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A Novel Approach to Interprofessional Education: Interprofessional Day, the Four-Year Experience at the Medical University of South Carolina

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Abstract

Background: In order to introduce students to different disciplines and promote interprofessional teamwork, the Medical University of South Carolina developed an innovative educational program, Interprofessional (IP) Day, for all first- and second-year health professions students. The IP Day Committee, composed of representatives from each of the six colleges (pharmacy, nursing, medicine, graduate studies, health professions, and dental medicine), coordinates the day's activities. The morning session (for second-year students only) and the afternoon session (for first-year students only) each begin with a large group meeting where an invited speaker details the concept and implementation of interprofessional teamwork. Following the speaker, students divide into small discussion groups containing at least one student from each of the six colleges and led by a faculty member and student facilitators. The first-year session introduces the role of each discipline (e.g., occupational therapy, nursing). The second-year session promotes teamwork among the professions via a case discussion.

Methods and Findings: We assessed the students' satisfaction with the program and measured their attitudes toward interprofessional collaboration using both quantitative and qualitative methods. Results from a formative evaluation of the IP Day suggest improved knowledge about other healthcare professions after participating in interprofessional day, particularly for first-year students.

Conclusions: IP Day lays the groundwork for our students' successful interprofessional collaborative experience at MUSC, a paramount university goal.

Keywords: Student education; Program evaluation; Faculty development

Introduction

Interprofessional collaboration is increasingly recognized as an essential competency in health professions education. The Institute of Medicine's publication *Health Professions Education: The Bridge to Quality* [1] emphasizes the need for interprofessional teams in healthcare as a means of improving patient safety and reducing medical errors. The Association of American Medical Colleges includes interprofessional health education and practice as a strategic area in which the organization and members should engage [2]. The prioritization of team-based interprofessional practice has been endorsed by various governmental and accrediting bodies beyond medicine, including the American Society of Health-System Pharmacists (ASHP) and the American Association of Colleges of Pharmacy (AACP) [3,4]. Consistent with scholarly consensus, in this article we define interprofessional education (IPE) as a situa-

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tion in which "two or more professions learn with, from and about each other to improve collaboration and the quality of care" [5].

Although more substantive efforts in IPE have occurred in the United Kingdom and Canada for many years [6-8], the literature provides evidence of a variety of IPE courses and student activities within United States (U.S.) health professions schools [9-13], suggesting that IPE is evolving with increasing frequency and scope in the U.S. The literature provides a few examples of semester- or year-long IPE learning experiences for students at U.S. academic health centres [9,14]. These offer students prolonged engagement with an interprofessional learning group. However, the implementation of IPE, particularly experiences requiring multiple hours of student interaction over several weeks or months, faces numerous institutional challenges. These include institutional leadership support, timetable and scheduling differences across programs, access to classrooms of appropriate size and number, sufficient numbers of trained faculty to facilitate educational sessions, and assimilation into curricular structures [6,7,12,15]. Such challenges can be daunting for an institution discussing how to establish interprofessional education experiences with multiple institutional curricula.

Some institutions have approached the introduction to interprofessional learning for students through a single, short-term introductory session. Two examples in the literature are reports by Harward et al. [11], describing a three-hour health affairs interdisciplinary care conference, and by Cameron et al., describing a two-and-a-half-hour session [16]. At the Medical University of South Carolina (MUSC), we offer our first- and second-year students a half-day introductory IPE learning experience, "Interprofessional (IP) Day." IP Day can serve as a model for institutions interested in developing a short IPE experience as a first step in students' learning about interprofessional collaboration. Importantly, our IP Day introduces first-year students to the concept of interprofessional collaboration and the roles of various health professionals. With the same student group, when they are second-year students, these concepts are reinforced and expanded. Fundamental to the history of our IP Day is its role as a change agent for interprofessional education at the institution. In this article, we describe IP Day, results of the activity evaluation, recommendations for others interested in implementing a similar event, and how IP Day has advanced interprofessional education on our campus. Our intention is to provide institutions interested in establishing IPE with a successful model that can be easily adapted, and one that can serve as an initial building block for a more comprehensive IPE program. Additionally, by providing evaluation results and students perceptions of their experience, we contribute to the growing literature about the impact of IPE interventions on student learning.

