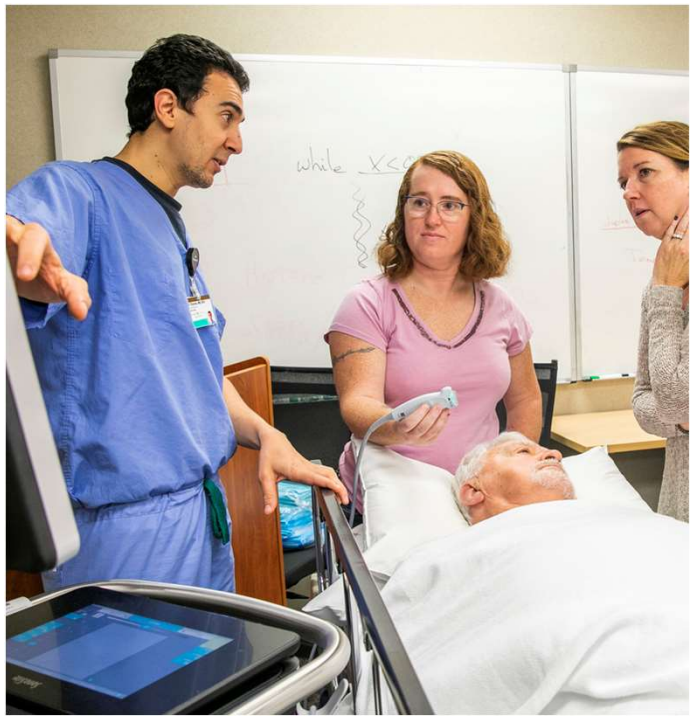
Quality and Financial Impact of Adding PAs and NPs to Inpatient Teams Featuring Rapid Response

American Association of Physician Associates
April Kapu, DNP, APRN, ACNP-BC, FCCM, FAANP, FAAN
Pam Jones, DNP, RN, NEA-BC, FAAN

About the Presenters

- April N. Kapu, DNP, APRN, ACNP-BC, FAANP, FCCM, FAAN
  - Associate Dean Clinical and Community Partnerships, Vanderbilt University School of Nursing
  - President, American Association of Nurse Practitioners
- Pam Jones, DNP, RN, NEA-BC, FAAN
  - Associate Vice Chancellor, Health and Wellness, Vanderbilt University



Disclosures

- No relevant commercial relationships to disclose

Objectives

- Describe evolution of NPs and PAs in acute care services highlighting Rapid Response Teams as an exemplar.
- Discuss the quality metrics and patient outcomes associated with NPs/PAs in acute care.
- Correlate quality metrics with financial impact for NP and PA teams in acute care.

Critical Care at VUMC

- Cardiovascular ICU
- Critical Care Tower
- 24/7 NPs and PAs in 6, now 7 ICUs

Nurse Practitioners and Physician Assistants in Critical Care: Review of the Literature

- Studies continue to demonstrate the impact of PAs and NPs in acute and critical care settings, specifically, the value of PAs and NPs in patient care management, continuity of care, decreasing costs of care, decreasing resource use, improving quality and safety metrics, patient and staff satisfaction, and enhancing educational experiences of medical residents and fellows in the academic setting.
- Studies assessed PA and NP impact on traditional outcome measures including: LOS, readmission rates, adherence to established standards of care (ex. DVT prophylaxis rates), and mechanical ventilation rates; while other studies have included patient care specific outcomes including time to transfer, time to discharge; blood transfusion rates; patient and family satisfaction; as well as resource use; financial impact; and impact on hand over communication.

