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Reflecting on the Advantages of Longitudinal Integrated Clerkships and COVID-19

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Abstract

The emergence of Coronavirus Disease 2019 (COVID-19) has dramatically changed the landscape of medical education. The novel experience of pandemic disruptions to clinical training revealed advantages of longitudinal integrated clerkships that emerged during the COVID-19 outbreak. While there is emerging literature regarding online learning during the pandemic, to our knowledge there is no literature highlighting how longitudinal curricular approaches insulated students from pandemic disruptions. These insights may be useful as medical schools contemplate potential future disruptions to clinical training.

Students in our Longitudinal, Integrated Clerkship (LIC) enjoyed several advantages compared to students training in traditional block models. Advantages of an LIC model include a relatively even exposure to specialties across the clerkship year, discipline specific assessment information despite an early truncation of clinical activity, and a seamless transition to integrated online learning, as a single integrated virtual clerkship model for the entire cohort. LIC students avoided consequences seen in traditional clerkships such as missing entire core-clerkship rotations between March and June, 2020. Our LIC assessment program assesses competencies through ongoing, cumulative direct observation of skills (e.g. history and physical examination) across specialties. This facilitated final overall clerkship assessments, by competency rather than by specialty, in time for the Medical Student Performance Evaluation (MSPE) to be submitted to residency programs. Finally, pre-existing relationships with preceptors facilitated ongoing contact during virtual clerkships and opportunistic clinical experiences once students re-engaged in clinical activities.

Clinical Education Crisis

The emergence of Coronavirus Disease 2019 (COVID-19) has dramatically changed the landscape of medical education. Logistical challenges continue to emerge as we focus efforts on training the next generation of doctors. The initial shortage of personal protective equipment (PPE), combined with the possibility that students might become infected and/or asymptotically spread the virus, has significantly influenced the role of medical students world-wide. Most schools followed the Association of American Medical College's (AAMC) recommendation to suspend all student clinical rotations in spring, 2020.¹ Our students were in the eighth month of the 10 month LIC at this time. The AAMC revised its guidance on August 14, 2020 for medical students to include direct clinical activities

with patients with and without known or suspected COVID-19, if the necessary precautions can be adhered to and the care facility agrees. Medical education has been forced to respond to rapidly changing circumstances, not knowing when health systems might request that students pause or re-engage in clinical learning. These challenges, along with nation-wide calls for social distancing, have changed the way medical schools are delivering education. These pandemic disruptions have revealed advantages of Longitudinal Integrated Clerkships (LICs). This viewpoint highlights the advantages of an LIC model during the COVID-19 pandemic. These advantages suggest that the LIC might be a more robust model if another situation requires suspension of clinical training (with patient care), at an individual medical school or on a worldwide basis, such as student illness, another international pandemic, or "waves" of COVID-19.

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Longitudinal Integrated Clerkships (LIC)

Unlike traditional block clerkships in which year 3 and 4 students focus on specific specialty experiences for 4-6 weeks, the LIC model aims to integrate specialty experiences with faculty and patients over the clerkship year in a continuity-centered model. For example, students at our institution experience internal medicine one week, surgery the next, and circle back to internal medicine 4 weeks later, with some weeks integrating multiple specialty experiences during a single week. While LIC models vary to some degree across medical schools, foundational principle of Longitudinal Integrated Clerkships (LICs) is continuity; students have continuity with both preceptors and patients during the entirety of the core clerkship year.² Learners in the LIC model spend an extended time in a clinical setting to allow student continuity with patient care across both health system and community settings, cultivating clinical and cultural learning.³ By 2018 as many as 69 medical schools across the US had adopted the LIC model in some form.⁴ In 2019, the Washington State University Elson S. Floyd College of Medicine (ESFCOM) launched one of the first ever “All-In” LIC models in the world, where 100% of students participate in the LIC, delivered at 4 community-based Washington State clinical campuses.

In the ESFCOM LIC model, third year students have exposure to core specialties including medicine, obstetrics–gynecology, surgery, psychiatry, family medicine, and pediatrics in an integrated fashion across the entire clerkship year. Through patient continuity experiences, ESFCOM students quickly become experts on their patients’ health while developing strong relationships with them. One example would be following a pregnant mother from her 8-week ultrasound to birth and subsequent first visit with a pediatrician. Continuity with preceptors over many months builds mentoring relationships and entrustment.

The Curricular and Operational Advantages of the LIC

In the traditional “block” model of medical education, students rotate within a specific specialty for 6 to 12 weeks. Pandemic “closures” disrupted the traditional core clerkship year, derailing scheduled rotations and

leaving students with little to no clinical experience in some specialties. There is currently only speculation on how the disruption to clinical learning will ultimately impact student competence and residency match outcomes. The potential gaps in a student’s knowledge and skills, and the disruption of relationships with preceptors, may significantly affect the reliability of clerkship assessments and the quality of letters of recommendation. A core benefit of the LIC model is the opportunity for students to build meaningful relationships across time with patients and preceptors. The integrated nature of LIC significantly mitigated the impact of the COVID-19 pandemic time loss across all specialties rather than eliminating exposure to entire disciplines. Our students also had well-established relationships that facilitated their ability to obtain detailed letters of recommendation.

