McMaster University | HEALTH FORUM

Rapid synthesis appendices

Impacts, monitoring, and mitigation of diversion of prescription medications provided through safe supply prescriptions

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Appendices

Appendix 1: Methodological details

Background to the rapid synthesis

This rapid synthesis mobilizes both global and local research evidence about a question submitted to the McMaster Health Forum's Rapid Response program. Whenever possible, the rapid synthesis summarizes evidence drawn from existing evidence syntheses and from single research studies in areas not covered by existing evidence syntheses and/or if existing evidence syntheses are old or the science is moving fast. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and appraise research studies, and to synthesize data from the included studies. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

The Forum produces timely and demand-driven contextualized evidence syntheses such as this one that address pressing health and social system issues faced by decision-makers (see our website for more details and examples). This includes evidence syntheses produced within:

- days (e.g., rapid evidence profiles or living evidence profiles)
- weeks (e.g., rapid syntheses that at a minimum include a policy analysis of the best-available evidence which can be requested in a 10-, 30-, 60-, or 90-business-day timeframe)
- months (e.g., full evidence syntheses or living evidence syntheses with updates and enhancements over time).

This rapid synthesis was prepared over a 30-business-day timeframe and involved six steps:

1) submission of a question from a policymaker or stakeholder (in this case, a provincial ministry of health)
2) engaging subject matter experts
3) identifying, selecting, appraising, and synthesizing relevant research evidence about the question
4) conducting and synthesizing a jurisdictional scan of experiences about the question from other countries and Canadian provinces and territories
5) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence
6) finalizing the rapid synthesis based on the input of at least two merit reviewers.

Engaging subject matter experts and citizen partners

At the beginning of each rapid synthesis and throughout its development, we engage subject matter experts who help us to scope the question and ensure relevant context is taken into account in the summary of the evidence.

Identification, selection, quality appraisal and synthesis of evidence

For this rapid synthesis, we searched Health Evidence, Health Systems Evidence, and Medline and Embase Via Ovid for:
1) evidence syntheses
2) protocols for evidence syntheses that are underway
3) titles/questions for evidence syntheses that are being planned
4) single studies where limited or no evidence syntheses were identified.

In Health Evidence, we searched for evidence syntheses using ("prescription medication*" OR "prescribe* medication*" OR "prescription drug*" OR "prescribe* drug*" OR "control* substance*" OR "safe* suppl*") AND (diversion OR diverted). In Health Systems Evidence, we searched for (("prescription medication*" OR "prescribe* medication*") OR ("Prescription Drug*" OR "prescribe* drug*" OR "controlled substance*") AND ((diversion OR diverted OR "safe* suppl*"))). In Medline and Embase, we searched for ((("prescription medication*" OR "prescribe* medication*" OR "prescription drug*" OR "prescribe* drug*" OR "control* substance*" OR "safe* suppl*") OR (exp prescription drug/ OR exp controlled substances/)) AND (diversion or diverted)) combined with a filter limiting publication date in the past 10 years.

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the rapid synthesis, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment.

For any included guidelines, two reviewers assess each guideline using three domains in the AGREE II tool (stakeholder involvement, rigour of development, and editorial independence). Guidelines are classified as high quality if they were scored as 60% or higher across each of these domains.

For each evidence synthesis we included, we documented the dimension of the organizing framework (see report) with which it aligns, key findings, living status, methodological quality (using AMSTAR), last year the literature was searched (as an indicator of how recently it was conducted), availability of GRADE profile, and equity considerations using PROGRESS PLUS.

Two reviewers independently appraise the methodological quality of evidence syntheses that are deemed to be highly relevant using the first version of the AMSTAR tool. Two reviewers independently appraise each synthesis, and disagreements are resolved by consensus with a third reviewer if needed. AMSTAR rates overall methodological quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. High-quality evidence syntheses are those with scores of eight or higher out of a possible 11, medium-quality evidence syntheses are those with scores between four and seven, and low-quality evidence syntheses are those with scores less than four. It is important to note that the AMSTAR tool was developed to assess evidence syntheses focused on clinical interventions, so not all criteria apply to those pertaining to health-system arrangements or implementation strategies. Furthermore, we apply the AMSTAR criteria to evidence syntheses addressing all types of questions, not just those addressing questions about effectiveness, and some of these evidence syntheses addressing other types of questions are syntheses of qualitative studies. While AMSTAR does not account for some of the key attributes of syntheses of qualitative studies, such as whether and how citizens and subject-matter experts were involved, researchers' competency, and how reflexivity was approached, it remains the best general quality-assessment tool of

which we're aware. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, an evidence synthesis that scores 8/8 is generally of comparable quality to another scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the evidence synthesis can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the evidence synthesis should be discarded, merely that less confidence can be placed in its findings and that it needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1): S8.)

For primary research (if included), we documented the dimension of the organizing framework with which it aligns, publication date, jurisdiction studied, methods used, a description of the sample and intervention, declarative title and key findings, and equity considerations using PROGRESS PLUS. We then used this extracted information to develop a synthesis of the key findings from the included syntheses and primary studies.

During this process we include published, pre-print, and grey literature. We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French, Portuguese, or Spanish. We provide any documents that do not have content available in these languages in an appendix containing documents excluded at the final stages of reviewing. We excluded documents that did not directly address the research questions and the relevant organizing framework. All of the information provided in the appendix tables was taken into account by the authors in describing the findings in the rapid synthesis.

Identifying experiences from other countries and from Canadian provinces and territories

For each rapid synthesis, we work with the requestors and one or more subject matter experts to collectively decide on what countries (and/or states or provinces) to examine based on the question posed. For other countries, we search relevant government and stakeholder websites including ministries of health, public health agencies, national drug and addictions strategy documents, and community-based primary care organizations. In Canada, a similar approach was used, which involved searching the websites of ministries of health, public health agencies, provincial government strategy documents and reports, and community-based primary care organizations. While we do not exclude content based on language, where information is not available in English, Chinese, French, Portuguese, or Spanish, we attempt to use site-specific translation functions or Google Translate. A full list of websites and organizations searched is available upon request.

