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An Environmental Scan of Drug-Checking Services in Canada: Final Report

December 2024

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Acknowledgements

Conflict of Interest

The authors have no conflicts of interest to declare.

Note

The data presented in this report were collected between November 2023 and January 2024. It only represents the number or organizations and interview participants who responded to CCSA's invitation to contribute to the environmental scan of drug-checking services in Canada. The landscape for drug checking is rapidly changing. As such, there are more community drug-checking services operating in Canada.

Executive Summary

Drug-checking services, which allow users to test the composition of their drugs before use, enhance the safety and well-being of people who use drugs (PWUD) and the community. With over 40,000 deaths due to opioid toxicity since 2016 and a record number of stimulant-related poisoning hospitalizations, the urgency for drug-checking services has never been greater. Services are scaling up across Canada to meet this need, but they are facing different challenges and successes. The Canadian Centre on Substance Use and Addiction (CCSA) conducted an environmental scan to provide a snapshot of the landscape of drug-checking services in Canada, including existing capacities and gaps. We also collected suggestions from the community on the best ways to support implementing drug-checking services.

A survey and key-informant interviews were used to provide a knowledge base on community drug checking to policy makers, communities and other partners in substance use services, including harm reduction. We identified 30 organizations that provided community drug-checking services across nine provinces and territories from November 2023 to January 2024. This report describes the nuanced barriers, needs and recommendations made by respondents on how to improve drug-checking service provision and enhance accessibility, quality and effectiveness of drug-checking services in Canada. Key messages from the results include:

- There was great regional variation in community drug-checking services. These varied significantly in government support, financial resources, human resources, service models and technological adoption.
- Funding is both a barrier and facilitator of community drug-checking services in Canada.
- Technological challenges exist despite advancement and diversity in technologies used for community drug checking. These include barriers to adequate training and professional development, which are linked to the lack of funding, staffing and testing capacity.
- Legal exemptions remain a challenge in implementing services.
- Improving health equity and addressing barriers in implementing, accessing and using drug-checking services are key to improving the lives of PWUD.
- There is a need for clear guidance and oversight on regulating and operating drug-checking services in Canada.
- Stigma around substance use influences the social and political support for community drug checking and other harm reduction services in Canada.
- Using expertise, resources and a network of community support is key for effective service delivery.

Our findings highlight the multifaceted nature of drug-checking services in Canada and the critical need for comprehensive supports from various partners involved in substance use

health. Integrating drug-checking services into the broader social support systems is essential for improving the lives of PWUD by reducing substance use risks, improving the delivery of more effective and tailored clinical care and supports, and increasing access to health and other social services. Developing comprehensive and partner-informed responses to the barriers and challenges described in this report could help improve the landscape of drug-checking services.

Background

Statement of Purpose

The unregulated drug supply and associated toxic drug poisoning crisis is a serious and growing public health issue in Canada. Drugs from the unregulated supply often contain unexpected substances and unknown concentrations of expected substances. Each increases the risk of accidental drug poisonings and other substance use related harms among people who use drugs (PWUDs) (Canadian Community Epidemiology Network on Drug Use, 2020a, 2020b). More than 44,000 deaths have occurred due to opioid toxicity between January 2016 and March 2024 (Federal, provincial, and territorial Special Advisory Committee on Toxic Drug Poisonings, 2024). Stimulant-related poisoning hospitalizations have also reached record levels with 16,863 hospitalizations between 2016 and 2023 (Federal, provincial, and territorial Special Advisory Committee on Toxic Drug Poisonings, 2023).

Drug checking is a harm reduction service that has been put in place with the aim of minimizing the impacts of this increased uncertainty in drugs from the unregulated supply. In general terms, it allows the testing of unregulated drug samples to gain a better knowledge of the sample's contents.

