

Self-Efficacy in Critical Care Float Pool Advanced Practice Providers

Danielle F. Guy, MSN, APRN, AGACNP-BC, CCRN

Introduction

- ▶ Increased demand for critical care
 - More intensivists leaving bedside (Halpern et al., 2013).
 - Nurse Practitioners and Physician Assistants supplement staffing (Ward et al., 2013).
- ▶ Expansion of the number of ICU beds without ensuring adequate staffing will result in:
 - Deterioration of quality of care (Ward et al., 2013; Pronovost et al., 2002).
 - Decreased provider well-being (Ward et al., 2013).
 - Worsening resident education (Ward et al., 2013).



Introduction

- ▶ Decreased patient-to-intensivist ratios results in:
 - Decreased length of stay (Ward et al., 2013)
 - Decreased mortality for critically ill patients (Ward et al., 2013)
- ▶ Low patient-to-intensivist ratios ensure quality of care (Pronovost et al., 2002).
- ▶ APPs are cross-trained to staff multiple ICUs
 - Allows for increased flexibility with staffing
 - Ensures consistent staffing ratios
- ▶ Similar staffing model to RN float pools



Introduction

- ▶ Benefits following the successful implementation of RN float pools (Dziuba-Ellis, 2006).
 - Economic benefits
 - Increased work-place satisfaction by unit—based RNs (Dziuba-Ellis, 2006)
 - Improvement in quality of care provided to patients
- ▶ Development of intensivist float pool to address ICU clinician shortage

Problem Statement

- ▶ The benefit of an APRN float pool is unknown
 - No discussion of APP float pool found on literature search
- ▶ All institutions experience increased staffing needs
 - FMLA
 - Turnover
 - Increased volume (ex. COVID)
- ▶ Inability to fill staffing shortages with dedicated critical care professionals leads to:
 - Burnout
 - Turnover
 - Increased mortality
 - Increased length of stay

(Aiken et al., 2002; Bravata et al., 2021; Pronovost et al., 2002; Reed et al., 2014; Ward et al., 2013).

- ▶ **Problem statement:** Although a unique and beneficial resource, the benefit of an APP critical care float pool is unknown, and there is no identified discussion of a staffing model of this type in the literature.

Purpose and Objectives

► Purpose:

- Evaluate self-efficacy in critical care APPs
- Evaluate perception of the APP float pool

► Objectives:

1. Self-efficacy survey
2. Identify barriers and facilitators to self-efficacy
3. Explore and describe APP perceptions of float pool
4. Continue and expand the APP float pool



Background

- ▶ SCCM ICU Readiness Report (2020)
 - Staffing shortages existed before COVID-19
- ▶ Cohort study of 8516 patients revealed an increased adjusted hazard ratio for all-cause mortality during periods of high ICU demand. (Bravata et al., 2021).
- ▶ Systematic review revealed decreased length of stay and mortality with higher numbers of clinicians per patient. (Pronovost et al., 2002).
- ▶ The necessity to develop flexible critical care staffing models has never been greater

Background

- ▶ APP float pool at VUMC:
 - First developed with 2 APPs to help units with staff members on FMLA
 - Increased needs during COVID-19 pandemic
 - Float pool expanded from 1 APP to 6 APPs
- ▶ APP Float pool is consistent with SCCM's recommendations (Ward et al., 2013)
 - Develop contingency plans for surges in patient demands
 - Utilize APPs to supplement staffing
- ▶ Peer institutions sought assistance with developing similar staffing models
 - No evidence identified describing this staffing model
 - No evidence identified offering guidance for orientation for float APPs

Concepts: Self-efficacy

- ▶ **Self-efficacy:**
 - People seek control and stability (Bandura, 1995)
 - Improves creativity, plays a role in career selection and job performance
 - Influences behavior changes (Lenz & Shortridge-Baggett, 2002).
 - Higher levels lead to increased effort, confidence, improved performance
- ▶ **Four methods to develop and strengthen self-efficacy:** (Bandura, 1995).
 - Mastery experiences
 - Vicarious experiences
 - Social persuasion
 - Psychological and emotional states