Appendix 2: Key findings from highly relevant evidence documents about impacts, monitoring, and mitigation of safe supply diversion

Question focus	Summary of evidence
Impacts of diversion	• After two years, the Safer Opioid Supply Policy in British Columbia was associated with an increase in opioid-related hospitalizations, although the population-level analysis could not specify what proportion of hospitalizations were related to Safer Opioid Supply diversion(1) • Misuse and diversion of opioid substitution treatment medication led to poor treatment adherence, increased mortality rates, heightened risks of contracting blood-borne viruses through injecting drug use, and significant societal costs associated with criminal activity and medical treatment expenses(2) • A qualitative study conducted with young people who use drugs (YPWUD) found that many YPWUD were selling hydromorphone to earn money to purchase street drugs, as the hydromorphone did not help them as much as fentanyl patches might, thereby reducing diversion(3)
Monitoring and evaluation approaches	• Misuse and diversion of opioid substitution treatment medication was found to lead to poor treatment adherence, increased mortality rates, heightened risks of contracting blood-borne viruses through injecting drug use, and significant social costs associated with criminal activity and medical treatment(2) • A single study found that a combination of good clinical practice (e.g., routine pill counts, precautions such as secure storage) and vigilance (e.g., observation of patient/caregiver/family behaviour) contribute to the detection of possible drug diversion in hospice care(4) • A single study found that opioid antagonistic treatment alone was not sufficient to reduce the rate of overdoses, but the implementation of a shelter-based safer supply program contributed to a decreased amount of opioid related non-fatal overdoses within the shelter, suggesting that community-based safe supply programs can be more successful at monitoring the usage of prescription opioids, thereby potentially preventing diversion as well(5) • Prescription drug monitoring programs established by the government to collect data from patients and distribute information to pharmacies and prescribing doctors can slightly reduce the number of opioid prescriptions dispensed, which in turn may help reduce diversion(6)
Strategies to mitigate diversion	• A systematic review found that educational programs improved knowledge about the disposal of unused opioid pills but did not boost disposal rates, while disposal bags showed higher effectiveness despite uncertainties in reported rates and potential biases • Another systematic review of non-medical usage and diversion of prescription stimulants found that easily accessible educational programs designed for patients to learn about the legal and health repercussions pertaining to drug diversion may be an effective strategy to reduce drug diversion(7) • A single study found that a combination of good clinical practice (e.g., routine pill counts, precautions such as secure storage) and vigilance (e.g., observation of patient/caregiver/family behaviour) contribute to the detection of possible drug diversion in hospice care(4) • A qualitative study conducted with young people who use drugs (YPWUD) found that many YPWUD were selling hydromorphone, as it did not help them, and that fentanyl patches may better address their needs while reducing diversion(3) • A single study found that opioid antagonistic treatment alone was not sufficient to reduce the rate of overdoses, but the implementation of a shelter-based safer supply program contributed to a decreased amount of opioid related non-fatal overdoses within the shelter, suggesting that community-based safe supply programs can be more successful at monitoring the usage of prescription opioids, thereby potentially preventing diversion as well(5) • Prescription drug monitoring programs established by the government to collect data from patients and distribute information to pharmacies and prescribing doctors can slightly reduce the number of opioid prescriptions dispensed, which in turn may help reduce diversion(6)

Appendix 3: Key findings from highly relevant jurisdictional experiences about impacts, monitoring, and mitigation of safe supply diversion

Organizing framework	Summary of experiences
Monitoring and evaluation approaches	• The 2013 report Analysis and Optimization of Substitution Treatment in Belgium advocates for the implementation of a comprehensive opioid substitution treatment (OST) registry, which was later implemented for all reimbursed prescriptions of methadone and buprenorphine • A 2022 report The Drug Situation in Belgium references an Opioid Agonist Treatment registry • In the U.K.'s Yellow Card Scheme, both healthcare professionals and patients can report adverse effects and incidents of drug dependence, which can help in monitoring and identifying trends in opioid misuse and diversion • The NHS has implemented a framework that aims to decrease inappropriate opioid prescriptions by focusing on personalized medicine reviews to monitor and tailor treatments

Strategies to mitigate diversion	• B.C., Prescribed Safer Supply protocols include measures to avoid diversion, such as requiring patients to return fentanyl patches before receiving others and agreeing to only receive opioids or other sedative prescriptions from their primary prescriber
	  ○ Additionally, according to a report, motivation for diversion is often related to prescribed medications not being the correct dose, and therefore the client prefers to sell the prescribed medication and instead buy something that better meets their needs (e.g., selling Dilaudid to obtain fentanyl)
	  ▪ This finding indicates that a key deterrent to diversion is likely ensuring that clients obtain the correct prescribed medication and dosing for their unique situation
	• As part of Ontario's Opioid Strategy, a Narcotics Monitoring System collects and stores information on prescribing and dispensing activities of narcotics and other controlled substance medications, including acetaminophen with codeine, oxycodone, methylphenidate, benzodiazepines, and barbiturates
	  ○ When an individual is prescribed medication, a unique number from their ID is recorded on their prescription and the information is recorded in the monitoring system to identify trends, detect unusual behaviour, and develop harm reduction strategies
	  ○ When a loved one or close friend is picking up someone's prescription medication, they must show their ID as well as ensure that the person they are picking medication up for has already provided valid ID for the prescription when it was written

Impacts of diversion	• In B.C., while anecdotal reports suggest that youth may increasingly be accessing diverted hydromorphone, current B.C. data does not indicate an increase in opioid use disorder among youth • Population-level analyses of mortality data in B.C. have found no increases in hydromorphone opioid-related deaths in British Columbia during the expansion of Safer Opioid Supply programs

Appendix 4: Detailed data extractions from evidence syntheses

Dimension of organizing framework	Declarative title and key findings	Relevance	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations

• Types of substances that could be diverted for use by others
  ○ Opioids
• Features of safe supply prescription program
  ○ Type of safe supply prescriptions
  ▪ Safe supply for take-home, unobserved dosing
  ○ Who provides the safe supply prescription
  ▪ Physician
	In this rapid review of peer-reviewed and grey literature on Ontario's Safer Opioid Supply (SOS) program, diversion of drugs was identified as a concern by clinicians and policymakers given the finding that diversion of drugs obtained through the SOS programs was occurring because of compassionate sharing, inadequate doses of opioids, financial needs and slower titration; according to the review, it is unknown how often diversion occurs(8)	Medium	No	5/10	May 2023	No	None

• Type of substances that could be diverted for use by others
  ○ Opioids
• Monitoring and evaluation approaches
  ○ Self-report
• Strategies to mitigate diversion
  ○ Drug return programs
• Impacts of diversion
  ○ Overdose mortality among people using diverted prescription opioids
	For the disposal of unused opioid pills, educational programs improved knowledge but did not boost disposal rates, whereas disposal bags showed higher effectiveness despite some uncertainties in reported rates and potential biases(7)	High	No	7/10	2019	No	None identified

• Type of substances that could be diverted for use by others ○ Opioids • Features of safe supply prescription program	Direct impacts of diversion to the individual can include increased stigma, reduced treatment adherence and failure to progress in recovery, while potential impacts on others include unsupervised use, unintended exposure of children to diverted medication, and drug-related criminal behaviour(2)	High	No	3/9	2014	No	None identified

Dimension of organizing framework	Declarative title and key findings	Relevance	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations
○ Type of safe supply prescriptions ▪ Safe supply for take-home, unobserved dosing • Monitoring and evaluation approaches ○ Self-report • Impacts of diversion ○ Re-sale of substances provided through safe supply prescriptions	• For individual effects, failure to progress in recovery can also lead to other negative effects on health such as overdose and health risks associated with injecting behaviour • Across studies evaluating the diversion of opioid substitution treatment (OST) medications, reported rates of selling, giving away, or swapping OST medications range from 16% in Portugal and Greece (where 21% and 78% of dosing is supervised, respectively), to 39% in France (where 26% of dosing is supervised) • The evidence review and expert consensus highlights the importance of mitigating these potential impacts by reducing misuse and diversion while ensuring the best possible care during the treatment for opioid dependence, which is essential and must be supported						
• Type of substances that could be diverted for use by others ○ Opioids • Features of safe supply prescription program ○ Type of safe supply prescriptions • Safe supply for take-home, unobserved dosing • Other approaches that may have insights for diversion from take-home, unobserved dosing	Take-home opioid antagonist treatment medications for opioid use disorder treatment resulted in an increase in flexibility and person-centred care during the COVID-19 pandemic despite some concerns about lack of control and potential diversion(9) • Supervised dosages play a role in the low rates of patient retention in safer supply programs • In the limited locations that offer it, person-centred care has been shown to increase the use of opioid use disorder treatment programs and the retention of patients in these programs ○ Take-home medication programs improve results by allowing for greater patient autonomy and by catering treatment plans to the individual • The majority of providers felt comfortable with the increased flexibility of take-home medication. • Further flexibility for opioid use disorder treatment should be considered and implemented into treatment programs to promote person-centred care • For some providers, concerns about potential diversion were part of a larger concern about the loss of control over clients and the treatment process	Medium	No	8/9	November 2022	Yes	None

Dimension of organizing framework	Declarative title and key findings	Relevance	Living status	Quality (AMSTAR)	Last year literature searched	Availability of GRADE profile	Equity considerations
• Type of substances that could be diverted for use by others ○ Stimulants	Prevalence of non-medical usage and diversion of prescription stimulants is high, especially in young adult populations, and mitigation strategies should be implemented(10) • The findings imply that enforcing drug management programs for the prevention of drug diversion is difficult to monitor, but community-based settings show greater success • The findings imply that easily accessible educational programs designed for patients to learn about the legal and health repercussions pertaining to drug diversion may be an effective strategy to reduce drug diversion	Low	No	5/10	May 2018	No	None
• Monitoring and evaluation approaches ○ Drug testing (e.g., urine drug screening, through autopsies) for chemical identifiers in safe supply prescriptions • Impacts of diversion	Well-managed drug diversion programs in perioperative departments can contribute to the reduction of drug diversion in the workplace and can reduce the risks experienced by patients(11) • Improved education on drug diversion programs and reporting mechanisms within the workplace will improve drug diversion attempts • The findings imply that surveillance and drug testing are effective methods to monitor drug diversion in the workplace	Low	No	1/9	Not Available	No	Occupation

Appendix 5: Key findings from single studies

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristics	Equity considerations

• Type of substances that could be diverted for use by others
  ○ Opioids
  ▪ Fentanyl patches, tablets, and inhalable compounded options (e.g., Duragesic®, Fentora®)
  ▪ Hydromorphone tablets, injectables, and inhalable compounded options (e.g., Dilaudid®)
• Features of safe supply prescription program
  ○ Type of safe supply prescriptions
  ▪ Safe supply for take-home, unobserved dosing
  ○ Where are safe supply prescriptions are provided
  ▪ Community pharmacies
  ▪ Community-based health organizations
  ○ Who provides the safe supply prescription
  ▪ Physician
  ▪ Nurse or nurse practitioner
• Impacts of diversion
  ○ Other
	After two years, the Safer Opioid Supply Policy in British Columbia was associated with an increase in opioid-related hospitalizations, although the population-level analysis could not specify what proportion of hospitalizations were related to Safer Opioid Supply diversion(1)	Low	*Publication date:* 2024
			
			Jurisdiction studied: B.C.
			
