Use of Family Photographs Reduces Restlessness in Neurocritical Care Patients

NCPD 1.5 ANCC Contact Hours

Cole Givens, Emerson B. Nairon, Mona Jackson, Ayushi Vashisht, DaiWai M. Olson

ABSTRACT

BACKGROUND: Patients admitted to the neuroscience intensive care unit often experience varying states of confusion and restlessness. The purpose of this study was to examine restlessness in acutely confused patients through use of familiar photographs. **METHODS**: This randomized prospective pilot study placed family photographs (photos) on the bedrail of confused patients during the night shift (8 PM to 4 AM) in a neuroscience intensive care unit. Wrist actigraphy was used to examine restlessness when patients were turned to face the photos versus when they were not facing the photos. **RESULTS:** The 20 patients enrolled provided 34 nights worth of data during which 32 640 actigraph readings were obtained. On the first night of study, the odds of wrist movement were higher when the patient was facing the photos compared with not (odds ratio, 1.51; 95% confidence interval, 1.42-1.61). During subsequent nights, the odds of wrist movement were lower when the patient was facing the photos compared with not (odds ratio, 0.82; 95% confidence interval, 0.75-0.90). **CONCLUSION**: Use of familiar photos does not change restlessness, agitation, or delirium on the first night of observation. However, the use of familiar photos may decrease restlessness on the subsequent nights. There are important subjective observations from researchers and family that suggest all subjects had a noticeable response when initially seeing the familiar photos.

Keywords: agitation, complementary and alternative medicine, critical care, delirium, family, family engagement, nursing research

Patients in the neuroscience intensive care unit (NSICU) are acutely ill and may experience confusion, restlessness, or delirium for a variety of reasons. Nurses and family members may attempt to manage these episodes using a combination of pharmacologic and nonpharmacologic techniques and strategies. A common strategy in the NSICU is for family members to bring recognizable photographs (photos) to provide a sense of familiarity and potentially calm the patient.[1] The need for prospective research evaluating nursing interventions is a top priority of the American Association of Neuroscience Nurses.[2] Given the scant literature to support or refute the success of this nonpharmacologic intervention to reduce confusion and restlessness, this study was designed to explore the question: "Does exposure to familiar images (family faces) reduce movements that are associated with delirium?"

Background

Delirium is a disorder of cognition and attention that commonly affects the sleep-wake cycle and thinking processes of an individual.[3] In short, delirium affects the usual ways of thinking and behavior in the acutely ill patient and is associated with increased cognitive dysfunction at discharge.[4,5] These patients often show signs of fluctuating awareness, disorganized thinking, and impaired memory, attention, and thinking.[6,7] Delirium is characterized by acute onset with symptoms that fluctuate over the course of the day, but symptoms may appear as early as the first or second postoperative day.[8,9] Another caveat to the definition is the idea that delirium is reversible and lasts short periods.[10] Delirium has many negative effects on individuals during their stay in the hospital.[11] Delirium is linked to longer hospital stays, higher cost of care, long-term cognitive

Questions or comments about this article may be directed to DaiWai M. Olson, PhD RN FNCS, at DaiWai.Olson@UTSouthwestern.edu. D.M.O. is a Professor, University of Texas Southwestern Medical Center, Dallas, TX.

Cole Givens, BSN RN CCRN, is Nurse, University of Texas Southwestern Medical Center, Dallas, TX.

Emerson B. Nairon, BSA, is Clinical Research Associate II, University of Texas Southwestern Medical Center, Dallas, TX.

Mona Jackson, BSN, RN, is Nurse, University of Texas Southwestern Medical Center, Dallas, TX.

Ayushi Vashisht, MS, is Research Coordinator, University of Texas Southwestern Medical Center, Dallas, TX.

Emerson B. Nairon, ORCID: 0000-0002-2097-8909

DaiWai M. Olson, ORCID: 0000-0002-9280-078X

This study received funding from the Agnes Marshall Walker Foundation.