Concepts: Float pool nurses and critical care float pool

► Float pool nurses

- Flexibility in staffing (Rainess et al., 2015).
- Variable assignments daily based on hospital needs
- Accommodate for sick days, acuity, and high census needs
- Less reliance on agency and travel nursing

► Critical care float pool

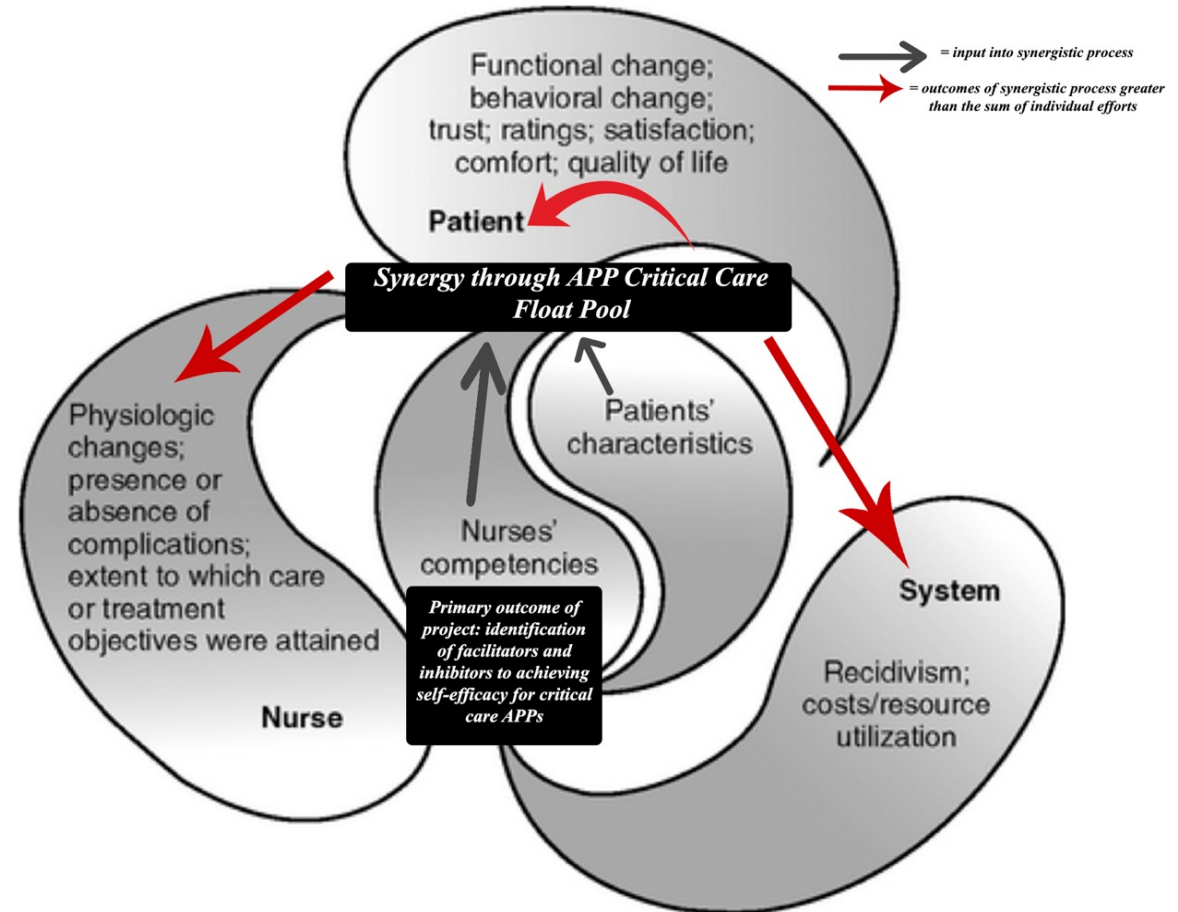
- Increased complexity of patients and skills to practice in ICU
- Safe staffing ratios without compromising skill and experience
- Nurses fear legal implications of floating to unfamiliar units
 - Familiarity with units and population considered
 - Institutions historically held liable (Murphy, 1988).

