Trends In Neurocritical Care

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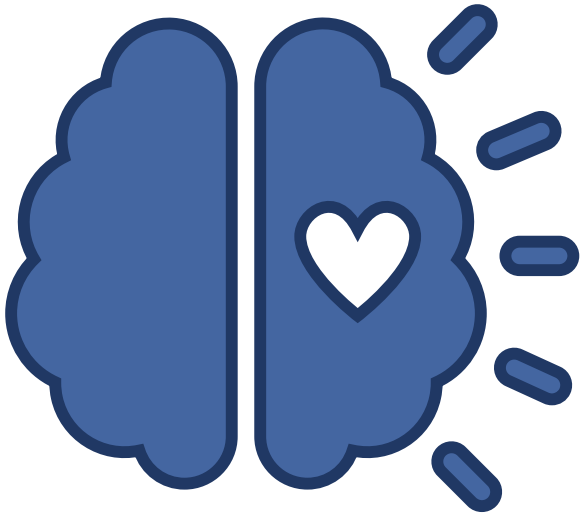
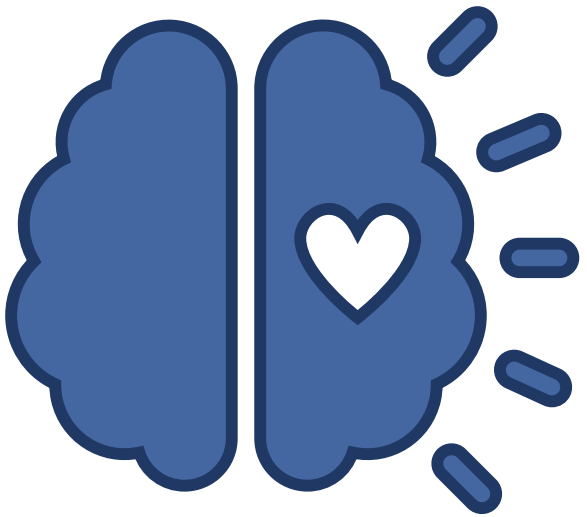
Disclosure

I do not have any financial relationships with any organizations to disclose



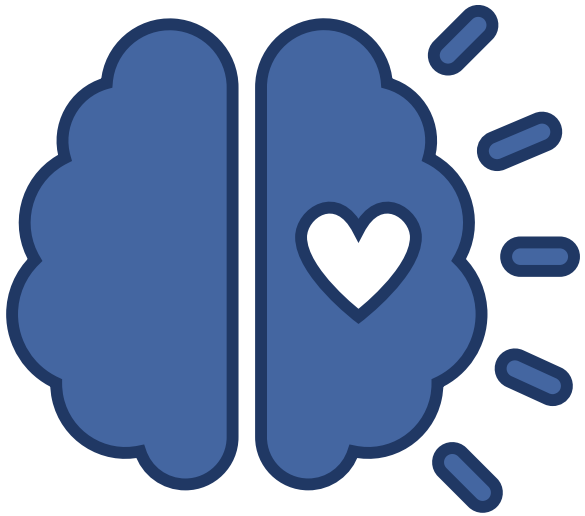
Objectives

- Discuss evidence to challenge changing practice in neuro critical care nursing
- Describe importance of neuroscience nursing certifications supporting optimal patient outcomes
- Evaluate literature for application in critical care nursing practice



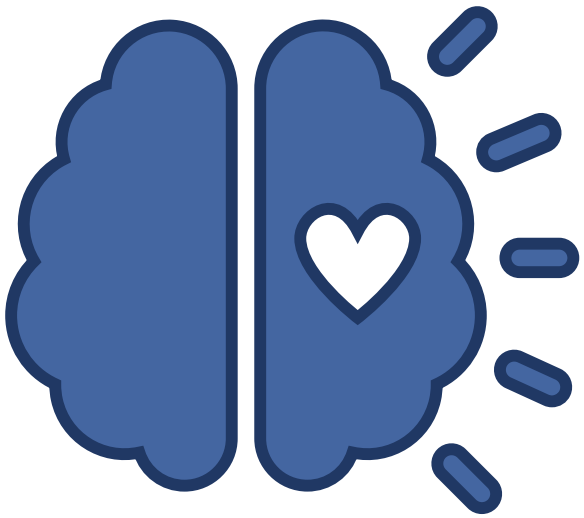
Why Trends?

- Morbidity & mortality of severe neurologic illness is high
- Neurocritical care is a *relatively* new specialty
- Neurocritical illness carries a heavy burden & there is a drive to improve critical neurologic are to meet the demand & prevent complications & improve survival
- Evidence for changes in practice are beginning to build



The Future…

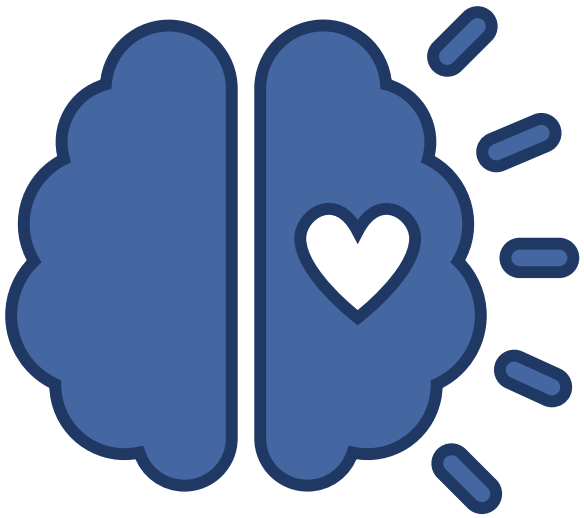
- Recognize & Treat early
- Impact morbidity & mortality
- Optimize outcomes
- Minimize complications
- Be able to speak to the why in neurocritical care…



