

# Incidence of iatrogenic opioid use disorder

Samantha Moe PharmD Jessica Kirkwood MD CCFP(AM) G. Michael Allan MD CCFP

## Clinical question

What is the risk of developing opioid use disorder (OUD) when taking prescription opioids?

## Bottom line

Incidence of OUD associated with prescribed opioids in chronic pain patients is likely about 3% (over 2 years) but causation is uncertain. Patients with no history of substance use disorder (SUD) appear to be at lower risk (<1%). Factors associated with increased risk include history of SUD and receiving opioids for longer (>90 days) or at higher doses (>120 mg/d morphine equivalent [ME]).

## Evidence

A systematic review<sup>1</sup> (12 studies, N=310408) of patients with pain prescribed opioid therapy (≥7 days; 97% for ≥3 months) found the following.

- Incidence of opioid dependence or “abuse” was 3.1% in the higher-quality studies and 4.7% including all studies.
- Diagnostic criteria matter: incidence varies (from 1% to 11%) based on diagnostic criteria.

A systematic review<sup>2</sup> (24 studies, N=2507) of patients with chronic pain prescribed opioid therapy (average exposure 26 months, range 2 to 240 months) found the following.

- Incidence of opioid addiction was 3.3%.  
-Incidence was 0.2% in patients without a history of “substance abuse/addiction” versus 5% with positive history.
- Limitations: varying addiction definitions; quality of studies included (retrospective [71%], prospective and randomized [29%]); unclear pooling technique.

Two systematic reviews<sup>3,4</sup> found incidences of 0.3% to 0.5%, but in patients who were generally lower risk.

## Context

- Incidence (new cases after opioid prescription) might better estimate iatrogenic OUD than prevalence (all OUD patients, including those prescribed opioids after developing OUD).<sup>2</sup>
- Prevalence of OUD ranges from 0.05% to 23%.<sup>3,5,6</sup>  
-The variation is attributable to differing study quality, variable diagnostic criteria and terminology, inconsistent reporting, and the populations studied.
- Most included studies (using terms like *addiction* or *substance abuse*) were published before the DSM-5 criteria.
- Exposure to prescription opioids in adolescents and young adults was associated with future nonmedical prescription opioid use<sup>7</sup> and OUD.<sup>8</sup>

- One insurance database cohort study<sup>9</sup> (N=568640) found after 12 months that for doses of 36 to 120 mg/d ME, OUD incidence with acute use (1 to 90 days) was 0.12% versus 1.3% with chronic use (>90 days). For prescriptions of more than 90 days, OUD incidence with 1 to 36 mg/d ME was 0.7% versus 6.1% with more than 120 mg/d ME.

## Implementation

Opioids are frequently not superior to other medications for acute<sup>10</sup> or chronic pain<sup>11</sup> and have high (about 23%) discontinuation due to adverse events.<sup>3</sup> If considering opioids, assess possible risk factors for OUD, particularly previous SUD. If prescribing, consider shorter prescriptions, lower doses and potency, and smaller amounts. Urine toxicology can help verify the patient is taking the provided prescription. If refilling chronic opioid prescriptions, consider screening for OUD with simple tools like the Prescription Opioid Misuse Index and consult appropriate guidelines as needed.<sup>12</sup>

**Dr Moe** is Clinical Evidence Expert for the College of Family Physicians of Canada in Mississauga, Ont. **Dr Kirkwood** is a family physician at the Boyle McCauley Health Centre in Edmonton, Alta. **Dr Allan** is Director of Programs and Practice Support for the College of Family Physicians of Canada and Professor in the Department of Family Medicine at the University of Alberta in Edmonton.

