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Mary Kay Arvin, Mary Catherine Ehlman, Julie M. McCullough, Elizabeth A. Ramos

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# An Interprofessional Education Nursing Home Dining Simulation Promotes Changes in Student Attitudes

**Mary Kay Arvin** OTD, OTR *University of Southern Indiana College of Nursing and Health Professions*

**Mary Catherine Ehlman** PhD, CHES, HFA *University of Southern Indiana College of Nursing and Health Professions*

**Julie McCullough** PhD, RD *University of Southern Indiana College of Nursing and Health Professions*

**Elizabeth Ramos** MS, RD, CD *University of Southern Indiana College of Nursing and Health Professions*

## Abstract

**INTRODUCTION** The purpose of this study was to assess changes in attitudes toward interprofessional collaborative competency attainment of undergraduate dietetics, gerontology/long term care administration, and occupational therapy assistant (OTA) students as a result of participating in a problem-based simulated nursing home dining experience.

**METHODS** A one-group quasi-experimental post-test design, with convenience sample, was used in this study. Forty-three students completed the Interprofessional Collaborative Competencies Attainment Survey (ICCAS) tool, a validated 20-item scale measuring attitudes toward interprofessional collaborative competency attainment. The ICCAS assesses six competencies: communication, collaboration, roles and responsibilities, collaborative patient/family-centered approach, conflict management/resolution and team functioning. A paired-sample t-test was conducted to evaluate the impact of the dining simulation on students' ICCAS responses.

**RESULTS** A statistically significant increase was found in the ICCAS summative score from the retrospective look designated as Time 1 (M=108.95; SD=19.76) to Time 2 [M=127.65; SD=17.86,  $t(42) = -8.63, p < .0005$ ].

**CONCLUSION** The results of this study have potential implications for educators, practitioners and researchers. Careful planning during case development enhanced the realism and accuracy of the simulation. This nursing home dining simulation using problem-based case scenarios was found to be an effective method of promoting interprofessional collaborative competencies with a unique group of healthcare students.

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## Implications for Interprofessional Practice

- Engaging undergraduate health profession students in a nursing home dining simulation appears to result in a positive shift in attitudes toward interprofessional competency attainment.
- Attention to simulation detail and problem-based case creation appears to positively impact the interprofessional competency areas of communication, collaboration, roles & responsibilities, collaborative patient/family centered approach, conflict management/resolution and team functioning.
- Using a nursing home dining simulation and undergraduate students from long term care administration, dietetics and occupational therapy assistant programs fills a gap in the literature and creates opportunities for future research.

## Introduction

Healthcare educators in academia are challenged with meeting complex discipline-specific standards while also incorporating interprofessional skill development into their curricula. Interprofessional education (IPE) and healthcare simulation (HCS) can be used to promote collaboration and teamwork among students of multiple disciplines. Although IPE and HCS have been in existence for decades as unique fields, research exploring how these two fields overlap is relatively new (Palaganas, Epps, & Raemer, 2014). Research in this area has primarily involved medical students, nursing students, physical therapy students, and pharmacy students (Buckley, Hensman, Thomas, Dudley, Nevin, & Coleman, 2012; Efstathiou & Walker, 2014; Kyrkjebo, Brattebo, & Smith-Strom, 2006; Stephens et al., 2011) and, to date, does not include IPE nursing home environment simulations. The purpose of this study was to assess changes in IPE attitudes and competence among undergraduate dietetics, gerontology/long term care administration, and occupational therapy assistant students who participated in a problem-based simulated nursing home dining experience.

## Literature Review

The following literature review provides a brief history of IPE and reviews the IPE competency standards held by the United States and Canada. Additionally, this

review outlines literature specifically related to IPE in undergraduate academic settings using HCS.

IPE is defined as curriculum activities in which several different disciplines are learning “about, from and with each other to enable effective collaboration and improve health outcomes” (World Health Organization, 2010, p.7). Despite recommendations more than 40 years ago from the Institute of Medicine (IOM) (IOM, 1972) stating that educational systems should prepare students for interprofessional teamwork, the movement toward interdisciplinary education has been slow (Interprofessional Education Collaborative Expert Panel, 2011).

