A novel home- and community-based mobile outreach detoxification service for individuals identifying problematic substance use: implementation and program evaluation

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Abstract

Setting Substance use remains a pervasive public health issue throughout Canada, exerting substantial economic, social, and political pressure on health care systems, while impacting lives of affected individuals. The advent of COVID-19 has been doubly perilous; it restricts existing programming, while exacting a worsening toll on mental health and substance use fronts across the demographic landscape.

Intervention In response to the crisis, the Mobile Withdrawal Management Service (MWMS) was established in 2019 through a Winnipeg-based community health centre. MWMS is a community-based outreach withdrawal service that supports individuals for up to 30 days. Clients may choose where services are accessed in the community, including their own home. For those without safe housing, short-term accommodation is offered. Additionally, Indigenous cultural support, peer support, trauma counselling, and linkage to primary care are available.

Outcomes The MWMS approach is resolutely patient-centred. The program meets people where they are at, both figuratively and literally. Agility and adaptability—particularly in the context of substance use treatment—is uniquely advantageous in maintaining service delivery to the broad demographic cross-section revealed in the data. Moreover, relative to inpatient detoxification services, MWMS holds significant potential for system-wide cost savings.

Implications The presented approach addresses a significant gap in addiction services. There is substantial capacity for both increased access and system savings with implementation of this approach. Furthermore, the principles behind the program are readily transferable to different contexts and easily modifiable to local conditions. There is particular potential for servicing hard-to-reach populations, with respect to both physical and social geography.

Résumé

Lieu L’usage de substances demeure un problème de santé publique omniprésent au Canada; en plus de son impact sur la vie des personnes touchées, il exerce une pression économique, sociale et politique considérable sur les systèmes de soins de santé. L’avènement de la COVID-19 a été doublement périlleux : il a limité les programmes existants tout en aggravant le bilan en matière de santé mentale et d’usage de substances dans toutes les couches de la société.

Intervention En réponse à la crise, un service mobile de sevrage contrôlé (Mobile Withdrawal Management Service – MWMS) a été créé en 2019 par un centre de santé communautaire de Winnipeg. Le MWMS est un service de sevrage de proximité qui offre une aide individuelle pendant une période pouvant aller jusqu’à 30 jours. Les usagères et usagers peuvent choisir l’endroit où recevoir ces services dans la communauté, y compris à leur domicile. Un hébergement à court terme est offert aux personnes sans logement sûr. Du soutien culturel aux personnes autochtones, du soutien par les pairs, du counseling traumatologique et un aiguillage vers les soins primaires sont aussi disponibles.

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**Introduction**

Individuals identifying problematic substance use face a myriad of challenges when seeking support. Substance use and addiction, often compounded by co-morbid mental health issues, remain significant problems in our country, and the corresponding complex interactions between these issues and the social determinants of health result in a daunting care journey for many individuals (Vigo et al. 2020).

Nevertheless, despite the widespread nature of the problem, we—as a health care system—continue to perform poorly in the areas of mental health and addiction, a gap further exacerbated by the pandemic (Hamel et al. 2020). COVID-19 both curtails and restricts existing programming, just as the pandemic exacts a worsening toll on the mental health and substance use fronts, a conflation with significantly negative consequences for individuals in need of support (Enns et al. 2020).

Many individuals identify fear of detoxification and the corresponding suffering exhibited during the process, ranging from unpleasant symptoms to life-threatening events. Moreover, detoxification is a crucial portal of entry for many individuals seeking further treatment for substance use disorder (Vipler et al. 2018). Barriers at this juncture of the journey may therefore result in a schism in the longer pathway.

In this article, we present an innovative community-based mobile outreach detoxification service, implemented in 2019 on the doorstep of COVID-19’s emergence. MWMS (Mobile Withdrawal Management Service) operationalizes the oft-cited—yet discouragingly elusive—mantra of “meeting people where they are at”, by bringing detoxification services directly to participants. We discuss the outcomes we have observed over the past two years and reflect on some of the opportunities, challenges, and lessons learned during the experience, with an eye to the future on what is sure to be shifting and uncertain terrain.

**A brief review of the literature**

Substance use in Canada remains a pressing societal issue. Recent data suggest that over three quarters of the population engaged in the use of a psychoactive substance in 2017 (Harms Scientific Working Group 2020). While not all substance use is problematic, research suggests a sharp rise in the use of fentanyl and methamphetamine in Manitoba over the past decade (Johnson et al. 2018).

Across Canada, lack of supports in addiction care has been highlighted as a major gap in care delivery (Wiercigroch et al. 2020). In terms of our local context, the picture in Manitoba appears to be similar in scope to many other jurisdictions across the country, and indeed around the world (Johnson et al. 2018). The Virgo Report, a sweeping study commissioned by the provincial government and released in 2018, identified major gaps in service for addiction care throughout the province (Virgo Planning and Evaluation Consultants 2018).