Institutional Background and Initial History of Interprofessional Day

The Medical University of South Carolina, a public institution of higher learning, is a free-standing academic health centre composed of six colleges: dental medicine, graduate biomedical sciences, health professions, medicine, nursing, and pharmacy. The annual total enrollment is approximately 2,500 students. Since the 1990s,

MUSC faculty members have offered students a variety of interdisciplinary and interprofessional initiatives. These have included an interprofessional quality improvement elective [17]; a five-week rural interdisciplinary clinical training experience, the "South Carolina Rural Interdisciplinary Program in Training (SCRIPT)" [18]; and the Presidential Scholars Program, a year-long co-curricular experience for selected students during which students engage in interprofessional team community project work and attend sessions about social and healthcare issues pertinent to all health professionals [19]. These programs have enjoyed significant success, but we recognized that only a limited number of students benefited from each experience, and that student participation was voluntary. In 2005, college deans agreed to the development of a required cross-college activity to engage all first-year students in an interprofessional learning experience. An interprofessional committee composed of students, faculty, staff, and administrators developed the plans for an Interprofessional Day (IP). The first IP Day was held in January 2006 for all first-year students from all colleges at MUSC, and the activity was quickly expanded to include second-year students in 2007. We believed it was worthwhile to provide an additional IP learning experience for students and thus decided to have them attend IP Day the next year as second-year students.

As an institution accredited by the Southern Association of Colleges and Schools (SACS) Commission on Colleges, MUSC began its preparation for reaffirmation of accreditation in 2005, including consideration of a topic for the required Quality Enhancement Plan (QEP). Institutions accredited by SACS must include a 10-year "carefully designed and focused course of action that addresses a well-defined issue or issues directly related to improving student learning" [20, p. 9]. Taking into account the university's mission, its current resources, and history of interprofessional learning experiences for students, such as IP Day, we reached consensus that the QEP provided an opportunity to generate a sustainable strategic plan for IPE. Designed as the QEP, *Creating Collaborative Care* (C3) provides an institutional commitment, conceptual framework, and operational mechanisms to make IPE central to the institution's accreditation. Within our conceptual framework for students' learning about interprofessional collaboration, IP Day serves as an introductory experience for first-year students and a reinforcement of the value of interprofessional collaboration and learning for them as second-year students.

C3 Conceptual Framework, Goals, and Theoretical Underpinnings of IP Day

C3 and its four student learning goals are guided by a conceptual foundation built on three adult learning theories. Following the work of Mezirow [21,22], we believe that students' engagement in IPE is a transformational process. Such transformative learning includes genuine experience of dilemmas that require the development of new roles and new ways of acting; through intentional interprofessional learning experiences, learners develop new ways of performing and understanding their role and that of other professions. Kegan's work [23] influenced our thinking about plausible sequencing of our C3 activity, with the intent to capitalize on the many ways

in which most adult learners acquire and refine different ways of knowing over time as a result of their developmental and transformative experiences. Third, we used work by Baxter-Magolda [24,25], who shows how learners move along a continuum from the most fixed to the most flexible ways of knowing. A fuller description of our conceptual framework is described in Blue et al. [15].

The four goals of C3 build on one another, increasing in complexity and in affinity for the actual settings where interprofessional teamwork is critical for effective healthcare delivery and translational research. These goals have guided the C3 implementation to date.

> **Goal 1:** Students will acquire teamwork competencies.
>
> **Goal 2:** Students will acquire knowledge, including the values and beliefs, of health professions different from their own discipline that will enable them to define interprofessional health care delivery or research.
>
> **Goal 3:** Students will apply their teamwork competencies in a collaborative interprofessional health care delivery or research learning setting.
>
> **Goal 4:** Students will demonstrate their teamwork competencies in collaborative interprofessional health care delivery or translational research contexts.

