

THE DANIEL K. INOUE COLLEGE OF PHARMACY SCRIPTS

Hawai'i Interprofessional Education: Publications on Distance Learning Technologies

Sheri Tokumaru PharmD; Alan R. Katz MD, MPH; Robin Arndt, MSW, LSW;
Katherine Finn Davis PhD; Lorrie Wong PhD; Joanne R. Loos PhD; Kamal Masaki MD

HJH&SW contributing editor of the Daniel K. Inouye College of Pharmacy (DKICP) Scripts column is Jarred Prudencio PharmD, BCACP, BC-ADM. Dr. Prudencio is currently Associate Professor of Pharmacy Practice and Director of Experiential Education, with expertise in healthcare education and outpatient family medicine.

Acronyms

HIPE = Hawai'i Interprofessional Education Workgroup

IPE = Interprofessional education

DKICP = University of Hawai'i at Hilo Daniel K. Inouye College of Pharmacy

UH = University of Hawai'i

Introduction

The Hawai'i Interprofessional Education Workgroup (HIPE) was formed to prepare University of Hawai'i (UH) health professional students to collaborate to provide a safe, effective, and sustainable patient/consumer-centered and community/population-oriented health care system.¹ HIPE brings students together to learn with and about one another's discipline through simulations. The group also conducts research and program assessments to disseminate new knowledge. HIPE includes representatives from the UH Nancy Atmospera-Walch School of Nursing (NAWSON), the UH John A. Burns School of Medicine (JABSOM), the UH Office of Public Health Studies, the UH Thompson School of Social Work & Public Health, and University of Hawai'i at Hilo Daniel K. Inouye College of Pharmacy (DKICP). The authors of this article are HIPE faculty members.

Initially, publications focused on outcomes of the simulations, but more recently the focus has shifted to distance education and telehealth initiatives. Although several of HIPE's member schools are on the island of O'ahu, one member school, DKICP, is located on Hawai'i Island. The geographic separation allowed HIPE to engage in distance education long before the COVID-19 pandemic forced the *en masse* switch to online education. HIPE has discovered many benefits of distance education initiatives including: connecting geographically diverse students, allowing access for additional facilitators, and building experience with distance technologies. Overall, students have been very receptive to distance education, with an increased number of

students, especially from neighbor islands, participating in interprofessional education (IPE) after the pandemic hit. HIPE is working on increasing inclusivity by offering opportunities to participate on different dates and times, and reaching students in remote areas who have limited distance education opportunities. For example, HIPE is looking into ways to include students in Guam, whose time zone has presented challenges previously.

Highlights of HIPE research into the outcomes of these distance technologies through the years include the following published articles:

2019

An Interprofessional Team Simulation Exercise About a Complex Geriatric Patient²

We created the Hawai'i Interprofessional Team Collaboration Simulation (HIPTCS) exercise in 2014 for UH students in medicine, nursing, pharmacy, and social work. Pharmacy students were located on Hawai'i island, and participated via video conference.

In October 2014, the pilot test included 2 separate scenarios: a pediatric oncology case, and the hospital discharge of a complex geriatric patient. The simulation exercise was revised in February 2015, and included only 1 case, the hospital discharge of a complex geriatric patient. Students completed structured pre-work which included watching a video about teamwork and reviewing the patient case.

The simulation included: (1) an icebreaker exercise, (2) students from different disciplines collaborating to create a discharge plan, (3) a simulated family meeting with a theater student, and (4) a structured debriefing about effective teamwork provided in an interdisciplinary manner. Analysis of both qualitative and quantitative evaluations from the first 2 HIPTCS simula-

tions found that this exercise was well received and effective in improving students' self-perceived interprofessional skills. Students also reported satisfaction with the use of distance technology.

2020

From a Distance: Nursing and Pharmacy Students Use Teamwork and Telehealth Technology to Provide Interprofessional Care in a Simulation with Telepresence Robots³

Pharmacy students and nursing students utilized a telepresence robot to communicate interprofessionally in an acute care scenario. The simulation center and high-fidelity manikin were on 1 island with the nursing students, and the pharmacy students were on another island controlling the robot. The pharmacy student's voice and video were projected from the robot.