The authors declare no conflicts of interest.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.jnnonline.com).

https://doi.org/10.1097/JNN.0000000000000725

dysfunction, and, in severe cases, mortality.[12] Proactive intervention combined with nonpharmacologic approaches are recommended ways to manage delirium.[13–15]

Delirium is prominent in hospitalized patients; however, it is more prevalent and evident in critically ill patients. It is estimated that approximately 80% of intensive care unit patients experience delirium.[16] Patients with delirium may present with increased movement. Delirium can be categorized into hypoactive (lethargy, decreased movement), hyperactive (agitation, restlessness), and mixed delirium. It can present itself in any combination of these symptoms and is patient specific. Hypoactive delirium or quiet delirium is harder to diagnose and is associated with poor outcomes.[13] Movement is a symptom, a manifestation of restlessness. Electroencephalographic (EEG) data are the more common intervention in characterizing patterns of delirium, but actigraph data have the potential to be a more cost-effective alternative in studying delirium effects on movement.[17,18]

Actigraphy devices have become mainstream to track things such as people's movement, habits, and lifestyle choices. Actigraphy has been most cited in exercise or sleep studies, but recent research supports the notion that actigraph data may be useful in characterizing movement patterns in delirious patients.[19] Most modern actigraphy devices are noninvasive and do not pose any additional discomfort to healthy volunteers. They have been used in traumatic brain injury patients to assess rest-activity cycles and in patients with delirium to gather data on nighttime sleep duration, sleep fragmentation, and so forth.[20,21] Restlessness has been measured using wrist actigraphy devices in dementia patients and correlated with other methods.[22]

Methods

This prospective randomized pilot study enrolled NSICU patients who were assessed as having persistent confusion. Institutional review board approval was obtained before conduction of any study activity. Patients with confusion are unable to provide self-consent. Therefore, the legally authorized representative was approached for consent. The study procedures were explained to family members sharing with them that the study required family to provide 2 or 3 familiar photos that would be placed on one of the bedrails and visible to the patient (Fig 1).

We used randomization without replacement to assign which side of the bed would be used for the familiar photos. The words "left" and "right" were placed in envelopes, which were then sealed and shuffled. "Left" signified left side of the patient. This was done to control for handedness of the patients, so as to not only place photos on, or not on, a patient's dominant side. After consent, patients were randomized by having a nurse select one of the envelopes to determine on which side of the bed the photos would be placed.

> Family members stated that providing the photos helped them feel involved in their loved ones' care.

For each patient enrolled in the study, the legally authorized representative provided a minimum of 2 and a maximum of 5 photos of people, places, or animals that are personal to the subject (eg, a photo of the patient's spouse, family, or pet). These photos were printed in color and taped to the assigned guardrail. Consenting patients were able to participate for a minimum of 1 to a maximum of 4 nights of data collection. The observation period was selected as 8 PM to 4 AM to allow for the night shift to complete a handoff and perform an assessment, and to collect 8 hours of data before morning laboratory draws. Four nights was selected because it is the median NSICU length of stay at the enrolling institution. Because the data are paired, even if patients averaged only 2 nights of observation, a sample size of 20 patients was estimated to be an adequate for this pilot study ($\alpha = .05$, power = 0.80, effect size = 0.70).

Wrist actigraphy placed on the dominant arm was used for this study because it provided continuous data on movement activity without interrupting a patient's rest. Patients who are more restless have been shown to move around more in their bed, which can be demonstrated by moving their arms, and therefore wrist actigraphy was found useful in showing restlessness or agitation levels in patients who could not verbally communicate.[23] The Philips Actiwatch 2 was used to measure wrist actigraphy. This is a noninvasive, unobstructive device that fits on to any wrist size and is comfortable to wear. It did not interfere with any medically necessary interventions on or near a patient's hand, wrist, or arm. The device tracked wrist movement and sleep/wake patterns of the patient and was well equipped to monitor irregular sleep schedules typically seen in an NSICU patient. Examples of metrics (rest, active, and sleeping) collected from the Actiwatch can be seen in Supplemental Digital Content 1, http://links.lww.com/JNN/A477.

Subjects were eligible for inclusion if they were adults (>18 years old) admitted to the NSICU, had a neurological or neurosurgical diagnosis, and had a Glasgow Coma Scale score less than 15 with a subscale eye score greater than 2 and motor score greater than 3. Patients were eligible if they were able to tolerate bilateral turning (turn to the left and to the right), and this practice was included in their care plan. Patients with restraints were excluded from participation. Chemically paralyzed patients and those receiving continuous intravenous sedation were excluded. Persons younger than 18 years, pregnant women, and prisoners were not approached

FIGURE 1 The positioning of photographs on the bedrail.

for inclusion. Because of how the study explores how patients react when seeing familiar images, we excluded patients with documented blindness or lateral field cut. Patients with a dominant paretic arm were excluded, although patients with nondominant paretic arms were still eligible. For example, if a patient was right-handed and had a left middle cerebral artery stroke with total paresis, he or she was not approached for inclusion. Patients with pending discharge orders to leave the NSICU were not approached for enrollment.

