

Together, we can do this

Strategies to Address British Columbia's Prescription Opioid Crisis

*Recommendations from the British Columbia Node of the
Canadian Research Initiative on Substance Misuse*

November 2015



BRITISH COLUMBIA
CENTRE for EXCELLENCE
in HIV/AIDS



CIHR IRSC
Canadian Institutes of Health Research
Institut de recherche en santé de Canada

Together, we can do this

Strategies to Address British Columbia's Prescription Opioid Crisis

Recommendations from the British Columbia Node of the Canadian Research Initiative on Substance Misuse

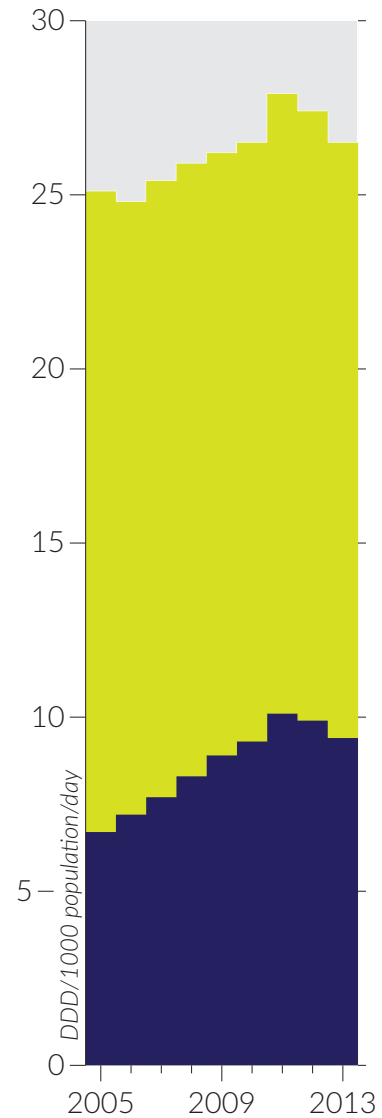
Executive summary

Recent events in British Columbia have highlighted the urgency with which policy makers, regulatory bodies and clinicians need to act together to address the public health harms related to pharmaceutical opioids and other addictive pharmaceutical drugs. This report briefly describes the provincial pharmaceutical opioid problem and provides several key recommendations for immediate steps to reduce fatal overdoses, misuse, addiction and other severe harms related to unsafe opioid prescribing in BC.

fig 1
Annual opioid dispensing
(not including methadone)
in BC, 2005–2013

■ Weak opioids
■ Strong opioids

Fischer et al., 2014.
* DDD = defined daily dose



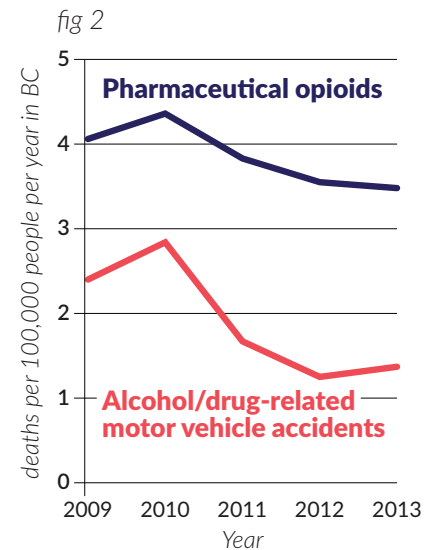
The prescription opioid epidemic

Canada has the second highest opioid consumption rate among developed countries, with the rate of pharmaceutical opioid use tripling in Canada over the past decade.¹⁻³ Despite similar rates of chronic pain across Canada, there is substantial variation in the rates and types of opioids prescribed across provinces.⁴⁻⁸ For example, British Columbia (BC) dispenses more than double the amount of opioids compared to Quebec, the lowest opioid dispensing province.^{6,8} Additionally, from 2005 to 2011, the rate of dispensing strong opioids in BC increased by almost 50% overall, including a 135% increase in oxycodone dispensation.⁶ Notably, these increases in opioid prescribing conflict with the increasing body of research suggesting that opioids may have limited long-term effectiveness for treating chronic non-cancer pain, and that the risk profile of opioids may outweigh their potential short-term benefits in cases of mild to moderate acute pain.⁹⁻¹¹

In addition to an increased rate of opioid prescribing, there is evidence of inappropriate and high-risk opioid prescribing practices in BC. For instance, while patients on methadone commonly have chronic pain, past research suggests that 35% of patients on methadone maintenance treatment in BC are co-prescribed opioids that are often not prescribed by the patient's primary methadone provider.¹² This is problematic since co-prescriptions with methadone have important safety considerations, as evidenced by a recent study of provincial mortality data found that methadone was involved in 25% of pharmaceutical opioid-related deaths in BC.¹³ Equally concerning are the persistently high rates of benzodiazepine prescribing in BC,¹⁴ given that co-prescription of benzodiazepines and opioids has long been known to be a major risk factor for fatal overdose.¹⁵⁻¹⁸

Coinciding with the dramatic increases in opioid prescribing in BC, there are high rates of opioid dependence, addiction and misuse that have contributed to significant health and social harms. In 2013, there were more than 330 deaths in BC related to illegal drug overdose including opioids. Of these deaths, 87% were accidental.¹⁹ Pharmaceutical opioids account for a large proportion of these deaths, to the extent that the number of pharmaceutical opioid-related deaths exceeds the number of deaths from motor vehicle accidents involving alcohol in BC (Figure 2).^{13,19-21} Furthermore, among the pharmaceutical opioid-related deaths in BC, 93% involved at least one other high-risk medication (e.g., benzodiazepines).²¹ Although rates of prescription opioid-related death in BC have plateaued in recent years, the province is still experiencing annual mortality rates of close to 4 deaths per 100,000 people.¹³

Studies have suggested that approximately 40% of prescribed pharmaceutical opioid-related deaths occur among people who are prescribed opioids above recommended safe-dosing guidelines.²² Furthermore, deaths related to prescribed pharmaceutical opioids correlate strongly with rates of opioid dispensation in BC.²³ In addition to opioid overdose and mortality,²⁴ there are extensive health and social harms associated with pharmaceutical opioids, including injuries and trauma;²⁵ increased risk of costly emergency department visits;^{26,27} diversion to street-based markets, drug dealing and other