Kleinpell, et al. (2019), CCM

Clinical Outcomes of NP/PA Care

- Comparison of usage patterns, ICU LOS, HLOS and mortality rates of a MICU staffed by NPs and a MICU staffed by physicians. Patients in the NP-staffed MICU had a significantly shorter LOS than those in the resident-staffed physician MICU; Post-hospital discharge to non-home location was higher in the NP-ICU. No difference in mortality. *Scherzer et al. (2017), Critical Care Med*
- Comparison of PA care and resident team care in a medical ICU over a 3-year period with 5,346 patient admissions. No difference in HLOS, ICU LOS, hospital mortality or ICU mortality. Survival analyses showed no difference in 28-day survival between the two groups. *Kawar and DiGiovine (2011), JAAPA*

Clinical Outcomes of NP/PA Care

- Systematic review found that NPs in critical care improve length of stay, time to treatment, time to consultation, mortality, patient satisfaction, and cost savings. *Woo, et al. (2017), Human Resources for Health*
- Comparison of DVT, PE, PNA, ARF and LOS with unit-based NP model directly and resident service. Care was equivalent between NPs and residents; LOS .5 days less with NPs. *Morris et al. (2012), J Acute Care Trauma Surg*

nurse practitioner helps isolated patients be with family
ng final moments

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HVILLE, Tenn. (WKRN) – As a nurse practitioner at Vanderbilt Medical Cente
ey cares for those in the intensive care unit, which is now dedicated solely t
D-19 patients.

Outcomes of Nurse Practitioner Delivered Critical Care

- No difference in 90 day survival rate
- Similar ICU length of stay
- Lower risk-adjusted hospital length of stay
- Lower ICU mortality rate
- Lower ICU readmissions

Landsperger et al.(2016), CHEST

Procedures

- Retrospective chart review comparing intracranial monitor insertion between NPs/PAs and neurosurgeons in a trauma center over a 5-year period. Of 92 monitor insertions, 22 were inserted by neurosurgeons and 70 by NP/PA. The difference in complication rates was significantly less than 5% (1.4% vs. 0%, p = 0.0128). *Young and Bowling (2012), J Trauma Acute Care Surg*
- Comparison of complication rates from (arterial lines, central venous lines, bronchoalveolar lavage, thoracostomy tubes, percutaneous endoscopic gastrostomy, and tracheostomies performed by ICU resident physicians (RPs) and advanced clinical practitioners. No difference in procedural complication rates, mortality, ICU LOS and HLOS. *Sirleaf et al. (2014), J Trauma Acute Care Surg*

Procedures

- Comparison of outcomes of NP central venous catheter insertions ICU units over a 2 year period using data from the Central Line Associated Bacteraemia (CLAB) project in New South Wales Australia. 760 vascular access devices were placed by the three NP-led central venous catheter placement services in 3 hospitals. Over the study period, insertion outcomes were favourable with only 1 pneumothorax (1%), 1 arterial puncture (1%) and 1 CLAB (1%) being recorded across the three groups. The CLAB rate was lower in comparison to the aggregated CLAB data set [1.3 per 1000 catheters (95% CI = 0.03–7.3) vs. 7.2 per 1000 catheters (95% CI = 5.9–8.7)]. *Alexandrou et al.(2012), CCM*

Critical Care Outreach

- Retrospective study of two cohorts Assessment of clinical and process outcomes when critical care medicine trained physician assistants (CCM-PA) are added to a critical care outreach team (CCOT) Reduction in the time-to-transfer to ICU associated with adding the CCM-PA to the CCOT; No difference in hospital mortality or LOS. *Gershengorn et al. (2016), PLoS One*
- Comparison of interventions and outcomes from RRT calls led by staff nurses with RRT calls led by ACNPs Increased documented communication with primary team, less patients transferred and increase in survival with ACNP led calls; ACNP led calls generated a critical care billable note in 30% of cases whereas previously no billing occurred. *Hellervik et al. (2011), CCM Supplement*

Rapid Response

- Improved team communication
- Improved nursing satisfaction
- Early interventions and post intervention followup
- Education

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Brief Report

Dedicated, Proactive, Nurse Practitioner Rapid Response Team Eliminating Barriers

Erin Burrell, MSN, ACNP-BC, April Kapu, DNP, ACNP-BC,
Elizabeth Huggins, MSN, ACNP-BC, Katie Cole, MSN, ACNP-BC,
Jennifer Fitzsimmons, MSN, ACNP-BC, Nina Collins, MSN, ACNP-BC,
Liza Weavind, MBBCh, MMHC

Keywords:
critical care nurse practitioners
nurse retention
nurse satisfaction
rapid response teams
unexpected ICU transfers

ABSTRACT

Rapid response teams (RRT) have become an expected component in response to acute clinical deterioration of patients outside of the intensive care unit. Even with this support, many RRTs are not activated despite a high level of nursing concern that patients are decompensating. Bedside nurses may be discouraged from appropriately activating RRT due to fear of reprimand. Instituting a proactive, dedicated RRT of nurse practitioners who developed relationships and improved communication with nurses led to an increase in RRT activations for general nursing concern. Early recognition of acute clinical change allowed for prompt intervention by the RRT and decreased intensive care unit transfers.

