

Original Research Article

# Postoperative pain management education during the surgery core rotation at McMaster University, Waterloo Regional Campus

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## Abstract

**Background:** Opioid over-prescription continues to be a challenge in the postoperative setting for management of acute pain. Initiatives have been developed to standardize postoperative opioid prescribing with an emphasis on multimodal pain management. However, there is a concern medical education has not remained current on this topic.

**Objective:** The aim of this preliminary study is to explore current teaching around postoperative pain management during the surgery core rotation at McMaster University, Waterloo Regional Campus (WRC), and identify any opportunities for improvement.

**Methods:** A 13-item survey was developed to determine effectiveness of teaching around postoperative pain management during the surgery core and its alignment with current guidelines. The survey was disseminated to third year medical students at the WRC.

**Results:** Seven of nine respondents indicated that teaching on postoperative pain management and opioid reduction strategies was provided during the surgery core. All respondents receiving this teaching also indicated learning about a multimodal pain control approach consistent with current guidelines. However, only three of seven respondents noted receiving teaching on providing patient and caregiver education around the pain management plan, despite a strong recommendation in guidelines in favour of this practice.

**Conclusions:** Most students receive teaching on multimodal postoperative pain management and opioid reduction strategies during the surgery core at the WRC. Opportunities to strengthen the teaching include addressing the role of patient and caregiver education in the pain management plan as well as incorporating the topic into formal teaching such as classroom sessions or learning objectives in the surgery core.

**Keywords:** Postoperative, Opioids, Multimodal pain management, Medical education, Surgery

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## Introduction

One of the biggest concerns facing the Canadian healthcare system over the last decade has been the rise in opioid use and abuse, with the issue reaching epidemic levels in 2016. Between 2016 to 2018 alone, the number of opioid-related deaths in Canada rose from 3023 to 4588 (1). A major source of opioids is through prescription, with Canada having the second-highest per capita consumption of prescription opioids in the world after the United States (2).

Postoperative pain management represents one of the key reasons for opioid prescription. One study found that among 653 993 new prescription opioid users in Ontario over the span of a year, one in six received opioid prescriptions post-surgically (3). Many of these prescriptions were for durations and doses that exceeded the maximums suggested by guidelines (3). Considering that about one in sixteen opioid-naïve patients prescribed opioids post-surgically become long term users (4), and that the risk of misuse increases by 34% per additional week of use (3), postoperative opioid prescriptions play a substantial role in opioid-related morbidity and mortality events (3–5).

Recent initiatives have aimed to standardize postoperative opioid prescription protocols based on available guidelines in order to minimize the number of extra or unused prescription opioid pills in circulation and reduce the propensity for abuse (5,6). A component of these initiatives is to promote the use of a multimodal pain management approach involving a variety of pharmacological and non-pharmacological treatments that minimize the reliance on opioids (5,6). The multimodal approach, including options like non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, and gabapentin, has been found to achieve better overall pain management than opioids alone (5,7,8). The proposed mechanism for this effect is the simultaneous targeting of multiple pathways involved in pain perception, allowing for improved pain control with the use of fewer, if any, opioids (5,7). As a result, guidelines such as those from the American Pain Society (APS) have recommended the use of acetaminophen and/or NSAIDs in the management of postoperative pain barring any contradictions, use of pregabalin or gabapentin as part of a multimodal approach, and education of patients and caregivers on the pain management plan including tapering of analgesics (7,8).

Although initiatives to reduce postoperative opioid prescription exist in the hospital setting, few studies investigate efforts at the level of medical education in Canada to instill awareness of this subject in future physicians early in their training. In 2017, a report in response to the opioid crisis by the Association of Faculties of Medicine of Canada (AFMC) called for teaching on opioids and addiction to occur across all stages of medical training, including pre-clerkship, clerkship, residency, and Continuing Professional Development programs (9). That same year, a study of the pain curricula in three Ontario medical schools found that the schools varied considerably in the organization of content and number of hours of training on this topic

(10). This study also found that the curricula across all three schools focused predominantly on the role of opioids in pain management despite acknowledging the importance of a multimodal approach (10).

At McMaster University, teaching on opioids occurs at various points in the current UGME curriculum database published online (11), often in the contexts of pharmacology, chronic pain management, and substance use. During clerkship, one of the learning objectives during the anesthesia core rotation specifies the multimodal use of analgesics during the perioperative period. However, no such objective appears within the surgery core curriculum, even though it is often the surgeon who writes postoperative patient orders. The surgery rotation therefore provides a key opportunity to deliver this teaching as learners are directly involved in the care of the surgical patient, including development of postoperative management plans.

The role of the present preliminary study is to explore any opportunities for improvement in the teaching of postoperative pain management during the surgery core rotation at McMaster University given the substantial contribution of postoperative opioids to opioid misuse and a concern that medical education has not remained current on this topic (10,12). The Waterloo Regional Campus, a satellite site of McMaster University and the authors' home campus, was selected as the study focus.