More people die in BC each year from pharmaceutical opioids (including methadone) than from alcohol/drug-related motor vehicle accidents.^{13,19-21}

addiction-associated petty crime.^{3,28} Additionally concerning is evidence highlighting the growing number of infants being born with opioid addiction in Canada.²⁹ Finally, recent evidence has demonstrated that many individuals who initially used pharmaceutical opioids or benzodiazepines illicitly may eventually transition to heroin or intravenous drug use thus substantially increasing the risk for blood-borne infections and overdose.³⁰⁻³⁶

In the face of this evidence, change has been slow to come. This brief paper was prepared through

the secretariat of the British Columbia node of the CIHR Canadian Research Initiative on Substance Misuse (CRISM). The development of this document included a range of expert stakeholders through the network's membership and other experts (Appendix A). This urgent call to action outlines changes that can be immediately implemented in BC to substantially reduce the rates of overdose death, addiction and related harms that stem directly from the current system.

Urgent need for action in British Columbia

While the pharmaceutical opioid epidemic has emerged throughout North America, recent events in BC have highlighted the urgency with which BC policy makers must act to address the public health harms related to pharmaceutical opioids and other addictive pharmaceutical drugs. Despite the scale of the present public health problem, strategies to meaningfully address unsafe prescribing have not been implemented. This is despite the fact that, ultimately, prescribers are largely responsible for the burgeoning illicit market in pharmaceutical opioids that has developed on the streets of BC.³⁷⁻⁴⁰ In fact, the entry of organized crime groups into the manufacturing of counterfeit pharmaceutical opioids (which often contain fentanyl) to fuel the street market for illicit or diverted opioids is arguably a direct result of longstanding unsafe physician prescribing practices.⁴¹⁻⁴³

Specifically, BC has witnessed a spike in fentanyl related overdoses and deaths. Within only two years, there has been a seven-fold increase in fentanyl detected deaths in BC (from 13 deaths in 2012 to 90 deaths in 2014), representing 25% of all illicit drug related deaths in the province in 2014.^{44,45} In 2015, there have been several high profile deaths from fentanyl in BC,⁴⁶⁻⁴⁸ as well as 16 cases of suspected fentanyl overdoses in a single day in Vancouver.⁴⁹⁻⁵¹ This worsening of the situation has occurred despite focused drug-law enforcement on the illicit fentanyl trade that has included at least 11 search warrants, 8 charges and 500,000 pills

seized in Metro Vancouver alone.^{41,52,53} Based on past evidence regarding the limited effectiveness of police seizures on controlling the availability of illicit drugs, it is unlikely that law enforcement efforts are a promising solution to this problem.^{54,55}

In 2015, sixteen cases of suspected fentanyl overdoses were once reported in a single day in Vancouver.

Equally concerning are the persistently high prescribing rates of benzodiazepines in BC. Benzodiazepines are sedating hypnotic medications that, despite limited evidence of effectiveness and clear evidence of harms (e.g., addiction, fatal overdose, etc.), continue to be regularly used to treat sleep disorders and other minor health conditions for which there are much safer alternatives. In fact, benzodiazepines remain among the most commonly prescribed and misused types of psychoactive drug in the world, despite their link to serious harms, including cognitive impairment and decline (i.e., dementia), accidents and injuries, dependence and addiction, and fatal overdose—especially when used in combination with opioids or alcohol.⁵⁶⁻⁵⁸ Locally, recent research has found that benzodiazepine use

was associated with elevated rates of HIV infection among a cohort of people who inject drugs, and addiction to benzodiazepines is known to be extremely difficult to treat.⁵⁹ In light of these risks, many clinical guidelines now recommend against prescribing benzodiazepines, yet inappropriate prescribing has continued to persist in BC.¹⁴ As a result, the percentage of pharmaceutical opioid related overdose deaths involving benzodiazepines in BC increased 600% between 2004 and 2013.¹³

Areas for intervention

In the wake of the crisis that exists in BC, there has yet to be sufficient action from various colleges (i.e., College of Physicians and Surgeons of BC, College of Pharmacists of BC, College of Registered Nurses of BC, College of Dental Surgeons of BC, College of Veterinarians of BC) or other regulatory bodies across the province. This situation is likely a result of these groups waiting on Health Canada for action, coupled with the fact that no single group (e.g., regulatory bodies, police, etc.) has a clear mandate to address the current epidemic.

Fortunately, BC is uniquely positioned to rapidly implement several safeguards to reduce unsafe prescribing practices through the province's PharmaNet system and other interventions. PharmaNet is an electronic information system that records data (e.g., drug name, dose, quantity, duration, prescribing practitioner, dispensing pharmacy) on all prescriptions dispensed at community pharmacies in BC.⁶⁰ Previous research has suggested that the real-time, centralized nature of PharmaNet, which allows prescribers and pharmacists to access patients' current prescription information, can be effective in reducing inappropriate prescriptions of opioids and benzodiazepines by approximately 30-50%.⁶¹ Notably, this study was performed at a time when only pharmacies had access to PharmaNet, suggesting that there is room for even greater reduction of inappropriate prescribing if PharmaNet is more widely utilized by prescribers and pharmacies. To this end, enabling physicians and nurse practitioners to access patients' opioid

prescription history promotes optimal opioid prescribing practices.⁶²

However, presently, physicians and nurse practitioners in BC are able—but not required—to use PharmaNet when prescribing medications. Here, it is estimated that less than 30% of physicians in BC have enrolled for PharmaNet,⁶² which means that over 70% of BC physicians may be writing opioid prescriptions without knowing if the patient in front of them is already prescribed opioids from multiple other practitioners. This is a very real concern, as evidenced by the case of one BC resident who received more than 23,000 pills of oxycodone from more than 50 physicians and 100 pharmacies over five years.⁶⁴

Over 70% of BC physicians may be writing opioid prescriptions without knowing if the patient in front of them is already prescribed opioids from multiple other practitioners.