Rapid Response

- Improved team communication
- Early diagnosis and treatment
- Faster transfers
- Education

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Addition of Acute Care Nurse Practitioners to Medical and Surgical Rapid Response Teams: A Pilot Project

April N. Kapu, RN, DNP, ACNP-BC; Arthur P. Wheeler, MD; Byron Lee, BS, MBA

Crit Care Nurse (2014) 34 (1): 51–59.

https://doi.org/10.4037/ccn2014847

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Background

Vanderbilt University Hospital's original rapid response team included a critical care charge nurse and a respiratory therapist. A frequently identified barrier to care was the time delay between arrival of the rapid response team and arrival of the primary health care team.

Contents Data & Figures

1 February 2014

Article Contents

Rapid Response

- Significant decrease in in-hospital arrests
- Reduction in unplanned ICU admissions

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CLINICAL INVESTIGATIONS

Outline

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The effect of a rapid response team on major clinical outcome measures in a community hospital*

Dacey, Michael J. MD, FACP; Mirza, Ehsun Raza MD; Wilcox, Virginia RN; Doherty, Maureen RN, MBA; Mello, James PA-C; Boyer, Amy MD, MPH; Gates, Jonathan MD; Brothers, Todd PharmD; Baute, Robert MD

Author Information

Critical Care Medicine: September 2007 - Volume 35 - Issue 9 - p 2076-2082
doi: 10.1097/01.CCM.0000281518.17482.EE

Metrics

Rapid Response

- Improved detection of SIRs
- Improved early goal directed therapy
- Reduced unplanned ICU admissions (cost savings $250,000)

Rapid Response

- Decreased hospital LOS from 12.4 days to 9.36 days (O:E 1.1)
- Decreased ICU LOS from 5.16 days to 3.72 days
- Increased throughput (increased both contribution and operating margin secondary to ICU bed day utilization)
- Increased ICU bed days saved (312 ICU days saved during the pilot period)
- Increased nursing, patient and primary team satisfaction

Burrell, et al. Society of Critical Care Medicine Conference 2018

Documentation / Critical Care Billing

- Retrospective review of two cohorts Study to compare billing data of residency trained advanced practice providers (APPs) to on-the-job trained (OJT) APPs Residency APPs reached maximal patient care, billing, and critical care productivity faster than APPs who received OJT; There was no difference for maximal productivity for evaluation, management and procedure time. *Xu et al. (2016), CCM Supplement*
- Project demonstrated the value of adding NPs to inpatient care teams by means of generated revenue, reduction in LOS, and standardization of quality care. Charge capture overall increased with documentation of critical care 24/7. *Kapu et al. (2014), J Nurs Admin*

Staff Satisfaction

- Prospective, qualitative surveys Study to assess RN's perception of the inter-professional team dynamics between APP and resident teams in the Medical Surgical ICU Statistically significant difference between the APP and resident teams in all questions ($p<0.001$). *Lunn et al. (2016), CCM*
- Improved physician and nursing satisfaction post adding Trauma NPs to progressive care unit. *Collins et al. (2016), Journal of Trauma and Acute Care Surgery.*

Financial Impact

- Lower ICU LOS
- Lower risk adjusted hospital length of stay
- Increased billing productivity nights and weekends

Dr. Ruth Kleinpell

Structural Empowerment

Supporting NPs and PAs in
Acute and Critical Care

Pam Jones, DNP, RN, FAAN

Associate Vice Chancellor for Health and Wellness

Vanderbilt University

Associate Professor

Vanderbilt University School of Nursing

VUMC Advanced Practice – Early 2000s

- Rapid growth across system
  - Access
  - Volume
  - Quality
  - Continuity
- Center for Advanced Practice and Allied Health (2005)
- Extension of advanced practice leadership (2010)
- Organizational restructuring (2014 and 2016) with further expansion of leadership structure.

