Four for the Price of One:
Achieving Competencies of Multiple Clerkships with Rural Family Physicians

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ABSTRACT

Introduction: Longitudinal Integrated Clerkships (LICs) allow medical students to participate in comprehensive care of patients over time and meet core clinical competencies over several disciplines concurrently. Most urban LICs have large pools of preceptors that include many subspecialists. In rural communities, family physicians often provide many aspects of care. We will examine how requirements of multiple core clerkships can be met with rural preceptors led by family physicians. **Methods:** We will examine a pilot program that combined five traditional clerkships (primary care, ob-gyn, surgery, inpatient medicine, and emergency care) into LICs in rural communities. Students logged all patient experiences including patient age, complaints and diagnoses, level of student involvement, clinical setting, and preceptor. Students also logged involvement in procedures and surgeries. We examine how learning objectives of clerkships traditionally led by sub-specialists can be met with rural preceptors. **Results:** Medical students were able to meet the majority of required core competencies while working with family physician preceptors. On average, students met greater than 97% of competencies on average across all 5 traditional clerkship blocks included in the LIC. **Discussion:** Our findings support the case that a large number of sub-specialist preceptors is not required to teach the core competencies of the clerkship year. This research lays an important foundation for further research to explore the possibility of rural LICs as a method to increase rural practice and address rural health shortages in Colorado.

INTRODUCTION

There is a well-documented shortage of rural physicians in the United States.[1-5] Approximately 20% of the US population lives in rural areas, but only 9% of physicians practice in rural areas.[2] The likelihood that US medical graduates will enter practice in a rural area has decreased by 40% in the last two decades.[4] Family medicine providers with a broad scope of skills are well-suited to meet the unique needs of rural and frontier communities. One method to increase the likelihood of rural practice is the development of rural longitudinal integrated clerkships (LICs) that train students at rural sites for extended periods of time and include multiple traditional clerkship blocks.[8-10] Rural LICs capture the benefits of the longitudinal experience for learners and may encourage students to seek out rural practice after completion of medical training. One qualitative review of 58 publications found that students who completed rural longitudinal rotations were positively influenced to live and work in rural areas.[14]

The University of Colorado School of Medicine is in the process of undergoing curriculum reform with a shift to LIC models for the clinical year. In preparation for this curriculum reform, a rural LIC pilot program was completed in 2019-2020 in which five medical students completed a 6-month rural LIC, combining five traditional clerkships with an emphasis on training by broad scope family medicine physicians.

Aim 1: Determine if students in a rural LIC met 90% or more of the required clinical competencies and learning objectives of five core clerkships with family medicine preceptors.

Aim 2: Examine to what extent students met the curriculum competencies of clerkships not included in the LIC pilot program.

METHODS

LIC students logged all patient encounters in a de-identified logger. This data was compared to the clerkship competencies, a standardized list of conditions set by CU that students must see or read about to meet the clinical requirements for a block.

- **Aim 1:** Diagnoses from the patient logger for each student were compared to the clerkship competencies of the five clinical blocks included in the extended ILMC: CPC (Community and Primary Care), HAC (Hospitalized Adult Care), EC (Emergency Care), OPC (Operative and Perioperative Care), and OB/GYN (Obstetrics and Gynecology). Additionally, the preceptor specialty for all patient encounters for all students was pooled and analyzed.
- **Aim 2:** Diagnoses from the patient logger for each student were compared to the clerkship competencies of the four clinical blocks not included in the extended ILMC: NC (Neurologic Care); ICAC (Infant Child and Adolescent Care); MSK (Musculoskeletal Care); PSYC (Psychiatric Care).

RESULTS

- **Aim 1:** Students met greater than 97% of competencies, on average, across all 5 traditional clerkship blocks included in the LIC (Figure 2). Additionally, family physicians represented the majority of clinical precepting time at 42% of preceptor specialty, overall (figure 1).
- **Aim 2:** Four of five of students met all musculoskeletal clerkship requirements (97% avg. across all 5 students). Students met the majority of the requirements for pediatrics (87% of requirements met on average) and neurologic care (80% on average); fewer psychiatric care requirements were met, with 60% of requirements met on average (figure 3).