Additionally, practitioners who do not use PharmaNet may be unaware if a patient is receiving medications that pose high risk for overdose if co-prescribed with opioids, such as benzodiazepines or methadone. Furthermore, it is not currently required that benzodiazepines are prescribed on a duplicate prescription pad, which is an additional safeguard that is in place for opioids and other medications that pose high risk for misuse, diversion or overdose.⁶⁵ Prescription monitoring for benzodiazepines has already been enacted in other settings including Alberta and New York.^{66,67} A study of the New York triplicate prescription program found that benzodiazepine prescribing was reduced by nearly 50% after the program's implementation. These reductions were sustained for at least seven years after the program's implementation, and most

patients did not require supplemental medication once their benzodiazepine prescriptions were discontinued.⁶⁷

In addition to clinic-level prescribing practices, due to common pain and injury presentations, emergency departments can be another source of opioids. One study conducted at Vancouver General Hospital found that patients who were prescribed opioids upon discharge from the emergency department had triple the odds of experiencing an adverse event within two weeks.⁶⁸ Given the demands placed on emergency department staff for providing pain relief among injured and other patients who present to emergency rooms, research and educational interventions tailored to emergency department settings—such as clinical guidelines, electronic decision support tools, and clinician education—require resources to support opportunities for safer opioid prescribing in this environment.


In the absence of the above safeguards, some limitations of Canadian prescribers should be noted. For instance, physicians in BC have traditionally

received little training on how to safely prescribe opioids or how to identify and treat opioid addiction. In fact, only one third of Canadian universities provide mandatory instruction in pain management as part of undergraduate medical training. Not surprisingly, it has been estimated that only approximately 30% of Canadian family physicians feel strongly confident in their opioid prescribing skills.^{69,70} Furthermore, primary care physicians have demonstrated high rates of continuing ineffective opioid prescriptions, being unaware of opioid monitoring guidelines and demonstrating low levels of knowledge regarding safe opioid prescribing in the context of chronic pain treatment.⁶² Similarly, previous studies have found that up to 94% of primary care physicians may be unable to identify symptoms or methods of problematic substance use.⁷¹⁻⁷³ Recommendations regarding the need for greater investment in prescriber education (including nurse practitioners and other prescribers) in addiction and pain management, including the role of non-opioid analgesics for pain management, are described on the next page.

Recommendations


In light of the evidence and the unique characteristics of the system of care in BC, a number of steps should immediately be taken to reduce the harms of the pharmaceutical opioid epidemic in British Columbia. These steps include:

STRATEGIES FOR IMPROVED PRESCRIBING PRACTICES


1. Make registration for PharmaNet free, and legally require all clinicians with prescribing authority to be registered for PharmaNet and routinely check patients' PharmaNet profiles when writing prescriptions. Exemptions to this requirement could be provided for individuals who practice in areas without Internet access or with other barriers.
2. Revise duplicate prescription pads to include a checkbox indicating that the prescribing practitioner has fulfilled his or her legal responsibility to review a patient's PharmaNet record, thereby ruling out duplicate or high-risk co-prescriptions. 
3. Put in place enforcement measures to ensure that pharmacies are checking PharmaNet to confirm that duplicate prescriptions or other evidence of inappropriate medical care is further brought to the attention of prescribing practitioners and regulatory authorities.
4. Change requirements for benzodiazepine prescribing such that benzodiazepines require a prescription on a duplicate prescription pad, in the same way that opioid prescriptions must be written in BC.^{65,67}
5. Implement a maximum upper dispense limit for the amount of opioids that a patient may be dispensed at any one time.

STRATEGIES TO IMPROVE OPIOID ADDICTION CARE

6. Dedicate investments into addiction treatment. For instance, buprenorphine/naloxone—a proven treatment for opioid addiction—should be the first line pharmacotherapy option (along with methadone) for opioid addiction, given its superior safety profile with respect to overdose risk compared to methadone.⁷⁴⁻⁷⁷

7. Improve access to buprenorphine/naloxone by eliminating the requirement that prescribers must have methadone exemptions in order to prescribe buprenorphine/naloxone. This requirement is unnecessary given the low misuse potential of buprenorphine/naloxone and the low number of buprenorphine/naloxone prescribers the exemption requirement creates.⁷⁸ In lieu of the methadone exemption, prescribers would be required to complete an online training module on buprenorphine/naloxone prescribing. 
8. Invest in recovery-oriented care for individuals with opioid addiction.
9. Consider comprehensive patient education with regards to risks of poly-substance use and overdose prevention, recognition and response including take home naloxone prescription.^{79,80}
10. Increase prescribers' capacity for opioid agonist treatments (e.g., methadone and buprenorphine/naloxone) via novel collaborative strategies.

LONG-TERM STRATEGIES TO IMPROVE PRESCRIBER KNOWLEDGE

11. Invest in BC's medical curricula and continuing medical education for physicians, nurses and other clinicians in addiction diagnosis, treatment and recovery; pain management including the use of non-opioid analgesics; and safe opioid prescribing, including the potential for serious adverse effects when opioids are co-prescribed with benzodiazepines and other psychotropic medications.^{38,81} 
12. Coinciding with benzodiazepines transitioning to a duplicate prescription requirement, investment should be made in education for BC prescribers on the known serious harms and clinical limitations of benzodiazepines, as well as the availability of safer alternatives.⁸²
13. Support research and educational interventions in emergency departments to enhance safer opioid prescribing practices in this setting.⁸³⁻⁸⁶

If these evidence-based recommendations are enacted quickly, BC has the potential to dramatically reduce fatal overdoses, abuse, addiction and other severe harms related to unsafe opioid prescribing.

Together, we can do this. The time for action is now.

