PERSPECTIVE

"Safer Drug Supply" Measures in Canada to Reduce the Drug Overdose Fatality Toll: Clarifying Concepts, Practices and Evidence Within a Public Health Intervention Framework

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ABSTRACT. North America has been home to an unprecedented crisis of drug overdose deaths, driven largely by drug users' exposure to highly potent and toxic, illicit opioid drugs (e.g., fentanyl). Although a large and diverse menu of interventions (e.g., targeted prevention or treatment measures) has been implemented or expanded in Canada, these have not effectively managed to revert and reduce this excessive death toll. Given the fact that these interventions do not directly aim to address toxic drug exposure as the primary vector and cause of acute overdose deaths, public health–oriented "safer drug supply" measures have been initiated in local settings across Canada. These safer supply initiatives provide users with prescribed, pharmaceutical-grade drug supply with the aim of reducing overdose and death risks. These measures have been criticized but also misconstrued from several angles, e.g., as representing inadequate medical or even unethical and harmful practice. Related concerns regarding "diversion" have been raised. In this Perspective, we briefly address some of these issues and clarify selected issues of elementary concepts, practices, and evidence related to safer supply measures within a public health–oriented intervention framework. These measures are also discussed in reference to other, comparable types of public health–oriented emergency health or survival care standards, while considering the extreme contexts of an ongoing, acute drug death crisis in Canada. (*J. Stud. Alcohol Drugs, 84,* 801–807, 2023)

SINCE THE EARLY 2000s, Canada and the United States have been experiencing an unprecedented public health crisis from acute drug toxicity fatalities ("drug death crisis") that is estimated to have claimed well beyond 1 million lives. Although initially driven mostly by fatalities from potent prescription opioids, over the past decade this crisis has changed to being propelled mostly by highly potent and toxic illicit/synthetic opioids (ISOs; e.g., fentanyl and analogues) (Ciccarone, 2021; Fischer, 2023). In 2021, Canada recorded 8,006 opioid-toxicity deaths, for an age-adjusted rate of 21.2/100,000 population (Federal, Provincial, and Territorial Special Advisory Committee on the Epidemic of Opioid Overdoses, 2023). During the same year, there were 106,699 drug overdose deaths (32.4/100,000) in the United States (Spencer et al., 2022). Although this death toll in absolute numbers and rates is even graver in the United States than in Canada, it has been shown to adversely affect life expectancy in both countries.

In Canada, comprehensive intervention efforts have been implemented and expanded over time to address this drug death crisis. These have included, for example, extensive scale-up of supervised consumption (or "overdose prevention") services, naloxone distribution (for opioid overdose reversal), and treatment availability (including different opioid agonist therapy [OAT] formulations/modalities) for opioid use disorder (OUD) (Antoniou et al., 2020; Kennedy et

Received: June 29, 2023. Revision: August 25, 2023

This work has been supported in part by Canadian Institutes of Health Research Grant FRN-94814. Benedikt Fischer has held research grants and contracts in the areas of substance use, health, and policy from public funding and government organizations (i.e., public-only sources). Tessa Robinson has no competing interests to declare.

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doi:10.15288/jsad.23-00195

al., 2022; Papamihali et al., 2020; Piske et al., 2020). These measures, however, have not been able to stem the rising tide of drug deaths. The levels of drug toxicity deaths in Canada have continuously increased (up to and including 2021), and more recent indicators suggest no significant changes moving forward (Federal, Provincial, and Territorial Special Advisory Committee on the Epidemic of Opioid Overdoses, 2023).

Safer drug supply rationale and concept

The extremely potent and toxic nature of ISOs has rendered them the primary cause of overdose fatalities while consequently presenting major challenges for the menu of available interventions. Many existing interventions have mostly aimed at either manipulating the drug use environment to be safer (e.g., supervised consumption) or reactively treating underlying drug use disorders (OAT) or overdoses (naloxone). These approaches, however, have limited direct impact on the primary vector of highly potent and toxic ISO drugs causing overdose deaths (Fischer et al., 2019, 2020b). For illustration: More than half of recent overdose fatalities in British Columbia have occurred from inhalation rather than injection drug use—a mode of use traditionally viewed as substantially safer and protective against overdose-related death (BC Coroners, 2023; Fischer, 2023; Thiblin et al., 2004).