Statistical analyses were completed using SAS v9.4 for Windows. Measures of central tendency were developed for each variable and reported as mean (SD) for interval and ratio data or as frequency (percentage) for nominal and ordinal data. The primary hypothesis was tested using simple linear regression with a *P* value < .05 considered statistically significant.

Results

Of 25 patients or legally authorized representatives approached for consent, 5 declined. A total of 20 patients and 34 nights of data were included for analysis. The mean (SD) age was 62.15 (17.41) years, 12 (60%) were female, 16 (80%) were White, and 16 (80%) were non-Hispanic (Table 1). During the 34 nights of study, there were 32 640 actigraph outputs (once every 30 seconds); of these, there were 8568 observations during 4284 minutes, during which the patient had wrist movement. During the study periods, patients were positioned supine for 2884 minutes, left facing for 5105 minutes, and right facing for 5270 minutes, and there were 3061 minutes for which the direction was not documented. All subjects were observed for at least 1 night of data, 9 were observed for 2 consecutive nights, 4 were observed for 3 consecutive nights, and 1 was observed for 4 nights in a row. Subjects stopped participating when they no longer met inclusion criteria or were transferred to another unit; there were no subjects who opted out of the study.

On the first night, the 20 patients slept a mean (SD) of 341.55 (115.47) minutes during the 8-hour period of observation. This includes 2762 minutes facing left, 2809 minutes facing right, 1021 minutes supine, and 3008 minutes where the position was not documented. There were 6215 minutes during which the 20 patients were turned to face the photos. There was no association between time spent facing toward a familiar photo and the frequency of wrist movement ($r^2 = 0.12$, $P = .072$; see Supplemental Digital Content 2, http://links.lww.com/JNN/A478). There odds of wrist movement were higher when the patient was facing the photos compared with not (odds ratio [OR], 1.51; 95% confidence interval [CI], 1.42-1.61); this remained significant after excluding the 3008 minutes during which the position was not documented (OR, 1.29; 95% CI, 1.19-1.39).

TABLE 1. Demographics and Sleep Duration

Variable	Patients (n = 20)	Observations (n = 34)
Age, y[a]	62.2 (17.4)	59.9 (16.9)
Sex[b]		
Female	12 (60%)	24 (70.6%)
Male	8 (40%)	10 (29.4%)
Race[b]		
Black	2 (10%)	4 (11.8%)
White	16 (80%)	24 (70.6%)
Asian	2 (10%)	6 (17.7%)
Ethnicity[b]		
Hispanic	4 (20%)	5 (14.7%)
Non-Hispanic	16 (80%)	29 (85.3%)
Total sleep, min[a]	341.6 (115.5)	347.7 (117.7)

[a]Mean (SD). [b]Frequency (%).

There were 9 patients who had more than 1 night of observation. On the subsequent nights of observation, subjects slept a mean (SD) of 356.4 (124.7) minutes during the 8-hour period of observation. This includes 2343 minutes facing left, 2461 minutes facing right, and 1863 minutes supine, and there were 120 minutes for which the position was not documented. There were 2522 minutes during which the 9 patients were turned to face the photos during 2522 (37.49%) minutes of the 6727 minutes of observation. During nights 2, 3, and 4, the odds of wrist movement were lower when the patient was facing the photos compared with not (OR, 0.82; 95% CI, 0.75-0.90); this remained significant after excluding the 120 minutes during which the position was not documented (OR, 0.82; 95% CI, 0.77-0.92).

Discussion

The data show mixed results. Research on nursing care interventions to improve outcomes was the top priority identified in a recent Delphi study.[24] It was originally hypothesized that wrist movement was indicative of more restlessness in NSICU patients. In reviewing the findings, this may not be the case. Night 1 resulted in higher movement counts, whereas nights 2 to 4 showed a statistically significant decrease in movement. Patients may have had more wrist movement on night 1 even when they were comforted by the photos. It is possible that patients were reaching toward the photos, wanting to hold the photo, or getting used to the feel of the watch on their wrist. The presence of familiar photos may have stimulated brain activity and motivated the patient to stay awake. The intervention was timed to start at a particular time of day, so the timing of the intervention may have impacted the results.[25] It is unclear whether the result would have been different if the intervention were timed in response to changes in the patient's condition (eg, more agitated). Stimulation and virtual reality have been shown to reduce the incidence of delirium in critically ill patients.[26] Future iterations of our study could explore the use of familiar photos in reducing restlessness during a day interval.