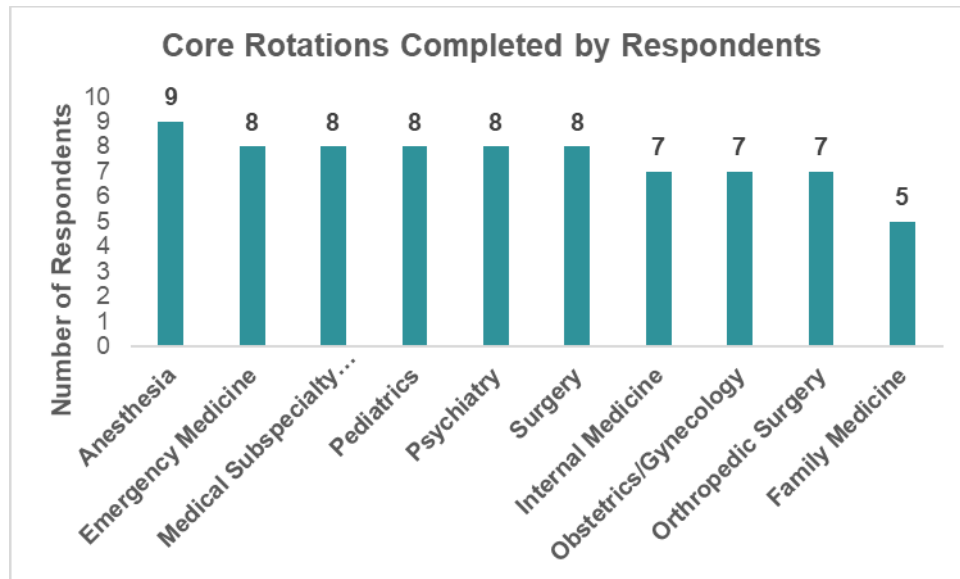
## **Methods**

A survey was developed using Google Forms with four broad guiding questions in mind: 1) Is teaching being provided on multimodal postoperative pain management and opioid reduction strategies during the surgery core rotation; 2) Is the teaching in alignment with guideline recommendations on postoperative pain management; 3) Do students find that this teaching is effective and highlights the importance of a multimodal approach; and 4) Is teaching on this subject provided during other points in clerkship and pre-clerkship?

The APS guidelines on management of postoperative pain were consulted (7) along with a Health Quality Ontario (HQP) report on opioid prescribing for acute pain (8) in order to develop survey questions concerning multimodal pain management. A 5-point Likert scale was used for questions requiring a ranking from respondents (e.g. "Strongly Agree" to "Strongly Disagree").

The survey was reviewed by two colleagues as well as the WRC Research Office after its development to ensure relevance and clarity of the questions posed. Following its development, the survey was disseminated to the third-year medical class at the WRC. Third-year students were the chosen sample population as they would have completed the most clinical rotations at the time of the survey and had the greatest likelihood of completing their surgery core rotation. The survey was sent out to participants in November 2019 and was closed in January 2020. The full survey can be found in Appendix 1.

