A Competency-Based Concussion Curriculum for Primary Care Residents: Benefits, Challenges and Future Directions

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Introduction

- Canada has approximately **200,000 concussions yearly**, but underreporting may underestimate their actual burden[1]; in particular, repeated concussions can lead to severe long-term effects and disability, or even death.[2]

- However, in a 2017 survey of University of Toronto family medicine residents, important **gaps in knowledge** about concussion diagnosis and management were identified; 33% of residents believed that seeing a physician was unnecessary for concussion care and 12% reported having **no concussion training**.[3]
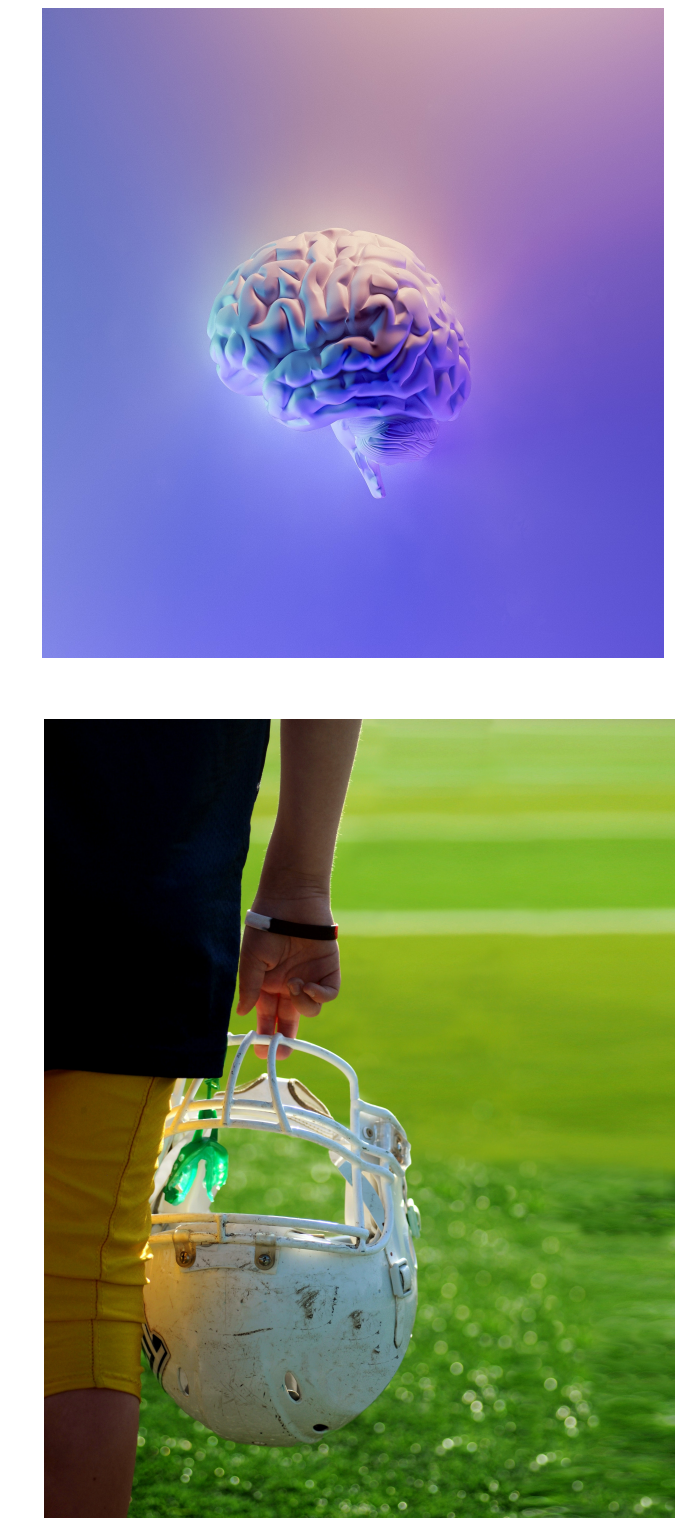
Objectives

To assess the **short- and long-term impact of a competency-based curriculum** on concussion learning of family medicine residents.

