Background: Medical schools offer interprofessional education (IPE) opportunities during preclinical years; however, the literature holds fewer descriptions of projects designed to promote IPE for medical students in clinical settings. Our project seeks to evaluate if students on a 6-week pediatric clerkship can establish working relationships with other health care providers (HCP).

Methods: We instructed 167 pediatric clerkship students to interact with two different non-physician HCPs and then to ask the providers to complete comments-only evaluations of the student’s professionalism. Encounters were to occur as part of normal patient care interactions. A dataset was created to record time-of-year, setting (wards, nursery, emergency department, clinic/offices), evaluator’s profession and status (trainee or staff/faculty), and student’s career interests. Descriptive statistics were generated for this cross-sectional study.

Results: 304 evaluations were submitted, demonstrating a 91% completion rate at an average of 1.8 evaluations per student (range 1-2). Pharmacists completed the most evaluations (46%, n= 140), which were all completed on general wards where pharmacists are well-integrated into clinical teams on which students rotate. Nurses completed the next highest amount (29%, n=87).

Conclusion: Clerkship students are able to establish working relationships with other HCPs in clinical settings. However, clerkship directors may have to guide students to reach out more broadly to providers outside structured teams.

Keywords: interprofessional education, pediatric clerkship, medical students

Article

Introduction
Throughout the world, interprofessional care is recognized as key to high quality, safe, and efficient patient care (Reeves et al., 2016). For medical schools in the United States and Canada, the Liaison Committee on Medical Education (LCME) states that the core curriculum must prepare medical students to function collaboratively with other health professionals (Standard 7.9) ("Functions and Structure of a Medical School. Standards for Accreditation of Medical Education Programs Leading to the MD Degree," 2015). Indeed, clerkship directors recognize the value of interprofessional education (IPE) for medical students. Through IPE, students can enhance skills and gain insight in such areas as communication, teamwork, and quality improvement. Also, clerkship directors want students to understand the vulnerability of the pediatric population and the importance of excellent coordinated care. (Barone MA, 2014)

The majority of IPE experiences in medical schools are small-group and not in the clinical setting (Blue, Zoller, Stratton, Elam, & Gilbert, 2010). Modern hospitals and offices employ numerous non-physicians, but it is not clear if medical students interact with all these individuals across different clinical settings during required clinical rotations.

At the Medical University of South Carolina (MUSC) all medical students receive information and exposure to IPE within their pre-clinical training (years 1 and 2 of medical school). During the first year of medical school, the students are required to complete an interprofessional course that introduces them to concepts like TeamStepps (Agency for Healthcare Quality and Research, 2017) and to engage in topics like social determinants of health care and cultural sensitivity. Preclinical medical students also participate in at least 1 day of IPE small group care activities each academic year. However, they have fewer opportunities to directly pursue and reflect upon IPE encounters during their clinical years (years 3 and 4 of medical school). The purpose of this paper is to describe an IPE project that we initiated on a 6-week pediatric clerkship to determine how effective third-year medical students were at establishing working relationships with other HCPs during clinical work time. Our aim was to encourage students to seek out IPE encounters throughout their pediatric clerkship and to ask HCP of other professions to evaluate those interactions, providing meaningful feedback to students about their professionalism.

Methods

Pediatric Clerkship

The 6-week pediatric clerkship at MUSC occurs in 8 blocks over the academic year. On average there are 20 students in each block. During the block, students rotate through the general wards (GW, 3 weeks), newborn nursery (NN, 1 week), pediatric emergency department (PED, 1 week) and primary care clinics (PCC, 1 week). In each clinical setting, the students are assigned patients to evaluate and manage under the guidance of house staff and attending physicians. In order to provide the best care for their assigned patients, students would need to reach out to other HCPs. By being in the different clinical settings of the pediatric clerkship, the students are exposed to a variety of other HCPs. On GW, the students work on clinical teams in which the pharmacists are integrated. There are 1-2 pharmacists or pharmacy trainees per team. The nurses join the team only when their assigned patients are discussed; this system allows the nurses to be available to participate in rounds for all 3 GW teams. There are roughly 6 nurses per hospital unit and the teams round on 3-5 different units depending on where the patients are admitted. The other HCPs join the GW teams as possible and for individual patients. Examples of other professionals include the child life specialists, social workers, respiratory therapists, and dieticians, but these others are fewer in number than the pharmacists and nurses. All of these other HCPs will be working on the units even after rounds are finished, and students could interact
with them at any time. In the other clinical settings (NN, PED, and PCC), the clerkship students will work with multiple health care providers but not in as defined teams. The pharmacists are not as visible in these non-GW settings. There are nurses, patient care technicians, and administrative staff regularly present in all these non-GW settings. Additionally, the child life specialists, physician’s assistants and respiratory therapists are regularly present in the PED. Other HCP providers are present on an as needed basis.

**Intervention**

During the 2012-13 academic year, we required students on the pediatric clerkship at MUSC to distribute 2 evaluations (intervention) documenting their professional interactions with 2 other HCPs (non-physicians, HCP). At the clerkship orientation, we emphasized the benefits of interprofessional care to the students, and encouraged them to develop working relationships with other professionals whom they would encounter on the clerkship. A working relationship was defined as discussion about a shared patient or joint presence while care was delivered for a shared patient. Medical student participation is sometimes limited to observation and so we felt that presence was sufficient. Students were given no specific requirements for the duration or intensity of each encounter with the non-physician HCP. These encounters were to occur as part of normal patient care interactions.