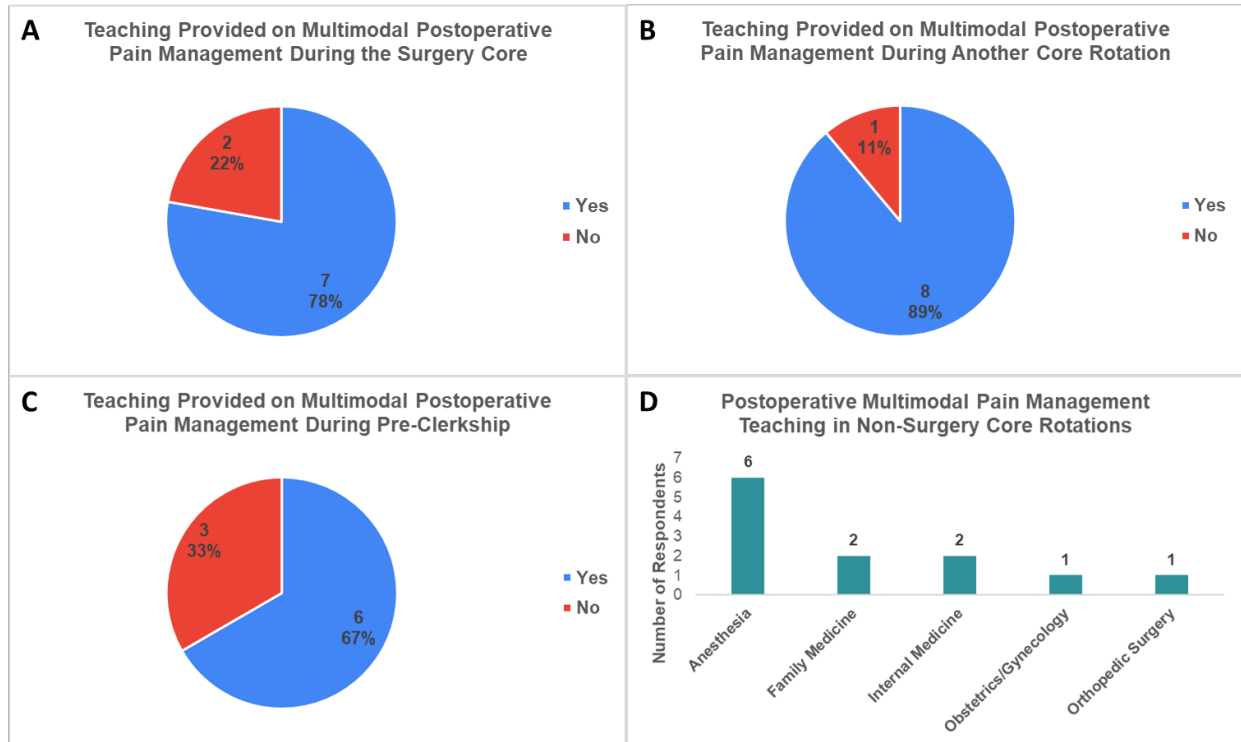
## Results



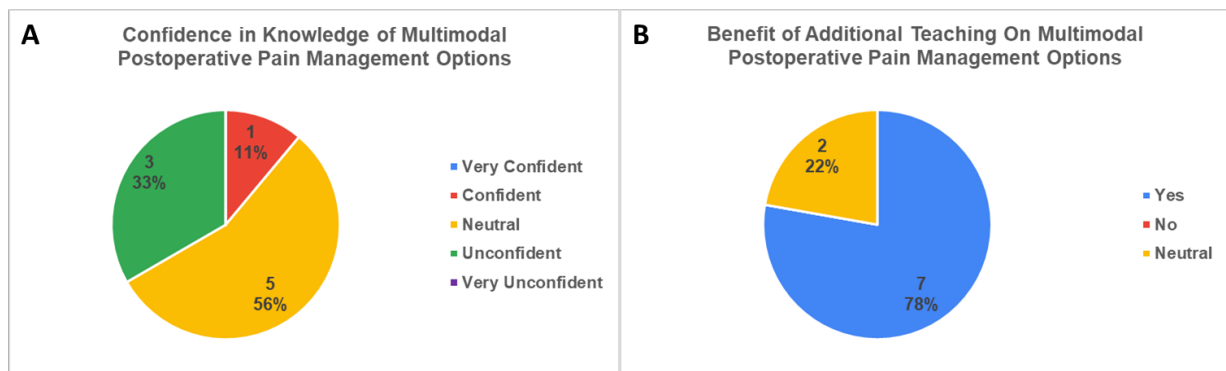
**Figure 1.** Core rotations completed by respondents at the time of the survey.

The survey had a 32% response rate with a total of nine responses collected from 28 students in the third-year class. Although only eight of nine students responded as having completed their surgery core rotation at the time of the survey (Figure 1), the remaining student responded as having received teaching on the postoperative pain management strategies during their surgery core rotation and completed the section specific to the surgery core rotation. Since the student would not have been able to complete this section unless they had in fact completed their surgery core, it was presumed that all respondents had completed their surgery core at the time of the survey.

Seven students responded that they had received teaching around multimodal pain management and opioid reduction strategies in the postoperative setting during the surgery core rotation, while two students responded that they had not (Figure 2). Eight respondents received teaching on multimodal postoperative pain management in a core rotation other than surgery. The one respondent that did not indicate receiving this teaching during another core rotation did indicate receiving the teaching during the surgery core. All respondents had therefore received this teaching in at least one core rotation during clerkship. Two thirds of participants indicated receiving teaching on the topic of multimodal postoperative pain management and opioid reduction during pre-clerkship. Six respondents indicated they had received this teaching during the anesthesia core rotation. Two respondents indicated receiving this teaching during the family medicine and internal medicine core rotations. One respondent indicated they had also received this teaching during the orthopedic surgery and obstetrics/gynecology core rotations.