All patients responded to the photographs in some manner. The research team recorded powerful observations in their field notes from the observation periods. When the photos were initially placed on the patient's bed, subjects had clear and immediate positive reactions. One patient smiled when she first saw the photos and immediately recognized her daughter and stated the date in which the photo was taken at her daughter's graduation. Another patient when looking at the photos stated, "That's my dad, we look so much alike it is scary…." Perhaps the use of familiar photos would be most useful at reducing restlessness or agitation during hours when overhead lights are more typically on and photos are more easily viewed.

Along with the patients' interactions with the photos, the study team received favorable feedback from family members. Family members are part of the care team.[27] Family members verbalized that providing the photos helped them feel involved in their loved ones' care. Our overall findings from this study reveal that familiar photos invoke a response in confused patients. Further study should be performed to explore the best use of familiar photos in NSICU patients, but it is notable that these images can evoke a powerful emotional response. The inclusion of family in the care of the patient is a global health resource.[28] Although we did not study the impact of the intervention on the patient-family dyad, this content is worthy of additional study.

Data from the second, third, and fourth nights showed a significant reduction in movement from the 9 patients who provided more than 1 night of data. Because of the potential bias of a novelty effect, sleep studies often disregard the first night of data.[29] It is possible that, by the second night, patients had become familiar with the photos and had less restlessness. Alternatively, the simple fact that most of the patients no longer met inclusion criteria of being confused suggests that the intervention may have had an unmeasured impact on recovery. In either case, actigraphy may not adequately reflect restlessness and agitation in NSICU patients.

Limitations

There are limitations to this pilot study. The actigraph watch was the primary point of data collection. Quantitative EEG not only has been successfully used as a biological signal for confusion or delirium but also has limitations regarding application by nonepileptologists.[30,31] Actigraphy is relatively simple, has been used in previous nursing research studies, and only examines movement data.[32] The actigraph is not specific to the type of movement or the nature of the movement that was being performed. Perhaps other methods for studying brain activity, such as EEG, could yield more generalizable results. Variations in movement in ICU patients are observable for many reasons including patient care, family presence, and other devices attached to the patient. Generalizability is further limited because use of actigraph excluded enrolling patients who were hemiplegic or restrained (not uncommon in the NSICU).

Photos were chosen by the family under the assumption that they were more likely to be familiar and held meaning to the patient. However, this meant photos could have been dated, dark, or cluttered. Low-quality photos, photo size, and quality may have affected the way in which patients viewed the photos. Data were not collected to evaluate photo quality. However, the design does represent a real-world setting. The photos were taped to the bedrail in close proximity to the lateral visual field. Having the photos further away may have altered the results.

Conclusion

Use of familiar photos may decrease restlessness on the second thru fourth night of observation, but not on the first night. All subjects shared the finding of a noticeable initial response to the photos. Familiar photos are easy to obtain and safe to use, and may reduce restlessness in critically ill patients. Our results support the need for continued study into this nonpharmacological intervention to improve the patient experience. Further research in this field should be performed on the effects of images in reducing restlessness and confusion-associated symptoms.

Acknowledgments

We acknowledge the assistance and support provided by Sonja Stutzman and Jade Marshall.