Specialty Nursing Practice

Specialty Nursing Certification

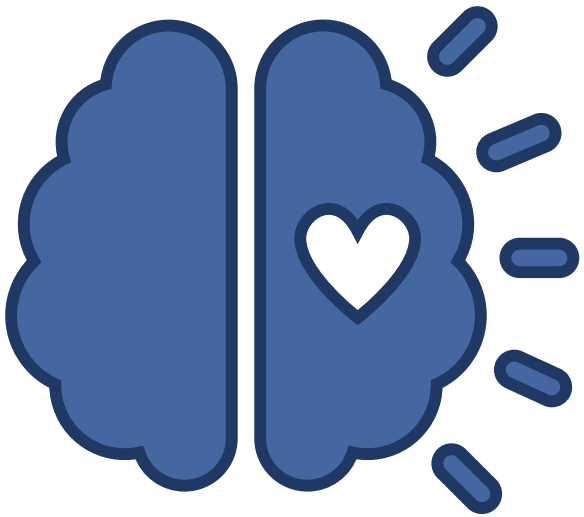
- The Accreditation Board for Specialty Nursing Certification (ABSNC) published a white paper in 2022
- Recognizing benefits of specialty certification on nurses, organizations, & patients



Specialty Nursing Certification

Value & Benefits for Nurses:

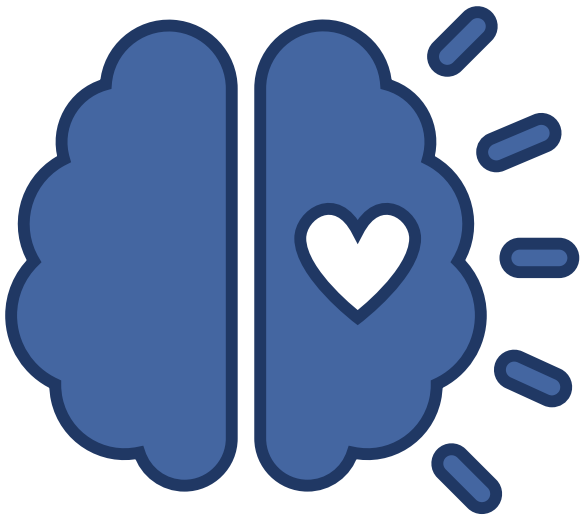
- Recognized in 34 states as a proxy for continued competence
- Formal acknowledgement of skills & knowledge
- Continuing education
- Professional respect
- Increased pay & compensation
- Increased professional opportunity



Specialty Nursing Certification

Value & Benefits for Organizations:

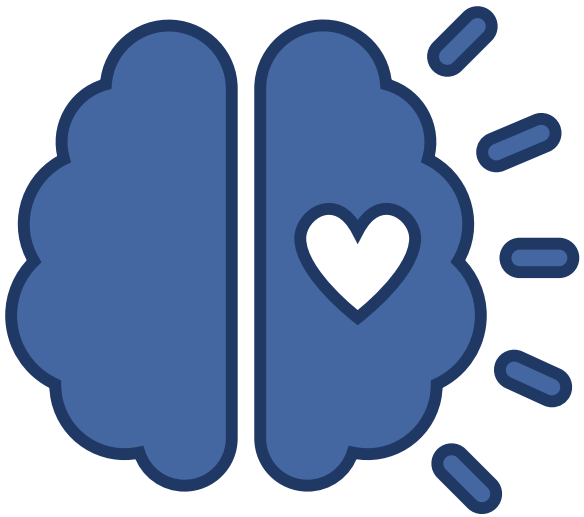
- Nurses committed to high level practice
- Validation of organization commitment to quality
- Proof of excellence



Specialty Nursing Certification

Value & Benefits for Patients:

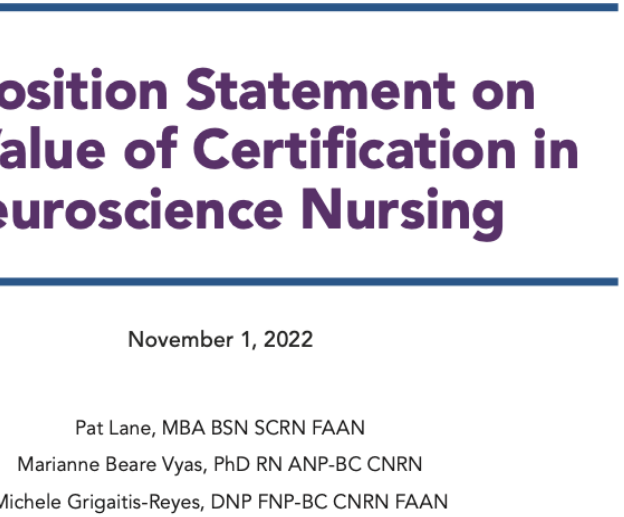
- Higher quality care: Certification provides education & skill for immediate action in practice
- Better Health: Emerging evidence on benefit for improved health outcomes for patients at organization with commitment to certification



Specialty Nursing Certification

AANN Released a position statement in November 2022

- Neuroscience & Stroke Nursing practice are specialty areas of practice
- The rigorous exams validate professional & clinical knowledge & skill
- ABNN certificants expand on professional practice, knowledge, & expertise through continuing education over the 5-year renewal cycle