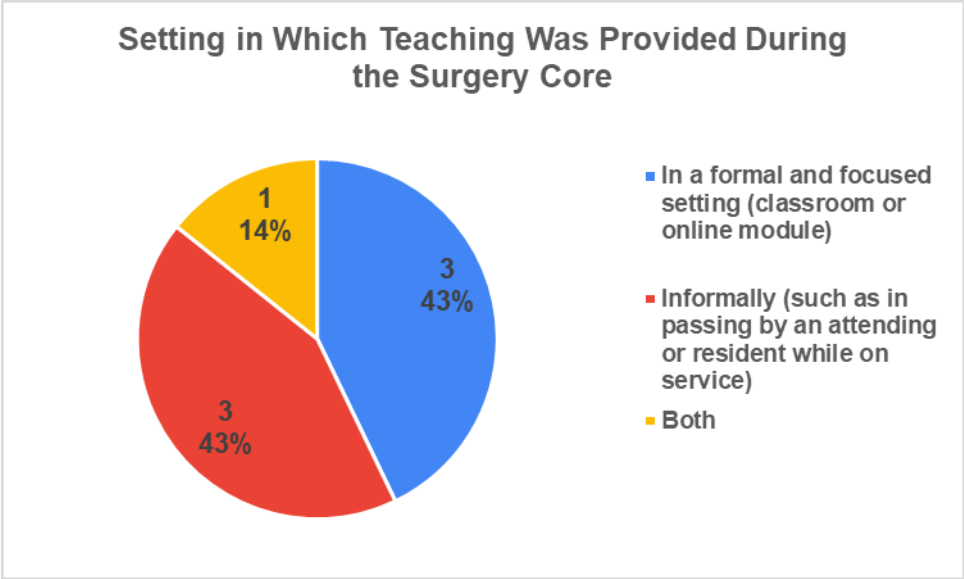


**Figure 2.** Respondents were asked if they had received teaching on multimodal postoperative pain management and opioid reduction strategies during (A) the surgery core, (B) core rotations other than surgery, (C) pre-clerkship, and (D) specific core rotations other than surgery.



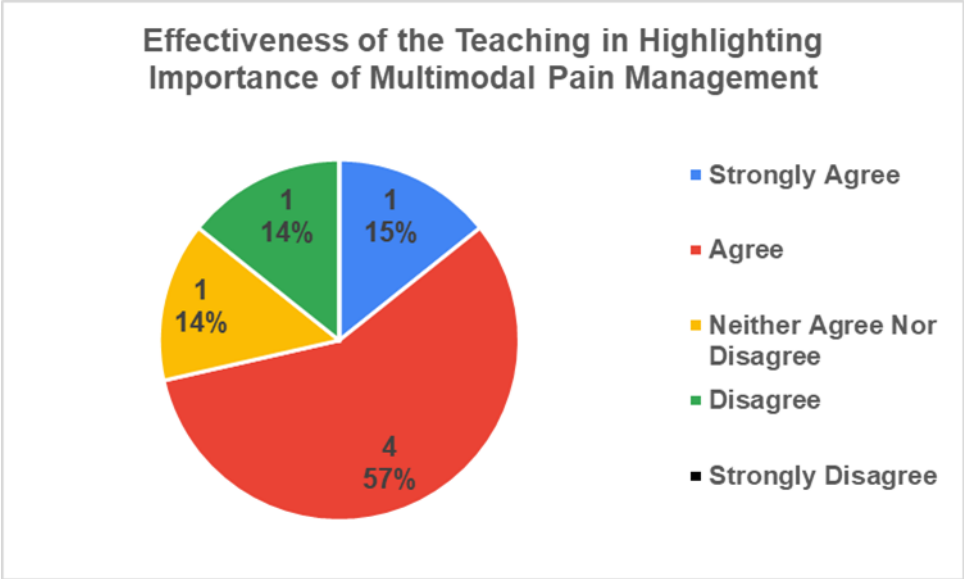
**Figure 3.** Respondents' (A) comfort with current knowledge of multimodal postoperative pain management options, and (B) perceived benefit of additional teaching on the topic.

Five students were neutral, three students were unconfident, and one student was confident in their knowledge of multimodal postoperative pain control options (Figure 3). Seven respondents felt they would benefit from additional teaching on this topic, while two respondents were neutral to this prospect. No respondents felt that there would be no benefit to additional teaching.



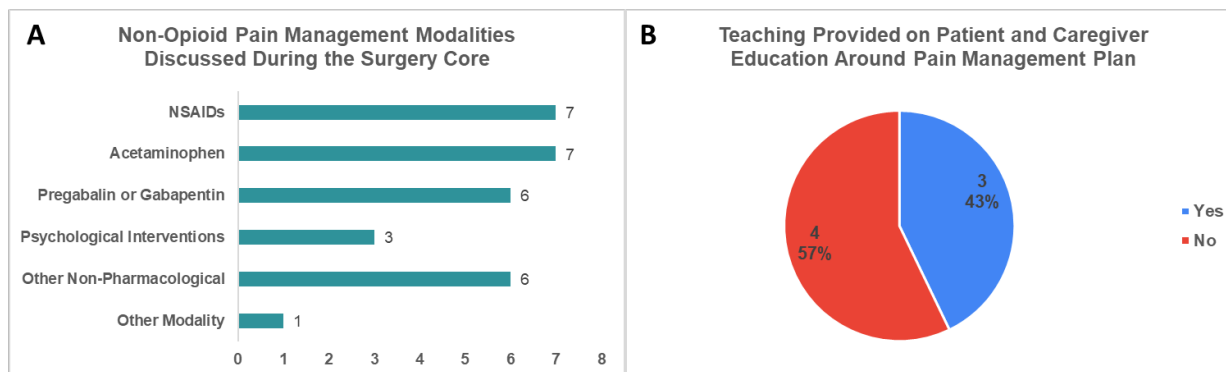
**Figure 4.** Setting in which teaching on postoperative pain management was provided during the surgery core.

