In Figure 4, the bar graph demonstrates the compliance percentages for each metric before and after the SAT education intervention, along with the calculated difference. Across all metrics, compliance increases from the pre-audit to the post-audit stage, as shown by the taller post-audit bars.

Figure 4

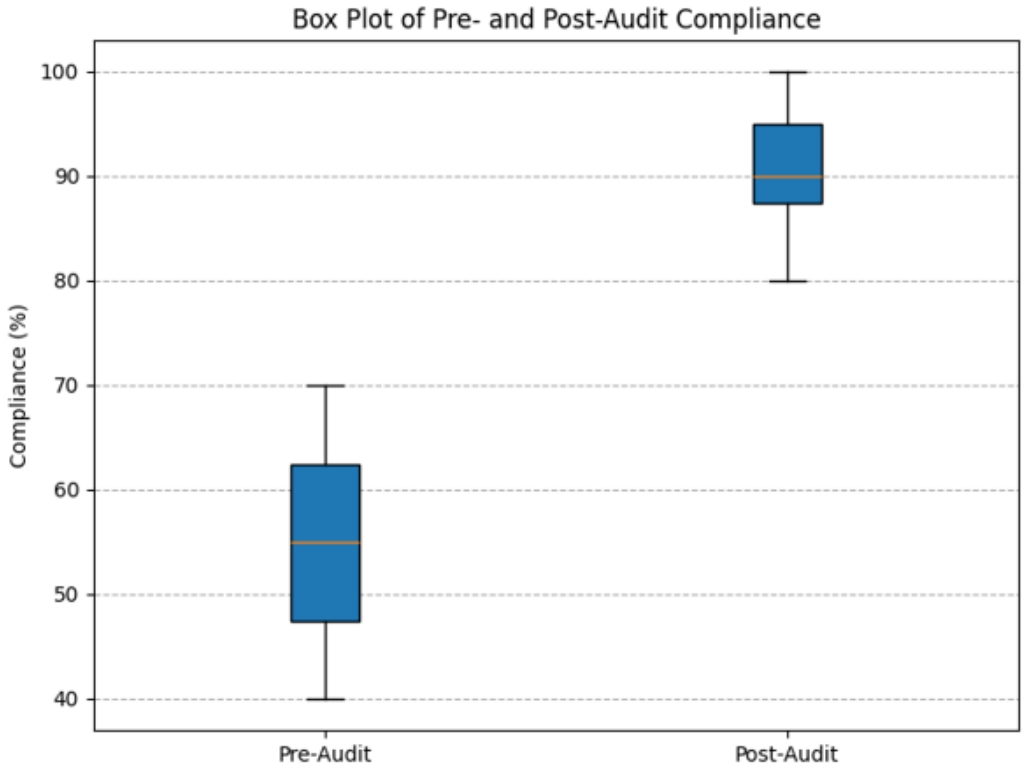
Pre- vs. Post-Audit and Difference by Metric



A paired t-test was conducted on the chart audits to compare the mean compliance percentages before and after the SAT education intervention (Figure 5). The results of the paired t-test showed a statistically significant difference between the pre-audit (M = 55.00%, SD = 10.80%) and post-audit (M = 90.71%, SD = 6.73%) compliance percentages, with a t-statistic of -14.05 and a p-value of p = 0.0000000031. Since the p-value is less than 0.05, the improvement in compliance following the intervention is statistically significant. This indicates that the educational intervention and weekly rounding increased compliance with nursing documentation.

Figure 5

Paired T-test Box Plot of Pre- and Post-Audit Compliance



Discussion

Alignment with DNP Essentials

The quality improvement project addresses several key Doctor of Nursing Practice Essentials that are foundational to advanced nursing practice (American Association of Colleges of Nursing [AACN], 2006).

Essential V: Health Care Policy for Advocacy in Health Care

Promoting adherence to SAT bundles for ICU care directly supports CMS and national safety guidelines. This project supports policy-focused metrics, such as reducing delirium and sedation, by implementing the SAT/SBT bundles to lower ventilator days and shorten ICU stays.

A combined sedation and ventilator weaning protocol, involving daily SATs and SBTs, led to patients spending more time off mechanical ventilation, experiencing less coma, and reducing their ICU and hospital stays. Additionally, this protocol improved 1-year survival rates compared to standard care (Girard, 2008).

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Essential VI plays a key role in ICU SAT implementation and naturally encourages interdisciplinary teamwork, promoting collaboration between nurses and the broader team to maintain consistent sedation protocols and ventilator weaning strategies.

Sustainability

The project lead suggests incorporating SAT education models into all onboarding processes for new ICU nurses, as well as offering refreshers throughout the year on best SAT Practices and evidence-based care. Educating staff about the concept of SAT can ensure they properly understand the reasons and benefits it provides for our critically ill patients. This approach will help maintain awareness among the nursing staff and ensure that new team members receive the necessary training. Sharing the project results with the ICU management team will promote ongoing education and help inform future unit policy changes related to the SAT process.

