Simulation Training in Nurse Anesthesia Programs

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Introduction of Presenters

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Objectives

- Describe the current variability in simulation training practices across nurse anesthesia programs in the U.S. found through a cross-sectional research study of accredited nurse anesthesia programs
- Evaluate the types of simulation resources utilized by CRNA programs, including high-fidelity manikins, ultrasound, task trainers, and technology support, to understand their impact on student training
- Discuss the role of simulation in nurse anesthesia education and the role of COA in establishing benchmarks to ensure consistent, high-quality training

Background

- Variation exists in how Certified Registered Nurse Anesthetist (CRNA) programs implement and measure simulation education outcomes
- The Council on Accreditation (COA) recognizes simulation's value but does not mandate standardized simulation training (COA, 2024)
- Financial barriers to acquiring high-fidelity simulation tools, which can cost up to $250,000, limit access to advanced technology for many programs

Significance of Problem

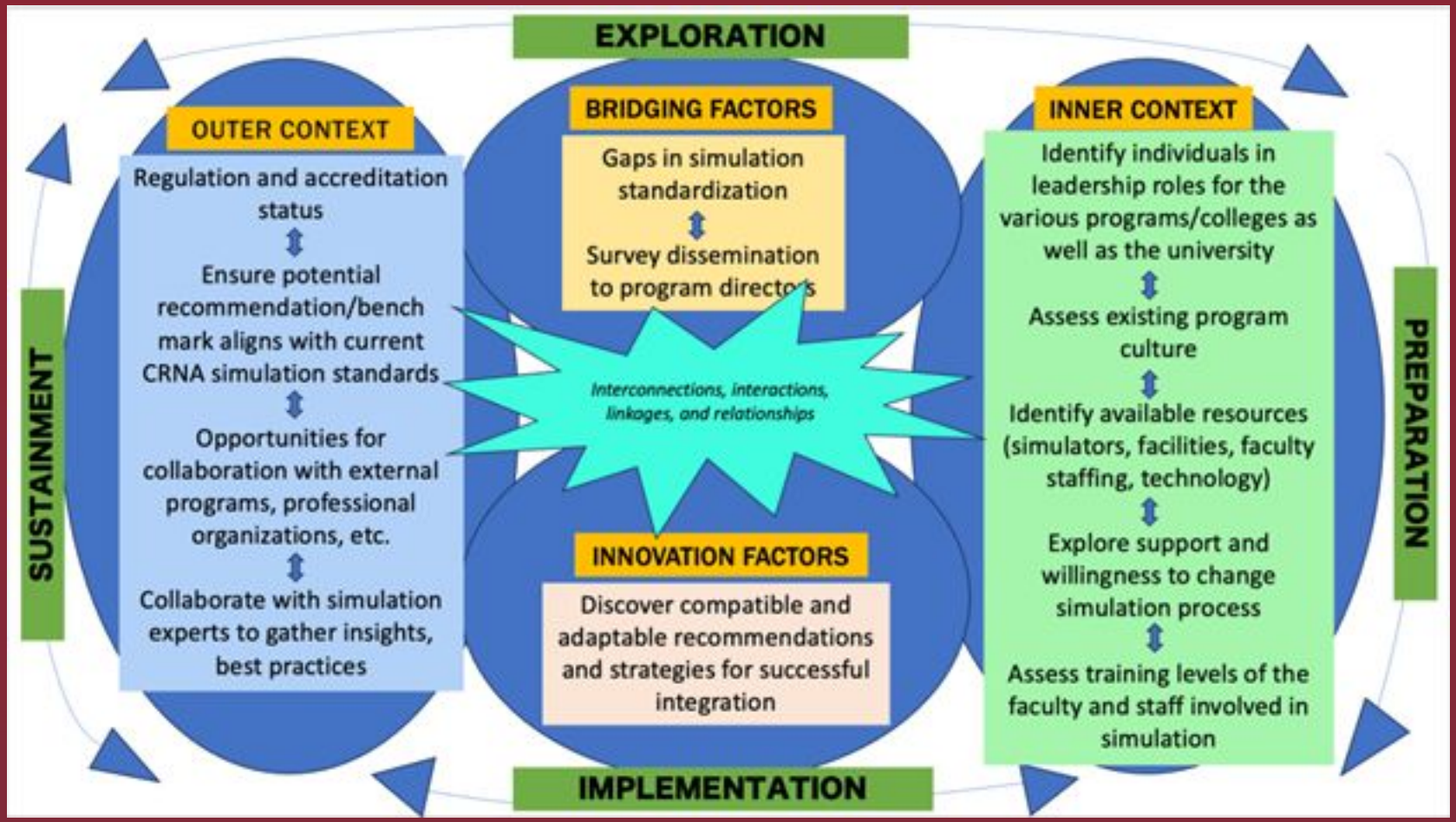
It is unknown how Certified Registered Nurse Anesthetist (CRNA) programs across the nation are currently implementing simulation education and measuring the impact on student education and progression.