Fifteen years ago, the discussion of how care was to be delivered became crucial when two published IOM reports described widespread preventable errors affecting patient outcomes in U.S. hospitals (IOM, 2000; 2001). Communication breakdowns among healthcare providers were found to be responsible for medication errors, unnecessary costs, and inadequate patient care (IOM, 2001). Attendees at an IOM summit in 2003 advocated five core competencies central for the future education of all healthcare professions, including a competency that focused on working in interdisciplinary teams (IOM, 2003). Since that time, efforts to identify interprofessional collaborative practice core competencies and outcome assessment tools have expanded at the national and

international levels. For example, competencies such as communication, collaboration, a patient/family centered approach, roles and responsibilities, conflict resolution and management, and team functioning have been reflected in the Canadian Interprofessional Competencies Framework (Canadian Interprofessional Health Collaborative, 2010). Likewise, in the U.S., four interprofessional collaborative practice domains have been identified and include values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork (IPEC Expert Panel, 2011) (Refer to Table 1). Within the last ten years, policy, accreditation and curricular changes related to interprofessional collaboration have begun to be integrated into academic settings (IPEC Expert Panel, 2011). The expectation is that all undergraduate healthcare students, upon graduation, be equipped with the knowledge, skills, and attitudes necessary to effectively collaborate as complex healthcare teams. Many health education disciplines have begun to incorporate interprofessional education into their daily learning activities (Henderson & Billett, 2011). The question of whether interprofessional education can positively change or enhance student attitudes, perceptions, and competence about interprofessional collaboration and clinical decision making is important to examine. Outcomes assessment results have indicated attitudes toward interprofessional collaboration can potentially improve when education occurs interprofessionally (Lapkin, 2013).

Significant improvements in student attitudes toward interprofessional team experiences, specifically regarding team values and team efficiency, were noted after participating in an interprofessional standardized patient

experience (Wamsley, et al., 2012). Likewise, short training sessions with multiple disciplines have been shown to be effective in improving attitudes and values related to interprofessionalism (King et al., 2014). Poulsen (2013) examined the impact of an interprofessional collaborative activity on students' perceptions of other disciplines and their "perceived value of interdisciplinary training for the improved treatment of medical patients" (p. 41). Using the Interdisciplinary Education Perception Scale (McFadyen, Maclaren, & Webster, 2007), Poulsen (2013) surveyed students from two healthcare programs and found that a structured simulation activity is effective in changing students' perceptions of "valuing of others, a perceived need to cooperate, actual cooperation, and self-competency" (p. 89).

Healthcare simulation (HCS) in educational settings offers a valuable training opportunity to incorporate IPE. HCS is defined as "a technique that uses a situation or environment created to allow persons to experience a representation of a real healthcare event for purposes of practice, learning, evaluation, testing or to gain understanding of systems or human actions" (Council for Accreditation of Healthcare Simulation Programs, 2014, p. 32). Academic institutions use simulation as an effective tool to bridge the gap between the classroom setting and clinical setting (Booth & McMullen-Fix, 2012).

Research exploring how IPE and HCS overlap is relatively new (Palaganas, Epps, & Raemer, 2014). Medical, nursing, physiotherapy, and pharmacy students participated in an IPE HCS study addressing communication among the students during end of life care (Efstathiou & Walker, 2014). An IPE HCS study

**Table 1.** *U.S. Interprofessional Collaborative Practice Domains and Canadian Interprofessional Health Collaborative Competencies*