The learners focused on role understanding, communication, and team collaboration while using this telehealth technology. Pre- and post-exercise self-assessment scores were compared. The learners reported improvement in their interprofessional team skills, communication, and collaboration. Responses to the open-ended questionnaire showed that students appreciated the ability to practice team communication and collaboration when working on a realistic simulation. Future directions for this learning experience include streamlining the pre-work, ensuring small group sizes, and including a validated tool to evaluate collaboration.

Evaluation of Distance Facilitation and Technology in an Interprofessional Simulation Exercise⁴

University of Hawai'i health professional students have participated in a twice annual interprofessional simulation exercise focused on hospital discharge planning for a complex geriatric patient. As students from the medical, nursing, and social work programs are located on O'ahu, but pharmacy students are on the island of Hawai'i, a distance education strategy was developed to allow students to work collaboratively in real time with audio and visual connections, onsite and distance faculty co-facilitators, and an actor portraying the patient's family member.

This article was an update of the 2019 publication on the simulation exercise involving a complex geriatric patient. An analysis of 3 years of data led by Carolyn Ma PharmD, former dean of the DKICP, revealed that both students and facilitators were satisfied with working through this distance education simulation exercise, and that interprofessional simulation exercises can be successfully run with both onsite and distant site facilitators.

2021

The Healthcast Program: Interdisciplinary, Simulated-Patient Education with Health Care and Theatre Students⁵

The HealthCAST (Collaboratively Acted Simulation Training) program, which is a simulated patient program developed by experts in simulation, health care, and theatre, models how multiple departments collaborated to create an interprofessional, simulated-patient program. The program allows health care students to participate in simulated patient encounters, with theatre students playing the roles of patients. All students, whether provider, patient, participant, or observer, can enhance their skills and receive feedback from faculty. While HealthCAST began with in-person simulations, the COVID-19 pandemic forced simulations online. This article described the process used to create the program, including an analysis of the HealthCAST results, which showed that the program was a positive experience for health care and theatre students.

2022

Interprofessional Disaster Simulation During the Covid-19 Pandemic: Adapting to Fully Online Learning⁶

Originally developed as an in-person simulation among interprofessional learners from fields of public health, nursing, and social work, the Disaster Aftermath Interprofessional Simulation (DAIS) allowed participants to immerse themselves in the aftermath environment of a natural disaster.⁷ In 2020, however, the COVID-19 pandemic forced campus closures that led to the rapid conversion of this exercise into a fully online format.

The online DAIS used internet tools that enabled real-time collaboration among learners. They participated in team exercises including disaster triage, disease outbreak investigation, and disaster response. Participants completed surveys after the simulation measuring various interprofessional skills and simulation-learning outcomes (SLO). Results were compared with those from the in-person format and indicated that interprofessional skills were higher for the online participants versus those in-person. All SLOs were met. This study demonstrated that online tools can be effective mechanisms for conducting interprofessional simulations, and in some instances may even be more effective than in-person formats.

Efficacy of Interprofessional Sport Concussion Simulation Training for Healthcare Students and Teacher Candidates⁸

The faculty from the Doctor of Nursing Practice (DNP), Master of Science in Athletic Training (MSAT), and Master of Education Teaching (MEdT) programs recognized that youth athletes participating in school athletics are at risk for a variety of injuries resulting in post-concussion symptoms. An online interprofessional (IP) simulation was developed for students from these programs to collaborate to create a plan for the student athlete to return to learn in the classroom and return to the sport. The Interprofessional Collaborative Competency Attainment Survey (ICCAS) tool was utilized to measure students' self-efficacy related to IP competencies. Pre-post ICCAS results demonstrated significant improvement in student IP competencies. Additional open-ended survey questions showed that students felt the most helpful part of the simulation was the ability to work with other professionals that they historically have not worked with.

2023

Interprofessional Telehealth Simulations for Pharmacy and Nursing Students: Comparison of In-Person and Online Experiences⁹

Originally designed as an in-person telehealth simulation, the in-person format in 2019 was compared to the online format in 2020 in achieving the core competencies. In 2019, as detailed above, pharmacy students on one island controlled a telepresence robot and collaborated with nursing students on another island in the simulation center with a high-fidelity manikin.³ In 2020, the session was moved to a fully online telehealth simulation using a video conferencing system and a virtual patient. The objectives and unfolding scenarios were kept the same, however, the learners were unable to interact with the manikin and telepresence robots during the COVID-19 related campus closures.