In our work, we have assumed the need for multiple and varied learning opportunities, including extracurricular and social activities, for all students on campus to acquire, apply, and demonstrate interprofessional teamwork competencies, and to anchor such learning opportunities throughout students' courses of study. As students progress through multiple, varied IPE settings, these settings provide expanding but recursive opportunities for the application of interprofessional teamwork competencies and professional maturation. Students follow a recursive learning process composed of acquisition, application, and demonstration. Based on the work of Anderson and Krathwol [26] in revising Bloom's Cognitive Taxonomy for better use as a tool for curricular planning, instructional delivery, and assessment, *acquisition* refers to learning associated with remembering and understanding, *application* refers to learning associated with applying and analyzing, and *demonstration* refers to learning associated with evaluating and creating. When applied to IPE, this recursive learning process underpins the progression of personal and professional development necessary for building contextually relevant team competencies.

Our second C3 goal addresses the need for students to learn about different healthcare professionals, including the professions' values and beliefs. Understanding and appreciating professional roles and responsibilities is a fundamental competency for interprofessional collaborative practice [27,28]. Our IP Day serves to provide first-year students the opportunity to learn initially about the different healthcare professions educated at MUSC, including the professions' values and beliefs. For second-year students, the Day reinforces the importance of inter-

professional collaboration and expands their learning about the roles of different professions in healthcare. As we progress with the full implementation of our C3 goals, IP Day serves as a focal point for introducing new students to the initiative. Starting in 2010, the Day served as the introduction for a required interprofessional course for students.

Description of IP Day

IP Day consists of a morning session for second-year students only and an afternoon session for first-year students only. Table 1 presents the number of students participating each year. We cancel all classes for first- and second-year students on IP Day, and attendance is required for these students. Roll is taken during the day, and if a student misses the day, they are expected to complete a make-up activity. The objectives of the first-year student IP Day program are for students to:

1. meet students from other professions and colleges,
2. name and describe the roles of other professions at MUSC,
3. explain how the professions interact and where they fit in the health care system, and
4. recognize the value of an interprofessional team approach to health care.

Table 1

Number of MUSC IP Day student participants and response rates for IP Day evaluation questionnaire

	Number of 1st year students (response rate)	Number of 2nd year students (response rate)	Total number of students
2006*	629 (93%)	n/a	629
2007	605 (95%)	463 (86%)	1068
2008	646 (92%)	582 (77%)	1128
2009	646 (93%)	508 (91%)	1154

Note: In 2006, only first-year students participated in Interprofessional Day.

The objectives of the second-year student IP Day program are for students to:

- identify effective teamwork strategies and skills,
- analyze, using a case study, the distinct contributions each profession provides to the health care system,
- reflect on how health professionals can work together to provide effective and efficient health care, and
- continue to expand personal interactions and collaborations across MUSC's six colleges.

Both sessions start with a large group meeting where students hear an invited speaker(s) highlight the value of interprofessional teamwork. The invited speakers

include national experts in interprofessional healthcare delivery and institutional examples of interprofessional healthcare delivery teams. First- and second-year students do not always have the same speaker. The presentations emphasize the value of interprofessional collaboration, its role in improving patient care, and how effective teamwork is accomplished.

Following the speaker, students divide into small discussion groups with representation from each of the colleges. The small group discussions each have a faculty and a student facilitator. The discussion groups for the first-year students focus on students learning more about each others' professions. We have evolved the activity over the years to an exercise that is a structured discussion for students to share, as a group in the same profession, the following areas with each other about their profession: a) requirements for entrance into the program of study, b) the general course of study, c) if any residency or fellowship training follows graduation, and d) known stereotypes and misconceptions about the profession. For the second-year students, the groups discuss a patient case that is structured for each of the students' professions to highlight their role, within a team approach, in the patient's care. Over the years, the case discussions have highlighted a person with chronic diseases, epidemics of unknown origin, and a health professional experiencing a motor vehicle trauma due to substance abuse.

Over 70 facilitators work with the first-year students and over 50 with the second-year students. We rely on a cadre of faculty and senior students experienced with interprofessional collaboration through our interprofessional co-curricular activities. We recognize that faculty need to develop interprofessional facilitation skills [29-31]. New faculty and student facilitators attend a facilitator training that orients them to the specific activities of the day and instructs them on small group teaching and interprofessional facilitation (i.e., creating a supportive learning environment, demonstrating appreciation and respect for the different professions, promoting collaboration, and explicitly valuing IPE) [29-31].

