Service delivery models for injectable opioid agonist treatment in Canada:
an environmental scan

Erin Eydt, MOst[1] Stephanie Glegg, PhD[1,2] Christy Sutherland, MD[3,4] Karine Meador, MD[5,6] Michael Trew, MD[7,8] Michel Perreault, PhD[9,10] Marie-Eve Goyer, MD[11] Bernard Le Foll, MD[12] Jeffrey Turnbull, MD[13] Nadia Fairbairn, MD[1,2]

AFFILIATION:
1. British Columbia Centre on Substance Use, 400-1045 Howe St, Vancouver, BC, Canada V6Z 2A9
2. Department of Medicine, University of British Columbia, St. Paul's Hospital, 608-1081 Burrard Street, Vancouver, BC, Canada V6Z 1Y6
3. Department of Family Medicine, University of British Columbia, 5950 University Boulevard, Vancouver, BC Canada V6T 1Z3
4. PHS Community Services Society, 350 Columbia Street, Vancouver, BC V6A 4J1
5. Alberta Health Services, Royal Alexandra Hospital, 10240 Kingsway Avenue NW, Edmonton AB, T5H 3V9
6. Department of Family Medicine, University of Alberta, 8215 - 112 St, Edmonton, AB Canada T6G 2C8
7. Alberta Health Services, Foothills Medical Centre, 1403 – 29th St NW, Calgary AB T2N 2T9
8. Department of Psychiatry, University of Calgary, 2500 University Drive NW, Calgary, AB, Canada T2N 1N4
9. Department of Psychiatry, McGill University, 845 Sherbrooke Street West, Montreal, QC, H3A 0G4
10. Douglas Hospital Research Center, 6875 LaSalle Boulevard, Montreal, QC, Canada H4H1R3
11. Department of Family Medicine, University of Montreal, 2900 Edouard Montpetit Boulevard, QC, Canada H3T 1J4
12. Centre for Addiction and Mental Health, 1001 Queen Street West, Toronto, ON, Canada M6J 1H42
13. Ottawa Inner City Health Inc., 5 Myrand Avenue, Ottawa, ON, Canada K1N 5N7

CORRESPONDING AUTHOR: Nadia Fairbairn, nadia.fairbairn@bccsu.ubc.ca

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ABSTRACT

Background: Injectable opioid agonist treatment (iOAT) is available increasingly across Canada as an evidence-based option within the opioid use disorder continuum of care. An environmental scan of iOAT programs was undertaken to support national expansion activities occurring as part of the opioid overdose response and to address ongoing gaps in care.

Methods: Programs operating in Canada as of 1 September 2018 and 1 March 2019 participated in baseline and follow-up surveys. Key informants provided descriptive information on location, service delivery model, clinical and operational characteristics, client demographics, and program facilitators and barriers.

Results: Eleven programs at baseline were located within urban centres in British Columbia and Ontario. At follow-up, two of these programs were on hold, and two of the three new programs were in Alberta. Four service delivery models were identified, with iOAT most commonly integrated within existing health and social programs. All iOAT programs offered hydromorphone, with diacetylmorphine additionally available at one program. At baseline, 127 (73%) of clients were male with a mean age of 47 years. Most common facilitators included client-centered care, positive client relationships, and access to other health and social services. Limited program capacity, pharmacy issues and lack of access to diacetylmorphine were most frequently reported as barriers.

Interpretation: This scan has generated the first comprehensive dataset on the state of iOAT provision in Canada. Evidence indicates that iOAT can be successfully implemented using diverse service delivery models. Program gaps persist in high-risk communities. Future work should facilitate scale-up of this evidence-based treatment.

INTRODUCTION

Canada is experiencing an opioid overdose crisis driven by the contamination of illicit drugs with fentanyl and fentanyl-related analogues.[1] Between January 2016 and March 2019, over 12,800 apparent opioid-related deaths occurred.[1] Life expectancy at birth did not increase from 2016 to 2017 for the first time in four decades, largely attributed to opioid overdoses.[2] Strategies to address the ongoing crisis have become an urgent public health priority.[3] Improved access to opioid agonist treatment (OAT) is a key approach to reducing morbidity and mortality associated with opioid use disorder (OUD).[4,5] Buprenorphine/naloxone and methadone are first- and second-line OAT medications, and slow release oral morphine is expanding as an alternative.[6] Increasingly, injectable OAT (iOAT) is available within the continuum of care as a cost effective,[7-10] evidenced-based option for individuals who have not benefitted from oral OAT.[11-16] Diacetylmorphine, medical heroin, has long been available in Europe (e.g. Switzerland, Germany, Denmark and The Netherlands)[12 - 15] and has demonstrated superior efficacy over methadone for treating refractory OUD.[11] Hydromorphone, a common analgesic, was shown to be non-inferior to diacetylmorphine in a Vancouver-based clinical trial and offers an alternative iOAT medication subject to availability, client preference, and prescriber judgement.[17]

