# Hands Off: Student Experiences in Objective Data Collection in Virtual Clinical Simulation

Francisco A. Jimenez, Ph.D.
A.J. Kleinheksel, Ph.D.
Aaron Kotranza, Ph.D.

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# Disclosure

- Learning objectives
  - The learner will be able to identify the differentiating characteristics of pre-licensure and post-licensure BSN students' attitudes towards virtual clinical simulation
  - The learner will be able to describe the value of virtual simulation experiences to students with varying levels of professional nursing experience
- The authors of this presentation are current employees of an educational software company that develops virtual patient simulations for health professions education.
- No additional funding was received for the completion of this study.

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# Overview of Presentation

- Virtual Patient Simulations
- Purpose of Study
- Methods
  - New Objective Data Collection Feature
  - Measures
  - Procedure
- Results
  - Quantitative findings
  - Qualitative findings
- Conclusions and Implications for Practice

# Virtual Patient Simulations

- Asynchronous, computer-based clinical simulations in which nursing students interview and examine virtual patients.

# Virtual Patient Simulations

- Considered to be high-fidelity simulations because they are “extremely realistic and provide a high level of interactivity and realism for the learner” (Meakim, Boese, & Decker, 2013, p.6).
- Can be as or more effective than physical simulation for teaching diagnostic reasoning to pre-licensure nursing students (Duff, Miller, and Bruce, 2016).

# Virtual Patient Simulations

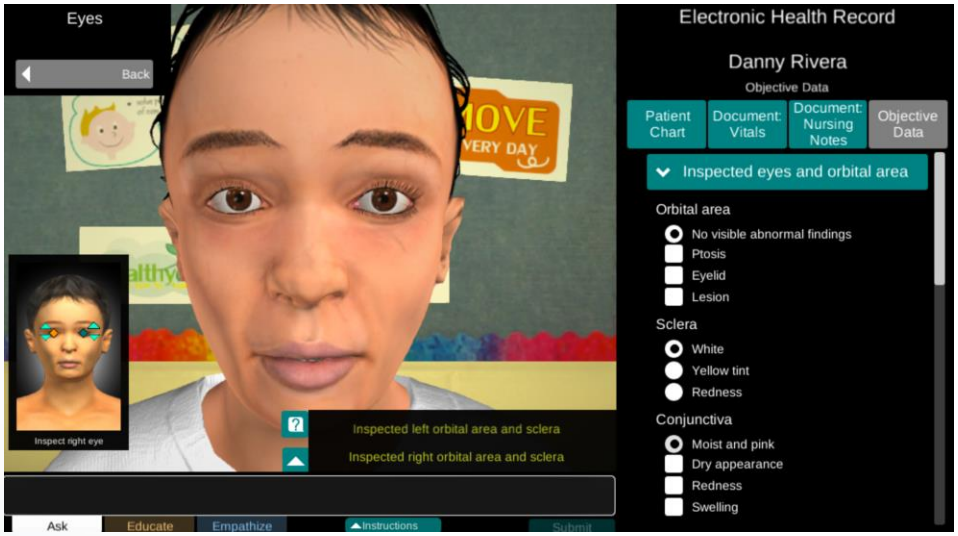
- The adoption of virtual simulation for “hands on” curricular components such as physical assessment may be limited by the lack of physical contact with the simulated patient.
- Particularly for post-licensure students, who typically have practical nursing experience, the lack of physical interaction may limit student satisfaction and the perceived efficacy of the simulation, presenting a barrier to curriculum integration.