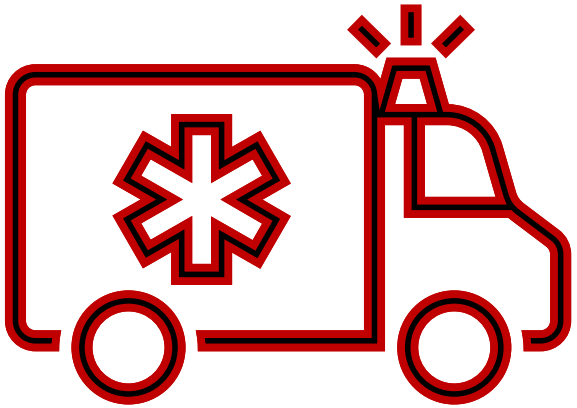
A Position Statement on the Value of Certification in Neuroscience Nursing

November 1, 2022

Pat Lane, MBA BSN SCRN FAAN
Marianne Beare Vyas, PhD RN ANP-BC CNRN
Michele Grigaitis-Reyes, DNP FNP-BC CNRN FAAN

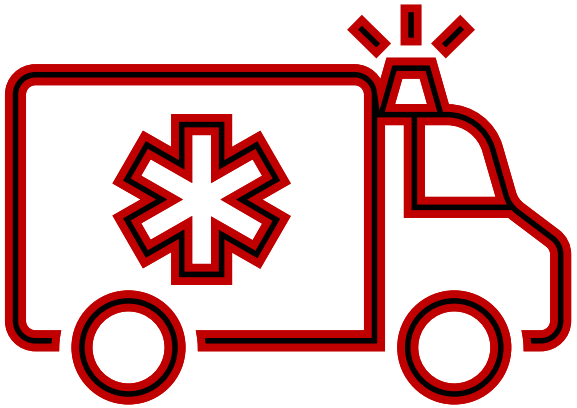
AANN
American Association of Neuroscience Nurses