The Canadian Research Initiative in Substance Misuse (CRISM) is a national network mandated to translate evidence-based substance use interventions into clinical practice, community-based prevention, harm reduction, and health system changes. Modelled after the National Institute on Drug Abuse Clinical Trials Network and funded by the Canadian Institutes of Health Research, CRISM operates through interdisciplinary networks located across four nodes: British Columbia (BC), the Prairies, Ontario, and Québec/Atlantic. Coordinated by the BC Centre on Substance Use (BCCSU), CRISM's iOAT Initiative seeks to facilitate successful iOAT delivery in Canada. A national environmental scan was conducted to: 1) characterize programs and service delivery models; 2) identify locales affected by the overdose crisis with service delivery gaps; and 3) consolidate learning to inform policy and practice.

METHODS

Steering Committee

CRISM's established iOAT Steering Committee coordinated the scan as a project within the iOAT Initiative. Committee assembly sought representation from each CRISM node; selection criteria was based on expertise in iOAT prescribing, research and service planning. The Committee (N.F., C.S., K.M., M.T., M.P., M-E.G., B.L.F., J.T.) included two members representing each CRISM node, from British Columbia, Alberta, Ontario and Quebec. All members had relevant experience.

Design

Environmental scans employ systematic, objective methods to efficiently review both formal and tacit knowledge, and are increasingly recognized as valuable in healthcare.[18] Methodology typically involves a combination of grey and primary literature searches, surveys and/or interviews. [19] This design aims to enable a clearer understanding of the policies, practices and processes in use or planned outside one's own organization.[18,19] Detecting trends, challenges, promising practices and successful strategies in other jurisdictions can inform service delivery, implementation and scale-up planning.[18-20]

This environmental scan used a brief survey designed internally (see Appendix 1). Steering Committee members provided input on data fields of interest. Open-ended questions covered: location, client demographics, service delivery model, clinical (e.g. medications) and operational characteristics (e.g. hours, staffing), and program facilitators and barriers. Client demographics were limited to 'active clients' defined as having at least one iOAT dose in the seven days preceding the scan reference date. Following baseline, Steering Committee feedback was used to refine questions and identify additional priorities; amendments included new questions on how previous barriers were addressed and whether oral OAT was co-prescribed. At follow-up, program modifications were also prompted. Non-operational programs at follow-up were asked about discontinuation rationale.

The five-year scan protocol scheduled baseline (September 1, 2018) and six-month follow-up (March 1, 2019) surveys in year one with annual follow-ups thereafter to capture the dynamic nature of service delivery. An iOAT program was defined as providing prescribed OAT for injection within a supervised environment. Any operational program at scan reference dates were eligible.

The University of British Columbia/Providence Health Care Research Ethics Board approved the study.

Search Methods

As the provincial iOAT education provider, BCCSU staff had existing contacts with service providers in BC. The Steering Committee facilitated further program identification through the national CRISM network. Primary literature (via PubMed) and systematic Google searches were employed to identify additional programs operational at the scan dates using the terms: injectable opioid agonist treatment/iOAT, diacetylmorphine, hydromorphone, opioid substitution/replacement treatment/therapy.

Data Collection

One key informant from each program was nominated by program staff or Steering Committee members (where involved directly in program operations). Nominations included staff who held

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detailed, up-to-date program knowledge through intimate involvement in day-to-day operations. Key informants completed the survey by email or phone, and were requested to consult with other staff (e.g. nurses, physicians, peers, pharmacists) to ensure representative program characterization. Data accuracy was confirmed iteratively throughout collection and validated prior to publication.

Data Analysis

Relevant data was extracted from surveys, or during phone interviews, and organized tabularly in Excel. Conventional content analysis was used by E.E. to identify codes derived from qualitative data (e.g. types of barriers)[21]; frequency counts summarized patterns in the data.[22] A second author (S.G.) repeated coding to verify trustworthiness.[21] Quantitative data were summarized using descriptive statistics, including tallies, percentages, means, and ranges. Program-specific data were frequently not recorded by multi-program service providers because of lack of internal utility; where data delineated by program were missing, combined program data have been presented.

RESULTS

Eleven programs were invited to participate at baseline, 12 at follow-up. All responded; nurses, physicians and clinic managers were key informants. Three take-home tablet-based hydromorphone programs were identified (Google search) but did not meet inclusion criteria.