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Structural Empowerment

Structural Empowerment

- Structural empowerment is defined as those environmental and situational characteristics that promote empowerment (Manojlovich, 2007).
- Empowerment can be defined as enabling someone to act (Chandler, 1992, p.65).
- Laschinger (1996) states that employees must have “access to resources, information, support, and opportunity” (p. 26) to be empowered.

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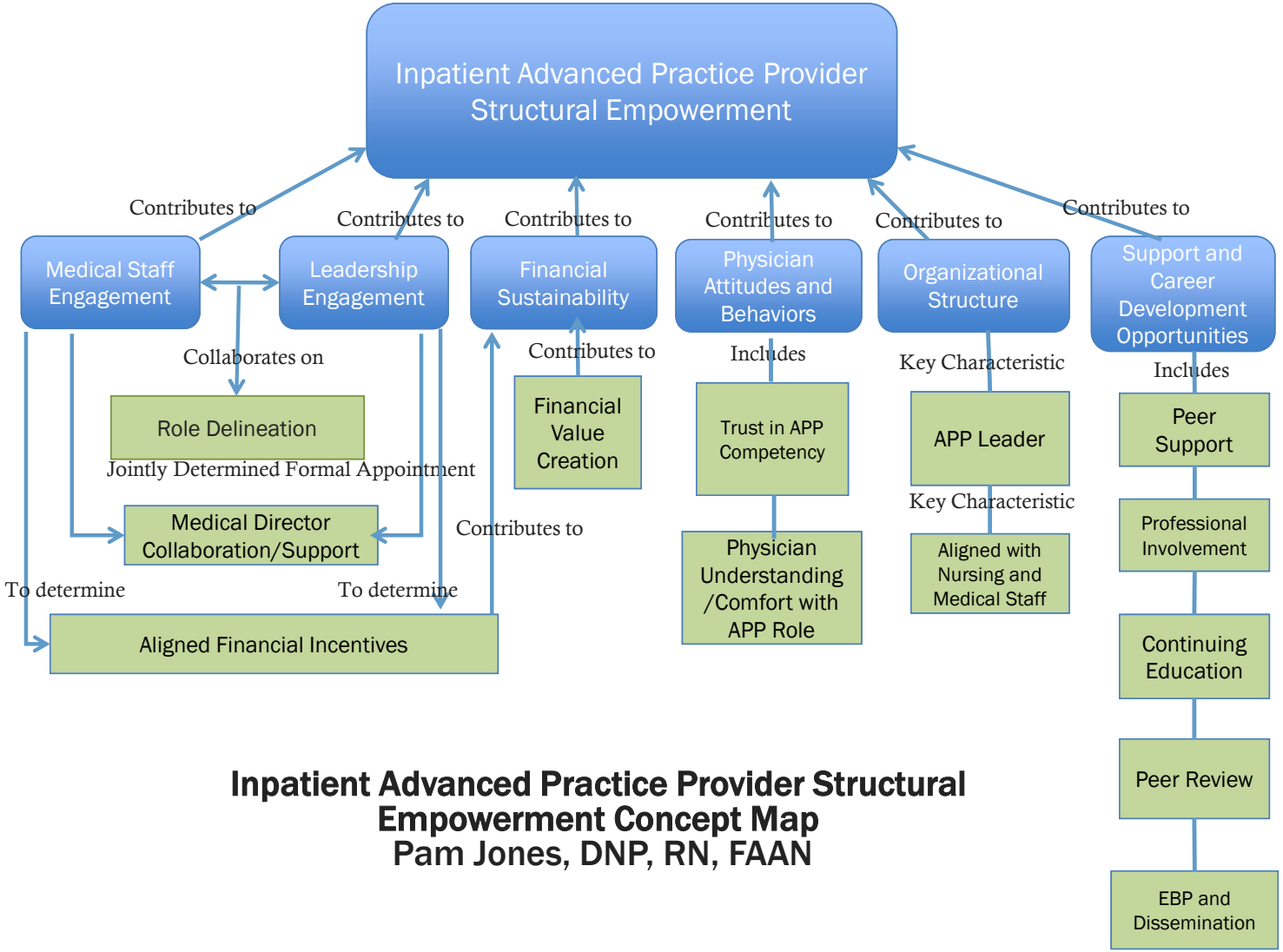
Advanced Practice Interviews

