



## Overview of this issue: “Pain management in an opioid crisis”

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Opioids have been used therapeutically to treat pain for thousands of years; the primary opiate, morphine, was isolated in the early 1800s in Germany and its addictive potential noted in the 1880s [1]. Since then a range of opioids have been developed and marketed, all of which have addictive potential.

Opioids are widely prescribed for a range of cancer and non-cancer pain. The first decade of the 2000s saw a substantial increase in medical (prescribed) [2, 3] and non-medical (diverted onto the illicit market) opioid use [4]. This resulted in a rise in the number of individuals diagnosed with opioid use disorder and opioid overdose-related mortality [2]. Much focus has been on North America where the extent of over-prescribing, the increase in diversion and overdose deaths has had an impact internationally on the way opioids are prescribed, and may have restricted access where it is needed [5, 6].

The size of the North American crisis has also resulted in considerable international attention and the introduction of new interventions, including the development of prescription monitoring databases, a proliferation of prescribing guidelines and restricted formularies, all of which may have led to a significant reduction of the prescription of opioids and the resultant decrease of prescription opioids on the illicit market [7, 8]. This has also left many people without access to these medications, many of whom have turned to using traditional illicit opioids such as heroin, plus more potent opioids such as fentanyl and its analogues, contributing to increasing overdose deaths [9].

Many patients require and rely on strong opioid analgesics to manage their pain and improve their quality of life, in

both cancer and non-cancer related conditions. How, then, as health professionals, can we best manage pain in an era of an opioid crisis whilst attempting to reduce harmful outcomes? Research clearly points to pharmacists having important roles in pain management [10, 11]. As pharmacists we are charged with ensuring patients receive appropriate, timely, safe and effective medications and we also have a responsibility to be alert to issues of dependence and misuse, and to reduce the harms that may result from misuse and diversion. In this special edition, our authors have contributed a range of opinion pieces and research-based papers which shine a light on some of the problems, outcomes and potential solutions to issues of opioid prescribing and dispensing. Specifically, this special issue explores issues such as prevalence, risk, adherence, non-opioid alternatives, education and training, interventions, patient perspectives and policy impact. Importantly, though, while this special issue focusses on pain management in an era of opioid crisis, papers related to this are also routinely published within the scope of the journal. For example, a recent paper by Patel et al. [12] exploring the handling of unused opioids in hospices post patient death, revealed varying practices which could lead to entry of such opioids into the illicit market.

Two papers in our special issue provide us with macro perspectives. Adams et al. [13] have provided an overview of unintended consequences of chronic pain guidelines. The authors suggest ways pharmacists can contribute to ensuring patients get the best care. An overview of opioid prescribing and prescription opioid-related deaths in the United Kingdom, including differences between the devolved nations, is provided by Alenezi et al. [14]. Their analysis and subsequent discussion provide a range of recommendations for policy makers and health professionals.

Exploring trends in opioid prescribing, through interrogation of routinely collected data, is an important activity which can inform policy and clinical interventions. Caldeira et al. [15] have explored opioid prescribing patterns in a region of Portugal between 2013 and 2017 and have noted a 1.5 fold increase in opioid prescribing in that period. Adewumi and colleagues have undertaken two separate

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analyses of prescribing patterns for opioids in Queensland, Australia. Their first paper [16] has explored prescribing trends and, in particular, the numbers of prescriptions in relation to formulation, dose and socioeconomic status. In their second paper [17] they have examined shorter and longer term prescribing, and explored clinical and demographic associations between these two prescribing patterns. Olesen and colleagues' Danish study of tramadol treatment-related patient safety incidents in hospitals and primary care [18], used a national dataset of safety incidents, and found important and concerning issues in particular with the administration of the patches to patients in primary care.

There are several harms associated with the prescribing of opioids, including drug interactions in particular those which may contribute to unintended overdose. The enhanced risk to patients of co-prescribed benzodiazepines, muscle relaxants and opioids is the subject of Watanabe and Yang's [19] study on the prevalence of co-prescription of these drugs and the association with emergency department visits. Another area of concern is the use of opioids in older adults who may be at greater risk of adverse events. Al-Qurain et al.'s [20] paper identifies the prevalence of opioid prescribing in those aged 75 years or older admitted to a hospital in Australia. Their findings provide a picture of prescribing of stronger opioids, and outline areas for concern.

The use of opioids is affected by a number of factors including patients' unwillingness to use them [21]. In Savas and colleagues' paper of patient perspectives [22], the role of the clinical pharmacist is highlighted in relation to patient education to reduce misconceptions, and how pharmacist involvement might contribute to better patient care through appropriate adherence by patients. Whilst most of the papers in this special issue have focused on this issue of non-cancer pain, Zhang et al.'s [23] paper provides us with a description of cancer pain management in China, and covering the development of the Good Pain Management programme, and the Cancer Pain Diagnosis and Treatment Standards.

