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Directly Observed Therapy in Correctional Settings

Rapid Review

Key Messages

What Is the Issue?

- Directly observed therapy ensures patient adherence to a prescribed treatment regimen by having a health care worker watch the patient take the drug (s). However, it can result in patients needing to wait to meet an available health care provider, and long waits can lead to patients being late for or missing out on work, school, or other therapy.

What Did We Do?

- We conducted a literature search to identify, gather, synthesize, and summarize relevant evidence to inform our understanding of how directly observed therapy is used and what drugs are administered via directly observed therapy in correctional settings in Canada and internationally.

What Did We Find?

- We identified practice manuals and guidelines from Canada, British Columbia, Manitoba, Nova Scotia, Ontario, and Saskatchewan, as well as Australia and the UK, related to using directly observed therapy in correctional settings.
- Drugs recommended to be provided via directly observed therapy included methadone, other drugs for opioid use disorder, and drugs at high risk of misuse or diversion (e.g., benzodiazepines, opioids). Most documents noted the high risk of misuse and/or diversion, suggesting these are the main justifications for providing drugs via directly observed therapy.
- Some strategies that may help reduce administration or wait times include an in-possession policy (where patients keep their drugs and self-administer if possible) and long-acting injectable forms of drugs (e.g., buprenorphine, antipsychotic drugs).
- In-possession is typically not recommended for drugs at high risk of misuse and diversion. Still, it may be allowed for specific drugs or on a case-by-case basis, considering factors like the particular drug, available local resources, and patient characteristics.

What Does This Mean?

- When considering alternatives to directly observed therapy, it may be helpful to assess risks, which may be influenced by the facility, the drug being provided, and individual patients. It may also be beneficial to implement methods of monitoring drug adherence and checking for

Key Messages

potential misuse or diversion, such as by reviewing drug administration or supply records.

- While some alternatives to directly observed therapy may help to reduce time spent administering drug, some potential risks include increased risk of misuse and/or diversion and higher cost of drugs. Additional time may be required initially to allow staff to learn and adapt to the new process.
- It may be helpful to consider alternatives to directly observed therapy as additional options for patients, allowing patients to have input into what drug they will take based on their needs and concerns.

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Abbreviations

ADHD	attention-deficit/hyperactivity disorder
CSC	Correctional Services Canada
DOT	directly observed therapy
OAT	opioid agonist treatment
OUD	opioid use disorder
RCT	randomized controlled trial
SUD	substance use disorder

Purpose and Scope

The purpose of this report is to summarize how directly observed therapy (DOT) is used to administer controlled drugs or drugs with a high potential for diversion or misuse (e.g., narcotics, other controlled drugs, benzodiazepines, bupropion, drugs for opioid agonist treatment [OAT], stimulants) in correctional settings in Canada and other countries with comparable correctional settings, as well as potential alternative methods of administering these drugs in correctional settings.

Reports from countries with considerably different correctional settings than Canada were not included. This report is not a systematic review and does not include a detailed summary of study findings or critical appraisal. This is not an exhaustive or comprehensive list, nor is it a list of recommendations for or against specific interventions. Details of the methods used to create this report are available in Appendix 1.

Background

What Is DOT?

DOT is when a health care provider watches a person take each dose of a drug.[1,2] It is used in the treatment of various conditions, including tuberculosis, HIV, and substance use disorders (SUDs).[1,2] Benefits of administering drugs via DOT include the following:[1-4]

- ensures the patient is taking their drug(s) as prescribed (i.e., ensuring treatment adherence)
- allows the health care provider to monitor for any side effects
- helps to reduce the risk of overdose and reduce the risk of HIV and other bloodborne infections
- reduces the risk of misuse or diversion (sharing or selling drugs).

However, DOT can also be costly and logistically challenging for staff and patients. Scheduled appointments and wait times to meet the health care provider can cause people to miss out on or be late for work, school, or other appointments.[5] Patients have reported daily supervised dosing as the aspect of treatment that has the most significant impact on their daily lives.[6]

DOT in Correctional Settings

Correctional settings have a high prevalence of SUDs. In Canada, it is estimated that 23% of people in federal correctional facilities are receiving treatment for OUD.[7,8] OAT, or substitution treatment, involves prescribing under medical supervision a substance that is pharmaceutically related to the 1 producing dependence.[9] OAT in correctional settings is associated with numerous benefits, such as reducing the spread of HIV and other bloodborne infections, improving safety, and reducing reincarceration rates.[9] However, drugs for the treatment of SUD or OUD are at high risk of misuse or diversion in correctional settings.[10] Drugs that induce specific effects (e.g., sedative, euphoric) are also sought after and may be misused or diverted.[10] This has led to issues like bullying of patients who are prescribed sought-after drugs and increased risk of overdose.[11] Adherence can also be low in this population; reasons may include drug being considered less important than other priorities, drug side effects, and mistrust of health care providers.[12]

Drugs may be administered via DOT in correctional settings to reduce these risks. However, this is challenging in correctional settings due to the number of patients receiving drugs via DOT. There may not be enough time for staff to check a patient's mouth properly, and it may be challenging to supervise patients due to the large queues.[11] Disadvantages for patients include long waiting times, needing to take drugs at inconvenient times, and feelings that they have no choice about when to take drugs.[12] Due to restrictions around staffing, patients may also be given drugs too early or too late in the day (e.g., for drugs intended to be taken in the morning or nighttime). Bozinoff et al. (2018) investigated OAT use in correctional settings in Vancouver and found that among people with OUD, 34.7% utilized OAT while in a correctional setting.[13] OAT use while incarcerated was associated with benefits, including lower odds of nonfatal overdose. They also reported that characteristics like age, ethnicity (reported as white, compared to others), or sex were not significantly associated with receiving OAT.[13] A report from Ontario found that psychotropic drug use was higher among patients who were white or Indigenous compared to other groups, though it was unclear if these drugs were provided via DOT.[14]

The National Institute for Health and Care Excellence (NICE) reported in 2016 that due to differences in which drugs are considered high-risk and the labour-intensive nature of DOT, the specific drugs administered via DOT have been inconsistent between correctional facilities.[15] They noted there is no evidence base to support which specific medicines should be administered via DOT and recommended further research to determine if DOT of high-risk medicines reduces diversion and misuse and to inform a more consistent list of high-risk drugs.

Summary of Evidence

Use of DOT in Correctional Settings

We identified practice manuals as well as recommendations and guidance (e.g., position statements) that provided advice on the use of DOT in correctional settings in Canada,[16-24] internationally (WHO),[25] Australia,[26,27] and the UK.[28-30] The guidance documents from Manitoba,[20,21] Nova Scotia,[22] Ontario,[23] and Saskatchewan[24] were not limited to correctional settings, but they included recommendations specific to patients in correctional settings and thus have been included.