Service Delivery Models

The earliest reported provisions of iOAT beyond clinical trial participants were March/April 2014 (hydromorphone) and November 2018 (diacetylmorphine). At baseline, 11 programs within urban centres in BC and Ontario were located (Table 1). Twelve programs at follow-up included two urban centres in Alberta and one new BC program; two baseline BC programs were on hold. The baseline scan identified four service delivery models consistent with the CRISM iOAT operational guideline[4]: 1) comprehensive/dedicated - wrap-around care exclusively for iOAT clients (two programs); 2) embedded/integrated - incorporation of iOAT within existing health and social services (eight programs); 3) pharmacy-based - iOAT induction at a community health clinic with pharmacy maintenance (two programs); and 4) hospital-based - iOAT provision during acute care (two programs). Appendix 2 has additional detail.

Clinical and Operational Characteristics

Program characteristics are summarized in Table 2. Clients self-injected iOAT under health care professional supervision, most commonly a nurse. The only exception was a hospital-based program in which nurses administered doses. Peer support workers provided support for clinical flow and outreach.

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Client capacity varied widely, from six to over 130 clients. Waitlists were reported by four programs at baseline and five at follow-up (Table 3). All programs were open seven days per week; daily hours ranged from six to 24. For programs without 24-hour access, formalized clinical sessions were held (i.e. morning, afternoon, and/or evening). Most programs offered open access, giving clients choice about when to dose (with a minimum time between doses). Alternatively, clients were booked individual appointments or allocated to scheduled treatment groups. Two doses per day was most common.

All programs offered hydromorphone; one also offered diacetylmorphine. At follow-up, one program prescribed a tablet formulation of hydromorphone, which according to client preference, could be crushed and injected, or consumed orally under supervision. Oral OAT was universally co-prescribed with iOAT and was generally available onsite. All programs facilitated engagement with other health and social supports through on-site ancillary services, co-location within an existing facility with these supports, or referrals to services in the immediate vicinity.

Clients

Most new starts and active clients were registered by programs operated by long-standing providers in which capacity was highest (Table 3). Clients receiving liquid hydromorphone were the largest group at baseline and follow-up (Figure 1). Among programs with available data, mean age for active clients was similar at both time points (47 and 43 years), while range (21-69 years) remained unchanged. A majority of clients were male (baseline 73%; follow-up 67%).

Barriers and Facilitators

Barriers and facilitators for ongoing service delivery were influenced by local resources, infrastructure, and regulatory context (Table 4). Limited program capacity, pharmacy issues and lack of diacetylmorphine access were most commonly reported as barriers. Rationale for the operational hold on two pharmacy-based programs included inadequate protocols and challenges with dose adjustments. The most commonly identified facilitators included client-centered care, positive client relationships, and access to other health and social services. Where employed, peer support workers were almost universally reported as a strength.

Program Modifications

Program modifications between baseline and follow-up sought to address unmet client need, or improve sustainability; including renovations to increase capacity, decreasing prescription fill timelines (from a few days to next day), on-site provision of hepatitis C and HIV treatment, access to one-on-one counselling, reducing daily dose frequency to decrease staff workload, and transitioning from group allocation to more flexible open access.

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Program Gaps

Access to iOAT remains limited in Canada. Notably, no programs existed in rural areas, many urban centres lacked programs, and inadequate capacity was illustrated by growing waitlists. A safe and engaging space for Indigenous peoples, youth (≤25 years) and women through tailored programming are crucial components of inclusive and equitable service delivery (Table 4). Such programming was not reported in association with iOAT provision specifically but referenced as available within a wider service context by two programs, which reported Elders in Residence and women's health sessions as ancillary clinic services, and an Indigenous service provider offering Elder and spiritual support.

INTERPRETATION

Summary of Results

Canadian decision-makers and service providers are focused on improving access to supervised iOAT as one OUD treatment option amidst the overdose crisis. Four service delivery models were operating in year one of this national environmental scan, typically integrated within existing services. Baseline programs were limited to urban centres in BC and Ontario, with new programs launching in Alberta by follow-up. Variation existed in clinical and operational program characteristics regardless of service delivery model. Clients were disproportionately male with a mean age of 47 at baseline and 43 at follow-up. Programs generally offered client-centred care with access to other health and social services. Limited program capacity and diacetylmorphine inaccessibility were commonly reported barriers. Program delivery was considered a dynamic process shaped by ongoing learning and evolving client care needs. Service gaps persist in high-risk communities across Canada.

