

# Development, Implementation and Evaluation of a Novel Fourth Year Interprofessional Clerkship

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**Abstract** Many health profession schools, including medicine, struggle to implement interprofessional education (IPE) in their curriculum, in particular within the experiential portion of the programs. In 2013, the Commonwealth Medical College (TCMC) implemented a novel 2-week required clerkship in IPE. The goal of the course was to expose and include fourth year medical students to high functioning, interprofessional team environments. Course objectives were related to the IPEC core competencies and professionalism. The course required a number of activities and assignments to meet course outcomes. Thirteen clinical sites were identified and utilized during the 2013–2014 academic year, and sites had one to six learners throughout the year. Learners had meaningful interactions with an average of seven different health professionals during the 2-week rotation, and 86 % of the learners agreed that the course was effective in enhancing their understanding of interprofessional practice while 94 % of the learners would recommend their site to other learners. Qualitative analysis of the learners' final reflections of the course identified themes which were consistent with course outcomes and illustrates the emphasis that the students placed on meaningful experiences. This study demonstrates a required fourth year clerkship in interprofessional practice has significant potential for promoting interprofessional and team-based care. In the future, the faculty hopes to expand site availability to primary care and inpatient settings. In addition, documentation of more meaningful outcomes beyond student

perception is necessary. Coordinating this course with other health professional programs is a long-term goal.

**Keywords** Interprofessional education · Interprofessional practice · Medical education · Experiential learning · Clerkship

## Introduction

Interprofessional education (IPE), as defined by the World Health Organization, is a process that “occurs when students from two or more professions learn about, from and with each other” [1]. It is assumed that a robust IPE in the training of health care provider learners will lead to enhanced interprofessional practice (IPC) and result in improved patient outcomes. Interprofessional education is required in essentially all health care curriculum [2]. The Liaison Committee on Medical Education (LCME) includes IPE in standard 7.9 [3]. This standard requires “the faculty of a medical school ensure that the core curriculum of the medical education program prepares medical students to function collaboratively on health care teams that include health professionals from other disciplines as they provide coordinated services to patients. These curricular experiences include practitioners and/or students from the other health professions.” In addition, the Association of American Medical Colleges (AAMC) devotes one of 13 Core Entrustables to interprofessional teamwork in EPA 9: “Collaborate as a member of an interprofessional team” [4].

Although a required component, many health profession schools, including medicine, struggle to develop and implement curricula that provide robust and meaningful interprofessional learning experiences. Such factors as limited resources (time, financial, and human), logistics, rigid curriculum, and competing interests have been identified as barriers

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to implementing IPE [5]. In particular, we note that there is limited IPE in the clinical setting. We conducted a thorough electronic search of databases in PubMed, Google Scholar, and The Cumulative Index to Nursing and Allied Health Literature (CINAHL) and found no other mandatory fourth year IPE clerkship experiences in US medical schools. Although there are simulations in IPE and elective clinical experiences in IPE, to our knowledge, TCMC is the only medical school to require a fourth year IPE clerkship.

The mission of TCMC is to “educate aspiring physicians and scientists to serve society using a community-based, patient-centered, *interprofessional*, and evidence-based model of education that is committed to inclusion, promotes discovery, and utilizes *innovative techniques*” (emphasis added). TCMC is a private, free standing, medical school not affiliated with any major medical teaching center, which provides unique challenges and opportunities for IPE. TCMC has developed a number of different approaches to IPE in all levels of its curriculum by partnering with other colleges and universities in our 17 county regions [6].

Interprofessional education can and should be included in didactic, clinical laboratory, and simulation scenarios; however, we believe IPE is the most authentically experienced in the clinical (experiential) setting when learners interact with other health professionals (learners and practitioners) while caring for real patients. Ensuring that all learners get a robust and bonafide interprofessional experience is difficult to achieve and evaluate. The complex nature of medical schools’ organizational structure and curriculum in addition to a convoluted and fragmented health care system (at least in our area), pose significant obstacles to implementing IPE in the clinical setting. As such, we have developed and report on our successes using a novel approach to IPE—a fourth year required clerkship in an interprofessional environment.

## Methods

TCMC developed and approved a 2-week selective clerkship in interprofessional practice (MD 915) during the 2012–2013 academic year. Students were first required to complete this rotation during the 2013–2014 academic year. The course was conceptualized and developed by a pharmacy faculty member (EF) while on sabbatical at TCMC with input from faculty at TCMC and other health professionals. During the first year of the course, MD 915 was co-coordinated by the pharmacy faculty and a TCMC medicine faculty member (KA). An Experts in education evaluation provided expertise in the assessment of the course (ES).