Framework

- ▶ AACN Synergy Model for Patient Care
 - Needs of patients and their families should influence and define characteristics and competencies of their nurses (Hardin & Kaplow, 2017; Pate, 2017).
- ▶ AACN Synergy Model is a middle range theory
 - May be used to guide daily nursing practices (Risjord, 2019).
- ▶ Optimal patient outcomes occur when actions, priorities, and skills of nurse and healthcare system align with patient needs.
- ▶ The Synergy model aims to create a holistic healthcare system
 - Measures outcomes at three levels: the patient, nurse, and healthcare system
 - When nursing competencies address the characteristics of the patient, nurse, and healthcare system, the system achieves synergy
- ▶ Examples of AACN Synergy Model (Hardin & Hussey, 2003; Swickard et al., 2014)

Framework

- Synergy requires that interventions and competencies are adapted to address the patient and the patient's family's needs. (Baird, 2017; Pate, 2017).
- Identifying barriers and facilitators for self-efficacy in APPs may help identify interventions to enhance and develop nurse competencies
 - Help achieve synergy in the healthcare system (Smith & Liehr, 2014).

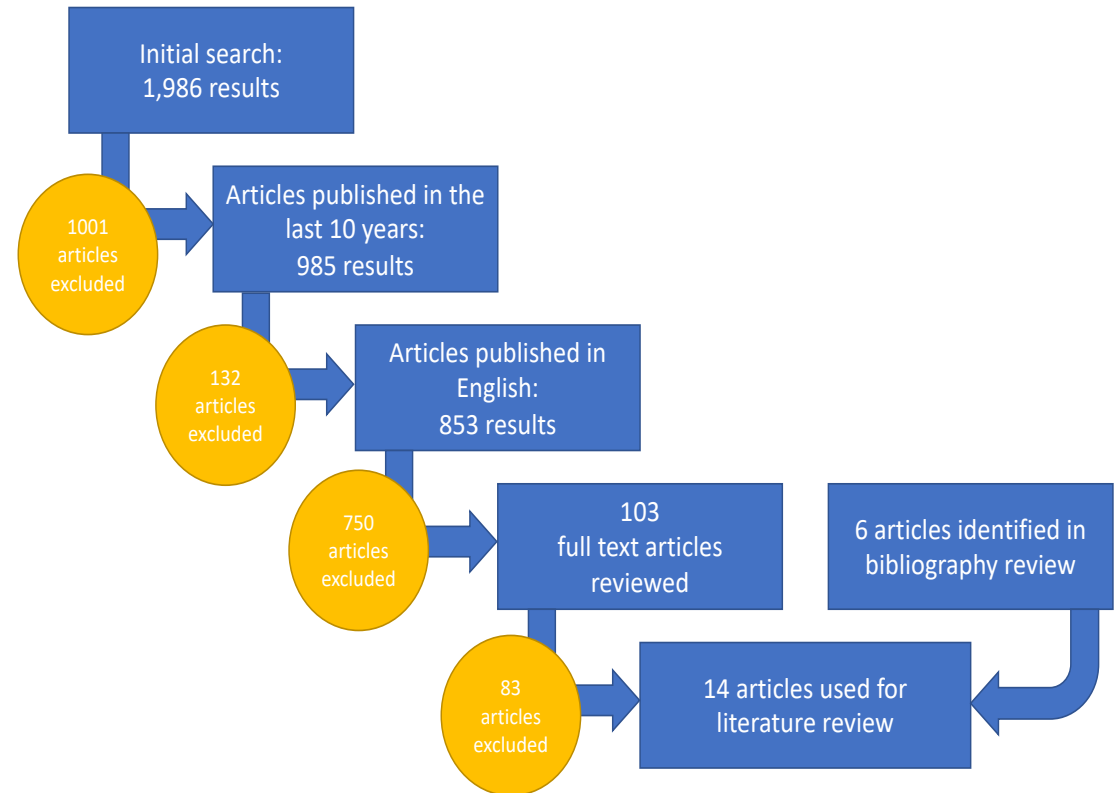


Synthesis of the Evidence: Evidence Search

- ▶ **PICO question:** For critical care advanced practice providers (P), how does employment in a multi-unit or float pool setting (I), compared to working in a dedicated unit or service line (C), impact self-efficacy (O)?
- ▶ **Databases included:** CINAHL, PubMed, Google Scholar, and Vanderbilt University Eskind Library
- ▶ **Search terms:** MeSH headings and specific key words including “float pool,” “float nurse,” “travel nurse,” “resource nurse,” “agency nurse,” “locum,” “intensivist,” “critical care,” “critical care staffing,” “nurse practitioner,” “physician assistant,” “advanced practice provider,” and “self-efficacy”

