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25TH ANNIVERSARY
LOOKING BACK REACHING FORWARD

The Usability of Ultrasound Task Trainers

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Disclosures

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Learning Objectives

- At the end of this presentation, participants will be able to:
  - 1. Articulate at least two results from a study of ultrasound task trainers with nurse practitioner (NP) students.
  - 2. Discuss implications of incorporating point of care ultrasound (POCUS) skill into NP and other health professions' education.

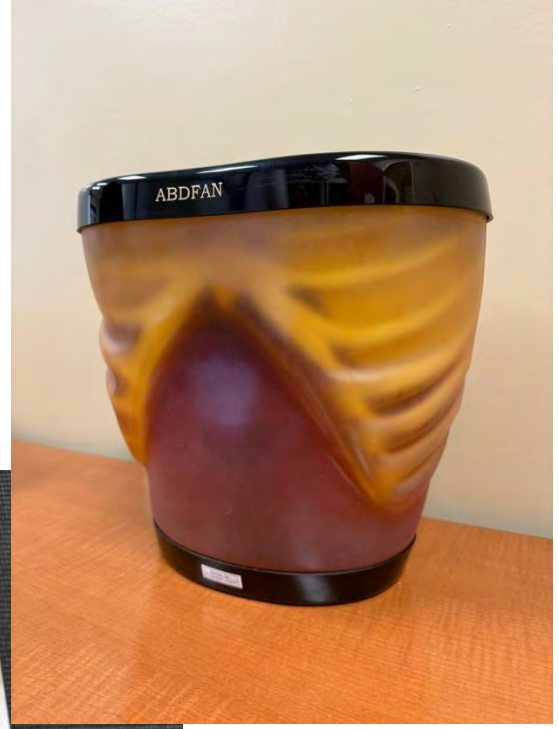
Background

- A cornerstone of advanced practice nursing is appropriate identification, performance, and interpretation of diagnostic data within the diagnostic reasoning process.
- For adult gerontology acute care nurse practitioners (AGACNP's), this often requires effective use of point of care ultrasound (POCUS).
- POCUS has become widely accepted as a readily available, cost-effective method of obtaining diagnostic data for an extensive range of medical conditions[1] and therefore, is an important skill for student AGACNP's[2].
- Simulation remains one of the most common educational methods for achieving competency with respect to diagnostic reasoning and allows for hands-on practice[3].

Introduction and Materials

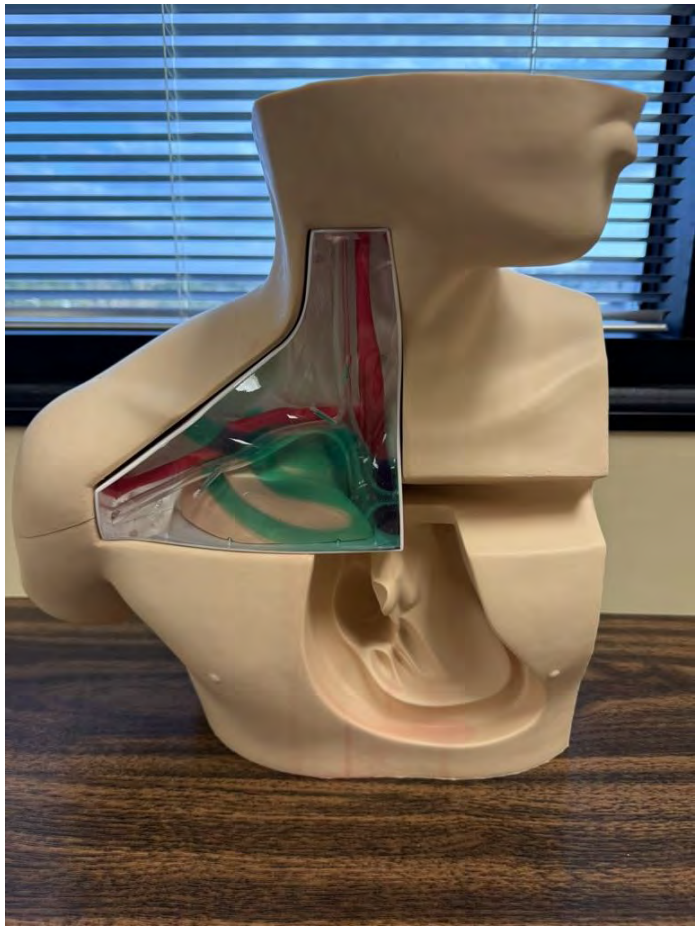
- In integrating POCUS into the AGACNP program, a lack of trainers compatible with ultrasound that have abnormal physical findings and pathologies was identified.
- Grant funding was then used to purchase four (4) task trainers[4]:
  - Ultrasound (US) Examination Training Phantom or “ABDFAN” (Abdomen 1)
  - FAST/Acute Abdomen Phantom or “FAST/ER FAN” (Abdomen 2)
  - CVC Insertion Simulator III (CVC)
  - US Guided Thoracentesis/Pericardiocentesis Simulator (Chest)