There are five course outcomes, the first four of which were based on the IPEC core competencies [7] (roles/responsibilities, teamwork, interprofessional communication, ethics/values), and a fifth, “Demonstrate professional integrity with awareness of and commitment to the principles and

responsibilities of the health professions and a profound respect and unconditional regard for human dignity” was included to meet other curricular requirements. The IPE course is required but is “selective” in that it was developed so it could occur in a number of different settings allowing students to foster individual interests in medicine.

The course requires a number of activities and assignments. These requirements were developed such that they would allow the learner to achieve the stated outcomes. Additional responsibilities could be assigned or substituted by the

**Table 1** Course activities and assignments

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### Specific activities and assignments

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Activity 1: Accompany various health care practitioners (or students) during their normal clinical activities. Medical students should actively participate in the care of patients. Students should be working closely with these providers in a respectful manner that supports optimal patient care. In addition, students should interact and communicate with patients or their caregivers which may include patient education, counseling, or providing direct care.

Activity 2: Attend and participate in team-based meetings. These meetings should address the care of individual patients and/or populations of patients.

Assignment 1. Health care students (or provider) discussion. Students will meet with and engage in an active discussion with at least two other health care provider students (i.e., nursing, pharmacy, physical therapy, social work) that they have encountered during their clerkship. If another health care student is not available, the medical student will meet with practitioners. Students will complete the written health care students (or provider) discussion assignment as directed. Submit to preceptor/designee and discuss.

Assignment 2: Review of care plan. Students will review at least one (de-identified) patient-specific care plan which has been developed by another health profession or an interprofessional team. The student will compare this to the traditional medical model. How is the patient included in the development of the care plan? How is the medical model and other professional models of patient care and plans for treatment differ? How are they similar? Is the International Classification of Functioning, Disability and Health (ICF) model evident in this particular care plan? (see references in syllabus). Bring the care plan and a 1–2 page response to the above-noted questions to discuss with preceptor and/or the author of the care plan.

Assignment 3: Clinical question/answer and presentation. Under the direction of the preceptor, the student will identify a clinical question which is appropriate to the learning environment. The questions should be related to a specific patient or the patient population at the site. The student will research the question and provide a written response (2–3 pages, appropriately cited) and presentation to the preceptor. The preceptor will determine the format of the presentation (can range from very informal to formal). Audio visual support may be needed as directed by the preceptor.

Assignment 4. Final reflection. The student will prepare a brief (one to two pages) reflection which is due on the final day of the rotation (no earlier, no later). The reflection must contain a response to each of the following questions:

- What made the IPE rotation MOST meaningful to me?
  - What did I learn from this experience about myself and others?
  - What are the potential impacts this experience may have on MY FUTURE practice and patient care?
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preceptor as outlined in a syllabus addendum provided by the site. Assignments were reviewed by the preceptors but this feedback was not controlled or superficially measured by us. Course activities and assignments are presented in Table 1.

Sites were identified by the course coordinators and were considered appropriate if they delivered care in a highly functional, interprofessional environment. One of the course coordinators visited the site to determine the overall appropriateness of the site and to provide training and guidance. A 1 h continuing education (CE) program was developed and delivered to the staff at each of the sites. The CE program “Precepting an Interprofessional Clerkship” provided an overview of IPE, course content and reviewed precepting and assessment skills. The program was accredited for physician and nursing.

The clerkship is graded on a Pass (P), or Fail (F) basis. The learner must have satisfactorily completed all activities and assignments to earn a passing grade.

At the end of each clerkship, learners were given a paper survey to provide feedback on the course. In addition to demographics (ethnicity, gender, site), learners were asked to identify which health professionals (professional or learner) they had “at least one meaningful interaction with” during the experience. Meaningful interaction was defined as one

which “implies that you have learned from, about and/or with one of these individuals.” In addition, learners estimated the percentage of time they spent working with non-physicians. A series of Likert-based questions were used to assess learner perception of the site and course. Site questions were related to staff, organization, and preceptor effectiveness. These questions were site-specific and were used mostly for quality assurance and feedback to sites/preceptors and so are not presented here. The questions relating to overall course effectiveness and the activities are included in Table 2.

We analyzed the quantitative data using standard descriptive statistics. We analyzed learner final reflections (assignment #4) qualitatively utilizing NVivo 10 (QSR International, Doncaster, Victoria) to assist in data management and coding.

The research component of this report was reviewed and approved by the Institutional Review Board of The Commonwealth Medical College.