The search for more effective interventions has thus increasingly focused on the need for safer drug supply provision as an emergency measure to address and reduce the risk of deaths caused by ISO exposure (Ivsins et al., 2020; Tyndall, 2020). Conceptually and practically, safer supply measures provide a form of vector intervention toward reducing the drug consumer's exposure to highly potent/toxic ISO drugs and therefore the consequential risk of overdose death (Fischer et al., 2020b). Based on this premise, the first Canadian small-scale safer supply programs began operating in Ontario from 2017 onward, initially providing prescribed pharmaceutical-grade hydromorphone to small numbers of at-risk drug consumers. Similar programs were subsequently implemented in other locations, with some offering alternative opioid formulations and/or dispensing modes. Safer supply programs became officially supported by the federal government of Canada as of 2020 (Government of Canada, 2023; Harris et al., 2021; Tyndall, 2020; Young et al., 2022). In 2021, the province of British Columbia phased in its formal prescribed safer supply policy for regulatory guidance (Ministry of Mental Health and Addictions, 2021).

Criticism and opposition

Safer supply initiatives have received critical examinations and opposition, from voices both within and outside of Canada, including the United States, where the drug-related death toll is extreme, yet safer supply programming is generally absent (Willow et al. 2020; Zivo, 2023). For example, Roberts and Humphreys (2023) suggested that safer supply measures involve "reduced . . . healthcare professional consultation, supervision and/or the need for a formal prescription to directly provide [PWUD] with pharmaceutical grade medications"; they may represent a possible "recipe for harm through [. . .] supply induced toxicity and overdose" . . . extending "both to the individual provided with the medication [. . . and to . . .] others to whom the 'safe supply' medication becomes diverted"; inadequate "professional oversight" may provide "a stigmatized population a lower quality of care than would be considered ethical for other patients" (Roberts & Humphreys, 2023). Elsewhere, Kilmer and Pardo (2022) express concern about the "ambiguity surrounding safer supply" practices (including their substance, supervision, and dispensing), which could lead to barriers for implementing "new medication treatments," specifically for OUD (Kilmer & Pardo, 2023). The implied criticisms are, in part, substantive and grave. They are used in this paper as a starting point for offering some elementary clarifications and perspectives with regard to the rationale, concept, and practical elements of safer supply measures.

Clarifications and comparisons

First, safer supply initiatives are neither designed nor practiced as an addiction treatment type of intervention. Sociomedical discourses of addiction have gradually shifted from a crime or moral defect of the host individual to that of a disease framing in recent decades. Yet, the view that the addictive state presents a behavioral deficiency for which treatment is necessary toward the patient's recovery (typically involving abstinence from substance use) remains, especially in the distinct socio-ideological contexts of the United States (Bart, 2012; Bourgois, 2000; Clark, 2017). Although both intervention types can include an element of pharmaceutical medication (e.g., methadone or buprenorphine as blockers for conventional OAT) provision, they do so with largely different objectives. Overall, safer supply measures do not principally operate toward goals of treatment or recovery. In these contexts, safer supply programs are often contrasted with traditional treatment approaches for OUD, for which expansions are advocated in a commonly dichotomized, and thereby misleading, perspective as the superior alternative. However, the reality-based need for safer supply programming needs to be viewed within the profound limitations of available treatment options, such as their limited uptake, prohibitive requirements for entry, and low retention rates. For example, only about half (or substantially less) of individuals with OUD are reached by and effectively retained in OAT programming, leaving extensive subgroups without related overdose and mortality protection effects (O'Connor et al., 2020; Piske et al., 2020; Shulman et al., 2021). On this basis, safer supply measures in reality aim to complement

rather than compete with available treatment options. They, instead, seek to function as but one part of the interventions and care continuum for high-risk substance use, addressing some of the extensive shortcomings in acute mortality risk protection in current drug death crisis conditions.