Limitations

This quality improvement project had several limitations that may have influenced the results. The most significant challenge was the small sample size, with only 13 pre-survey and 9 post-survey responses. Recruiting a larger number of nurses across two ICU shifts proved

difficult, and the limited sample reduced the ability to detect statistically significant differences, even when meaningful changes occurred. Furthermore, only two nurses completed both surveys, leaving most responses unpaired. This required the use of independent-group analysis rather than paired comparisons, which further decreased statistical power.

Another limitation was the delivery method of the educational intervention. Because presenting the material live to each shift was not feasible, the education was shared asynchronously via email. This format may have affected engagement, as not all nurses interacted with the material in the same way or to the same extent, potentially influencing their reported knowledge and confidence. Although daily DMS huddles provided opportunities for discussion, the absence of the project lead or leadership during these sessions made it unclear whether the topic was consistently addressed or whether all nurses participated.

While not every survey metric showed a statistically significant improvement, several critical areas—such as familiarity with guidelines, sedation practices, confidence in identifying eligibility, and confidence in performing SATs—demonstrated notable gains, suggesting the education program had a meaningful impact on practice.

Finally, chart audits introduced another limitation. Patient charts were randomly selected, potentially including multiple assessments from the same nurse. Because steps were not taken to ensure charts represented different nurses, this may have led to data duplication.

Conclusion

This QI project aimed to develop, implement, and evaluate evidence-based educational intervention to assess its impact on ICU RNs' care regarding Spontaneous Awakening Trials. The goal was to teach nurses how to properly perform spontaneous awakening trials and keep

accurate documentation. The goal was to boost the overall SAT completion rate and ensure that documentation correctly reflects the work done. The results suggest that providing nurses with formal education can improve their knowledge and confidence when performing a spontaneous awakening trial. However, in-person, one-on-one teaching may be more effective than a pre-recorded PowerPoint presentation. Education and daily rounds significantly improved documentation practices in the BEMC ICU.

Implications for Future Practice

This quality improvement project highlights the vital role of structured, nurse-led education in enhancing the implementation and documentation of spontaneous awakening trials. To maintain progress in sedation management, continuous education, collaboration across various healthcare teams, and integration of evidence-based policies are essential. Incorporating SAT training into onboarding programs and annual assessments will help maintain consistency across shifts and among new staff, promoting a common understanding of best practices. Future practice in ICU settings should focus on continuous monitoring of completion of the SAT/SBT process, chart audits to ensure proper sedation management during and after the SAT has been performed. Effective communication among the front line, leadership team, and ICU physicians is crucial to establishing a standardized process flow consistently followed for every ICU patient on mechanical ventilation. Aligning SAT protocols with national standards, such as the ABCDEF bundle, can improve quality metrics, including reducing ventilator days, shortening ICU stays, and lowering delirium rates (Stollings et al., 2019). Future research could implement this approach in various ICUs within the health system to assess its scalability and generalizability.

Appendix A

Evidence Table

Citation Information	Title of Document	Type of Evidence	Main Outcome of Findings	Relevance to Project
Girard, T. D., Kress, J. P., Fuchs, B. D., Thomason, J. W., Schweickert, W. D., Pun, B. T., Taichman, D. B., Dunn, J. G., Pohlman, A. S., Kinniry, P. A., Jackson, J. C., Canonico, A. E., Light, R. W., Shintani, A. K., Thompson, J. L., Gordon, S. M., Hall, J. B., Dittus, R. S., Bernard, G. R., & Ely, E. W. (2008).	Efficacy and safety of a paired sedation and ventilator weaning protocol for mechanically ventilated patients in intensive care (Awakening and Breathing Controlled trial): a randomized controlled trial.	RCT	Findings indicate that implementing a wake-up and breathe protocol, which combines daily spontaneous awakening trials (i.e., the cessation of sedatives) with daily spontaneous breathing trials, yields improved outcomes for mechanically ventilated patients in intensive care compared to standard methods and should be adopted as routine practice.	Supports completion of a SAT
Hogue, M. D. & Mamula, S. (2013).	Sedation Vacation	Quality improvement project	The existing research on DSI can be confusing, making it essential to keep nurses informed about ongoing sedation for mechanically ventilated patients.	This article discusses the essential knowledge nurses require about SATs to ensure adherence to evidence-based guidelines during the temporary cessation of sedatives and analgesics.
Green, S. & Staffileno, B. A. (2021)	Favorable Outcomes After Implementing a Nurse-Driven Sedation Protocol	Quality improvement project followed a plan-do-study-act cycle	Initial findings suggest that adopting a nurse-led sedation protocol resulted in positive outcomes, including reduced time on mechanical ventilation, shorter stays in the intensive care unit, less continuous sedation, and an increased number of spontaneous awakening trials.	Supports completion of a SAT and reduces the amount of sedation for patients on mechanical ventilators