One consequence of the rise in opioid prescribing and associated harms has been concern raised over the availability of over-the-counter (OTC) codeine. Until 2018 in Australia, codeine was available in OTC products in lower doses. Pharmacists' views on this change of codeine's legal availability are mixed [24–26], but what do patients think? Mishriky's paper [27] explores adult pain patients' views of the rescheduling of codeine, through the use of a self-administered anonymous survey, and the results provide food for thought for pharmacists and regulators.

One way of reducing opioid prescribing is to explore possible alternative pharmacotherapeutic interventions. Branton et al. [28] have undertaken a systematic review and meta-analysis of the effectiveness of the serotonin norepinephrine reuptake inhibitor (SNRI) duloxetine, in reducing opioid prescribing in post-operative pain management.

Regardless of what is prescribed, the ways patients use their medications can have a negative, unintended impact on outcomes. For example, extended-release products were designed to help maintain a steady plasma concentration of the drug and to reduce the frequency of dosing. In relation to this, Murphy et al. [29] have explored one aspect of adherence—that is, the extent of use of extended-release opioids at reduced dosing intervals in patients with chronic pain, and the factors associated with this.

The ability to identify patients with opioid use problems and to provide brief interventions has been the subject of review, in particular in primary care [30]. When compared with other health professionals, community pharmacists often see patients more frequently, and research indicates that it is feasible to screen for risk factors for opioid misuse in community pharmacy [31]. In this special issue, Alvin and colleagues [32] explored whether community pharmacists were prepared to intervene where they had concerns about supplying opioids, and how confident they felt to do this. Nielsen et al.'s [33] paper describes results from a pilot study of the implementation of an opioid problem screening and brief intervention programme. They explored pharmacist-related factors associated with community pharmacist involvement. The study also usefully highlights some barriers to implementation in community pharmacy.

One important aspect of patient care relates to the competencies of pharmacists. Maher et al. [34] have undertaken a Delphi study to reach consensus on core competencies for pharmacists supplying opioids on prescription. This culminated in a 37 item, detailed list of competencies, indicating that the management of opioid prescribing/dispensing and patient care are complex issues which are seen as important for pharmacists; the paper provides a great starting point for developing relevant training to improve competence.

In summary, this special issue provides a variety of perspectives on the issue of pain management in an era of opioid crisis and highlights the interplay between policy and practice, showcases the value of analysing routinely collected data, explores key roles for pharmacy, and underlines the importance of education and training.

