

# Student and Preceptor Experiences in a Mini Longitudinal Integrated Clerkship: A Participatory Self-Study

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## Abstract

**Introduction:** Students participating in longitudinal integrated clerkships (LIC) experience longitudinal, comprehensive care of patients, report improved satisfaction with their training, and express increased interest in pursuing a career in primary care. To gain these benefits without requiring major curricular change, Ohio University Heritage College of Osteopathic Medicine created a year-long mini LIC (mLIC). As participants in the mLIC, we sought to measure our own experiences, gathering data in a systematic way to share our perceptions.

**Methods:** We developed an online survey that included scale and open-ended questions. Eight students and three cooperating preceptors completed the survey. We analyzed short answer responses thematically; we analyzed multiple choice responses using descriptive statistics.

**Results:** Participants reported increased interest in underserved rural primary care. Students described the continuity with patients as the most beneficial aspect. Students felt the increased autonomy, self-learning, and hands-on nature of the mLIC increased clinical confidence and preparedness for intern year. Students stated the mLIC provided learning opportunities they would not have experienced in traditional block-based clerkships, including longitudinal relationships and prolonged exposure to primary care. Preceptors stated they were able to learn new ideas from the students and were surprised by how much they benefited from the experience.

**Conclusion:** Students did experience many of the benefits of a traditional LIC in our mLIC format focused on a longitudinal experience in family medicine. Students and preceptors were positively impacted and felt the mLIC led to increased student learning, professional development, and increased preceptor satisfaction. Our conclusions are limited by the small sample size included in our study.

## Introduction

The shortage of primary care physicians is well documented.<sup>1</sup> Longitudinal experiences in primary care can increase student interest in primary care,<sup>2</sup> yet few medical schools currently offer such opportunities.<sup>3</sup> One

way to provide this type of experience is via a longitudinal integrated clerkship (LIC), a curricular structure that enables students to have increased continuity with patients and preceptors, and allows students to perform patient care in a role more similar to that of a physician.<sup>4,5</sup> LIC students participate more fully in chronic disease management and directly observe the benefits of continuity in physician-patient relationships.<sup>6</sup> The LIC educational model, with principles closely mirroring those of primary care,<sup>7,8</sup> improves student satisfaction with their educational experience and increases students' propensity to specialize in primary care.<sup>2, 9-11</sup> The LIC model has motivated preceptors to engage in teaching and has positive effects on general practitioner morale.<sup>12</sup> LICs have led to improvements in clinical practice without interfering with administrative, professional, or educational roles.<sup>13</sup>

Implementing a typical LIC involves transitioning the entire clinical curriculum from traditional block-based rotations to a longitudinal curriculum integrating clinical experiences and rotations throughout the third and fourth year of medical school. Curricular adjustments regularly occur in medical education, but entirely changing a curricular model in medical education is a complex process, involves multiple groups of stakeholders and can take years to plan and implement.<sup>14</sup> In an attempt to gain some of the benefits of an LIC without a major curricular shift, the Ohio University Heritage College of Osteopathic Medicine (OU-HCOM) developed a mini LIC (mLIC) consisting of a longitudinal experience in a rural family medicine practice. This mLIC was a unique and novel curricular model, as it enabled students in the program to experience some of the features of an LIC, including management of a patient panel under the same preceptor, in a 1-year program that was integrated within the traditional block-based curriculum at OU-HCOM. In our survey of literature regarding LICs, we were unable to find a similar approach in which elements of an LIC were utilized within a traditional block-based curriculum.

As participants in the mLIC, we sought to measure our own experiences, gathering data in a systematic way in order to share our perceptions as well as those of the other mLIC participants and their preceptors. We hypothesized that the mLIC can provide the same benefits of a traditional LIC in a simpler, more adaptable model.

## Methods

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The OU-HCOM mLIC program occurred during the third year of medical school and has been offered to five students annually since 2017. Participation in the mLIC was voluntary and participants were selected through an application process. The students spent 8 to 10 full weeks with a rural family medicine preceptor as well as an additional one-half day every week or 2 full days bimonthly throughout the academic year. The remainder of the students' weekly time was dedicated to their traditional third-year rotations. Students followed a panel of 40 to 60 patients, developed a community project, and implemented a quality improvement project in the practice.

We designed a cross-sectional survey-based study. We invited all 11 medical students who completed or were completing the mLIC and all five mLIC preceptors to complete the surveys. Data were collected anonymously during the 2018-2019 academic year. The two student authors (D.B., R.P.) independently sorted responses into categories, then resolved any discrepancies by discussion until consensus. We obtained ethical approval from the Ohio University Institutional Review Board (IRB 17-X-243).

To understand participants' perceptions of their experiences in the mLIC, we developed and distributed via email an online survey that included scale and open-ended questions. The student survey included six multiple choice, ranking, and open-ended questions. The preceptor survey included six open-ended questions. We summarized the responses to the multiple choice and ranking questions. We reviewed the

open-ended responses and grouped them into categories.