Stroke Care

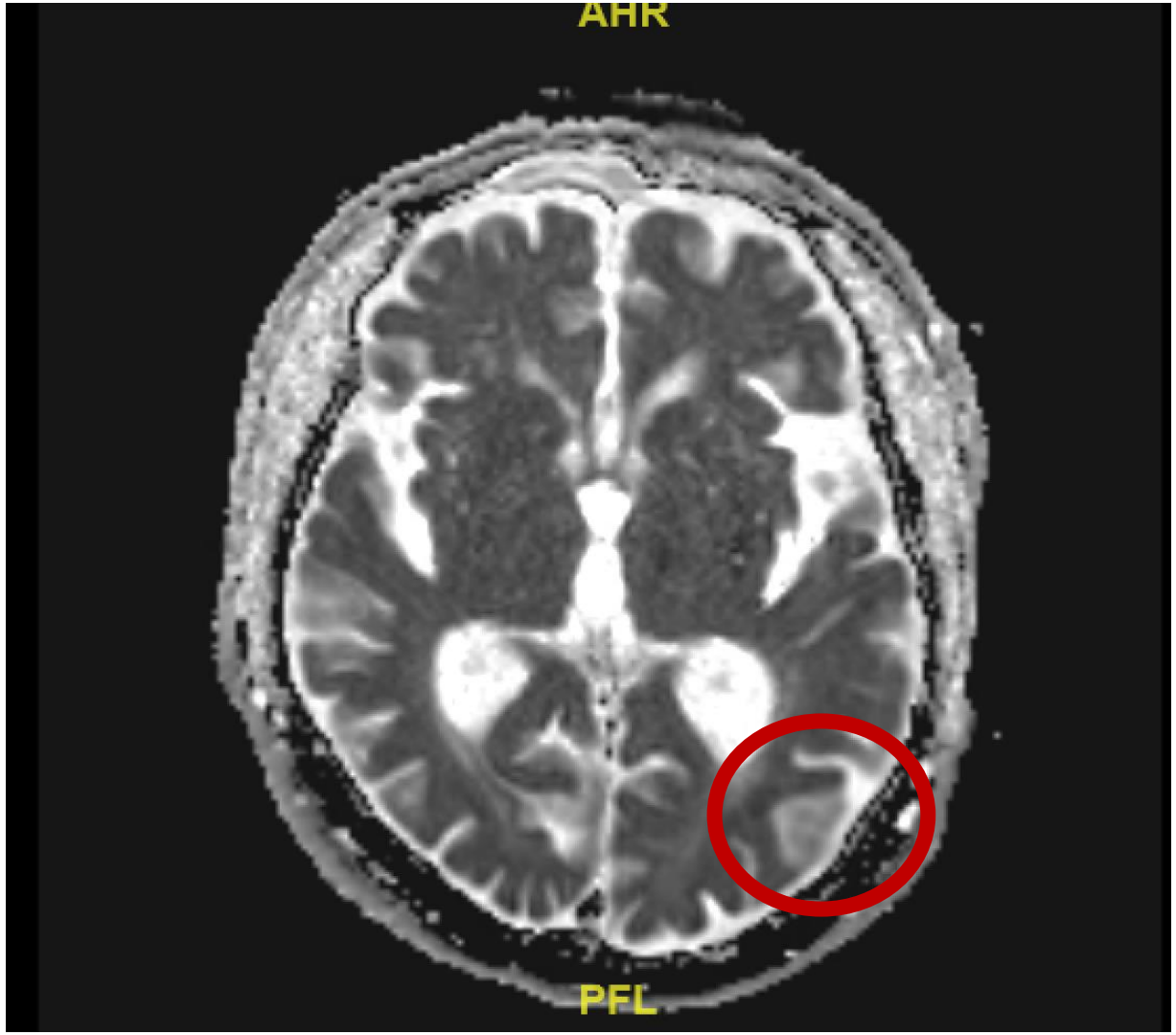


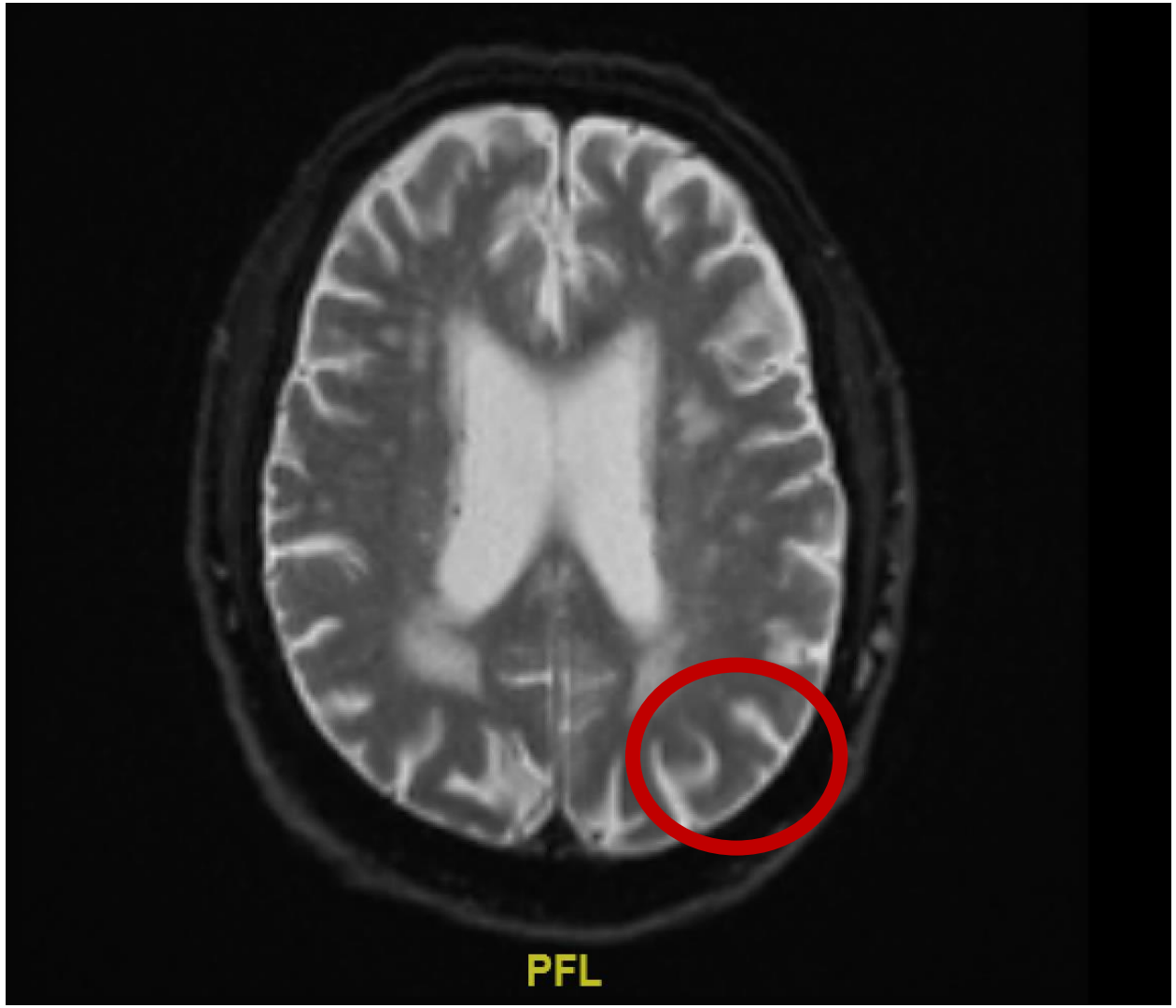
Perfusion Imaging

DWI – FLAIR Mismatch



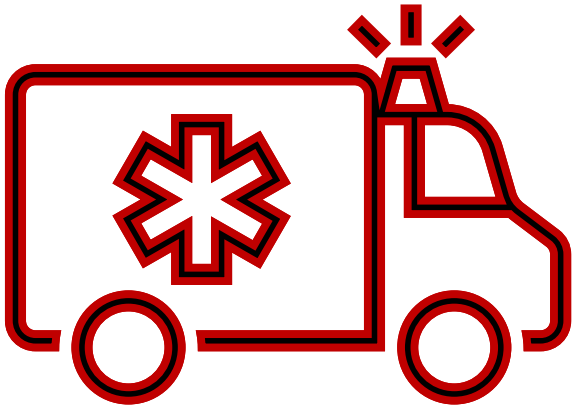
- MRI imaging sequences added to ***Get with the Guidelines®*** in 2019 for Wake – Up Stroke Protocols
- **Diffuse Weighted Imaging (DWI)** ischemic lesion will be present in minutes. Due cellular edema water diffusion becomes restricted
- **Fluid Attenuated Inversion Recovery (FLAIR)** Sequences sensitive to vasogenic edema area of infarct will NOT be present – creating a mismatch





Clinical Image-Source Dedeo, M

DWI – FLAIR Mismatch



- As the ischemic stroke progresses vasogenic edema increases.
- The stroke can be aged based on DWI – FLAIR mismatch. The perfusion mismatch volume decreases as the stroke progresses from onset.