			Methods used: Cohort study
				• None identified

• Features of safe supply prescription program
  ○ Where are safe supply prescriptions are provided
  • Community-based health organizations
	The implementation of a shelter-based safer supply program contributed to a decreased amount of opioid related non-fatal overdoses within the shelter(5)
	• Opioid antagonist treatment alone is not sufficient to reduce the rate of overdoses; rather, a community-based environment allows for more patients to participate in treatment
	• Successful safe supply programs require cooperation between harm reduction groups, shelters, and the healthcare system
	• Findings imply that community based safe supply programs can be more successful at monitoring the usage of prescription opioids
		Medium	*Publication date:* 21 March 2022
			
			Jurisdiction studied: Ontario, Canada
			
			Methods used: Case study
				• Place of residence

• Type of substances that could be diverted for use by others
  ○ Opioids
• Features of safe supply prescription program
  ○ Who provides the safe supply prescription
  • Physician
  • Pharmacist
	Drug diversion program training and open communication contribute to a supportive work environment that allows for successful drug diversion management and investigations among healthcare workers who administer opioids(12)	Low	*Publication date:* April 2020
			
			Jurisdiction studied: United States
			
			Methods used: Case study
				• Occupation

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristics	Equity considerations
• Nurse or nurse practitioner				

• Type of substances that could be diverted for use by others
  ○ Opioids
• Strategies to mitigate diversion
  ○ Prescription monitoring
	Prescription drug monitoring programs established by the government to collect data from patients and distribute information to pharmacies and prescribing doctors can slightly reduce the number of opioid prescriptions dispensed(6)
	• Decreases in total opioid volume may contribute to the reduction of drug diversion
		Low	*Publication date:* October 2015
			
			Jurisdiction studied: Florida, U.S.
			
			Methods used: Interrupted time series analysis
				• None

• Type of substances that could be diverted for use by others
  ○ Opioids
• Features of safe supply prescription program
  ○ Where are safe supply prescriptions are provided
  ▪ Community-based health organizations
• Monitoring and evaluation approaches
  ○ Self-report
  ▪ Interview
  ▪ Survey
• Impacts of diversion
  ○ Crime
	Safer Supply Programs can offer participants increased autonomy and hope for the future, while simultaneously providing structure and stability within their lives(13)
	• This study sought to understand the experiences of being part of a Safer Opioid Supply program from the perspective of a participant being prescribed opioids
	• A total of 30 participants completed a semi-structured interview and survey
	• The study found that:
	  ○ participants reported improvements to their safety and well-being, such as improved mental health, reductions in criminalized behaviour, decreased overdose events, and reduced illicit drug use
	  ○ participants also felt a sense of community and connection, hope for the future, safety in their drug use, and autonomy
	  ○ participant concerns with the program included inadequate drugs, diversion, and restrictions
		Medium	*Publication date:* 20 April 2023
			
			Jurisdiction studied: Ottawa, Ontario, Canada
			
			Methods used: Qualitative
				• None identified

• Type of substances that could be diverted for use by others
  ○ Opioids
  ▪ Hydromorphone tablets, injectables, and inhalable compounded options (e.g., Dilaudid®)
  ▪ Morphine injectable, and immediate or sustained release tablets/capsules, except when prescribed for OAT (e,g., M-Eslon®, Kadian®)
  ○ Stimulants
  ▪ Dextro-amphetamine (e.g., Dexadrine®)
  ▪ Methylphenidate (e.g., Ritalin®, Concerta®)
  ○ Benzodiazepines
• Strategies to mitigate diversion
	An emergency provisional safe supply program providing pharmaceutical-grade medications and beverage-grade alcohol in COVID-19 isolation hotel shelters was associated with low rates of adverse events and of high rates of successful completion of the mandatory 14-day isolation stay(14)
	• During the COVID-19 pandemic, a healthcare team provided an emergency safe supply of medications and alcohol to facilitate isolation in COVID-19 hotel shelters for residents who use drugs and/or alcohol users, experiencing homelessness
	• No residents chose to start methadone or buprenorphine OAT; this supports observations advanced by drug user organizations that people who use drugs need more options to avoid reliance on the unregulated, toxic drug supply
		Medium	*Publication date:* 1 June 2022
			
			Jurisdiction studied: Halifax, Nova Scotia, Canada
			
			Methods used: Retrospective case series
				• None identified

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristics	Equity considerations
○ Prescription monitoring ○ Witnessed dosing and/or consumption • Impacts of diversion ○ Overdose mortality among people using diverted prescription opioids				
• Type of substances that could be diverted for use by others ○ Opioids • Monitoring and evaluation approaches ○ Self-report ▪ Interview • Strategies to mitigate diversion ○ Prescription monitoring ○ Witnessed dosing and/or consumption • Impacts of diversion ○ Crime	With appropriate protocols, buprenorphine diversion within correctional programs designed to provide medication for opioid use disorder treatment is perceived to be uncommon and preventable(15) • This study aimed to understand staff perceptions of medication diversion from jail-based medication for opioid use disorder programs and the factors that contribute to and prevent diversion • Semi-structured interviews and focus groups were done with 61 administrative, security, behavioural health, and clinical staff who implement medication for opioid use disorder programming in seven Massachusetts jails • Contrary to staff expectations: ○ the diversion of buprenorphine was perceived to occur infrequently during the implementation of the medication for opioid use disorder program ○ this program altered staff perceptions of buprenorphine, viewing it as legitimate treatment rather than illicit contraband ○ the program was seen as disrupting the illicit buprenorphine market within the jail and reducing associated coercion	Medium	*Publication date:* July 2022 *Jurisdiction studied:* Massachusetts, U.S. *Methods used:* Qualitative	• None identified
• Type of substances that could be diverted for use by others ○ Opioids ○ Who provides the safe supply prescription ▪ Nurse or nurse practitioner • Impacts of diversion ○ Overdose mortality among people using diverted prescription opioids	A combination of good clinical practice (e.g., routine pill counts, precautions such as secure storage) and vigilance (e.g., observation of patient/caregiver/family behaviour) contribute to the detection of possible drug diversion in hospice care(4) • This study examined the response from hospice agency representatives to explore the details of confirmed cases of medication diversion in hospice settings • A total of 112 open-ended responses were examined to describe the context of confirmed diversion included how diversion was confirmed, clues/red flags, who diverted it, and agency responses to the confirmed diversion: ○ Respondents identified several methods for confirming medication diversion, including drug screening, direct observation by staff, and occurrences of overdose ○ Indicators of diversion included reluctance to permit medication monitoring, family conflict, and requests for higher medication doses	Medium	*Publication date:* April 2021 *Jurisdiction studied:* United States *Methods used:* Qualitative descriptive	• None identified

