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ABSTRACT

This paper describes the impact of early clinical contact (ECC) on medical students. The concepts emerged from a grounded theory analysis of interviews with students and faculty in the ECC program at Ohio University College of Osteopathic Medicine, which places first-year and second-year students in a variety of clinical settings in ambulatory clinics, private offices, and community settings. Program goals are broadly stated; neither explicit objectives nor formal feedback to students is provided. To assess the program, interviews were conducted with 8 faculty and 19 students, covering the length, timing, and structure of the experiences provided; impact of the program; and relationship to the didactic curriculum. Results indicated that students value opportunities to become acclimated to clinical settings before they are thrust into clerkships. Students were especially interested in: observing how physicians interacted with patients and managed their time, understanding how physicians approach clinical problems and make decisions; and recognizing that there is more to medicine than just the textbook. Though ECC programs are often developed to encourage students to enter primary care, students do not report much relationship between ECCs and their career choices. The study concludes that ECC can begin to train students to think like doctors while it initiates them into a community of practice. (Contains 14 references.) (JDD)

# A Light at the End of the Tunnel:

# The Impact of Early Clinical Experiences on Medical Students

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**Abstract:** This paper presents key concepts that describe the impact of early clinical contact on medical students. The concepts emerged from a grounded theory analysis of interviews with students and faculty. The concepts include: What Doctors Do, Clinical Mind (the clinical reasoning process), and Light at the End of the Tunnel. Findings are discussed in relation to the concept of legitimate peripheral participation, which focuses on the roles of experts and novices working together in a community of practice.

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Medical education continues to explore new ways to integrate theory and application, and early clinical contact (ECC) has become part of the experiment. Like case-based techniques, ECC is often viewed as a way to provide a context for the basic sciences that highlight their relevance for medical practice [1]. ECC programs are typically ambulatory-based and often include community-oriented components. As such, the programs are viewed as a way to encourage students to enter primary care careers [2]. ECC programs are also seen as beginning the process of professional socialization and encouraging the development of mentoring relationships [1, 2]. At minimum, they provide an antidote to the lectures and rote memorization that still dominate many medical curricula.

Although many medical schools are implementing early clinical programs as part of overall curricular reforms, little is known about the actual impact of these experiences on first- and second-year students. Current literature on ECC focuses on program descriptions [3, 4, 5, 6] and while articles on ambulatory teaching [2, 7] are very useful, they do not address directly the issues involved in putting first and second year students in clinical settings.

This paper presents key concepts that describe the impact of early clinical contact on medical students. The concepts emerged from a grounded theory analysis of interviews with students and faculty participating in an evolving early clinical program.

**Methods**

Our current early clinical program places first and second-year students in a variety of clinical settings two afternoons each quarter. With only limited time in the curriculum, we have not tried to offer experiences in continuity of care. Students are randomly assigned to a variety of settings in ambulatory clinics, private offices, and community settings. Although primary care experiences predominate, specialty assignments are also made. Additional elective experiences can be arranged, including block experiences after the first year. Program goals are broadly stated; neither explicit objectives nor formal feedback to students is provided.

Efforts to reform our curriculum have included proposals to expand the number of ECCs and give more structure to the program. With federal grant support, we initiated an assessment to guide further development. Interviews were conducted with eight faculty serving as ECC preceptors. Five group interviews were conducted with 19 first- and second-year students. The interviews covered program issues such as the length, timing and structure of the experiences provided, as well as perceptions about the impact of the program, its value, and its relationship to the didactic curriculum.

Issues related solely to program development (like requests not to schedule early clinical experiences before exams) have become part of program planning efforts, but are not considered here. Issues of the impact, value and role of early clinical experiences in the curriculum were developed using a grounded theory approach. The concepts derived are being used to structure additional interviews and observations.

Based in symbolic interactionism, grounded theory focuses on interaction and social relations, and is therefore well suited to research on teaching and learning [8, 9, 10]. Grounding depends on extended interactions with the people and situations being studied. What is relevant emerges during the process of data collection and analysis. Concepts derive from data; these concepts in turn guide further data collection. Eventually, concepts are linked together in a carefully articulated, theoretical model. The give-and-take between data collection and analysis led to the other name for this approach: the constant comparative method. Grounded theory is particularly useful in areas where existing theory is weak, or does not seem applicable to practice.