Tenecteplase

Tenecteplase

- New-generation tissue plasminogen activator
- Not FDA approved for Acute Ischemic Stroke
- Evidence is evolving & expanding for thrombolysis

Tenecteplase

- Higher fibrin specificity
  - Acts primarily on clot vs systemic plasminogen
- Longer half – life
  - 20 min vs 4 min
- Less systemic coagulopathy
  - Low fibrinogen depletion

Tenecteplase vs Alteplase

Risks of adverse events are the same:

- 1% Risk of major bleeding
- 2-6% Risk of symptomatic ICH
- 1-5% Risk of angioedema

Tenecteplase

Advantages:

- Easier to administer
  - Single bolus vs bolus & infusion
- Faster treatment & efficiency

Disadvantages:

- Total dose administered fast

The Neurohospitalist
2020, Vol. 10(1) 11-15

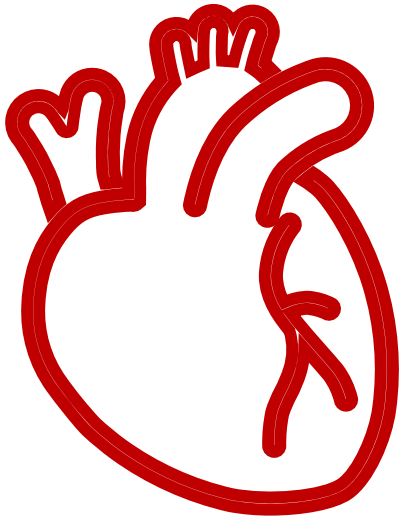
DOI: 10.1177/1941874419845229
journals.sagepub.com/home/NHO
SAGE

Safety Trial of Low-Intensity Monitoring After Thrombolysis: Optimal Post Tpa-Iv Monitoring in Ischemic STroke (OPTIMIST)

Roland Faigle, MD, PhD[1], Jaime Butler, RN, MS[1], Juan R. Carhuapoma, MD[2], Brenda Johnson, DNP, CRNP-BC, ANVP[1], Elizabeth K. Zink, MS, RN[3], Tenise Shakes, RN[3], Melissa Rosenblum, RN, BSN, CNRN[3], Mustapha Saheed, MD[4], and Victor C. Urrutia, MD[1]

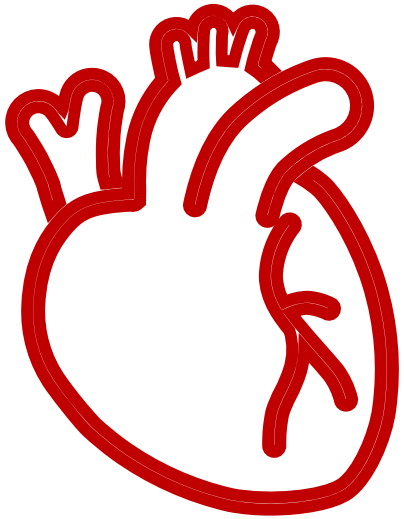
Abstract

Background and Purpose: At present, stroke patients receiving intravenous thrombolysis (IVT) undergo monitoring of their neurological status and vital signs every 15 minutes for the first 2 hours, every 30 minutes for the next 6 hours, and every hour thereafter up to 24 hours post-IVT. The present study sought to prospectively evaluate whether post-IVT stroke patients with low risk for complications may safely be cared for utilizing a novel low-intensity monitoring protocol. **Methods:** In this pragmatic, prospective, single-center, open-label, single-arm safety study, we enrolled 35 post-IVT stroke patients. Adult patients were eligible if their NIH Stroke Scale (NIHSS) was less than 10 at the time of presentation, and if they had no critical care needs by the end of the IVT infusion. Patients underwent a low-intensity monitoring protocol during the first 24 hours after IVT. The primary outcome was need for a critical care intervention in the first 24 hours after IVT. **Results:** The median age was 54 years (range: 32-79), and the median pre-IVT NIHSS was 3 (interquartile range [IQR]: 1-6). None of the 35 patients required transfer to the intensive care unit or a critical care intervention in the first 24 hours after IVT. The median NIHSS at 24 hours after IVT was 1 (IQR: 0-3). Four (11.4%) patients were stroke mimics, and the vast majority was discharged to home (82.9%). At 90 days, the median NIHSS was 0 (IQR: 0-1), and the median modified Rankin Scale was 0 (range: 0-6). **Conclusion:** Post-IVT stroke patients may be safely monitored in the setting of a low-intensity protocol.



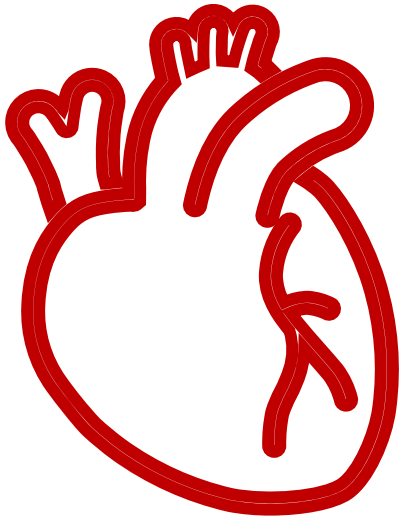
Get With the Guidelines® 2022 Update

Blood Pressure Goals-ICH



Systolic blood pressure management goal: 130 – 150 mm Hg

Blood Pressure Goals-ICH



- Address systolic blood pressure > 150 mm Hg within 2 hours
- Achieve goal within 1 hour
- Careful titration to minimize blood pressure variability
- Systolic blood pressure > 150 mm Hg & < 130 mm Hg can be harmful!