Explanation of the Findings

The comprehensive/dedicated model mirrors the approach widely employed in Europe.[4] The other three represent emerging models, that to our knowledge, were first implemented in Canada.[4] The most common model (embedded/integrated) enabled service providers to leverage existing infrastructure, resources and relationships to facilitate timely set-up and 'meet clients where they are at' in the community. On hold at follow-up, pharmacy-based programs are anticipated to recommence in the future to address ongoing client needs.

For all models, offering iOAT as an open-ended treatment within the OUD continuum of care was consistent with almost all European jurisdictions,[12] BC provincial iOAT guidelines[14] and World Health Organization OAT recommendations.[23] This approach affords clients and prescribers the flexibility to adjust care to meet changing needs. In one study of Swiss iOAT clients, approximately 30% of clients elected to transition to oral OAT annually.[4] The difference between total client starts and active clients in this scan may reflect similar trajectories.

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Diacetylmorphine, the mainstay of European iOAT programs, has only been available in Canada outside of a clinical trial setting since September 2016, through Health Canada's Special Access Program.[24] Access has remained limited primarily because of regulations and reliance on diacetylmorphine importation from Switzerland.[4] In contrast, hydromorphone is widely available, thus uniquely forming the foundations of iOAT in Canada. Driven by community experience and client advocacy, the injection of tablet-based hydromorphone was initiated as a pilot primarily for individuals who use illicit prescription opioids.[26]

The overdose crisis has impacted Canadian regions differently; BC, Alberta and Ontario demonstrate the highest death rates.[1] In BC, expansion was facilitated by the release of provincial guidelines in October 2017;[14] the density of programs in Vancouver are centred around the Downtown Eastside neighbourhood because of its high prevalence of individuals at risk of opioid overdose. The continuation of programs in Ottawa, Ontario, and the newer programs in Calgary and Edmonton, Alberta, provide crucial geographical treatment coverage; however, stark service gaps persist. A notable urban centre without iOAT was Canada's largest city (Toronto, Ontario), where 20% of the province's opioid overdose deaths occurred in 2018.[27] Even where urban programs exist, capacity is commonly inadequate. Though small and suburban communities across Canada are also impacted by the overdose crisis,[28] there are no iOAT programs that service them.

In 2019, diacetylmorphine was approved by Health Canada for urgent public health need.[29] A first internationally, hydromorphone was also approved as a medical treatment for severe OUD.[29] This regulatory shift removed barriers and brought Canada in line with several European countries, in which a definitive legal basis exists for ongoing iOAT provision.[12] However, action to improve iOAT access, particularly diacetylmorphine, has been too slow for communities facing daily harm from a fentanyl-contaminated illicit drug supply,[30] and the frontline workers supporting them.[31] Further changes are likely required to facilitate medication access, including domestic manufacturing of diacetylmorphine to improve supply chain operations and reduce costs, and widespread medication coverage under provincial drug benefit plans. Additional funding could enable existing programs to address ongoing barriers to service delivery and improve engagement.

Future Directions

Other CRISM iOAT projects will further support best practice and scale-up, including a qualitative study examining in greater depth the barriers and facilitators within service delivery models. For more information on CRISM and other iOAT projects, see https://crism.ca.

Limitations

Data accuracy was reliant on program records and key informant engagement with other staff. Demographic data, including ethnicity and non-binary gender data, were incomplete because of record variability and feasibility. These gaps are important given that the overdose crisis has affected Indigenous peoples disproportionately in BC[32], particularly women and girls,[33] and

racial discrimination is an ongoing barrier to health care access in Canada.[32-34] Gender data inaccuracies are a limitation because of the unique barriers experienced by gender-diverse persons in accessing drug treatment services.[35] More detailed data are required to improve understanding of the intersectional nature of racial, gender and sexual identities among iOAT clients, and address disparities by responding to specific needs.[33] Response bias inherent in self-report surveys further limited data. Lack of published literature, publicly available information, and reliance on CRISM networks may have resulted in programs being omitted. This may be improved by drawing on wider clinical networks, communities of practice and consultation with other provincial iOAT training and regulatory bodies.

Conclusion

The limited access to iOAT within Canada is currently expanding as part of the opioid overdose crisis response. This environmental scan demonstrated that iOAT can be implemented successfully using diverse service delivery models that respond to local contexts and client needs. As an evidenced-based treatment, the urgent scale-up of iOAT is needed to meet service gaps that persist in high-risk communities. The standardized dataset generated by this scan will enable ongoing monitoring and evaluation to inform policy and practice.