References

1. Mitchell ML, Kean S, Rattray JE, et al. A family intervention to reduce delirium in hospitalised ICU patients: a feasibility randomised controlled trial. *Intensive Crit Care Nurs*. 2017;40:77–84. doi:10.1016/j.iccn.2017.01.001
2. Hinkle JL, Alexander S, Avanecean D, et al. Research priority setting: the current landscape of neuroscience nursing research. *J Neurosci Nurs*. 2022;54(2):55–60. doi:10.1097/jnn.0000000000000638
3. Lawson TN, Balas MC, McNett M. A scoping review of the incidence, predictors, and outcomes of delirium among critically ill stroke patients. *J Neurosci Nurs*. 2022;54(3):116–123. doi:10.1097/jnn.0000000000000642
4. Rood PJT, Zegers M, Ramnarain D, et al. The impact of nursing delirium preventive interventions in the ICU: a multicenter cluster-randomized controlled clinical trial. *Am J Respir Crit Care Med*. 2021;204(6):682–691. doi:10.1164/rccm.202101-0082OC
5. Mulkey MA, Olson DM, Hardin SR. Patient safety: cognitive assessment at intensive care unit discharge. *Crit Care Nurse*. 2023;43(2):64–67, 79. doi:10.4037/ccn2023718
6. Fialho Silva IT, Assis Lopes P, Timotio Almeida T, et al. Impact of delirium and its motor subtypes on stroke outcomes. *Stroke*. 2021;52(4):1322–1329. doi:10.1161/STROKEAHA.120.026425
7. Mulkey MA, Hardin SR, Olson DM, Munro CL. Pathophysiology review: seven neurotransmitters associated with delirium. *Clin Nurse Spec*. 2018;32(4):195–211. doi:10.1097/nur.0000000000000384
8. Reznik ME, Margolis SA, Moody S, et al. A pilot study of the fluctuating mental status evaluation: a novel delirium screening tool for neurocritical care patients. *Neurocrit Care*. 2022;38(2):388-394. doi:10.1007/s12028-022-01612-1
9. Kose G, Şirin K, Inel MB, Mertoglu S, Aksakal R, Kurucu Ş. Prevalence and factors affecting postoperative delirium in a neurosurgical intensive care unit. *J Neurosci Nurs*. 2021;53(4):177–182. doi:10.1097/jnn.0000000000000595
10. Meagher DJ, Maclullich AMJ, Laurila JV. Defining delirium for the International Classification of Diseases, 11th Revision. *J Psychosom Res*. 2008;65(3):207–214. doi:10.1016/j.jpsychores.2008.05.015