The IPE encounters were documented by evaluations completed by the other HCPs. These comment-only evaluations could either be done by hand on the card or electronically (directions on the card). The evaluators were instructed to provide observations on the student’s professional behavior in the clinical setting. The clerkship staff reviewed these comments to confirm that a working relationship was established between the student and the other HCP. The comments were then used in the student’s global assessment of professionalism. The handwritten cards could be turned in by the students or by the evaluators. If two evaluations were not received, the clerkship coordinator contacted the medical student to confirm that two cards were distributed. The electronically submitted evaluations were available to the clerkship coordinator through the electronic evaluation system used by MUSC. Data collected were evaluator’s observations, block number (rotation time of year) that student was on service, gender of student, how the evaluator completed the evaluation (electronically or handwritten), clinical location card was completed, and evaluator’s rank (trainee or faculty or staff), evaluator’s profession, and career choice of student.

**Data Analysis**

A dataset recorded time of year, setting (GW, NN, PED, and PCC), evaluator’s profession and status (trainee or staff/faculty), and student’s career interests. Descriptive statistics were generated for this cross-sectional study. Excel version 2013 was utilized to generate the statistics. The Health Sciences South Carolina Institutional Review Board for Human Research at MUSC approved the conduction of this study.

**Results**

All 167 students who rotated on the pediatric clerkship, had at least one card completed by an evaluator. Ninety-one percent of students had at least two cards completed. There were 304 evaluations submitted, at an average of 1.8 evaluations per student (range 1-2). Seventy percent (n=209) of evaluations were completed by hand on cards and 30 % electronically (n=95).

Over half the evaluations (66%, n= 202) were completed on the GW. Ten percent (n=29) were completed in the PED, 8% (n=23) were completed in the PCC, and only 4% (n=11) were completed in the NN. The majority of students (74%, n= 123) had a pharmacist complete at least 1 evaluation.
the pharmacists who completed evaluations were on GW. Pharmacists completed a total of 140 evaluations (46%). The majority (88%, n=123) of the evaluations that were completed by pharmacists were done by pharmacy trainees. Nurses completed the next highest amount (29%, n=87). Next were child life specialists, physician assistants, patient care technicians, and administrative staff (each approximately 4%). Other evaluators included dentists, respiratory therapists, and speech therapists. Fourteen students had evaluations completed by physicians or medical student peers, despite our instructions. Student gender, career interests (primary care or non-primary care), and time of year had no influence on whether or not an evaluation was sought from a pharmacist.

Discussion

Our study indicates that clerkship students on the pediatric clerkship are able to establish meaningful relationships with other HCPs in clinical settings. We learned from our study that medical students tend to seek out experiences with other HCP who are well-integrated into the teams to which the students are assigned for the clinical workday. For example, the majority of IPE experiences were noted on the pediatric GW where students spend half the clerkship. The students asked pharmacists who are well-integrated into the ward teams to complete the evaluations. Most of the pharmacist-evaluators were also trainees. It would be interesting to tease out if the medical students were more likely to ask the pharmacists because they were also trainees or because they were integrated into the GW teams. Even though this activity and evaluation helps satisfy LCME’s Standard 7.9 which is to ensure students have the opportunity to learn from interactions with other health professions, disappointingly, few students sought IPE experiences outside the structured GW teams. We failed to identify any student characteristics that were associated with more creativity in seeking IPE experiences (in other words, identifying IPE experiences with other HCP besides pharmacists). We concluded that students may miss interprofessional opportunities which are less integrated into the student’s clinical routine such as an experience with a speech therapist or social worker. A simple solution is to require that at least 1 evaluation come from a menu of providers less visible to the students.

We were very interested in whether the evaluators, who are not employed or required specifically to teach medical students, would be willing to complete the evaluations electronically. Pediatric clerkship administrators value efficiency, as it certainly would save the step of entering the data after the cards are collected. We were encouraged that, in 2012-13, thirty-percent of evaluators were willing to complete the evaluations electronically. In the future, an easy-to-use phone application for evaluators may further increase this number.

Our study was limited because we did not collect any reflections from the medical students. We did collect evaluator comments on the competency of professionalism, but not in a quantifiable manner. However, anecdotally, we noted that the evaluators frequently mentioned “collaboration,” and also frequently commented on improved patient care. In a future study, we would like to assess the quality of these experiences further. Also, our study was limited because we did not assess the impact of this intervention on the evaluator’s workflow or education.

Conclusion

The IPE curriculum for medical student education in required pediatric clerkships requires further development. (Barone MA, 2014; Blue et al., 2010) Although 1/3 of clerkship directors report IPE at their institutions, it might not even be a required activity. (Barone MA, 2014) We feel that we took a
step in the right direction by requiring the medical students to have IPE experiences in the clinical setting and to capture these experiences with an evaluation. Although our efforts are only exploratory, they do give some understanding of IPE opportunities that currently exist for medical students in the clinical settings and, more specifically, on pediatric clerkships. In order to broaden the medical students’ exposure to other professionals, clerkship directors may need to direct students to reach out more broadly to providers outside the structured teams.

Take Home Messages

1. Pediatric clerkship students are able to establish working relationships with other health care providers (HCPs) in the clinical setting.
2. In our study, medical students tended to seek out other HCPs who were the most clearly integrated into the clinical teams to which the students are assigned.
3. In order for medical students to gain exposure to a variety of other HCPs, the clerkship director will likely need to provide direction and to specify the other HCPs whom the students should seek out.

Notes On Contributors

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Appendices

Declaration of Interest

The author has declared that there are no conflicts of interest.