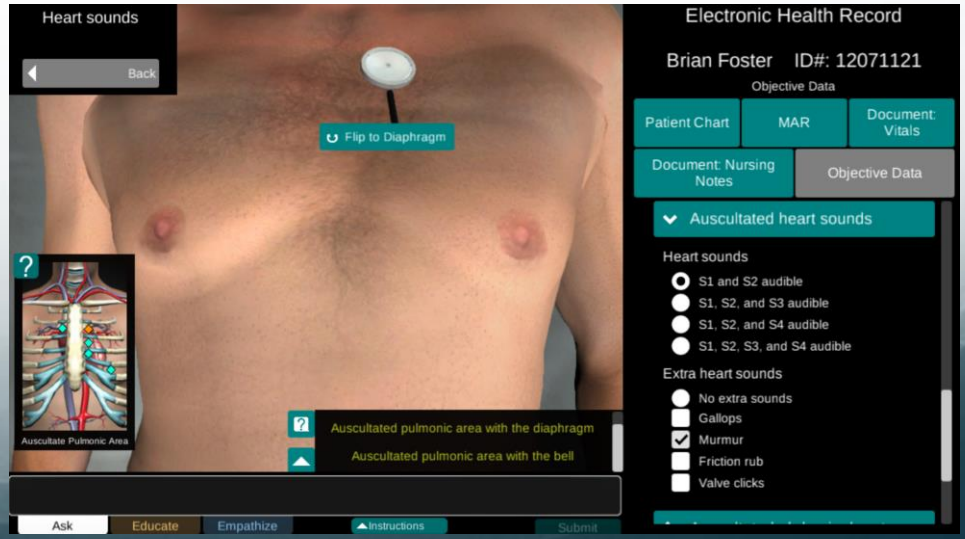
# Purpose of Study

- To evaluate pre- (BSN) and post-licensure baccalaureate (RN-BSN) nursing students' attitudes towards curriculum-integrated virtual patient simulations that teach and evaluate physical assessment.