The environment in which the teaching was provided was evenly split between a formal and focused setting such as a classroom and an informal setting such as in passing while on service (Figure 4). One respondent indicated they had received this teaching in both settings.



**Figure 5.** Effectiveness of teaching in highlighting importance around multimodal pain management and opioid reduction in the postoperative setting.

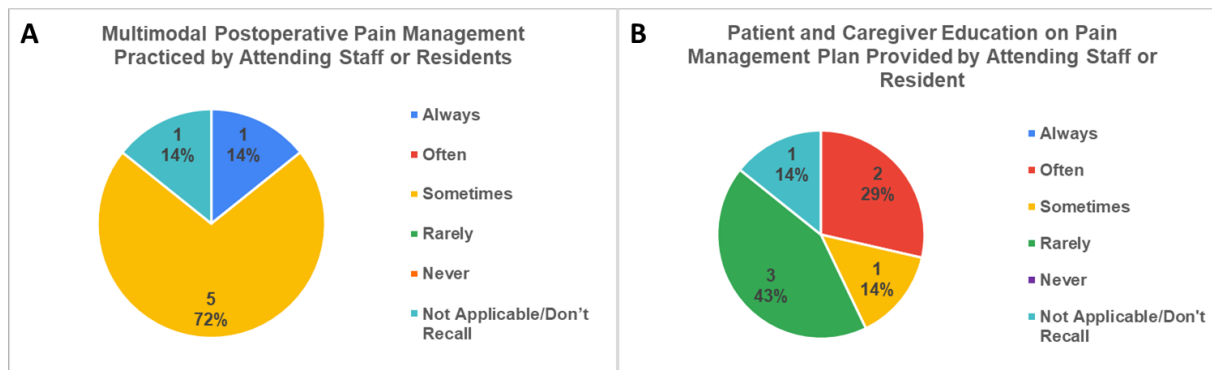
Four respondents agreed that the teaching effectively highlighted the importance of multimodal pain management and opioid-reduced postoperative prescriptions, while one respondent strongly agreed, another was neutral, and one disagreed (Figure 5).



**Figure 6.** Respondents were asked (A) what specific non-opioid pain management modalities were discussed during their surgery core, and (B) whether they had received teaching on providing patient and caregiver education around the pain management plan. *NSAIDs* = *non-steroidal anti-inflammatory drugs*.

All respondents were introduced to NSAIDs (naproxen, ibuprofen, celecoxib, or ketorolac) and acetaminophen as part of a multimodal pain management strategy (Figure 6). The next most discussed pain management modalities were pregabalin or gabapentin as well as non-pharmacological interventions including heat, ice, massage, stretching, rest, acupuncture, bracing or wrapping, spinal manipulation, passive physical therapy, positioning, splints, transcutaneous electrical nerve stimulation. Six respondents each indicated discussing these modalities during their surgery core rotation. The third most discussed category was psychological interventions including cognitive behavioural therapy, guided imagery, and other relaxation techniques. The single other modality was specified as “sleep hygiene.” The majority of respondents did not receive teaching around the impact of patient and caregiver education on the pain management plan.

Only one respondent indicated that a multimodal postoperative pain management approach was always employed by their attendings or residents during the rotation (Figure 7). The vast majority indicated that such an approach was only used sometimes. The majority of respondents also indicated their attendings or residents practiced patient education around the pain management plan only rarely or sometimes, with only about of third saying this was practiced often.



**Figure 7.** Respondents were asked if they noticed attending staff or residents (A) practicing a multimodal approach to postoperative pain management, and (B) providing patients and caregivers education around the pain management plan.

## Discussion

A total of nine survey responses were collected from third year medical students at the WRC. Seven of nine respondents indicated that teaching on postoperative pain management and opioid reduction strategies was provided during the surgery core rotation (Figure 2A). Of the seven respondents, three indicated they had received this training in a formal and focused setting such as a classroom or online module (Figure 4). One reported receiving the teaching both formally and informally, such as from an attending staff or resident while on service (Figure 4).