Considerations for Nursing Practice

- Stroke care is changing even more rapidly as we learn to save brain tissue even faster.
- Maintaining nursing knowledge with big changes in stroke care is important.
- Nursing knowledge and advocacy is vital in stroke recognition & response.

Curing Coma®

Curing Coma® Campaign

- Neurocritical Care Society launched Curing Coma® Campaign in 2019
- Goal to unify and clarify *Disorders of Consciousness*
- Develop the infrastructure, research, and care practices to improve health, understanding, & recovery.

Neurocrit Care
https://doi.org/10.1007/s12028-021-01425-8

NEUROCRITICAL CARE SOCIETY

ORIGINAL WORK

The Curing Coma Campaign International Survey on Coma Epidemiology, Evaluation, and Therapy (COME TOGETHER)

Raimund Helbok[1*†], Verena Rass[1†], Ettore Beghi[2], Yelena G. Bodien[3,4], Giuseppe Citerio[5,6], Joseph T. Giacino[3], Daniel Kondziella[7], Stephan A. Mayer[8], David Menon[9], Tarek Sharshar[10], Robert D. Stevens[11], Hanno Ulmer[12], Chethan P. Venkatasubba Rao[13], Paul Vespa[14], Molly McNett[15], Jennifer Frontera[16] and the Curing Coma Campaign and its Contributing Members

Abstract

Background: Although coma is commonly encountered in critical care, worldwide variability exists in diagnosis and management practices. We aimed to assess variability in coma definitions, etiologies, treatment strategies, and attitudes toward prognosis.

Methods: As part of the Neurocritical Care Society Curing Coma Campaign, between September 2020 and January 2021, we conducted an anonymous, international, cross-sectional global survey of health care professionals caring for patients with coma and disorders of consciousness in the acute, subacute, or chronic setting. Survey responses were solicited by sequential emails distributed by international neuroscience societies and social media. Fleiss κ values were calculated to assess agreement among respondents.

Results: The survey was completed by 258 health care professionals from 41 countries. Respondents predominantly were physicians ($n = 213$, 83%), were from the United States ($n = 141$, 55%), and represented academic centers ($n = 231$, 90%). Among eight predefined items, respondents identified the following cardinal features, in various combinations, that must be present to define coma: absence of wakefulness (81%, $\kappa = 0.764$); Glasgow Coma Score (GCS) ≤ 8 (64%, $\kappa = 0.588$); failure to respond purposefully to visual, verbal, or tactile stimuli (60%, $\kappa = 0.552$); and inability to follow commands (58%, $\kappa = 0.529$). Reported etiologies of coma encountered included medically induced coma (24%), traumatic brain injury (24%), intracerebral hemorrhage (21%), and cardiac arrest/hypoxic-ischemic encephalopathy (11%). The most common clinical assessment tools used for coma included the GCS (94%) and neurological examination (78%). Sixty-six percent of respondents routinely performed sedation interruption, in the absence of contraindications, for clinical coma assessments in the intensive care unit. Advanced neurological assessment techniques in comatose patients included quantitative electroencephalography (EEG)/connectivity analysis (16%), functional magnetic resonance imaging (7%), single-photon emission computerized tomography (6%), positron emission

