Capstone Project: A Clinical Microsystems Approach to Implementing a Respiratory Simulation Education Program (R-SEP)

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Background: Simulation Literature Supports Skills related to:

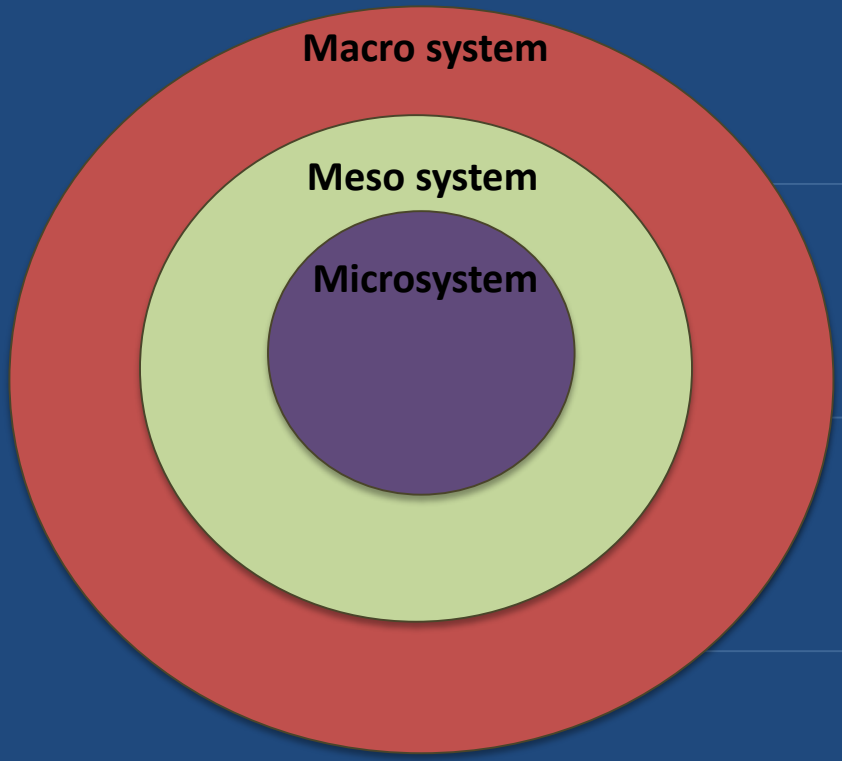
- Aviation
- Medicine
- Nursing
  - RN Level
  - NPs
- Health Professional CPR training

PICO Question

Does providing simulation sessions improve respiratory assessment, diagnostic, and treatment skills in Nurse Practitioners at Hospital X?

Clinical Microsystems Framework

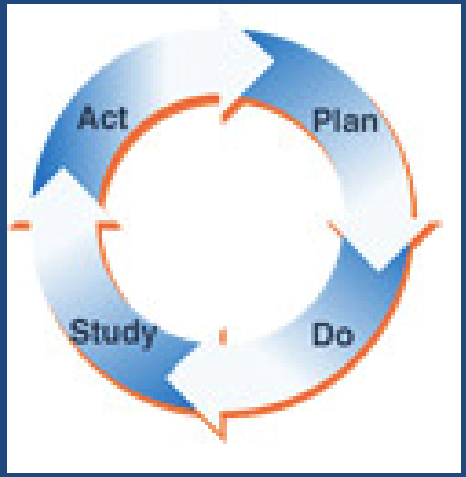
Macro-Meso-Micro



NPs

Clinical Microsystems

- Microsystem level
  - Simulation Center at Hospital X
    - PDSA cycle



Local Problem

- Information provided revealed a need for improvement in respiratory assessment
- No existing residency program for NPs
- Simulation Center not part of NP orientation

Intended Improvement

- Initial project: NPs requested skills in-service (i.e., chest tube insertion)
- Revised project: improve respiratory assessment, diagnostic, and treatment skills for NPs
- Specific Aim: An increase of scores on OSCE checklist by 15% after the second scenario