- Lack of benchmarks for Nurse Anesthesia simulation in education
- Absence of guidance on faculty-to-student ratios
- Potential financial barriers

Project Aims

- Assess how simulation is utilized in CRNA programs nationwide to identify variability and trends.
- Evaluate gaps in simulation training and propose areas for growth to enhance student education.
- Provide insights for students, faculty, residency preceptors, and prospective students to improve training transparency and preparedness.
- Examine correlations between simulation practices and variables such as program size, resources, geographic location, and equipment use.

EPIS Framework



Methods

- IRB exempt status obtained
- Online survey creation in Qualtrics
- Obtain and verify list of all program directors' email addresses from the COA website
- Pilot-tested survey among RFU program faculty
- Online survey distribution to all program directors via email (May 14, 2024- June 14, 2024)
- Data analysis
  - Convert data to graphs/tables
  - Identify common themes between programs

Survey Questions

- Region where the survey correspondent's program is located
- Number of students and faculty
- Front loaded or integrated
- Objective Structured Clinical Examination (OSCE) utilized
- Number of simulation days-A "simulation day" is defined as at least 6 hours of planned simulation activities
- Use of high-fidelity manikins and how they are being utilized? (A high-fidelity manikin constitutes a sophisticated medical simulator replicating human anatomy and physiology for realistic training)