United States	Canada
Values/Ethics for Interprofessional Practice	Communication
Roles/Responsibilities	Collaboration
Interprofessional Communication	Patient/family centered approach
Teams and Teamwork	Roles and Responsibilities
	Conflict Resolution and Management
	Team Functioning

involving medical, nursing, physiotherapy, radiology, and operating department students evaluated student perceptions of IPE HCS after reviewing five medical scenarios in interprofessional teams (Buckley, Hensman, Thomas, Dudley, Nevin, & Coleman, 2012). Teamwork and reflection practice was analyzed in an IPE HCS project among nursing, physiology, and radiography students (Stephens et al., 2011). Kyrkjebo, Brattebo, & Smith-Strom (2006) examined patient safety in team environments using HCS in an IPE setting with medical and nursing students. Studies involving students from other healthcare programs such as dietetics, gerontology/long term care (LTC) administration, and occupational therapy assistant are limited. Furthermore, IPE research focusing on HCS of nursing home dining experiences, where resident care errors are possible, is rare to nonexistent.

The purpose of this study was to assess changes in attitudes toward, and knowledge about, IPE among undergraduate dietetics, gerontology/long term care administration, and occupational therapy assistant students after participating in a problem-based simulated nursing home dining experience.

## Methods

### *Interprofessional Simulation Development*

Fifty-three undergraduate students from dietetics, gerontology/long term care administration, and occupational therapy assistant programs participated in a 75-minute interprofessional nursing home dining room simulation. According to the Pioneer Network Food and Dining Clinical Standards Task Force (2011), mealtime and the foods that are provided are essential components of quality of life and quality of care for residents in nursing homes. In order to promote resident intake, meals served in a communal nursing home dining room environment should focus on dignity, respect, self-determination, and purposeful living (Pioneer Network, 2011). Quality care is enhanced when resident preferences, socialization routines, physical support (i.e. provision of adapted eating utensils, wheelchair positioning or assistance opening containers/cutting food), meal timing, and resident values are considered. Quality of life markers include satisfaction with food, service received during meals, level of control, and independence (Pioneer Network, 2011).

At the start of the IPE activity, groups of six to seven students were seated at dining room tables. Each group was assigned a case and each student was assigned the role of either a *resident*, *family member*, or *staff member*. The students were instructed to stay in their assigned roles throughout the simulated case presentation. The students in the assigned role of *resident* were served lunch. Depending on the resident role assigned, some students received *regular* diets. Other students in the *resident* role received consistency modifications of the menu to simulate the mechanical soft and pureed consistencies of the regular texture meal. Following the meal, students were instructed to change roles to that of their respective disciplines and participate in a 20-minute small group discussion. Faculty members provided prompting questions to facilitate discussion of the case and the subsequent problems that occurred during the meal. Small group discussion was followed by a 15-minute faculty-facilitated large group discussion.

The first case presented a scenario about Mr. A., an 82 year-old male living in a nursing home. A registered dietitian recently ordered a mechanical soft diet for Mr. A. because of reported dental problems. However, Mr. A. did not understand why he was served the mechanical soft diet and requested a regular diet again. The second case described an 88 year-old female resident, Mrs. B., who recently moved into the nursing home after a fall, hospital stay, and hip replacement. She was served a regular diet including grapefruit despite nutrient-drug interaction concerns. The third case described a 92 year-old female resident, Mrs. C., who had difficulty using standard silverware due to progressive arthritis. Adaptive utensils were ordered for Mrs. C., but the dining room staff could not locate them in time for the meal. Finally, the fourth case involved a 90 year-old female, Mrs. D., who had resided at the nursing home for five years. She was hospitalized recently following a stroke, and continued to experience difficulty swallowing after returning to the facility. She became upset when she could not eat with her friends and was required to move in order to receive assistance with eating.