Synthesis of the Evidence: Evidence Search

- ▶ **Initial search:** 1986 results
- ▶ **Articles published in last 10 years:** 985 results
- ▶ **Articles published in English:** 853 results
- ▶ **Abstracts scanned:** 103 full-text articles reviewed
- ▶ **Bibliographies scanned:** 6 additional articles directly applied to PICO
- ▶ **14 articles used for literature review**



Synthesis of the Evidence

- ▶ Target populations
- ▶ Studies largely retrospective or comparative in nature
 - Some quasi experimental or experimental
 - Sample sizes ranged from 25-24,290 subjects
 - Larger sizes consisting of studies evaluating outcomes of float pools and staffing ratios
- ▶ Themes in the literature:
 - Performance of float pools (Aiken et al., 2002; Aiken et al., 2007; Reed et al., 2014; Strzalka & Havens, 1996).
 - Float pool availability is associated with increased job satisfaction (Aiken et al., 2002; Aiken et al., 2007; Duffy, 2010).
 - Staffing ratios in the ICU (Bravata et al, 2021; Duffy 2010; Reed et al., 2014).
 - Self-Efficacy in Advanced Practice Providers (Farrell et al., 2018; Francis et al., 2020; Hu et al., 2018; McFadden et al., 2021; Moran et al., 2021).

Synthesis of the Evidence

- ▶ Strengths in literature:
 - Consistency in conclusions
 - Wide variety of examples of methods to improve and validate self-efficacy
- ▶ Weaknesses in literature:
 - Level of evidence available
 - Randomization and controlled trials difficult with this topic
 - Only one study evaluating perceived self-efficacy in APPs
 - No studies in the US
 - Older age of articles
- ▶ Gaps in literature:
 - Little in literature about perceived-self efficacy
 - Barriers and facilitators not discussed extensively
 - No evidence describing APP float pool

Methods

▶ Project Design

- Practice-based inquiry

▶ Setting

- Quaternary academic medical center and level one trauma center in the southeast United States
 - 1070 staffed inpatient beds
 - 292 critical care beds

▶ Participants

- 77 APPs in designated critical care units
- 6 critical care float pool APPs
- Recruitment via convenience sampling
 - Via email address on ICU listserv
 - Administration of survey via REDcap survey (Harris et al., 2019)
 - Anticipated sample size of 30 clinicians (Baruch & Holtom, 2008; Rose et al., 2007).

Methods

► Plan for Implementation

- Project was submitted for IRB approval
 - Received exemption as quality improvement project
- REDCap account was established and survey questions uploaded into REDCap survey
- Email with REDCap survey link sent to ICU listservs
 - Description of project
 - REDCap survey link

Methods

► **Survey Components:**

- Demographic questions
- General self-efficacy scale
 - Use in clinical setting (Boehmer et al., 2007; Koring et al., 2012; Lepore et al., 2019; Schwarzer & Jerusalem, 1995).
 - Use to evaluate nurses (Dellafiore et al., 2019; Dellafiore et al., 2021; Dilorio & Price, 2001; Fadale et al., 2014).
- Nurse Prescribing Self-efficacy scale
 - Developed with nurse practitioners in mind
- Qualitative questions:
 - 1. In your opinion, what are the benefits and barriers of the APP float pool?
 - 2. In what ways do you believe your current job role could be improved?

Methods

► Survey Components:

- General self-efficacy scale
 - Used in 26 languages (Schwarzer & Jerusalem, 1995).
 - Applicable in a broad range of contexts
 - In clinical setting (Boehmer et al., 2007; Koring et al., 2012; Lepore et al., 2019; Schwarzer & Jerusalem, 1995).
 - Use to evaluate nurses (Dellafore et al., 2019; Dellafore et al., 2021; Dilorio & Price, 2001; Fadale et al., 2014).
 - Positive correlation with self-esteem, optimism, hope for success
 - Negative correlation with loneliness, fear of failure, anxiety
- Nurse prescribing self-efficacy scale
 - Reliability (Galiana-Camacho et al., 2021)
 - Validity (Galiana-Camacho et al., 2021)

Analysis

- ▶ Demographical data:
 - Descriptive statistics
 - Frequency expressed as percentages
 - Median
 - Range
- ▶ Participant scores:
 - Tallied and reported using descriptive statistics
 - Summation of tests not analyzed as a single tool
- ▶ Qualitative data:
 - Conventional content analysis (Hsieh & Shannon, 2005).