Dimension of organizing framework	Declarative title and key findings	Relevance rating	Study characteristics	Equity considerations
	○ The individuals involved in diversion included informal caregivers or family members, family friends, and facility staff ○ Agencies implemented measures such as limiting medication supply, restricting access to medication, and increasing the frequency of staff visits			
• Type of substances that could be diverted for use by others ○ Opioids ▪ Fentanyl patches, tablets, and inhalable compounded options (e.g., Duragesic®, Fentora®) ▪ Hydromorphone tablets, injectables, and inhalable compounded options (e.g., Dilaudid®) • Features of safe supply prescription program ○ Type of safe supply prescriptions ▪ Safe supply for take-home, unobserved dosing • Monitoring and evaluation approaches ○ Drug testing (e.g., urine drug screening, through autopsies) for chemical identifiers in safe supply prescriptions	A qualitative study conducted with young people who use drugs (YPWUD) found that many YPWUD were selling hydromorphone, as it did not help them, and that fentanyl patches may better address their needs while reducing diversion(3) • Prescribers noted that guidance around the extent to which they should monitor diversion was unclear, and whether or how often they should be conducting urine drug testing • Fentanyl patches appear to be more consistent with what YPWUD said they wanted and needed to reduce risk and harms, and may lessen the risk of diversion, since used patches have to be returned in order for new patches to be dispensed	Medium	*Publication date:* 2023 *Jurisdiction studied:* Vancouver, B.C., Canada *Methods used:* Telephone interviews/thematic analysis	• None identified
• Type of substances that could be diverted for use by others ○ Opioids ▪ Hydromorphone tablets, injectables, and inhalable compounded options (e.g., Dilaudid®) ○ Stimulants ▪ Dextroamphetamine (e.g., Dexadrine®) ▪ Methylphenidate (e.g., Ritalin®, Concerta®) ○ Benzodiazepines ▪ Diazepam (e.g., Valium®) ▪ Clonazepam • Features of safe supply prescription program ○ Type of safe supply prescriptions ▪ Safe supply for take-home, unobserved dosing • Impacts of diversion ○ Overdose mortality among people using diverted prescription opioids ○ Other	Opioid and stimulant Risk Mitigation Guidance (RMG) dispensations were associated with reduced overdose-related and all-cause mortality among a sample of individuals with opioid use disorder, but could not determine whether people used medications as intended or whether it was diverted(16) • Opioid RMG dispensations did not affect the odds of all-cause or overdose-related acute care visits	Low	*Publication date:* 2024 *Jurisdiction studied:* B.C., Canada *Methods used:* Population-based retrospective cohort study	• None identified

Appendix 6a: Detailed jurisdictional scan of safe supply diversion in other countries

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts

Belgium	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Other approaches that may have insights for diversion from take-home, unobserved dosing
	  - Injectable opioid agonist treatment programs (iOAT)
	  ○ Where are safe supply prescriptions are provided
	  ▪ Hospitals (inpatient)
	  ▪ Hospitals (outpatient)
	  ▪ Community pharmacies
	  ○ Who provides the safe supply prescription
	  ▪ Physician
	  ▪ Pharmacist
	• Strategies to mitigate diversion
	  ○ Prescription monitoring
		Opioid Substitution Treatment
		• Two Royal Decrees in 2004 and 2006 outline the provision of opioid substitution treatment in Belgium
		• Opioid substitution treatment or opioid agonist treatment is available with the goal of detox or maintenance
		• The program utilizes methadone or buprenorphine
		• Treatment may be provided by general practitioners, by pharmacists, within hospitals, or at specialized centres
		
		Opioid Agonist Treatment Registry
		• The Belgian Institute for Pharmaco-Epidemiology began in 2006 to manage an opioid substitution treatment (OST) registry to prevent doctor shopping from patients
		  ○ It appears this registry is no longer in operation
		• The 2013 report Analysis and Optimization of Substitution Treatment in Belgium advocates for the implementation of a comprehensive OST registry, which was later implemented for all reimbursed prescriptions of methadone and buprenorphine
		• A 2022 report The Drug Situation in Belgium references an Opioid Agonist Treatment registry
			• In 2022, 15,324 people received a prescription
			• Table A2 indicates that roughly 16,000 to 18,000 individuals have received treatment each year from 2009 to 2017

Germany	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Safe supply for take-home, unobserved dosing
	  ▪ Other approaches that may have insights for diversion from take-home, unobserved dosing
	  - Injectable opioid agonist treatment programs (iOAT)
	  - Supervised Tablet Injectable Opioid Agonist Therapy (TiOAT)
		• No relevant information was found on safe supply programs
		• Germany has needle and syringe programs, opioid agonist treatment programs, take-home naloxone, multiple sites of supervised drug consumption rooms, and drug checking services
		• The National Strategy on Drug and Addiction Policy from 2012 have goals and measures related to prescription drugs for specific population groups
		  ○ The German Medical Association developed guidelines for general practitioners on prescription drugs
		  ○ Repeated prescriptions of benzodiazepines are often among people over the age of 70, and local and regional services have been developed for long-term professional counselling, treatment at their living environments, and having trained qualified experts in this population group
		  ○ The German government provides an overview of drug consumption rooms in Germany
			• The National Strategy on Drug and Addiction Policy from 2012 have goals and measures related to prescription drugs for specific population groups
			  ○ The German Medical Association developed guidelines for general practitioners on prescription drugs in 2007, which fulfilled its purpose for the most part but was not well known among doctors in 2012

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts
		• Germany authorized a new law in 2023 that allows federal states to allow for drug checking services such as chemical composition, active ingredients, and any unexpected contaminants	

