GLP-1s[1] to Support Substance Use Health

Introduction

Addressing substance use health (SUH) issues requires a full spectrum of care, individualized to address people's needs (Canadian Public Health Association, 2024). A key tool for managing substance use disorders (SUDs) is medications that can address cravings and withdrawal symptoms and provide treatment for an individual living with an SUD to change their relationship with certain substances.

For example, opioid agonist therapy (OAT) is best clinical practice to treat opioid use disorder (OUD) (Canadian Research Initiative in Substance Matters, 2024). There are other well-established medications to address alcohol withdrawal management and ongoing reductions in alcohol use as a treatment for people living with an alcohol use disorder (AUD) (Canadian Research Initiative in Substance Misuse, 2023). Yet, the range and availability of these medications are limited, and pharmacotherapies are not established for certain SUDs (e.g., stimulants use disorders, cannabis use disorders).

Emerging evidence indicates that glucagon-like peptide-1 receptor agonists (GLP-1s), a class of medications primarily used to treat type 2 diabetes and obesity, may also be effective in treating certain SUDs.

This brief explores recent evidence supporting the use of GLP-1s in this context, systemic barriers to their implementation, and regulation and policy considerations as research in this area continues to develop.

Current SUD Landscape

At a time where morbidity and mortality from opioid and polysubstance use have been a declared public health emergency for a decade, it is paramount to explore every resource available to support the SUH of people living in Canada.

Aspects of substance use present a significant public health challenge across Canada. As of December 2024, 20 opioid toxicity deaths were occurring each day, and stimulants were

[1] This document is part of a series of evidence briefs the Canadian Centre on Substance Use and Addiction has created to help people and communities understand and contextualize complex health solutions and the resources intended to address people's substance use health and wellness. Please also check out other briefs on related topics on our Community Resources page.

involved in 70 per cent of these cases (Substance-related Overdose and Mortality Surveillance Task Group on behalf of the Council of Chief Medical Officers of Health, 2025).

Recent data also show that ten people in Canada die daily in hospital from alcohol-related conditions, while 269 alcohol-related hospitalizations occur each day (three times the rate of opioid- or cannabis-related hospitalizations) (Canadian Institute for Health Information, 2023).

These figures illustrate how critical it is to have access to services that meet an individual's needs in improving their SUH at the time they wish to receive support. This involves having a range of services available and accessible, yet the SUH care system is known to involve restrictive eligibility criteria, extensive waitlists, lack of services in rural and remote areas, lack of services tailored to meet individual needs, and costs that are not covered by jurisdictional health plans.

Furthermore, some forms of SUD are understudied or lack evidence on effective pharmacological approaches (e.g., stimulant use disorder, cannabis use disorder).

Where pharmacological options are available, many still present their own specific barriers to use, such as requiring daily dosing at a pharmacy (i.e., some courses of OAT like methadone treatment) or having limited access to evidence-based medications (e.g., availability of daily oral naltrexone only for AUD treatment, when a monthly intra-muscular injection is available in other countries).

The culmination of these challenges — lack of access to services, lack of pharmacological options and understudied SUDs — contributes to the devastation of the ongoing drug toxicity crisis and underscores the urgent need for comprehensive, evidence-informed approaches.

A Potential Addition to SUD Treatment: How GLP-1s Work

GLP-1s (also known to the public as Semaglutide, Ozempic, Wegovy, etc.) mimic a natural hormone in the body (GLP-1) to help regulate blood sugar by stimulating insulin production, reducing the secretion of glucagon (a hormone that increases blood sugar) and slowing digestion (Collins & Costello, 2024).

These combined effects make them effective for their original use in managing type 2 diabetes and obesity-related weight issues by lowering blood sugar levels and promoting satiety (Prasad-Reddy & Isaacs, 2015).

However, the presence of GLP-1 receptors in brain regions associated with reward, motivation and impulse control, along with their role in modulating dopamine signalling and reducing cravings, has recently opened a novel therapeutic avenue for the use of GLP-1s in treating SUDs (Badulescu et al., 2024; Martinelli et al., 2024).

Emerging Evidence around GLP-1s

Following promising findings from animal studies that showed reduced drug- (i.e., alcohol, nicotine, opioids, cocaine) seeking behaviours (Douton et al., 2021; Evans et al., 2022;

Thomsen et al., 2017; Zhu et al., 2022) alcohol use, and recurrence of its use (Aranäs, 2023; Thompsen et al., 2017; 2019), clinical studies examining the role of GLP-1s in treatment for SUDs in humans have revealed similar trends.

For AUD, studies have found that the GLP-1 medication, Semaglutide, significantly reduced drinking, heavy drinking episodes and alcohol cravings when compared to placebo groups and compared to what is usually observed with use of standard treatments for AUD (Hendershot et al., 2025).