Timeline of Project

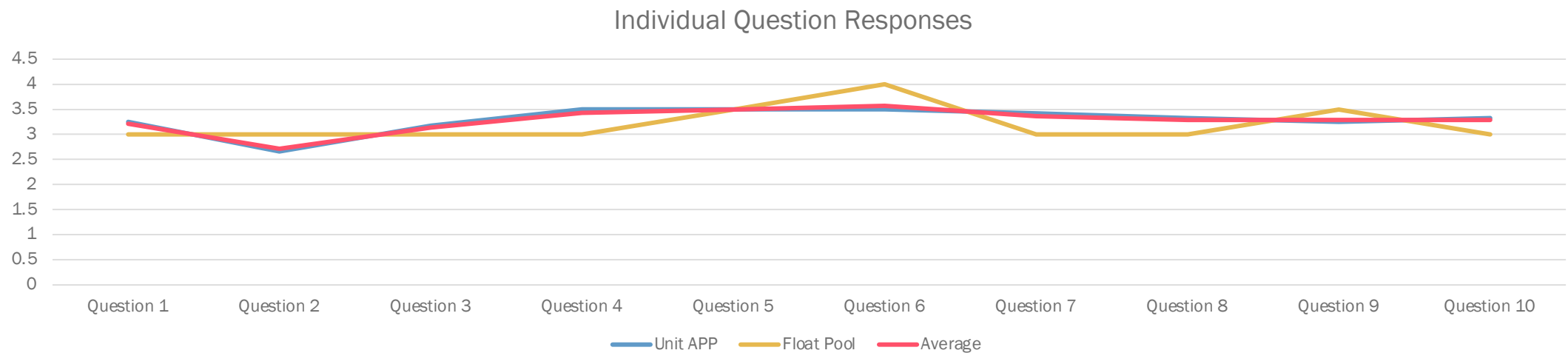
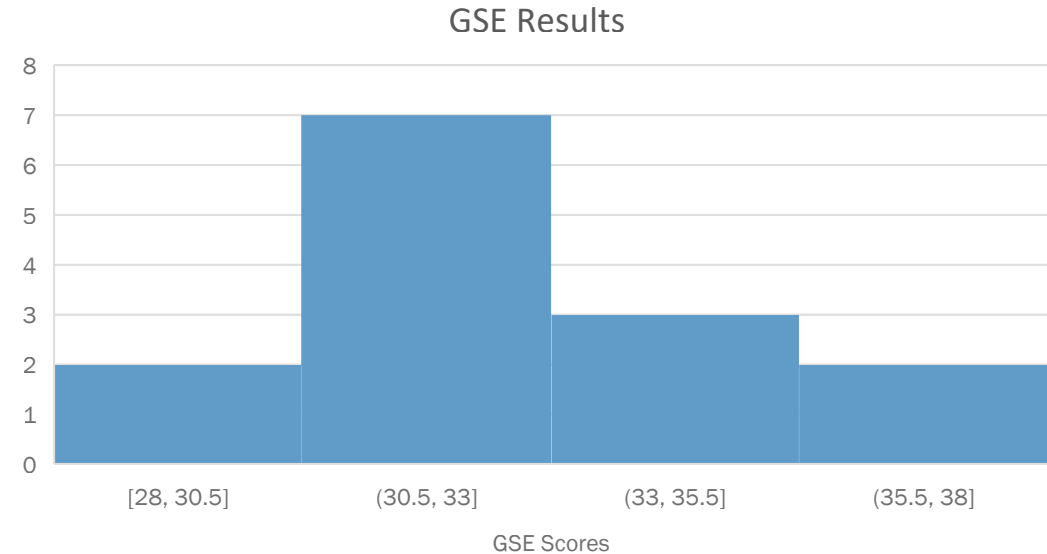
- ▶ Completion of oral and written proposal: July 2021
- ▶ Submission for IRB approval: September 15, 2021
- ▶ Implementation: November 15, 2021- December 20, 2021
- ▶ Final written project completed: March 16, 2022
- ▶ Final presentation: March 22, 2022

Budget

- ▶ REDcap survey software : Available at no cost to academic institutions
- ▶ Microsoft excel: Available at no cost via Vanderbilt University
- ▶ \$100 Starbucks giftcards for 2 participants selected via raffle: \$200 total.