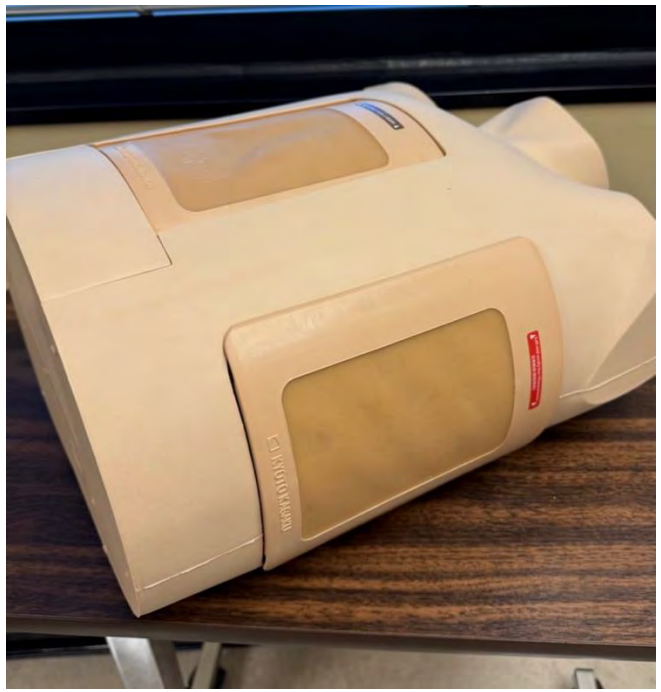
Abdomen 1



Abdomen 2

CVC





Chest

Methods

- An IRB approved (exempt) pilot study was conducted to evaluate the usability and effectiveness of meeting learner needs with the task trainers.
- Learners were voluntarily enrolled in the study and were provided an Explanation of Research.
- Learners rotated through four (4) stations with one task trainer available at each station and after use, participants were provided with study tools to complete (voluntarily):
  - (1) Demographics,
  - (2) System Usability Scale (SUS) to evaluate each individual trainer[5],
  - (3) SET-M for evaluation of the simulation[6], and
  - (4) Three open-ended questions.

Results

Demographics:

- 14/15 (93.3%) participants completed at least one study tool.
- Most of the participants (n = 13, 84.6%) had US trainer experience and were comfortable with the tech
- Only 5/13 participants (38.5%) indicated they had used US on patients in the past

SUS[5] Scores

- Abdomen 1 (n=12), M=82.71 (SD 12.36)
- Abdomen 2 (n=14), M=83.04 (SD 11.77)
- CVC (n=13), M=90.58 (SD 8.96)
- Chest (n=12), M=83.13 (SD 12.80)

SET-M[6] Scores

- Overall scores (n=10), M=51.6 (SD 8.28)
- All 4 subscales (i.e., learning, confidence, prebriefing and debriefing) means were 2.80 or higher

Discussion

- *Results*: US task trainers were considered usable by learner participants reaching scores of excellent on the usability adjective scale[7], met learner needs, and the simulation complied with best practice standards[6].
- *Limitations*: Small numbers, only 1 cohort studied, omitted data from study tools, and qualitative data.
- *Reaching Forward*: Future directions may include exploring further tech to enhance POCUS skills and obtaining further data regarding how to best scaffold these psychomotor skills.
- *Implications*: To incorporate POCUS, need an experienced facilitator, examples of normal vs. abnormals, capability for hands-on practice for learners, and consistent learner feedback.
    - Must also consider expense and liability with use of technology.

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QUESTIONS

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