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MEDICAL EDUCATION

The Longitudinal Integrated Clerkship

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Longitudinal integrated clerkships (LICs) are one of the first major efforts to restructure core clinical training for medical students. Since the time of the Flexner Report (which will be 100 years old next year), core clinical training for medical students has occurred primarily on inpatient teams in block rotations. The rotations are intended to allow students to work closely with a team of faculty and residents, participate in the care of hospitalized patients, and receive feedback and mentoring from team members who observe their performance over several weeks. Students working with teams during the clerkship years are expected to develop their professional identity as physicians, adopting professional and ethical standards such as honesty, integrity, accountability, and openness and responsiveness to feedback. They are trained to communicate effectively with both patients and colleagues.

As health care delivery has changed over the last 20 years, this traditional structure of clinical training no longer functions as intended. Students rarely spend more than a few days with the same residents, attending physicians, and patients. Shortened rotations, increasing complexity of inpatient illness, and resident duty-hour restrictions limit opportunities for observation, assessment, and feedback with students. Team members may not know their students well enough to provide individualized supervision and mentoring.

The current model of clinical training has many shortcomings:

- Patients often move between hospitals and other care settings, impeding students' ability to follow complete illness episodes or form meaningful relationships with patients.
- With most of their time spent in the hospital, students do not witness medical problems managed in the outpatient clinic and see only the sickest patients with the most complex illnesses in the hospital.
- Students have infrequent exposure to undiagnosed patients and do not become engaged in patients' care until long after the initial assessment by more senior physicians.
- Opportunities for students to have authentic participatory roles on the team are limited.
- The random sequence of block rotations without continuity between rotations results in discontinuous clinical skills development across the third year.

Although medical students trained in the traditional model do acquire core knowledge and clinical skills, their moral development and attitudes toward patients can be adversely affected by their clinical training.

The erosion of ethical behavior and moral reasoning in medical students. A number of studies show that students suffer ethics erosion over the clinical years. In a survey of third- and fourth-year medical students, a majority reported having done something they believed was unethical, having misled a patient, or both [1]. Almost all had heard physicians making derogatory comments about patients, and the majority had witnessed what they believed was unethical behavior by other medical team members and felt they were accomplices to such behaviors. Sixty-two percent believed that at least some of their ethical principles were eroded or lost. Students cited concerns about how they would be evaluated or integrate into the team as contributing factors for their own ethical transgressions.

It is also possible that students' development of moral reasoning is curtailed in current training conditions. Kohlberg postulates that people pass through stages of moral development in a specific sequence as they age and mature. One study found that medical students' moral reasoning stopped progressing over the 4 years of medical school compared to adults in the same age group [2, 3]. This finding is especially troubling because the medical profession holds itself to a higher professional standard than many other professions.

The decline in positive attitude toward patients in medical school. Many students enter medical school with a desire to help patients. They arrive honored to have the opportunity to learn from patients, hear their stories, and, with time, help heal them and improve their lives. Early on, most medical students are inherently interested in patients' experiences of illness and their emotions and preferences. These patient-centered attitudes promote positive patient-doctor relationships and patient satisfaction. Studies that have examined changes in students' patient-centeredness, however, have found declines over the 4 years of medical school [4]. Despite curricula designed to foster these patient-centered attitudes in the preclinical years, experiences in the clinical years lead students to shift to a more doctor-centered perspective of patient care. Patients are approached more as diseases and procedures than people, with biomedical science driving the diagnostic and treatment plans, and minimal consideration given to the individual patient's perspective.

The power of the hidden curriculum. The hidden curriculum has a strong influence on students' attitudes toward patients and their own professional and moral development [5]. All of medical education consists of both a formal and a hidden curriculum. The formal curriculum is explicit and includes objectives and course content. For a clerkship, the formal curriculum might include the disease types or procedural skills a student is expected to learn during the rotation. By contrast, the hidden curriculum is implicit or unintentional and is driven by latent social processes and messages that influence what students do, even if they are taught the opposite [6]. For instance, in a preclinical doctoring course, a student is taught to explore the

social context in which a patient's illness is occurring. When the student moves into clinical rotations in the hospital, he or she observes many residents and faculty omitting this part of the history. The hidden message is that, even though physicians are taught to include social context as part of a history, no one really does it in practice, and therefore it must be unimportant. In the realm of patient management, to take another example, students may be taught to ask for a patient's preferences when determining a treatment. If students never see their teachers eliciting patients' preferences, however, they are less likely to adopt that behavior in future patient encounters.

