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Unspecified psychosis and stimulant drugs: A commentary on current trends

Strategies for managing the increasing prevalence of stimulant-induced psychosis in BC include providing supportive care, antipsychotic and sedative medications, and psychosocial therapies.

ABSTRACT: With the increasing potency of substances in British Columbia and ever-evolving substance use patterns, many British Columbians continue to present to hospitals with unspecified psychosis. It is unclear what portion of these cases is attributable to substance use or medical etiologies rather than a primary psychotic disorder on initial clinical presentation. Stimulants, in particular, account for many substance-induced psychosis cases. Differentiating stimulant-induced psychosis from other etiologies of psychosis in emergency department settings can streamline pharmacotherapy and health management decisions, such as addressing underlying substance use behaviors and using antipsychotic medications to improve patient outcomes. Further, many patients who experience stimulant-induced

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psychosis are at increased risk of later developing primary psychosis should their substance use continue. Psychoeducational and medical interventions may reduce the possibility of transformation. In this commentary, we discuss stimulant use trends and associated nuances in BC.

sychosis can manifest with what are classified as positive symptoms, such as delusions, hallucinations, and disorganized thought or behavior, and negative symptoms, such as avolition, apathy, affective flattening, and anhedonia.1 Approximately 1.5% to 3.5% of the general population is estimated to meet the diagnostic criteria for psychosis within their lifetime.1 However, psychosis is far more common among people who use drugs, including 10% of cannabinoid users, more than 33% of methamphetamine users, and most lifelong cocaine users.2 During restrictions on support and harm reduction services in 2020 due to the COVID-19 pandemic, many people who use drugs returned to or escalated their substance use.3 Partly due to the pandemic, infrastructure fragility has led to health care staff shortages and a reduction in equitable access to harm reduction services.4 The use of stimulants has become a major problem in the past decade due to their low cost and increasing potency.^{5,6} With reduced care services and increasing rates of substance use, especially stimulants, people who use drugs are increasingly at risk for stimulant-induced psychosis. This commentary is meant to raise awareness about current substance use trends, specifically stimulant-induced psychosis, in BC.

Substance use in BC since 2007

More than a decade of evidence indicates that substance use trends are perpetually volatile. According to the Canadian Institute for Substance Use Research at the University of Victoria, hospitalizations across BC due to stimulant use (excluding cocaine) more than tripled from 10.13 per 100000 in 2007 to 34.16 per 100 000 in 2019.7 Likewise, between 2007 and 2019, opioid- and cannabis-related hospital admissions increased by approximately 28% and 35%, respectively.7 However, during that same time frame, hospitalizations related to the use of cocaine and sedatives (excluding opioids) declined by approximately 58% and 24%, respectively.7

Despite decreases in cocaine-related hospitalizations, the rise in stimulant-related hospitalizations is driven by the rapid increase in methamphetamine use in BC.⁷ Among more than 300 harm reduction sites across BC, between 2012 and 2015, the portion of people who use drugs that reported using methamphetamine within the previous 7 days increased from 20% to 47%. Increased use of methamphetamines

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in Canada is most notable in BC and Alberta, with possession violations increasing by 590% between 2010 and 2017.⁵ More recently, among British Columbians who attended harm reduction services between 2018 and 2019 (excluding for tobacco), crystal methamphetamine was reportedly the most commonly used drug in the previous 3 days (up to 71.7% of attendees) and was frequently paired with opioid use.⁹ In 2019, 3.2 users per 1000 across Canada used methamphetamines.¹⁰

In Canada, between 2014 and 2021, there was a coinciding increase in hospitalizations for amphetamine-related psychotic disorders.¹¹ One Canadian study reported that amphetamine-related emergency department visits increased more than fivefold between 2014 and 2021, and the prevalence of related psychotic disorders doubled between 2015 and 2021.11 This increase in substance-induced psychosis is a reflection of multiple underlying causes, such as increasing potency of substances, increased local prevalence of drugs, increased opioid contamination and toxicity of available drug supplies, and a potentially greater population of people who use drugs.12-14