Drugs Provided Via DOT in Correctional Settings

Drugs identified as being provided via DOT in correctional settings in Canada, Australia, and the UK are listed in Table 1. The most commonly reported drug was methadone, which was reported in guidance from Correctional Services Canada (CSC),[16] British Columbia, Manitoba, Nova Scotia, Ontario, and Saskatchewan,[19,21-24] as well as Australia[27] and the UK.[28] Other drugs recommended to be provided via DOT included buprenorphine or buprenorphine-naloxone, benzodiazepines, and opioids. Most documents noted the risk of misuse and/or diversion, suggesting these are the main reasons for providing these drugs via DOT.

Table 1: Drugs Recommended to be Provided Via Directly Observed Therapy in Correctional Settings

Jurisdiction	Citation	Drug	Justification for DOT
Canada			
Federal	Correctional Service Canada (2021) – Guidance on Opioid Use Disorder (OAT) Program: August 16, 2021[16]	Methadone	Risk of diversion
		Buprenorphine-naloxone	Risk of diversion
		Morphine	Risk of diversion
	Glancy et al. (2019) – Practice Resource For Prescribing In Corrections[17]	Any drug at high risk for misuse	Risk of misuse
		Psychotropic drugs	Risk of misuse or diversion, adherence issues
		Tricyclic antidepressants	Risk of misuse
		Mood stabilizers (e.g., gabapentin)	Risk of misuse
		Benzodiazepines	Risk of misuse or diversion
		Stimulants	Risk of diversion
	Centre for ADHD Awareness (2016) – ADHD and the Justice System: The Benefits of Recognizing and Treating ADHD in Canadian Justice and Correction Systems[18]	Nonstimulants (e.g., atomoxetine, venlafaxine, or bupropion)	Risk of diversion
		Psychostimulants (e.g., lisdexamfetamine dimesylate, osmotic-release oral system methylphenidate)	Risk of diversion
British Columbia	Adult Custody Division Corrections Branch (2012) – Health Care Services Manual[19]	Methadone	Risk of diversion
		Buprenorphine-naloxone	Risk of diversion
Manitoba	The College of Physicians and Surgeons of Manitoba (2023) – Manitoba Opioid Agonist Therapy Recommended Practice Manual[20]	Drugs for OAT (first line: buprenorphine-naloxone)	NR
	College of Physicians and Surgeons of Manitoba – Manitoba Methadone and Buprenorphine Maintenance Recommended Practice (2015)[21]	Buprenorphine	Risk of misuse or diversion
		Methadone	Risk of misuse or diversion
Nova Scotia	College of Physicians and Surgeons of Nova Scotia (2012) – Methadone Maintenance Treatment Handbook[22]	Methadone	Risk of diversion

Jurisdiction	Citation	Drug	Justification for DOT
Ontario	Registered Nurses' Association of Ontario (2009) – Supporting Clients on Methadone Maintenance Treatment[23]	Methadone	Risk of diversion
Saskatchewan	College of Physicians and Surgeons of Saskatchewan (2008) – Saskatchewan Methadone Guidelines For The Treatment Of Opioid Addiction/Dependence[24]	Methadone	NR
International			
International	WHO (2014) – Prisons and health[25,a]	Methadone	Ensure adherence, reduce risk of diversion and overdose
		Buprenorphine	Ensure adherence, reduce risk of diversion and overdose.
Australia	The Royal Australian College of General Practitioners (2019) – Custodial health in Australia: Tips for providing health care to people in prison[26]	Benzodiazepines	Risk of misuse or diversion
		Opioids	NR
	Justice Health (2015) – Victorian Prison Opioid Substitution Therapy Program Guidelines[27]	Methadone	Risk of diversion
		Buprenorphine	Risk of diversion
UK	Royal College of General Practitioners (2019) – Safer Prescribing in Prisons[28]	Schedule 2, 3, and 4 Controlled Drugs	NR
		Drugs prescribed for substance use (e.g., methadone)	Risk of misuse or diversion
		Antidepressants with sedating or euphoric effects (e.g., mirtazapine)	Risk of misuse or diversion
		Benzodiazepines	Risk of misuse or diversion
		Antipsychotic drugs (e.g., quetiapine)	Risk of misuse or diversion
		High potency analgesics (e.g., opioids [e.g., tramadol], gabapentinoids [e.g., pregabalin])	Risk of misuse or diversion
		Hypnotics (e.g., zopiclone)	Risk of misuse or diversion
		Anxiolytics (e.g., diazepam)	Risk of misuse or diversion
		Certain antiepileptic drugs (e.g., clonazepam)	Risk of misuse or diversion
		Drugs for ADHD	Risk of misuse or diversion

Jurisdiction	Citation	Drug	Justification for DOT
	Royal College of Psychiatrists (2020) – Detainees with substance use disorders in police custody: Guidelines for clinical management (fifth edition)[29]	For patients in police custody: all drugs	NR

ADHD = attention-deficit/hyperactivity disorder; OAT = opioid agonist treatment; NR = not reported.

Note: Misuse may include hoarding for purposes of self-harm.

[a]This document also provided a list of substitution agents that can be used for OAT. However, it was unclear if this list was about drugs used in prison settings; thus, it was excluded from this table.

How Drugs Are Administered Via DOT in Correctional Settings

Guidance related to how drugs are administered via DOT in correctional settings was identified in Canada, Australia, and the UK, and it is summarized below. Additional details of the processes described by each guideline are available in Appendix 2 (Table 4).

Staff

Guidance from Canada recommends that nurses[16,21,22,24] or health care staff[19,23] administer drugs administered via DOT. Correctional officers conduct postadministration observation.[16,19,23,24]

In Australia, correctional health service staff (medical practitioners, nurses, and pharmacists) are recommended to administer OAT drugs via DOT.[27] Custodial officers are responsible for predosing and postdosing tasks related to security as well as preventing and checking for diversion.

In the UK, it is recommended that a registered health care professional administer drugs provided via DOT; they also note that an additional witness may also be present (e.g., for controlled drugs) as necessary and when defined locally.[30] Security staff support the health care team by managing people waiting for medicines, maintaining confidentiality of people receiving medicines, identifying and acting on drug diversion, and providing support if an incident occurs.

Processes

Most guidelines recommend checking the patient's identity before providing drugs via DOT.[19,21-24,27] Guidance from Manitoba[21] and Australia[27] recommend checking the name, date, and drug information (e.g., dose, reference number) on the label of the bottle or prescription. The Australian guidelines also recommend confirming the patient is not intoxicated before drug administration.[27]

Overall, the described processes for delivering methadone, buprenorphine, and buprenorphine-naloxone via DOT were relatively similar across jurisdictions. These are summarized in Table 2.