11. Cortes-Beringola A, Vicent L, Martin-Asenjo R, et al. Diagnosis, prevention, and management of delirium in the intensive cardiac care unit. *Am Heart J*. 2021;232:164–176. doi:10.1016/j.ahj.2020.11.011
12. Vlisides P, Avidan M. Recent advances in preventing and managing postoperative delirium. *F1000Res*. 2019;(8):F1000. doi:10.12688/f1000research.16780.1
13. Marcantonio ER. Delirium in hospitalized older adults. *N Engl J Med*. 2017;377(15):1456–1466. doi:10.1056/NEJMcp1605501
14. Faustino TN, Suzart NA, Rabelo R, et al. Effectiveness of combined non-pharmacological interventions in the prevention of delirium in critically ill patients: a randomized clinical trial. *J Crit Care*. 2022;68:114–120. doi:10.1016/j.jcrc.2021.12.015
15. Seyffert S, Moiz S, Coghlan M, et al. Decreasing delirium through music listening (DDM) in critically ill, mechanically ventilated older adults in the intensive care unit: a two-arm, parallel-group, randomized clinical trial. *Trials*. 2022;23(1):576. doi:10.1186/s13063-022-06448-w
16. Mulkey MA, Hardin SR, Munro CL, et al. Methods of identifying delirium: a research protocol. *Res Nurs Health*. 2019;42(4):246–255. doi:10.1002/nur.21953
17. Mulkey MA, Gantt LT, Hardin SR, et al. Rapid handheld continuous electroencephalogram (EEG) has the potential to detect delirium in older adults. *Dimens Crit Care Nurs*. 2022;41(1):29–35. doi:10.1097/DCC.0000000000000502
18. Wijnen VJM, Oudewortel L, van Luijtelaar G, Witlox J, Slooter AJC, van Gool WA. Feasibility and potential of a bedside mini-EEG for diagnosing delirium superimposed on dementia. *Clin Neurophysiol*. 2022;142:181–189. doi:10.1016/j.clinph.2022.08.002
19. Davoudi A, Manini TM, Bihorac A, Rashidi P. Role of wearable accelerometer devices in delirium studies: a systematic review. *Crit Care Explor*. 2019;1(9):e0027. doi:10.1097/CCE.0000000000000027
20. Duclos C, Dumont M, Blais H, et al. Rest-activity cycle disturbances in the acute phase of moderate to severe traumatic brain injury. *Neurorehabil Neural Repair*. 2014;28(5):472–482. doi:10.1177/1545968313517756
21. Jaiswal SJ, McCarthy TJ, Wineinger NE, et al. Melatonin and sleep in preventing hospitalized delirium: a randomized clinical trial. *Am J Med*. 2018;131(9):1110–1117.e4. doi:10.1016/j.amjmed.2018.04.009
22. Knuff A, Leung RH, Seitz DP, Pallaveshi L, Burhan AM. Use of actigraphy to measure symptoms of agitation in dementia. *Am J Geriatr Psychiatry*. 2019;27(8):865–869. doi:10.1016/j.jagp.2019.02.013
23. Teece A, Baker J, Smith H. Identifying determinants for the application of physical or chemical restraint in the management of psychomotor agitation on the critical care unit. *J Clin Nurs*. 2020;29(1–2):5–19. doi:10.1111/jocn.15052
24. Bautista C, Hinkle JL, Alexander S, Hundt B, Rhudy L. A Delphi study to establish research priorities for neuroscience nursing. *J Neurosci Nurs*. 2022;54(2):74–79. doi:10.1097/jnn.0000000000000637
25. Olson DM, Ortega-Pérez S. The cue-response theory and nursing care of the patient with acquired brain injury. *J Neurosci Nurs*. 2019;51(1):43–47. doi:10.1097/jnn.0000000000000426
26. Gerber SM, Jeitziner MM, Wyss P, et al. Visuo-acoustic stimulation that helps you to relax: a virtual reality setup for patients in the intensive care unit. *Sci Rep*. 2017;7(1):13228. doi:10.1038/s41598-017-13153-1
27. Bautista CA, Nydahl P, Bader MK, Livesay S, Cassier-Woidasky AK, Olson DM. Executive summary: post-intensive care syndrome in the neurocritical intensive care unit. *J Neurosci Nurs*. 2019;51(4):158–161. doi:10.1097/jnn.0000000000000438
28. von Gaudecker J, Andrade C, Baby P, et al. Family role in care of patients with neurological conditions: international neuroscience nursing research symposium proceedings. *J Neurosci Nurs*. 2023;55(4):119–124. doi:10.1097/jnn.0000000000000708
29. Virtanen I, Kalleinen N, Urrila AS, Polo-Kantola P. First-night effect on sleep in different female reproductive states. *Behav Sleep Med*. 2018;16(5):437–447. doi:10.1080/15402002.2016.1228646
30. Jin T, Jin H, Lee SM. Using electroencephalogram biosignal changes for delirium detection in intensive care units. *J Neurosci Nurs*. 2022;54(2):96–101. doi:10.1097/jnn.0000000000000639
31. Linnavuori E, Leino-Kilpi H, Stolt M. Healthcare professionals' electroencephalography competency: a disconnect between self-assessment and objective testing. *J Neurosci Nurs*. 2022;54(4):153–158. doi:10.1097/jnn.0000000000000653
32. Williams ET, Buchanan DT, Buysse DJ, Thompson HJ. Injury, sleep, and functional outcome in hospital patients with traumatic brain injury. *J Neurosci Nurs*. 2019;51(3):134–141. doi:10.1097/jnn.0000000000000441

Lippincott® NursingCenter®

NCPD Nursing Continuing Professional Development

TEST INSTRUCTIONS

- Read the article. The test for this nursing continuing professional development (NCPD) activity is to be taken online at **www.NursingCenter.com/CE/JNN**. Tests can no longer be mailed or faxed.
- You'll need to create an account (it's free!) and log in to access My Planner before taking online tests. Your planner will keep track of all your Lippincott Professional Development online NCPD activities for you.
- There's only one correct answer for each question. A passing score for this test is 7 correct answers. If you pass, you can print your certificate of earned contact hours and access the answer key. If you fail, you have the option of taking the test again at no additional cost.
- For questions, contact Lippincott Professional Development: 1-800-787-8985.
- Registration deadline is March 6, 2026

PROVIDER ACCREDITATION

Lippincott Professional Development will award 1.5 contact hours for this nursing continuing professional development activity.

Lippincott Professional Development is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation.

This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 1.5 contact hours. Lippincott Professional Development is also an approved provider of continuing nursing education by the District of Columbia, Georgia, West Virginia, New Mexico, South Carolina and Florida CE Broker #50-1223. Your certificate is valid in all states.

Payment: The registration fee for this test is $17.95. AANN members can take the test for free by logging into the secure Members Only area of http://www.aann.org