In the Manitoba context, Indigenous populations—through the historical and ongoing process of colonization—have been disproportionately impacted by problematic substance use (Bingham et al. 2019). Research indicates that programming must incorporate culturally safe mechanisms in order to appropriately and effectively implement treatment strategies (Kyoung-Achan et al. 2018).

The emergence of COVID-19 has impacted all Canadians and its effects will continue in profound, and at times unpredictable, mechanisms and processes for years to come. Of particular concern is how the pandemic has exacerbated the incidence and prevalence of substance use (Courtney et al. 2020).

Lack of accessible detoxification services is a well-established concern in Canada (Russell et al. 2020; McQuaid et al. 2017). A further gap exists between detoxification programs and connection to further services beyond the stabilization period. A large-scale study in the United States...
reveals that this gap has persisted, a finding plausibly replicated in the Canadian setting (Zhu and Wu 2018).

There are many examples in the literature of community-based programming centred on withdrawal management; however, an in-depth review of many models reveals that “community-based” often refers to non-facility-based models (Nadkarni et al. 2017). Nevertheless, most require that the individual attend a clinic or analogous space, at least periodically, which may, in itself, create a barrier to access. There is a dearth of research on supports provided along similar lines to home care models, which seek to—in broad terms—provide highly cost-effective services while fostering independence and relieving strain on facilities, and aligning overwhelmingly with individual preference of care provision at home (Genet et al. 2011).

Our intervention: The creation of the Mobile Withdrawal Management Service

Operated through Klinic Community Health, a community health centre based in downtown Winnipeg, MWMS is a community-based outreach withdrawal and stabilization service established in 2019. The program was developed in response to recommendations related to the Virgo Report and its assessment of substance use in Manitoba, and funded by the provincial government (Virgo Planning and Evaluation Consultants 2018).

The program supports people seeking to detoxify from substance(s) of concern, as identified by the client. Individuals are referred through a variety of channels, including the evolving option to self-refer to Klinic directly. Criteria for admission to the program include medical stability, psychiatric stability (as determined by, for example, no active suicidality or psychosis), and no previous history of complicated withdrawal requiring medical intervention (including past history of withdrawal seizures or delirium tremens).

The service can be accessed by clients for up to 30 days. Participants may choose where services are accessed in the community, with the preference most often identified as the home environment. For those without housing, or without safe or stable housing, short-term accommodation is made available through our partners for the duration of the programming, with built-in supports to secure longer-term housing, should that be a participant-identified objective. If transportation is a barrier, MWMS allows staff the ability to transport individuals to meeting locations.

The program operates with extended hours into the evening on a daily basis, 365 days per year. Individuals are visited or contacted each day of enrollment; the form of contact (text, phone call, or in-person visit) is determined based on client preference. In addition, Klinic operates an independent 24-hour crisis line which participants are encouraged to access after-hours should the need arise.

The program is staffed weekly with 60 nursing hours; 92 health and support worker hours; 64 peer support worker hours; 4 physician hours; and 8 program coordinator hours. There is no additional administrative staffing. The annual budget for the program is CDN$446,788.

Participants are provided scheduled contact with staff on a daily basis, and individuals are also provided contact information for MWMS workers that allows for direct communication via phone or text with staff during working hours. This allows individuals the option of reaching out to modify the care plan, request further support, and keep MWMS informed of any developments or arising concerns. In all interactions, staff adhere to the provincial Personal Health Information Act, which functions to ensure privacy and confidentiality.

Clinical interventions vary depending on the individual. These may comprise pharmacological treatment (including, though not exclusive to, opiate agonist treatment (OAT) initiation and/or stabilization where appropriate) and psychosocial interventions. Programming has expanded to include additional longitudinal follow-up through peer support and trauma counselling.

The care journey is tailored specifically to the individual. The end result depends on participant objectives, across a spectrum from short-term stabilization to transition towards longer-term treatment and recovery. MWMS continues to build and nurture community-level partnerships in an effort to support a range of client treatment options. Additionally, Indigenous cultural support, peer support, longitudinal trauma counselling, and linkage to primary health care are available. Group therapy sessions are currently in the planning stage and set to be introduced in 2022.

In instances requiring direct bridging to primary care—which may, in the case of ongoing OAT prescriptions—MWMS ensures a smooth transition with a “warm handoff” employing direct communication to partners in the care pathway to ensure continuity. The handoff occurs with direct participant involvement, prior to discharge, in an effort to minimize disruption for the client.