Netherlands	• Type of substances that could be diverted for use by others
	  ○ Opioids
	  ▪ Diacetylmorphine (DAM)
	  ○ Benzodiazepines
	  ▪ Any other benzodiazepines prescribed for harm reduction (e.g., Ativan®)
	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Safe supply for take-home, unobserved dosing
	  ○ Where are safe supply prescriptions are provided
	  ▪ Hospitals (inpatient)
	  ▪ Hospitals (outpatient)
	  ▪ Community-based health organizations
		• In March 2022, the Netherlands Institute for Mental Health and Addiction published its Harm reduction services in the Netherlands: Recent developments and future challenges report
		  ○ Harm reduction initiatives were initiated by civil society and user advocates and later adopted by the government
		  ○ Netherlands was an early adopter of Switzerland's approach for heroin-assisted treatment
		  ▪ Heroin is prescribed under the supervision of healthcare providers at sites, with possible expansion to take-home prescriptions
		• The Government of Netherlands provides drug use and addiction care in the form of encouraging users to exchange used syringes with new, sterile ones, providing methadone or heroin to individuals experiencing severe addiction, and special drug consumption rooms
		  ○ Most treatment forms involve outpatient care, however, inpatient care (e.g., crisis care, detoxification programs, treatment in clinics or hospitals) is available
		  ○ In 2014, there were a total of 740 slots for heroin-assisted treatment in 18 settings across 16 cities within the country
		  ○ 175,000 syringes were supplied in Amsterdam as part of the Needle Exchange initiative
		  ○ In 2018, a total of 24 drug consumption sites were available across 19 Dutch cities
			• Upon the implementation of needle and syringe programs, a decrease in syringe provision was observed between 2002 and 2017 by 80%; this was primarily attributed to a decrease in heroin use within the region
			• In 2015, 31,000+ individuals received drug treatment, with the majority obtaining outpatient care

Spain	• Type of substances that could be diverted for use by others
	  ○ Opioids
	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Safe supply for take-home, unobserved dosing
	  ▪ Other approaches that may have insights for diversion from take-home, unobserved dosing
	  – Injectable opioid agonist treatment programs (iOAT)
	  ○ Where are safe supply prescriptions are provided
	  ▪ Community-based health organizations
		The Catalan take-home naloxone project
		• Initiated in 2008 by the Public Health Agency of Barcelona and Catalonia, this program expands the availability of naloxone to opioid-using peers, family members, and other trained laypeople
		• This program can also target other potential first responders to an overdose, such as front-line service workers who interact with opioids users including healthcare providers, staff in homeless shelters, and prison officers
		• Kits include naloxone ampoule and syringe set, first aid instructions, infection prevention tools, such as swabs, gloves, and a protective cloth for mouth-to-mouth resuscitation
		
		Centro de Atención y Seguimiento (CAS) Baluard
		• Is a Barcelona Public Health Agency harm-reduction and outpatient drug treatment program and the city's most utilized overdose prevention site
		• Aims to bring drug users off the streets, reduce crime, and prevent overdoses
			• Since the start of the project in 2008 and until July 2017, a total of 6,516 people have been trained in overdose response and 3,776 naloxone kits have been distributed

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts

	• Strategies to mitigate diversion
	  ○ Prescription monitoring
	  ○ Drug return programs
	  ○ Witnessed dosing and/or consumption
		○ Clients bring their own drugs and are given clean needles and a safe place to use and access services
		○ Staff monitor medications for addicts, test their drugs for substances such as fentanyl, introduce them to alternative treatment plans such as methadone, or help them access social services	

Switzerland	• Type of substances that could be diverted for use by others
	  ○ Opioids
	  ▪ Diacetylmorphine (DAM)
	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Other approaches that may have insights for diversion from take-home, unobserved dosing
	  ○ Where are safe supply prescriptions are provided
	  ▪ Community-based health organizations
	• Monitoring and evaluation approaches
	  ○ Public reporting of monitoring and evaluation
	• Impacts of diversion
	  ○ Overdose mortality among people using diverted prescription opioids
	  ○ Crime
		Heroin Assisted Treatment
		• Since the 1990s, Switzerland has offered Heroin Assisted Treatment (HAT), which allows chronic heroin users to receive medically prescribed heroin in controlled settings
		• The program's goal is to reduce the harms associated with illegal drug use (e.g., overdose deaths and the spread of infectious diseases like HIV) and has been highly successful in improving health outcomes and reducing crime rates associated with drug procurement
		• Criteria for patients to be eligible:
		  ○ Patients need to be older than 18
		  ○ Have at least two years' opioid dependence history
		  ○ Have failed at least two other treatment attempts, and exhibit negative mental, physical, or social consequences of drug use
		  ○ The Federal Office for Public Health oversees licensing, monitoring, control, and information dissemination related to HAT
		
		Substitution therapy for opioid dependence
		• The Federal Office for Public Health:
		  ○ supports the compilation and publication of substitution therapy recommendations
		  ○ helps to establish and support regional networks of general practitioners
		  ○ organizes regional and national events focused on treating people with opioid dependence
		  ○ provides assistance with thematic publications related to substitution treatment
		  ○ compiles statistics on substitution therapies
		
		QuaTheDA (Quality Therapy Drugs Alcohol)
		• This is the quality standard used by the Federal Office of Public Health to ensure quality in addiction assistance, prevention, and health promotion, thereby professionalizing addiction assistance and health promotion efforts
			None identified

United Kingdom	• Type of substances that could be diverted for use by others
	  ○ Opioids
	  ○ Stimulants
	  ○ Benzodiazepines
		Safer Drug Consumption Facility
		• Glasgow City Health and Social Care Partnership collaborates with the National Health Service (NHS) Greater Glasgow and Clyde and other stakeholders to establish a pilot Safer Drug Consumption Facility
			None identified

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts

	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Safe supply for take-home, unobserved dosing
	  ▪ Other approaches that may have insights for diversion from take-home, unobserved dosing
	  ○ Where are safe supply prescriptions are provided
	  ▪ Community pharmacies
	  ▪ Community-based health organizations
	• Monitoring and evaluation approaches
	  ○ Public reporting of monitoring and evaluation
	• Strategies to mitigate diversion
	  ○ Prescription monitoring
	• Impacts of diversion
	  ○ Safety of street drug supply
	  ○ Crime
		• Safer Drug Consumption Facilities provide supervised healthcare settings for individuals to inject drugs obtained elsewhere, under the supervision of trained professionals, aiming to minimize negative impacts on communities, reduce harm to individuals, and facilitate access to support services
		• The planned Safer Drug Consumption Facility in Glasgow is scheduled to open in 2024, marking the first facility of its kind in both Scotland and the United Kingdom
		• The use of safe drug consumption facilities is thought to contribute to improvements in street drug safety and crime by reducing public injection and injection-related litter
		