Citation Information	Title of Document	Type of Evidence	Main Outcome of Findings	Relevance to Project
Ting-Jhen Chen RN, MSN, Yi-Wei Chung MD, Pin-Yuan Chen MD, PhD, Sophia H. Hu RN, PhD, Chuen-Chau Chang MD, PhD, Shu-Hua Hsieh RN, MSN, Bo-Cyuan Wang RN, MSN, (2021).	Effects of daily sedation interruption in intensive care unit patients undergoing mechanical ventilation: A meta-analysis of randomized controlled trials	Meta-analysis	Regularly interrupting sedation may significantly decrease the length of mechanical ventilation, the duration of ICU stays, and sedation, as well as lower the risks of tracheostomy and ventilator-associated pneumonia in ICU patients.	Supports interrupting sedation daily may significantly shorten the length of mechanical ventilation.
Tizon, J. (2015)	Restructuring Daily Awakening Trial: A New Face on Sedation Vacation	Quality improvement project	To improve consistency in the practice of performing daily awakening trials (DATs) in patients receiving mechanical ventilation in the Intensive Care Unit.	Increased compliance and understanding of DSI or SAT, improves outcomes for patients
Toban, K. , Factor, J. , Smith, M. & Freeman, C. (2024)	1232: OPTIMIZING TIMING OF DAILY SPONTANEOUS AWAKENING AND BREATHING TRIALS TO IMPROVE COMPLIANCE	A retrospective chart review	Completion of SAT/SBT synergistically has been shown to decrease the duration of mechanical ventilation, ICU, and hospital stay	Paired SAT and SBT remain an important part of providing efficient and humanistic critical care
B. Sneyers, S. Henrard, P.F. Laterre, M.M. Perreault, C. Beguin, D. Wouters, N. Speybroeck, A. Spinewine (2017).	Predictors of clinicians' underuse of daily sedation interruption and sedation scales	A nationwide survey	The primary obstacle to DSI use is nurses' unfamiliarity with DSI and physicians' belief that it compromises patient comfort.	Promotes education for staff to complete sedation interruption
Melnyk, F.-O., E., G., M., & Choy, K. (2017).	A Test of the ARCC© Model Improves Implementation of Evidence-Based Practice, Healthcare	A pre-test, post-test longitudinal pre-experimental study was conducted	This study aimed to investigate how the Advancing Research and Clinical practice through close	significant increases in clinicians' EBP beliefs and EBP implementation along with positive movement toward

Citation Information	Title of Document	Type of Evidence	Main Outcome of Findings	Relevance to Project
	Culture, and Patient Outcomes		Collaboration (ARCC) Model influences organizational culture, clinicians' beliefs about evidence-based practice (EBP), EBP implementation, and patient outcomes in a healthcare system located in the western United States.	an organizational EBP culture
ackrivo, J. , Horbowicz, K. J. , Mordino, J. , El Kherba, M. , Ellingwood, J. , Sloan, K. & Murphy, J. (2016)	Successful Implementation of an Automated Sedation Vacation Process in Intensive Care Units	Quality improvement initiative	A validated approach to evaluate each patient's sedative needs involves implementing a planned daily pause in the continuous sedative infusion, referred to as a sedation vacation (SV). Evidence suggests that daily SVs can reduce mortality rates, the length of mechanical ventilation, ICU stay, hospital stay, and complications associated with intensive care.	Supports completion of a SAT and reduces the amount of sedation for patients on mechanical ventilators
Jones, N. & Shivji, R. (2023).	A Multidisciplinary Approach to Increase Compliance with Spontaneous Awakening Trials and Spontaneous Breathing Trials in the Medical Intensive Care Unit	Quality improvement project	Conducting a synergistic SAT/SBT results in reduced mechanical ventilation duration, shorter hospital stays, and less delirium. Overall, the initiatives in this project improved SAT/SBT adherence in the MICU.	Supports completion of a SAT and reduces the amount of sedation for patients on mechanical ventilators

Citation Information	Title of Document	Type of Evidence	Main Outcome of Findings	Relevance to Project
O'Connor, M., Bucknall, T. and Manias, E. (2009)	A critical review of daily sedation interruption in the intensive care unit	Literature review	Research shows that DSI shortens ventilation duration, ICU stay length, critical illness complications, and the occurrence of post-traumatic stress disorder.	Supports completion of a SAT and reduces the amount of sedation for patients on mechanical ventilators
Sessler, Curtis N. MD, FCCM (2004)	Wake up and breathe	Retrospective analysis	Different strategies, such as precise drug titration for tailored sedation levels, implementing protocols for earlier shifts from continuous to intermittent sedative treatment, and scheduling pauses in sedative infusion, aim to minimize the risk of excessive or prolonged drug-induced drowsiness, ultimately speeding up recovery.	Supports Completion of SAT
Stollings, J. L., Devlin, J. W., Pun, B. T., Puntillo, K. A., Kelly, T., Hargett, K. D., Morse, A., Esbrook, C. L., Engel, H. J., Perme, C., Barnes-Daly, M. A., Posa, P. J., Aldrich, J. M., Barr, J., Carson, S. S., Schweickert, W. D., Byrum, D. G., Harmon, L., Ely, E. W., & Balas, M. C. (2019)	Implementing the ABCDEF bundle: Top 8 questions asked during the ICU Liberation ABCDEF bundle improvement collaborative.			Supports SAT/SBT as part of the ABCDEF bundle