Appendix A: Contributors and endorsers

1. **Keith Ahamad, MD, CCFP, CISAM**
Family and Addiction Medicine Physician,
Providence Health Care / Vancouver Coastal Health
Research Scientist, B.C. Centre for Excellence in
HIV/AIDS
Clinical Assistant Professor, Faculty of Medicine,
UBC
2. **Sandra Allison, MPH, CCFP, FRCPC**
Chief Medical Health Officer, Northern Health
Adjunct Professor, School of Health Sciences,
UNBC
Clinical Assistant Professor, School of Population
and Public Health, UBC
3. **Cecilia Benoit, PhD**
Fellow, Royal Society of Canada
Fellow, Canadian Academy of Health Sciences
Scientist, Centre for Addictions Research of B.C.
Professor, Department of Sociology, University of
Victoria
4. **Neal Berger**
Executive Director, Cedars at Cobble Hill
Addiction Treatment Centre
5. **James I. Brooks, MD, FRCPC**
Medical Director, Communicable Disease
Prevention and Control Service
British Columbia Centre for Disease Control
6. **Bill Bullock, MD, CCFP**
Family and Addiction Medicine Physician, Victoria
Community Detox
7. **Susan Burgess, MD**
Family and Community Medicine Physician,
Providence Health Care / Vancouver Coastal Health
Clinical Associate Professor, Faculty of Medicine,
UBC
8. **Mike Burns, MD, CCFP**
Family Physician, Providence Health Care
9. **Jane A. Buxton, MBBS, MHSc, FRCPC**
Professor and Director MPH Practicum, School of
Population and Public Health, UBC
10. **David W. Byres, MSN, BA, RN, CHE**
Executive Vice President, Clinical Integration and
Renewal
Providence Health Care
Adjunct Professor, School of Nursing, UBC
11. **Rashmi Chadha, MBChB, MScCH, CCFP,
ABAM**
Addiction Medicine Physician, Vancouver Coastal
Health
Medical Consultant, College of Physicians and
Surgeons of British Columbia
12. **Veronic Clair, MD, MSc, CCFP, FRCPC, PhD**
Addiction Medicine Physician, Vancouver Coastal
Health
Adjunct Professor, Faculty of Health Sciences, SFU
Clinical Faculty, Faculty of Medicine, UBC
13. **Trevor A. Corneil, MHSc, MD, FCFP, FRCPC**
Chief Medical Health Officer, Interior Health
Drug Overdose and Alert Partnership Committee
Member
Clinical Professor, School of Population and Public
Health, UBC
14. **Cassandra Djurfors, MD, CCFP**
Medical Coordinator, Raven Song Primary Care,
Vancouver Coastal Health
15. **Richard Dubras, MSc, MEd**
Executive Director, Richmond Addiction Services
Society
British Columbia Association of Clinical
Counsellors
16. **Nadia Fairbairn, MD, FRCPC**
Fellow, St. Paul's Hospital Goldcorp Addiction
Medicine Fellowship
17. **Caroline Ferris, MD, CCFP, FCFP**
Primary Care and Addiction Medicine Physician
Clinical Assistant Professor, Faculty of Medicine,
UBC
18. **Michelle Fortin**
Co-Chair, B.C. Alliance for Mental Health/Illness
and Problematic Substance Use
Executive Director, Watari Counselling & Support
Services
19. **Emilie Gladstone, MPH**
Pharmaceutical Policy Researcher, Centre for
Health Services and Policy Research, Faculty of
Medicine, UBC

20. **Silvia Guillemi, MD**
Assistant Director, J. Ruedy Immunodeficiency Clinic (IDC), St Paul's Hospital
Director of Clinical Education, B.C. Centre for Excellence in HIV/AIDS
Clinical Associate Professor, Faculty of Medicine, UBC
21. **David Hall, MD, CCFP**
Medical Director for Primary Care, Vancouver Coastal Health
Medical Lead, Regional HIV Program, Vancouver Coastal Health
22. **Scott Harrison, RN, BScN, MA, CCHNC**
Director Urban Health & HIV/AIDS, Providence Health Care
Adjunct Professor, School of Nursing, UBC
23. **Kanna Hayashi, PhD**
Research Scientist, Urban Health Research Initiative, B.C. Centre for Excellence in HIV/AIDS
Assistant Professor, Faculty of Medicine, UBC
24. **Ramm Hering, MSc, MD, CCFP, Dip PH**
Family and Addiction Medicine Physician, Pandora Clinic
25. **Lorne Hildebrand**
Executive Director, EDGEWOOD
26. **Ronald Joe, MD**
Associate Medical Director, Addiction Services, Vancouver Coastal Health
27. **P.R.W. Kendall, B.C. Provincial Health Officer**
28. **Thomas Kerr, PhD**
Director, Urban Health Research Initiative
B.C. Centre for Excellence in HIV/AIDS
Professor, Faculty of Medicine, UBC
29. **Piotr Klakowicz, MD, MPH, CCFP**
Family and Addiction Medicine Physician, Providence Health Care
Vancouver Native Health Society Medical Clinic
30. **Erin Knight, MD, CFPC**
Fellow, St. Paul's Hospital Goldcorp Addiction Medicine Fellowship
31. **Mel Krajden, MD, FRCPC**
Medical Head, Hepatitis, B.C. Centre for Disease Control
Acting Medical Director, Public Health Laboratory, B.C. Centre for Disease Control
32. **Andrea Krüsi, PhD**
Research Scientist, Gender and Sexual Health Initiative, B.C. Centre for Excellence in HIV/AIDS
33. **Leslie Lappalainen, MD, CCFP**
Family and Addiction Medicine Physician, Providence Health Care
Clinical Instructor, Faculty of Medicine, UBC
34. **Julia MacIsaac, MD, MPH, FRCPC**
Family and Addiction Medicine Physician, Providence Health Care
Alliance Clinic, Surrey, B.C.
LAIR Centre, Vancouver
35. **Brandon Marshall, PhD**
Assistant Professor, Department of Epidemiology, Brown University School of Public Health
36. **Leslie McBain, Community Advocate**
Moms United and Mandated to Saving the lives of Drug Users (MumsDU)
37. **Rita McCracken, MD, CCFP**
Associate Head, Providence Health Care
Clinical Assistant Professor Faculty of Medicine, UBC
38. **Garth McIver, MD**
Medical Consultant, B.C. Methadone Program (CPSBC)
39. **Mark McLean, MD, FRCPC**
Addiction Medicine Physician, Providence Health Care / Vancouver Coastal Health
40. **Ailve McNestry, MB, CCFP, CCBOM**
Deputy Registrar, Drug Programs
College of Physicians & Surgeons of B.C.
41. **M-J Milloy, PhD**
Research Scientist, Urban Health Research Initiative, B.C. Centre for Excellence in HIV/AIDS
Assistant Professor, Faculty of Medicine, UBC
42. **Julio S.G. Montaner, OC, OBC, MD, DSc (hon), FRCPC, FCCP, FACP, FRSC**
Professor and Head, UBC-Division of AIDS
UBC and St. Paul's Hospital Foundation Chair in AIDS Research
Director, B.C. Centre for Excellence in HIV/AIDS, St. Paul's Hospital, Providence Health Care
43. **Steve Morgan, PhD**
Professor, School of Population and Public Health, UBC