## Results

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Eight of 11 students who participated in the mLIC completed the multiple-choice survey (Tables 1 and 2); these eight students and three of the five mLIC preceptors answered the open-ended questions. We reviewed the open-ended responses from students and grouped them into three emergent categories: (1) learning through doing, (2) learning enhanced by continuity, and (3) contrasting the mLIC with traditional rotations (Table 3). Students felt that the increased autonomy of the mLIC increased their clinical confidence and preparedness for intern year, as exemplified by the following quotes:

*"Having the autonomy of managing 60 patients was an invaluable experience. I feel very confident in my outpatient skills and having any type of conversation with patients."*

*"[The mLIC] experience replicated the kind of thinking and independence that will be expected as an intern."*

Students noted that the longitudinal nature of the mLIC allowed them to develop meaningful relationships with patients, learn about chronic disease management, and become more patient centered.

*"Having that longitudinal relationship with patients allowed you to get to know the patient beyond the chart, beyond their disease, and get to know them as a person."*

*"Once you know the patient, you can spend more time with them, doing medicine. This frees you up to really enjoy the diagnostic, investigative, and clinical decision-making process."*

Students indicated the mLIC provided learning opportunities students would not have experienced in traditional block-based clerkships, including longitudinal relationships and prolonged exposure to primary care.

*"Many of the most significant aspects of primary care are a part of the doctor-patient relationship, and it takes observing several visits by the same patient with the same doctor to get a real sense of what that relationship is like. I would not have experienced that without the mLIC program."*

We grouped the preceptor responses into four categories: (1) preceptor-student mentorship, (2) benefits of continuity, (3) learning from the students, and (4) student career choices (Table 4). Preceptors reported that the longitudinal nature of the mLIC allowed them to develop impactful relationships with the students. Preceptors stated that the continuity of the program helped them identify and correct student weaknesses.

*"I have enjoyed seeing the growth of the students and can allow that growth to emerge over a better length of time."*

Preceptors felt they were able to learn new ideas from the students and were surprised at how much they benefited from the experience.

*"I have been able to hear new ideas about solving some of the challenges we face in primary care."*

## Conclusions

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Student participants self-reported that the mLIC increased their interest in practicing primary care in a rural, underserved setting. Students stated the increased autonomy in patient care and hands-on experience caused them to feel more comfortable with patient interactions, and increased their confidence in clinical

skills and preparedness for intern year. The students cited continuity with patients as a beneficial aspect to the mLIC.

mLIC preceptors felt the length and continuity of the program allowed them to identify and correct student weaknesses and develop mentoring relationships with the students. They were surprised by how much they benefited from the experience and the new ideas the students brought. Preceptors commented that the mLIC gave students a true understanding of primary care.

These findings indicate the mLIC model offers many of the same benefits of the traditional LICs and may increase student interest in primary care. Without requiring a large curricular transition, the mLIC created longitudinal opportunities similar to a traditional LIC that may not have happened in traditional block-based rotations.

This study was intentionally limited to the participants in the mLIC, which was already a small number. Participation was voluntary and the response rate was less than 100%, making selection and response bias a serious limitation. Further understanding of the utility of mLICs could be gained by larger studies at OU-HCOM as more students complete the mLIC.

## Tables and Figures

**Table 1: Student Responses Regarding How the mLIC Experience Impacted Future Career Choices**

How has the mLIC program impacted your future career choices?	Strongly Agree	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree	Strongly Disagree
It increased my likelihood to practice in primary care	5	0	2	0	1	0	0
It increased my likelihood to practice in a rural setting	5	0	1	0	0	1	1
It increased my likelihood to practice in an underserved setting	4	3	1	0	0	0	0

Abbreviation: mLIC, mini longitudinal integrated clerkship.

**Table 2: Participants Answered Questions on How the mLIC Experience Altered Their Comfort Levels With Different Aspects of Medical Care**

As a result of the mini LIC experience alone, I feel more comfortable with...	Strongly Agree	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat Disagree	Disagree	Strongly Disagree
Procedures	4	1	2	1	0	0	0
Interacting with patients	7	1	0	0	0	0	0
Physical exam	2	5	1	0	0	0	0
Motivational interviewing	5	1	2	0	0	0	0
Having difficult conversations with patients	3	2	3	0	0	0	0
Interacting with the health care team in an interprofessional manner	3	3	2	0	0	0	0
Preparedness for intern year	5	1	1	1	0	0	0
Social determinants of health	3	4	0	0	1	0	0
Developing rapport, compassion and caring approaches to patient care	5	2	1	0	0	0	0
Understanding the impact of health and illness on individuals, families and communities	2	5	1	0	0	0	0

Abbreviation: mLIC, mini longitudinal integrated clerkship.