Table 2: Summary of Processes for Administering Drugs Via Directly Observed Therapy

Drug	Jurisdictions	Description of process	Notes
Methadone	• Canada (CSC)[16] • British Columbia[19] • Manitoba[21]	1. Patient ingests the full dose of methadone while being observed by the health care provider. The Australian guidelines recommend that the patient must be facing	Timing: British Columbia and Australia recommend that methadone be provided in the morning or before midday.

Drug	Jurisdictions	Description of process	Notes
	• Nova Scotia[22] • Ontario[23] • Saskatchewan[24] • Australia[27]	forward and cannot turn sideways or move out of direct sight. 2. In Canada, the patient then drinks a cup of water in direct view of the health care provider. British Columbia, Nova Scotia, and Saskatchewan specify 250 mL or 8 oz; CSC and Ontario do not provide a specific amount. 3. Nurse or health care staff verify that the dose has been swallowed. This can be done by inspecting the patient's mouth or speaking to the patient.[27] 4. In Australia, patients sign to confirm they have received the dosage. 5. Patients are observed postadministration, with most guidance recommending for at least 20 minutes after ingestion. Manitoba's guidance does not provide a recommendation for a specific period but does recommend that the patient should be isolated from other inmates for some time to reduce the risk of diversion. 6. Nova Scotia recommends limiting access to water post-ingestion (e.g., fountains, bathrooms).	Frisk-searching: British Columbia recommends frisk-searching patients before distribution, while Nova Scotia and Australia recommend frisking before entering and/or leaving the administration area. Priority populations: Saskatchewan recommends that if demand for methadone is higher than the ability of the setting to manage and administer to patients safely, priority populations include people who are: • Pregnant and currently or previously opioid dependent and at high risk of relapse • Currently opioid dependent • Opioid-dependent and require treatment for Hepatitis C and HIV.
Buprenorphine	• Manitoba[21] • Australia[27]	1. Patients place the tablet or film under their tongue to dissolve. 2. Australia's guidance states that if the patient receives more than 2 films, the patient should drink at least 150 mL of water before receiving the next dosage, repeating as needed until the full dose is administered. 3. In Australia, patients sign to confirm they have received the dosage. 4. Manitoba recommends verifying the tablet has dissolved before isolating the patient from others post-ingestion to reduce diversion[21] Australia also recommends supervising patients after ingestion of methadone or buprenorphine to prevent diversion: specific processes are provided by the Deputy Commissioner's Instructions (DCIs) and conducted by custodial officers.	Australia recommends that buprenorphine be provided before midday.
Buprenorphine-naloxone	• Canada (CSC)[16] • British Columbia[19]	1. Patient drinks a cup of water 2. The patient places the sublingual tablet or film under their tongue to allow it to dissolve while in view of the health care professional. For the film formulation, the patient should place it on one side under their tongue, with	CSC guides both the film and tablet forms, while British Columbia only provides recommendations regarding the tablet formulation.

Drug	Jurisdictions	Description of process	Notes
		any additional film placed on the opposite side, before pressing and holding the film in place for 5 seconds. 3. After ingestion, the patient should be observed. CSC recommends for at least 5 minutes, while British Columbia recommends at least 10 minutes 4. British Columbia recommends that correctional staff inspect the patient's mouth to check the tablet has dissolved fully.	
Slow-release oral morphine	• Canada (CSC)[16]	1. Nurse opens capsule(s) and sprinkles on apple sauce 2. Patient ingests contents 3. Patient rinses the mouth with water, then swishes and swallows water 4. Patient is observed postadministration for at least 20 minutes	None.

CSC = Correctional Service Canada.

Techniques That Can Reduce Administration or Wait Times

In-Possession Policy

In possession (or "keep on person") is when people in correctional settings keep their own drugs and self-administer them.[30] We identified 2 descriptive studies of in-possession policies in the UK,[31,32] and 8 guidelines related to in-possession policies (1 from Canada[17] and 7 from the UK[28,30,33-37]). These are summarized below; additional details are available in Appendix 2 (Table 5 and Table 6).

In the UK, an in-possession policy for most drugs is recommended for patients who can do so. It reduces the time spent by staff on dispensing and administering drugs and can be viewed as a form of empowerment for patients by encouraging independence and personal responsibility.[28,30,31] In possession is generally not recommended for drugs at high risk of misuse or diversion or controlled drugs, as it may increase the risk of misuse, diversion, and bullying of vulnerable patients receiving specific drugs.[31,37] However, exceptions can be made: for example, tramadol, gabapentin, and pregabalin, which are Schedule 3 Controlled Drugs, can be prescribed as weekly in possession in Category D open prisons following a risk assessment.[32,33] When developing in-possession policies, some recommendations include:

- policies should be decided on locally, considering local factors such as the level of security and access to supervised administration[35]
- decisions should be made on a case-by-case basis; e.g., depending on the specific drug[17]
- if in possession is supported:
  - most recommend that higher-risk drugs should be restricted to a maximum of weekly in-possession;[28,33,37] daily packs are not recommended due to the high risk of diversion[28]

- risk management processes are in place to reduce risks, confirm adherence, and identify potential misuse or diversion, as well as processes if misuse or diversion has occurred.[34,35]

Implementation Considerations

Risk management can help to reduce risk when using in-possession drug policies.[31] Some related strategies that may be considered include:

- Risk assessment
  - Structured risk assessments (e.g., to determine if a patient is suitable to have medicines in possession, considering factors like risk of self-harm or suicide, vulnerability to bullying, previously known misuse or diversion, and current mental state)[28]
  - Limited prescribing lists (e.g., lists of drugs usually not allowed for in possession due to clinical or security risks).[28,34]
- Monitoring use of medicines provided in possession
  - Written contracts signed by patients before receiving in-possession drugs
  - Random cell searches by security staff[17,34,35]
  - Drug counts to check remaining supply matches expected use[34]
  - Monitoring when drug is collected and requested, such as by checking administration or supply records to identify unusual patterns (e.g., missed doses)[34,35]
  - Mandatory drug tests, with results shared with health care teams and correctional staff.[35]
- Calibration or flexibility
  - If risk assessment is done once (e.g., on initial reception into the facility) or if it is an ongoing process.[28]

Lockboxes may be considered as a way of delivering and storing in-possession drugs more securely and efficiently. This has been tested in Switzerland[38] and the UK [39] and has generally been reported as saving time compared to in-hand distribution. Details of these studies are available in Appendix 2 (Table 7).