44. Lisa Muhler, PhD in Addictions Counselling
Registered Psychologist
Clinical Director, Top of the World Ranch
Treatment Centre
45. Seonaid Nolan, MD, FRCPC, Dip ABAM
Internal Medicine and Addiction Medicine
Physician, Providence Health Care
Research Scientist, Urban Health Research
Initiative, B.C. Centre for Excellence in HIV/AIDS
Clinical Assistant Professor, Faculty of Medicine,
UBC
46. Michael Norbury, MBChB, MSc, BSc (Hons),
CCFP
Family and Addiction Medicine Physician,
Vancouver Coastal Health
47. Daniel Paré, MD, CCFP
Inner City Primary Care & Assertive Community
Treatment Team, Vancouver Coastal Health
Medical Coordinator, Downtown Community
Health Centre
Clinical Instructor, Faculty of Medicine, UBC
48. Gerrard Prigmore, MB, BCh, MRCGP,
DFSRH, CCFP, Dip ABAM
Family and Addiction Medicine Physician, Prince
George
49. Nitasha Puri, MD, CCFP, Dip ABAM
Family and Addiction Medicine Physician,
Vancouver Coastal Health / Portland Hotel Medical
Clinic / Fraser Health Authority
Clinical Instructor, Faculty of Medicine, UBC
50. Dan Reist, MTh
Knowledge Exchange Assistant Director
Centre for Addictions Research of B.C., University
of Victoria
51. Lindsey Richardson, DPhil
Research Scientist, Urban Health Research
Initiative, B.C. Centre for Excellence in HIV/AIDS
Assistant Professor, Department of Sociology, UBC
52. Launette Rieb, MSc, MD
Family and Addiction Medicine Physician
Clinical Associate Professor, Faculty of Medicine,
UBC
53. Kimberly Rutherford, MD, MSc, CCFP
Medical Coordinator, Primary Outreach Services,
Vancouver Coastal Health
Medical Staff, St. Paul's Hospital, Providence
Health Care
Clinical Instructor, Faculty of Medicine, UBC
54. Andrea Ryan, BSc, MD, CCFP
Family and Addiction Medicine Physician,
Providence Health Care
Vancouver Detox Physician, Vancouver Coastal
Health
55. Mark Sadler, MC
Addiction Counsellor
Executive Director, Top of the World Ranch
Treatment Centre
56. Todd Sakakibara, MD, CCFP, FCFP, Dip
ABAM
Family and Addiction Medicine Physician,
Vancouver Coastal Health
Clinical Associate Professor, Faculty of Medicine,
UBC
57. Kate Shannon, MPH, PhD
Director, Gender and Sexual Health Initiative
B.C. Centre for Excellence in HIV/AIDS
Associate Professor of Medicine, Faculty of
Medicine, UBC
Associate Faculty, School of Population and Public
Health, UBC
58. David H. Smith, MD, Dip ABAM
Okanagan Psychiatric Services, Interior Health
Clinical Instructor, Faculty of Psychiatry, UBC
59. Marshall K. Smith
Director of Corporate Development and
Community Relations
Cedars at Cobble Hill Addiction Treatment Centre
60. Kate Smolina, PhD
Banting Postdoctoral Fellow, Centre for Health
Services and Policy Research
School of Population and Public Health, UBC
61. M. Eugenia Socías, MD
Researcher, B.C. Centre for Excellence in HIV/
AIDS
Postdoctoral Fellow, Department of Medicine, UBC
62. Tim Stockwell, PhD
Director, Centre for Addictions Research of B.C.
Professor, Department of Psychology, University of
Victoria
63. Lorinda Strang
Executive Director, Orchard Recovery Center

64. Christy Sutherland, MD, CCFP, Dip ABAM
 Medical Director, Portland Hotel Society
 Community Services Society
 Family and Addiction Medicine Physician,
 Providence Health Care
 Clinical Assistant Professor, Faculty of Medicine,
 UBC
65. Lianping Ti, PhD
 Researcher, B.C. Centre for Excellence in HIV/
 AIDS
 Postdoctoral Fellow, Faculty of Medicine, UBC
66. David Tu, MD, CCFP
 Family and Addiction Medicine Physician,
 Vancouver Native Health Society
 Clinical Associate Professor, Faculty of Medicine,
 UBC
67. Devin Tucker, MD
 Addiction and Family Medicine Physician,
 Vancouver Coastal Health
68. Mark Tyndall, MD, ScD, FRCPC
 Executive Medical Director, B.C. Centre for
 Disease Control
 Deputy Provincial Health Officer, Province of
 British Columbia
 Director, UBC-BCCDC Research Institute
 Professor, School of Population and Public Health,
 UBC
69. Karen Urbanoski, PhD
 Canada Research Chair in Substance Use,
 Addictions and Health Services
 Scientist, Centre for Addictions Research of B.C.
 Assistant Professor, University of Victoria
70. Sharon Vipler, MD
 Family and Addiction Medicine Physician,
 Providence Health Care
71. Dan Werb, PhD
 Director, International Centre for Science
 in Drug Policy
72. Evan Wood, MD, PhD, ABIM, FRCPC
 Professor of Medicine, Canada Research Chair in
 Inner City Medicine, UBC
 Medical Director, Community Addiction Services,
 Vancouver Coastal Health / Providence Health Care
73. Steven Yau, MD, CCFP
 Primary Care Physician, Downtown Community
 Health Centre, Strathcona Mental Health Team and
 Assertive Community Treatment Team, Vancouver
 Coastal Health
 Clinical Assistant Professor, Faculty of Medicine,
 UBC
 Medical Director, IMG Programming, Division of
 Continuing Professional Development, Faculty of
 Medicine, UBC

Acknowledgments

We wish to acknowledge Pauline Voon (PhD candidate) for research and writing assistance in preparing this document. We also wish to thank James Nakagawa, Cheyenne Johnson, Carmen Rock, Lianlian Ti, Elaine Fernandes, Diane Pépin, Jehnifer Benoit, and Deborah Graham for their editorial and administrative assistance.