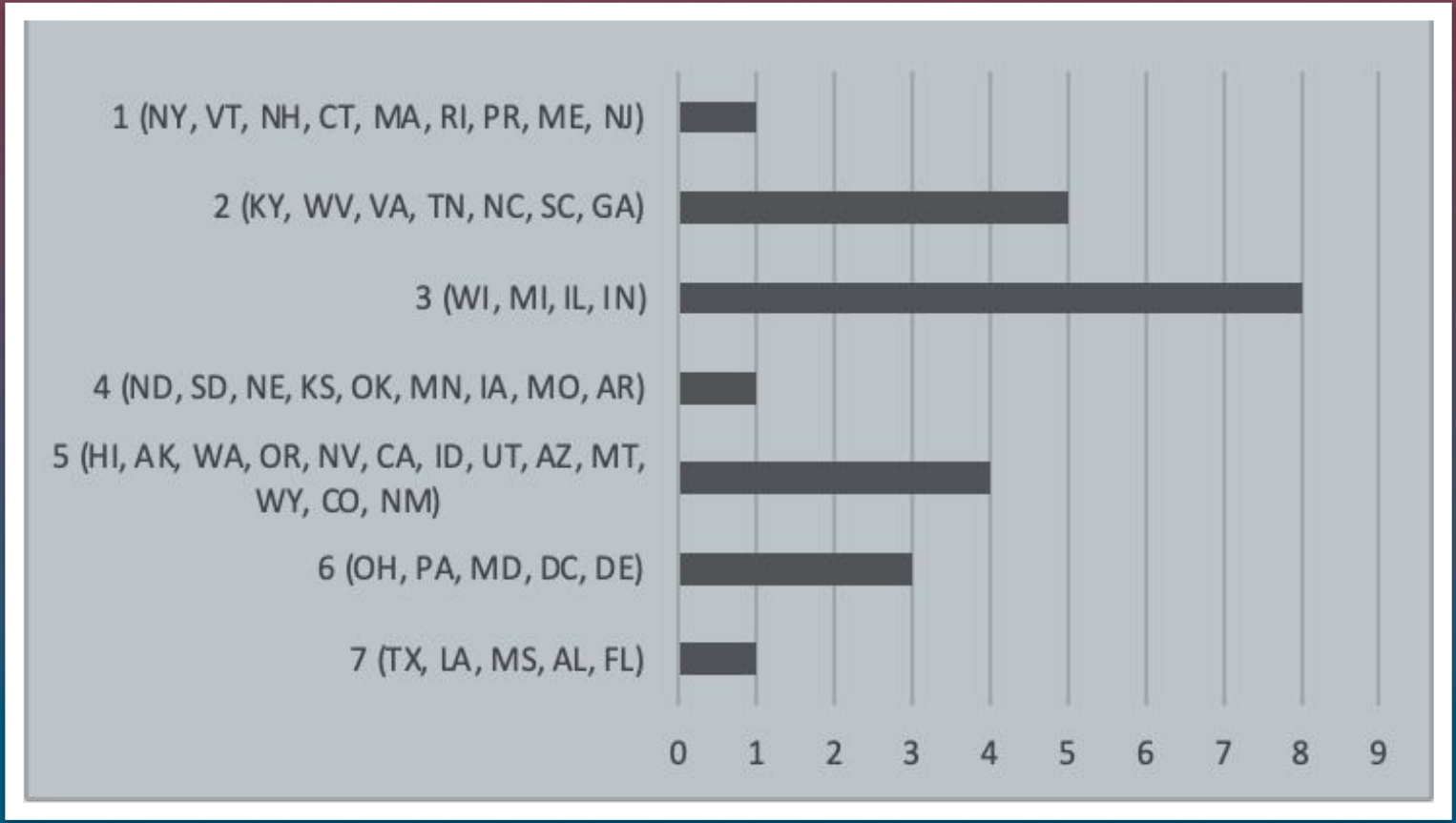
Survey Questions

- Use of standardized patients, ultrasound training, and task trainers
- Number of anesthesia machines available for use
- Availability of tech support
- Number of certified simulation instructors
- Open ended questions to describe any measurement tools used for student evaluation during simulation

Demographics of Respondents

Survey Questions	Program Director Responses	Range	Sample Mean
Number of Students in Each Cohort	23	14-70	30.73
Frontloaded Program* (N = 11)			
Final Sim checkout/ OSCE** prior to clinical residency N = 10	8		
Simulation days prior to clinical residency (#)	10	3-50	15.10
Simulation days after clinical residency has begun	10	0-24	8
Integrated Program (N=11)			
Simulation days prior to clinical residency (#)	9	1-30	10.33
Simulation days after clinical residency has begun (#)	9	2-30	11

Survey Respondent Regions



Results

- Some front-loaded programs reported no final simulation testing, highlighting variability in evaluating student readiness for clinical rotations

- 6 out of 19 programs do not utilize SPs, leaving students without prior experience conducting anesthesia assessments or patient interviews in controlled, objective settings