- Interviews of 10 current Acute Care APRN within VUH
- Convenience sample based on schedule availability
- Components of interviews
  - Provided with definition of structural empowerment
  - Structured series of questions
  - Given concept map and asked to mark each element as Important (I), Somewhat Important (SI) or Not Important (NI)
  - Recorded, transcribed and sorted for themes

Leadership

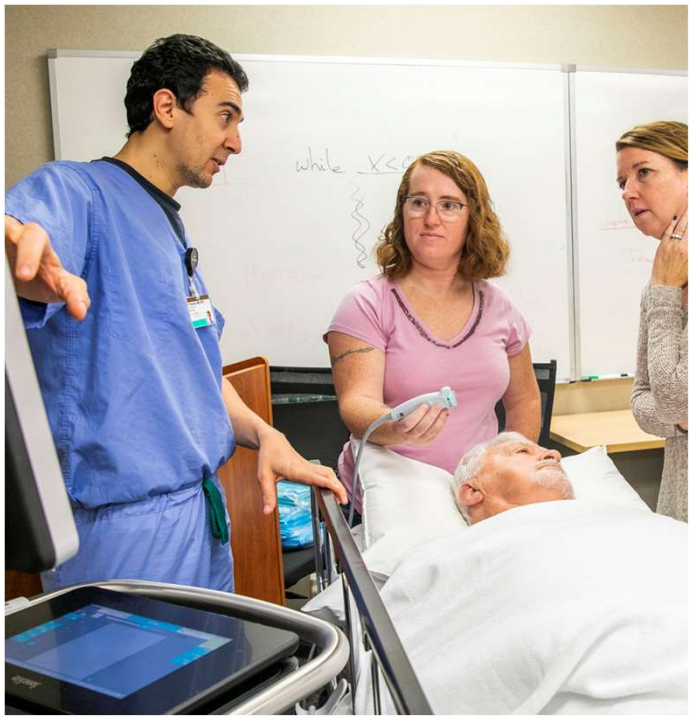
	Participant Number										
Themes	1	2	3	4	5	6	7	8	9	10	**Percent**
Leadership Characteristics											
Overall leadership support	E			E	E		E			E	50%
Medical director support	E								E		20%
Specific leader for APRNs	E	E	E	E	E	E			E	E	80%
Importance of leader being an APRN		E	E	E	E	E			E	E	70%
Organized internal APRN network (CAPNAH)				E	E						20%



Inpatient Advanced Practice Provider Structural Empowerment Concept Map
Pam Jones, DNP, RN, FAAN

Education and Clinical Training

- NPs and PAs are educated, clinically trained, and board certified to care for critically ill patients. With clinical training to the ICU in the facility in which they will work, they help in the success of achieving desired patient care goals and targeted ICU metrics.
- Thoughtful structuring of orientation programs, close mentoring of newly employed NP/PA, and tailoring program to skill set and practice needs. *Hoffman & Guttendorf (2017), CHEST*
- Clear role definition, comprehensive competency-based training program, evaluation & feedback, and commitment to continued professional development are keys to success. *Simone, McComiskey & Andersen (2016), CCN*



Onboarding to ICU and Beyond…

- Comprehensive training and onboarding to the ICU is critical to team integration and success as a skilled NP/PA.
- To stay competent and skilled in providing care in an ever-evolving world of critical care, the NP and PA must engage in continuous education.
- Symposiums, Conferences, Journal Clubs, M&Ms, Fellowships, Teaching Rounds, Workshops, Simulation Labs, Self-Paced Training Modules….