### *Study Design and Instrumentation*

A one-group quasi-experimental post-test design, with convenience sample, was used in this study. At the conclusion of the class period, participants completed the Interprofessional Collaborative



Competencies Attainment Survey (ICCAS) tool, a validated 20-item scale. The ICCAS assesses six competencies: communication, collaboration, roles and responsibilities, collaborative patient/family-centered approach, conflict management/resolution, and team functioning. These competencies were defined as follows by Archibald, Trumpower, & MacDonald (2014). The competency of communication is defined as the ability to communicate effectively in a responsible and responsive manner with others. Collaboration is the ability to establish and maintain collaborative working relationships with other providers, patients, and families. The area of roles and responsibilities is defined as the ability to explain one's own role and responsibility and to demonstrate an understanding of others' roles and responsibilities in the team. A collaborative patient/family centered approach is defined as the ability to apply patient-centered principles through interprofessional collaboration. Conflict management/resolution is defined as the ability to prevent and deal effectively with conflict between other providers and the patient/family. Lastly, team functioning is defined as the ability to continually improve collaboration and quality of care. Items are scored on a summated rating scale from 1-7 (1= strongly disagree; 7= strongly agree) (Archibald, Trumpower, & MacDonald, 2014; MacDonald et al., 2010). Higher scores indicate stronger collaborative interprofessional competencies.

Participants were asked to answer the first set of items retrospectively, indicating how they felt prior to the IPE simulation (time 1). Participants completed the second set of items based on their experiences after the IPE simulation (time 2). Summative scores for all items were used to create a mean response by the study group. T-tests compared responses between participants' retrospective responses and their responses following the interprofessional activity. Independent sample t-tests were then used to compare subscale scores.

### *Procedures and Interventions*

Students participated in the dining room simulation activity as described. Immediately following the activity, ICCAS surveys were distributed to all students. Although students were required to participate in the simulation activity to fulfill course learning objectives, participation in the ICCAS data collection was optional. Responses were kept confidential by using identifying

numbers that were unknown to researchers. Students did not receive compensation for participating in the study and were not penalized for choosing not to complete the ICCAS.

### *Participants*

The sample population included dietetics, gerontology/long term care administration and occupational therapy assistant students enrolled at a Midwestern university. After receiving approval from the Institutional Review Board, participants were recruited. All students enrolled in these programs were eligible, although not required, to participate.

### **Results**

A total of 53 students participated in the dining simulation: seven dietetics, 16 gerontology/long term care administration, and 30 OTA students. Fifty surveys were completed and submitted following the interprofessional dining activity. Seven surveys were eliminated from the study due to missing data (four gerontology/long term care administration student surveys, two OTA student surveys, and one dietetics student survey) for a total of 43 surveys analyzed. Therefore, the study response rate was 81%. Of the 43 surveys analyzed, 26% (n=11) were completed by gerontology/long term care administration students, 12% (n=5) were completed by dietetics students, and 63% (n=27) were completed by OTA students (Refer to Table 2, following page).

Responses from the 43 surveys were examined in the analyses. The ICCAS showed excellent internal reliability at Time 1 (retrospective) with a Cronbach's alpha range between 0.955 – 0.958 (n=20). A paired-samples t-test was conducted to evaluate the impact of the dining simulation on students' ICCAS responses. A statistically significant increase was found in the ICCAS summative score from the retrospective look designated as Time 1 (M=108.95; SD=19.76) to Time 2 [M=127.65; SD=17.86,  $t(42) = -8.63, p < 0005$ ].

The eta squared statistic (.64) indicated a large effect size (Cohen, 1988). Results indicated that there were significant differences in all subscales when evaluating scores between Time 1 and Time 2 (Refer to Table 3, following page).

**Table 2.** Program Demographics— *N* (%)

	DIETETICS	*GERO/LTCA	OTA
Students Enrolled in Class	14	16	30
Students Participating in Simulation	7	15	30
Participants in Study	5 (12)	11 (26)	27 (63)

\*Gerontology/Long Term Care Administration

**Table 3.** Subscale Scores (*n*=43)

	Time 1: Mean (SD)	Time 2: Mean (SD)	<i>p</i>
Communication	26.93 (5.73)	31.19 (5.08)	<.001
Collaboration	15.79 (3.55)	19.00 (3.12)	<.001
Roles and Responsibilities	21.14 (5.18)	25.35 (4.00)	<.001
Collaborative Patient/Family-Cnt App	16.21 (3.17)	19.58 (2.20)	.004
Conflict Management/Resolution	17.72 (3.60)	19.49 (3.19)	<.001
Team Functioning	11.16 (2.00)	12.88 (1.79)	<.001

## Discussion and Implications

Attitudes toward interprofessional competency appeared to improve for this group of students after participating in a problem-based dining simulation. The results of this study have implications for improved IPE in higher education, practice, and research.