Long-Acting Injectable Buprenorphine

Long-acting injectable buprenorphine (also known as injectable prolonged-release buprenorphine) may be an alternative for some patients in correctional settings receiving daily OAT and is being used in Scotland.[40] We identified 1 guideline,[41] 2 cross-sectional studies,[42,43] and 1 modelling study[44] related to the use of long-acting injectable buprenorphine in correctional settings, which are summarized in Appendix 2 (Table 8). Potential benefits include:[41,42,44]

- reduced supervision time compared to daily OAT[41,42,44]
- reduced risk of diversion and missed doses[41]
- reduced risk of bullying, violence, and health risks associated with diversion (e.g., overdose)
- improved patient outcomes, including increased cognitive clarity and reduced time waiting for drug.[42]

Some potential concerns include:

- higher cost of the drug compared to daily OAT[41,42]
- some patients may experience withdrawal symptoms[42]
- increased cognitive clarity may be difficult for some patients with mental health needs, such as due to past trauma.[42]

Implementation Considerations

Concerns related to the implementation of long-acting injectable buprenorphine administration include the following:

- may result in more work for staff initially, including time needed for training, identifying eligible patients, consulting and discussing with patients, and supporting patients experiencing withdrawal and/or adjusting[43]
- may require patients to be escorted to a different part of the building, adding to the time needed for administering the drug[41]
- some patients may not want to use long-acting injectable drugs (e.g., concerns about lack of access to this drug once they leave the correctional setting).[41,42]

It may be helpful to add long-acting injectable buprenorphine as a treatment option, providing patients and health care providers with more options for OUD.[42] This would allow patients to choose based on their needs and concerns and switch as needed. For example, if patients experience withdrawal symptoms while on the injectable formulation, they can request to switch back to daily oral treatment.

Long-Acting Injectable Antipsychotic Drugs

A report from the Canadian Academy for Psychiatry and the Law suggested that long-acting injectable antipsychotic drugs may be an option when antipsychotic drugs are indicated for patients in correctional settings.[17] They noted that while these take more time to draw up and administer, there should be a net decrease in nursing work because it eliminates the need for daily dosing. Reports indicate these are used in correctional settings in Italy[45] and Spain.[46]

Implementation considerations include side effects (e.g., impact on metabolism, extrapyramidal symptoms [i.e., movement and motor disorders[47]]), interactions with other drugs, and cost.[46]

Limitations

Most of the literature we identified was guidance focused on specific drugs (e.g., methadone) or treatment of a specific condition (e.g., OUD), particularly the guidance from Canada. There may be other drugs that are provided via DOT in correctional settings in these jurisdictions that were not listed in the identified documents. Some of the articles we identified are more than 5 years old, and it is unclear if the information and guidance are still relevant. We also did not identify relevant documents from other provinces and territories.

We identified limited evidence regarding the effectiveness of alternative strategies compared to DOT in correctional settings on outcomes like administration time, wait time, and clinical outcomes. This may be due to issues like the difficulty of conducting studies in correctional settings. Further research examining the impact of these strategies in correctional settings may help to determine if they should be implemented more widely.

As this report focused on DOT in correctional settings, reports were excluded if it was unclear that the relevant information was specific to correctional settings. For example, we identified a report from WHO on providing health care in correctional settings, which included a list of drugs used for OAT.[25] However, it was unclear if this list was of drugs used in prison settings or if drugs are available in general for OAT; thus, it was excluded from this report but is available in Appendix 3 (Table 9).

Final Remarks

DOT in correctional settings can help to ensure drug adherence and reduce the risk of misuse and diversion; however, it is time-consuming for staff and patients.[11,12] Identified guidance documents indicate that DOT is recommended in correctional settings for drugs at high risk of misuse or diversion, including drugs for OAT, opioids, and benzodiazepines.

For drugs at lower risk of misuse or diversion, in-possession policies and long-acting injectable formulations may also help reduce administration and wait times, allowing staff more time for other tasks and giving patients more flexibility in their daily activities.[31,41,42] Other methods that may reduce misuse and diversion include adjusting formulary choices by replacing high-risk drugs with drugs at lower risk of misuse or diversion with alternatives that are likely to result in the same clinical outcomes and utilizing non-pharmacological interventions.[18,34,48] For example, ADHD is typically treated with stimulants, but considering their high risk of misuse in correctional settings, the Centre for ADHD Awareness recommends nonstimulants as first-line treatment, as well as the use of behavioural interventions for treating ADHD in correctional settings.[18] These options may help reduce the use of high-risk drugs that must be provided via DOT.

These alternative approaches to providing high-risk drugs in correctional settings may be considered as additional options rather than to replace DOT entirely: there may be circumstances where DOT is the most effective and safest approach for a patient, as well as situations where alternatives may be preferred. Providing patients with more choices and considering their needs and preferences may help to support treatment adherence and improve the patient experience with recovery.[12] Implementing these alternative strategies will likely require upfront investments (e.g., development of in-possession policies and associated procedures, training staff) and ongoing costs (e.g., higher cost of long-acting injectable formulations, resources required for monitoring for misuse and diversion). Considering differences between correctional settings, a setting-specific analysis of the local population's needs and available resources may be needed to understand the most appropriate and feasible options better. Implementing new treatment options and modalities may need to be monitored for improvements and any unintended adverse effects to allow for

timely modifications.[31] Correctional settings may also need to consider methods of ensuring valid consent for participating in treatment to avoid undue coercion, uphold patient autonomy where possible, and ensure equitable access to treatment options.

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Appendix 1: Methods

Note that this appendix has not been copy-edited.

Research Questions

1. What is the available information regarding the use of directly observed therapy in Canadian provincial or international federal correctional institutions?
2. What are the medications that are administered via directly observed therapy in Canadian provincial or international federal correctional institutions?

Methods

Literature Search Methods

An information specialist conducted a literature search on key resources including MEDLINE, Embase, PsycInfo, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search approach was customized to retrieve a limited set of results, balancing comprehensiveness with relevancy. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. Search concepts were developed based on the elements of the research questions and selection criteria. The main search concepts were correctional settings and directly observed therapy; results focused on DOT for infections, including tuberculosis, HIV/AIDS, hepatitis, malaria, or chlamydia, were excluded. The search was completed on May 22, 2024 and limited to English-language documents. Internet links were provided, where available.

Selection Criteria and Methods

One reviewer screened citations and selected studies. In the first level of screening, titles and abstracts were reviewed and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on the inclusion criteria presented in Table 3.

Table 3: Selection Criteria

Criteria	Description
Population	People who are currently in a correctional facility who require drug treatment
Intervention	Directly observed therapy (DOT)
Comparator	• Different methods of administering DOT • Providing the same drugs without DOT
Outcomes	• Clinical benefit for people receiving the drugs • Time to administer
Study designs	Systematic reviews, randomized controlled trials, nonrandomized studies, guidelines, program evaluations, institutional policies

DOT = directly observed therapy.