### Results

Thirteen clinical sites were identified and utilized during 2013–2014 academic year. Sites included drug and alcohol

**Table 2** Medical student perception of interprofessional clerkship (presented as % of respondents answering each question)

Students were asked to rate their level of agreement to the following statements as Strongly Disagree (SD); Disagree (D); Neither Agree or Disagree (Neutral, N); Agree (A); Strongly Agree (SA)	% SD	% D	% N	% A	% SA
Assignments and activities were in agreement with the stated learning objectives.			14	29	57
Participation in this course provided me with a better understanding of the roles and responsibilities of other health professionals.		4	2	29	65
Participation in this course provided me with a better understanding of how to work with individuals of other health professions to maintain a climate of mutual respect.	2	4	10	24	61
Participation in this course provided me with a better understanding of how to work with individuals of other health professions to maintain a climate of shared values.	2	4	8	22	65
Participation in this course provided me with a better understanding of how to work with individuals of other health professions to assess the health care needs of patients.		6	4	24	67
Participation in this course provided me with a better understanding of how to work with individuals of other health professions to support a team approach to the maintenance of health.		4	8	27	61
Participation in this course provided me with a better understanding of how to communicate with patients and their families to support a team approach to the maintenance of health.	4	2	4	41	49
Participation in this course made me feel more confident in engaging in interprofessional activities with individuals of other health professions.	2	4	8	27	59
Overall, this course was effective in enhancing my understanding of interprofessional practice.	2	8	4	25	61
I would recommend this site to my student colleagues.		2	4	12	82
Students were asked to rate how influential the activities and assignments were in contributing to their overall understanding of interprofessional education (IPE) as Not at all influential (NI); Slightly influential (SI); Somewhat influential (SoI); Very influential (VI); Extremely Influential (EI). Students were able to indicate N/A if they did not participate in the activity so numbers may not add up to 100%.	% NI	% SI	% SoI	% VI	% EI
Activity 1: Accompanying various health care practitioners (or students) during their normal clinical activities.	2		8	33	57
Activity 2: Attending and participating in team-based meetings.		4	12	37	45
Assignment 1: The health care student (or provider) discussion.	6	6	24	45	20
Assignment 2: The review of the care plan assignment.	6	10	20	39	22
Assignment 3: The clinical question/answer presentation.	8	14	33	22	22
Assignment 4: The final reflection activity.	10	12	24	33	20

rehabilitation (two sites), psychiatry, physical medicine and rehabilitation (PM&R) (two sites), geriatrics, developmental disabilities, primary care, HIV care, and global health. Individual sites had from one to six learners in the academic year.

Sixty-four learners completed the IPE rotation, and 51 surveys were completed (response rate 80 %). On average, learners had meaningful interactions with seven different health care professions and 42 (82 %) medical learners estimated that they spent more than 60 % of their time with non-physician health professionals. The most commonly engaged health professionals were registered nurses (88 % of respondents), social workers (86 % of respondents), nursing assistants (47 % of respondents), and nurse practitioners (43 % of respondents). The vast majority (80 %) of interactions were with professionals as opposed to other learners.

Overall course evaluations were positive (Table 2). For example, 86 % of the medical learners agreed or strongly agreed that the course was effective in enhancing understanding of interprofessional practice, and 94 % of the respondents would recommend their site to learner colleagues. As compared to the overall course and activities, it appeared learners were somewhat less enthused about the assignments. Quantitative data highlight the course's effectiveness in meeting intended outcomes; 94 % agreed or strongly agreed that the experience created greater understanding about roles and responsibilities; 92 % reported its value in extending their understanding of teamwork; and 90 % felt they had learned about interprofessional communication.

High frequency themes, their incidence, and exemplar quotes can be found in Table 3. The qualitative data also illustrates the emphasis students placed on meaningful experiences. These data show that students found specific aspects of interactions with other health professional particularly meaningful, including new learning about patient care, a new-found appreciation of other health professionals, and the importance of interactions to student understanding of medical practice. Thus, the qualitative data highlight participants' experiences related to an understanding of roles, appreciation for interprofessional teamwork, and communication between team members. Finally, the qualitative data extend our understanding of student learning to metacognition about their own practice.