**Table 3: Thematic Analysis of Student Surveys**

Theme	Theme Findings	Student Quotes
Learning through doing	The increased autonomy of the mLIC increased the students' clinical confidence and preparedness for intern year.	"There was a significant amount of autonomy given to me ... [which] enhanced my learning and really made me feel more prepared for internship." "I feel so much more prepared to be an intern as a result of [the mLIC]." "[The mLIC] experience replicated the kind of thinking and independence that will be expected as an intern." "Having the autonomy of managing 60 patients was an invaluable experience. I feel very confident in my outpatient skills and having any type of conversation with patients." "[The mLIC] gave me the comfort and confidence to see my own patients and develop a treatment plan for them."
Learning enhanced by continuity	The longitudinal nature of the mLIC allowed the students to develop meaningful relationships with patients, learn about chronic disease management, and become more patient centered.	"Being with the same patients over an extended period of time enhanced my learning immensely." "I learned a lot about managing their chronic medical conditions by caring for them for several months." "I matured as a person and student-physician during the experience through the longitudinal relationships with my patients." "I learned that I love relationships with patients and forming trusting bonds with them." "[The longitudinal relationship] made me feel a genuine connection with patients." "Having that longitudinal relationship with patients allowed you to get to know the patient beyond the chart, beyond their disease, and get to know them as a person." "Once you know the patient, you can spend more time with them, doing medicine. This frees you up to really enjoy the diagnostic, investigative, and clinical decision-making process." "I really enjoyed the connection you make with those longitudinal patients ... it allowed me to practice better medicine, make better choices for the patient, and let my patients trust me more." "Learning wise, I think the biggest impact was exploring FM over the course of the year."
Contrasting the LIC with traditional rotations	The mLIC provided learning opportunities students would not have experienced in traditional block-based clerkships, including longitudinal relationships and prolonged exposure to primary care.	"The mLIC was the most beneficial experience I did in medical school." "I gained more clinical knowledge, more hands-on experience, and more love for family medicine from my mLIC experience than any other rotation." "It was by far the most hands on and applied experience that I had during M3." "The longitudinal relationship was everything. That was unique to the mLIC. You didn't get longitudinal relationships in 4-week rotations. Having that longitudinal relationship with patients allowed you to get to know the patient ... as a person. That was very special, and I don't think that would have been achieved if the relationship wasn't longitudinal." "I think the biggest impact was exploring FM over the course of the year. In a 4-week rotation, you get a taste, but don't quite get as much depth about a specialty as the mLIC provides." "I learned [from the mLIC] that family medicine is right for me." "The [mLIC] experience increased my likelihood to practice in family medicine in rural areas."

Abbreviation: mLIC, mini longitudinal integrated clerkship.

**Table 4: Thematic Analysis of Preceptor Surveys**

Theme	Theme Findings	Preceptor Quotes
Preceptor-student mentorship	The longitudinal nature of the mLIC allowed preceptors to develop impactful relationships with the students and serve as mentor. They commented on the enjoyment of the relationships.	"I chose to become a mLIC preceptor to educate medical students and mentor those that are interested in Family Medicine." "I see the preceptor position for the mLIC program as an opportunity to better mentor a student." "The relationship that builds over the year is a plus." "I enjoy getting to know my students over the year and hate to see them leave." "[What has been most surprising] is the relationships with the students and the impact that they had on my practice" "The continuity allows for relationship building that makes teaching fun."
Benefits of continuity	Preceptors felt continuity with students helped them find and correct weaknesses. Patients grew to trust the students over time.	"The continuity allows patients to develop trust [in the student] and allows them to see the them grow." "I am able to pick out specific weakness in each student and work on improving those over time." "It allows me to really get to know my students' strengths and weaknesses." "I have enjoyed seeing the growth of the students and can allow that growth to emerge over a better length of time." "They will have a greater confidence level speaking to and working with patients upon completion of the mLIC."
Learning from the students	The preceptors were able to learn new ideas from the students. They were also surprised by how much they benefited from the experience.	"I have been able to hear new ideas about solving some of the challenges we face in primary care." "I appreciate the new and fresh ideas about workflow, medicine, and guidelines." "I have enjoyed the opportunity to learn additional osteopathic manipulative medicine application." "[I was surprised by] the impact that they had on my practice with the new ideas that they bring." "I am benefiting more than expected." "I do believe I benefit from the interactions." "It benefits my practice by adding another member that through time becomes a beneficial partner."
Student career choices	Preceptors felt that the mLIC gave students a better idea of what primary care was like and helped them make informed career choices.	"The mLIC solidifies the student's understanding of the actual practice of medicine and solidify choices, either in favor for or against, the specialty as they begin choosing residencies." "Continuity allows the students to learn a broader scope than the traditional model. It gives students exposure to a community for an extended amount of time which may help them decide what kind of practice environment they want to practice in. Hopefully, increasing their likelihood in choosing primary rural or urban underserved care." "I want to provide a meaningful and real understanding of what the daily work of family medicine is."

Abbreviation: mLIC, mini longitudinal integrated clerkship.

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