Continued pandemic effect

According to the Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada, nearly 50% of Canadians with a history of substance use disorder who responded to an online survey conducted between 13 October and 2 December 2020 reported moderate to severe depressive symptoms since the onset of the pandemic.¹² Increased stress has been linked to further substance use and relapse among people who use drugs.¹⁵ Pandemic stressors have amplified the two-way relationship between substance use and poor mental health.¹² One Canadian study that characterized substance use patterns during the pandemic reported that stimulants were the most common psychoactive drug used (74%), followed by opioids (60%). There is also evidence of increased illicit drug toxicity and adulteration, which confers added harm potential to these drugs.17

In 2020, the Canadian Centre on Substance Use and Addiction introduced increased access to treatment and harm reduction services related to the use of methamphetamines. However, harm reduction services have been unable to meet the increased demand; approximately 20% of patients reported difficulties accessing care. Only 24% of respondents with problematic

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substance use and 22% of respondents with mental health symptoms who answered an online survey conducted between 13 October and 2 December 2020 reported being able to access treatment since March 2020.¹²

These findings exemplify the unstable nature of substance use trends over short periods. With respect to Metro Vancouver hospitals, further research on current trends is recommended. Now, amid new individual and supply chain stressors imposed by the COVID-19 pandemic, current illicit drug trends have likely shifted and remain uncharacterized.¹⁹

Challenges in diagnosing stimulant-induced psychosis

The Diagnostic and Statistical Manual of Mental Disorders (fifth edition) defines substance-induced psychosis based on four main criteria: manifestation of hallucinations or delusions, symptoms developed during or soon after intoxication or withdrawal from a substance capable of producing psychosis, no alternative evidence of primary psychotic disorder, and an absence of delirium.²⁰ For the third criterion, a primary psychosis is more likely when symptoms precede the onset of

substance use or they persist for more than 1 month or when there is other evidence of a nonsubstance-induced psychotic disorder.20 However, when patients who are suspected of substance-induced psychosis present to the emergency department with altered mental status, it may be difficult to ascertain a reliable history. As a result, unspecified psychosis is frequently diagnosed in emergency department settings when ambiguous history and collateral do not meet criteria for a specific psychotic disorder.21 In one 2020 study, difficulty ruling out substance-induced psychosis was the most common reason (28%) for a diagnosis of unspecific psychosis.²² Substance-induced psychosis is also difficult to distinguish from primary psychotic disorders because both can manifest with delusions, grandiosity, suspiciousness, and hallucinations.6 While urine toxicology screens may identify potential substance use, a positive result cannot rule out primary psychosis. Finally, it can be difficult to ascertain the specific offending substance; although one study reported that methamphetamine dependence induced more positive symptoms of psychosis than did cocaine dependence, such differentiation may be ambiguous to the practitioner in emergency department settings.²³

Relationship between substanceinduced psychosis and primary psychosis

Evidence suggests that patients with substance-induced psychosis, such as that related to stimulant use, are at higher risk of developing primary psychotic disorders than are patients without substance-induced psychosis.²⁴⁻²⁶ A leading hypothesis suggests that among people who use drugs and have a higher familial risk of primary psychosis, ongoing substance use triggers the transformation of substance-induced psychosis into primary psychosis.²⁷ A study of 6788 patients demonstrated a strong association between substance-induced psychosis and the development of schizophrenia-spectrum or bipolar disorders.24 In some studies, between 15.0% and 32.3% of patients diagnosed with stimulant-induced psychosis

developed schizophrenia; this occurred most commonly in men within 3 years of index treatment. 24,28,29 A recent meta-analysis reported a similar pooled rate of 22% (95% CI, 14%-34%) for conversion to schizophrenia after amphetamine-induced psychosis.³⁰ Younger age and initial hospital admissions that lasted between 1 and 4 weeks have been linked to higher risk of conversion.²⁹ However, patients with initial hospital admissions between 1 and 4 weeks likely presented with a greater severity of symptoms and a slower return to baseline, which suggests that their presentation may also have been more in keeping with the prodrome, or the first episode, of a primary psychotic disorder that was simply exacerbated by substance use.29