Methods

The educational intervention was conducted at the University of Toronto family medicine residency sites from July 2021 to June 2022.
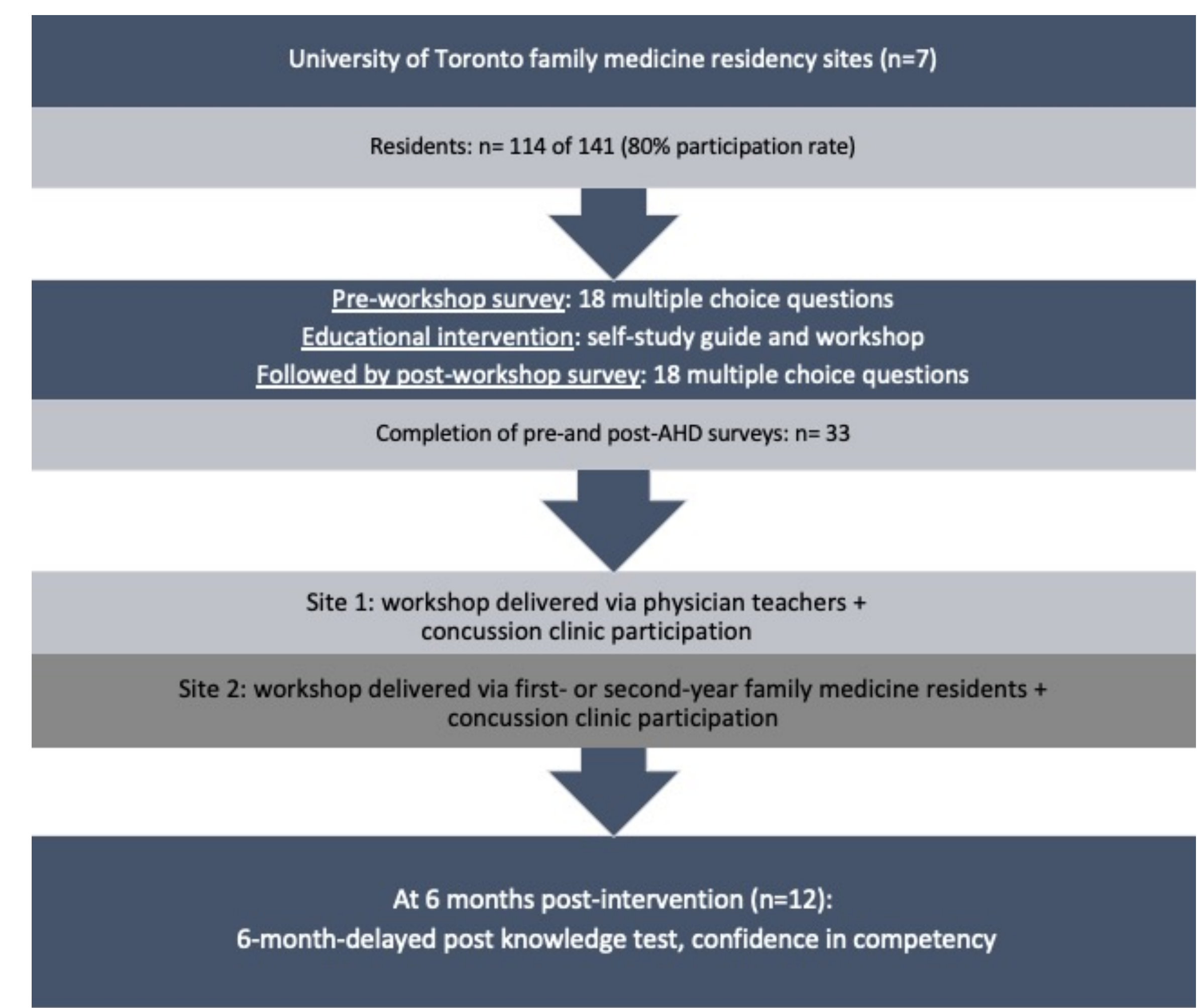
Prior to workshop delivery, the following steps were taken per site:
1. 15-minute **meeting** with residents to explain the curriculum
2. One hour **protected reading time** for residents to go through the study guide.