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## References

- Edwards G. *Matters of substance: drugs and why everyone's a user*. London, England: Penguin; 2004.
- Fischer B, Argento E. Prescription opioid related misuse, harms, diversion and interventions in Canada: a review. *Pain Physician*. 2012;15(3):ES191-203.
- INCB. *Estimated World Requirements for 2012 - Statistics for 2010. Part four. Statistical information on narcotic drugs (complete)*: International Narcotics Control Board, 2011. [https://www.incb.org/documents/Narcotic-Drugs/Technical-Publications/2011/Part\\_FOUR\\_Complete\\_English-NAR-Report-2011.pdf](https://www.incb.org/documents/Narcotic-Drugs/Technical-Publications/2011/Part_FOUR_Complete_English-NAR-Report-2011.pdf) Accessed 25th January 2021
- Gilson AM, Kreis PG. The burden of the nonmedical use of prescription opioid analgesics. *Pain Med*. 2009;10(2):S89-100.
- Vranken MJM, Lisman JA, Mantel-Teeuwisse AK, Jünger S, Scholten W, Radbruch L, et al. Barriers to access to opioid medicines: a review of national legislation and regulations of 11 central and eastern European countries. *Lancet Oncol*. 2016;17(1):e13–22.
- Rose ME. Are prescription opioids driving the opioid crisis? Assumptions vs Facts. *Pain Med*. 2018;19(4):793–807.
- Fischer B, Jones W, Rehm J. Trends and changes in prescription opioid analgesic dispensing in Canada 2005–2012: an update with a focus on recent interventions. *BMC Health Serv Res*. 2014;14(1):90. <https://doi.org/10.1186/1472-6963-14-90>.
- Schieber LZ, Guy GP Jr, Seth P, Young R, Mattson CL, Mikosz CA, et al. Trends and patterns of geographic variation in opioid prescribing practices by State, United States, 2006–2017. *JAMA Netw Open*. 2019;2(3):e190665.
- Fischer B, Pang M, Jones W. The opioid mortality epidemic in North America: do we understand the supply side dynamics of this unprecedented crisis? *Subst Abuse Treat Prev Policy*. 2020;15(1):14. <https://doi.org/10.1186/s13011-020-0256-8>.
- Hadi MA, Alldred DP, Briggs M, Munyombwe T, Closs SJ. Effectiveness of pharmacist-led medication review in chronic pain management: systematic review and meta-analysis. *Clin J Pain*. 2014;30(11):1006–14.
- Edwards Z, Ziegler L, Craigs C, Blenkinsopp A, Bennett MI. Pharmacist educational interventions for cancer pain management: a systematic review and meta-analysis. *Int J Pharm Pract*. 2019;27(4):336–45.
- Patel T, Hasan S, Chang F, McFarlane T. Controlled substances in hospices after patient death: a cross-sectional survey of Ontario hospices. *Int J Clin Pharm*. 2020;42(5):1344–53.
- Adams K, Guerra M. Unintended consequences of United States chronic pain guidelines. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01129-7>.
- Alenezi A, Yahyouché A, Paudyal V. Current status of opioid epidemic in the United Kingdom and strategies for treatment optimisation in chronic pain. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01205-y>.
- Caldeira D, Broeiro P, Cimadeira F, Costa J, Lourenço A, Meireles C, et al. Opioids prescribing trend between 2013 and 2017 in the Lisbon and Tagus Valley region, Portugal. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01199-7>.
- Adewumi AD, Maravilla JC, Alati R, Hollingworth SA, Hu X, Loveday B, et al. Pharmaceutical opioids utilisation by dose, formulation, and socioeconomic status in Queensland, Australia: a population study over 22 years. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01155-5>.
- Adewumi AD, Maravilla JC, Alati R, Hollingworth SA, Hu X, Loveday B, et al. Duration of opioid use and association with socioeconomic status, daily dose and formulation: a two-decade population study in Queensland, Australia. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01079-0>.
- Olesen AE, Henriksen JN, Nielsen LP, Knudsen P, Poulsen BK. Patient safety incidents involving transdermal opioids: data from the Danish Patient Safety Database. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01057-6>.
- Watanabe JH, Yang J. Association of combination opioid, benzodiazepine, and muscle relaxant usage with emergency department visits in a nationwide cohort in the United States. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01012-5>.
- Al-Qurain AA, Gebremichael LG, Khan MS, Williams DB, Mackenzie L, Phillips C, et al. Opioid prescribing and risk of drug-opioid interactions in older discharged patients with polypharmacy in Australia. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01191-1>.
- Goebel JR, Sherbourne CD, Asch SM, Meredith L, Cohen AB, Hagenmaier E, et al. Addressing patients' concerns about pain management and addiction risks. *Pain Manag Nurs*. 2010;11(2):92–8.
- Savas M, Bayraktar-Ekincioglu A, Celebi N. An evaluation of cancer patients' opinions about use of opioid analgesics and the role of clinical pharmacist in patient education in Turkey. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01098-x>.
- Zhang C, Xiao J, Yu Z, Sun S, Liu D. Cancer pain management and the roles of pharmacists in China. *Int J Clin Pharm*. 2021. <https://doi.org/10.1007/s11096-021-01230-5>.
- McCoy J, Bruno R, Nielsen S. Attitudes in Australia on the upscheduling of over-the-counter codeine to a prescription-only medication. *Drug Alcohol Rev*. 2018;37(2):257–61.
- McKenzie M, Johnson JL, Anderson K, Summers R, Wood P. Exploring Australian pharmacists' perceptions and attitudes toward codeine up-scheduling from over-the-counter to prescription only. *Pharm Pract (Granada)*. 2020;18(2):1904. <https://doi.org/10.18549/PharmPract.2020.2.1904>.
- Mishriky J, Stupans I, Chan V. Pharmacists' views on the upscheduling of codeine-containing analgesics to "prescription only" medicines in Australia. *Int J Clin Pharm*. 2019;41(2):538–45.
- Mishriky J, Stupans I, Chan V. The views of Australian adults experiencing pain on the upscheduling of codeine-containing analgesics to 'prescription only'. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01026-z>.
- Branton M, Hopkins TJ, Nemeč EC. Duloxetine for the reduction of opioid use in elective orthopedic surgery: a systematic review and meta-analysis. *Int J Clin Pharm*. 2021. <https://doi.org/10.1007/s11096-020-01216-9>.
- Murphy L, Brands B, Grant D, Smith A, Zhang M, Sproule BA. Exploring the use of extended release opioids at shortened dosing intervals in people with chronic pain and high risk medication or substance use. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01027-y>.
- Thomas I. A brief overview of identification and management of opiate use disorder in the primary care setting. *Nurs Clin North Am*. 2019;54(4):495–501.
- Cochran G, Rubinstein J, Bacci JL, Ylioja T, Tarter R. Screening community pharmacy patients for risk of prescription opioid misuse. *J Addict Med*. 2015;9(5):411–6.
- Alvin M, Picco L, Wood P, Mnatzaganian G, Nielsen S. Community pharmacists' preparedness to intervene with concerns around prescription opioids: findings from a nationally representative survey. *Int J Clin Pharm*. 2020. <https://doi.org/10.1007/s11096-020-01152-8>.
- Nielsen S, Sanfilippo P, Picco L, Bruno R, Kowalski M, Wood P, et al. What predicts pharmacists' engagement with opioid-outcome screening? Secondary analysis from an implementation

- study in community pharmacy. *Int J Clin Pharm.* 2020. <https://doi.org/10.1007/s11096-020-01074-5>.
34. Maher E, Nielsen S, Summers R, Wood P. Core competencies for Australian pharmacists when supplying prescribed opioids: a modified Delphi study. *Int J Clin Pharm.* 2020. <https://doi.org/10.1007/s11096-020-01060-x>.

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