Project Timeline

Search Strategy

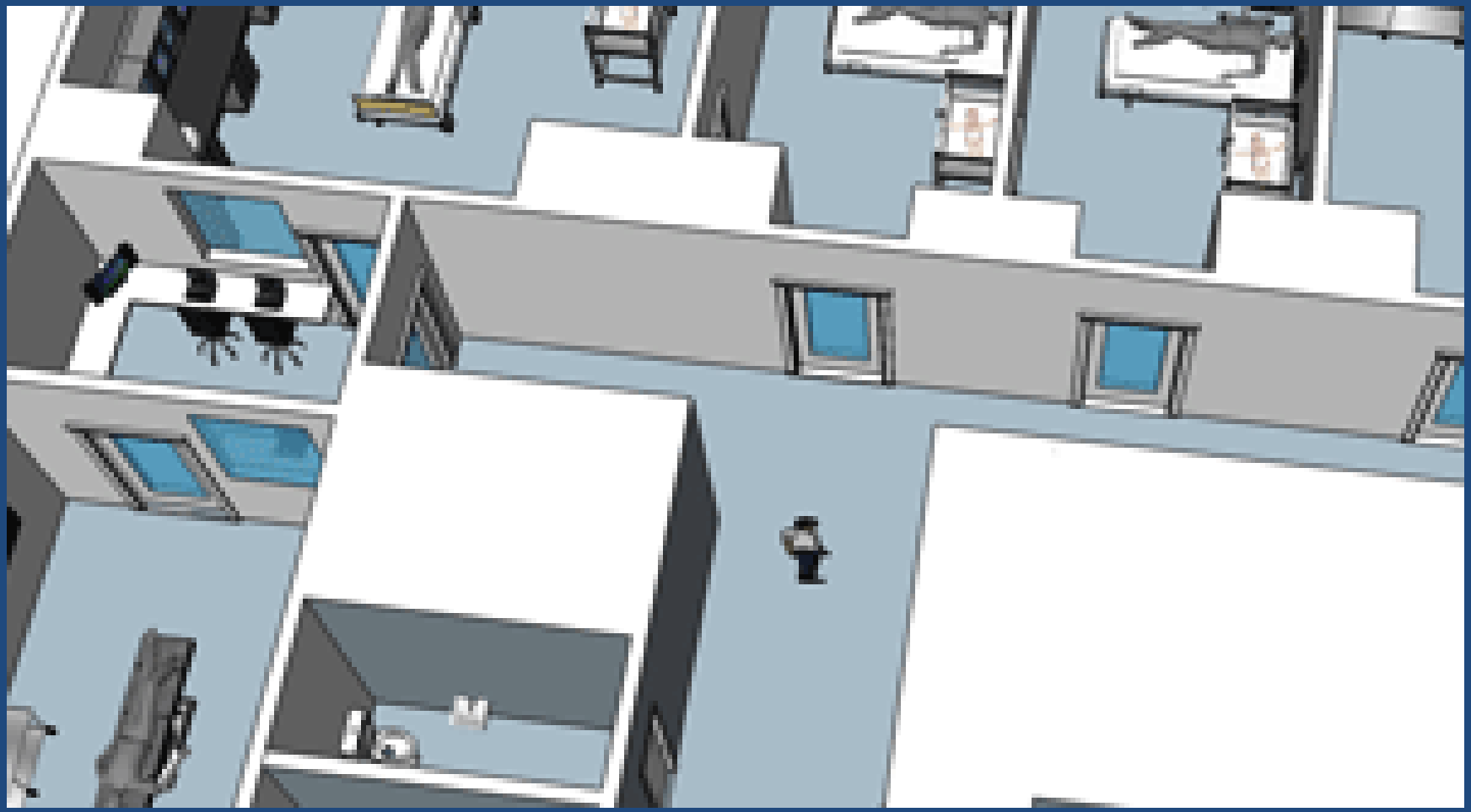
- Databases: 5 databases, Electronic search
- Use of HS librarian
- Search terms: simulation, nurse practitioners,
- Refined search results: simulation + nursing ed + NP
- Few Studies reviewed however included NPs
  - 1 with NPs
  - 1 with NP students