Drug-checking services differ across settings. Community drug checking is an integrated service that provides a comprehensive way to address the risks associated with drug use. Some simply distribute self-testing strips or kits at festivals, for example. At the other end of the spectrum, some offer the support of technicians to analyze the drugs and offer a comprehensive array of services — such as education and counselling — to address a wide array of risks associated with drug use. Drug-checking technicians analyze the composition of voluntarily submitted drug samples (Leece, 2017; Maghsoudi et al., 2022; Meeson et al., 2019; Wallace et al., 2022). These population-based services provide people with information on the chemical composition of their drug samples and support their informed decision making on substance use (Kerr & Tupper, 2017).

Some studies suggest an overall acceptance and feasibility of use (Kutscher et al., 2024; Scott & Scott 2020). The efficacy of these services on behaviour change is mixed, with one study showing no behaviour change, in some cases, due to the inability of find substances free of adulterants and toxic substances (Goodman-Meza et al., 2022). In contrast, there is a growing body of work highlighting the positive impact of drug checking on behavioural intentions of PWUD (e.g., not using the drugs tested or using at a supervised consumption site), particularly when unexpected substances are identified (Betzler et al., 2021; Fregonese et al., 2021; Klaire et al., 2022; Maghsoudi et al., 2022; McDonald et al., 2023; Olsen et al., 2023).

Through co-ordinating the National Drug Checking Working Group (NDCWG), the Canadian Centre on Substance Use and Addiction (CCSA) has observed that community drug-checking services differ across Canada in government and financial support, program

implementation, sample collection, and technical and human resources (Park et al., 2023; Sage et al., 2022). From legal exemptions to daily operations and precarious funding, these services have evolved and rely on interjurisdictional collaborations for implementation support and guidance. The fragmented development of these services has created uneven service provision and characteristics, impacting the access to drug-checking services and their integration into the wider public health system.

To better understand the community drug-checking landscape — including existing capacities, gaps and the best ways to support drug-checking service implementation — through the NDCWG, CCSA and the Drug Resource and Education (DRED) Project conducted an environmental scan of community drug-checking services in Canada. What was learned through the scan can be used to enhance program and policy development across the country.

> ### About the NDCWG
>
> Formed in 2015, the National Drug Checking Working Group (NDCWG) provides a nationwide platform for communication and learning among drug-checking services as technologies evolve, models are tested and new jurisdictions take up drug checking. The group is made up of partners interested in developing, implementing and scaling up harm reduction services across Canada.
>
> The NDCWG includes 66 active members from 47 organizations in nine provinces and territories, 21 of which provide community drug-checking services. Members represent eight sectors, with community-based organizations being the most common.
>
> In 2022, CCSA partnered with members of the Drug Resource and Education (DRED) Project to jointly chair the NDCWG. Members of the DRED Project had been part of the inception and evolution of the NDCWG. As co-chairs, the DRED Project provides insights and guidance on how the NDCWG can best serve the community's needs.

Objective

The main objective of the environmental scan is to provide a knowledge base on community drug checking to policy makers, communities and other partners in substance use services and supports to increase the coverage and quality of drug-checking services across Canada.

Brief History of Drug Checking in Canada

Drug-checking services have evolved significantly in Canada over the years, aiming to reduce harm and improve public health outcomes for PWUD. Here is an overview of the key milestones and developments.

Figure 1: Brief history of drug checking in Canada

Early Years	
1990s	The concept of drug checking started gaining traction in Canada, influenced by the harm reduction movement in Europe. Community-based organizations, volunteers and partners began supporting the rave and festival scenes. Drug checking at the time was largely pill testing (e.g. for methylenedioxymethamphetamine [MDMA, ecstasy]) and reagent–colorimetric testing.
Expansion and Pilot Projects	
2004	ANKORS drug-checking program started at the Shambhala Music Festival in British Columbia.
2015	The National Drug Checking Working Group (NDCWG) was created after the Canadian Centre on Substance Use and Addiction (CCSA) hosted a meeting on preventing drug- and alcohol-related harms at music festivals in Canada.
2016	The opioid crisis began to escalate in British Columbia, leading to increased interest in harm reduction strategies, including drug checking.
2017-2019	First trial use of Fourier transform infrared (FTIR) spectrometer by the British Columbia Centre on Substance Use (BCCSU) and City of Vancouver. This provided proof of concept for community drug checking. (Refer to Drug Checking Technologies in this document for more information on FTIR.)
	University of Victoria and Toronto's Drug Checking Service received Health Canada's Substance Use and Addictions Program (SUAP) funding to pilot drug-checking services in Victoria and Toronto.
	Lantern services — the first pharmacy-based model of community drug-checking service — was established in British Columbia.
2020-2024	First Nation–led community drug-checking service was first established on First Nation lands in British Columbia.
	Community drug-checking services have expanded rapidly throughout Canada with nine provinces and territories operating at least one community drug-checking service with a mix of technologies in their jurisdictions.

