Pain management training in undergraduate medical education
Stephanie Fong, Patricia Morley-Forster

ABSTRACT
The pain curriculum in medical education across the globe is lacking, leaving medical trainees ill-prepared to properly assess and design plans to address acute and chronic pain. Poorly managed pain has implications on the individual in the form of psychological, physical, and financial costs, and on the greater healthcare system and economy. Gaps in education have resulted in suboptimal opioid prescribing habits contributing to the current opioid epidemic, and the development of negative attitudes towards patients with chronic pain amongst healthcare providers. Studies researching existing pain education in undergraduate medical education in North America, the United Kingdom, and Europe have identified limited pain teaching, typically incorporated into other courses rather than given a designated place in the curriculum. Several barriers to improving the provision of pain education have been identified, including resource limitations and perceived importance in comparison to other content. Improving pain education in Canada should be a priority given recent updates to the Canadian Guideline for Opioid Therapy and Chronic Noncancer Pain which recommends a decrease to the maximum dose of morphine. Implementing these guidelines will require physicians to have the knowledge and ability to safely taper patients whose opioid doses exceed the upper limit. Enhancing pain education will require an interdisciplinary approach with students developing competence not only in the identification and appropriate management of pain, but learning the communication and motivational interviewing skills to display empathy and compassion when providing care to the chronic pain patient population.

INTRODUCTION
Pain has emerged as a global health issue, with studies from Europe, North America, Australia, and Asia suggesting 1 in 5 adults suffer from pain.1-2 Chronic pain is a problem affecting 1 in 5 Canadians over the age of 18.3 Unrelieved pain greatly impacts an individual's functional status, quality of life, and health outcomes.4 From a health resource perspective, pain is the most common reason for patients to access healthcare, and chronic pain is the leading cause of long-term disability.5

In Canada, the unsafe prescribing of opioids has contributed to an increase in opioid-related deaths over the last decade.6 On an individual level, the physical and psychological aspects of chronic pain result in lost productivity, absenteeism and early retirement. Moreover, the economic cost of underdiagnosed and undertreated chronic pain accounts for 3 to 10 percent of a nation’s Gross Domestic Product.7

Despite the prevalence of pain in clinical practice and its burden on healthcare systems, dedicated pain teaching in undergraduate medical education is often inadequate in terms of time devoted to the subject as well as the content presented to learners.1,2,6,9 Other systemic factors contributing to inadequate pain management include lack of provincial coverage for non-pharmaceutical pain management options and limited access to pain specialists and multidisciplinary pain clinics. This article focuses on the current landscape of pain education at the undergraduate medical level, describes how a lack of knowledge around proper opioid prescribing practices has contributed to current situation, and makes suggestions for future direction of pain education in medical school.

PAIN EDUCATION: CURRENT LANDSCAPE
In a 2009 survey of Canadian health sciences programs including medicine, nursing, dentistry, pharmacy, physical therapy, and occupational therapy, it was found that only one-third of programs had designated mandatory pain content in the curriculum, with two-thirds identifying “integrated” content that could not be quantifiable.10 Respondents highlighted the need for increased pain-related curriculum resources and the desire for interprofessional education opportunities. Given that a well-designed pain curriculum has been shown to significantly improve pain knowledge and beliefs of students, and enhance pain management practices, the authors advocate for increased pain content in health sciences programs.10

A 2011 study involving 117 American and Canadian medical schools, found that 80% of American medical schools and 92% of Canadian medical schools require pain related teaching. Pain content was most often incorporated within other required courses, producing a fragmented learning experience. The researchers found that many topics outlined in the International Association for the Study of Pain (IASP) core curriculum, a learning society that publishes internationally accepted standards for pain education, received limited or no coverage in the medical school curricula studied.4

Pain education in health sciences programs is also underrepresented in the United Kingdom (UK). A sample of 74 health sciences programs including medicine, dentistry, midwifery, nursing, occupational therapy, pharmacy, physiotherapy, and veterinary medicine across 19 institutions in the UK found that programs had an average of 12 hours of pain content, with the greatest amount of content found in veterinary medicine and physiotherapy.8

The Advancing the Provision of Pain Education and Learning study aimed to determine levels and methods of undergraduate
medical education in pain management at 242 schools across 15 European countries. During a six-year degree program, medical students received an average of 12 hours of pain management training; an amount the authors cited as disproportionate to the prevalence and burden of pain. Most schools studied (55%) incorporated pain content into non-pain specific courses. Thirty-one percent incorporated a dedicated pain module in the curriculum, an approach most common in France where it was present in 87% of school’s surveyed within that country.1

