



# Educational Effectiveness of an Interprofessional Teamwork Simulation Exercise for Nursing, Pharmacy and Medical Students at the University of Hawaii

Tsuneari Hayashi, MD<sup>1</sup>, A. Wen<sup>1</sup>, L. Wong<sup>2</sup>, C. Ma<sup>3</sup>, S. Tokumaru<sup>3</sup>, M. Deutsch<sup>2</sup>, D. Ing<sup>2</sup>, D. Sakai<sup>4</sup>, C. Bell<sup>1</sup>, P. Juszczak<sup>3</sup>, K. Masaki<sup>1</sup>

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## ABSTRACT

**Background:** Interprofessional teamwork is important in managing older patients with multiple complex problems. Simulation-based training is an effective method to teach interdisciplinary teamwork before trainees enter clinical practice.

**Methods:** We implemented an interprofessional team simulation exercise for third-year nursing, pharmacy and medical students, with two case-based scenarios requiring an interprofessional team. Pharmacy students participated from another island via remote video conferencing. The first case was an elderly patient with multiple medical problems and high fall risk and the second case was a young child with newly diagnosed acute leukemia. The goal was for the team to develop a safe discharge and treatment plan for the cases and then conduct a family meeting. Each team debriefed with faculty about teamwork skills. At the end of the two sessions, students self-rated their Interprofessional Collaborative Practice core competencies using a retrospective pre/post survey, with eight items rated 1 to 5 on a Likert scale (higher=better). We analyzed the change in self-assessed attitudes and skills before and after the simulation exercise using T-tests.

**Results:** A total of 126 students (50 nursing, 43 pharmacy and 33 medical students) participated in the simulation exercise. Mean scores significantly improved for all eight self-assessed skills questions, including Values/Ethics competencies (4.65 vs. 4.84, p<0.0001); Roles and Responsibilities (3.67 vs. 4.19, p<0.0001); Communication competencies (3.68 vs. 4.22, p<0.0001) and Teamwork (3.84 vs. 4.25, p=0.02). There were no statistically significant differences between disciplines.

**Conclusions:** We implemented an interprofessional team meeting simulation exercise for nursing, pharmacy and medical students, and found significant improvements in self-assessed Interprofessional collaborative practice core competencies. This exercise successfully brought together students from 3 disciplines on two different islands, and could serve as a model for interprofessional education outreach to rural areas.

## METHODS

**Study Population (n=126, 3 groups of third year students)**  
50 nursing / 43 pharmacy (on a neighbor island) / 33 medicine

**Intervention**

- Students from the 3 disciplines were divided into 4 groups representing teams
- Pharmacy students attended the meeting remotely via videoconference from a neighbor island
- Each team used an online shared document (googledocs) to be completed in the team meeting, using the Geriatric Interdisciplinary Care Summary (GICS)
- The exercise consisted of the following cases:
  - Case 1:** An elderly patient with complicated medical problems in the hospital, who needs a safe discharge plan
  - Case 2:** A young child with newly diagnosed acute leukemia; need to break bad news and discuss the treatment plan

Step 1 (10min): Team members (students) got together and listened to a monolog from the patient, reviewed the hospital chart to obtain clinical information, then together completed the GICS  
 Step 2 (50min): Interprofessional team meeting to develop plan & complete GICS (modified GICS for pediatrics case)  
 Step 3 (15min): Family meeting (SP, 1 nursing, 1 pharmacy, & 1 medical student)  
 Step 4 (40min): Each team of students debriefs with facilitators for each case

**Data Collection**

We created pre-post questionnaires based on four core competency domains, as advocated by the IPE Collaborative Expert Panel (IPEC) in May, 2011:

- Values/Ethics for Interprofessional Practice (Q1, Q2)
- Interprofessional Roles and Responsibilities (Q3, Q4)
- Interprofessional Communication Competencies (Q5, Q6)
- Interprofessional Teams and Teamwork (Q7, Q8)