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Table 1: Summary of iOAT Service Delivery Models by Service Provider

Service Provider/s*	Program Name	City	Province†	Start Date	Service Delivery Model‡
Providence Health Care	A: Crosstown Clinic	Vancouver	BC	Mar/Apr 2014§	Comprehensive/dedicated; stand-alone clinic
	B: St Paul's Hospital	Vancouver	BC	Jul-2017‖	Hospital-based; inpatient only
PHS Community Services Society (PHS)	C: Columbia St Community Clinic	Vancouver	BC	Mar-2017	Pharmacy-based
	D: Molson iOAT Clinic	Vancouver	BC	Jan-2018	Embedded/integrated; overdose prevention site - separate entrance and injection space
	E: Molson Tablet iOAT (TiOAT) Program	Vancouver	BC	Jan-2019	Embedded/integrated; overdose prevention site - shared entrance and injection space
	F: PHS Housing Units¶	Vancouver	BC	Sep-2016	Embedded/integrated; supported housing
Vancouver Native Health	G: Vancouver Native Health Clinic	Vancouver	BC	Aug- 2017	Pharmacy-based
Vancouver Coastal Health	H: Downtown Community Health Centre	Vancouver	BC	Jun-2018	Embedded/integrated; community health centre - shared entrance, separate injection space
Fraser Health	I: Lookout iOAT Clinic	Surrey	BC	Jun-2018	Embedded/integrated; community health centre - separate entrance and injection space
Ottawa Inner City Health (OICH)	J: Shepherds of Good Hope Shelter	Ottawa	ON	Nov-2017	Embedded/integrated; shelter
	K: John Howard Supported Housing	Ottawa	ON	Aug-2018	Embedded/integrated; supported housing
	L: The Ottawa Mission Hospice	Ottawa	ON	May-2018	Embedded/integrated; hospice
Alberta Health Services	M: Sheldon M. Chumir Health Centre	Calgary	AB	Oct-2018	Dedicated/comprehensive; co-located with community health centre
Alberta Health Services / Inner City Health & Wellness	N: Royal Alexandra Hospital	Edmonton	AB	Oct-2018	Hospital-based; inpatient (and outpatient temporarily) via on-site supervised consumption site

* service providers included regional health authorities and community not-for-profit organisations, commonly with an operational or funding partnership
† Canadian provinces reporting iOAT services as of 1 March 2019 were British Columbia (BC), Ontario (ON) and Alberta (AB)
‡ based on a range of pharmacy partnerships for dispensing, including private and health authority facilities located on-site, within the community or a hospital
§ site of iOAT clinical trials over the period 2005-2014; start date refers to new clients receiving injectable hydromorphone outside of clinical trial participants
‖ start date represents initiation of formalized prescribing within the hospital using pre-printed orders; iOAT was prescribed earlier using other methods
¶ PHS has three supported housing units in which iOAT had been offered as of 1 March 2019; this program is provided at all units by the same staff

Table 2. Summary of Key Clinical and Operational Program Characteristics

Program Name	Hours*	Core onsite staff†	iOAT‡	Capacity (# clients)		Available daily doses		Dose access structure§	
				Sep-18	Mar-19	Sep-18	Mar-19	Sep-18	Mar-19
A: Crosstown	13.5	Nurses, social workers, clinic assistants, pharmacists	HDM DAM	130-145	130-145	3	3	Group	Open
B: St Paul's Hospital	24	All inpatient service staff	HDM	No limit	No limit	‖	‖	‖	‖
C: Columbia St Community Clinic¶	7	Nurses, pharmacists	HDM	65	-	2	-	Open	-
D: Molson iOAT Clinic	7	Nurses, mental health workers, peer support workers	HDM	30	60	2	2	Open	Open
E: PHS Supported Housing	6 - 7	Nurses, mental health workers (depending on housing unit)	HDM	6	6	2	2	Open	Open
F: Molson TiOAT Program	9	Nurses, harm reduction workers, peer support workers	tHDM	-	60	-	5	-	Open
G: Vancouver Native Health Clinic¶	7	Nurses, pharmacists	HDM	65	-	2	-	Open	-
H: Downtown Community Health Centre	8	Nurses, community liaison workers, pharmacists and technicians	HDM	14	14	2	2	Open	Open
I: Lookout iOAT Clinic	10	Nurses, harm reduction workers, clinic coordinators	HDM	50	50	2	2	Group	Open
J: Shepherds of Good Hope Shelter	24	Client care workers	HDM	6	6	7	4-5	Open	Open
K: John Howard Supported Housing	24	Nurse coordinators	HDM	21	21	7	4-5	Open	Open
L: The Ottawa Mission Hospice	24	Nurse coordinators	HDM	8	8	7	4-5	Open	Open
M: Sheldon M. Chumir Health Centre	10.5	Nurses, peer support workers, clinic managers, office assistants	HDM	-	35	-	3	-	Group
N: Royal Alexandra Hospital	9	Nurses, physicians, peer support workers, addiction counsellors	HDM	-	15	-	3	-	Booking