Exclusion Criteria

Articles were excluded if they:

- did not meet the selection criteria outlined in Table 2
- were duplicate publications
- were from countries with correctional systems that are considerably different from Canada
- were related to the administration of treatments for tuberculosis or HIV.

Appendix 2: Characteristics of Included Publications

Note that this appendix has not been copy-edited.

Table 4: Recommendations Related to Processes for Administering Drugs Via Directly Observed Therapy

First author (year), jurisdiction	Staff administering drug	Description of process
Canada		
Correctional Service Canada (2021)[16] Canada (federal correctional settings)	Nurse	For administering methadone, the nurse must: 1. Ensure the patient ingests entire dose of methadone 2. Provide patient a cup of water of several ounces of water to be poured into the bottle of methadone 3. Observe the patient drinking the water, then require the patient to speak to them 4. Ensure the patient returns the empty methadone bottle to them 5. Postadministration security observation should be a minimum of 20 minutes. For administering buprenorphine-naloxone tablet or film, the nurse must: 1. Ensure patient drinks a glass of warm water to modify the mouth immediately before drug administration 2. Provide the tablet in a drug cup or the envelope containing the film; must watch patients tear the envelope on the dotted line 3. Observe the patient placing the tablet under their tongue or the film on one side under their tongue, close to the base on either side 4. For the film, the patient should press and hold the film in place for 5 seconds 5. Any additional film should be placed on the opposite side, and no 2 films should overlap 6. As the manufacturer does not recommend crushing tablets, if the prescriber chooses to crush, it should be decided on an individual patient basis and the medical reason recorded 7. Postadministration security observation should be a minimum of 5 minutes For slow release oral morphine, the nurse must: 1. Open the capsule(s) and sprinkle it on apple sauce at time of administration 2. Watch patient ingest contents without chewing or crushing the beads 3. Direct patient to rinse mouth with water and then swish and swallow water 4. Postadministration security observation should be a minimum of 20 minutes
Glancy (2020)[17] Canada	Nurse	DOT should be used for any drug at high risk of misuse (e.g., stimulants), and floated in water, apple sauce, or pudding when possible. Liquid formulations may also help to reduce risk of diversion.
Adult Custody Division Corrections Branch (2012)[19] British Columbia[19]	Health care professional	For administering methadone: 1. Check patient's photograph to ensure correct identity before each dose. In centres using identification bar codes, the bar code is scanned and matched to the bar code on the drug. 2. Drug is administered in the morning by a health care professional. 3. After dose is taken, patient drinks 1 full glass of water (8 oz or 250 mL). 4. Inspect patient's mouth to ensure swallowing of the entire dose.

First author (year), jurisdiction	Staff administering drug	Description of process
		5. Correctional staff directly observe for at least 20 minutes to reduce risk of diversion. 6. Dose administered is charted, and forms are faxed to pharmacy for stock monitoring. For administering buprenorphine-naloxone: 1. Check patient's photograph to ensure correct identity before each dose. In centres using identification bar codes, the bar code is scanned and matched to the bar code on the drug. 2. Drug is administered in the morning by a health care professional. 3. Before dose, patient drinks 1 full glass of water (8 oz or 250 mL). 4. In direct view of the health care professional, patient places the tablet under their tongue to allow it to dissolve. 5. Correctional staff directly observe for at least 10 minutes to reduce risk of diversion. 6. Patient's mouth is inspected to ensure drug has dissolved. 7. Dose administered is charted, and forms are faxed to pharmacy for stock monitoring.
The College of Physicians and Surgeons of Manitoba (2023)[20] Manitoba	Nurse	• In correctional settings, it is recommended OUD be treated with OAT, with buprenorphine-naloxone as first-line treatment. • The substitution drug is administered via witnessed self-administration (i.e., DOT) by nursing staff onsite at the correctional facility.
College of Physicians and Surgeons of Manitoba (2015)[21]	Nurse	For administration of methadone or buprenorphine: 1. Identify each patient before dispensing drug. 2. Check name, date, and dose on label of bottle. 3. Verify patient has completely swallowed methadone dose or buprenorphine tablet has dissolved. 4. Record dose administered. 5. Isolate patient from others post-ingestion for a period of time to reduce risk of diversion.
Registered Nurses' Association of Ontario (2009) – Supporting Clients on Methadone Maintenance Treatment Ontario	—	Processes specific to correctional settings: • Confirm using photo identification before each methadone dose to ensure the correct patient receives the dose. • Correctional staff observe patients for at least 20 minutes postadministration to reduce risk of diversion. • To reduce risk of diversion and protect patients and staff, correctional officers support health care staff during methadone administration. • Institution policies should be followed regarding observed patients while taking methadone. General process for administering methadone: 1. Patient should be observed the entire time while drinking the dose. 2. Patient should be engaged in conversation after drinking the dose to ensure they have ingested the drug. 3. Nurse should ensure patient has consumed entire contents of bottle, with any remaining amount recorded and reported to the physician.

First author (year), jurisdiction	Staff administering drug	Description of process
		4. The container used to dispense methadone should be filled with water, and the patient should drink this as well to ensure the whole dose is taken and swallowed.
College of Physicians and Surgeons of Saskatchewan (2008)[24] Saskatchewan	Nurse	For delivering methadone: 1. Methadone must be administered under direct supervision of medical unit staff. 2. Nurse verifies patient's identity before administering methadone. 3. After ingesting the methadone, the patient drinks a full glass of water. 4. Nurse verifies drug is not held in the mouth. 5. Patient is observed by correctional staff for approximately 20 minutes after administration to ensure ingestion, ideally within designated supervised areas. If demand for methadone is higher than the ability of the correctional setting to safely manage and administer to patients, priority populations to provide methadone to include: • Women who are pregnant and are currently or previously opioid dependent and are at high risk of relapse • People who are currently opioid dependent • People who are opioid dependent and require treatment for Hepatitis C and HIV.
College of Physicians and Surgeons of Nova Scotia (2012)[22] Nova Scotia	Nurse	For delivering methadone: 1. Patient show proper identification. 2. Patient should be isolated from other patients during administration. 3. After administration, patient drinks water. 4. Nurse can inspect mouth before and/or after. 5. Patients can be frisked before entering and/or upon leaving administration area. 6. Limit access to water post-ingestion (e.g., fountains, bathrooms). 7. Patients should be directly observed for 20 minutes after.
International		
WHO (2014)[25] International	Nurse or guard	For OAT in correctional settings: • Nurses or guards can supervise ingestion of methadone, depending on how and where the drug is dispensed (e.g., medical unit or in the cells or wards) to ensure the substance is swallowed (methadone) or diluted under the tongue (buprenorphine). • There is a consensus that OAT must be supervised to ensure adherence, avoid coercion, and avoid overdoses.
Justice Health, Department of Justice and Regulation, Victorian Government (2015)[27] Australia	Correctional health service staff (medical practitioners, nurses, and pharmacists)	Before administering doses: • Patients must bring identification card. • Correctional staff must check patient is not intoxicated. • Correctional staff must check the patient's name and Corrections Reference Number with the current prescription. When administering methadone: 1. Add at least 150 mL of water to the dose. 2. Observe patient drinking the methadone and water solution. Ensure they are facing forward, do not allow them to turn sideways or move out of direct sight. 3. After they have swallowed the solution, speak to the patient. 4. Ensure patient signs they have received the solution.