Results

- ▶ 77 participants received invitation, 14 completed survey
 - 1 participant only partially completed survey
- ▶ GSE survey results:
 - Scores ranged from 28-38
 - Mean score of 32.78
 - Float pool mean 32
 - Unit-based mean 32.92

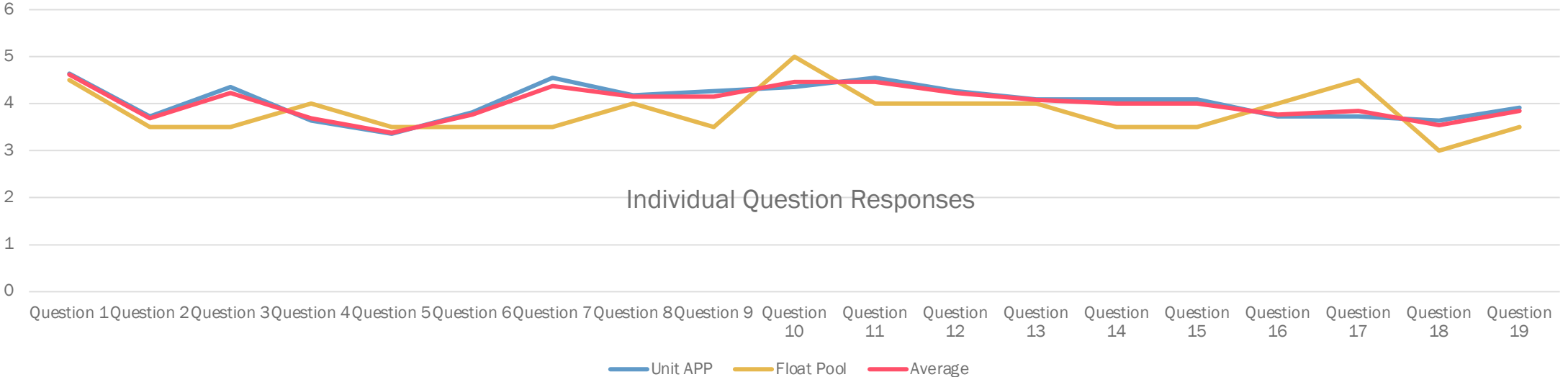
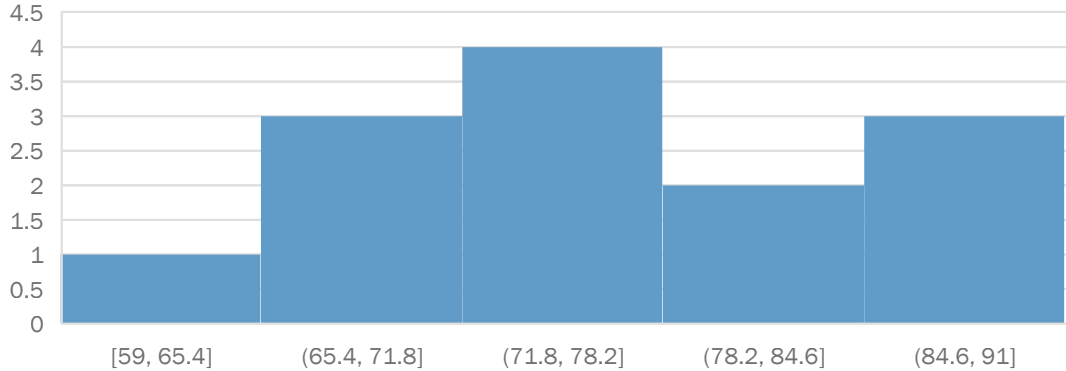