Critical Appraisal of 11 Studies

- 11 studies reviewed simulation improved knowledge, skills, confidence, and satisfaction.
- 5 studies simulation ⇧skills
  - RCT
    - Jeffries & Rizzolo (2006) improvement RN students
  - Quasi Exp
    - Corbridge et al. (2008) bedside skills of NP students
    - Frost et al. (2011) noted increased murmurs detection residents
    - Pascal et al. (2011) PA&NP skills in emergency
  - Descriptive
    - Gordon and Buckley (2009)

    non-technical skill in emergency

Setting

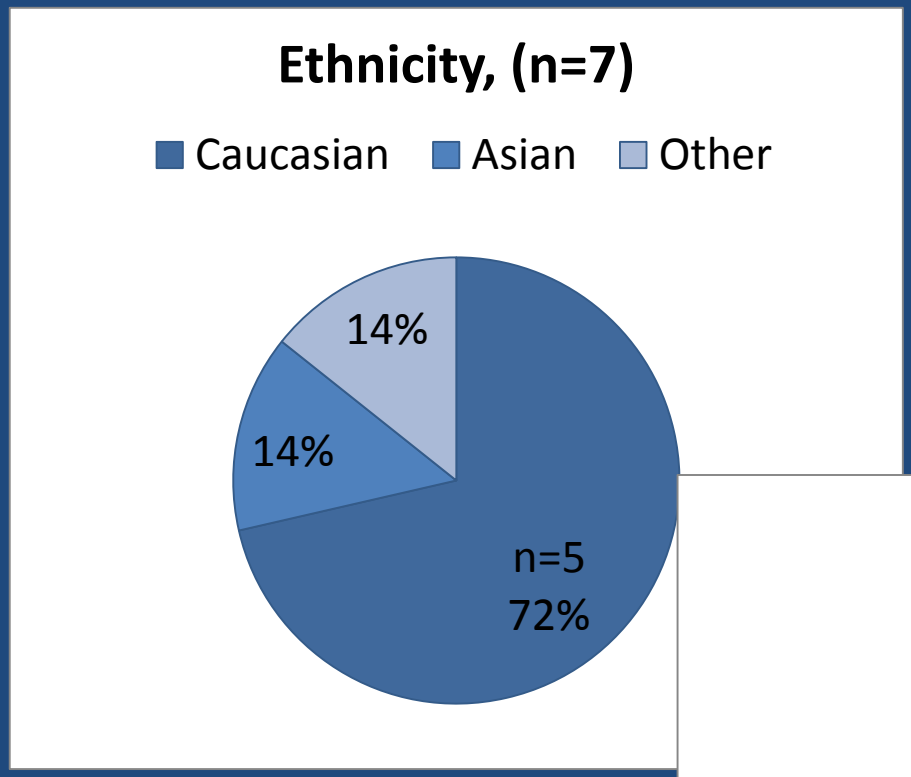


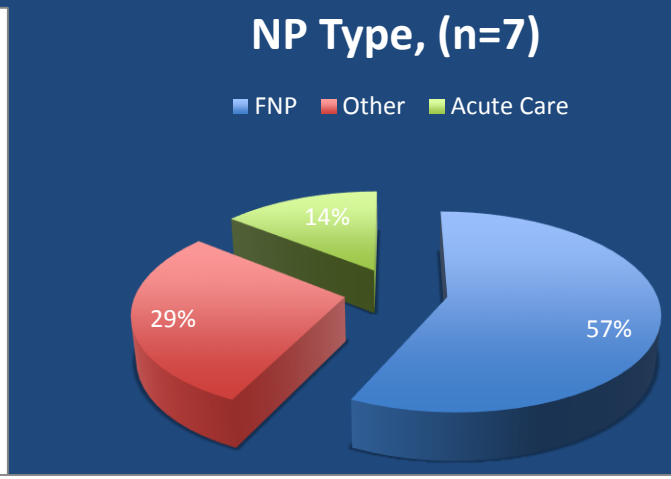
Participants

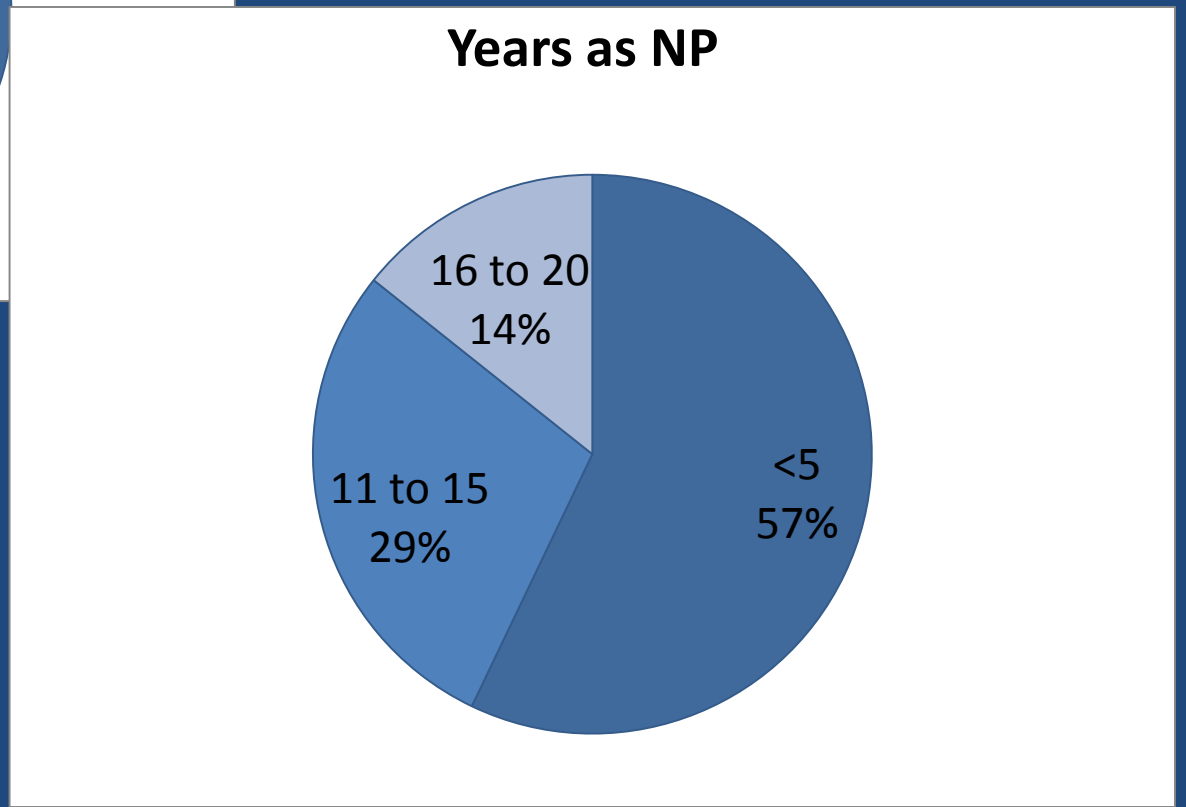
Nurse Practitioners

100% Female (n=7), 85% Certified NPs (n=6)

