

Creation and implementation of the Ottawa Handbook of Emergency Medicine

Élaboration et implantation du Guide d'Ottawa de médecine d'urgence

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Published ahead of issue: February 27, 2021; published: June 30, 2021. CMEJ 2021, 12(3) Available at <http://www.cmej.ca>

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Implication Statement

Medical students face multiple academic challenges during their transition to clerkship, including the ability to navigate various educational resources and translate acquired knowledge clinically. The Ottawa Handbook of Emergency Medicine (EM) was created by referencing EM textbooks and relevant literature, followed by a local peer-review process. A website metrics assessment was performed to assess student uptake. Implementation of the Ottawa Handbook of EM across Canadian clerkship curriculums is anticipated to bridge the EM knowledge gap for junior learners.

Énoncé des implications de la recherche

Les étudiants en médecine sont confrontés à de multiples défis académiques au moment de leur transition vers l'externat, notamment à celui de se servir de diverses ressources éducatives et d'appliquer leurs connaissances dans un contexte clinique. Le Guide d'Ottawa de médecine d'urgence (MU) a été élaboré à partir de manuels de MU et de la littérature pertinente, et il a fait l'objet d'un processus local d'examen par les pairs. Une évaluation bibliométrique a été effectuée pour évaluer son utilisation par les étudiants. L'application du Guide d'Ottawa de médecine d'urgence dans le cadre des cursus canadiens d'externat devrait permettre de combler les lacunes qu'auraient les étudiants débutants en matière de médecine d'urgence.

Introduction

Transition to clerkship poses many academic challenges for medical students.¹⁻³ Lack of a formalized pre-clerkship emergency medicine (EM) curriculum and limited exposure to EM observerships hinders many pre-clerkship students from adequately preparing for their core EM rotation.⁴ Additionally, the abundance of educational tools and online information make it difficult for learners to select appropriate resources for their level, limiting acquisition and translation of knowledge into the clinical setting.^{5,6} Our literature review revealed a paucity of EM clerkship handbooks across Canada. To address this gap, our team created "The Ottawa Handbook of EM." The primary purpose of our educational innovation was to design an

academic resource for medical students to use on-shift. Secondly, we aimed to assess student uptake of the handbook through a website metric assessment. Our project did not require submission to Ottawa's Research Ethics Board because we report anonymous program-level data.

Innovation

The content of the Ottawa Handbook of EM was created by referencing EM textbooks, and relevant literature including landmark studies and practice guidelines. Five emergency staff physicians peer reviewed the first edition of the handbook in its entirety for medical accuracy and clinical utility. In subsequent editions, staff reviewers edited

specific areas of interest/specialization. This peer-review process enabled development of a sustainable model for annual student-driven updates. The cost of creating this handbook was \$0 as all authors and editors volunteered their time. Similarly, the cost to access this resource is \$0.

The first edition of the handbook was published in March 2018 on our departmental open-access blog “EMOttawa.” The handbook contains one-page summaries of high-yield EM topics split into three main sections: resuscitation, symptoms-based approach, and medical emergencies. The second edition, published in February 2020, included updates on trauma, vertigo, and POCUS. Each one-page summary is subdivided into four colour-coded sections. Appendix A provides further layout and content details. Over 14,381 unique downloads have occurred since launch. Table 1 exhibits a breakdown of website metrics collected to assess student uptake.

Table 1. Website metrics results for the Ottawa Handbook of EM

| Downloads by Edition | No. of Unique Downloads |
|------------------------------------|-------------------------|
| First edition (Mar 2018-Feb 2020) | 11,000 (76.5%) |
| Second edition (Feb 2020-Apr 2020) | 3,381 (23.5%) |
| Total (Mar 2018-Apr 2020) | 14,381 (100%) |
| Device Use | |
| Desktop device | 3,486 (42.0%) |
| Mobile device | 4,316 (52.0%) |
| “Other” device | 498 (6.0%) |
| Countries of Download | |
| 1. Canada | 4,554 (31.67%) |
| 2. United States of America (USA) | 1,276 (8.87%) |
| 3. Taiwan | 544 (3.78%) |
| 4. United Kingdom (UK) | 258 (1.79%) |
| 5. Saudi Arabia | 240 (1.67%) |
| 6. Australia | 170 (1.18%) |
| 7. Other | 7,339 (51.04%) |

Next steps

Our well-established peer review process allows for future updates. The third edition in 2021 will include updates to management of stroke, pulmonary embolism risk stratification, end-of-life care, mental health emergencies, and an approach to electrocardiograms and chest x-rays. In a world of constant enhancements to information and digital technology, we also aim to create an “App” for the Ottawa Handbook of EM. Both the first and second editions of the Ottawa Handbook of EM were published in the standard 8.5x11.0 inch size and are available for users to print or use on their device on-shift. A goal for our third edition is to offer the handbook in a pocket size (4.0x7.0 inch) edition.

Conclusion

The Ottawa Handbook of EM is the only resource of its kind available to Canadian clerkship students. It includes content that is relevant to common topics encountered in EM and useful for quick knowledge translation on-shift. The value of this handbook for junior learners entering their EM rotation is evident as student uptake of this handbook was robust. While originally intended for medical students as the target audience, it has come to our attention that nurses, paramedics and off-service residents have been incorporating this resource into their clinical workflow.

Conflicts of Interest: The authors have no conflicts of interest to disclose.

Funding: The authors have received no financial support for the creation of this innovation.

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Appendix A Handbook at a Glance

Main sections

- Resuscitation
- Symptoms Approach
- Medical Emergencies
- ⋮

Other sections

- ACLS
- Toxicology
- Clinical decision rules

1 page summaries **65** references*

44 total pages* **5** staff peer-reviewers*

Background

- Common definitions, pathophysiology, causes, risk factors.

Assessment

- Historical and physical exam features, diagnostic criteria.

Investigations

- Recommended labs, radiological evaluation and adjunct tests.

Management

- General and disease-specific recommendations, disposition and discharge criteria.

*Signifies handbook details for the first edition of the Ottawa Handbook of Emergency Medicine (EM). The second edition was 48 pages in length, contained 74 references and was peer-reviewed by 9 staff. A full and free copy of the Ottawa Handbook of EM is available at: <https://emottawablog.com/2020/09/ottawa-handbook-of-emergency-medicine>