While MWMS is a withdrawal management service, the mandate nevertheless recognizes the spectrum of possible outcomes that individuals may experience in addiction care settings. To that end, harm reduction principles are incorporated into the care plan. These may include naloxone training, provision of safer consumption and sex supplies, sexually transmitted and blood-borne infections (STBBI), and pregnancy testing, as well as emergency contraception. During the more recent stages of the pandemic, participants were also offered the COVID-19 vaccine which was made available through Klinic’s vaccine distribution program.

With the emergence of COVID-19, MWMS was identified as an essential service that could not be shuttered. We swiftly identified the need to pivot our delivery methods to incorporate virtual care as a means of connecting with our clientele,
and worked to develop innovative practices to ensure safe access for all our clients while minimizing barriers.

**Outcomes**

MWMS as a program continues to mature and develop. At the outset, the importance of continuous quality improvement (CQI) and program evaluation were identified as foundational mainstays of an effective community health intervention. The program has moved through the implementation phase, and now requires rigorous evaluation in order to evolve and improve. There are robust opportunities for data collection and ensuing analysis. MWMS operates through an electronic medical record (EMR) connected to other health care services throughout the region, and therefore quantitative data can be generated through the electronic record.

In addition, the value of participant narratives is recognized as an important source of qualitative data. All participants are invited to provide anonymous feedback through an organizational channel separate from MWMS where individuals may participate in a structured survey. A formal analysis of participant viewpoints is forthcoming.

Between August 26, 2019 and September 19, 2021, MWMS received a total of 343 referrals. Referral sources included 41% from community-based primary care practitioners; 38% from specialized outpatient addiction clinics; 14% from in-hospital transfers; 5% from psychiatric services; and the remaining 2% from other sources.

Individuals who self-identify as female represented 202, or 59%, of the total referrals during this same timeframe, while participants self-identifying as male made up 141 referrals. There were no self-identifying non-binary individuals enrolled over this period.

The age of participants ranged from the age of eligibility of 18 upwards. Table 1 reveals an equal distribution of male and female participants in all age groups, with the exception of the youngest cohort (18–24), where distribution skewed towards women (30 as compared with 6). The majority of participants of either sex were between the ages of 25 and 44.

| Age   | Female | Male |
|-------|--------|------|
| 18–24 | 30     | 6    |
| 25–34 | 85     | 60   |
| 35–44 | 43     | 35   |
| 45–54 | 20     | 17   |
| 55–64 | 11     | 14   |
| 65 and older | 13 | 9   |
| Total | 202 | 141 |

There were a total of 32 individuals (15 women and 17 men) who indicated on referral that they were homeless or precariously housed. These participants were offered short-term housing for the duration of the program, with linkage to support workers and longer-term housing solutions if desired. The remainder of participants enrolled in the program indicated that they were adequately housed.

Two hundred and twenty-five individuals (64.5%) of those enrolled went on to complete the program, as defined by participants’ self-identified goal at intake, to a maximum of 30 days (with some cases of extensions beyond 30 days in appropriate circumstances, such as an imminent bed date in a longer-term program). Identified individual objectives ranged from stand-alone detox, to an initial step in the road to recovery. Ninety-two participants transitioned directly into treatment programs following their participation with MWMS.

The primary substance of concern identified by participants was alcohol, mirroring other substance use–influenced presentations seen in other facilities in our jurisdiction (Government of Manitoba 2020). Methamphetamine was the second substance of concern, although over time opiates have gained traction among referrals, again corresponding to a provincial trend throughout the pandemic (Hoye 2021).

Over this period, there were nine instances of clinical complications as defined by program criteria. There were no overdoses, no hospitalizations, and no deaths. This is a significant outcome, as research shows that individuals with problematic substance use are known to experience higher rates of emergency and acute health care system utilization as well as higher rates of mortality in comparison with the general population (Harms Scientific Working Group 2020).

The impact of COVID-19 on program enrollment reflected broader patterns of increased substance use during the evolution of the pandemic. From the quarter immediately preceding the pandemic to the peak of the second wave in Manitoba in early 2021, there was a 67% increase in referrals to the program.

**Discussion and the path ahead**

The MWMS story reflects the program’s growth in the time of COVID-19. While challenges were substantial, key learning points emerged that hold implications regardless of the future trajectory of the pandemic and its eventual denouement.

Across the health care spectrum, COVID-19 has necessitated system recalibration; care for those using substances has been no different. The evolution of a mixed model combining in-person and virtual/telephone visits in the MWMS program appears promising and reflects emerging evidence regarding the suitability of a virtual shift in the broader field (Melamed et al. 2020).
The importance of agility in programming has become apparent with COVID-19–related restrictions, yet its application extends beyond the pandemic. A core strength of MWMS is the ability to embrace flexibility and pivot where needed. While credence is often given to the notion of “meeting clients where they are at”, health care system rigidity often results in a failure to approximate this ideal. In particular, when engaging with those encountering problematic substance use—with its frequently chaotic biopsychosocial context—this principle is more present than ever.