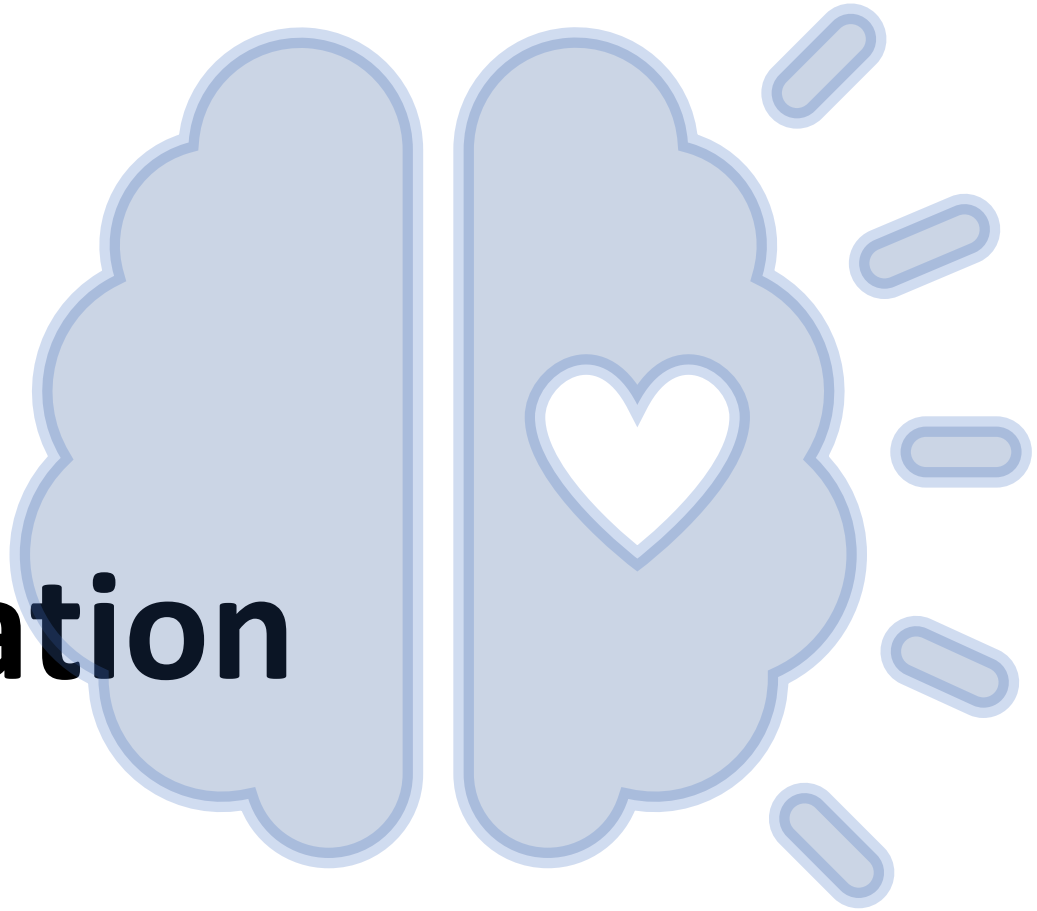
Progress & Process

- Define of Coma…
- Consensus of clinical features…
- Confirm diagnostic consensus…
- Prioritize research: Treatment, Prognostication, Pathophysiology, & Diagnostics
- Determine difference between coma & unresponsive wakefulness

Considerations for Nursing Practice

- Neurologic assessment is priority clinical data for coma determination
- Clinical features of coma are not consistently agreed upon
- Patient care & family education is vital component of coma care and recovery

ICU Liberation



ICU Liberation (A-F Bundle)

- Developed and formalized by Society of Critical Care Medicine (SCCM) in 2014
- Evidence-based interventions to minimize harm from critical care admission

ICU Liberation (A-F Bundle)

A = Assess Pain

B = Coordinate Awakening & Breathing Trials

C = Choice of Sedation

D = Delirium Assessment

E = Early Mobility

F = Family Engagement

ICU Liberation (A-F Bundle)

- COVID-19 changed critical care practice
- Bundle implementation
- Bundle incorporation
- Use of sedation
- Visitor restrictions
- Changes in mobility & activity

frontiers in Medicine

ORIGINAL RESEARCH
published: 28 October 2021
doi: 10.3389/fmed.2021.735860

Implementation of the ABCDEF Bundle for Critically Ill ICU Patients During the COVID-19 Pandemic: A Multi-National 1-Day Point Prevalence Study

Keibun Liu[1†], Kensuke Nakamura[2†], Hajime Katsukawa[3†], Peter Nydahl[4], Eugene Wesley Ely[5,6], Sapna R. Kudchadkar[7,8,9], Kunihiko Takahashi[10], Muhammed Elhadi[11], Mohan Gurjar[12], Be Kim Leong[13], Chi Ryang Chung[14], Jayachandran Balachandran[15], Shigeaki Inoue[16,17], Alan Kawarai Lefor[18] and Osamu Nishida[19]*

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Bundle Impact on Delirium

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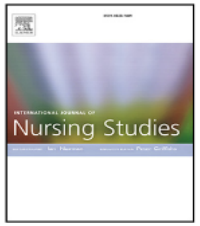

The effect of the ABCDE/ABCDEF bundle on delirium, functional outcomes, and quality of life in critically ill patients: A systematic review and meta-analysis

Kellie Sosnowski [a,b,c,*], Frances Lin [d], Wendy Chaboyer [a,c,e], Kristen Ranse [a], Aaron Heffernan [b,f,g], Marion Mitchell [a,c]

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The Impact of Mobilization

Volume 54 • Number 1 • February 2022

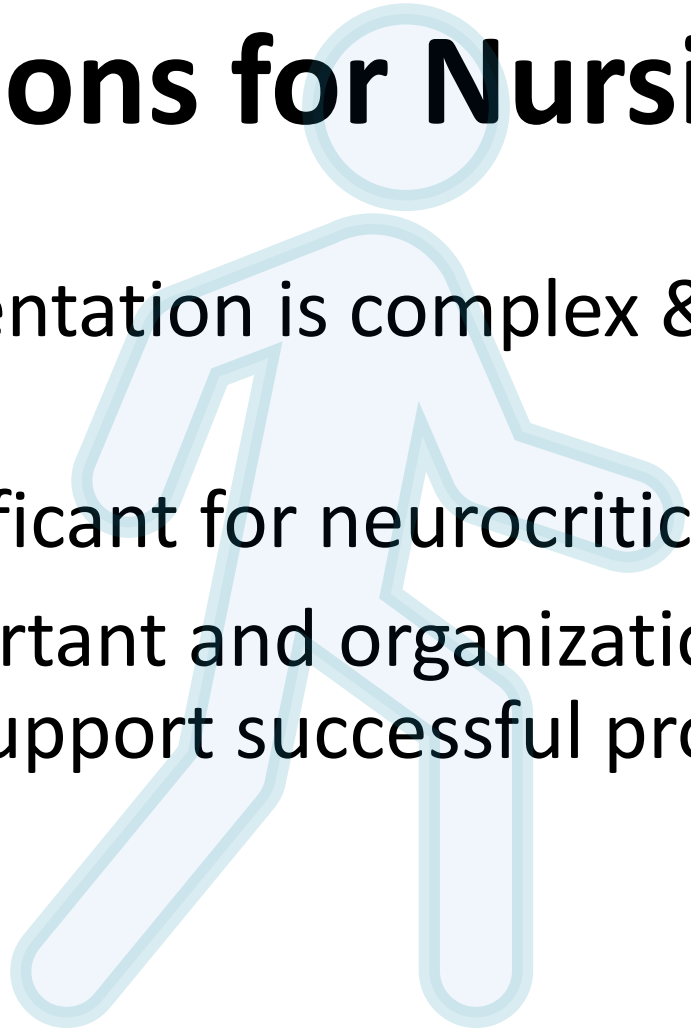
Mobilizing Ventilated Neurosurgery Patients: An Integrative Literature Review