These findings are promising as they demonstrate that most students from the sample have received teaching on the topic during the surgery core. However, given that about half of those students received the teaching in informal settings or discussions, this would suggest that a greater part of the onus shifts to attending staff or residents if this teaching is to be provided. Considering the often-hectic nature of a surgical service, it is possible that attendings may not get around to teaching this specific topic and some students may not receive this teaching at all while on service. This finding points to an opportunity to incorporate this topic into lectures or learning objectives in order to standardize and ensure all students going through their core rotation are at least introduced to the subject.

Another aim of the survey was to determine whether the teaching is aligned with current guidelines on postoperative pain management, particularly referencing the guidelines published by the APS in conjunction with other Societies in 2016. All respondents that had received teaching on postoperative pain management during the surgery core indicated they had learned about the role of NSAIDs and acetaminophen in pain management (Figure 6A), which is promising given that the effectiveness of these agents is supported by high-quality evidence (5,7,13). In some cases, effective pain control postoperatively can be achieved using these agents alone without a need to fill opioid prescriptions (5). Six of seven respondents also indicated



learning about the use of pregabalin or gabapentin as part of postoperative pain control (Figure 6A), again in line with the guideline recommendations (7,8).

Contrary to guideline recommendations, most respondents did not receive teaching around the impact of patient and caregiver education on the pain management plan (Figure 6B). This finding might indicate that the importance of this component of pain management is not sufficiently recognized. The guidelines particularly highlight the importance of this component in informing patients how to safely use their analgesics and optimize pain control, manage side effects, prevent combinations that can result in overdose or death, and explain appropriate disposal of unused supplies of opioids and other medications (7). Inappropriate disposal has been recognized as a concerning source for opioid diversion, with one US survey estimating that 65% of those with an opioid misuse disorder obtain their opioids from a non-prescription source (14). Therefore, incorporating this guideline recommendation as part of teaching on postoperative pain management is a worthwhile endeavour.

Respondents also indicated learning about other modalities of pain management including non-pharmacologic interventions as well as psychological interventions (Figure 6A). One respondent also indicated learning about the role of sleep hygiene in pain management. The APS guidelines only provided weak recommendations in favour of transcutaneous electrical nerve stimulation (TENS) and cognitive-behavioural modalities, and could not provide a recommendation for other adjunctive interventions such as acupuncture, massage, or cold therapy due to a lack of supporting data (7). Nevertheless, these therapies may still play an important adjunctive role particularly for patients who cannot tolerate or prefer not to use certain pharmacologic treatments and it is encouraging that students are learning about them.

Another aim of the survey was to determine the effectiveness of the teaching in highlighting the importance of a multimodal postoperative pain management approach with reduced opioid prescriptions, as expressed by respondents. Four respondents agreed that the teaching effectively highlighted the importance of this approach, while one respondent strongly agreed, another was neutral, and one disagreed (Figure 5). It is encouraging that more than half of the respondents felt the teaching was effective in this regard. This finding might indicate that when the teaching is provided, it is impactful for the most part. However, there may still be some room for improvement of the content considering the finding that three out of nine respondents indicated they were not confident with their knowledge of multimodal postoperative pain management options.

A potential factor that could impede effectiveness of the teaching is the finding that attending staff or residents were not consistent with applying multimodal postoperative pain management and opioid reduction strategies themselves (Figure 7A). Only one respondent indicated that a multimodal approach was always employed by their attendings or residents during the rotation. The vast majority indicated that such an approach was only used sometimes. The majority of respondents also indicated their attendings or residents practiced patient education around the pain management plan only rarely or sometimes, with only about a third saying this was practiced often (Figure 7B). The inconsistent application of the multimodal

approach by role models in the clinical setting might undermine the importance of this approach and decrease effectiveness around teaching of this topic. This finding could point to the presence of potential barriers to consistently applying the multimodal approach in actual clinical settings, which may merit study on its own and how those factors can be addressed in teaching on this topic.

The survey also explored whether teaching on multimodal postoperative pain management was provided during other clerkship core rotations (Figure 2D). Not surprisingly, the majority of respondents indicated they had received this teaching during the anesthesia core rotation. Two of nine participants also indicated receiving this teaching during Family and Internal Medicine core rotations. Given that these specialties are often involved in managing surgical patients, it is important that these specialties are also informed on good practices in postoperative pain management and opioid reduction. Interestingly, only one respondent indicated receiving this teaching during the orthopedic core rotation and the obstetrics/gynecology core, despite seven participants completing each of these core rotations. This finding points to an opportunity to reiterate the importance and strategies around responsible postoperative pain management in these surgical subspecialty rotations. There is also an opportunity for introducing this teaching in other core rotations such as emergency medicine, given that this specialty is also regularly involved in the care of surgical patients.