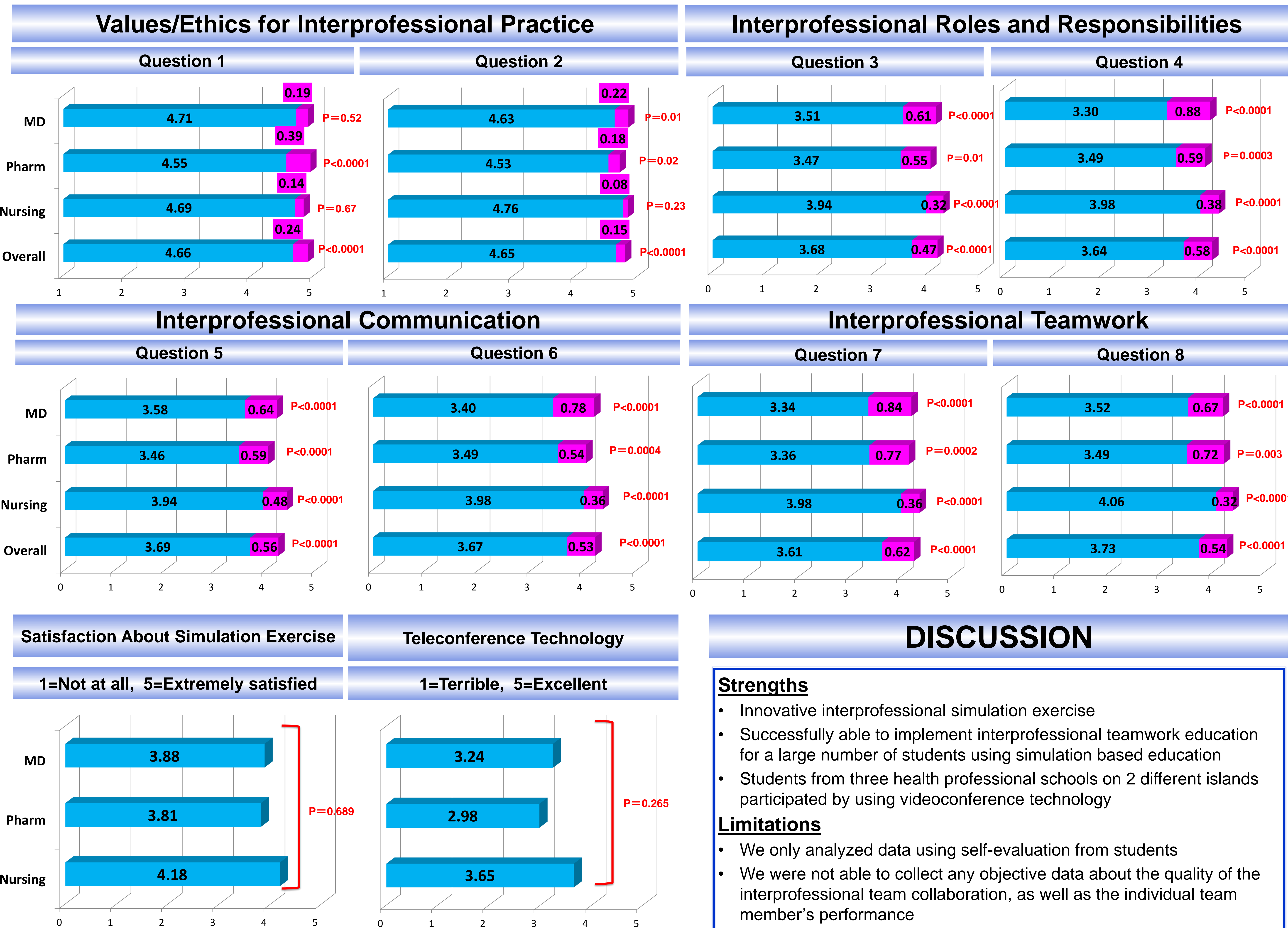
Using a 1-5 Likert scale (higher=better), students rated themselves with a total of eight pre/post questions based on the four core competencies, and two questions about satisfaction with the simulation exercise and with the technology