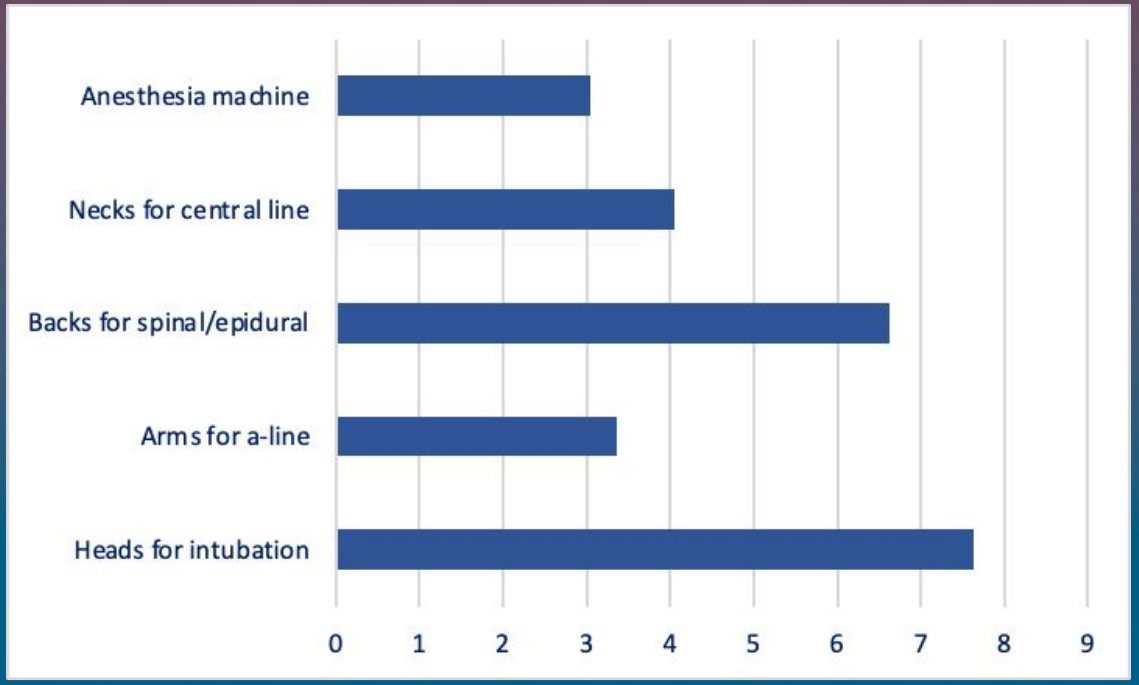
- Disparities in resources were observed, such as a program with 70 students having only six intubation heads, while another program with 24 students had 20 heads

- The number of ultrasound devices for simulation varied widely, ranging from 1 to 56 across programs

Simulation Personnel

Survey Questions	Program Director Responses	Range	Sample Mean (μ)
Faculty guidance during simulation	19	1-9	3.58
Certified instructors available	(12) 63%	N/A	N/A
Available simulation technologist support	(11) 57.89%	N/A	N/A

Average Number of Various Task Trainers



Recommendations

- Develop national benchmarks for simulation training in CRNA programs to ensure consistency in assessing student readiness for clinical practice
- Encourage all programs to utilize SPs for anesthesia assessments and patient interviews
- Advocate for equitable distribution of simulation resources, including task trainers and high-fidelity equipment
- Explore cost-effective alternatives, such as low-fidelity trainers and shared resource agreements between programs
- Conduct additional studies to explore the impact of simulation training on clinical outcomes and student success
- Foster collaboration between programs to share best practices and improve simulation education nationwide

Clinical Impact

- Enable CRNA programs to assess their practices in relation to those of other programs nationwide
- Results can be utilized by larger organizations, such as the COA, to establish standardized simulation practices and guidelines across CRNA programs
- SRNAs will receive consistent, standardized training

Sustainment of Project and Next Steps

Our results can be used to enhance the quality and effectiveness of CRNA simulation training

- Future RFU students to assess the willingness of the COA to standardize simulation practices
- Further assess the feasibility for schools to modify their current simulation methods
  - Resources available for clinical training
  - Skills practiced
  - Number of faculty present
  - Number of simulation hours required to complete

Thank You

References