Demographics







Process for Implementation

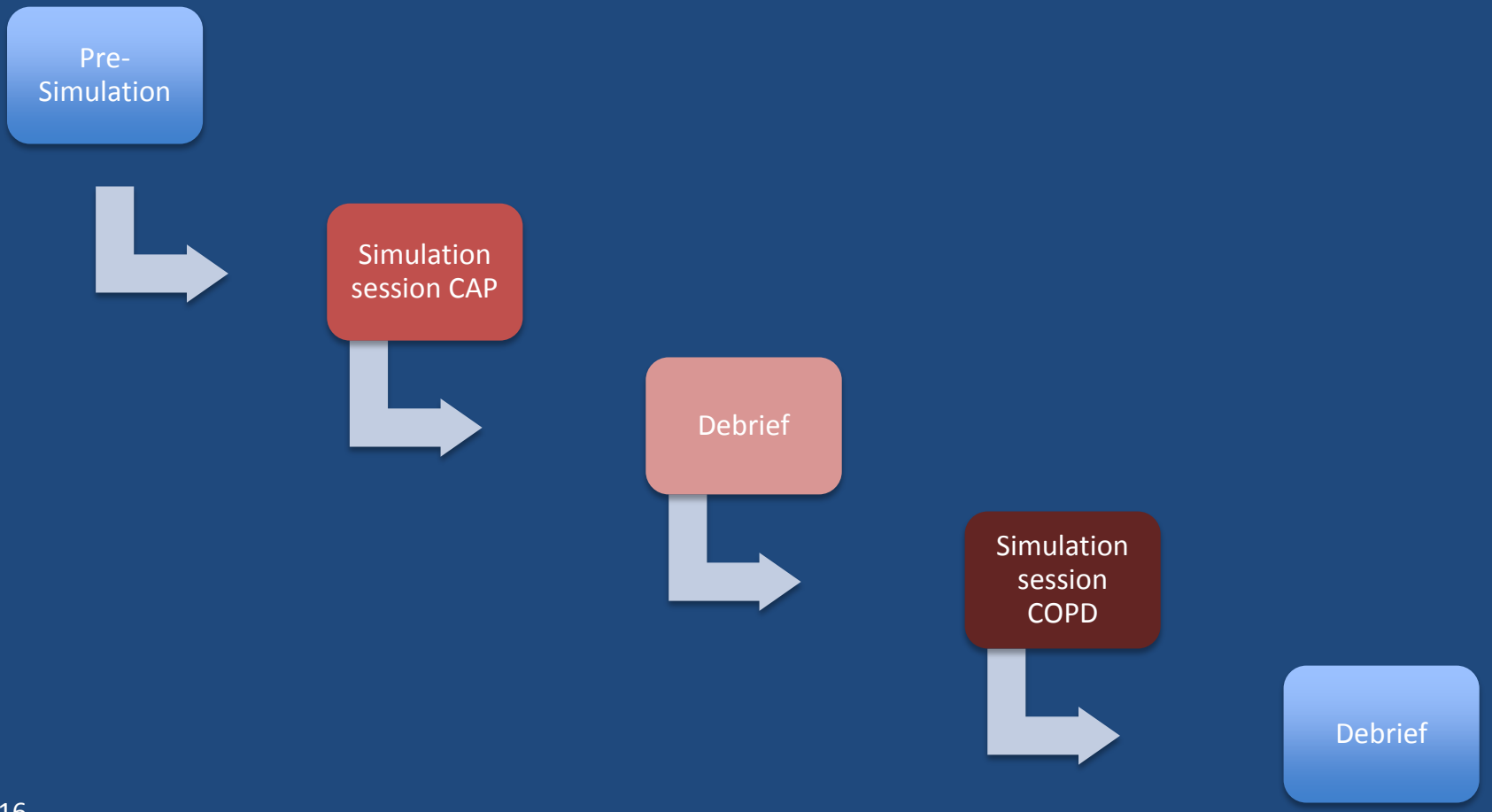
1st
- Scenarios were adapted from Harvard Simulation Casebook (2012)
- Obtained Content Validity of Cases with NP expert @NYUCN

2nd
- OSCE Checklist Adapted from Khan et al.(2013)
- Obtained Content Validity to use with NPs

3rd
- Obtained Inter- rater reliability among project team members, 90% among raters

4th
- Began Recruitment via Survey Monkey®, email, and phone calls

Intervention: Development and Implementation of a R-SEP included



Methods of Evaluation

- OSCE checklist adapted from Khan et al. (2013)
  - 62 item Checklist for PNA
  - 59 item Checklist for COPD
  - 3 sub-components: History, PE, and DX