Table 1. Rural Sites/Location by Student with Information on Population

Student	Location/Site	City in Colorado	County Population[18]
Student #1	Rio Grande Hospital & San Luis Valley Hospital	Del Norte Alamosa	11,267 16,233
Student #2	Wray Community District Hospital	Wray	10,019
Student #3	Prowers Medical Center	Lamar	12,172
Student #4	Arkansas Valley Regional Medical Center	La Junta	18,278
Student #5	Delta Community Memorial Hospital	Delta	31,162

Average Percent of Time Spent with Preceptors by Provider Specialty

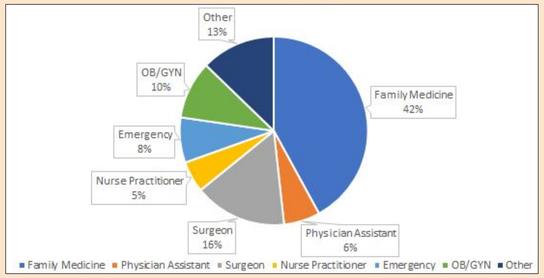

Figure 1. Percentage of Time Students Spent with Family Physicians and Other Specialties at Rural Sites. "Other" included a wide range of subspecialists (Cardiology, Neurology, Gastroenterology, etc.). NP and PA were of any specialty.

Percent of Clerkship Competencies met for ILMC Blocks

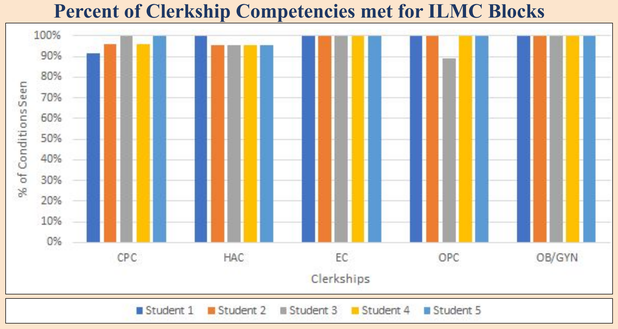

Figure 2. Percentage of clerkship competencies met per clerkship for each student solely through patient encounters. CPC (Community and Primary Care); HAC (Hospitalized Adult Care); EC (Emergency Care); OPC (Operative and Perioperative Care); OB/GYN (Obstetrics and Gynecology)

Percent of Clerkship Competencies met for Non-ILMC Blocks

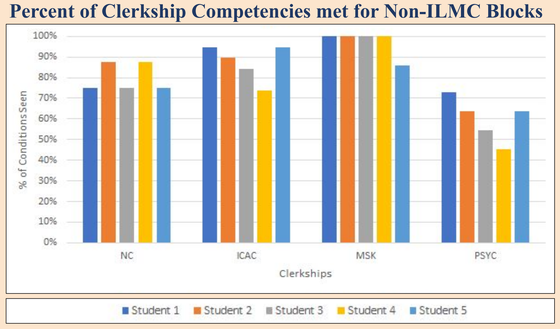

Figure 3. Percentage of Competencies met in clerkships beyond LIC requirements per student/site through patients alone. NC (Neurologic Care); ICAC (Infant Child and Adolescent Care); MSK (Musculoskeletal Care); PSYC (Psychiatric Care)

CONCLUSIONS

- **Aim 1**: The students who participated in the Extended Rural Longitudinal Integrated Clerkship successfully met the core requirements for five blocks of the clinical year while spending the majority of time with family medicine preceptors.
- **Aim 2:** Students in our study met the requirements for the MSK rotation, and came very close in Neurology and Pediatrics without any emphasis on exposure in these areas.

Our findings support the case that a large number of sub-specialist preceptors is not required to teach the core competencies of the clerkship year. This establishes a foundation for further research on extended rural LICs at CU to increase rural practice and address rural health shortages in Colorado.

LIMITATIONS

The primary limitation of the study was the reliance on self-reporting; students were depended upon to log their patient encounters reliably and accurately. In addition, Colorado is known to be a particularly strong state for training and utilizing family medicine physicians. This could limit external validity when attempting to apply these results to states where the availability of strong family medicine training and full scope practitioners could be limited. Finally, three of the study participants are authors of this paper, introducing potential bias.

COMIRB, COI & FUNDING

A Quality Improvement COMIRB Exemption was obtained for this project. Conflicts of interest include that the authors are participating members of the Expanded ILMC Pilot Program. There were no monetary conflicts by any of the individuals involved in this project. No funding was obtained for this research.

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