The Longitudinal Integrated Clerkship and the power of continuity. One way of redesigning clinical training to better support students' learning and professional development is the LIC. This model of clinical training uses continuity as the primary organizing principle for the clinical years [7]. LICs allow medical students to participate in comprehensive care of patients over time, build continuing learning relationships with those patients' clinicians, and meet core clinical competencies across multiple disciplines simultaneously. LICs have been developed across a wide range of settings in rural primary care practices, rural medical centers, urban community hospitals, and urban university medical centers, incorporating the strengths and available resources in each of those settings [8].

LICs are designed to promote patient centeredness. Students develop longitudinal relationships with a panel of patients for whom they provide care over the course of the clerkship, following them during outpatient clinics and acute-care sessions and into various settings such as inpatient wards, specialist clinics, labor and delivery, and the operating room—and they check on the patients between visits via phone or e-mail.

Students are paired with one to eight preceptors ranging from rural primary care physicians to subspecialists in urban academic settings with whom they work over the course of the LIC. Each preceptor is responsible for the core clinical training of his or her student. Preceptorship sessions occur most often in ambulatory settings but can also include operating room or inpatient settings. An integrated curriculum parallels the clinical activities of the LIC and is adapted to students' developmental stage of learning over the year.

Can the LIC model address the ethical erosion and loss of patient-centeredness in medical students and provide a hidden curriculum that has a more positive influence? Outcomes data from LICs worldwide are promising [9-11]. Although standardized written and clinical skills exams are not the primary focus of the model, LIC students' performance on these assessment measures is equivalent or superior to performance of their peers in traditional clerkship. Importantly, LICs have the potential to foster professional development, moral reasoning, and patient-centered attitudes. These benefits can mitigate the negative influences of the hidden curriculum.

The student-teacher relationship can have a powerful influence on the professional formation of medical students, primarily through faculty role modeling of patient-centered care [12, 13]. Longitudinal relationships between students and faculty provide more opportunities for discussion of ethical dilemmas, mistakes, and challenges. Such relationships also increase the likelihood that direct observation and feedback will occur. By knowing and frequently observing their students, faculty members can give regular feedback about professional attributes, including communication skills, interactions with other health professionals, and self-improvement. Our own data from UCSF shows that LIC students rate observation and feedback higher in all disciplines than do their peers in traditional rotations. This benefit has been noted in other programs [11]. Students from the Harvard/Cambridge LIC feel they are better prepared than their peers in traditional clerkships to manage ethical dilemmas, be truly caring, and work with patients of diverse backgrounds [11].

The structure of the longitudinal clerkship sustains students' patient-centeredness. They understand their patients' experience of care and come to know them as individuals instead of as illnesses to be diagnosed and treated. Students can improve patients' care by providing emotional support, communicating information, and facilitating transitions of care. LIC students are more likely than their peers in traditional clerkships to have meaningful relationships with patients, contribute in an authentic way to patient care, and feel valued by their supervising doctor and patients [11, 14]. The experience of the Parallel Rural Community Curriculum (PRCC)-Flinders University in Australia is that LIC students create synergies between patients and clinicians that improve patient care and enable better learning [15]. Similar synergies occur through the students between the university and health service, the government, and community, and between students' own personal principles and the professional expectations of being a physician. In essence, the structure of the learning program positively influences the patients and system in which it is placed.

Longitudinal relationships between faculty and medical students can also be a critical mediating factor for the hidden curriculum [16]. In these relationships, partnerships develop between students and the teachers around both patient care and students' learning. The positive emotional connection that grows over time also creates a safe place to discuss the implicit culture of the workplace and its influence on behavior. For example, on a ward team, the student may observe that asking questions results in negative reactions from the residents and attending physicians, leading to the unintended message that one should never admit uncertainty. The relationship with the longitudinal preceptor provides a chance for the student to ask questions safely with the implicit message being that a good physician is a lifelong learner, always questioning and building his or her knowledge. There are also more opportunities to revisit issues that come up in practice once the student and faculty have had a chance to reflect.

Future Directions for Research

The effect of the LIC model on students' ethical development and patient-centeredness and the influence of the model on the hidden curriculum are important areas for future research. Thus far, no studies have compared moral development or ethical erosion between students in LICs and those in traditional block rotations. There is early qualitative and quantitative evidence of greater patient centeredness in LIC students, some of which has not yet been published. Further study across LIC programs with exploration of students' and patients' perceptions of patient-centeredness in LICs are areas for further development.

The structure of the LIC model deliberately fosters continuous relationships with faculty and patients and can enhance professional identity, ethical behaviors, moral development and professionalism. Through longitudinal relationships with patients, the patient experience becomes central to students' learning. These relationships can temper the powerful deleterious influence of the hidden curriculum on the professional development of medical students. The LIC clerkship shows great promise in comparison to the discipline-based clerkship rotation, not only in traditional measures of competency, such as knowledge and clinical skills, but also in professional and ethical behavior as well. These competencies are critical for future physicians and the medical profession as a whole.

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