References

1. International Narcotics Control Board. Narcotic drugs: Estimated world requirements for 2012, statistics for 2010. Vienna, Austria: International Narcotics Control Board, 2011.
2. Shield KD, Jones W, Rehm J, Fischer B. Use and nonmedical use of prescription opioid analgesics in the general population of Canada and correlations with dispensing levels in 2009. *Pain Res Manag* 2013;18:69-74.
3. Fischer B, Argento E. Prescription opioid related misuse, harms, diversion and interventions in Canada: a review. *Pain Physician* 2012;15:ES191-203.
4. Schopflocher D, Taenzer P, Jovey R. The prevalence of chronic pain in Canada. *Pain Res Manag* 2011;16:445-50.
5. Fischer B, Jones W, Krahn M, Rehm J. Differences and over-time changes in levels of prescription opioid analgesic dispensing from retail pharmacies in Canada, 2005-2010. *Pharmacoepidemiol Drug Saf* 2011;20:1269-77.
6. 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;14:90.
7. Gomes T, Juurlink DN, Dhalla IA, Mailis-Gagnon A, Paterson JM, Mamdani MM. Trends in opioid use and dosing among socio-economically disadvantaged patients. *Open Med* 2011;5:e13-22.
8. Smolina K, Gladstone EJ, Morgan SG. Pharmaceutical opioid monitoring and surveillance in British Columbia: Current state and future direction: University of British Columbia; 2015.
9. Chou R, Turner JA, Devine EB, Hansen RN, Sullivan SD, Blazina I, Dana T, Bougatsos C, Deyo RA. 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;162:276-86.
10. Franklin GM, American Academy of N. Opioids for chronic noncancer pain: a position paper of the American Academy of Neurology. *Neurology* 2014;83:1277-84.
11. Chaparro LE, Furlan AD, Deshpande A, Mailis-Gagnon A, Atlas S, Turk DC. Opioids compared with placebo or other treatments for chronic low back pain: an update of the Cochrane Review. *Spine (Phila Pa 1976)* 2014;39:556-63.
12. Nosyk B, Fischer B, Sun H, Marsh DC, Kerr T, Rehm JT, Anis AH. High levels of opioid analgesic co-prescription among methadone maintenance treatment clients in British Columbia, Canada: results from a population-level retrospective cohort study. *Am J Addict* 2014;23:257-64.
13. Gladstone EJ, Smolina K, Morgan SG. Trends and sex differences in prescription opioid deaths in British Columbia, Canada. *Inj Prev* 2015.
14. Cunningham CM, Hanley GE, Morgan S. Patterns in the use of benzodiazepines in British Columbia: examining the impact of increasing research and guideline cautions against long-term use. *Health Policy* 2010;97:122-9.
15. Park TW, Saitz R, Ganoczy D, Ilgen MA, Bohnert AS. Benzodiazepine prescribing patterns and deaths from drug overdose among US veterans receiving opioid analgesics: case-cohort study. *BMJ* 2015;350:h2698.
16. Darke S, Ross J, Hall W. Overdose among heroin users in Sydney, Australia: I. Prevalence and correlates of non-fatal overdose. *Addiction* 1996;91:405-11.
17. Perret G, Deglon JJ, Kreek MJ, Ho A, La Harpe R. Lethal methadone intoxications in Geneva, Switzerland, from 1994 to 1998. *Addiction* 2000;95:1647-53.
18. Leece P, Cavacuiti C, Macdonald EM, Gomes T, Kahan M, Srivastava A, Steele L, Luo J, Mamdani MM, Juurlink DN, Canadian Drug S, Effectiveness Research N. Predictors of Opioid-Related Death During Methadone Therapy. *J Subst Abuse Treat* 2015;57:30-5.
19. BC Ministry of Health. Treating Opioid Overdose: B.C.'s Take Home Naloxone Program. HealthLinkBC Files Number 118, March 2015.
20. Government of British Columbia. Fatal Victims of Crashes Involving Alcohol and/or Drug. Burnaby (BC): Research and Data Unit, Policy and Strategic Initiatives Branch, RoadSafetyBC, BC Ministry of Justice; October 2014.
21. Coroners Service of British Columbia. Opiate Deaths. Burnaby: BC Ministry of Justice; May 2013.
22. Manchikanti L, Abdi S, Atluri S, Balog CC, Benyamin RM, Boswell MV, Brown KR, Bruel BM, Bryce DA, Burks PA, Burton AW, Calodney AK, Caraway DL, Cash KA, Christo PJ, Damron KS, Datta S, Deer TR, Diwan S, Eriator I, Falco FJ, Fellows B, Geffert S, Gharibo CG, Glaser SE, Grider JS, Hameed H, Hameed M, Hansen H, Harned ME, Hayek SM, Helm S, 2nd, Hirsch JA, Janata JW, Kaye AD, Kaye AM, Kloth DS, Koyyalagunta D, Lee M, Malla Y, Manchikanti KN, McManus CD, Pampati V, Parr AT, Pasupuleti R, Patel VB, Sehgal N, Silverman SM, Singh V, Smith HS, Snook LT, Solanki DR, Tracy DH, Vallejo R, Wargo BW, American Society of Interventional Pain P. American Society of Interventional Pain Physicians (ASIPP) guidelines for responsible opioid prescribing in chronic non-cancer pain: Part I—evidence assessment. *Pain Physician* 2012;15:Sr-65.
23. Fischer B, Jones W, Rehm J. High correlations between levels of consumption and mortality related to strong prescription opioid analgesics in British Columbia and Ontario, 2005-2009. *Pharmacoepidemiol Drug Saf* 2013;22:438-42.
24. Bohnert AS, Valenstein M, Bair MJ, Ganoczy D, McCarthy JF, Ilgen MA, Blow FC. Association between opioid prescribing patterns and opioid overdose-related deaths. *JAMA* 2011;305:1315-21.
25. Gomes T, Redelmeier DA, Juurlink DN, Dhalla IA, Camacho X, Mamdani MM. Opioid dose and risk of road trauma in Canada: a population-based study. *JAMA Intern Med* 2013;173:196-201.
26. Braden JB, Russo J, Fan MY, Edlund MJ, Martin BC, DeVries A, Sullivan MD. Emergency department visits among recipients of chronic opioid therapy. *Arch Intern Med* 2010;170:1425-32.
27. Wisniewski AM, Purdy CH, Blondell RD. The epidemiologic association between opioid prescribing, non-