		NHS England's Action Plan
		• The NHS has implemented a framework that aims to decrease inappropriate opioid prescriptions by focusing on personalized medicine reviews to tailor treatments
		• A significant reduction in opioid prescriptions has been observed because of the initiative
		• The plan also calls for investments into alternative therapies and better support for patients managing long-term pain conditions
		
		Living Well with Pain Programme in Gloucestershire
		• This program focuses on managing chronic pain through non-pharmaceutical means (e.g., mental health support and creative activities like music and visual arts)
		• The program has demonstrated a notable improvement in participants' mental health and reduced dependency on opioid medications
		
		Take-home Naloxone programs
		• The UK government has expanded access to take-home naloxone, a medication that can reverse opioid overdoses
		• This decision allows various healthcare professionals and services (e.g., drug and alcohol treatment services, police forces, registered nurses) to supply naloxone without a prescription
		• By making naloxone more widely available, the aim of the program is to reduce drug-related deaths
		
		10-year UK Government plan to combat illegal drugs
		• The strategy aims to combat drug misuse through various avenues (e.g., increasing treatment capacity, improving support for offenders, enhancing prevention efforts in schools)	

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts
		• The strategy aims to reduce both drug-related deaths and crimes by expanding access to high-quality treatment options and disrupting drug supply chains Opioid substitution treatment (OST) in community pharmacies • In England, people with opioid use disorder can receive methadone and buprenorphine through community pharmacies • These pharmacies provide supervised consumption initially and, based on clinical judgment, allow take-home doses as patients progress in their treatment; this approach provides easier access to medication and integrates treatment within everyday healthcare settings • Pharmacists can also play a key role in supporting OST service users through comprehensive harm reduction services: o needle and syringe programmes o harm reduction services, including basic assessment and harm reduction advice and screening o providing take-home naloxone o providing blood-borne virus testing, treatment, and vaccinations Yellow Card Scheme by the Medicines and Healthcare products Regulatory Agency • Using the Yellow Card Scheme, both healthcare professionals and patients can report adverse effects and incidents of drug dependence, which can help in monitoring and identifying trends in opioid misuse and diversion	

Appendix 6b: Detailed jurisdictional scan of safe supply diversion in Canadian provinces and territories

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts

British Columbia (B.C.)	• Type of substances that could be diverted for use by others
	  ○ Opioids
	  ▪ Fentanyl patches, tablets, and inhalable compounded options (e.g., Duragesic®, Fentora®)
	  ▪ Hydromorphone tablets, injectables, and inhalable compounded options (e.g., Dilaudid®)
	  ▪ Sufentanil injection
	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Safe supply for take-home, unobserved dosing
	  ○ Where are safe supply prescriptions are provided
	  ▪ Community pharmacies
	  ▪ Community-based health organizations
	  ○ Who provides the safe supply prescription
	  ▪ Physician
	  ▪ Nurse or nurse practitioner
	• Monitoring and evaluation approaches
	  ○ Public reporting of monitoring and evaluation
	• Impacts of diversion
	  ○ Overdose mortality among people using diverted prescription opioids
	  ○ Other
		• British Columbia launched a province-wide Safer Opioid Supply policy in March 2020, allowing individuals at high risk of overdose to receive pharmaceutical-grade opioids free of charge prescribed by a physician or nurse practitioner
		  ○ The policy includes Prescribed Safer Supply Protocols for Fentanyl Patch, Fentanyl Tablet, and Sufentanil
		  ○ Monitoring is overseen by the Ministry of Health and Ministry of Mental Health and Addictions, in collaboration with the Office of the Provincial Health Officer and key research and health system partners, who track:
		  ▪ intended and unintended impacts
		  ▪ impact on health outcomes
		  ▪ challenges and benefits of implementation (e.g., program suitability, client access, program reach)
		• In B.C., Prescribed Safer Supply protocols include measures to avoid diversion, such as requiring patients to return fentanyl patches before receiving others, agreeing to only receive opioids or other sedative prescriptions from their primary prescriber
			• The Office of the Provincial Health Officer released a report in December 2023 reviewing Prescribed Safer Supply Programs across British Columbia
			  ○ The report found that some Prescribed Safer Supply clients reported diverting hydromorphone to obtain other substances that better meet their needs or to support others who may not be able to access safer supply
			  ○ While anecdotal reports suggest that youth may increasingly be accessing diverted hydromorphone, current B.C. data does not indicate an increase in opioid use disorder among youth
			  ○ According to the report, motivation for diversion is often related to prescribed medications not being the correct dose, and therefore the client prefers to sell the prescribed medication and instead buy something that better meets their needs (e.g., selling Dilaudid to obtain fentanyl)
			  ▪ This finding indicates that a key deterrent to diversion is likely ensuring that clients obtain the correct prescribed medication and dosing for their unique situation
			• Population-level analyses of mortality data have found no increases in hydromorphone opioid-related deaths in British Columbia during the expansion of Safer Opioid Supply programs
			• Two published single studies found that Prescribed Safer Supply

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts
			significantly reduced all-cause mortality as well as overdose deaths in those prescribed opioids, but also appeared to increase population opioid overdose hospitalization rates by almost 63%