Adrianna Lall, Deborah Behan

ABSTRACT

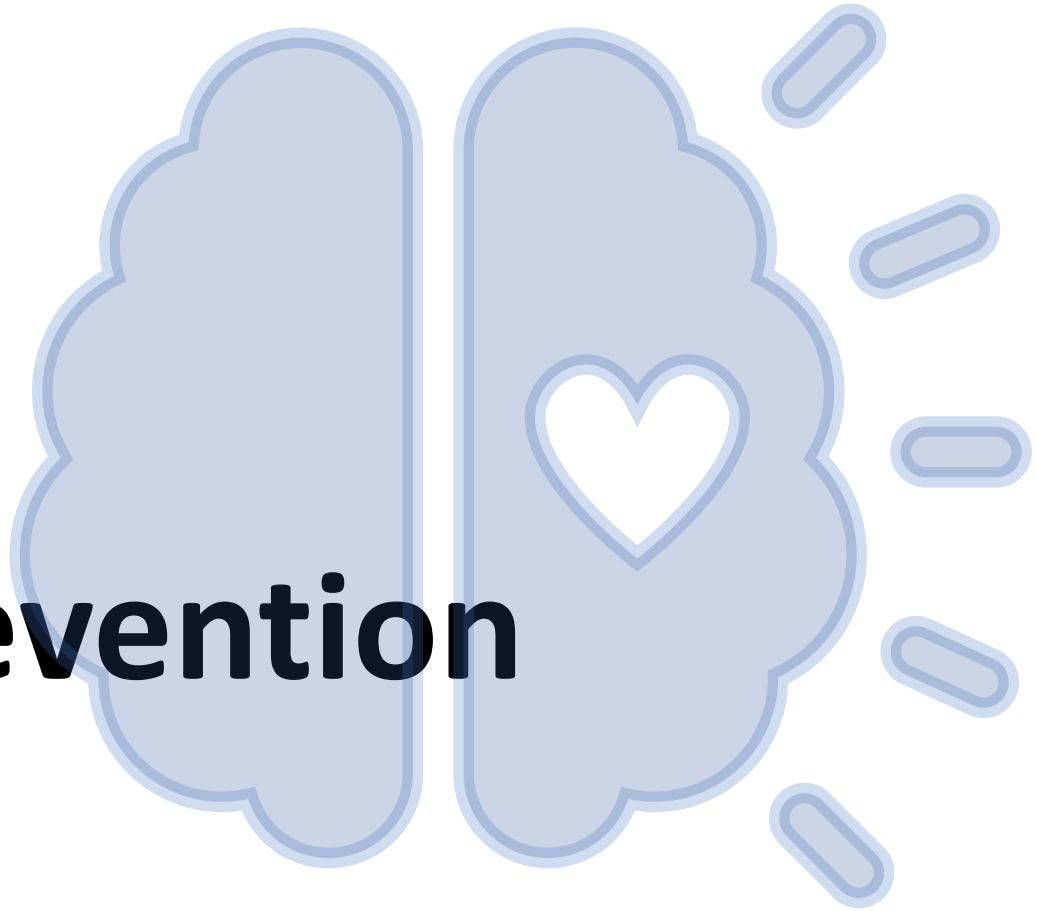
BACKGROUND: Lack of mobilization in ventilated neurosurgery patients is problematic due to significant consequences. Although early mobility addresses these complications, few studies have been conducted in this population, resulting in infrequent mobilization efforts. Nurses prioritize and implement patient care interventions, including mobilization, with multidisciplinary teams. This integrative literature review examines what is known regarding nursing perceptions on mobilization and their role within a multidisciplinary team for mobilization in ventilated neurosurgery patients. **METHODS**: A comprehensive literature search was conducted using online databases to identify research articles on early mobility studies in ventilated critically ill and neurosurgical patients from 2010 to 2020. **RESULTS**: Twenty studies were identified and indicated a paucity of research specific to mobilizing ventilated neurosurgery patients. Nurses understand the purpose and benefits of early mobility in critically ill and mechanically ventilated patients. Mixed perceptions exist regarding the responsibility for prioritizing and initiating mobilization. Main barriers include patient safety concerns, untimeliness due to limited resources, unit culture, lack of nursing knowledge, and need for improved teamwork. Associations between teamwork-based interventions and

Considerations for Nursing Practice



- Bundle implementation is complex & needs to be comprehensive
- Delirium is significant for neurocritical care patients
- Mobility is important and organizational structures are integral to support successful programs

CAUTI Prevention



CAUTI Prevention

- The risk of CAUTI development in neuro patients is nearly 9X in the CCU than other patients.
- The longer the catheter is in place the higher the risk of CAUTI.
- Average number of catheter days to CAUTI in this population: **6**

Perrin, K., Vats, A., Qureshi, A. *et al.* Catheter-Associated Urinary Tract Infection (CAUTI) in the NeuroICU: Identification of Risk Factors and Time-to-CAUTI Using a Case–Control Design. *Neurocrit Care* (2020). https://doi.org/10.1007/s12028-020-01020-3

CAUTI Prevention

Risk factors that increase the risk of CAUTI in neuroscience patients:

- Subarachnoid hemorrhage
- Vasospasm
- Cerebral Edema
- Stool incontinence & > 3 episodes
- Hospital LOS & ICU LOS
- More than 1 indwelling catheter insertion in the first 5 days of hospitalization

Considerations for Nursing Practice

- Nursing Care & Practice is the reason patients improve
- Expert skill & knowledge is achieved through training, practice & certification
- Neurocritical Care will be moving forward as a specialty for individualized interventions & improving outcomes

Thank you!

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