- medical use, and emergency department visits. *J Addict Dis* 2008;27:1-11.
28. Volkow ND, McLellan TA. Curtailing diversion and abuse of opioid analgesics without jeopardizing pain treatment. *JAMA* 2011;305:1346-7.
 29. Turner SD, Gomes T, Camacho X, Yao Z, Guttman A, Mamdani MM, Juurlink DN, Dhalla IA. Neonatal opioid withdrawal and antenatal opioid prescribing. *CMAJ Open* 2015;3:E55-61.
 30. US National Institute on Drug Abuse (NIDA). Abuse of Prescription Pain Medications Risks Heroin Use. January 2014: <http://www.drugabuse.gov/related-topics/trends-statistics/infographics/abuse-prescription-pain-medications-risks-heroin-use>.
 31. Mars SG, Bourgeois P, Karandinos G, Montero F, Ciccarone D. "Every 'never' I ever said came true": transitions from opioid pills to heroin injecting. *Int J Drug Policy* 2014;25:257-66.
 32. Firestone M, Fischer B. A qualitative exploration of prescription opioid injection among street-based drug users in Toronto: behaviours, preferences and drug availability. *Harm Reduct J* 2008;5:30.
 33. Frank D, Mateu-Gelabert P, Guarino H, Bennett A, Wendel T, Jessell L, Teper A. High risk and little knowledge: overdose experiences and knowledge among young adult nonmedical prescription opioid users. *Int J Drug Policy* 2015;26:84-91.
 34. Mateu-Gelabert P, Guarino H, Jessell L, Teper A. Injection and sexual HIV/HCV risk behaviors associated with nonmedical use of prescription opioids among young adults in New York City. *J Subst Abuse Treat* 2015;48:13-20.
 35. Guarino H, Marsch LA, Deren S, Straussner SL, Teper A. Opioid Use Trajectories, Injection Drug Use, and Hepatitis C Virus Risk Among Young Adult Immigrants from the Former Soviet Union Living in New York City. *J Addict Dis* 2015;34:162-77.
 36. Young AM, Havens JR. Transition from first illicit drug use to first injection drug use among rural Appalachian drug users: a cross-sectional comparison and retrospective survival analysis. *Addiction* 2012;107:587-96.
 37. Weeks C. Solving the painkiller crisis: It's in the hands of doctors *Globe and Mail* October 3, 2014.
 38. The Canadian Press. Continuing education for opioid prescribing should be mandatory: CMA. August 24, 2015.
 39. Kirkey S. 'Weak' doctors blamed for flood of prescription painkillers behind epidemic of drug-related deaths. *National Post* August 24, 2015.
 40. Gomes T, Mamdani MM, Paterson JM, Dhalla IA, Juurlink DN. Trends in high-dose opioid prescribing in Canada. *Can Fam Physician* 2014;60:826-32.
 41. Dhillon S. RCMP announce charges in fentanyl bust in Burnaby. *Globe and Mail* 2015 September 3, 2015.
 42. Burgmann T. RCMP deals with China, UN as fentanyl deaths surge in Canada. *Toronto Sun* August 12, 2015.
 43. Wood G. RCMP seize fentanyl-laced drugs. *Richmond News* August 19, 2015.
 44. Canadian Centre on Substance Abuse (CCSA) and Canadian Community Epidemiology Network on Drug Use (CCENDU). *CCENDU Bulletin: Deaths Involving Fentanyl in Canada, 2009-2014*. August 2015. http://www.ccsa.ca/Resource_Library/CCSA-CCENDU-Fentanyl-Deaths-Canada-Bulletin-2015-en.pdf.
 45. McKee G, Amlani A, Buxton J. Illicit fentanyl: An emerging threat to people who use drugs in BC. *BC Medical Journal* 2015;57:235.
 46. Crawford T. Coroner confirms fentanyl linked to deaths of young North Vancouver couple. *Vancouver Sun* July 31, 2015.
 47. McElroy J. Family of Burnaby teen dead of suspected fentanyl overdose speaks out. *Global News* August 3, 2015.
 48. Mulholland A. Fentanyl, the painkiller officials warn is taking lives. *CTV News* August 4, 2015.
 49. Dhillon S. Increase in fentanyl-related deaths prompt calls for 'antidote'. *The Globe and Mail* August 14, 2015.
 50. Vancouver Police Department. Media Release: Police warn drug users following spike in overdoses. August 9, 2015.
 51. Wintonyk D. Fentanyl suspected for 16 Vancouver overdoses in 1 day. *CTV News* August 10, 2015.
 52. Quan D. 'A witch's brew': Authorities boost warnings over illicit street drug fentanyl after rash of deaths. *National Post* August 11, 2015.
 53. Vancouver Police Department. Media Release: Police Focus on Deadly Fentanyl Drug Trade. March 3, 2015.
 54. Werb D, Rowell G, Guyatt G, Kerr T, Montaner J, Wood E. Effect of drug law enforcement on drug market violence: a systematic review. *Int J Drug Policy* 2011;22:87-94.
 55. Global Commission on Drug Policy. *The War on Drugs and HIV/AIDS: How the Criminalization of Drug Use Fuels the Global Pandemic*. Report of the Global Commission on Drug Policy; June 2012.
 56. Lader M. Benzodiazepines revisited—will we ever learn? *Addiction* 2011;106:2086-109.
 57. Jones JD, Mogali S, Comer SD. Polydrug abuse: a review of opioid and benzodiazepine combination use. *Drug Alcohol Depend* 2012;125:8-18.
 58. Howard P, Twycross R, Shuster J, Mihalyo M, Wilcock A. Benzodiazepines. *J Pain Symptom Manage* 2014;47:955-64.
 59. Ickowicz S, Hayashi K, Dong H, Milloy MJ, Kerr T, Montaner JS, Wood E. Benzodiazepine use as an independent risk factor for HIV infection in a Canadian setting. *Drug Alcohol Depend* 2015.
 60. Government of British Columbia. *PharmaCare Policy Manual 2012*. Section 2.3: What is PharmaNet? (2012). <http://www2.gov.bc.ca>.
 61. Dormuth CR, Miller TA, Huang A, Mamdani MM, Juurlink DN, Canadian Drug S, Effectiveness Research N. Effect of a centralized prescription network on inappropriate prescriptions for opioid analgesics and benzodiazepines. *CMAJ* 2012;184:E852-6.
 62. Allen MJ, Asbridge MM, Macdougall PC, Furlan AD, Tugalev O. Self-reported practices in opioid management of chronic noncancer pain: a survey of Canadian family physicians. *Pain Res Manag* 2013;18:177-84.
 63. Culter K., President and CEO, Medinet Vancouver. Personal communication, September 16, 2015.
 64. Clancy N. Impostor seeking oxycodone lands B.C. doctors and pharmacists in trouble. *CBC News* June 23, 2015.