Ontario	• Types of substances that could be diverted for use by others
	  ○ Opioids
	  ○ Stimulants
	  ○ Benzodiazepines
	• Features of safe supply prescription program
	  ○ Type of safe supply prescriptions
	  ▪ Safe supply for take-home, unobserved dosing
	  ○ Where safe supply prescriptions are provided
	  ▪ Hospitals (inpatient)
	  ▪ Hospitals (outpatient)
	  ▪ Community pharmacies
	  ▪ Community-based health organizations
	  ○ Who provides the safe supply prescription
	  ▪ Physician
	  ▪ Pharmacist
	• Monitoring and evaluation approaches
	  ○ Public reporting of monitoring and evaluation
	• Strategies to mitigate diversion
	  ○ Prescription monitoring
	  ○ Drug return programs
		Ontario Opioid Strategy
		• As part of Ontario's Opioid Strategy, a Narcotics Monitoring System collects and stores information on prescribing and dispensing activities of narcotics and other controlled substance medications, including acetaminophen with codeine, oxycodone, methylphenidate, benzodiazepines, and barbiturates
		  ○ When an individual is prescribed medication, a unique number from their ID is recorded on their prescription and the information is recorded in the monitoring system to identify trends, detect unusual behaviour, and develop harm reduction strategies
		  ○ When a loved one or close friend is picking up someone's prescription medication, they must show their ID as well as ensure that the person they are picking medication up for has already provided valid ID for the prescription when it was written
		• Under the *Narcotics Safety and Awareness Act, 2010*, the Minister of Health and the Executive Officer of Ontario Public Drugs Programs has the authority to collect, use and disclose information that relates to the prescribing and dispensing of narcotics and controlled substance medications in Ontario in order to identify and reduce the misuse and diversion of monitored drugs
		Community Health Centre Safe Supply Programs
		• The London InterCommunity Health Centre has a website for their Safer Opioid Supply Program where they post notices about people who may be trying to take advantage of the program to conduct illegal activity
		• The Parkdale Queen West Community Health Centre (PQWCHC) has a Safer Opioid Supply program with a mobile component where clients receive prescriptions for pharmaceutical opioids and are supported by staff to help them access services (including case management and counselling and housing supports) and harm reduction education
		Ontario College of Pharmacists
		• The Ontario College of Pharmacists has an Opioid Strategy for Pharmacy with a framework aimed at reducing the risk of diversion within hospitals and a number of recommendations:
		  ○ identifying diversion by improving the availability of good quality interpretable data
			• In a letter to the Prime Minister of Canada, the Premier of Ontario requested in May 2024 that the federal government stop approving sites that supply regulated prescription medications to those living with addiction because the unilateral approval process by Health Canada has left Ontario unaware of where the federally approved sites are operating and how much controlled substances they dispense
			  ○ The Premier also requested a review of the existing federally run sites in the province
			  ○ These sites are funded through the Substance Use and Addictions Program
			• In alignment with its Opioid Strategy for Pharmacy, the Ontario College of Pharmacists has undertaken a number of initiatives, including:
			  ○ development of an Opioid Policy outlining its expectations
			  ○ guidance on the dispensing of naloxone
			  ○ development of an Opioid Practice Tool
			  ○ promotion of external resources on best practices for prescribing and dispensing opioids
			• The Parkdale Queen West Community Health Centre (PQWCHC) released an evaluation report on their SOS program that highlighted needs identified by clients, including access to take-home doses for more than one day, a greater range of medication and

Jurisdiction	Dimension of organization framework	Policy features	Policy impacts
		○ encouraging shared responsibility and accountability amongst staff to ensure the security of controlled substances ○ creating a culture of safety for staff to come forward with their concerns ○ collaboration between departments ○ improving transitions of care and knowledge sharing across the health system • When supporting patients through safe supply opioid dispensing, pharmacists are encouraged by the Ontario College of Pharmacists to practice within the limits of their clinical competence, demonstrate sound clinical judgement while taking into account the patient's needs, and collaborating with other health professionals **Patch-For-Patch Fentanyl return program** • To combat the abuse, misuse, and diversion of prescription fentanyl, the Ontario government requires patients receiving prescription fentanyl to return their patches to a pharmacy before receiving new ones	treatment options, low-barrier work opportunities, and sustained funding
Nova Scotia	• Type of substances that could be diverted for use by others ○ Opioids ○ Benzodiazepines • Features of safe supply prescription program ○ Type of safe supply prescriptions ▪ Safe supply for take-home, unobserved dosing ▪ Other approaches that may have insights for diversion from take-home, unobserved dosing – Injectable opioid agonist treatment programs (iOAT) – Supervised Tablet Injectable Opioid Agonist Therapy (TiOAT) ○ Where are safe supply prescriptions are provided ▪ Community-based health organizations ○ Who provides the sage supply prescription ▪ Physician ▪ Pharmacist	• Canada's sources for HIV and hepatitis C information initiative is a harm reduction hub in Halifax • They offer a safe opioid supply program that is delivered through a Mobile Outreach Street Health program ○ The program is primarily for the unhoused, but as a mobile service anyone can access it ○ The program is also connected to Direction180, which offers opioid agonist therapy, one-to-one peer support, and an overdose prevention site ○ The services are administered by physicians • The Mainline needle exchange is a community-based organization that offers safe use kits including fentanyl test strips and naloxone kits • Individuals may also reach out to receive support with detoxing and methadone treatment • They have also partnered with local pharmacists to offer a brown bag program ○ The kit includes 10 clean syringes, cookers, water, filters, and ties ○ The organization holds a no questions asked policy to help increase comfort • Offers a variety of services to improve healthcare access • Naloxone kits are offered • The Needle Distribution program also offers safe supply kits ○ The kits include syringes, barrels, needle tips, and fentanyl, benzodiazepine, and xylazine test kits	• None identified

Appendix 7: Documents excluded at the final stage of reviewing

Document type	Hyperlinked title
Single study	Effect of Risk Mitigation Guidance for opioid and stimulant dispensations on mortality and acute care visits during dual public health emergencies: retrospective cohort study
Single study	A low-barrier, flexible safe supply program to prevent deaths from overdose
Single study	Effect of mandatory prescription drug monitoring program on emergency department prescribing of scheduled drugs
Single study	Pharmaceutical opioids in the home and youth: Implications for adult medical practice
Single study	What factors contributed to the misconduct of health practitioners? An analysis of Australian cases involving the diversion and supply of pharmaceutical drugs for non-medical use between 2010 and 2016
Single study	Detecting drug diversion in health-system data using machine learning and advanced analytics
Single study	Supervised Tablet Injectable Opioid Agonist Therapy (TiOAT): A strategy to address safer supply for individuals with an opioid use disorder?
Single study	Safer drug supply measures in Canada to reduce the drug overdose fatality toll: Clarifying concepts, practices and evidence within a public health intervention framework
Single study	A systematic review of barriers and facilitators to implementing a prescription drug monitoring program

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