LIC models generally incorporate opportunities for “Self-Directed Learning” (SDL). In our program each student has one dedicated SDL half-day per week. Students are encouraged to connect with continuity patients but may also use some of this time to explore sub-specialty interests.⁴ In the traditional clerkship model, sub-specialty electives and exploratory experiences are scheduled only in the final year. Our students were also less impacted by cancellations of specialty elective opportunities, in part because established longitudinal relationships with preceptors, through self-directed days and continuity experiences, opened doors to further clinical opportunities. This is relevant as accessibility to away rotations are currently limited nationwide.⁵ LIC schedules generally ask students to switch clinical learning environments frequently, but when students return, they are a known team member. The LIC facilitates opportunities for students to practice and transfer skills across “specialty” settings, and to further improve their skills when returning to a particular service. The LIC model also decreases experience gaps such as seasonal clinical experiences (i.e. doing pediatrics in the summer when respiratory illnesses are less common) and diminishes the effects of early performance limitations that affect learning outcomes (i.e. students may have vastly different experiences if completing surgery as their first verses their last clerkship rotation). This model also shows promise to be better structurally suited than the traditional model to aid students’ learning. In the LIC model, students may naturally engage in spaced retrieval and repetition of material. There is evidence in the literature to support that retrieval and repetition based learning is a superior

method.⁶ Block models promote massed retrieval (cramming) as students prepare for end-of-block Subject Exams. While it could be argued that the spaced repetition seen in the LIC allows for more effective learning, allowing students to accomplish in 9 months what others would achieve in 12 months, there is currently limited data in the literature and within our program to further support this claim.

Because students were not on a traditional “block schedule” of 6 weeks, the transition to week-by-week online virtual clerkships was seamless. Importantly, the LIC structure enabled the faculty to work together to create an integrated virtual clerkship with much less effort than needed by faculty in traditional models. For example, given a gap of 6 weeks, each clerkship discipline only had to contribute one week of virtual clerkship curriculum rather than each clerkship group having to provide 6 weeks of material for a subset of rotating students. Since schedule principles used for the live LIC were also used to build the virtual experiences, moving in and out of virtual experiences, and returning to clinical patient care were particularly agile. Faculty from the LIC were asked to join the virtual LIC, which facilitated engagement and ongoing student-mentor contact when clinical time was not available. In our Virtual LIC, students used a combination of online cases and modules through Aquifer⁷ and Wise-MD⁸ as a substitute for real patients. Students connected via ZOOM⁹ with attendings in small groups (4-5 students). Students presented and discussed patients, and completed simulated clinical “tasks” such as transfer of patient care, and subspecialty consults. Because the faculty were creating a single integrated virtual experience, with a smaller number of experiences required in each specialty, we were also able to design and incorporate standardized patient interviews that emphasized advanced skills (given that the students were late in the clerkship year) while incorporating specialty-specific knowledge.

Assessment

Our LIC assessment program emphasizes longitudinal skill development and utilizes many small moment-in-time “workplace-based assessments” of performance on individual tasks. Preceptors provide feedback and assess students in real time. Workplace-Based-Assessments (WBAs) are based on direct observation and assess one skill at a time, e.g. physical examination or oral presentation, referencing Entrustable Professional

Activities (EPAs).¹⁰ Unlike traditional end-of-rotation assessments, students trigger an assessment form immediately upon completion of a skill and debrief with their preceptor at the time. Importantly, because our program already has significant entrustability information on every student across every discipline, the LIC model continued to support a robust cross-specialty assessment of skills as well as information on discipline-specific knowledge and experience. The virtual-LIC preceptors were able to continue using WBA tools during the virtual LIC. Thus, our students’ experience and assessment are fully comprehensive despite the interruption in direct patient care. This is in contrast to the limitation of the many students nationwide who are lacking experience, skills and assessment information in one or more specific core clerkship disciplines.

Conclusions

The LIC model generated unanticipated advantages for students in the setting of a significant disruption in clinical learning due to an international pandemic. While the ESFCOM experience is limited to the inaugural cohort of one new medical school, our participation in national and international conversations with colleagues have confirmed that our experience is not unique.¹¹ Other medical schools may want to strongly consider the LIC model advantages that have become more obvious during the COVID-19 pandemic. These advantages include: 1) relatively even learning and experience across multiple specialties; 2) the availability of discipline specific assessment information across all specialties despite an early truncation of direct patient care learning activities; 3) a relatively seamless transition to integrated online learning for an entire class using a single integrated virtual clerkship model (that was also less work for each individual specialty); and 4) the advantages of pre-existing relationships with preceptors and patients that facilitated engagement in ongoing contact through opportunistic clinical experiences now that it is safe to re-engage in clinical activities. While the last was primarily due to the fact many of our preceptors from the third year clerkship elected to continue participation in the LIC via online learning, the limited time commitment required from each specialty facilitated ongoing engagement. The LIC has coincidentally resulted in a robust clinical education assessment that has distinct advantages compared to

the traditional “block learning” during a period of unprecedented disruption to clinical learning for medical students. This experience has led us to believe that the LIC model is preferable to block rotations if and when other individual, local, or global interruptions occur during clinical training

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