This study used an emergent approach in which analysis of early interviews influenced later interviews. This allowed emerging concepts to be explored and developed. It should be noted, however, that all interviews were conducted in an open-ended framework to allow respondents to identify key issues; follow-up questions were used to get at concepts of interest as needed. All interviews were conducted by the author. Faculty were interviewed in my office. Student interviews took place in college meeting rooms, over lunches provided by the grant. Interviews lasted between 60 and 90 minutes. Audiotapes were transcribed for analysis.

This paper reports results of a study in progress. Some key concepts and auxiliary findings are presented, but have not been articulated into a model. In addition to describing results to date, the paper also discussed relationships between emerging concepts and existing theories that seem applicable, particularly in the areas of cognitive apprenticeship [11, 12] and legitimate peripheral participation [13].

## Key Concepts

Students view ECC as a valuable opportunity to begin their professional development. They value the opportunity to become acclimated to the clinical setting before they are thrust into clerkships. Some students report beginning to look at clinical interactions in a new way, from the doctor's rather than the patient's perspective. They note that this is the only opportunity they have to observe different physicians at work. Our clinical curriculum begins with an

ambulatory family medicine clerkship in which students are assigned to a single physician and, on later rotations, they are expected to perform, supervised or not, rather than watch others. Some students hope the ECC program will help them find role models and mentors.

Three concepts emerged that seemed to encompass key dimensions of the impact of early clinical contact on students and provide a framework for further study: What Doctors Do, Clinical Mind, and the Light at the End of the Tunnel.

In their early exposures to clinical settings, students want to know What Doctors Do. They observe consciously how physicians interact with patients, how they manage their time, how they talk and move. Observations of different physicians in different settings provide a framework for understanding medical practice and a basis for comparison. Students begin to understand that medical decisions are often made on the basis of incomplete or ambiguous information, and that patients bring their personalities into the office as well as their medical problems. One faculty member commented that students "start to realize that many of the patients they are going to see, the average patient, is not normal in a general, average sense."

Students commented on things that surprised them about medical practice, highlighting the differences between the "real world" and both their own preconceptions and what they were learning in the classroom, as well as expressing appreciate for the opportunity for basic exposure: "We just want to know what's going on." "I can see myself, comparing myself to this physician." "It's style, it's personality." "I was shocked that everyone except one person, who was there with a baby with a genetic defect, every one of them smoked. And it had never occurred to me how much that smoking is a part of the health problem." "I was amazed that things moved really quickly. They're in one office, they go and they're in another."

Some physicians are explicit in their attempts to role model or to talk with students about issues like interaction styles with patients, the balance between work and home life, money issues, and practice issues like workman's compensation: "I try to talk about the patient interaction process. ...I try and talk about sometimes practice issues, such as workmen's comp, what's an advantage of workman's comp, what are the drawbacks, and discussing practice and management issues and where they come up." "I also tend to verbalize on the sociology of the interaction here, between patient and health care provider. Much of that sociology is a condemnation of the health care system as we know it in this country, so it tends to be a little negative." "The doctor had some free time and she sat down and talked to me about HMOs and salaries and malpractice insurance. It was kind of nice to remember that I'm in this for a job. More of the real life aspects

of being a doctor, instead of just, you know, the different abdominal structures."

This aspect of the experience seemed more important for students with little previous exposure to clinical settings, and seems to be best supported by giving students opportunities to observe different physicians.

Clinical Mind. Students view the development of clinical ways of thinking as an important outcome of early clinical contact. This is not the same as seeing what physicians do; it refers more specifically to understanding how physicians approach clinical problems and make decisions. "We sit in class all day and get these facts thrown at us, but we don't know how to organize it into, like, a clinical mind. You're around the docs, you see how they think through things." "With Dr. X I got to see what kind of decision making process he used, whether he would take care of something or refer it on." "You can do all the book learning you want, you might understand the theories, the soft stuff, but application is totally different."