Management of substanceinduced psychosis

Substance-induced psychosis requires management strategies that differ from those for primary psychotic disorders. Urine drug screening is useful for identifying patients who are using substances, as are self-report and collateral information.31 However, because psychosis may persist for long periods following substance use, patients who present days after their last drug use may have a negative urine drug screen.³² Positive results also do not typically change the immediate management plan for patients who present with substance-induced psychosis in the emergency department.32 However, urine drug screens may aid long-term prognosis, where a positive result may indicate a higher risk of later substance-specific problems; for example, rates of conversion to primary psychosis can vary depending on the type of substance implicated in substance-induced psychosis.24 Mild cases of substance-induced psychosis are sufficiently treated with supportive care, short-term antipsychotic medications, and abstinence from substances until recovery.31 Patients who exhibit acute agitation, violence, or severe functional impairments may require additional pharmacotherapy with benzodiazepines and antipsychotic medication use.31

Psychosocial treatments are indicated to mitigate stimulant use relapse and inhibit recurrence of stimulant-induced psychosis. Tone meta-analysis revealed that a combination of contingency management and community care approaches was most effective in patients who were dependent on cocaine or amphetamines. Treatment of comorbid psychiatric disorders, such as anxiety and depression, may also reduce rates of substance resumption. The substance resumption.

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Pharmacotherapy options remain limited for patients with substance-induced psychosis. However, a large nationwide Swedish cohort study showed an association between lisdexamfetamine prescription and improved outcomes in people with methamphetamine-use disorders, but the study excluded people with schizophrenia and bipolar disorders, which further highlights a treatment gap for populations with psychosis.34 As well, a recent meta-analysis provided preliminary evidence that promoted the use of prescription psychostimulant substitution therapy to treat psychostimulant use disorder.³⁵ However, more evidence is needed because this review was constrained by a limited sample size, a lack of subgroup analyses among psychiatric comorbidities that often accompany psychostimulant use disorder, a lack of comparison with higher dosages of prescription psychostimulants, and the possibility of detection bias in trials, which limits the quality of currently published evidence.35

Despite management, patients with substance-induced psychosis often return to the emergency department.³⁶ In two urban centres in BC, between 2018 and 2019, after initial management for

substance-induced psychosis and discharge, 40% of patients returned to the emergency department within 30 days, and nearly half of them returned multiple times.³⁶ More than 30% of those returns were for recurrence of substance-induced psychosis.³⁶ Also, approximately 50% of those patients stayed between 5 and 15 hours during their index emergency department visit, and nearly half of them were admitted to hospital.36 Another investigation revealed that the 1-year mortality of patients who presented to the emergency department with substance-induced psychosis was 4.3%, for which schizophrenia was a significant risk factor when controlled for age.³⁷

Food insecurity and severe mental disorders such as psychosis share a bidirectional relationship, with the former disproportionately affecting homeless individuals.³⁸ Thus, in addition to direct clinical management, improved supports for stable housing and food security may help prevent new onset or recurrent substance-induced psychosis.

Call to action

While rates of stimulant use and stimulant-induced psychosis had been increasing before the pandemic, the rates of problematic substance use in BC have continued to rise since then.¹² Among people who use drugs, pandemic stressors have increased the risk for substance use relapse and worsened mental health.¹² In addition, the increased need for mental health service outpaces supply; only 24% of people who struggle with substance use reported having access to treatment during the height of the pandemic.12 Increasing access to mental health and harm reduction services is needed to address the rising rates of substance use, which remains a main modifiable and preventable risk factor for substance-induced psychosis and transformation into primary psychosis. In addition to advocacy for increased infrastructural health care and mental health resources, patient-specific interventions are an integral part of the management of substance-induced psychosis. According to reviews of the use of evidence-based

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psychotherapy for substance use disorders, motivational interviewing may help shift patients from precontemplative to contemplative stages of change and reduce the extent of drug use, especially when combined with other treatment modalities.^{39,40} As well, abundant evidence supports the efficacy of cognitive-behavioral therapy for reducing the use of a variety of substances, including amphetamines, cannabis, alcohol, cocaine, and opioids.³⁹ Other evidence suggests that relapse prevention, a component of cognitive-behavioral therapy, is protective against substance use relapse after treatment conclusion and improves overall psychosocial adjustment.³⁹ Further, patients should be presented with resources on supportive employment, housing, peer support, and self-management programs.⁴¹