First author (year), jurisdiction	Staff administering drug	Description of process
		When administering buprenorphine: 1. Check current day is included on patient's regimen. 2. For alternate-day or 3 times a week programs, confirm dose for the current day. 3. Patient places dose (or first 2 films of the dose) under their tongue. If patient's prescribed dose is more than 2 films, ensure they are supervised and drink at least 150 mL of water before receiving the next 2 films. Patients should not receive more than 2 films at a time. Repeat as needed until the full dose is administered. 4. Ensure patient signs they have received the solution. To avoid diversion, patients must be supervised in a specific area next to or near the dosing area. The Deputy Commissioner's Instructions provide direction on specific processes and times required for postdose supervision. Custodial officers are responsible for supervising pre- and postdosing to reduce risk of diversion, including pat-searching patients before dosing, engaging and communicating with patients during the supervision period, and if diversion is suspected, pat-searching patients before leaving the supervision area. Where practical, methadone and buprenorphine should be administered before midday.
Royal Pharmaceutical Society (2017)[30] UK	Registered health care professional	• Patients should have non-in-possession drugs administered to them by registered health care professionals, as well as an additional witness if necessary and as defined locally (e.g., for Controlled Drugs). • Security staff support the health care team by managing waiting patients, maintaining patient confidentiality, identifying and acting on drug diversion, and acting when an incident occurs.

DOT = directly observed therapy; OAT = opioid agonist treatment; OUD = opioid use disorder.

Table 5: Studies and Reviews Related to In-Possession Policies in Correctional Settings

First author, year, country, study design	Study methodology	Main findings or guidance
Hassan (2012)[31] UK Cross-sectional study	Survey of patients and staff at correctional settings in 2008 with follow-up interviews with 24 patients and 68 staff at 12 settings Setting characteristics: • Population: female (n = 3), adult male local (n = 5), adult male sentenced (n = 1), male youth offender institution (n = 3) • Security: medium (n = 11), high (n = 1) • Regions: Northern (n = 5), Midlands (n = 3), London and Southern (n = 4) Interviewed patient characteristics: • 21 men, 3 women Interviewed staff included: governor/deputy (n = 6), health care management (n = 14), primary care (n = 11), mental health nursing (n = 7), first reception nursing (n = 10),	• Empowerment considered the primary benefit of increasing availability of in-possession drug, helping prepare them for release, reduced inconvenience of queuing for and collecting medicine; patients reported it made them "feel normal" • Staff very conscious of potential for misuse, trading, diversion associated with certain drugs, especially those with psychotropic, sedative, or analgesic properties; noted heightened risk of bullying of vulnerable patients, risk of drugs being 'hoarded' and potential overdose, and issues if patients have mental health issues or learning disabilities that prevent them from taking their drugs properly • Less than half of facilities had specific storage facilities for in-possession drug; several patients noted this as a limitation • Risk management a key aspect of in-possession

First author, year, country, study design	Study methodology	Main findings or guidance
	pharmacy (n = 7), substance misuse (n = 4), and prison officer (n = 9).	medical policies to help manage (but not eliminate) risk Identified 3 interrelated strategies influencing approaches to risk management: • Risk assessment: ◦ Surveyed settings used structured risk assessments (93%), limited prescribing lists (68%), or a combination of both (66%) to assess suitability for in-possession ◦ Risk assessment tools were a mix of assessment forms (46%, mostly using closed questions), point systems yielding a final aggregate score (36%), and flow charts (18%) ◦ Tools typically assessed risk of self-harm or suicide, vulnerability to bullying, ability to understand instructions, previously known security breaches (e.g., trading), and current mental state ◦ 68% of settings specified drugs that would not be allowed in-possession due to clinical or security risks; examples varied between settings, though often overlapped and included controlled drugs, opiate-based analgesics, and mental health drugs, especially benzodiazepines, antipsychotics, and tricyclic antidepressants • Monitoring of medicines given in-possession: ◦ Formal procedures included written contracts signed by patients before receiving in-possession drugs, random cell searches by security staff, drug counts to check remaining supply corresponded with exceed use ◦ Health care staff also frequently monitored adherence by checking of drug was collected and timing of requests for drug ◦ Discipline and health care staff stressed importance of interacting with patients and remaining vigilant • Calibration (i.e., flexibility of risk management): ◦ Some establishments used risk assessment once, others were ongoing ◦ Settings with more flexible approaches ruled out fewer drugs and seemed to be able to adapt approaches continually or to each patient ◦ Inflexibility was viewed with frustration among some patients • Overall, risk management approaches were used across settings but specific approaches varied on content, structure, flexibility, and complexity

First author, year, country, study design	Study methodology	Main findings or guidance
Bosley (NR)[32] UK Descriptive study	Description of a Category D Prison's in-possession policy	• Not prescribed in-possession: benzodiazepines, controlled drugs, opiate substitution drugs • Prescribed with caution: pregabalin (drug of choice for trading), gabapentin • Otherwise, all drugs held in-possession; can be held in weekly or monthly quantities • On arrival, patients sign a contract saying they will comply with standards of drug ordering, supply, and storage • Each individual responsible for requesting repeat prescriptions in a timely manner, as well as collecting, safe-keeping, and storing their drugs

NR = not reported.

Table 6: Guidance Related to In-Possession Policies in Correctional Settings

First author, year	Main relevant guidance
Canada	
Glancy (2020)[17]	• Psychotropic drugs are typically delivered via DOT in correctional settings • Self-administered drugs (particularly weekly cards) may vary with the type of drug, institution, and level of security • Prescribers must specify a certain mode of administration when this is considered important, and should document the rationale for not using the standard of DOT • Noncontrolled drugs prescribed by nonpsychiatric general medical providers may also be at risk of misuse; patients may be permitted to have drugs prescribed by general practitioners as in-possession Strategies for managing misuse of drugs may include: • Limit access to higher risk drugs using formulary controls; sites that have done this have reported reduced misuse and diversion. If benefits of prescribing a high-risk drug are considered greater than the risks for a patient, a nonformulary prior authorization process can be used to prescribe the high-risk drug • Ongoing training of psychiatric, nursing, medical, custody staff • Cell searches, forensic toxicology testing, and other surveillance by correctional officials
UK	
Specialist Pharmacy Service (2022)[33]	• Drugs for opiate substitution and alcohol detoxification are Controlled Drugs and should never be held in-possession in any correctional facility • Tramadol, gabapentin, and pregabalin may be held as a 7-day (weekly) in-possession in Category D open prisons following a risk assessment
Royal College of General Practitioners (2019)[28]	• If there is any doubt regarding safety or diversion, extreme caution should be exercised when allowing patients to keep drugs in-possession • Daily in-possession packs are not recommended where there is significant risk of diversion; they offer only marginal benefit over a weekly in-possession supply • Develop a list of specific medicines that are restricted and not provided in-possession due to risks of diversion (e.g., Controlled Drugs, other medicines agreed locally)