Appendix B

Project Timeline

Due Date or Deadline	Action Item	Notes
1/17/2025	Approval from the committee chair	Discuss the project idea and timeline with the committee chair
2/1/2025-2/28/2025	Meet the Banner DNP liaison/Discussed project with BEMC ICU director	Met up with the Banner DNP liaison/BEMC ICU Director to review the project proposal and expectations. Set up a plan to move forward with the identified project.
3/28/2025	Project Identification and Proposal Development- Literature review, problem statement, research question, methodology selection, IRB submission)	Complete final steps with the site stakeholders and DNP Project Committee Chair, with the approved appropriate topic, project question, objectives, and general methods for the project
4/27/2025	Complete the DNP Project proposal paper	paper (**Month 4-6**: IRB Approval and Data collection- tool development, pilot study, data analysis plan)
5/2/2025	Pass the DNP Project proposal defense	
6/2/2025	Obtain IRB review and approval. (Summer)	
8/2/2025-10/1/2025	Implement and evaluate the DNP project.	**Month 7-9**: Data Analysis and Interpretation)
10/31/2025	Write the DNP Project final paper	(**Month 10-12**: Dissemination and Final Report- Presentation preparation, manuscript writing, project report finalization, with ongoing communication with the DNP committee and potential stakeholders throughout the process)
11/14/2025	Pass the DNP Project final defense. (by mid-November)	

Appendix C

Evaluation Instruments-Chart Audit Tool

ICU SAT Chart Audit Tool - Fillable Checklist

SAT Eligibility Assessed Daily

Criteria: Eligibility assessed during rounds (e.g., ABCDEF bundle)

[ ] Yes [ ] No [ ] N/A

Comments:

SAT Contraindications Documented

Criteria: Contraindications clearly documented if SAT not done

[ ] Yes [ ] No [ ] N/A

Comments:

SAT Performed if Eligible

Criteria: Initiated if no contraindications noted

[ ] Yes [ ] No [ ] N/A

Comments:

Sedation Held or Paused

Criteria: Evidence that sedation was paused during SAT

[ ] Yes [ ] No [ ] N/A

Comments:

Patient Response Documented

Criteria: Tolerance/failure of SAT clearly documented

[ ] Yes [ ] No [ ] N/A

Comments:

Safety Assessments Completed

Criteria: Stopped if safety criteria met (HR>140, RR>35, etc.)

[ ] Yes [ ] No [ ] N/A

Comments:

Communication with Interdisciplinary Team

Criteria: Findings discussed in rounds or with care team

[ ] Yes [ ] No [ ] N/A

Comments:

Sedation Restarted If Necessary

Criteria: Sedation restarted with rationale and documentation

[ ] Yes [ ] No [ ] N/A

Documentation of Time and Duration of SAT

Criteria: Start/stop times recorded

[ ] Yes [ ] No [ ] N/A

Comments:

Link to SBT

Criteria: SAT outcomes used to assess readiness for SBT

[ ] Yes [ ] No [ ] N/A

Comments:

Adverse Events Documented

Criteria: Any SAT-related adverse events noted

[ ] Yes [ ] No [ ] N/A

Comments:

Appendix D

Consent Document-Project Approval from Banner

Banner Health

FWA #00002630 IORG #0004299

August 14, 2025

Jenna LeMond, BSN
Attn: Shelly Fleiner, DNP RNC-NIC CCNS
Banner Estrella Medical Center
9201 W Thomas Rd
Phoenix, AZ 85037

RDC Project # -25-0052 Effects of Education on Evidence-based Procedures and Documentation in Spontaneous Awakening Trials
iRIS Reference # 023793

Documentation Reviewed: Submission Application, RDC Project Review Application (v2.0 dated 07.24.2025), Excel Spreadsheet (Data Collection Form) (v2.0 dated 07.24.2025), Educational Powerpoint (v1.0 dated 07.17.2025), Weekly SAT Topic (v1.0 dated 07.17.2025), SAT Audit Tool (v1.0 dated 07.17.2025), Pre/Post Survey (v1.0 dated 07.17.2025), Letter of Support (Dr. Patel) (dated 07.16.2025), Letter of Support (Dallas Kaspar) (dated 07.08.2025), Invite to Participate (v2.0 dated 07.24.2025), Email Introduction Pre (v2.0 dated 07.24.2025), Email Follow up Post (v2.0 dated 07.24.2025), Email Education (v2.0 dated 07.24.2025) **Determination: Not Research**

Dear Jenna LeMond:

Thank you for submitting your project. The above referenced project documentation was reviewed by the Research Determination Committee (RDC) on behalf of the Banner Health Institutional Review Board (IRB) on August 12, 2025.

The RDC determined this project does not constitute research in accordance with (IAW) 45 Code of Federal Regulations (CFR) 46.102(l) and is therefore not subject to review and oversight by the Banner Health Institutional Review Board (IRB).

In order to assess the applicability of the Common Rule (45 CFR 46 Subpart A) the project activities must be evaluated to first determine if they constitute research IAW 45 CFR 46.102(l) (a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge) and then, if research, to determine if human subjects are involved IAW 45 CFR 46.102(e) (a living individual about whom an investigator conducting research obtains information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or obtains, uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens).