**OPIOID PRESCRIBING PRACTICES**

Given the limited pain management training offered to medical student learners, new medical graduates are faced with clinical presentations they are unable to adequately assess and manage.3,4 They may harbour negative attitudes towards patients presenting with pain based on their mentors’ reaction to chronic pain patients.1,3,11 In a study of medical residents in the United States, 59% of respondents rated their medical school preparation to manage chronic non-cancer pain as “fair” or “poor” while 30% used negative or derogatory terms to describe patients with chronic pain.12

The 2017 update of the Canadian Guideline for Opioid Therapy and Chronic Noncancer Pain provides recommendations for safer and more effective opioid prescribing practices. One recommendation is a reduction in the upper dose of prescribed opioids from 200 mg morphine equivalent per day to 90 mg morphine equivalent per day, a change based on evidence showing correlation between higher opioid doses and increasing risk of death. The new guidelines indicate patients on a dose greater than 90 mg should undergo a trial of tapering to the lowest effective dose. However, most physicians will not graduate with the training in how to taper opioids slowly without precipitating significant withdrawal symptoms. This may lead to patient resistance or refusal to further tapering.5

In the United States, where pain curricula reflect those in Canada, approximately half of all opioid prescriptions are written for indications for which there is little or no evidence.7 Practitioners should be more vigilant about not starting patients with problems such as acute low back pain and fibromyalgia on opioids. Additionally, physicians should educate patients on opioid use prior or at hospital discharge, as studies have shown patients discharged from hospital with an opioid prescription are at increased risk of future chronic opioid use and that contributes to morbidity and mortality.14,15 It has been identified that 10% of opioid naive patients started on opioids for short term pain management post-surgery develop chronic opioid use.6

**PAIN EDUCATION: FUTURE DIRECTIONS**

Common recommendations that have emerged from studies on undergraduate pain education include increasing the curriculum time devoted to pain assessment and management, and incorporating an interprofessional approach to undergraduate medical teaching.14,8,16 Ideally, pain education in medical school would include psychology, physiotherapy, pharmacy, family medicine, physical medicine, anesthesiology, neurology, and addiction medicine. Learners should be comfortable not only with opioid prescribing practices, but also competent in prescribing non-opioid and non-pharmacologic pain management options.

In addition to the medical science component of pain education, communication skills and motivational interviewing are integral aspects of learning to manage chronic pain patients who can feel as though their pain is minimized by being labelled as drug-seeking.7 Researchers have suggested that pain education should include intellectual, emotional, technical, and ethical dimensions.4 A survey of pain medicine leaders within the American Academy of Pain Medicine ranked awareness of acute and chronic pain, competence in clinical appraisal, promotion of compassionate practices, displaying empathy toward the patient, and knowledge of terms and definitions for substance abuse as the top five learning objectives for medical students.17 Another important aspect of a pain curriculum involves the exposure to best practices in the clinical setting by working with mentors up to date in the field.6

The International Association for the Study of Pain (IASP) is an organization that brings together clinicians, scientists, and policymakers to support the study of pain and translate knowledge into improved pain management for patients. The IASP has created a series of curricula outlines for healthcare providers within the interdisciplinary team that are helpful for establishing courses on acute, chronic, and cancer pain at the undergraduate and graduate levels.18

The pain curriculum at the Schulich School of Medicine and Dentistry at Western University has undergone a continuous evolution since the introduction of an elective pain course in 2001 offered to students in their final year. Over the years, the elective course grew from eight to twenty hours in duration. In 2018, the course length was shortened, but was made a mandatory component of the final year curriculum. The focus of the course is on safe opioid prescribing with the aim of promoting the development of clinicians who are knowledgeable about chronic pain conditions, empathetic to patients’ experiences with pain, and aware of the risk-benefit ratio of opioids as a tool with which to manage pain.

**CONCLUSION**

Despite the significant global burden of pain and the growing numbers of deaths from opioid misuse, medical school pain curricula continue to be limited and fragmented. Challenges to incorporating a more robust pain curriculum into undergraduate medical education include perceived importance in comparison to other content; limited time, resources and staff knowledge; and a diffusion of responsibility for pain education to non-pain specific courses.6 Having a roster of health professionals with pain education experience to act as mentors for trainees can help learners gain more confidence in managing chronic pain.19 Greater knowledge and confidence in management abilities are correlated with more positive attitudes towards chronic pain patients.20 Improving the pain curriculum in medical schools should be prioritized, although
it is recognized that learning is lifelong and the incorporation of pain education at the postgraduate and continuing medical education levels is essential in developing and maintaining best practices.\textsuperscript{11,12} Learning objectives should include not only knowledge acquisition of assessment and therapeutic options, but also exploration of attitudes to allow students to recognize their own biases and prejudices.\textsuperscript{5,9,13}

REFERENCES