* hours represent the approximate amount of time the program is available for clients per day (may include service closure for staff breaks or hand-over sessions)

† staff available during all opening hours and providing the foundation for day-to-day operations (other staff available at varying times i.e. physician, psychiatrist, dietician)

‡ available iOAT medications: liquid hydromorphone (HDM), liquid diacetylmorphine (DAM) (medical heroin), and tablet hydromorphone (tHDM)

§ open = clients attend any time; inpatient = as clinically indicated; booking = individual appointment; group = client allocation to treatment group with specified times

‖ as clinically indicated during acute care admission; iOAT dose administered directly by nursing staff

¶ programs employ the same community pharmacy for maintenance doses; data presented here represents the community pharmacy characteristics only

Table 3. Summary of Clients

Program Name	Total Client Starts (n)		Active Clients (n)*		Waitlist (n)		Age (mean, range)		Gender (n)†					
									Sep-18			Mar-19		
	Sep-18	Mar-19	Sep-18	Mar-19	Sep-18	Mar-19	Sep-18	Mar-19	F	M	T	F	M	T
A. Crosstown	259	291	126	123	345	400	44, 21-69	44, 21-69	31	94	1	39	85	0
B. St Paul's Hospital	§	§	§	§	0	0	§	§	§	§	§	§	§	§
C – F. All PHS programs§‖	286	312	67	119	0	112	§	§	§	§	§	§	§	§
G. Vancouver Native Health Clinic	10	-	1	-	0	0	53, 53	-	0	1	0	-	-	-
H. Downtown Community Health Centre	7	18	4	11	0	0	51, 36-68	48, 36-68	1	3	0	4	7	0
I. Lookout iOAT Clinic	37	77	22	18	0	0	45, 30-61	43, 27-62	4	18	0	4	14	0
J-L. All OICH programs§	26	29	22	23	55	75+	40, 25-27	43, 25-57	11	11	0	12	10	0
M. Sheldon M. Chumir Health Centre	-	45	-	22	-	0	-	35, 22-48	-	-	-	4	18	0
N. Royal Alexandra Hospital	-	9	-	6	-	0	-	44, 29-64	-	-	-	3	3	0
Total	625	781	242	322	400	587+	47, 21-69	43, 21-69	47	127	1	66	137	0

* active client defined as receiving at least one dose of iOAT in the 7 days prior to the scan reference date

† T=transgender/non-binary; note: variable reporting existed for this gender category across sites

§ data not available / data stratified by program not available where more than one program operated by a single service provider

‖ age and gender data available at follow-up for total client starts (n=312): mean age, range (41, 20-73); gender (n,%); M (230, 74%); F (77, 25%), T (5, 2%)

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Figure 1. Proportion of active clients in Canada receiving each available iOAT medication at baseline and follow-up

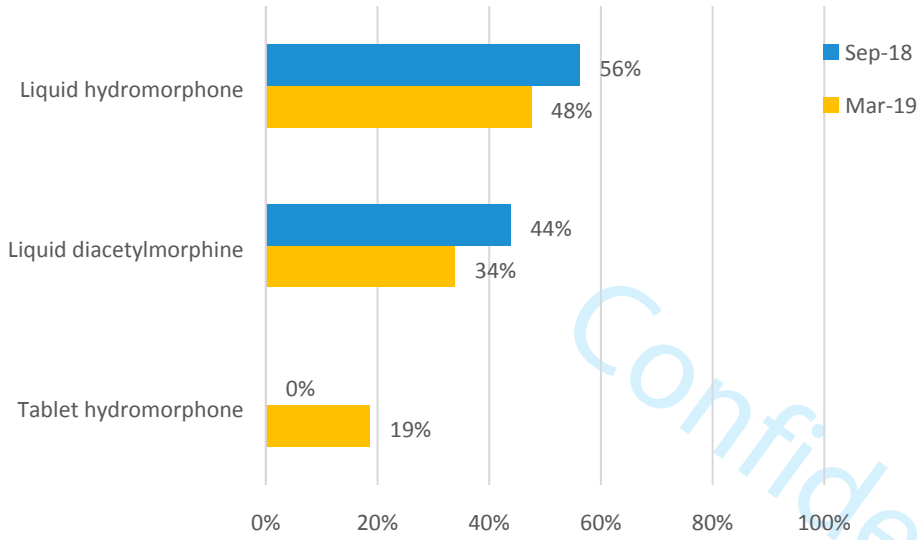Table 4. Frequency of Facilitators and Barriers for Ongoing Service Delivery*