65. College of Physicians and Surgeons of BC. Drugs Requiring the Use of a Duplicate Prescription. <https://www.cpsbc.ca/programs/prp/drugs-duplicate-prescription>.
66. College of Physicians and Surgeons of Alberta. Notice to prescribers: Benzodiazepines added to Alberta drug monitoring list. July 2015. http://www.cpsa.ab.ca/Services/Triplicate_Prescription_Program/TPP_Overview.aspx.
67. Simoni-Wastila L, Ross-Degnan D, Mah C, Gao X, Brown J, Cosler LE, Fanning T, Gallagher P, Salzman C, Soumerai SB. A retrospective data analysis of the impact of the New York triplicate prescription program on benzodiazepine use in medicaid patients with chronic psychiatric and neurologic disorders. *Clin Ther* 2004;26:322-36.
68. Hohl CM, Abu-Laban RB, Zed PJ, Brubacher JR, Tsai G, Kretz P, Nemethy K, Pursell RA. Patient-reported adverse drug-related events from emergency department discharge prescriptions. *CJEM* 2010;12:331-8.
69. Watt-Watson J, McGillion M, Hunter J, Choiniere M, Clark AJ, Dewar A, Johnston C, Lynch M, Morley-Forster P, Moulin D, Thie N, von Baeyer CL, Webber K. A survey of prelicensure pain curricula in health science faculties in Canadian universities. *Pain Res Manag* 2009;14:439-44.
70. Wenghofer EF, Wilson L, Kahan M, Sheehan C, Srivastava A, Rubin A, Brathwaite J. Survey of Ontario primary care physicians' experiences with opioid prescribing. *Can Fam Physician* 2011;57:324-32.
71. The National Center on Addiction and Substance Abuse (CASA) at Columbia University. Missed Opportunity: National Survey of Primary Care Physicians and Patients on Substance Abuse. Chicago: Survey Research Laboratory, University of Illinois; April 2000: <http://www.casacolumbia.org>.
72. The National Center on Addiction and Substance Abuse (CASA) at Columbia University. Addiction Medicine: Closing the Gap between Science and Practice. New York: CASA Columbia; June 2012: <http://www.casacolumbia.org>.
73. Hwang CS, Turner LW, Kruszewski SP, Kolodny A, Alexander GC. Primary Care Physicians' Knowledge And Attitudes Regarding Prescription Opioid Abuse and Diversion. *Clin J Pain* 2015.
74. Maremmani I, Gerra G. Buprenorphine-based regimens and methadone for the medical management of opioid dependence: selecting the appropriate drug for treatment. *Am J Addict* 2010;19:557-68.
75. Marteau D, McDonald R, Patel K. The relative risk of fatal poisoning by methadone or buprenorphine within the wider population of England and Wales. *BMJ Open* 2015;5:e007629.
76. Bell JR, Butler B, Lawrance A, Batey R, Salmelainen P. Comparing overdose mortality associated with methadone and buprenorphine treatment. *Drug Alcohol Depend* 2009;104:73-7.
77. Luty J, O'Gara C, Sessay M. Is methadone too dangerous for opiate addiction? *BMJ* 2005;331:1352-3.
78. Substance Abuse and Mental Health Services Administration (SAMHSA), US Department of Health and Human Services. Opioid drugs in maintenance and detoxification treatment of opiate addiction. Final rule. *Federal Register* 2001;66(11):4076-102.
79. BC Harm Reduction Strategies and Services. Toward the Heart: A project of the provincial Harm Reduction Program. Naloxone: Preventing overdoses, saving lives. <http://towardtheheart.com/naloxone/>.
80. Beletsky L, Rich JD, Walley AY. Prevention of fatal opioid overdose. *JAMA* 2012;308:1863-4.
81. Wood E, Samet JH, Volkow ND. Physician education in addiction medicine. *JAMA* 2013;310:1673-4.
82. Kahan M, Wilson L, Mailis-Gagnon A, Srivastava A, National Opioid Use Guideline G. Canadian guideline for safe and effective use of opioids for chronic noncancer pain. Appendix B-6: Benzodiazepine Tapering. *Can Fam Physician* 2011;57:1269-76, e419-28.
83. Gugelmann H, Shofer FS, Meisel ZF, Perrone J. Multidisciplinary intervention decreases the use of opioid medication discharge packs from 2 urban EDs. *Am J Emerg Med* 2013;31:1343-8.
84. Del Portal DA, Healy ME, Satz WA, McNamara RM. Impact of an Opioid Prescribing Guideline in the Acute Care Setting. *J Emerg Med* 2015.
85. Kilaru AS, Gadsden SM, Perrone J, Paciotti B, Barg FK, Meisel ZF. How do physicians adopt and apply opioid prescription guidelines in the emergency department? A qualitative study. *Ann Emerg Med* 2014;64:482-9 e1.
86. Kunins HV, Farley TA, Dowell D. Guidelines for opioid prescription: why emergency physicians need support. *Ann Intern Med* 2013;158:841-2.