Safer supply programming is thus primarily conceived and implemented as an emergency health or survival intervention that aims to protectively replace the potent/toxic ISO supply, thereby decreasing the risk of acute overdose and death (Ivsins et al., 2020; Tyndall, 2020). Conceptually, it may viewed similarly to efforts providing "safer" (e.g., smokeless) tobacco products to abstinence-resistant smokers to reduce related acute risk for chronic morbidity and/or mortality (Hatsukami et al., 2007; Kozlowski, 2007). On this basis, safer supply measures may be perceived as being more akin to forms of emergency or survival care interventions performed in nonclinical settings, such as CPR provided by civilians in cases of cardiac arrest, roadside injury/first aid care at an accident scene, or improvised emergency health care in remote settings (Abella et al., 2008; Fischer et al., 2020b; Mock et al., 2004). These examples of emergency/survival-oriented interventions typically occur with only limited medical consultation or supervision and may even fail, or produce harm to their targets. Their principal aim is the protection of human life in contexts of an emergency crisis, and the appropriateness or ethicality of these interventions as potentially lifesaving measures is not fundamentally questioned. As such, it is plausible to argue that safer supply initiatives do not violate standards of good or ethical medical practice, but rather represent an imperative form of emergency health and survival care for many individuals in circumstances of unprecedented, acute risk for overdose death (Csete & Elliott, 2021; Tyndall, 2020).

Above-cited criticisms implied that safer supply occurs without adequate health-professional consultation, prescription, and supervision. More than 75% of acute drug deaths in British Columbia occur in private or other residence settings—scenarios in which the presence or consultation by health care professionals to provide acute overdose care is absent, similar to bystander-provided CPR or other first aid/emergency measures. In addition, current programming standards in Canada stipulate that safer supply medications are provided to participants based on a healthcare provider's prescription (Duthie et al., 2023; Ministry of Mental Health and Addictions, 2021; Young et al., 2022). This practice is not generally different from medical provision practices for other chronic disease medications (e.g., psychotropics) that are commonly prescribed to large patient populations and carry risk for harm and/or death (Jain et al., 2012). The approach also needs to be compared with the medical prescribing practices through the early 2000s, when large segments of the general population (20% or more in Canada) received prescription opioids for mostly morbidity/pain indications, despite limited evidence for their efficacy and safety, in high doses and/or long-term duration (Busse et al., 2018; Fischer et al., 2020; Gomes et al., 2014; Schieber et al., 2019). In comparison, safer opioid supply prescribing occurs as a relatively targeted and limited measure, centrally aiming for at-risk populations for acute death as opposed to the population at large.

Evidence

Although safer supply programming is still in its infancy, evidence on health outcomes associated with it is emerging and accumulating. For example, in a shelter-based safer supply program in Hamilton, Ontario (2021), the rate of nonfatal overdoses fell from 0.93/100 to 0.17/100 nights of shelter-bed occupancy in the initial month of programming (odds ratio = 5.5, 95% CI [1.63, 18.55]) (Lew et al., 2022). In the initial client cohort (n = 26) of Ottawa's Managed Opioid Program (2017–2018), more than half of participants experienced no overdoses and no deaths occurred. In addition, 45% of study participants stopped nonprescribed opioid use and 96% connected to health services after 1 year (Harris et al., 2021). Among safer opioid supply program participants (n = 82) in London, Ontario (2016–2019) and a matched control group of unexposed individuals (n = 303), time-series analyses found that rates of emergency department visits (-14 visits/100, 95% CI [-26, -2]), hospital admissions (-5 admissions/100, 95% CI [-9, -2]), and (nonprimary care or medications) health care costs (-$922/person, 95% CI [-$1577, -$268]) declined significantly after program entry. In the year after cohort entry, the rate of emergency department visits (relative risk [RR] = 0.69, 95% CI [0.53, 0.90]), hospital admissions (RR = 0.46, 95% CI [0.29, 0.74]), and admissions for incident infections (RR = 0.51, 95% CI [0.27, 0.96]) declined significantly, and health care costs were halved among participants, with no significant changes among controls (Gomes et al., 2022).