This view of professional development is akin to the *transformational* view described by Kennedy, in which learners move beyond prescriptions of *what to do* to learn about *how to decide* what to do [14, p. 143]. This concept can also be restated in the language of cognitive apprenticeship: The students are articulating a need to move beyond "domain knowledge" (basic facts, formulas and concepts) to begin to understand "heuristic strategies" (how those facts are applied in practice) and "control strategies" (how to tell which strategies are appropriate in specific situations) [11].

What is even more interesting is that they ask for precisely what Collins, Brown and Newman recommend, namely, think-aloud protocols from physicians: "I think the interaction with the physician is probably the most important. You are just following around and he or she is ignoring you, kind of iike you are not there, then you are there and you are seeing what is going on but you are not really active. But if the doc is explaining things to you and telling you what he is looking for and letting you maybe look in the ear or whatever, to me that makes it all that much better."

This aspect of the experience is important to all students and is best supported when physicians talk to students throughout the clinical encounter by discussing patients and cases before entering the room, involving the student verbally during the encounter, and asking and answering questions afterwards.

A Light at the End of the Tunnel. Early experience in clinical settings generates great interest and enthusiasm for medical school. This aspect of the program was mentioned in every interview, and was the most important feature of the program

for a number of students and some faculty. Faculty commented: "The most important thing is that it engenders enthusiasm for practice in medicine. ...It helps them [students] keep in perspective what their goal is ... [and] makes them aware that, 'Hey, there is life after medical school.'" "It helped keep me focused on where I was going because I hated the first two years. I hated it."

Students said: "We so readily lose sight of what we are doing, in the books and paperwork and everything." "[Early clinicals] give you a reason for studying." "It made the whole medical school experience more real." "Going out into the clinic makes you realize that there is more to medicine than just the text book. There is a light at the end of the tunnel; sooner or later you are going to do what you said you were going to do in your interview."

The literature has viewed ECC as a way to highlight the clinical relevance of the basic sciences, and that this would be the vehicle for increasing student motivation in the first two years. This view was shared by a number of our faculty, some felt it was the chief reason for the ECC program. In fact, most first-year students described little connection between classroom and clinic. When I raised the question with first-year students, the response was typically silence, followed by laughter. Second-year students saw more connections, but still felt that too few links could be made. In some cases, students felt that their clinical experiences underlined the lack of relevance in the didactic curriculum.

Students in both years reported increased motivation *despite* a lack of clear connections, because they saw that they would not be in the classroom forever. "Even though what I was learning was not necessarily directly related to work in the clinic, I felt I paid a lot more attention to, say, biochemistry because I could see that the time would come when I'd be faced with people who would have these problems." The increased motivation was apparent when I talked with students and was very important to them. They invariably closed the interviews with comments that stressed the positive: "There's no way the negatives would ever outweigh the positives of this program. It's not even close."

**Additional Findings**

Two additional concepts are worth reporting here. The first, Memorable Patients, originally seemed to be part of the development of Clinical Mind, or at least closely related to it. As I continued the interviews, however, it appeared that memorable patients had less to do with learning decision-making skills than with making a particular disease or constellation of problems come alive. The second, Career Choice, is addressed because encouraging students to enter primary care is often given as one of the principal reasons for developing ECC programs, but is not part of student perceptions of their impact.

Memorable Patients. Students welcome the opportunity to see real patients, even when they don't understand the complexities of the case. Sometimes, however, different sources of information come together in a single clinical experience that the student "will never forget as long as they live." These incidents seem to revolve around particular patients who are memorable because of their personal circumstances, their medical problems, or the clinical skills called into play in the interaction: "I'll never forget what a broken finger is, what happens when you pull the extensor tendons off of your little finger, because I saw it." One faculty member commented: "I've had students ask me afterwards, 'How is Mrs. So-and-so?' The patients really make an impact."

Sometimes, explicit coaching came from patients; either from special patients with chronic conditions who routinely work with students, or from patients invited by the physician to give feedback to the student on a history or physical exam. These incidents were mentioned by faculty, but not by students, who tended to focus on memorable cases.

Career Choice. Some physicians view ECCs as a way to reinforce primary care, since most experiences occur in these settings. It is almost as if faculty believe that providing early contact with generalists will inoculate students against the influence of the specialists with whom they will training later. "When push comes to shove, people will fall back on the tapes that they play in their heads. ...[ECC] provides some reinforcement for our graduating primary care physicians." This view is clearly shared by proponents of early and extended exposure for students in ambulatory setting [1, 2].