NPs in the ICU

The Vanderbilt initiative

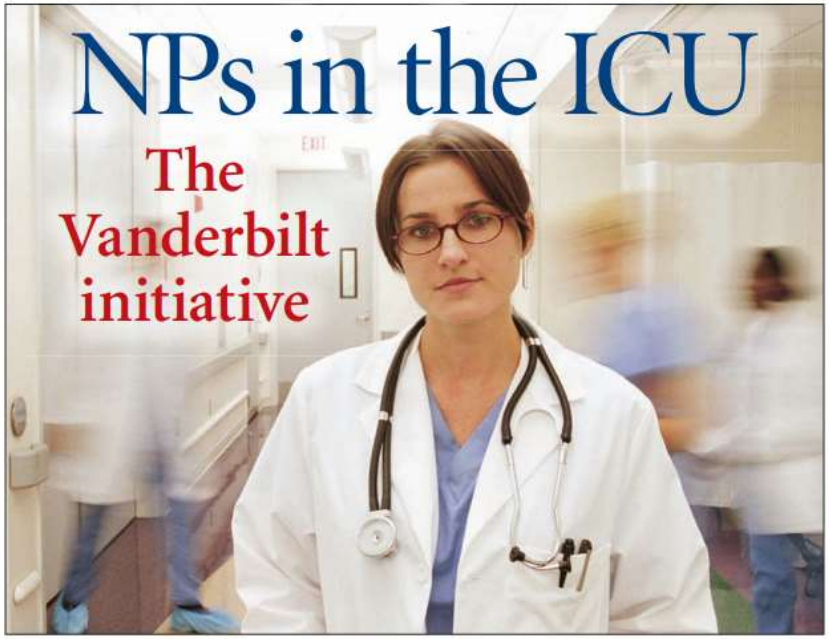


Photo by Jim Arbogast/Getty Images

Abstract: Before integrating nurse practitioners into a critical care environment, it is important to understand the infrastructure and support necessary to guide clinical practice and utilization. NP practice teams should be structured with a cohesive strategy to provide 24/7 patient coverage and consistency in evidence-based care.

Table 1 University of Maryland Medical Center's documentation for 6-month focused provider practice evaluation (FPPE) of nurse practitioners' completion of core competencies