The above referenced project activities, as described in the application and supporting material, are systematic. Pre/post surveys will be administered following an education process on the evidence for Spontaneous Awakening Trial (SAT) to improve nurse-initiated SATs while decreasing the use of unnecessary sedatives and analgesic medications for long periods of time. In addition, patient chart audits will be completed to assess documentation compliance. However, it is not generalizable. The educational intervention reinforces current policies and aims to increase consistency in SAT completion and documentation. These improvements are aligned with evidence-based practices and national guidelines. There is no intent to learn new information or develop new understanding, nor generalize the outcomes beyond the specific group participating in the educational process. There is no gap in scientific

knowledge that this will fill, rather the education will serve to improve knowledge and confidence in applying such knowledge Therefore, this activity does not constitute research IAW 45 CFR 46.102(l).
Jenna LeMond, BSN
RDC Project # -25-0052
iRIS Reference # 023793
August 14, 2025
Page 2

PLEASE NOTE

The RDC determination is based on the information you provided in your application and supporting documents stated above. In the event the project is misrepresented in the above statement, or if the project is modified in any way that may impact the research determination, such as, but not limited to, re-analysis of data, adding/revising data sheets, or the addition of new activities (e.g. interviews, medical record review, etc.), the determination is no longer valid. If you would like to make any changes please reach out to the IRB Manager or Staff for further direction on review requirements and how to submit the revisions. IRB contact information can be located on the HRPP employee website at https://bannerhealth.sharepoint.com/sites/Connect/Banner-Research/Human-Research-Protection-Program, under the Our Leaders tab. Or, you can reach the RDC staff at BHIRB_RDCMailbox@bannerhealth.com.

Please note: As part of continuing process improvement, random audits are conducted to assess compliance and adherence with submitted/approved applications.

A copy of this letter will be retained electronically.

Sincerely,

Kathryn Reitz, BS, CIP
Director, Human Research Protection Program (HRPP)

Banner Health

Appendix E

Participant Materials- Example DMS Board


3 SAFETY
4 PEOPLE
2 TOP 5
5 QUALITY
6 FINANCE
1
2
3
4
5
1 DAYS SINCE LAST:
CAUTI:
CLABSI:
HAPI:
FLEXED:
FALL:
9 DEPT GOALS & KPI:
8 WHAT MATTERS TO YOU?

Appendix F

Site Authorization/Approval Letter

Banner Health

Date: 4/28/2025

To: Jenna LeMond
University of Arizona
College of Nursing

cc: Shelly Fleiner
Banner Health Research Determination Committee (via iRIS)

From: Banner Estrella Medical Center/Dallas Kaspar, ICU director

Re: Increasing Awareness surrounding Spontaneous Awakening Trials

I/Our team at Banner Estrella Medical Center has assessed the above-referenced project proposal for implementation potential and determined that it is feasible and congruent with Banner Health initiatives: State Banner initiative(s) the project addresses. It aligns with our goal, e.g., to be customer-obsessed and relentlessly improve.

The resources needed: Staff time & effort, access to facilities, equipment, and supplies have been reviewed and determined necessary/acceptable. Further, it is my/our understanding that Dallas Kaspar, RN, Director, will assist with supporting the data collection and participating in educational programs.

The Banner Health Research Determination Process requires this letter of support and the project application to be uploaded into the IRIS electronic program. The Banner Research Determination Committee (RDC) will then review your initiative. This same committee will provide one final check for HIPAA compliance.

Following a determination of non-research, non-human subjects research, or exempt human subjects research that falls under one of the categories the RDC may grant approval for, you will be notified of approval to begin your project at Banner Estrella Medical Center.

However, should the RDC determine that your project constitutes human subjects research or involves protected health information (PHI), which requires an Institutional Review Board (IRB) review, you will be notified and may begin the IRB review process. If your project will be reviewed by the Banner Health IRB, the Banner Research Regulatory Affairs team will also be notified to assist you with the submission process. You may not initiate the project until the IRB has granted approval.

Should you have any questions during the process, don't hesitate to contact Shelly Fleiner or Jane.Hoverson@bannerhealth.com. Upon completion of your project, we request that you disseminate your findings to Banner Estrella Medical Center ICU or another mutually agreed-upon forum.

Best wishes on the successful completion of your project.

Sincerely,

Dallas Kaspar, MHA, BSN, RN

Appendix G

Recruitment Material-Leadership Letter/Invitation to Participate

Subject: Invitation to participate in Quality Improvement Project

Dear Critical Care Nurses,

I hope this message finds you well. I am writing to inform you that Jenna LeMond, a doctoral student in nursing practice (DNP) from the University of Arizona, has chosen our Critical Care Unit as the site for a quality improvement education project. The project titled "Effects of Education on Evidence-based Procedures and Documentation in Spontaneous Awakening Trials" is designed to provide an informative educational session with pre and post surveys to adult critical care RNs.

Enclosed with this email is the attached invitation letter, which details how to access a pre-educational survey via a QR code or survey link.

Please note that your participation in this project is entirely voluntary. However, your support would be greatly appreciated, as it can heighten awareness of spontaneous awakening trials and enhance your knowledge and understanding of sedation practices and documentation in our critical care unit.

Thank you for considering participation in this valuable initiative.

If you have any further questions, comments, or concerns, please don't hesitate to contact the project lead or me.