Evaluation of IP Day

Methods

Each year, we evaluate the effectiveness of the day's activities through post-IP Day surveys completed by students and facilitators, and approved by the MUSC Institutional Review Board for Human Subjects. The purposes of these evaluations are to learn how to improve the event for the next year and to monitor if IP Day is achieving the intended learning goals for students we design for the day. Although students' attitudes following a short, single IPE session have been reported by Cameron et al. [32], we chose not to assess students attitudes pre- and post-IP Day because, in concordance with our C3 conceptual framework, we anticipate that numerous and varied exposures to IPE will have a more lasting impact on students' attitudes than a single half-day experience. We are assessing changes in their attitudes with a matriculation and graduation survey using the Readiness for Interprofessional Learning Scale (RIPLS) [33] and the Interdisciplinary Education Perception Scale Instrument [34]. Similar to Harward [11], we developed items to

assess students' perceptions of the event's effectiveness in relation to the intended IP Day learning goals (i.e., general knowledge of health professions other than their own and the role of interprofessional teams in healthcare services).

Facilitators distribute to students a brief, anonymous, written survey to complete at the end of the small group sessions. Using a five-point scale where 1 = ineffective and 5 = very effective, the students rate the effectiveness of the various components of the day, including the presentation, small group introductions, small group discussions of team skills, small group discussions about the case, effectiveness of the small group faculty/student facilitators, value of IP day for learning about the roles of other healthcare professionals being educated at MUSC, and overall assessment of the effectiveness of IP Day.

Additional questions determine if the activities during the day have addressed goals related to students learning more about healthcare professional roles and interprofessional teams. These items, using a five-point scale where 1 = no knowledge and 5 = very knowledgeable, ask the students to rate their knowledge at the conclusion of IP Day of: a) healthcare services provided by other MUSC health professionals, b) the role of interprofessional teams in the provision of healthcare services, and, for second-year students only, c) the role of a team approach to decision-making. Open-ended items ask students: 1) What did you like about the interprofessional day experience? 2) What suggestions do you have to improve the interprofessional day experience for next year? 3) Describe one new thing you learned today.

Each year, quantitative evaluation items are analyzed using descriptive statistics, and the open-ended questions are read and student responses grouped by general theme. The grouping by general theme provides important information for improving the event and monitoring students' perceptions of their learning.

We value the facilitators' perspectives of the day, particularly in the early years of IP Day implementation. We view the facilitators as agents of change; if they perceive the Day as a positive experience and believe students learn something of value, these facilitators become IPE champions on campus. To assess facilitators' perceptions of the Day's activities, we ask them to complete an electronic survey following the event. An email message with a link to the survey is sent to facilitators the day of the event, and one reminder message is sent approximately one week later. Survey items ask about the effectiveness (1 = ineffective, 5 = very effective) of the components of the day, including a) the large group presentation, b) plan for morning and plan for afternoon session, c) case study for second-year students and group exercise for first-year students, and d) overall assessment of the value the Interprofessional Day program. Similar to the student evaluation, additional items asked if the activities during the day addressed goals related to students learning more about healthcare professional roles and interprofessional teams. For the facilitator version, these items ask (on a scale of 1 = ineffective to 5 = very effective) about the value of IP day in helping students to: a) get acquainted with other MUSC students, b) learn about other health professionals, and c) learn more about the role of an interprofessional team. The items on the facilitator survey are analyzed using descriptive statistics.

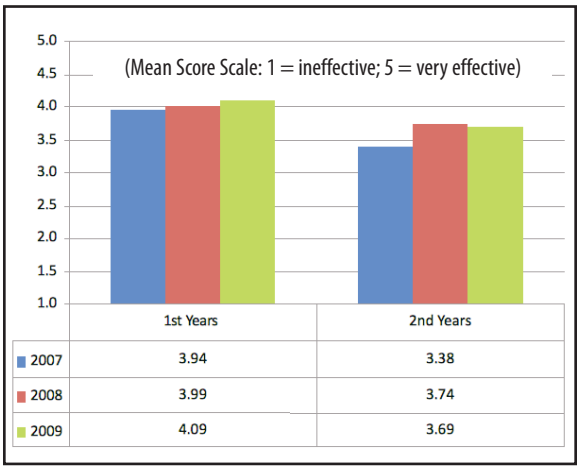
Each year the deans and other institutional leaders receive a report presenting the student and facilitator data so these key stakeholders are aware of IP Days' impact on student learning, and how changes will be made to the upcoming year's event to further improve it. The reports have been key vehicles in promoting IPE with institutional leaders, particularly since the evaluation results have been positive (see below).