Given that the AFMC's response to the opioid crisis called for teaching on opioids and addiction to occur across all stages of medical training (9), respondents were also asked whether they received this teaching during pre-clerkship. Two thirds of respondents indicated that they had (Figure 2C). It is encouraging that most students are learning about this topic prior to entering clerkship. However, there is still an opportunity to ensure most if not all students complete pre-clerkship with some level of exposure and teaching on this topic, as per the AFMC recommendations. This goal could be achieved for example by including this topic as a learning objective during small group case-based sessions and having group facilitators ensure it is covered as part of a given session.

This study is not without its limitations. Given the relatively limited number of responses received, the data may be subject to a voluntary response bias. The degree to which findings can be generalized to the entire WRC class is also uncertain. Additionally, further questions exploring reasons behind responses were omitted for the sake of maintaining brevity of the survey. These questions might include asking why respondents did or did not feel confident in their knowledge of postoperative pain management options, or what if any barriers appeared to prevent consistent application of a multimodal approach by attendings during the core rotation. Such insights would be helpful in determining how current teaching can be enhanced and how barriers can be navigated. The next steps for this project include disseminating the survey in the McMaster Hamilton and Niagara campuses as well to have a better picture of postoperative pain management teaching within the institution as a whole. Inter-campus variability can also be explored if any exist.

## **Conclusion**

The majority of students appear to receive teaching on multimodal postoperative pain management and opioid reduction strategies during the surgery core at the WRC. This teaching is mostly aligned with current guidelines on the topic. However, the role of patient and caregiver education on the pain management plan can be better addressed as this is a strongly recommended component of postoperative pain management. Other avenues for reinforcing teaching on this topic include incorporating the subject into formal classroom sessions or objectives during the surgery core so that all students have a chance to learn about this topic without reliance on the variable nature of teaching while on service. The teaching can also be incorporated into other surgical core rotations including orthopedics and obstetrics/gynecology to reinforce concepts of effective and responsible postoperative pain management.

## **Conflict of Interest**

The authors have no conflict of interest to disclose.

## References

1. National Report: Apparent Opioid-related Deaths in Canada [Internet]. 2019 [cited 2019 Oct 9]. Available from: <https://health-infobase.canada.ca/datalab/national-surveillance-opioid-mortality.html>
2. Belzak L, Halverson J. The opioid crisis in Canada : a national perspective. *Heal Promot Chronic Dis Prev Canada*. 2018;38(6).
3. Bai J-W, Bao J, Bhatia A, Chan VWS. A perioperative approach to the opioid crisis. *Can Med Assoc J*. 2018;190(39):1151–2.
4. Overton HN, Hanna MN, Bruhn WE, Bicket MC, Makary MA. Opioid-Prescribing Guidelines for Common Surgical Procedures: An Expert Panel Consensus. *J Am Coll Surg*. 2018;227(4):411–8.
5. Hartford LB, Koughnett JAM Van, Murphy PB, Vogt KN, Hilsden RJ, Clarke CFM, et al. Standardization of Outpatient Procedure ( STOP ) Narcotics : A Prospective Non-Inferiority Study to Reduce Opioid Use in Outpatient General Surgical Procedures. 2018;228:81–9.
6. 2019-20 Surgical Quality Improvement Campaign [Internet]. 2019. Available from: <https://www.hqontario.ca/Quality-Improvement/Quality-Improvement-in-Action/Ontario-Surgical-Quality-Improvement-Network/Cut-the-Count>
7. Chou R, Gordon DB, Leon-casasola OA De, Rosenberg JM, Bickler S, Brennan T, et al. Management of Postoperative Pain: A Clinical Practice Guideline From the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Council. *J Pain* [Internet]. 2016;17(2):131–57. Available from: <http://dx.doi.org/10.1016/j.jpain.2015.12.008>
8. Opioid Prescribing for Acute Pain [Internet]. Health Quality Ontario. 2018. Available from: <https://www.hqontario.ca/portals/0/documents/evidence/quality-standards/qs-opioid-acute-pain-clinician-guide-en.pdf>
9. Verma S, Raegele M. Report on the AFMC Response to the Canadian Opioid Crisis [Internet]. 2017. Available from: [https://afmc.ca/sites/default/files/pdf/2018\\_AFMC\\_Response\\_to\\_OPIOID\\_Crisis\\_EN.pdf](https://afmc.ca/sites/default/files/pdf/2018_AFMC_Response_to_OPIOID_Crisis_EN.pdf)
10. Comer L. Content analysis of chronic pain content at three undergraduate medical schools in Ontario schools in Ontario. *Can J Pain* [Internet]. 2017;1(1):75–83. Available from: <https://doi.org/10.1080/24740527.2017.1337467>
11. Medportal Curriculum Database [Internet]. 2020. p. 5–7. Available from:

<https://cdb.medportal.ca/>

12. Neuman MD, Bateman BT, Wunsch H. Inappropriate opioid prescription after surgery. *Lancet*. 2019;393:1547–57.
13. Mariano E. Management of acute perioperative pain [Internet]. UpToDate. 2019. Available from: [https://www-uptodate-com.proxy.lib.uwaterloo.ca/contents/management-of-acute-perioperative-pain/print?search=acute perioperative pain&source=search\\_result&selectedTitle=1~150&usage\\_type=default&display\\_rank=1](https://www-uptodate-com.proxy.lib.uwaterloo.ca/contents/management-of-acute-perioperative-pain/print?search=acute%20perioperative%20pain&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1)
14. Han B, Compton WM, Blanco C, Crane E. Prescription Opioid Use , Misuse, and Use Disorders in U . S . Adults : 2015 National Survey on Drug Use and Health. 2017;167(5):293–302.

## Appendix 1

Question	Options
Did you receive any teaching around multimodal pain management and opioid reduction strategies (such as use of non-opioid pharmacological and non-pharmacological interventions) in the postoperative patient during the surgery core rotation?	<ul style="list-style-type: none"> <li>a) Yes</li> <li>b) No</li> </ul>
Have you received teaching on multimodal pain management and opioid reduction strategies in the postoperative setting in a different core rotation (e.g. anesthesia, orthopedics, etc.)?	<ul style="list-style-type: none"> <li>a) Yes</li> <li>b) No</li> </ul>
If you answered yes to the previous question, please specify which rotation(s).	Custom Responses
Please select the core rotations you have completed so far in clerkship.	<ul style="list-style-type: none"> <li>a) Medicine</li> <li>b) Surgery</li> <li>c) Obstetrics/Gynecology</li> <li>d) Orthopedic Surgery</li> <li>e) Anesthesia</li> <li>f) Medical Subspecialty Selective</li> <li>g) Family Medicine</li> <li>h) Emergency Medicine</li> <li>i) Pediatrics</li> <li>j) Psychiatry</li> </ul>
Have you received teaching on multimodal pain management and opioid reduction strategies in the postoperative setting during preclerkship (i.e. in tutorial sessions, large group sessions, clinical skills, or professional competencies)?	<ul style="list-style-type: none"> <li>a) Yes</li> <li>b) No</li> </ul>
How confident do you feel in your knowledge of multimodal postoperative pain management options at this stage of your training?	<ul style="list-style-type: none"> <li>a) Very Confident</li> <li>b) Confident</li> <li>c) Neutral</li> <li>d) Unconfident</li> <li>e) Very Unconfident</li> </ul>
Do you feel additional teaching on this topic would be beneficial for you?	<ul style="list-style-type: none"> <li>a) Yes</li> <li>b) No</li> <li>c) Neutral</li> </ul>
Please select the setting in which you received teaching around multimodal pain management and opioid reduction strategies in the post-operative patient during the surgery core.	<ul style="list-style-type: none"> <li>a) In a formal and focused setting (classroom or online module)</li> <li>b) Informally (such as in passing by an attending or resident while on service)</li> <li>c) Both</li> </ul>
In your opinion, did the teaching effectively highlight the importance of multimodal pain	<ul style="list-style-type: none"> <li>a) Strongly agree</li> <li>b) Agree</li> </ul>

Which if any of the following pain management modalities were discussed during the core rotation.

- a) NSAIDs (naproxen, ibuprofen, celecoxib, ketorolac)
- b) Acetaminophen
- c) Pregabalin or gabapentin
- d) Psychological interventions (cognitive behavioural therapy, guided imagery, and other relaxation techniques)
- e) Other forms of non-pharmacological intervention (heat, ice, massage, stretching, rest, acupuncture, bracing or wrapping, spinal manipulation, passive physical therapy, positioning, splints, transcutaneous electrical nerve stimulation)
- f) Other modality not already listed (please specify)

<p>Did you notice any of the above approaches being put in practice by attendings or residents in the management of postoperative pain in patients?</p>	<ul style="list-style-type: none"> <li>a) Always</li> <li>b) Often</li> <li>c) Sometimes</li> <li>d) Rarely</li> <li>e) Never</li> <li>f) Not Applicable/Don't Recall</li> </ul>
<p>Did you receive teaching on the positive impact of patient and caregiver education around the pain management plan?</p>	<ul style="list-style-type: none"> <li>a) Yes</li> <li>b) No</li> </ul>
<p>Did you notice patient education surrounding pain management being practiced by attendings or residents during the core rotation?</p>	<ul style="list-style-type: none"> <li>a) Always</li> <li>b) Often</li> <li>c) Sometimes</li> <li>d) Rarely</li> <li>e) Never</li> <li>f) Not Applicable/Don't Recall</li> </ul>

**Appendix 1.** List of survey questions and response options included.