Methodology

We used a survey and key-informant interviews in parallel to provide a knowledge base about community drug checking to guide the implementation of drug-checking services in Canada and increase the coverage and quality of drug-checking services across Canada. The survey was designed to provide insights into the operation and program characteristics of community drug-checking services. The interviews explored the operational and systemic barriers to implementing services, along with the types of support jurisdictions and organizations need to provide community drug-checking service. This mixed-methods approach allowed for diverse perspectives and provided a more complete picture on the specific challenges, needs and potential solutions to improving the implementation and quality of drug-checking services.

To conduct this environmental scan, we included the following target audiences for their expertise and knowledge on drug- checking:

- Organizations that provide drug-checking services, including those represented in the DCWG co-chaired by CCSA and the DRED Project.

- Partners interested in or knowledgeable about drug checking, including representatives from provincial, territorial and municipal governments.

To the best of our knowledge, no pan-Canadian environmental scan has been conducted to identify the needs and gaps in providing drug-checking services in Canada. However, researchers have conducted systematic and scoping reviews on harm reduction initiatives in general, including drug-checking services in North America (Maghsoudi et al., 2022; Milaney et al., 2022). The environmental scan conducted by Hutchison et al. (2023) in British Columbia and Yukon is referenced in this report as a secondary data source to support the analysis and description of the landscape of drug-checking services there.

The Advarra Institutional Review Board provided ethics approval for the environmental scan. Data collection was completed between November 2023 and January 2024.

Survey

The survey assessed active and anticipated drug-checking services across jurisdictions. It was hosted online through an open-source web application called Lime Survey and in a downloadable PDF form. The survey was available in English and French.

The survey questions were developed using various inputs:

- Community drug checking services in British Columbia/Yukon: An environmental scan (Hutchison et al., 2023)

- Collaboration with Harm Reduction Innovation Lab about their a North American– wide drug checking survey tool (refer to Park et al., 2023); and

- Expert advisory group drawn from the DCWG membership.

A draft of the survey questions was reviewed and revised by partners with expertise in harm reduction and drug checking. The final version was piloted with CCSA research team members who were not affiliated with this project to determine the face validity (relevance, language etc.) of each question. They also identified device and browser compatibility issues and question branching problems before implementing the survey.

The resulting survey instrument consisted of 28 closed-ended questions, with 22 open-ended questions. The survey does not collect demographic information at an individual level but collects general organizational data, such as name and location of the organization in Canada. The respondents were asked about the model of service provision, including reach and target audience, existing capacity, technology, expertise, potential training needs for drug-checking services and the impact of drug-checking services in their jurisdiction (e.g., the number of people who use the service, the number of samples tested).

Participants were mostly recruited from organizations that provide drug-checking services, including those represented in the NDCWG. A snowball technique was used to recruit other service providers in each jurisdiction. Overall, 28 organizations responded to the invitation to participate in the survey. Cash honorariums were provided for participation.

Key-Informant Interviews

We interviewed key informants to gain insights into why these gaps and challenges exist. They also provided recommendations on implementing drug-checking services. We also interviewed partners who are knowledgeable of or interested in drug-checking and other monitoring and surveillance initiatives across Canada. They included partners in the DCWG, program directors, researchers, policy and decision makers, representatives from provincial, territorial and municipal governments, and other senior public health representatives in the substance use field.

The interviews lasted up to 60 minutes. Cash honorariums were provided for participation.