For patients who present to the emergency department with substance-induced psychosis, several medical management steps can be taken to reduce symptoms. Initial history, safety, and neuropsychological assessments are recommended to inform subsequent care planning.42 For most mild cases, supportive care can be supplemented with short-term antipsychotic medications.³¹ In severe cases, when patients present with agitation, violence, or severe functional impairments, seclusion and restraints in hospital and sustained antipsychotic use for both prevention and treatment purposes may be required.31 Some patients may eventually require long-term injection medications due to the volatility of their lifestyle and substance use patterns.⁴³ Choice of antipsychotic agents should be made collectively by the patient and physician, with consideration of the benefits and side effects of each drug.44 Brief hospitalization may be required in patients with psychosis, particularly those who need urgent medical assessment, have severe psychiatric symptoms, or pose an imminent safety risk to themselves or others.⁴¹ However, it is also important to consider the psychosocial effect of involuntary admission on the patient.⁴¹ For patients with comorbid opioid substance use disorders, referral to addiction services, provision of

take-home naloxone kits, and consideration of opioid-agonist therapy are recommended to reduce the risk of later opioid overdose.45

Physicians and providers are encouraged to consult Canadian guidelines for further comprehensive recommendations, including "Canadian Guidelines for the Assessment and Diagnosis of Patients with Schizophrenia Spectrum and Other Psychotic Disorders,""Guidelines for the Pharmacotherapy

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of Schizophrenia in Adults," and "Canadian Practice Guidelines for Comprehensive Community Treatment for Schizophrenia and Schizophrenia Spectrum Disorders," all of which are available with other supplementary guidelines through the Canadian Journal of Psychiatry. 41,42,44 Physicians are also encouraged to continue educating patients about the risk of substance-induced psychosis, most notably the rates of transformation to primary psychosis with continued substance use. Further research is needed to characterize the current situation of substance-induced psychosis in BC, especially in rural communities.

Conclusions

Stimulant-induced psychosis is an increasing problem in BC. Clinicians should be aware of this condition and key management strategies, including supportive care, drug abstinence, antipsychotic and sedative medications, and psychosocial therapies, to improve patient outcomes. Clinicians should also continue to follow evolving evidence on management alternatives.

Competing interest

None declared.

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References

- 1. Calabrese J, Al Khalili Y. Psychosis. StatPearls Publishing, 2022. Accessed 9 May 2022. www.ncbi .nlm.nih.gov/books/NBK546579.
- 2. Fiorentini A, Cantù F, Crisanti C, et al. Substanceinduced psychoses: An updated literature review. Front Psychiatry 2021;12:694863.
- Canadian Centre on Substance Use and Addiction. Impacts of the COVID-19 pandemic on substance use treatment capacity in Canada. 2020. Accessed 9 May 2022. www.ccsa.ca/sites/default/ files/2020-12/CCSA-COVID-19-Impacts-Pandemic -Substance-Use-Treatment-Capacity-Canada -2020-en.pdf.
- 4. Olding M, Barker A, McNeil R, Boyd J. Essential work, precarious labour: The need for safer and equitable harm reduction work in the era of COVID-19. Int J Drug Policy 2021;90:103076.
- 5. Bach P, Hayashi K, Milloy M-J, et al. Characterising the increasing prevalence of crystal methamphetamine use in Vancouver, Canada, from 2006-2017: A gender-based analysis. Drug Alcohol Rev 2020;39:932-940.
- 6. Panenka WJ, Procyshyn RM, Lecomte T, et al. Methamphetamine use: A comprehensive review of molecular, preclinical and clinical findings. Drug Alcohol Depend 2013;129:167-179.
- Canadian Institute for Substance Use Research. Interactive data visualization tool. Victoria, BC: University of Victoria, 2022. Accessed 8 November 2022. http://aodtool.cisur.uvic.ca/aod/tool.php.
- Davis A, Amlani A, Buxton J. BC Centre for Disease Control. Substance use trends in BC: A survey of harm reduction clients. Overall results for British Columbia: 2015. Vancouver, BC: BC CDC, 2015. Accessed 9 September 2022. www.bccdc.ca/ resource-gallery/Documents/Educational%20 Materials/Epid/Other/2015_Report_July%204 _LATEST.pdf.
- 9. Papamihali K, Collins D, Karamouzian M, et al. Crystal methamphetamine use in British Columbia, Canada: A cross-sectional study of people who access harm reduction services. PLoS One 2021;16:e0252090.
- 10. Government of Canada. Canadian tobacco, alcohol and drugs (CTADS) survey: 2019 detailed tables. Ottawa, ON: Government of Canada, 2019. Accessed 9 May 2022. www.canada.ca/en/health-canada/ services/canadian-alcohol-drugs-survey/2019 -summary/detailed-tables.html.
- 11. Tardelli VS, Johnstone S, Castle DJ, et al. Marked increase in amphetamine-related emergency department visits and inpatient admissions in Toronto, Canada, 2014–2021. Can J Psychiatry 2022. doi: 10.1177/07067437221125302.
- 12. Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada. Mental health and substance use during