Methods of Analysis

- Using

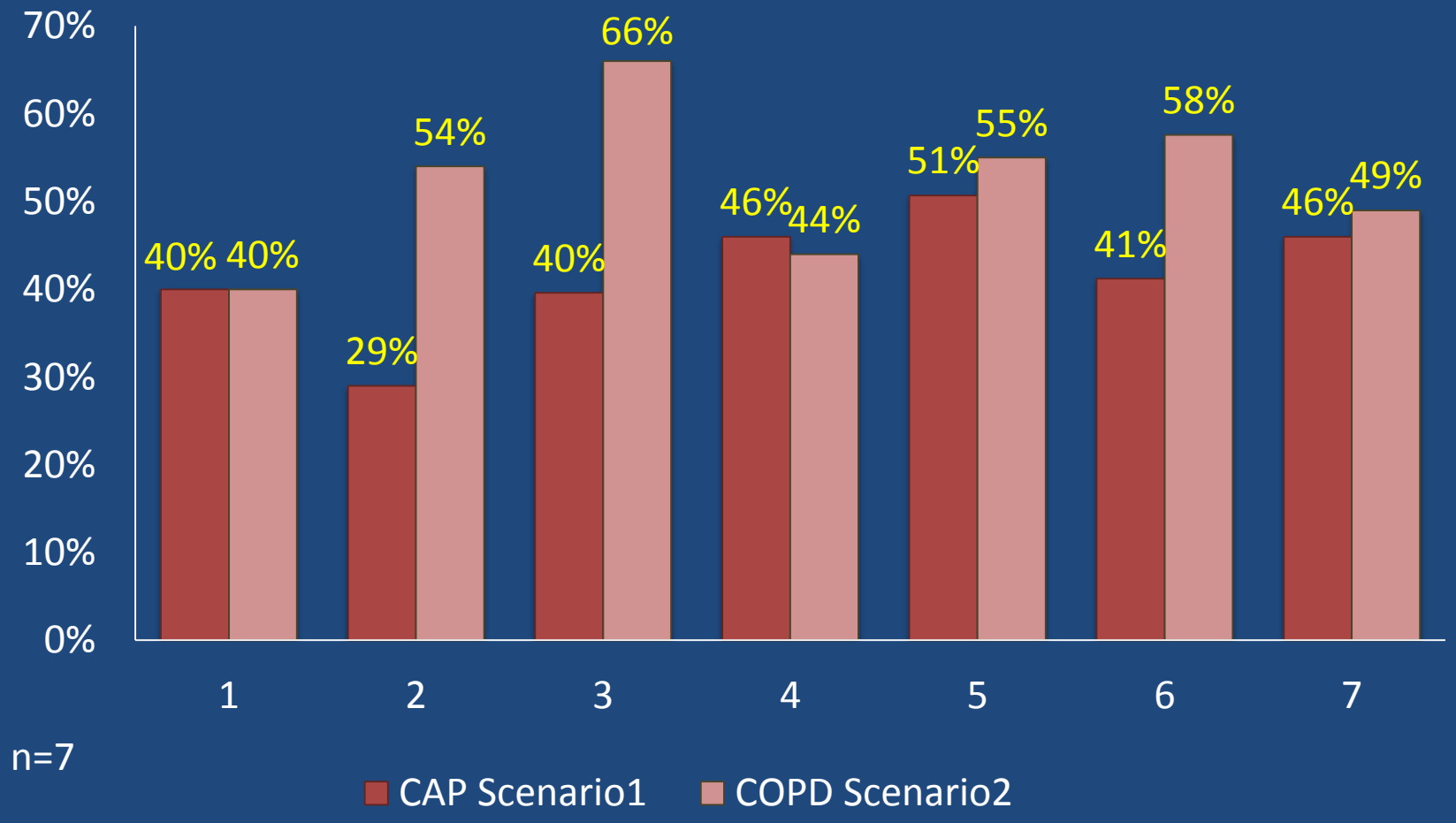
  SPSS

  Descriptive statistics used for demographics

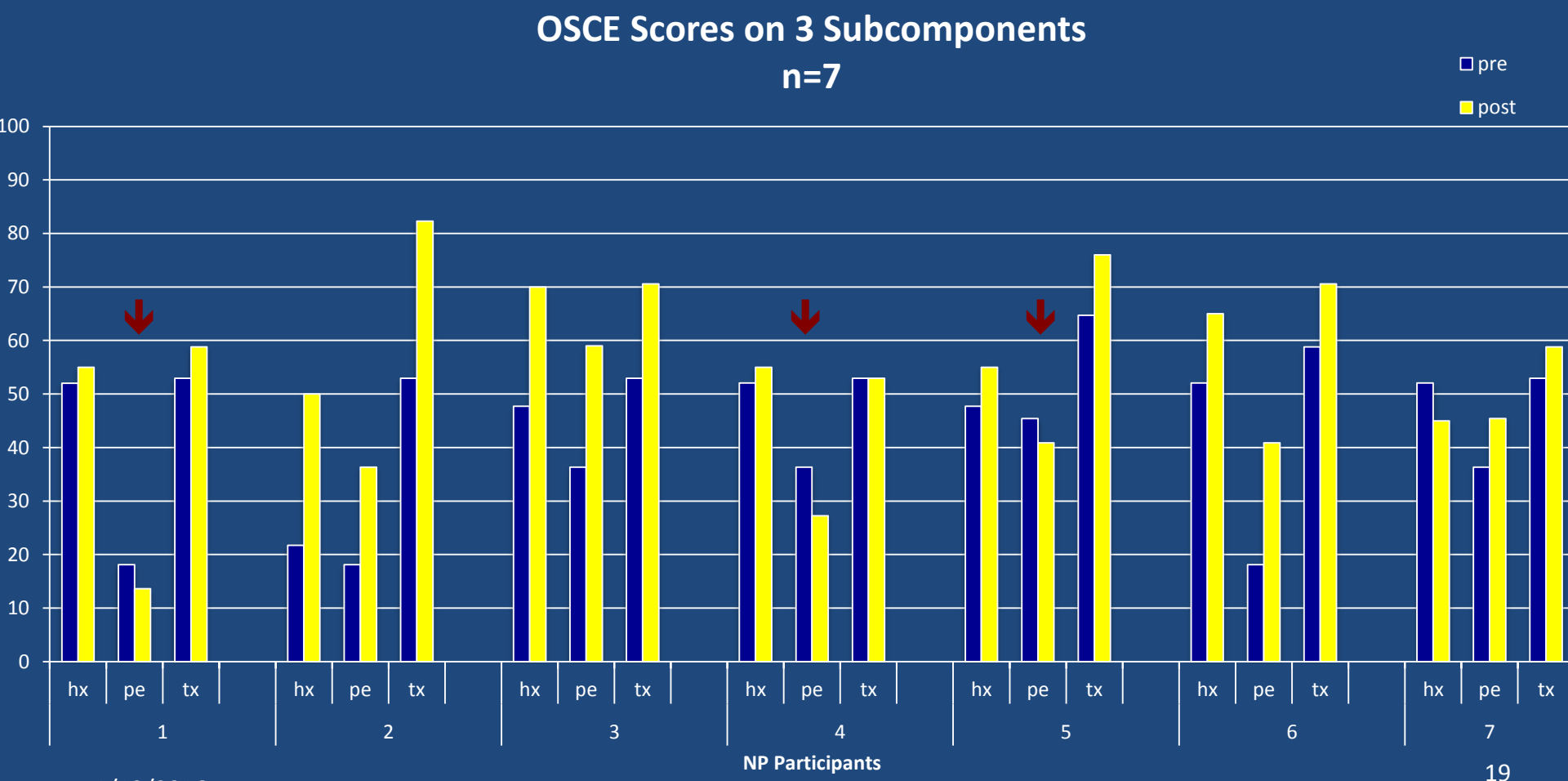
  Microsoft Excel

  Using ratio and proportion scoring to equal 100%

Overall OSCE Results



Results


OSCE Scores on 3 Subcomponents
n=7
pre
post
100
90
80
70
60
50
40
30
20
10
0
hx
pe
tx
1
2
3
4
5
6
7
NP Participants

Results

- History: 85% (n=6) NPs improved in history taking after debriefing
- Physical exam: 57% (n=4) improved after debriefing
- Diagnostic/treatment: 85% (n=6) improved after debriefing

Strengths of the Project:

- NP Forum Buy-in
- Established Content Validity
- 90% Inter-rater Reliability
- 100% participant completion
- Generated policy recommendation

Limitations/Weaknesses

- Not Mandatory
- Lack of Administrative Support
- Scheduling barriers

Recommendations

- Mandatory Competency
- Simulation lab time for NPs
- Implement NP residency using simulation