Evaluation Results

Table 1 presents the percentage of students completing the IP Day evaluation form for each year. Overall, students have rated the day as effective, and each year, both first- and second-year students have progressively rated the overall effectiveness of IP Day higher than previous years (Figure 1). However, the first-year students consistently rate the overall effectiveness of IP Day more favourably than the second-year students. A similar trend is seen with students rating the value of the day for learning about roles of other health professional being educated at MUSC higher each year, and second-year students' ratings for this question are lower than those of first-year students (Figure 2). When asked about their knowledge of the role of interprofessional teams in the provision of healthcare services (Figure 3) and about healthcare services provided by other MUSC health professionals (Figure 4) at the end of IP Day, students' responses indicate they are knowledgeable, with first-year students

Figure 1

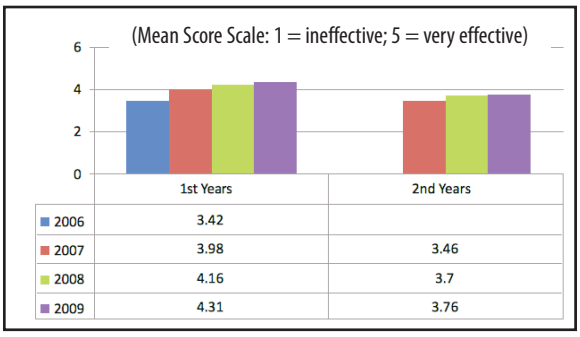
Students' ratings of the overall effectiveness of IP Day 2007–2009



	1st Years	2nd Years
2007	3.94	3.38
2008	3.99	3.74
2009	4.09	3.69

Figure 2

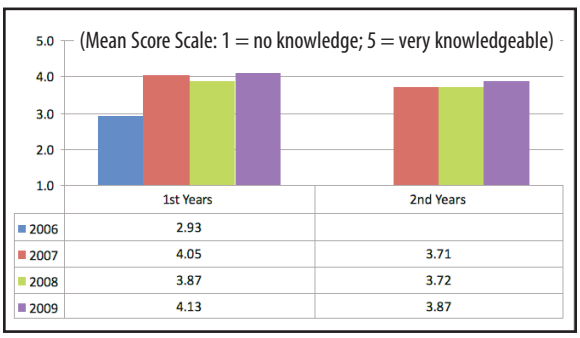
Student assessment of the value of IP Day for learning about roles of other health professionals being educated at MUSC



	1st Years	2nd Years
2006	3.42	
2007	3.98	3.46
2008	4.16	3.7
2009	4.31	3.76

Figure 3

Student assessment of their knowledge of the role of interprofessional teams in the provision of healthcare services at the end of IP Day



	1st Years	2nd Years
2006	2.93	
2007	4.05	3.71
2008	3.87	3.72
2009	4.13	3.87

slightly more knowledgeable than second-year students.

Each year, first-year students' responses to the open-ended question "What did you like about the Interprofessional Day Experience?" most frequently and consistently reference: 1) learning about the other professions educated on campus, 2) the opportunity to interact with other students from the other programs, and 3) the small group discussions. Responses to the question "What suggestions do you have to improve the experience for next year have?" vary from year to year as improvements are made each year to address students' comments from the previous years. Common suggestions from each year that remain a challenge to fully address include changing the day away from Friday afternoon, increasing relevance of the large group presentation to a specific profession (most often from the dental medicine and graduate studies students), and having a live speaker for students in the large group presentation room.