First author, year	Main relevant guidance
	• In-possession policies for medicines at risk of misuse should be decided locally in conjunction with the medicines management committee, referencing the appropriate Prison Service Instructions (PSI), allowing for exceptions on a case-by-case basis • Each patient should have a risk assessment carried out to establish suitability for in-possession; those at risk of self-harm require supervised administration ◦ this should be fully completed on admission or transfer and renewed as needed • Prescribers should follow in-possession policy and procedures, accurately including in-possession status of all medicines • In-possession risk assessments should be done in collaboration with the correctional facility • A person's risk for in-possession may change or need to be reviewed (e.g., if they have misused their medicines or at risk of self-harm, or if it is now considered safe for them to move from DOT to in-possession)
NHS England (2017)[34]	General: • The amount of medicines provided in-possession should be tailored to individual need and align with collaboratively developed local in-possession policies and risk assessments Mechanisms to reduce risk of misuse or diversion of mental health drugs: • Providers can adjust formulary choices to encourage choosing less-diverted drugs that are likely to result in the same clinical outcome as high-risk drugs • In all health and justice settings, people should be assessed for suitability and safety to have drugs in-possession; amounts can range from 7 to 28 days • The mental health team should contribute to the in-possession policy and actively review and adjust the in-possession status of individuals as their mental health changes • Adherence checks during routine drug or clinical reviews can identify omitted doses as well as potential misuse or diversion, such as by checking the electronic medical chart for missed doses and frequency of prescriptions • Identifying patients at risk of bullying (e.g., people with learning disabilities, dementia) or at risk of diversion (e.g., people with a previous history of trading) • Secure environments can collaborate with security teams to conduct unannounced, random checks of medicines in-possession to identify non-adherences; if nonadherence is identified, patient is referred for a mental health review • If diversion or misuse is identified, trigger a mental health and drug review; recommend a collaborative approach with the mental health team and other clinicians to manage these incidents, encouraging a united approach
NHS England (2017)[37]	• Schedule 2 and 3 Controlled Drugs should not be routinely provided in-possession, as per national guidance • For nonscheduled opioids, a local decision is needed based on local risks and access to DOT for the 3 to 4 times daily doses ◦ If in-possession is supported, it should be restricted to weekly in-possession and additional processes should be in place to confirm adherence and identify potential diversion or misuse
Royal Pharmaceutical Society (2017)[30]	• Recommends an in-possession policy is in place, including identifying which drugs are excluded from in-possession and which can be provided in reduced quantity in-possession (e.g., weekly) • Schedule 2, 3, and 4 Controlled Drugs should not be provided in-possession except under exceptional circumstances or an individual case basis • Patients should be assessed on suitability for keeping drugs in-possession using approved risk assessment tools

First author, year	Main relevant guidance

NHS England (2015)[35]	• Local policies should be delivered for in-possession drug, considering other related health care and security policies (e.g., medicine management, clinical governance, security, harm reduction)
	• In-possession should be the norm but is not recommended for all medicines: Controlled Drugs should be administered under direct supervision, including tramadol (a Schedule 3 Controlled Drug)
	• For other pain medicines in the formulary, local policies should consider
	  ○ patient-related factors (including population type of the correctional setting)
	  ○ clinical and medicine-related factors (e.g., frequency of doses, timing of doses compared to access times, local drug safety incidents)
	  ○ environmental factors (e.g., medicine storage facilities, capacity of staff to supervise patients receiving medicines)
	• Most correctional settings follow these policies:
	  ○ First-line opioids (e.g., co-codamol) and neuropathic pain formular drugs are not in-possession or a maximum of weekly in-possession
	  ○ Schedule 2 and 3 Controlled Drugs are not in-possession
	• For pain drugs provided in-possession but have a risk of diversion or misuse, mechanisms to monitor adherence or detect potential misuse are used, including:
	  ○ Sharing outcomes of mandatory drug tests with health care teams and facility staff
	  ○ During cell searches, conducting medicine adherence checks
	  ○ Checking drug administration or supply records to identify omitted doses or unusual medicine collection patterns
	• If these policies are used, clear clinical review and nonclinical processes are needed to follow-up with any incidents to ensure consistency and transparency with patients; nonclinical processes may include:
	  ○ Sharing and submitting intelligence reports and/or reporting issues as patient safety incidents
	  ○ Where diversion or misuse has occurred, issuing prison-led earning letters to patients, or other formal disciplinary actions

NHS England (2014)[36]	• Tramadol must be supplied not in-possession, under supervised consumption. • Recent information suggests Category D prisons allow in-possession of tramadol. These settings should review and amend their operational arrangements. • Exceptions to this policy should be handled via local formal arrangements. In instances where in-possession tramadol is allowed, adherence checks are recommended to identify potential diversion and inform clinical reviews.

DOT = directly observed therapy.

Table 7: Studies of Lockboxes for Drugs in Correctional Settings

First author, year, country, study design	Intervention	Main findings
Pralong (2023)[38] Switzerland Cross-sectional survey	Lockboxes were set up inside the carceral unit; each person living in the unit received a key for their drug box (whether he was receiving drugs or not). Nurses would prepare the drugs and then place them in the boxes of patients who had been prescribed treatment, along with an informational card (when, why, how to take treatment). Drugs were distributed when unit was empty	Patients reported: • Advantages: ease of use, increased autonomy, more confidential than in-hand distribution, lower theft risk, demonstration of trust from medical staff, increased compliance • Disadvantages: risk of forgetting to pick up drug, lack of instructions how to use drug, no health care provider to talk to, theft risk, confidentiality issues, risk of drug misuse

First author, year, country, study design	Intervention	Main findings
	(i.e., vocational training or working hours). Patients would pick up treatment and take them independently. Doctors would first meet patients to discuss treatment options and side effects. Drug adherence was monitored by doctors and nurses in individual follow-up visits. Drugs provided by the lockboxes did not include drugs required to be administered via DOT, which included controlled substances and drugs prone to diversion.	• Overall were satisfied Officers reported: • Advantages: better role differentiation between health staff and correctional facility staff, more time-efficient; similar advantages to patients • Disadvantages: no health provider for users to talk to, risk of drug theft or box key, confidentiality issues, trafficking, risk of misuse Other outcomes: • Dispensing 1 drug package takes 14 seconds with the lockbox system vs. 80 seconds with in-hand distribution
Peek (2021)[39] UK Cross-sectional survey	Lockboxes were installed that use biometric fingerprints to access. Patients were informed when their drug was ready, giving them choice in how to structure their day.	• Most patients felt lockers were easy to use and were positive about the experience; feedback included that it was less disruptive and improved autonomy, consistency, ownership, and privacy • Clinical feedback included it was quicker for nurses, improved compliance, less waiting for patients, improved privacy, and fewer drug errors • Custodial feedback included saved time, reduced staff stress, and that it was much better for residents

DOT = directly observed therapy.