Thirty-two interviews were conducted in all provinces and territories except Nunavut. Although participants were provided the option to participate in the interviews in the two official languages, all interviews were conducted in English.

All interviews were recorded and transcribed using the record and transcribe feature on Microsoft Teams and verified during data analysis with MAXQDA qualitative analysis software.

The data combined inductive and deductive thematic analysis to identify policy and practice needs, challenges and new recommendations unique to each jurisdiction and nationally (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006). The inductive strategy ensures that ideas are not moulded to fit predefined theories or frameworks. The deductive strategy still permits some organization of new information based on existing criteria, specifically the legal, political and social climate of harm reduction service, particularly drug checking in Canada. The inductive aspect offers greater flexibility in capturing participants' experiences

and subject matter expertise in each jurisdiction, while the deductive aspect guarantees that essential topics are not overlooked or dismissed in the overall assessment of the drug-checking landscape.

Limitations

The survey did not capture all the existing community drug-checking service providers in Canada, particularly in British Columbia and Ontario, due to a low response rate. Therefore, our findings are not representative of drug-checking services in those jurisdictions.

The key-informant interviews revealed an existing drug-checking service in provinces like Manitoba where the survey data indicated that services were just being implemented in the province. Therefore, the findings rely on the strengths of both data collection methods to paint the best available national picture of drug-checking services.

While CCSA was able to connect with relevant partners and interested organizations in 12 provinces and territories, the findings will not include an examination of the landscape in Nunavut due to limited access to relevant partners in that territory.

Findings

Regional Distribution of Drug-Checking Services

Overall, 28 organizations responded to the survey. Figure 2 and Table 1 show the regional distribution of the organizations that existed or anticipated implementing drug-checking services based on survey responses. Twenty-six organizations actively provided drug-checking services at the time of data collection while two organizations anticipated beginning service provision at a later date.[1]

While six organizations participated in the survey for British Columbia, the environmental scan conducted by Hutchison et al. (2023) in British Columbia and Yukon documented a more representative picture of the landscape with 19 organizations. However, our scan identified two organizations that were not included in the previous scan. These two offer unique models of service provision in the province. The first one is a community-based, Indigenous-led organization that incorporates the Tla'amin First Nation's language, culture and ways of being into all aspects of the programming and services. It is the only First Nation in Canada offering harm reduction services and drug checking in an Indigenous community. The second one is a new pharmacy-based service in Vernon, B.C that agreed to be interviewed.

Of these 28 organizations that responded to the survey, seven were in Ontario, six in Quebec, six in British Columbia, three in Saskatchewan, two in Yukon, one in Alberta, one in New Brunswick, one anticipated services in Prince Edward Island and one anticipated

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[1] Two organizations — one in Prince Edward Island and the other in Manitoba — anticipated service provision at the time of data collection between November 2023 and January 2024. As of October 2024, both organizations are running.

service in Manitoba. Refer to Figure 2 and Table 1 for the location and number of access points where services can be used on a regular basis compared to other jurisdictions in Canada. Overall, Ontario, Quebec and British Columbia have more organizations with community drug-checking services. However, British Columbia reported the most sites or access points where services can be used on a regular basis compared to other jurisdictions.

While 28 organizations responded to the survey, two organizations participated in the interviews (one in Manitoba and another in British Columbia), for a total of 30 organizations being included in this scan. One organization that did not complete the survey but participated in the interviews was identified in Manitoba.