**Competing interests**  
None declared

The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

## References

1. Fishbain DA, Cole B, Lewis J, Rosomoff HL, Rosomoff RS. What percentage of chronic non-malignant pain patients exposed to chronic opioid analgesic therapy develop abuse/addiction and/or aberrant drug-related behaviors? A structured evidence-based review. *Pain Med* 2008;9(4):444-59.
2. Higgins C, Smith BH, Matthews K. Incidence of iatrogenic opioid dependence or abuse in patients with pain who were exposed to opioid analgesic therapy: a systematic review and meta-analysis. *Br J Anaesth* 2018;120(6):1335-44. Epub 2018 Apr 21.
3. Noble M, Treadwell JR, Tregear SJ, Coates VH, Wiffen PJ, Akafomo C, et al. Long-term opioid management for chronic noncancer pain. *Cochrane Database Syst Rev* 2010;(1):CD006605.
4. Minozzi S, Amato L, Davoli M. Development of dependence following treatment with opioid analgesics for pain relief: a systematic review. *Addiction* 2013;108(4):688-98. Epub 2012 Oct 18.
5. Chou R, Turner JA, Devine EB, Hansen RN, Sullivan SD, Blazina I, et al. The effectiveness and risks of long-term opioid therapy for chronic pain: a systematic review for a National Institutes of Health pathways to prevention workshop. *Ann Intern Med* 2015;162(4):276-86.
6. Martell BA, O'Connor PG, Kerns RD, Becker WC, Morales KH, Kosten TR, et al. Systematic review: opioid treatment for chronic back pain: prevalence, efficacy and association with addiction. *Ann Intern Med* 2007;146(2):116-27.
7. McCabe SE, Veliz P, Schulenberg JE. Adolescent context of exposure to prescription opioids and substance use disorder symptoms at age 35: a national longitudinal study. *Pain* 2016;157(10):2173-8.
8. Schroeder AR, Dehghan M, Newman TB, Bentley JP, Park KT. Association of opioid prescriptions from dental clinicians for US adolescents and young adults with subsequent opioid use and abuse. *JAMA Intern Med* 2019;179(2):145-52.
9. Edlund MJ, Martin BC, Russo JE, DeVries A, Braden JB, Sullivan MD. The role of opioid prescription in incident opioid abuse and dependence among individuals with chronic non-cancer pain: the role of opioid prescription. *Clin J Pain* 2014;30(7):557-64.
10. Chang AK, Bijur PE, Esses D, Barnaby DP, Baer J. Effect of a single dose of oral opioid and non-opioid analgesics on acute extremity pain in the emergency department: a randomized clinical trial. *JAMA* 2017;318(17):1661-7.
11. Krebs EE, Gravelly A, Nugent S, Jensen AC, DeRonne B, Goldsmith ES, et al. Effect of opioid vs nonopioid medications on pain-related function in patients with chronic back pain or hip or knee osteoarthritis pain: the SPACE randomized clinical trial. *JAMA* 2018;319(9):872-82.
12. Korownyk C, Perry D, Ton J, Kolber MR, Garrison S, Thomas B, et al. Managing opioid use disorder in primary care. PEER simplified guideline. *Can Fam Physician* 2019;65:321-30 (Eng), e173-84 (Fr).

This article is eligible for Mainpro+ certified Self-Learning credits. To earn credits, go to [www.cfp.ca](http://www.cfp.ca) and click on the Mainpro+ link.

La traduction en français de cet article se trouve à [www.cfp.ca](http://www.cfp.ca) dans la table des matières du numéro d'octobre 2019 à la page e431.

Tools for Practice articles in *Canadian Family Physician* are adapted from articles published on the Alberta College of Family Physicians (ACFP) website, summarizing medical evidence with a focus on topical issues and practice-modifying information. The ACFP summaries and the series in *Canadian Family Physician* are coordinated by Dr G. Michael Allan, and the summaries are co-authored by at least 1 practising family physician and are peer reviewed. Feedback is welcome and can be sent to [toolsforpractice@cfpc.ca](mailto:toolsforpractice@cfpc.ca). Archived articles are available on the ACFP website: [www.acfp.ca](http://www.acfp.ca).