Other studies have revealed GLP-1 medications to be related to lower risks of developing or reoccurring AUD (Wang et al., 2024A) and reduced hospitalizations linked to AUD and SUDs (Lähteenvuo et al., 2025).

For OUD, early clinical trials indicate that GLP-1 medications were related to reduced opioid cravings (Qeadan et al., 2025; Freet et al., 2024) and significantly reduced opioid overdose risk (Qeadan et al., 2025; Wang et al., 2024D).

GLP-1s may also help address cannabis and nicotine use disorder. A large decrease in new and recurrent cases of cannabis use disorder among patients with type 2 diabetes or obesity who were prescribed Semaglutide, compared to those on other non–GLP-1 medications has been observed (Wang et al., 2024B).

Similar findings have been found in relation to nicotine, with GLP-1 medications being related to increased rates of smoking abstinence, reduced cravings and withdrawal symptoms (Yammine et al., 2021). GLP-1 medications have also been related to a lower rate of tobacco-related medical visits or interventions (Wang et al., 2024C).

Need for Further Evidence

Altogether, these findings contribute to a growing body of evidence supporting the potential beneficial role of GLP-1 medications in treating SUDs. Yet, further research through robust clinical trials is still needed to establish their efficacy and safety with greater certainty.

Ongoing research in North America and internationally is exploring the use of GLP-1 medications as primary or combination therapies for alcohol, opioid, nicotine and other SUDs. Many factors must still be considered.

First, most existing research on GLP-1s has focused on people living with obesity or type 2 diabetes, where weight loss was the desired outcome and SUH was not assessed. As a result, there is limited evidence on their use specifically in individuals living with an SUD where treatment for this condition is the primary goal.

Second, side effects associated with GLP-1s, particularly gastrointestinal issues such as persistent nausea, are generally considered mild to moderate. However, we do not yet know the side effects that will be experienced by individuals taking these medications to treat SUDs.

Moreover, long-term data on potential neuropsychiatric side effects are currently limited (Bushi et al., 2025). And, because subtle or delayed effects may only emerge with prolonged use, further long-term research is needed to assess potential impacts of GLP-1s on mood, cognition and overall mental health. This is particularly important for individuals with a history of living with mental health conditions or SUDs.

Third, the durability of the beneficial effects over extended periods still remains unclear. While GLP-1s have demonstrated sustained weight-loss effects in many studies over the first 12 months, it is well-known that most weight-loss interventions, potentially also including GLP-1 therapies, eventually reach a plateau due to physiological adaptation. In the context of SUDs, where the risk of recurrence is highest within the first year of abstinence, monitoring outcomes beyond this initial period is essential to assess the long-term effectiveness of GLP-1–based interventions.

Finally, while pharmacotherapy is recommended to support certain SUDs, the role of systemic and social factors that greatly influence SUH still require consideration. Further exploration of the interplay between GLP-1s and social factors (e.g., systemic discrimination, poverty, gender, trauma) are required to ensure individuals who use substances are best supported and unintended harms are not experienced while using this medication.

Regulation and Policy Considerations

If further research supports the use of GLP-1 medications to treat SUD, there are several considerations for broader implementation in Canada. Currently, these medications have not received regulatory approval for SUD-related indications.

Additionally, addressing supply chain challenges and scaling up production capacity, including generic production (which is already underway), will be necessary to meet demand for long-term treatment.

Cost and access may present significant challenges, especially for people without adequate insurance coverage (Philipson et al., 2025). This could be particularly relevant for socio-economically marginalized populations, who are disproportionately affected by SUDs (Controlled Substances and Cannabis Branch, Health Canada, 2023). Thus, there is an urgent need for an analysis of costs and effectiveness of these medications in relation to any health impacts they may have.

Public drug insurance plans, such as the Ontario Drug Benefit program, may need to consider coverage options for these treatments in certain populations, especially if they prove cost-effective in reducing the significant health and economic burden associated with SUD (Canadian Susbtance Use Costs and Harms Scientific Working Group, 2023).

We must address systemic and patient-level barriers, as GLP-1s already show low uptake and disparities across race, ethnicity, social vulnerability, and urbanicity (Kim et al., 2025).

Conclusion

SUH care requires a range of services and supports to ensure individualized care is available to support people in reaching their personal goals.

Having more SUD treatment options will increase the capacity of providers to support the unique needs of each individual.

The addition of GLP-1s as a medication to treat SUDs may be transformative to care, especially for people who cannot access current medications to support their SUH, yet much remains to be seen.

If evidence on effectiveness of GLP-1s to support SUH is confirmed, this medication could contribute to addressing the long-standing SUH care treatment gap.

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