Facilitators	Frequency	Barriers	Frequency
Client-centred care (i.e. responsive to client goals and needs)	13 (93%)	Limited program capacity	7 (50%)
Positive relationships with clients (i.e. rapport, trust, sense of community, client involvement in care plan)	10 (71%)	Pharmacy issues (i.e. delay between prescription and dose, inadequate protocols for adjustment and missed doses, lack of community pharmacy options for maintenance/syringe prep)	6 (43%)
Access to ancillary services (i.e. other health and social services to provide "wrap around care")	7 (50%)	Lack of access to diacetylmorphine	5 (36%)
Strong relationship with community partners (i.e. overdose outreach team, other health services such as primary care, community iOAT service providers)	7 (50%	Limited medication strength availability (i.e. too low - only 10mg/mL in Ontario; only 50mg/mL in British Columbia)	5 (36%)
Low barrier access (i.e. service in supported housing)	6 (43%)	Physical space restrictions	5 (36%)
Harm reduction approach	5 (36%)	Inadequate staff coverage/capacity	4 (29%)
Rapid/simple new starts process (i.e. same day)	5 (36%)	Provision of oral OAT (i.e. no on-site provision, lack of access to preferred medication)	4 (29%)
Peer support workers	5 (36%)	Management of stimulant use (i.e. ongoing concurrent use, presence of fentanyl and carfentanil)	4 (29%)
Active client follow-up to support engagement	4 (29%)	Inadequate ancillary services and facilities (i.e. lack of community housing and counselling support)	4 (29%)
Pharmacy relationship (i.e. on-site pharmacy, strong partnership with dispensing community pharmacy)	4 (29%)	Challenges with continuity of care (i.e. community to jail/prison and acute care; acute care to community)	4 (29%)
Housing First approach (i.e. shelter into housing)	2 (14%)	Issues with treatment induction (i.e. lag time between eligibility approval and first dose, inadequate titration protocols, prolonged wait times for split doses)	3 (21%)
Well-trained and knowledgeable nursing staff	2 (14%)	Limited opening hours	3 (21%)
Multiple physician prescribers (i.e. adequate cover for assessments, dose adjustments and oral OAT)	1	Issues with group allocation structure (e.g. access barrier for clients; management challenges for staff)	3 (21%)
Access to diacetylmorphine	1	Inadequate client records/tracking (i.e. paper-based records, lack of monitoring & active follow-up to support engagement)	2 (14%)
Regular communication within multidisciplinary team	1	Challenges engaging clients (i.e. clinical adherence, following rules & responsibilities of service)	2 (14%)
Provision of all medications onsite	1	Lack of programming for specific groups - females, youth, Indigenous peoples (e.g. female only sessions)	1
Establishment of a provincial reference number for hydromorphone dispensing in electronic system	1	Lack of access to brand medications (i.e. Dilaudid rather than generic hydromorphone)	1

* barriers/facilitators have been represented only once when: a) reported in baseline *and* follow-up; b) barriers/facilitators fall within the same theme for the same program. Note that reported barriers/facilitators were unprompted and reflect the survey response only; approaches, activities, processes may still be employed though not reported

Appendix 1: Summary of CRISM National iOAT Environmental Scan Survey Questions (Mar 1, 2019 version)*

SECTION A: PROGRAM OVERVIEW

A1. Which organisation governs your iOAT program?

A2. Which organisation/s provide funding for your iOAT program?

A3. What is the name of your iOAT program

A4. *(If different)* In which clinical space is your program located?

A5. What is the street address of your iOAT program?

A6. In what city is your iOAT program located?

A7. What is the model of iOAT service provision?

For example, embedded within an existing primary care clinic, provided via a community pharmacy partnership, within an existing housing unit, or a stand-alone dedicated iOAT clinic.

*A8. What are the goals for your iOAT program?

*A9. What is your iOAT program philosophy of care?

For example, low barrier or harm reduction etc.

SECTION B: PROGRAM DATES AND CLIENT TARGETS

B1. On what date did the first patient receive their first dose of iOAT through your program?

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B2. What is the target number for active clients in your iOAT program?

Please note that this may also be the same as total capacity of the program.

B3. What date does your program aim to have reached this target number of active clients, or what date *did* your program reach that target number of active clients?

B4. Has there ever been waiting list in your iOAT program?

B5. As of 1 March 2019, did you have a waiting list, and if so, how many people were on the waiting list?

B6. What is the total number of clients who have been started in your iOAT program?

Please note that clients do not have to be retained on iOAT to be included in this number - this question refers specifically to the total number of iOAT starts since program initiation.

SECTION C: PROGRAM OPERATIONS

C1. How many iOAT stations does your facility have?

*C2. How long does a client have to complete the administration of a dose?