In qualitative evaluations of different safer supply modalities providing pharmaceutical-grade hydromorphone in Vancouver, participants reported reductions of illicit drug use and overdose risk and improvements in health and well-being (Bardwell et al., 2023; Ivsins et al., 2021; McNeil et al., 2022). Other evaluations have reported similar reductions and additional—including personal/social—benefits from safer supply provision (Gagnon et al., 2023; Haines & O'Byrne, 2023). The accumulating evidence on safer supply–associated benefits for participants' health outcomes may gradually solidify its status as an evidence-based intervention similar to that of other interventions (e.g., OAT) in which specific subgroups of individuals who use drugs show significantly improved health risk outcomes (Bell & Strang, 2020).

Diversion

Although there is limited but plausible evidence to date that safer supply provision produces acute health protection

effects concerning fatal overdose risk for participants, risk remains for one significant adverse outcome for public health: diversion. Diversion is recognized as a main challenge for addictive substance sourcing and control, whether in general or in medical—including addiction treatment—settings (Babor et al., 2018; Bell & Strang, 2020; Fischer et al., 2010). Although the extent of safer supply–related diversion currently remains unclear, this phenomenon has recently been purported, mostly by concept opponents, as a primary collateral harm of safer supply programming (Willows et al., 2020; Zivo, 2023). Select local safer supply programs have found diversion rates to be low, although more comprehensive and better data are required to fully assess this (Brothers et al., 2022). Overall, the dynamics of safer supply–related diversion within the distinct real-life world of addictive substance use are complex and challenging. Recent investigations have insightfully characterized the phenomenon of safer supply–related diversion within contexts of prohibition, poverty, and marginalization, where the selling or trading of (including safer supply–provided) substances may occur for existential purposes and needs yet where diversion may produce "positive effects in providing a safer drug supply to others" amidst an acute drug death crisis (Bardwell et al., 2021).

Such benefits may indeed materialize when diverted safer supply drugs replace otherwise riskier drug use among other users. This, however, may be less likely when the effects of diversion in themselves cause or add to substance use–related risks or harms (e.g., overdose) among others. This should be acknowledged by safer supply proponents as much as it is emphasized by its opponents, as the putative public health benefits of safer supply provision may risk being offset by unintended adverse consequences. Some degree of diversion occurs and is tolerated for most psychotropic medications, as well as for other restricted products that include substantive harm potential (e.g., alcohol, tobacco, firearms) (Berge et al., 2012; Braga et al., 2012; Crifasi et al., 2019; Hulme et al., 2018). The possibility of diversion therefore ought not be framed as a categorical issue against the legitimacy of safer supply programming. Rather it should be viewed and assessed in terms of proportional benefits versus collateral harms. That is, safer supply provisions should be considered as a legitimate intervention amidst current drug death crisis conditions realities as long as possible collateral harm effects (e.g., diversion with harmful effects among others) do not outweigh protective health effects (Duthie et al., 2023). To date, there is no population-level evidence that the drug types involved in safer supply (e.g., hydromorphone) measures have causally contributed to marked increases in collateral harm (e.g., toxicity deaths) (BC Coroners, 2023). However, additional and more comprehensive monitoring data are needed (e.g., including on the extent of diversion and overdose/fatality incidents involving diverted safer supply substances among recipients or others) to adequately assess this aspect of safer supply.