Learners and faculty completed the questionnaires in both formats, but in 2020 they also incorporated the use of an observational tool to assess the students during the patient care simulation. The questionnaire results indicated statistically significant improvements in IPE domains (eg, communication, collaboration, roles and responsibilities, collaborative patient/family-centered approach, conflict management, and team functioning skills) in 2019 and in 2020. The observational tool from 2020 allowed facilitators and learners to score individual team members during the encounter and resulted in all scores (in 4 areas including collaboration, roles and responsibilities, collaborative patient-family centered approach, and conflict management resolution) at or above the expected level. Although the pandemic forced the exercise to take place online and include a virtual patient instead of a manikin, participants were still able to improve on measured domains. Thus, the

authors concluded that the online format was successful and remains a viable option should the need for complete online learning present itself again.

Comparing In-Person and Online Formats of Pediatric Interprofessional Team Training to Facilitate End-Of-Life Discussions. Accepted By Clinical Simulation in Nursing¹⁰

This study involved an exercise that was originally developed to be an in-person simulation focused on providing learners from medicine, nursing, social work, and chaplaincy an opportunity to work together to learn how to facilitate end-of-life discussions with a family with a dying child. In 2021, the simulation was converted to an online format. The study population consisted of simulation participants (n=118) from a 4-year period who had participated via both the in-person and online formats. Participants completed 2 retrospective pre-post questionnaires: 1 related to end-of-life professional caregiving and the other related to self-efficacy. They also responded to open-ended questions regarding the simulation experience. Statistically significant changes were found between pre and post scores for both scales across training settings, indicating that the change to an online format did not affect the effectiveness of the exercise. With the increased use of online training platforms, the authors stated that more challenging simulations could be developed and directed at practicing professionals to build competency in this area.

Improving Interprofessional Collaboration Between Social Work and Pharmacy Through Hybrid and Virtual Learning Experiences

When it comes to patient care, pharmacy and social work professionals are not typically viewed as directly collaborative. However, the professions can be complementary, and improved patient health and wellbeing have been documented as outcomes when they work together. Thus, pharmacy and social work faculty developed an online IPE activity aimed at integrative student learning. Participants included faculty and students who were based on various islands throughout the state of Hawai'i and the US territory of Guam. The patient case encouraged interprofessional teamwork and collaboration while challenging students to share profession-specific knowledge with one another. Results indicated statistically significant improvements related to interprofessional collaborative competencies. When hybrid training and fully online training were compared, there were no significant differences in pre scores, but post-training scores were significantly higher for students who experienced only online training. This interprofessional case-based activity successfully promoted interprofessional learning and collaboration. Introducing learners to this type of collaborative practice while in school is critical for future collaboration in the workforce.

Next Steps

HIPE research, much like the workgroup itself, has evolved since its inception. Looking ahead, the group plans to expand methodology for evaluating HIPE activities so that it goes beyond student self-report. Some of these next steps are already underway. For instance, HIPE is implementing objective measures to complement the subjective data contained in self-reports. This is evident in a previously published study⁹ and in an ongoing study in which we evaluate a training activity created for simulation faculty and facilitators that allows an objective observational assessment of simulation participants. Another research project in-progress is the development, testing, and validation of a new tool that will allow evaluation of the simulation activities in relation to Healthcare Simulation Standards of Best Practice.¹¹ HIPE is also exploring ways to measure longitudinal outcomes, in order to assess how HIPE activities correlate with practice.

The evolution of HIPE through the years shows the promise of the group to achieve IPE at a time when interprofessional collaboration is of the utmost importance. The activities described here are essential, not only to contribute to IPE research and practice, but also for accreditation purposes for the schools in the University of Hawai'i Council of Health Sciences.

Authors' Affiliations:

- The Daniel K. Inouye College of Pharmacy, University of Hawai'i at Hilo, Hilo, HI 96720 (ST)
- Office of Public Health Studies, University of Hawai'i at Mānoa, Honolulu, HI 96822 (ARK)
- Thompson School of Social Work and Public Health, University of Hawai'i at Mānoa, Honolulu, HI 96822 (RA)
- Nancy Atmospera-Walch School of Nursing, University of Hawai'i at Mānoa, Honolulu, HI 96822 (KFD, LW, JRL)
- John A. Burns School of Medicine, University of Hawai'i at Mānoa, Honolulu, HI 96813 (KM)

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