Figure 4

Student assessment of their knowledge of healthcare services provided by other MUSC health professionals at the end of IP Day

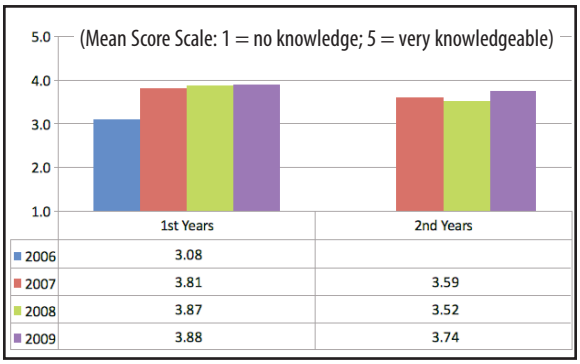
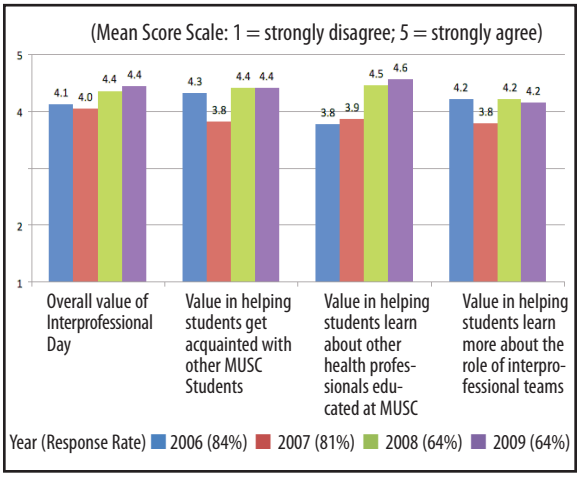


Figure 5

IP Day facilitator responses to IP Day evaluation survey



Each year, responses to "Describe one new thing you learned today" frequently and consistently reference: 1) professional responsibilities or characteristics of specific professions (i.e., "what an occupational therapist does," "the role of biomedical scientists," the difference between a physician assistant and nurse practitioner") and 2) the importance of understanding the various professions involved in healthcare.

Second-year students' responses each year to the open-ended question "What did you like about the Interprofessional Day Experience?" most frequently and consistently reference: 1) learning about the value of teamwork and how to work with others as a member of a team, 2) small group activities, and 3) communicating with other students about their healthcare fields and hearing other viewpoints. As with the first year students, responses to the question "What suggestions do you have to improve the experience for next year?" vary from year to year as improvements are made to address students' comments. The most common suggestion from each year

that remains a challenge is the need to improve the content relevance of the large group presentation and/or small group discussion to a specific profession (as with first year, it is often students from dental medicine and graduate studies). Responses each year to the request "Describe one new thing you learned today" frequently and consistently reference: 1) the importance of teamwork in patient care and biomedical science, 2) the value of communication on a team, and 3) aspects of particular professions.

With respect to facilitators, each year between 64% and 84% of facilitators respond to the facilitator IP Day survey (Figure 5 presents the response rate for each year). Results indicate that facilitators agree that IP Day is a valuable learning opportunity for students to: 1) become acquainted with other MUSC students, 2) learn about other health professionals educated at MUSC, and 3) learn more about the role of interprofessional teams. Additionally, they have been positive about the overall value of IP Day as an event (Figure 5).

Discussion

As institutions continue to introduce interprofessional learning experiences for their students, examples of effective activities are useful. There are reports in the literature of prolonged (i.e., semester or longer) [9,14] and short-term (half day or less) [11,16, 35] IP experiences for students. We have found our IP Day provides a useful introduction to first-year students about the various professions educated on our campus and the importance of interprofessional collaboration; for second-year students it reinforces the value of interprofessional work and expands their learning about different professions. The IP Day's goals and activities address the general interprofessional competency for understanding and appreciating professional roles and responsibilities [27,28], and these competencies are embedded within additional institutional goals for students' interprofessional education. Based on our evaluations, student and IP Day small-group facilitator participants perceive the day as an effective interprofessional learning activity. Our event differs from others reported in the literature in that it addressed learning goals for two separate cohorts, building students' knowledge for multiple years.

For institutions interested in developing a similar type of event, we offer the following recommendations based on our experience and participant feedback about resources required, training of facilitators, and making activities relevant for learners.