Best Regards,

Dall Kooper, MHA, BSN, RN

Appendix H

Recruitment Material- Invitation to Participate (Project Lead)

Effects of Education on Evidence-based Procedures and Documentation in Spontaneous Awakening Trials

Attn: Critical Care RN's

My name is Jenna LeMond, and I am conducting a Quality Improvement Project as part of my Doctor of Nursing Practice program at the University of Arizona (UA). I am pleased to invite you to participate in an initiative aimed at enhancing your knowledge and documentation of spontaneous awakening trials (SATs) in the intensive care unit (ICU).

This DNP project aims to assess and improve your current practice and knowledge surrounding the SAT, while also creating consistency in your documentation. This project includes an anonymous pre-educational survey, a focused educational period covering various topics related to the SAT, and an anonymous post-educational survey. Throughout the process, you will receive three separate emails with this invitation to participate, each containing instructions to complete the pre-survey, access the educational PowerPoint, and access to the post-survey after the education is finished. The surveys should take about 5 minutes each to complete, and the educational PowerPoint will take an additional 5-7 minutes. The educational material provided will include a pre-recorded PowerPoint and weekly huddle topic. The weekly huddle topics will be apart of our normal routine huddle that will occur at shift change. The weekly huddle topic will also be posted on our DMS board which will explore topics related to:

- What is a Spontaneous Awakening Trial?
- The BEMC SAT process
- Sedation practices during an SBT
- Pairing the SAT and SBT together

Your participation in this initiative will provide you with valuable insights and tools to evaluate your practices and determine what is best for our patients. Total time to participate in the project is approximately 15 minutes.

.

If you would like to participate in this QI education initiative, please click the link below or scan the QR code to start your Pre-survey and/or post survey:

https://uarizona.co1.qualtrics.com/jfe/form/SV_9KzHOTC1T7SpoKa

Completion of the survey and participation in this quality improvement project are voluntary. If you complete the survey, you are confirming that you voluntarily consent to participate in this QI project and you understand that participation in this project is not a condition of employment at Banner Health. You may complete the survey at work. If you elect to complete the survey on your time, you will not be paid for your time spent on completing the survey.

If you have any questions, please do not hesitate to contact me via email. Thank you for your consideration of participation in this project.

Thank you,

Jenna LeMond

DNP, AGACNP candidate

University of Arizona

Jennalemond@arizona.edu

Appendix I

Recruitment Material- Letter from Leadership to Participate in Education

Subject: Invitation to Participate in Quality Improvement Project Education

Dear Critical Care Nurses,

I hope this message finds you well. I am writing you to send out the education for the project titled "Effects of Education on Evidence-based Procedures and Documentation in Spontaneous Awakening Trials". Enclosed with this email is the attached PowerPoint presentation and the invitation to participate from the project lead. This education is designed to provide an informative educational session to the critical care RNs on:

- What is a Spontaneous Awakening Trial (SAT)?
- Why are SATs important?
- Evidence-based outcomes
- How to perform a SAT on your patient
- What are the contraindications?

Please note that your participation in this project is entirely voluntary. If you haven't completed the pre-survey and would like to participate in this project, please complete the pre-education survey before completing the education. If you have any further questions, comments, or concerns, please don't hesitate to contact the project lead or me.

Thank you for considering participation in this valuable initiative.

Best Regards,

Dallas Kaspar, MHA, BSN, RN, Alumnus CCRN-K

Director, Critical Care Services, Dialysis, Monitor Tech, & Stroke

Appendix J

Recruitment Material-Letter from Leadership to Participate in Post-Survey

Effects of Education on Evidence-based Procedures and Documentation in Spontaneous Awakening Trials

Attn: Critical Care RN's

Dear Team,

Thank you for participating in our recent educational initiative on Spontaneous Awakening Trials (SATs) and sedation management.

We now invite you to complete a brief post-education survey to help us evaluate:

Your confidence and knowledge regarding SAT protocols

Included with this email is the invitation to participate, which contains the link and QR code to access the post-survey.

Deadline to complete:

This survey link and QR code will be live for 7 days.

Your feedback is anonymous and will directly support quality improvement efforts across our ICU.

Thank you for your time and commitment to safe, effective sedation practices.

Best Regards,

Dallas Kaspar, MHA, BSN, RN, Alumnus CCRN-K

Director, Critical Care Services, Dialysis, Monitor Tech, & Stroke

Dallas.Kaspar@bannerhealth.com

Appendix K

Participant Materials – Educational PowerPoint

Spontaneous Awakening Trials

A Quality Improvement Initiative

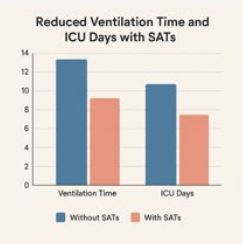
Jenna LeMond, BSN, RN
DNP AGACNP candidate

THE UNIVERSITY OF ARIZONA
College of Nursing

What are spontaneous awakening trials? (SAT)

- Commonly referred to as a "sedation vacation"
- A daily interruption of continuous sedative infusions in ICU patients
- Allows assessment of neurologic function and readiness for ventilator weaning

Why are SATs important?



- Reduce duration of mechanical ventilation
- Shorten ICU and hospital length of stays
- Lower risk of ventilator-associated complications
- Improve neurologic assessment accuracy
- Reduce cumulative sedative exposure
- Improve survival rates
- Restoration of circadian rhythms
- Reduction in sedation-related adverse effects (hypotension, infection risk)

3

Evidence-Based Outcomes

Did you know??