Summary Statement

- The R-SEP does improve the assessment skills of NPs at Hospital X and more Simulation programs should be developed for NPs

Acknowledgments

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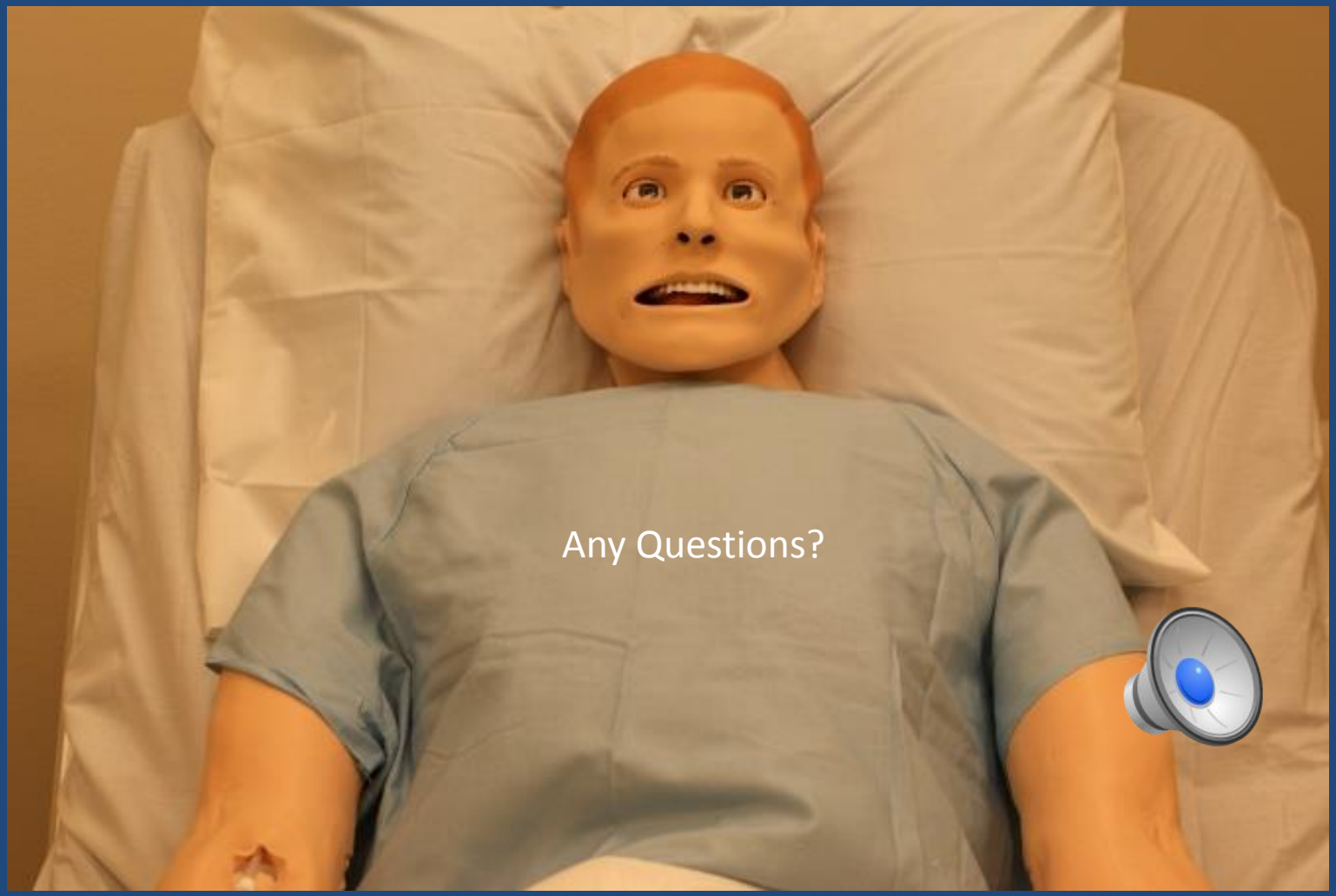
Any Questions?