Resources

Material and personnel resources required for this large event include numerous rooms (conference rooms for the small group break-out sessions, as well as large classrooms), facilitators, and staff support. The large group presentation to students is presented live in one auditorium and then broadcast to four other large rooms on campus. We partner with the university educational technology services for this broadcast to occur, and for the day to be recorded. With the ideal of two facilitators per small group, many facilitators are needed. We rely on faculty as well as staff and senior students with interprofessional education experience through one of our

interprofessional co-curricular activities. Staff support needs include a person dedicated to the complicated process of assigning students to the small group breakouts—group assignments must represent as many students as possible from each program and accurately reflect student enrollment. On IP Day, one staff member from each of the 6 colleges is asked to assist with distributing packets to students and providing directions around campus and in buildings. Four to five other individuals are available during the day for other logistical needs.

Facilitator Training

As described earlier, facilitators complete a training session that introduces them to interprofessional facilitation skills and small-group teaching. We have found this training necessary to ensure a positive small-group experience for students, and we require all new facilitators to complete this training. Experienced facilitators must attend a one-hour orientation to learn about the specific activities of the day so they are familiar with them.

Making IP Day Activities Relevant for All Learners

Given the broad array of student professions that participate in IP Day, one challenge we consistently experience is ensuring the large group presentation and small group discussion has relevance for all of our professions educated at MUSC. It is often not possible to ensure that each profession is represented during the large group presentation. However, we stress to presenters to be mindful of the various professions represented in the audience and to be as inclusive as possible. When we use panel presentations, we ensure that persons from as many professions as possible are present. With the small group exercises, the first-year student exercise addresses all professions represented by the students in the small group. We have found developing an inclusive case discussion for the second-year students more challenging and have now structured it so that each profession has a specific role to contribute to the discussion.

In addition to offering an example of a successful introductory IP learning activity and one that extends to two student cohorts, our IP Day serves as a model for institutions interested in garnering attention for interprofessional education on a campus. By cancelling regular classes on IP Day, we promote the importance of interprofessional education across the campus to faculty and students. Since IP Day is a required activity for students, it conveys the institution's value of interprofessional collaboration and raises its status for students and faculty [30]. At our institution, we recognized that IP Day as a single IP event is insufficient for transforming students' knowledge and skills to become effective interprofessional collaborators and subsequently established a broader interprofessional learning framework. As part of the broader framework, IP Day now represents an important introduction for first-year students and an important opportunity to reinforce learning for second-year students. We have found that the second-year students rate the effectiveness of the day for learning about the roles of other health professionals and the role of interprofessional teams in the provision of healthcare services

slightly lower than when they were first-year students. We recognize IP Day for second-year students does not necessarily introduce new concepts, thus we are not surprised that their ratings for the second year are slightly lower.

Finally, IP Day provides the springboard into our other interprofessional co-curricular and curricular activities for students, including the previously described Presidential Scholars Program; the interprofessional case competition, CLARION, modeled after the national example [36]; and our student-organized and led Student Interprofessional Society (SIPS) that promotes interprofessional interaction for students through social and service activities. Our IP Day, which began as a single event for first-year students in 2006, served as an educational change agent for our campus. It drew attention to the value of interprofessional education to a broad array of university constituents (e.g., leaders, faculty, staff, and students). Each group has become more familiar with interprofessional collaboration, and it has led to a change in institutional culture [15].

To successfully effect changes, health professions educators need to learn from each other and model among ourselves the interprofessional collaborative approaches we espouse. We believe our IP Day serves as a model activity for other institutions interested in developing introductory IPE experiences. The structure of the day works around common barriers to IPE, including issues of academic calendars and funding [7,8,15]. IP Day provides a fundamental introduction to concepts of interprofessional collaboration, and it provides a stepping stone for development of more expansive IPE curricular and co-curricular activities for students.

This report provides preliminary results from a formative evaluation of our IP Day model. Our formative evaluation reports data captured using a pre-experimental research design: a post-test design with no control group. As such, this design cannot control for numerous threats to internal validity. Therefore, further research with stronger design is required to fully measure the effectiveness of IP Day.

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