- The continuous infusion of sedatives, often called "autopilot," is linked to increased mechanical ventilation times and longer periods spent in the intensive care unit (Curtis, 2004).
- The longer a person is on a ventilator, the greater the risk of negative effects, such as lung infections and complications related to extended immobility, like blood clots in the legs or lungs (Blackwood et al., 2014)
- Variations in the implementation of drug-assisted therapy (DAT) and sedation breaks have led to some patients remaining on sedation for extended periods, experiencing agitation while on light sedation, or becoming over-sedated from high doses of the same sedative without reevaluating their sedation options. To improve patient care, it is essential to adopt a more consistent approach that ensures adequate sedation when required while also minimizing its use when possible (Tizon, 2015).
- The introduction of a nurse-driven sedation protocol resulted in better outcomes by shortening the duration of mechanical ventilation, decreasing the length of stay in the intensive care unit, and reducing the time spent on continuous sedation, while also increasing the number of spontaneous awakening trials performed (Green & Staffileno, 2021).
- A protocol that integrates daily spontaneous awakening trials with spontaneous breathing trials yields improved outcomes for mechanically ventilated patients in intensive care, surpassing the current standard methods (Girard et. al., 2008).

4

How do you perform an SAT

1. **Assess for contraindications** (e.g., seizures, ongoing neuromuscular blockade)
2. **Stop sedatives**
3. **Closely monitor** for:
   - Agitation
   - Respiratory distress
   - Hemodynamic instability
4. **Restart sedatives** at **50% of the prior dose** if patient fails SAT
5. **IF they pass the SAT, Work with RT** to perform a spontaneous Breathing trial(SBT) while sedation is off or lowered if the patient is tolerating
6. **Document**!!!!

5

Contraindications to SAT

- Active seizures
- EtOH withdrawal
- Elevated intracranial pressure
- Paralytics in use
- Severe agitation threatening safety
- Ongoing myocardial ischemia

6

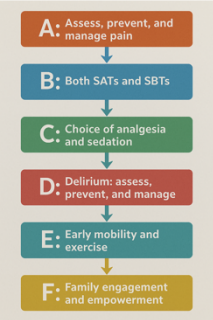
SAT Best Practices

- Pair SATs with SBTs
- Involve the interprofessional team
- Daily SAT unless contraindicated
- Use sedation scales to guide your sedation use (RASS)
- If your patient fails their SAT, don't forget to restart sedation at 50% of the original dose

7

SAT in the ABCDEF Bundle For ICU care

- **A** – Assess, prevent, and manage pain
- **B** – Both SAT and SBT
- **C** – Choice of analgesia and sedation
- **D** – Delirium assessment and management
- **E –** Early mobility and exercise
- **F –** Family engagement



8

Barriers and Solutions to Implementation

Barriers:

- Staff unfamiliarity or resistance
- Fear of self-extubation or agitation
- Lack of clear protocols or daily goals
- Poor interdisciplinary communication

Solutions:

- Educate!
- Create consistency in the team for documentation and performing the SAT
- Standardize protocols
- Support nurse-driven SATs

9

Key Takeaways..

- SATs save lives and reduce ICU burden
- Regular implementation improves long-term outcomes
- Education, teamwork, and protocols are key
- Integrating SATs is a hallmark of **evidence-based ICU care**
- SATs are simple but powerful tools to practice and provide the best care for our patients.
- SATs promote faster recovery, less sedation and better outcomes
- SATs require a team approach and daily commitment.

10

Appendix L

Participant Materials – Weekly SAT Topics

Weekly ICU Educational Topics on SATs

Week 1: What is a Spontaneous Awakening Trial (SAT)?

Objective: Introduce the SAT concept and its clinical relevance.

Key Messages:

- A **Spontaneous Awakening Trial** (SAT), also known as a **sedation vacation**, is the **daily, protocolized interruption of continuous sedation** in mechanically ventilated patients.
- SATs allow for:
    - **Neurological assessment** (e.g., arousal, ability to follow commands)
    - **Assessment of readiness for spontaneous breathing trial (SBT)**
    - **Reduced sedative accumulation** → fewer ICU delirium cases
- **Evidence-based benefits**:
    - ↓ Duration of mechanical ventilation
    - ↓ ICU/hospital length of stay
    - ↓ Sedative exposure
    - ↓ Risk of long-term cognitive impairment

Call to Action: Know your patient's SAT status during rounds. Ask: *"Has an SAT been performed today?"*

Week 2: The BEMC SAT Process

Objective: Understand the BEMC SAT process

Key Messages:

- Follow the **BEMC SAT Protocol** daily unless contraindicated.
    - Sedation should be turned off in the morning

- Once they meet eligibility criteria, allow them to complete the SAT unless they aren't meeting the failure criteria
- If they pass their SAT, partner with respiratory and allow them to complete the SBT
- Let your provider know- can we extubate?