- COVID-19: Summary report. 2020. Accessed 7 September 2022. https://mentalhealthcommission .ca/wp-content/uploads/2021/09/mhcc_ccsa _covid_leger_poll_eng.pdf.
- 13. Holland KM, Jones C, Vivolo-Kantor AM, et al. Trends in US emergency department visits for mental health, overdose, and violence outcomes before and during the COVID-19 pandemic, JAMA Psychiatry 2021;78:372-379.
- 14. Vo AT, Patton T, Peacock A, et al. Illicit substance use and the COVID-19 pandemic in the United States: A scoping review and characterization of research evidence in unprecedented times. Int J Environ Res Public Health 2022;19:8883.
- 15. Sinha R. How does stress increase risk of drug abuse and relapse? Psychopharmacology 2001; 158:343-359.
- 16. Ali F, Russell C, Nafeh F, et al. Changes in substance supply and use characteristics among people who use drugs (PWUD) during the COVID-19 global pandemic: A national qualitative assessment in Canada. Int J Drug Policy 2021;93:103237.
- 17. Canadian Centre on Substance Use and Addiction. Changes related to COVID-19 in the illegal drug supply and access to services, and resulting health harms. 2020. Accessed 9 September 2022. www.ccsa.ca/sites/default/files/2020-05/ CCSA-COVID-19-CCENDU-Illegal-Drug-Supply -Alert-2020-en.pdf.
- 18. Canadian Centre on Substance Use and Addiction. Methamphetamine, the respiratory system and COVID-19. 2020. Accessed 9 September 2022. www.ccsa.ca/sites/default/files/2020-05/CCSA -COVID-19-Methamphetamine-Respiratory -System-Report-2020-en_0.pdf.
- 19. Krausz RM, Westenberg JN, Mathew N, et al. Shifting North American drug markets and challenges for the system of care. Int J Ment Health Syst 2021:15:86
- 20. Tandon R, Shariff SM. Substance-induced psychotic disorders and schizophrenia: Pathophysiological insights and clinical implications. Am J Psychiatry 2019;176:683-684.
- 21. Substance Abuse and Mental Health Services Administration. Impact of the DSM-IV to DSM-5 changes on the national survey on drug use and health. Rockville, MD: SAMHSA, 2016. Accessed 30 January 2022. www.ncbi.nlm.nih.gov/books/ NBK519704/table/ch3.t20/.
- 22. Widing L, Simonsen C, Flaaten CB, et al. Symptom profiles in psychotic disorder not otherwise specified. Front Psychiatry 2020;11:Article 580444.
- 23. Alexander PD, Gicas KM, Willi TS, et al. A comparison of psychotic symptoms in subjects with

- methamphetamine versus cocaine dependence. Psychopharmacology 2017;234:1535-1547.
- 24. Starzer MSK, Nordentoft M, Hjorthøj C. Rates and predictors of conversion to schizophrenia or bipolar disorder following substance-induced psychosis. Am J Psychiatry 2018;175:343-350.
- 25. Caton CLM, Hasin DS, Shrout PE, et al. Stability of early-phase primary psychotic disorders with concurrent substance use and substance-induced psychosis. Br J Psychiatry 2007;190:105-111.