Students, however, do not report much relationship between ECCs and their career choices. Students who came in with a goal in mind seemed confirmed in their choice. Students without clear career goals report that some ECCs helped them rule out a specialty they didn't like; most often they enjoyed everything. Students view family medicine as an excellent clinical experience, especially for first year students, but do not view this as a way to influence career choice. One student reported that, although her specialty choice had not changed, she had a stronger appreciation for the role of family medicine in health care.

The impact on career choice seems to be more in the areas of confirming that students will enjoy clinical practice: "It's given me a lot more confidence that this is in fact what I want to do and I'm doing the right thing," and in helping them to identify what kind of practice they would like to develop: "The reason I got into medicine wasn't to see patients who I don't know and never touch them again," rather than in choosing a particular specialty.

This is not to say that influences are not there; it is quite possible that students are being influenced in ways that are not apparent to them, or that they will not appreciate the ambulatory medicine they saw early on until they have a broader experience with which to compare it. It is interesting to note, however, that one of the principal reasons for initiating early clinical contacts is not reflected in student perceptions of the impact of the program.

**Implications**

It quickly emerged from the interviews that I could not focus on the impact of experiences on students without considering the interactions between students and physicians, students and patients, and physicians and patients. These interactions form the core of the experience. Students are concerned about their relationship to the patients and their care, wanting to be involved, but not to compromise the quality of care received or the physician/patient interaction. Students also have clear views on what constitutes a good interaction between student and physician: One in which the student's direct involvement should be limited by ability, but in which the physician always keeps the student verbally involved and aware.

"The good ones were the ones who really involved us with the patient. They didn't try to embarrass us in front of the patient but let us take a real active part." "[when they don't] embarrass the patient by ignoring them and just focusing on us." "It was a very rewarding experience because she was very much involved. She would sideline me for a patient; that I didn't mind so much; but then when we would get out in the hall she would always talk about it." "The only time I really ever felt uncomfortable was when the doc left me alone with the patient."

This view is congruent with and, in fact, would be predicted by Lave and Wenger's concept of legitimate peripheral participation [13]. This analytical perspective views learning as something that happens within a community of practice in which some members are more expert than others. The concept of legitimate peripheral participation focuses attention on the roles of experts and novices working together in a community of practice and situates knowledge not in individual heads but in increasing participation of learners in the roles of experts.

To use Lave and Wenger's language, early clinical programs introduce medical students to a community of practice much earlier in their training, attenuating their sequestration in classrooms and labs. It offers opportunities for legitimate participation that is appropriately more peripheral than will be expected (or allowed) later in their clinical training, and gives the student more control over his or her level of participation.

The framework of legitimate peripheral participation suggests interesting and fruitful ways to examine early clinical programs. On the positive side, it suggests why they are popular with students. In this framework, development of identity is viewed as a central task, and opportunities for participating in practice with experts offer significant intrinsic rewards. Early clinical programs need not link explicitly to classroom learning to offer valued experiences to medical students.

Programs developed on the apprenticeship model are not always successful, however, and issues of the extent and nature of access to practice, and opportunities to develop productive skills, can be used in program assessment. This suggests, for example, that students find the traditional basic sciences aversive because the practices in which they engage in didactic learning do not translate to their practice goal and, in their view, stand in the way of that goal. Notice that this does not suggest that students see didactic knowledge as irrelevant; rather, they see that the modes of interaction in classrooms and clinics are very different.

## Conclusion

Students view early clinical experience as a valuable opportunity to begin their professional development. They begin to look at clinical interactions in a new way. from the doctor's rather than the patient's perspective. Students note that this is the only opportunity they have to observe different physicians at work: In the third and fourth years, they will be expected to perform, supervised or not, rather than watch others.

The concepts emerging from grounded interviews with students, viewed within the framework of legitimate peripheral participation, offer new understanding of the impact of early clinical experiences and suggest interesting avenues for program development and further study. Early clinical contact is more than an enhancement of classroom learning; it can contribute to a transformational education. Like problem-based learning, it can begin to train students to think like doctors while it initiates them into a community of practice. Looked at in that light, it becomes difficult to imagine a medical curriculum without an early clinical program.

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