C3. How many doses are available for clients per day?

C4. How many sessions are offered per day?

C5. What are the hours of these sessions?

C6. How are the sessions structured?

2

Please highlight the appropriate option from a, b and c below.

a) Clients are allocated to a group and attend in the specified group time in each session

b) Clients can show up for a dose anytime as long as it is between the session hours (and in accordance with the required period between doses)

c) Other, specify: ....

C7. *(If applicable)* How many clients are allocated to one group?

*C8. Is oral OAT available onsite?

SECTION D: ACTIVE CLIENTS

For the next following questions, "active patient" is defined as having received at least one dose of iOAT in the past 7 days as of March 1, 2019.

D1. How many active clients do you have in your iOAT program?

Hydromorphone	
Diacetylmorphine	
TOTAL	

D2. What was the average age and age range for your active iOAT clients?

Average Age	
Age Range (youngest)	
Age Range (oldest)	

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D3. What was the gender balance for your active iOAT clients?

Please report as female, male, non-binary, transgender if possible.

Female	
Male	
Non-binary	
Transgender	
TOTAL	

D4. How many of your active iOAT clients identify as indigenous?

Please note that it is recognised that the majority of programs do not routinely collect this information, and it may not be possible to provide it here.

Indigenous	
Non-indigenous	
TOTAL	

SECTION E: ANCILLARY SERVICES

E1. What onsite ancillary services can clients access through your iOAT program?

For example, dental services, primary care and counselling.

*E2. What referrals for ancillary services can be made for clients in your iOAT program?

E3. What is the composition of the onsite iOAT program staff?

Please note the number of hours worked on average per week if part time (where possible).

STAFF MEMBER	FULL TIME (# OF STAFF)	PART TIME	
		(# OF STAFF)	(# HOURS PER WEEK)
Physician iOAT prescriber			
NP iOAT prescriber			
Registered nurse			
Psychiatrist			
Social Worker			
Harm Reduction Worker			
Peer Support Worker			
Dietician			
Patient Care Manager			
Clinic Manager			
Program Coordinator			
MOA			
Clinic Assistant			
Pharmacist			
Other, please specify:			

E4. What type and how many staff are rostered on and available onsite for clients accessing the iOAT program at any one time?

For example, 2 nurses, 1 harm reduction worker, 1 physician.

SECTION F: LESSONS LEARNED - BARRIERS, GAPS AND STRENGTHS

Please liaise with your iOAT staff to represent a range of perspectives within your program.

F1. *(For programs completing this scan survey for the first time)* What were the barriers or challenges that were experienced when planning and setting up your iOAT program?

F2. What are the current gaps in your iOAT program?

Please outline areas that could be improved in your current program.

*F3. *(For programs that have already completed a first scan survey)* Have any of the gaps identified in previous scan been successfully addressed, and if so, how have they been addressed?

F4. What are the current strengths of your iOAT program?

Please outline what is working well and / or critical to success currently in the program.

*F5. Are there any other important lessons learned that should be shared with others involved in iOAT program planning, implementation and maintenance?

SECTION G: OTHER COMMENTS

G1. Please feel free to include any other comments to help characterize your iOAT program.

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*new question in the Mar 1, 2019 (follow-up) scan survey

Appendix 2. Summary of Service Delivery Models for the Provision of iOAT in Canada

Service Delivery Model	Description
Comprehensive/dedicated	• Dedicated specifically to the delivery of iOAT induction and maintenance by a multidisciplinary team • Clinics may be stand-alone or co-located within or near addiction or mental health services • Other health and social services provided on-site to generate comprehensive "one-stop shop" with wrap-around care for iOAT clients • Access to additional specialist services by referral as required
Embedded/integrated	• iOAT induction and maintenance embedded within existing health, harm reduction or social services • May be more formalized and share elements of the dedicated model with a separate clinical injection space, client flow and staff, or may be fully integrated within the shared resources and infrastructure of the existing facility • May have a smaller multi-disciplinary staff team; generally, requires ongoing partnership with other community health and social service providers co-located within the same building or immediate vicinity • iOAT prescriber may be located elsewhere; regular visits to the prescriber required by clients to continue maintenance on iOAT
Pharmacy-based	• iOAT induction is conducted at community clinic with transfer to a community pharmacy for maintenance once client is stabilized • Ongoing visits to the prescriber (usually at community clinic) for dose adjustments, primary and addiction care, and other health and social services
Hospital-based	• Inpatients receive iOAT induction or continuation of iOAT maintenance if active in a community service • Close working partnership between hospital clinicians and community iOAT services to establish best approach to care, and streamline movement between hospital and community to mitigate discontinuation on discharge