- **Eligibility Criteria**:
  - Stable hemodynamics (minimal or no vasopressors)
  - No continuous neuromuscular blockade
  - No active seizures or withdrawal
  - Adequate oxygenation ($FiO_2 \leq 0.60$, PEEP ≤ 10)
- **Contraindications**:
  - Active myocardial ischemia
  - Elevated intracranial pressure
  - Ongoing agitation requiring deep sedation
- **Documentation**:
  - Sedation flowsheet
  - Daily "AD-HOC" SAT note

Tip: If you do not perform the SAT, always document the reason clearly.

Week 3: Sedation Practices During an SBT

Objective: Address appropriate sedation strategies when preparing for or conducting an SBT.

Key Messages:

- SATs and SBTs should be coordinated to **optimize weaning readiness**.
- Sedation should be held or minimized to accurately assess:
  - **Awake, alert status**
  - **Ability to initiate breaths and tolerate spontaneous ventilation**

- **Avoid re-sedating** immediately before or during an SBT unless the patient shows signs of distress or failed SAT.
- Prioritize **light sedation goals (RASS –2 to 0)** unless contraindicated.
- If the patient fails to pass the SAT, did you restart sedation at 50% of their original dose?

Tip: Communicate with respiratory therapy before resuming sedation. Don't mask a failed SBT with sedation.

Week 4: Pairing the SAT and SBT Together

Objective: Emphasize the importance of **daily coordination** between sedation interruption and weaning assessments.

Key Messages:

- SAT and SBT **should be paired every morning** if patient is eligible:
  - Hold sedation (SAT)
  - If patient awakens and is stable, proceed with SBT
- Pairing promotes:
  - **Faster ventilator weaning**
  - **Fewer days on sedation**
  - **Reduced risk of ventilator-associated complications**
- **Teamwork is essential**:
  - Nurses perform SATs
  - Respiratory therapists initiate SBTs
  - APPs/physicians assess readiness and safety

Appendix M

Participant Materials – Week 1 DMS Board


Reluctance to Simplify
Reluctance to Simplify
1 HAND HYGIENE:
ENTER & EXIT QD
ICU - 65% Compliant
2 AMBULATION:
• BMAT 3 → WALK 100 FT.
• BMAT 3 → Up to Chair
3 HAPI:
• 4 pressure injuries in August in ICU
4 CAUTI:
• Peri Care & Chlor Care in ADLs
5 Vents:
• All appropriate pt's should have (SAT) before OAOO!
(See education Sheet)
Reluctance to Simplify
Reluctance to Simplify
Preoccupation with Failure
7 SAFETY EVENTS
Commitment to Resilience
1 DAYS SINCE LAST:
Sorg Decision
FALL: 67
RECORD: Falls - 122
HAPI - 54
CAUTI - 347
CLABSI - 434
Last Updated:
Deference to Expertise
8 WHAT MATTERS TO YOU?
9 DEPT GOALS & KPI:

Appendix N

Participant Materials – Week 2 DMS Board


3 SAFETY
4 PEOPLE
2 TOP 5
Sensitivity to Operations
5 QUALITY
6 FINANCE
Reluctance to Simplify
Preoccupation with Failure
Commitment to Resilience
Deference to Expertise
7 SAFETY EVENTS
1 DAYS SINCE LAST:
UTI: 327
ABSI: 93
FALL: 93
8 WHAT MATTERS TO YOU?
GOALS & KPI:

Appendix O

Evaluation Instruments – Pre/Post-Survey

Enter your quiz identification code using the year you became a nurse(ex, 1985) and the first letter of your mom's name (ex., J1985) **This is used to pair the pre- and post-surveys and ensure consistency of data collection. This survey is 100% anonymous

"How familiar are you with the current practice guidelines for performing Spontaneous Awakening Trials (SATs)?"

- Not familiar at all
- Slightly familiar
- moderately familiar
- very familiar
- Extremely familiar

How familiar are you with current sedation practices and the use of Spontaneous Awakening Trials (SATs) in mechanically ventilated patients?

- [ ] Not familiar at all
- [ ] Slightly familiar
- [ ] moderately familiar
- [ ] very familiar
- [ ] Extremely familiar

On a scale of 1–5, rate how important you feel SATs are to patient outcomes. 1 = Not important | 5 = Critically important

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5

How confident are you in your ability to correctly identify when a patient is eligible for a Spontaneous Awakening Trial (SAT)?

- Not at all confident ○
- Slightly confident ○
- Moderately confident ○
- Very confident ○
- Extremely confident ○

Based on your current knowledge and understanding of the SAT process, on a scale of 1 to 5 (1 = Very Easy, 5 = Very Difficult), how difficult do you find it to perform a Spontaneous Awakening Trial (SAT) or sedation vacation in your clinical practice?

- 1 ○
- 2 ○
- 3 ○
- 4 ○
- 5 ○

How easy or difficult is it for you to document that a Spontaneous Awakening Trial (SAT) has been performed?

- 1 – Very difficult ○
- 2 – Somewhat difficult ○
- 3 – Neutral ○
- 4 – Somewhat easy ○
- 5 – Very easy ○

On a scale of 1–5, how confident are you in performing a Spontaneous Awakening Trials (SATs)? 1 = Not confident at all | 5 = Extremely confident

- 1 ○
- 2 ○
- 3 ○
- 4 ○
- 5 ○

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