

An evaluation of a Transition to Foundations curriculum for first year pediatric residents in Competency Based Medical Education

Évaluation d'un programme de transition vers les fondements de la discipline pour les résidents de première année en pédiatrie dans le cadre d'une approche par compétences

Nina Mazze,¹ Orianna Mak,¹ Sureka Pavalagantharajah,¹ Andrea Hunter¹

¹Department of Pediatrics, McMaster University, McMaster Children's Hospital, Ontario, Canada

Correspondence to: Nina Mazze; email: nina.mazze@medportal.ca

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Implication Statement

A Transition to Foundations (TTF) curriculum that includes didactic and simulation components prepares first-year pediatric residents for increased roles and responsibilities in the Foundations of Discipline stage of Competency Based Medical Education, including junior night float rotations. Simulations of acute presentations improve resident comfort before overnight on-call experiences.

Énoncé des implications de la recherche

Un programme de transition vers les fondements de la discipline (TTF) comportant des volets didactique et de simulation prépare les résidents de première année en pédiatrie à des rôles et des responsabilités accrues à l'étape des fondements de la discipline dans le cadre d'une approche par compétences, notamment aux stages de nuit des résidents juniors. Les simulations de présentations aiguës améliorent le confort des résidents avant les gardes de nuit.

Introduction

Foundations of Discipline (FOD) is the second stage of Competency Based Medical Education (CBME) in Canadian pediatric residency programs in which first-year residents have increased roles in providing care. These roles include night float rotations at McMaster University. As junior doctors can feel unprepared to assume the clinical responsibilities of overnight call,¹ our team developed a full-day Transition to Foundations (TTF) curriculum to prepare residents for this progression. We created this novel curriculum in preparation for the first year of CBME implementation amongst Pediatric residency programs in Canada. Given the constraints of the COVID-19 pandemic, we delivered the program virtually in 2021 and 2022. Notably, there has been an increase in virtual simulation development since the onset of the pandemic. It has been an effective tool to enhance knowledge delivery and

clinical decision-making.² The purpose of this study is to evaluate the usefulness of a virtual curriculum by evaluating residents' perceived comfort in the clinical roles and responsibilities in FOD pre- and post-intervention.

Innovation

The TTF curriculum is an innovative approach that uses resident-led, virtual simulations to improve resident comfort with increased roles and responsibilities in the FOD stage of CBME. We developed the curriculum using Kern's six-step approach, including: (1) problem identification and general needs assessment, (2) targeted needs assessment, (3) goals and objectives, (4) educational strategies, (5) implementation and (6) evaluation and feedback.³ We administered pre-curriculum surveys to first-year pediatric residents to assess comfort in on-call tasks and managing acute pediatric presentations which

was the foundation that led to developing and implementing the curriculum.

Each year, two senior pediatric residents lead the knowledge-based and simulation components of the curriculum, which focuses on the assessment and management of acute pediatric presentations. Simulation is an effective training tool in pediatric acute care, allowing for formative feedback through interactive scenarios of patient presentations and clinical tasks that reflect real-life experiences.^{4,5,6} The curriculum includes virtual simulations of common overnight issues and patient presentations, including respiratory distress (e.g., bronchiolitis, status asthmaticus), seizures and status epilepticus, sepsis and shock, and supraventricular tachycardia. We selected content to reflect Entrustable Professional Activities in FOD. The senior resident facilitators led small groups (3-4 residents per group) in conducting virtual simulations over Zoom. Simulations took place during protected academic time over a one-day period, to balance the time needed to address the selected topics with time constraints of other residency obligations. We allotted 20 minutes for the simulation and 10 minutes for debriefing after each simulation. Senior resident facilitators have the task of selecting the following year's facilitators. They evaluate applicants based on their submitted letters of intent and select individuals who have demonstrated interest and skills in teaching and simulation.

Evaluation

Our team piloted the curriculum to 11 first-year McMaster pediatric residents in September 2021 and 11 first-year pediatric residents in September 2022 before they began FOD and night float rotations. We used descriptive statistics of data from pre- and post-curriculum surveys to evaluate residents' experience of the curriculum. Response rate was 11/11 for pre- and 8/11 for post-curriculum surveys in 2021, and 11/11 for pre- and 5/11 for post-curriculum surveys in 2022. Table 1 includes the results. We did not conduct inferential statistical analysis due to the small sample size.

The TTF virtual curriculum was feasible at McMaster as it had no additional cost to the residency program and used the expertise of senior residents with experience in simulation as facilitators. Moving to an in-person delivery has minimal costs, with the support of the Centre for Simulation-Based Learning at McMaster University.

Next steps

The TTF curriculum prepares first-year pediatric residents for the FOD stage of CBME and improves residents' comfort before overnight on-call experiences. This curriculum is now integrated into McMaster's Pediatrics program, with the next steps focused on adapting simulations for in-person delivery in September 2023 and the continuity of the program. Implementing such a curriculum at other institutions would require similar human resources and support from their respective residency program.

Table 1. Resident comfort with initial assessment of patients and management of acute patient presentations pre- and post-curriculum

| Resident comfort with: | Pre-curriculum (2021) | Post-curriculum (2021) | Pre-curriculum (2022) | Post-curriculum (2022) |
|------------------------------------|-----------------------|------------------------|-----------------------|------------------------|
| Initial assessment of patients | 72.7% | 100% | 72.7% | 80% |
| Seizure management | 50% | 100% | 45.5% | 80% |
| Respiratory distress | 60% | 87.5% | 18.2% | 80% |
| Sepsis | 20% | 75% | 27.3% | 80% |
| Shock | 30% | 50% | 18.2% | 60% |
| Assessing "watchers" on the ward | 36.4% | 75% | 54.5% | 60% |
| Consulting pediatric critical care | 18.2% | 100% | 27.3% | 60% |

Conflicts of Interest: There is no conflict of interest or funding for this project.

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