Results

- ▶ Nurse Prescribing Self-Efficacy results:
 - Scores ranged from 59-91
 - Mean score of 76.31
 - Float pool mean 69.5
 - Unit-based mean 77

Nurse Prescribing Self-Efficacy Results



Qualitative Survey Results

- ▶ Benefits of APP float pool:
 - 53% (n=7) reported benefit of float pool to staff vacancies
 - 30% (n=4) reported flexibility, broad range of experience, and new perspectives
- ▶ Barriers of APP float pool:
 - Inadequate orientation for float APPs (61.5%, n=8)
 - Difficulty establishing relationships in ICUs (30.7%, n=4)
 - Inadequate availability (23%, n=3)
- ▶ How current job role could be improved:
 - Improved staffing (38%, n=5)
 - Improved communication, mentorship, leadership support (38%, n=5)

Discussion

- ▶ Critical care float and unit based APPs have similar levels of self-efficacy
- ▶ Float APP scores on nurse prescribing self efficacy survey were lower
 - Small sample size, high standard deviation, broader range of scores
 - Lower level of reliability
 - Cannot conclude difference in self efficacy of all float APPs vs critical care APPs
- ▶ Relationships between higher and lower self-efficacy among participants:
 - Doctorate vs masters

Discussion

- ▶ Qualitative data
 - Suggestions for improved job role consistent with ways to improve self-efficacy
 - Increased pay
 - Professional development
 - Mentorship and feedback
 - Support from leadership
- ▶ Uniformity in themes for both qualitative questions
 - Consistent feedback among all units
 - Interventions with data would benefit all units

Strengths and Limitations

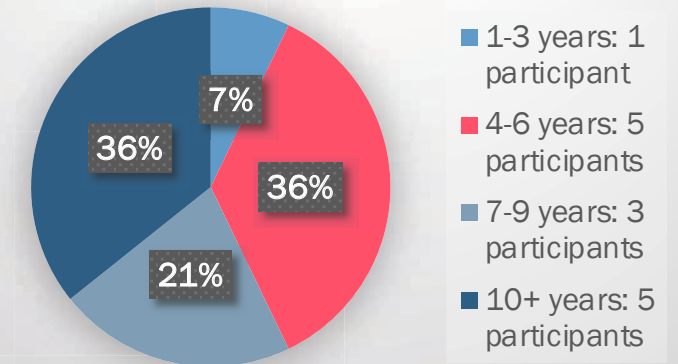
► Strengths

- Consistency in qualitative survey responses
- Feedback doesn't vary among different ICUs
- Suggests systems issues rather than personal barriers with individual float APPs

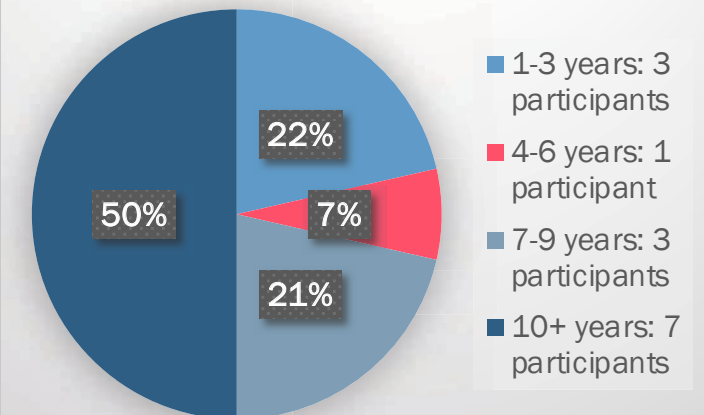
► Limitations

- Small sample size
- Limits generalizability of data
- Experienced participants
 - 92.9% of participants reported >4 years of APP experience
 - 50% of participants reported >10 years of experience in critical care
 - New graduate and lesser experienced clinicians underrepresented
 - Potentially inflated scores of participants

Years in Practice as an APP



Years working in critical care



Conclusion

- ▶ More research, larger sample size needed
 - Recruit new graduates and those with less experience
- ▶ Qualitative data illuminating
 - More support from APP leadership
 - Standardized float pool orientation
 - Reliable night shift coverage
 - Employee perceived need to expand and continue APP float pool

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