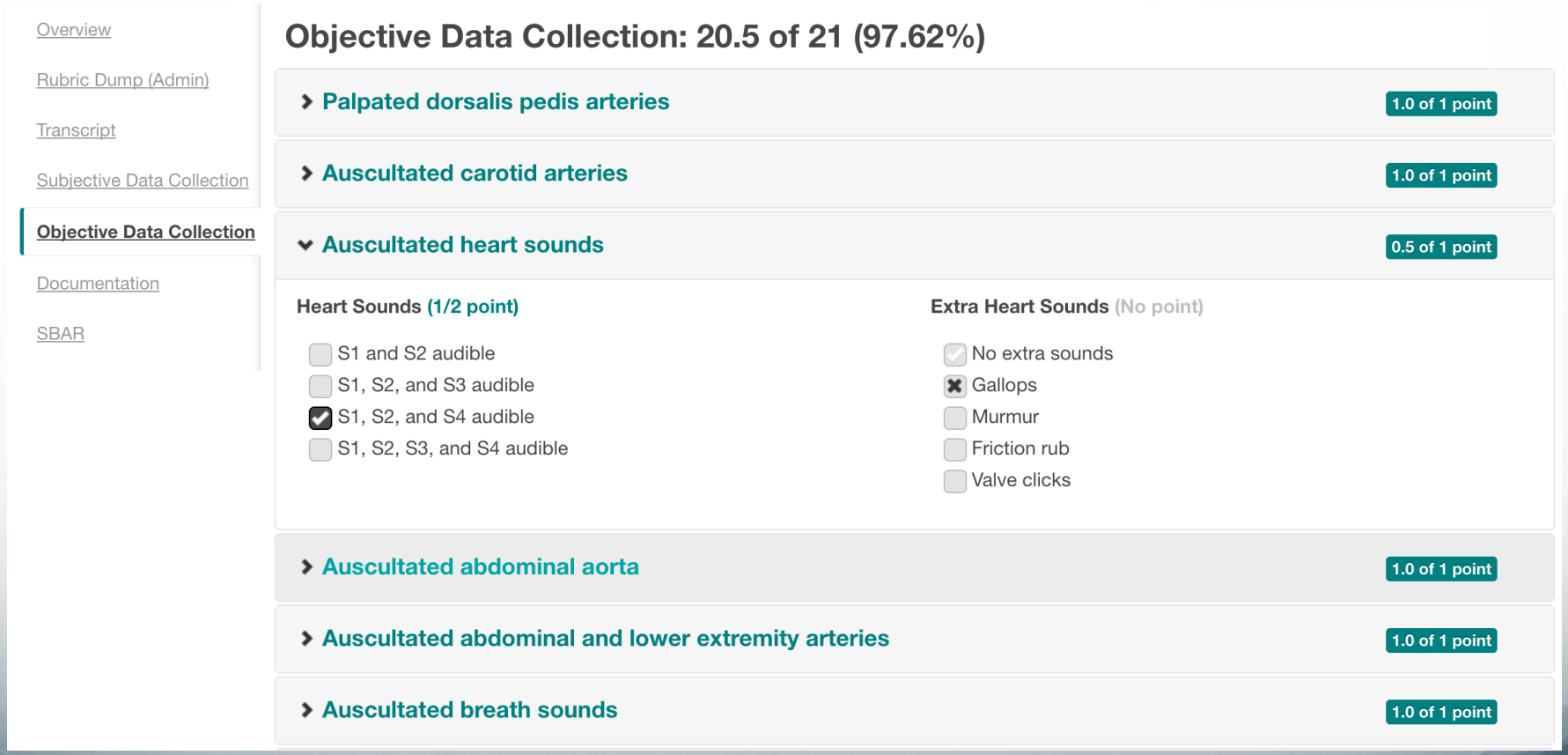
# Methods

# New Objective Data Collection



# New Objective Data Collection



# Participants

- BSN and RN-BSN students at 20 nursing schools across the United Stated using three Focused Exam assignments of the Health Assessment Digital Clinical Experience™ (DCE) in spring of 2016
- Sample exclusion criteria
  - Had multiple assignment attempts
  - Reopened assignment
  - Less than 10 minutes spent with virtual patient
  - Hidden findings
- Final sample of 1,028 assignment attempts
  - 480 for the Focused Exam: Respiratory
  - 323 for the Focused Exam: Cardiovascular
  - 225 for the Focused Exam: Abdominal

# Measures

- Eight Likert-type items, for example:
  - *"Overall, I feel that this assignment was a worthwhile learning experience"*
  - *"I feel that the patient's body images and visuals allowed me to select the appropriate findings in the EHR"*
  - *"I feel that the patient's body sounds allowed me to select the appropriate findings in the EHR"*
  - *"I feel that the process of reporting objective findings improved my clinical reasoning skills"*
  - *"I feel that the duration of this assignment was appropriate"*
- One open-ended question
  - *How satisfied are you with the experience of selecting a physical exam from the menu, and then reporting the objective data in the EHR?*

# Procedure

- Each FE assignment had a post-exam activity that included a link to the survey instrument.
- In the survey instructions, students were told that their answers would be confidential and that participating or opting-out of the survey would not interfere with their patient exam assignment in any way.
- Identifying information, including demographics, were not collected in the survey.

# Results

# Quantitative Findings

- Respiratory FE Assignment
  - RN-BSN students reported significantly higher levels of agreement to the items
    - *"Overall, I feel that this assignment was a worthwhile learning experience"*, $t(460) = 3.274$, $p < .05$
    - *"I feel that the duration of this assignment was appropriate"*, $t(449) = 4.123$, $p < .05$.

# Quantitative Findings

- Cardiovascular FE Assignment
  - RN-BSN students reported significantly higher levels of agreement to the item
    - *"I feel that the duration of this assignment was appropriate"*, $t(319) = 2.007$, $p < .05$.

# Quantitative Findings

- Abdominal FE Assignment
  - RN-BSN students reported significantly higher levels of agreement than their BSN peers to the items
    - *"Overall, I feel that this assignment was a worthwhile learning experience"*, $t(222) = 2.353$, $p < .05$.
    - *"I feel that the duration of this assignment was appropriate"*, $t(223) = 3.095$, $p < .05$.

# Qualitative Findings

- Overall satisfaction emerged as a theme for
  - 75% of RN-BSN students
  - 80% of BSN students
- Main themes among BSN students
  - Activity was challenging or difficult to complete.
  - Workflow of the physical assessment was appropriate.
  - More guidance was required to complete the assignment.

# Qualitative Findings

- Main themes among RN-BSN students
  - Need for quality art and sound assets in order to identify abnormalities on virtual patients.
  - Expectation that EHR would auto-populate with the correct dimensions selected without having to select them.
  - Using the open-text documentation tab in the EHR to summarize objective findings implied additional work and time.

# Conclusions and Implications for Nurse Educators

# Conclusions

- Students of both learning populations found value and realism in virtual patient physical assessments.
- RN-BSN students found the new objective data collection feature to be more valuable and appropriate than their BSN counterparts.
  - To a greater degree, they may recognize the high level of fidelity of the virtual environment (i.e., art, narrative, physical findings).
- BSN students found the new objective data collection feature more challenging, and asked for more guidance within the assignment.

# Implications for Nurse Educators

- The National Council of State Boards of Nursing simulation study (Hayden, et. al 2014) supports replacing up to 50% of clinical hours with simulation.
- Virtual patient simulation is a valuable and viable tool for educators augmenting or replacing clinical placements with simulation.
- For both pre- and post-licensure students, the use of virtual patient simulations with a high-degree of fidelity can result in high student satisfaction and the perceived efficacy of the simulation.

# Thank you!

francisco@shadowhealth.com