Table 8: Guidance and Studies of Long-Acting Injectable Buprenorphine in Correctional Settings

First author, year, country, study design	Study description	Main findings
Guidelines		
Health care Improvement Scotland (2022)[41] Scotland	Guideline using consensus methods based on a systematic review.	Advantages for patients in health and justice settings: • Reduced supervision time compared to daily oral OAT, releasing time for health care and correctional staff • Reduced miss doses for people who are unable to attend daily OAT (e.g., court hearings, work) • Reduce risk of diversion • May not be an operational risk saving Disadvantages for patients in health and justice settings: • Depending on the setting's operational set-up and appointment availabilities, may not be cost-saving (e.g., for escorting individual patients) • Overall cost is higher • Require additional considerations for secure drug storage

First author, year, country, study design	Study description	Main findings
		• Potential lack of continuity of care if the person in custody moves to a place that does not provide long-acting injectable buprenorphine
Studies		
MacNeill (2021)[42] Scotland Cross-sectional study	• Long-acting injectable buprenorphine was introduced in Scotland during the COVID-19 pandemic to ensure continuity of drug administration • Interviewed 9 patients and 5 health care staff • All patients were still taking long-acting injectable buprenorphine by the interview	• Patients reported that since starting on long-acting injectable buprenorphine, they felt reduced cravings for drugs, improved health and well-being, and improved relationships with family and friends • Reported drawbacks included withdrawal during the changeover process, headaches, difficulty sleeping; staff also noted that new sense of clarity on this drug could be an issue if their drug use is related to suppressing or coping with past traumas • While results related to administration or wait times were not reported, the authors noted that long-acting injectable buprenorphine may help to reduce the amount of time spent on daily dispensing for daily OAT • Concerns that the higher cost of long-acting injectable buprenorphine per dose compared to methadone would impact funding of the treatment
MacNeill (2020)[43 a] Scotland Cross-sectional study	• Long-acting injectable buprenorphine was introduced in Scotland during the COVID-19 pandemic to ensure continuity of drug administration • Interviewed 6 Governors in Charge, 15 health care staff, and 3 patients	• Patient-reported reasons for not wanting to switch to long-acting injectable buprenorphine included the newness of the treatment, pre-existing mental health problems (e.g., needle phobia related to past drug use and PTSD), concerns about lack of access in the community, and concerns they would need to switch back to their previous OAT • Preliminary data indicated introducing long-acting injectable buprenorphine had minimal observable impact on staff time spent administering drug, likely due to the short time frame and small proportion of patients who switched, as well as changes to routine due to COVID-19 restrictions • In some cases, the program introduction created additional work for health centres, including staff training, identifying eligible patients, and consulting and discussing with patients, though staff felt it would lead to savings on time and resources once a patient was stable • Governors in Charge and staff still anticipated potential benefits including reduced bullying, reduced staff time administering drugs which could be redirected to other activities • Noted that while clinical guidance from the Scottish Government was clear, they had concerns about logistics: e.g., where patients would receive the

First author, year, country, study design	Study description	Main findings
		drug (in health centres, or on the halls like other OATs)
Wright (2020)[44] UK Modelling study	• Designed a predictive model to estimate the costs of OUD care based on the public correctional system in England, considering costs of pharmacotherapy, direct service, indirect health care, and security • Based on current standard of care (methadone) and used a representative standard correctional facility where 150 patients need OUD care • Assumed 30% elected for long-acting injectable buprenorphine	• Based on model, estimated a cost reduction of £8,665 and saved 3,159 staff hours per year • Sensitivity analyses indicated higher savings in settings prescribing higher doses of methadone or where more staff time is needed to deliver methadone (e.g., geography, security factors) • Higher rate (50%) of long-acting injectable buprenorphine adoption associated with higher cost savings

OAT = opioid agonist treatment; OUD = opioid use disorder.

[a]This study was a rapid evaluation, with a follow-up report published in 2021[42] that is also included in this table. As there was some overlap in the information reported, only key findings not reported in MacNeill (2021)[42] are summarized here.

Appendix 3: Additional Information of Potential Interest

Note that this appendix has not been copy-edited.

WHO released a report in 2014 regarding health care in correctional settings and provided a list of agents for opioid substitution therapy, which they defined as being provided under supervision. As it is unclear if these agents are provided in correctional settings, this information was excluded from the main report.

Table 9: WHO (2014) – List of Drugs for Opioid Substitution Therapy

Drug	Frequency	Optimal dosage	Route of administration	Notes on availability
Methadone	Every 24 hours	Typically, 60 to 120 mg/day, but may be lower or higher	Oral (syrup, tablets) or injectable	NR
Buprenorphine or Buprenorphine-naloxone	Every 24 to 48 or 72 hours	8 to 24 mg/day	Sublingual	NR
Sustained release naloxone	Every 24 hours	300 to 1200 mg/day	Oral (capsule)	Provided in some countries when methadone or buprenorphine is contraindicated, or when substances are not tolerated (Australia, Bulgaria, Slovenia, Switzerland, UK)
Diamorphine	2 to 3 times every 24 hours	400 to 700 mg/day	Injectable, smokable	Only available to long-term, nonstabilized opioid users in Denmark, Germany, Netherlands, Switzerland, and UK; permitted for research trials in Canada, Spain
Levo-alpha-acetyl-methadol	Every 4 to 72 hours	70 to 120 mg, 3 times per week	Oral	Not available in EU; concerns regarding safety
Levo-methadone	Every 24 hours	40 to 60 mg/day	Oral (syrup)	Only in Germany
Codeine	NR	NR	Oral (syrup, tablets)	Available for maintenance treatment in Germany

EU = European Union; NR = not reported.

Source: Enggist S, Møller L, Galea G, Udesen C. *Prisons and health.* Copenhagen: WHO. Regional Office for Europe; 2014.

Appendix 4: References of Potential Interest

Note that this appendix has not been copy-edited.

Previous CADTH Reports

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