Promoting Higher Quality of Care Through Education of Pediatric Residents on the Medical Home Model

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Abstract

The objective of this project was to present educational modules to pediatric residents and to assess if the modules improved residents’ understanding of the patient- and family-centered medical home model. Eighteen residents participated in 3 separate training sessions taught by fellow residents, which covered a total of 5 modules. Pretests and posttests were administered for each module. All modules showed improved scores from pretest to posttest, but only one module showed statistically significant improvement. The modules also incorporated discussion sessions that led to clinical practice change. These results revealed that resident-administered education using predeveloped modules can be effective in increasing knowledge related to the medical home model and in changing resident clinical practice.

Keywords
medical home, family-centered, patient-centered, resident education, quality care

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Introduction

The American Academy of Pediatrics (AAP) has developed and endorsed the patient- and family-centered medical home (PFCMH) model for pediatric outpatient practices.1 A curriculum based on understanding and implementing the PFCMH model was developed after the Resident Education Initiative Work Group assessed the needs of pediatric residency training programs for education on the PFCMH model.2 The Accreditation Council for Graduate Medical Education (ACGME) program requirements also focus on the need for expertise in the principles of the medical home.3 Modules on the PFCMH were developed and are available to residency programs as a tool for educating pediatric residents.2 There are a total of 5 modules. Module 1 deals with laying the foundation for a PFCMH. The next 2 modules deal with the benefits of care coordination and developing an effective care plan. Module 4 focuses on ensuring a smooth transition from pediatric to adult care. Last, effective team-based care is discussed in Module 5.

Methods

Module-based presentations were created and presented during pediatric resident block lectures. Three residents were identified as teachers, each of whom presented their assigned modules in a series of 1-hour-long sessions over a period of 3 weeks. The presenters were encouraged to read only their assigned modules in order to ensure there was no bias during testing. Twelve categorical pediatric residents and 6 combined medicine/pediatrics residents participated in these sessions. The format of the presentations included learning objectives, pretest, overview, case study, summary, posttest, reflections to consider, references, and resources. The pretests and posttests were administered according to this format.

The resident who was involved in teaching did not participate in testing of that module. The remaining 2 presenters were involved in testing. Participants were also encouraged to provide feedback and anecdotal evidence during the “reflections to consider” part. The aim was to brainstorm as a group and devise strategies to best utilize these modules to provide better, comprehensive,
and family-centered care at our facility. At the end of the sessions, pretests and posttests were scored. Data were analyzed and compared using $\chi^2$ test or Fisher’s exact test analysis.

Ethical Approval and Informed Consent

Ethics approval and informed consent was not needed as this was a quality improvement/education project for resident physicians, which did not involve any patient data.

Results

Improvement in resident knowledge was analyzed by comparing the results of pretests and posttests. The results are as shown in Table 1. There were 18 participants in the preintervention and postintervention groups. There was advancement in knowledge at the end of each module. All the participating residents showed improvement in their knowledge regarding the core concepts of PFCMH.

The average correct percentage for Module 1 before intervention was 84%, which increased to 96% postintervention. Similarly, Modules 2 and 3 pretest average correct scores were 73% and 54%, respectively, which increased to 82% and 71% after the teaching session.

For Module 4, the pretest average was 39% and the posttest average was 64%. Module 5 showed scores of 83% and 93%, respectively.

Significant improvement was noted in Module 4, $P = .01$ (Table 1). The difference between pretest and posttest percent correct for Modules 1, 2, 3, and 5 were not statistically significant. Although not all modules had statistically significant differences in pre and posttest scores, there was visible improvement in the posttest percent correct of all 5 modules.

Based on the data collected from these sessions, we were able to make some fundamental changes in our outpatient practice. In terms of “care coordination,” residents who were doing their continuity clinics the same day were considered “partners.” This prompted the practice that in case a resident was unable to do his clinic, his patients would be diverted to his “partner.” In the past, such patients would be moved to walk-in clinic and end up seeing different providers. Another step involving “effective team-based care” resulted in implementation of a “morning huddle” between staff and providers to ensure everyone was aware of the needs of the patients being seen in clinic that day. A similar change dealt with appropriate “transition of care” where the graduating seniors would transition their patients to the incoming interns and if possible, introduce them to their new providers before graduation. Similarly, children whose parents also needed physicians were adjusted with the med/peds residents to provide a holistic family-based care.

Discussion

The idea of a medical home originated decades ago; however, it could not be fully utilized and implemented until recently. This was largely due to lack of a proper definition of a medical home and the fear of not getting full reimbursement for the provided services. This prompted the AAP to create a definition of medical home in their 1992 policy statement. The policy affirms that the medical care of the pediatric population ranging from infants to adolescents should be continuous, easily available, comprehensive, family centered, and culturally sensitive. It should be provided by a physician who is known to the family and is able to develop a relationship with the patient and his family. This physician would serve as the primary care coordinator and all this would encompass a medical home.

The National Center for Medical Home Implementation is a collaboration between the Maternal and Child Health Bureau and the AAP. The mission of the National Center for Medical Home Implementation is to ensure that all children have access to a medical home. A Medical Home Resident Education Initiative Work Group was organized to find the discrepancies in resident education regarding medical home. The noteworthy output of this committee was development of a pediatric residency curriculum, which dealt with the core components of the medical home concept. In order to make this accessible and user friendly, a series of 5 educational modules was developed.

These modules have the capacity to be utilized in different ways both on individual and group levels. They have been incorporated either as a component of longitudinal curriculum or taught in individualized sessions. Our study implemented it in a lecture format.

Our results show that a focused teaching method showed improvement in the overall knowledge of the participants about the PFCMH. They were not only able
to fully comprehend the concepts, but also found ways to incorporate them in their practices.

There can be many barriers to this kind of study. There is always a chance of bias when data are collected from residents who know that faculty might be involved in evaluation. We tried to limit this by not involving any supervising faculty during the modules. In addition, it is possible that the residents presenting the modules may have done better on pretests. To counter that we limited every presenter to the topics they were supposed to teach; however, there are some overlapping concepts.

**Conclusion**

Incorporating presentations of the modules into the pediatric resident curriculum is an effective way to improve resident knowledge of the principles and implementation techniques of the PFCMH model. It can also lead to changes in practice due to the brainstorming and discussion elements of the modules. This project can be further developed by standardizing the module presentations as well as verifying that all test content is being adequately covered by the presentations. Two remaining limitations of our study are that we did not show that the knowledge gain persists over a longer period of time and we did not compare different learning modalities. Both of these are areas for further study.

**Author Contribution**

RN: Contributed to acquisition, analysis, or interpretation of data; drafted the manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

MB: Contributed to acquisition; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

YB: Contributed to acquisition, analysis, and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

SF: Contributed to conception and design; contributed to acquisition, analysis, and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

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