Furthermore, given the potential of diversion to undermine the public health benefits of safer supply programming, regulation and design schemes should be advanced that reduce its likelihood while protecting easy access and utilization goals. This is much easier preached than practiced and may involve possible delicate trade-offs toward threshold-elevating. One element toward reducing diversion risk from safer supply—recognizing drug users' natural desires to obtain better drugs—rests in offering preferred substance types and formulations to participants. Empirical data to guide related programming design exist (Bardwell, 2022; Ferguson et al., 2022; Kamal et al., 2023). Even with addictive drug use set largely within the dire circumstances of users' common poverty, marginalization, and extensive (e.g., mental) health problems, elements of practical awareness by participants as to the importance of limiting the potential adverse effects of diversion are needed to protect the fundamental viability of safer supply programming. One path to limiting diversion opportunities may be through low-barrier, but reasonable amount-/frequency-limited dispensing of safer supply drugs in community-based settings.

Nomenclature

For an additional symbolic but nontrivial point, there should be general and practices agreement among professionals, proponents, and service users alike on the fact that safer supply activities ought not to be named or labeled *safe supply* (i.e., an absolute term). The provision and use of psychoactive (opioid) substances through safer supply programming, even prescription-based and in pharmaceutical-grade form, is not a categorically safe event. The substances involved can still produce severe harm, including overdose and death. Here, language matters too (Barry et al., 2018), and belief-driven practices of mislabeling safer supply in undue promotional ways are similar to misrepresenting them as categorically unsafe or harmful and invites undue polarization and/or reactance (Kilmer & Pardo, 2022; Willows et al. 2020). Safer supply initiatives are public health–guided measures to reduce excessive, vector-based risks of acute overdose death in contexts of a potent/toxic drug supply–fueled public health crisis. They, however, can offer these effects only to limited, and nowhere near absolute, extents; related nomenclature should honestly reflect these realities.

Conclusions

A decade into the unprecedented drug death crisis from toxic ISO supply, the measures required to effectively solve this crisis have yet to be identified and implemented. Some 15 years ago, observers contemplated the "unthinkable" question whether the—even predominatly diverted—use of prescription opioids brought protective health effects over the use of illicit opioids for users. Today, this perspective has

new and current relevance (Fischer et al., 2009). In present-day Canada, safer supply initiatives as an emergency public health measure to reduce risk for overdose death from toxic ISOs are being gradually ramped up in local settings. Initial evidence suggests that they can produce substantive health and other benefits for participants, although more comprehensive monitoring data are needed to better assess their desired and/or unintended population-level impacts. Safer supply measures, however, should not be held to standards different than those used for other emergency-based interventions, nor to the idealized (and commonly unachieved) goals of recovery-oriented addiction treatment. Possible diversion of safer supply medications and related adverse outcomes is a valid concern for public health, which is not unlike experiences in other domains. Acutely facing the horrific drug death crisis, safer supply initiatives ought to be considered an ethically imperative, setting-specific intervention, unless other interventions can be used that effectively protect opioid users from extreme risk of acute death and/or empirical data robustly demonstrate that they produce more collateral harm than benefits on population levels (Duthie et al., 2023; Fischer, 2023; Ivsins et al., 2020; Tyndall, 2020).

It is worth noting here also that intervention approaches and standards for most diseases are socioculturally and value contingent. Canada's current public health approach to the drug death crisis imperatively requires the provision of safer supply programming to address essential intervention gaps. These measures remain sociopolitically controversial but are supported by population majorities in several (even conservative-leaning) provinces (Fischer, 2023; Morris et al., 2023). Of course, if—within contexts of an even more severe crisis—treatment intervention options (e.g., involving novel medications and/or intensive supervision-based programming) are documented (e.g., in the United States) that decisively reduce the record levels of overdose deaths, related facts ought to be promptly considered for implementation. Until then, Canadian policy and intervention systems are urged to mobilize all currently promising and demonstrably effective available measures. This includes the broad-based implementation of safer supply programming to better protect drug users' and the public's health as related to the continuous drug death crisis, which has unnecessarily claimed far too many lives already.

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