Furthermore, research has shown the importance of a longitudinal multidisciplinary approach to care for those with problematic substance use (Moos and Moos 2003). The MWMS model endeavours to specifically avoid the “stand-alone detox” approach, and instead to act as a bridge.

While both mobile outreach clinics and community-based detoxification facilities are commonly used strategies in many settings, there is a paucity of evidence in the literature for home-based outreach supports. This “home care” model, including temporary housing options for the homeless or precariously housed, in withdrawal services receives only scant attention in the literature. However, the principle described by the World Health Organization which understands that “…home is a place of emotional and physical associations, memories and comfort”, has direct applicability in detoxification service delivery (World Health Organization 2008).

The high uptake of MWMS by women is illustrative of the barrier-lowering potential of home-based service delivery. Previous data in other contexts show that women are less likely than men to access withdrawal services, but enrollment in MWMS reveals a reversal of this trend (Greenfield et al. 2007). Barriers associated with existing, rigid gender-specific detoxification and residential treatment services are obviated when supporting individuals in their own homes. Similarly, co-ed programming can be a deterrent for some individuals seeking withdrawal services, a concern mitigated by this approach. Furthermore, childcare imperatives—likely skewed towards women—favour a home-based approach, which may also account for the far greater number of young women enrolled in MWMS.

This example segues into a broader question of why people choose a home-based approach when that choice exists? There are a multitude of reasons for this, including caregiver requirements, fear of stigma, the need for safety, comfort, stability, and lengthy wait times for current detoxification services, among many others. As yet, this has not been thoroughly elucidated in the addiction care literature.

Moreover, there are both geographic and normative advantages in centreing care at the individual’s (as opposed to the provider/system’s) location. The approach deliberately deconstructs power inequality, further enhanced by the involvement of peer support workers’ lived experiences (Eddie et al. 2019; Crabtree et al. 2018). Anecdotal evidence on client experience, in the form of client narratives, reflects high levels of satisfaction with the notion of care provision in the home. Frequent references are made by clients regarding the level of privacy afforded by MWMS during the otherwise exposing detoxification period. The upcoming second part of the provincially funded Virgo Report, a consultation tasked by the Manitoba provincial government, will provide more formalized qualitative evidence to that end.

Further feedback has indicated the importance participants place on the minimal disruption on daily life when services are delivered to them (in a geographical sense). This allows people the opportunity to continue all activities of daily living as they move through the withdrawal and stabilization phases. The model also mitigates the risks and vulnerability inherent in the immediate re-immersion period individuals face when completing residential programs.

The relative anonymity built into MWMS programming has reduced barriers for those populations who do not traditionally access addiction care, as is the case for professionals who are concerned about the risks associated with the perceived “glare” of conventional programs. As an example, the program has enrolled numerous health care professionals who otherwise would not engage in services for fear of stigma or exposure which may ultimately hold repercussions in the workplace.

Finally, as with any intervention, cost-effectiveness is a critical metric. While direct cost comparisons between the MWMS approach and conventional models (such as, for instance, inpatient/residential programs) are currently lacking, we know that the minimal physical infrastructure required for effective operation of MWMS eliminates a number of costs while nevertheless allowing intensive service delivery. The juxtaposition and resultant cost savings of home versus institutional care reveals potential for substantial fiscal gains (Weissert 1992). In addition, care provision outside of facilities relieves strain on increasingly overburdened institutions.

**Implications for policy and practice**

What are the innovations in this program?

- The related aims of engaging people on their own ground—and of removing the proverbial walls of the clinic—remain elusive goals in health care. For MWMS, this is an explicit objective that intentionally shifts care provision directly to the location of the individual. This outreach approach minimizes the need for physical infrastructure through deconstruction of the clinic as a physical nexus.
- Furthermore, the MWMS model deliberately leverages its inherent agility, allowing the program to flex with participant needs. It removes pervasive barriers intrinsic to
What are the burning research questions for this innovation?

- First, there is a clear need to measure participant outcomes, using both qualitative and quantitative methodology, in the short and long term. Outcomes must be compared with conventional community-based outpatient and inpatient models, to establish where the greatest impact is found and where best to apply this model.
- Second, while system cost-savings with the MWMS approach are expected, the cost-effectiveness of the MWMS intervention needs to be quantified in comparison to other withdrawal services.
- Finally, apparent reductions in established barriers must be evaluated against other approaches with the intention of ongoing amelioration in access.

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Declarations

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