**Statistical Methods**

- T-tests to compare changes in mean scores before and after the session
- General linear models to compare differences by discipline

Pre/Post Questionnaire	
Attitudes: 1=Strongly Disagree, 5=Strongly Agree	
Q1	It is important to place the patient/family at the center of interprofessional health care delivery.
Q2	It is important to embrace cultural diversity and individual differences of patients, populations, and the health care team during care planning.
Skills: 1=Low Confidence, 5=High Confidence	
Q3	I am able to use the full scope of knowledge, skills and abilities of available health professionals to provide care that is safe, timely, efficient, effective, and equitable.
Q4	I am able to communicate with team members to clarify each member's responsibility in executing components of a treatment plan.
Q5	I am able to choose effective communication tools and techniques to facilitate discussions and interactions that enhance team function.
Q6	I can organize and communicate information with patients, caregivers, and team members in a form that is understandable, and avoids discipline-specific terminology.
Q7	I can integrate the knowledge and experience of other professions to inform care decisions, while respecting patient and community values, priorities, and preferences for care.
Q8	I am able to share accountability with other professions, patients, and communities for outcomes relevant to prevention and health care.
<b>Overall experience with Interprofessional team simulations</b>	
1	How satisfied were you with your ability to work through the simulations?
2	How well did the teleconference technology work for the simulation?

## RESULTS



## INTRODUCTION

- Collaboration and teamwork among health care professionals are important aspects in the delivery of high-quality patient care
- Incorporation of interprofessional education (IPE) into the curriculum for health professionals is now becoming important for accreditation
- New educational technologies, such as online learning and distance technologies, have been used to overcome barriers to interprofessional learning related to time and space
- These technologies can help model the real world of practice, especially in communities where teamwork is virtual, and often happens asynchronously across time and space
- Simulation based education has become popular as one of the most effective methods to enhance interprofessional teamwork

## OBJECTIVES

To evaluate the educational effectiveness of a simulated interprofessional team meeting exercise based on differences in self-rated Interprofessional Collaborative Practice core competencies before and after the exercise



## DISCUSSION

- Strengths**
- Innovative interprofessional simulation exercise
  - Successfully able to implement interprofessional teamwork education for a large number of students using simulation based education
  - Students from three health professional schools on 2 different islands participated by using videoconference technology
- Limitations**
- We only analyzed data using self-evaluation from students
  - We were not able to collect any objective data about the quality of the interprofessional team collaboration, as well as the individual team member's performance
- Revisions to the Curriculum** (implemented in February, 2015)
- Students from social work were added to this IPE exercise
  - Students are given the following assignments before participating in the simulation exercise to improve time efficiency:
    - View an online video on an interdisciplinary team family meeting
    - Complete the team observation tool and a GICS, so that students know what is expected of them during the exercise
  - The number of students in each group was decreased
  - The pediatrics scenario was removed, and the geriatrics case had more detailed information in the form of an MD note and nursing note
  - Ice breaking at beginning of exercise to enhance team work
  - We are developing a measurable and objective team performance assessment tool, and will be testing it for adequate inter-rater reliability

## CONCLUSIONS

- We successfully implemented an interprofessional team meeting simulation exercise for nursing, pharmacy and medical students at the University of Hawaii
- Videoconference technology enabled learners from a remote site on another island to experience interprofessional teamwork education
- All disciplines showed significant improvements in mean scores of almost all interprofessional core competencies after the exercise
- There were no significant differences in mean scores between disciplines
- All disciplines showed a high level of satisfaction about this IPE exercise
- Pharmacy students had slightly lower scores on satisfaction with teleconference technology, although the difference was not statistically significant