For educators in academic settings, survey results showed that student participation in carefully designed activities can have an impact on all competency sub-scales. The intentional simulation design using case-based learning, faculty facilitators from multiple disciplines, three distinct student groups, and both small and large group discussions may explain why significance was found in all competencies. Healthcare simulations using scenarios commonly found in nursing home settings have the potential to change students' attitudes toward collaborative practice. Case development requires careful planning by the educators from each discipline in order to ensure realism and accuracy. For example, the faculty in this study created a simulation that included dietary texture modifications, durable medical equipment, and adaptive silverware to accurately reflect a nursing home dining room environment. The cases include a main character and a problem that can be solved by the

team. Academic faculty collaboration occurs during all phases of the interprofessional HCS, including development of the cases, sharing learning objectives, preparing and carrying out the simulation, and assessing the learning outcomes.

Student learning using a nursing home simulation may impact students' future performance as healthcare practitioners. The students in this study appeared to experience the need to communicate and to work collaboratively in order to manage conflict and resolve issues as a part of an interprofessional team working in a nursing home. They appeared to learn about their professional role as well as the roles of others in a nursing home setting. These roles included the resident, family members, dietitian, dietary staff, long-term care administrators, and occupational therapy assistants. Two of the interprofessional collaborative competencies focused on understanding the roles and responsibilities of the members of the healthcare team. Equally important was the need to include the resident and family in the simulation as it directly relates to the value of the collaborative resident/family centered approach as identified in the ICAAS competencies. By including both the experience and perspective of the healthcare professional and that of the resident and family, the students appeared to resolve the case problems while

improving their attitude toward team collaboration. In this interprofessional learning activity, the students had the opportunity to practice skills necessary for this type of nursing home situation. In addition, the realistic case scenarios appeared to have an emotive element and served as a catalyst that sparked change in attitude toward interprofessional care for elders.

Finally, researchers are impacted by the creation of this simulation and the study results. A positive impact on students was found in all six interprofessional collaborative competency domains. Analysis of HCS using realistic cases and a nursing home dining simulation in the academic setting add to the body of research on interprofessional education. Researchers can use the design of this activity as a starting point to ask additional questions about the impact of IPE and HCS on students as future healthcare collaborators.

### Limitations

Limitations affect the generalization of this study. Because of the complexity of working with three disciplines meeting at different class times, the study did not include a control group nor did it randomize participants. Future studies, similar to the one described, could explore using a cross-over design allowing for a control group. Information regarding participants' prior healthcare experience or prior IPE experience was not collected. Seven surveys were eliminated from analysis due to missing data. Although there is the potential in the assessment design for recall bias, for untruthful responses, and for underreporting of attitudes that respondents believe to be less respected by society, these same issues can occur using a pre-test/post-test design. The ICCAS instrument is one of the first validated surveys to use the retrospective pre-test/post-test design.

### Conclusion

IPE and HCS research with dietetics, gerontology/long term care administration, and occupational therapy assistant students, is limited. Healthcare professionals in these areas commonly work in proximity to one another in nursing home settings. However, students preparing for practice in these disciplines rarely train interprofessionally in order to achieve competence in communication, collaboration, patient/family

centered approach, roles and responsibilities, conflict resolution and management, and team functioning. A nursing home dining simulation using problem-based case scenarios was found to be an effective method of promoting interprofessional collaborative competencies with a unique group of healthcare students.

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## Corresponding Author

Mary Kay Arvin, OTD, OTR  
Chair & Clinical Assistant Professor

Occupational Therapy Assistant Program  
College of Nursing and Health Professions  
University of Southern Indiana  
8600 University Boulevard  
Evansville, IN 47712

[mkarvin@usi.edu](mailto:mkarvin@usi.edu)