- Phase 1 included **seven residency sites**, with pre- and post-workshop surveys administered to assess short-term knowledge impact.

- In Phase 2, two residency sites with **same curricular components as phase 1** participated in a **concussion clinic** that helped increase concussion case exposure and knowledge application. Learners received **coaching and timely feedback**.

There was a **difference in workshop delivery** between the two sites: **Site 1's** concussion workshop was delivered by **physician teachers**, while **Site 2's workshop** was delivered by physician teachers with **first- or second-year family medicine residents.**

Methods Continued

- **Knowledge and confidence** were assessed before and after the intervention (immediate and at 6 months) using a 18-multiple-choice questionnaire and a 5-point Likert scale.

- **Feedback** forms were sent to learners after the workshop and a feedback section was included in the 6-months-post-intervention survey.

University of Toronto family medicine residency sites (n=7)

Residents: n= 114 of 141 (80% participation rate)

Pre-workshop survey: 18 multiple choice questions
Educational intervention: self-study guide and workshop
Followed by post-workshop survey: 18 multiple choice questions

Completion of pre-and post-AHD surveys: n= 33

Site 1: workshop delivered via physician teachers + concussion clinic participation
Site 2: workshop delivered via first- or second-year family medicine residents + concussion clinic participation

At 6 months post-intervention (n=12):
6-month-delayed post knowledge test, confidence in competency

Findings

Benefits	Challenges	Future Directions
Feedback collected from learners: - Learners appreciated the protected study time and enjoyed having the self-study guide to direct their own learning prior to the workshop. - Found that application of knowledge at workshop and concussion clinic helped to solidify learning, especially with the repeated material exposure. - **Learning from peers:** helped to enhance learning.	- **Different schedules and availabilities per residency site:** a challenge to have consistency across sites for meeting with residents to explain curriculum and protected reading time. - **Time consumption:** emailing residency sites to schedule workshops and send surveys, including reminders for survey completion, was time-consuming.	- **Sustainability:** turning and adapting the current steps for delivering a concussion workshop into a residency project. - Involvement of first- and second-year residents can help address the shortage of physician teachers[4] and provide leadership opportunities for residents.

Findings Continued

- *Short Term Impact*: The curriculum participation rate was 80% (n=114 out of 141 at seven residency sites), with 33 completing the post-test after workshop. Survey scores: pre-intervention mean of 10.5±1.6 and a post-intervention mean of 11.1±1.7 (p=0.042).

- *Long Term Impact at 6 months*: Site 1 residents had a knowledge decrease of 3.33% (p>0.05). Site 2 residents had a knowledge increase of 11.6% (p>0.05). A significant increase in confidence in competency (1st site: 65.0% (p=0.025); 2nd site: 62.8% (p=0.0014).

Conclusions

- The immediate pre- and post-testing showed a statistically significant improvement in concussion knowledge (p=0.042), suggesting that the concussion curriculum was effective in **increasing residents' knowledge** in the short term.

- The long-term findings suggest the curriculum had a positive impact on residents' attitudes and self-efficacy, as evidenced by a significant **increase in confidence in competency**.

- Although the lack of protected time for self-study and explanation of curriculum concepts at some residency sites posed a challenge, the curriculum remains a **valuable tool** to address the concussion knowledge gap in residency, even with the small sample size.

- To promote our project's sustainability, we plan to continue **exploring the involvement of first- and second-year residents** in delivering the concussion workshop to build their teaching capacity and create leadership opportunities.

Acknowledgements

References

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