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- 26. Ghose S. Substance-induced psychosis: An indicator of development of primary psychosis? Am J Psychiatry 2018;175:303-304.
- 27. Kendler KS, Ohlsson H, Sundquist J, Sundquist K. Prediction of onset of substance-induced psychotic disorder and its progression to schizophrenia in a Swedish national sample. Am J Psychiatry 2019;176:711-719.
- 28. Kittirattanapaiboon P, Mahatnirunkul S, Booncharoen H, et al. Long-term outcomes in methamphetamine psychosis patients after first hospitalisation. Drug Alcohol Rev 2010;29:456-461.
- 29. Niemi-Pynttäri JA, Sund R, Putkonen H, et al. Substance-induced psychoses converting into schizophrenia: A register-based study of 18,478 Finnish inpatient cases. J Clin Psychiatry 2013;74:
- 30. Murrie B, Lappin J, Large M, Sara G. Transition of substance-induced, brief, and atypical psychoses to schizophrenia: A systematic review and metaanalysis. Schizophr Bull 2020;46:505-516.
- 31. Glasner-Edwards S, Mooney LJ. Methamphetamine psychosis: Epidemiology and management. CNS Drugs 2014;28:1115-1126.
- 32. Mukherji P, Azhar Y, Sharma S. Toxicology screening. Treasure Island, FL: StatPearls Publishing, 2021. Accessed 9 September 2022. www.ncbi.nlm.nih .aov/books/NBK499901/.
- 33. De Crescenzo F, Ciabattini M, D'Alò GL, et al. Comparative efficacy and acceptability of psychosocial

- interventions for individuals with cocaine and amphetamine addiction: A systematic review and network meta-analysis. PLoS Med 2018; 15:e1002715.
- 34. Heikkinen M, Taipale H, Tanskanen A, et al. Association of pharmacological treatments and hospitalization and death in individuals with amphetamine use disorders in a Swedish nationwide cohort of 13 965 patients. JAMA Psychiatry 2023;80:31-39.
- 35. Tardelli VS, Bisaga A, Arcadepani FB, et al. Prescription psychostimulants for the treatment of stimulant use disorder: A systematic review and meta-analysis. Psychopharmacology 2020;237: 2233-2255.
- 36. Barbic D, Whyte M, Sidhu G, et al. What is the risk of returning to the emergency department within 30 days for patients diagnosed with substanceinduced psychosis? CJEM 2022;24:702-709.
- 37. Barbic D, Whyte M, Sidhu G, et al. One-year mortality of emergency department patients with substance-induced psychosis. PLoS One 2022; 17·e0270307
- 38. Lachaud J, Mejia-Lancheros C, Wang R, et al. Mental and substance use disorders and food insecurity among homeless adults participating in the At Home/Chez Soi study. PLoS One 2020;15:e0232001.
- 39. McHugh RK, Hearon BA, Otto MW. Cognitive behavioral therapy for substance use disorders. Psychiatr Clin North Am 2010;33:511-525.
- 40. Beckwith VZ, Beckwith J. Motivational interviewing: A communication tool to promote positive behavior change and optimal health outcomes. NASN Sch Nurse 2020;35:344-351.
- 41. Addington D, Anderson E, Kelly M, et al. Canadian practice guidelines for comprehensive community treatment for schizophrenia and schizophrenia spectrum disorders. Can J Psychiatry 2017; 62:662-672
- 42. Addington D, Abidi S, Garcia-Ortega I, et al. Canadian guidelines for the assessment and diagnosis of patients with schizophrenia spectrum and other psychotic disorders. Can J Psychiatry 2017;62:594-603.
- 43. Correll CU, Citrome L, Haddad PM, et al. The use of long-acting injectable antipsychotics in schizophrenia: Evaluating the evidence. J Clin Psychiatry 2016;77(suppl 3):1-24.
- 44. Remington G, Addington D, Honer W, et al. Guidelines for the pharmacotherapy of schizophrenia in adults. Can J Psychiatry 2017;62:604-616.
- 45. Bruneau J, Ahamad K, Goyer M, et al. Management of opioid use disorders: A national clinical practice guideline. CMAJ 2018;190:E247-E257.