No.	Competency	N/A	NP preceptor signature	Date
1.	Obtains a relevant comprehensive or problem-focused health history from patient/medical records a. Effectively resolves inconsistencies b. Updates previously recorded information			
2.	Performs a physical assessment a. Differentiates between normal and variations of normal and abnormal findings b. Organizes and prioritizes data c. Presents the organized data in a logical system-based format to team members			
3.	Laboratory and diagnostic testing a. Orders appropriate laboratory and diagnostic studies b. Analyzes data to determine health status c. Performs ongoing analysis of laboratory and diagnostic studies at appropriate intervals			
4.	Establishes medical diagnosis a. Synthesizes data collected b. Demonstrates critical thinking and diagnostic reasoning skills in clinical decision making: i. Develops differential diagnosis ii. Establishes medical diagnosis iii. Prioritizes health needs/problems			
5.	Plan of care a. Formulates an evidence-based plan of care b. Initiates the plan of care c. Provides for continuity of the plan of care over time d. Communicates the plan of care to staff, patient and family, and interdisciplinary team e. Calls appropriate consultations as needed, including but not limited to: i. Rehabilitation (PT/OT, speech), Case management, Social work, Dietary, Substance abuse, Palliative care, Infectious disease, Wound ostomy, Chaplain/Spiritual support, Respiratory therapy f. Follows up on recommendations of consultative services and interdisciplinary team members			
6.	Evaluation a. Evaluates outcomes at appropriate intervals b. Modifies plan of care on the basis of the response to treatment c. Communicates changes to the plan of care to patient, staff, team members d. Collaborates with colleagues			
7.	Procedures a. Completes required competency training (separate form, procedural log) and approval through MSO and MBON or Maryland Board of Physicians b. Accurately states the indications, contraindications, risks, and alternatives to procedures c. Obtains informed consent			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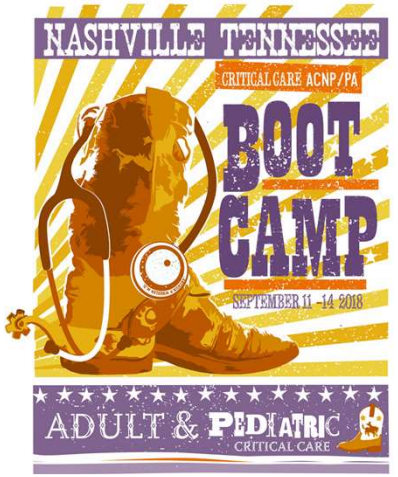
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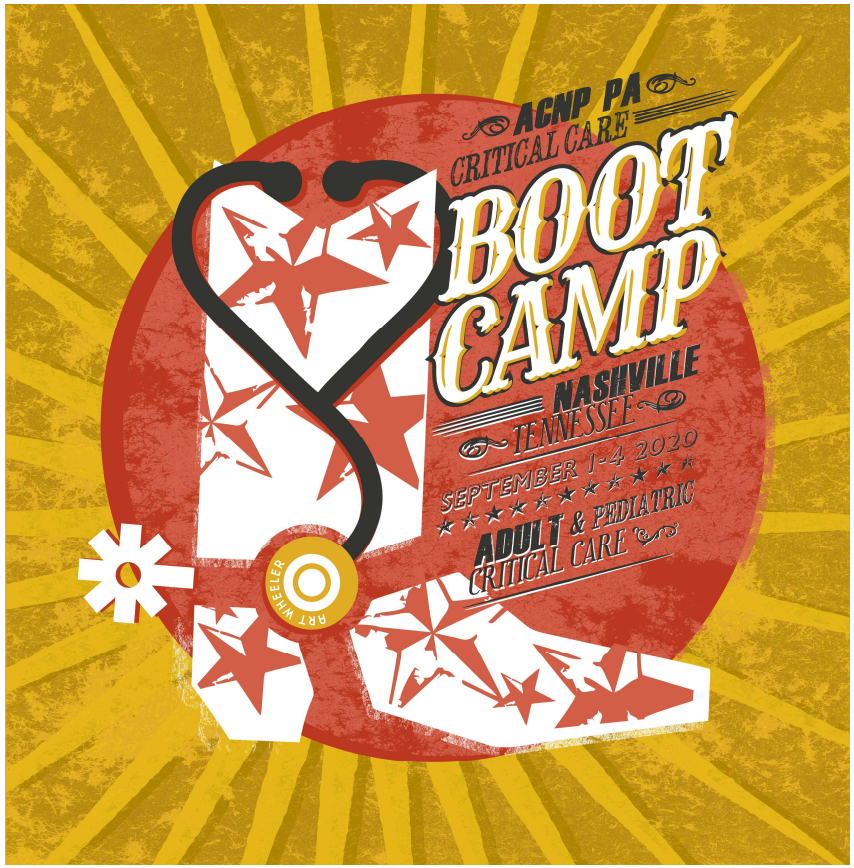
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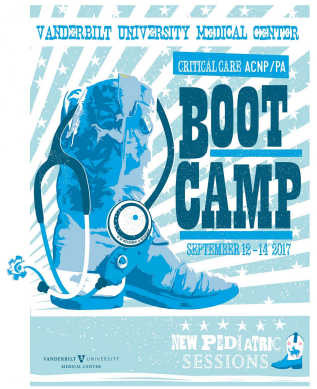
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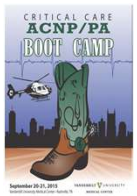
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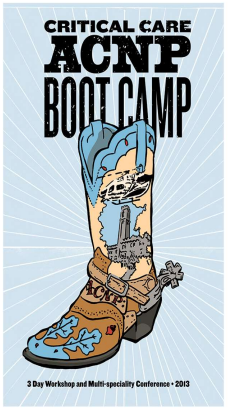
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Lead Nurse Practitioner Lisa Flemmons, MSN'08, pauses on the skybridge to Medical Center East before starting her shift in the COVID-19 unit.

NPs and PAs contribute to the Highly Reliable Critical Care Team providing High Value Care

Thank you!

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