## Discussion

There have already been some minor modifications to the course after the first year. Because our class size has increased, we expanded the number and geographic distributions of sites. In addition, we made changes to the assignments. Learner feedback was not particularly positive for the interview assignment. Many learners felt the assignment was remedial and that they should be able to learn about other professions

**Table 3** Final reflection: qualitative analysis high frequency themes and exemplar

1. Focus on patient care, with emphasis on holistic care and the "personal" side of medicine (125 occurrences)
  - "This IPE illustrated the importance of, and interplay among, the medical, social, environmental and spiritual needs of a patient. It was a great example of why the interdisciplinary team is vital to the success of care delivery."
  - "We learn so often in med [sic] school to treat patients' mind, body, and soul. It's actually happening here."
2. Meaningfulness of site experience (111 occurrences)
  - "The education I gained from this experience cannot be provided in traditional hospital or clinical rotations."
  - "After this elective, I see that the medical model of a diverse, hard-working, interconnected team is one that should be strived for in every practice, including my own."
  - "It felt like 'the future' in the here and now."
3. Benefit of active participation with the patient and interprofessional team (105 occurrences)
  - "Medicine is the ultimate team sport."
  - "There is a distinct difference between working casually alongside members of another health profession and spending a significant amount of time learning what they do and how they do it. That's the personal side of medicine, the personal aspect of the business. I hadn't fully appreciate the full scope of the concept until I was immersed in the 'world' of the HIV clinic, and I won't soon forget that."
4. New appreciation of other professions involved in patient care (73 occurrences)
  - "In two short weeks, I have learned about health care specialties I previously knew very little about...and I have gained a new appreciation for interdisciplinary care and how it can improve patient outcomes."
  - "I have been able to interact with more health care providers from various fields in a two-week period than I thought possible. It was very enlightening to get a chance to really SEE [sic] what each of these professionals do rather than just hear a description."
5. Increased or new self-awareness of strengths and weaknesses (66 occurrences)
  - "From this experience I learned a lot about the type of physician I want to become. I want to be a physician where every member of the medical team feels like they can speak up and provide their opinion about the care of the patient."
  - "What I found to be the most profound aspect of this rotation was what it taught me about myself."

The number of occurrences of theme frequencies is greater than the total number of participants because student responses often included multiple references to the inductively coded themes. For example, while 64 students completed the final reflection, they made reference to the meaningfulness of site experience 111 times

more organically through the daily activities of the rotation and so it was not required for 2014–2015. Assignment #3 (clinical question/answer and presentation) was made recommended (not required) since it did not directly contribute to any course outcome.

We learned a great deal from this experience. We believe an IPE selective rotation is best suited as a fourth year rotation since it provides an opportunity for the learners to build on all areas of the curriculum (didactic and experiential) prior to

graduation. In fact, most of our learners completed the rotation in the spring of the MD4 year. Learner feedback suggested that the IPE clerkship “pulls it all together” for them prior to graduation, potentially fulfilling the Core Entrustable Activity requirement. It is critically important to have strong relationships with sites. Most of our preceptors for this clerkship were non-physicians and all of them were volunteers. The coordinators of the course visited each site to make personal and professional connections with preceptors at the various sites and we believe this contributed to the success of the program. This very personalized attention may be difficult (but not impossible) to implement in larger and more complex medical schools. In all cases, we were met with a great deal of enthusiasm regarding the potential for both the clerkship and the medical learners. Although the clerkship is required, learners are able to choose their particular site (limited somewhat by availability and schedule) thereby allowing learners to take experiences in areas that they have an interest or seek additional training. Certain areas of health care lend themselves more readily to IPE experiences than others, including addiction, PM&R, and hospice. While hospitals would provide a meaningful clerkship site, it has proven difficult to place students in area hospitals for the purpose of this course.

There are some limitations to our study. While an 80 % response rate is reasonable, we hoped for a higher response rate. The paper survey was intended to be distributed on the last day of the rotation, some preceptors failed to provide the survey, thereby decreasing our participation rate. As with all survey research, it is possible that non-responders would have answered differently. This study reports perceptions of participants in the IPE rotation; further research is needed to make clearer links between experience and measurable outcomes. Feedback from sites has been positive, but we have not collected the data in a manner such to quantitate it.

Our next steps will be challenging. As noted above, most of our sites are in the outpatient setting—we hope to add some acute-care IPE elective rotations. We need to develop an effective and efficient method to document more meaningful clinical outcomes in learners and patients. With that said, we do not want to devalue the perception-data that we have collected. We believe that how learners *feel* about interprofessional practice is really important. Most of the interprofessional interactions were with professionals, as opposed to other learners so a long range goal is to schedule teams of IPE learners (medicine, pharmacy, nursing, and others) on rotation. Unfortunately, we currently do not have the resources to coordinate such a complicated undertaking.

## Conclusion

This study demonstrates a required selective fourth year clerkship in interprofessional practice has significant potential for promoting interprofessional team-based care. Through quantitative and qualitative analysis, learners perceived that the course met its intended outcomes. Further study is required to investigate how and if our approach correlates to changes in behavior of future physicians and, most importantly, the care of patients. We believe that this novel approach to interprofessional education can be adopted successfully at any school of medicine.

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## Compliance with Ethical Standards

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