Figure 2. Regional distribution and overview of community drug-checking organizations in Canada that responded to the survey or participated in an interview
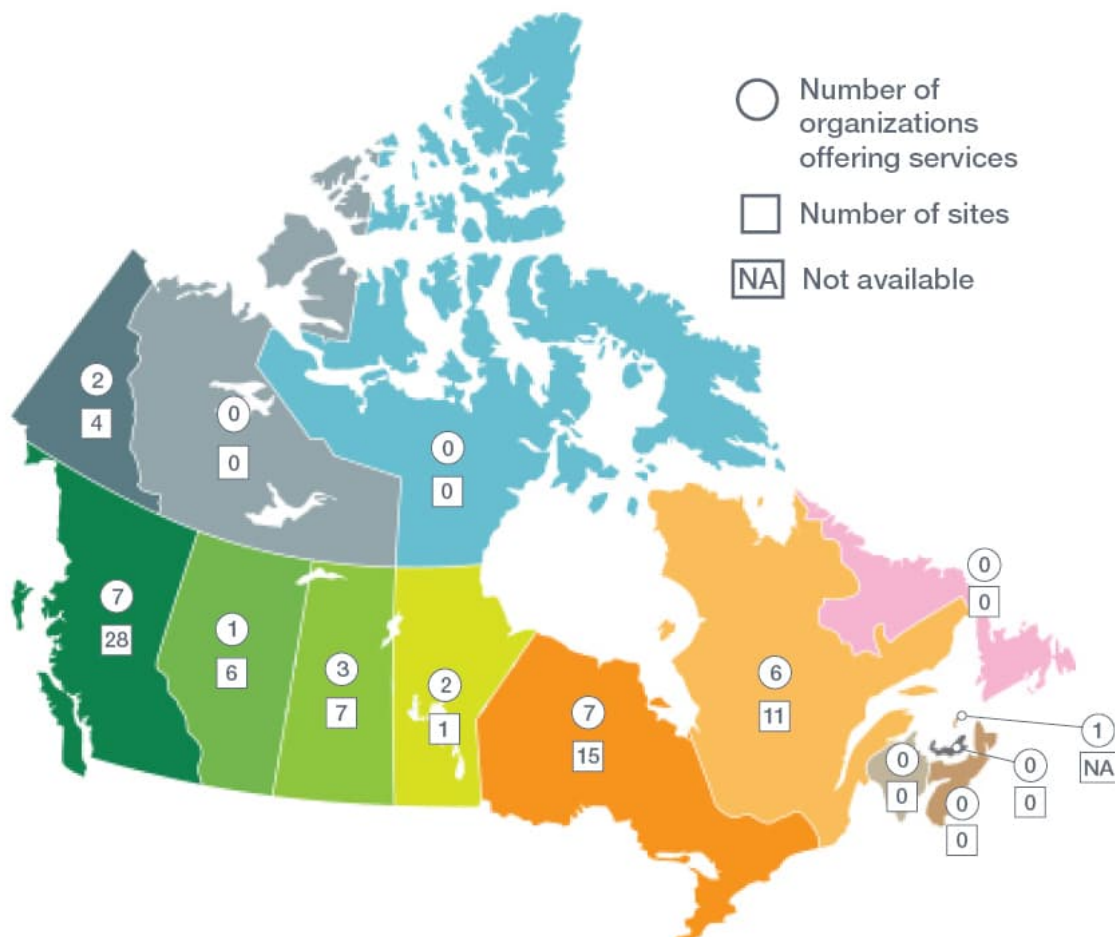
Since 2017, community drug checking service provision has rapidly evolved from a few services to about 30 services throughout Canada.

Table 1. Regional distribution and overview of community drug-checking organizations in Canada who responded to the survey or participated in an interview

Jurisdiction	Number of organizations offering services	Number of sites	Organization
British Columbia	7	28	AIDS Network Kootenay Outreach and Support Society (ANKORS) East
			University of British Columbia's Harm Reduction Team (HaRT)
			AIDS Network Kootenay Outreach and Support Society (ANKORS) West (Nelson)
			Fraser Health — SafePoint
			Substance Drug Checking
			Mountainside Harm Reduction Society
			Vernon Medicine Shoppe (interview only)
Alberta	1	6	Alberta Alliance Who Educate and Advocate Responsibly (AAWEAR)
Saskatchewan	3	7	Wahkohtowin harm reduction
			Prairie Harm Reduction
			Be safe harm reduction project (operates in partnership with prairie harm reduction)
Manitoba	2	1	Healthy Sexuality and Harm Reduction Street Connections (anticipated)
			Sunshine House (interview only)
Ontario	7	15	Toronto's Drug Checking Service
			Sandy Hill Community Health Centre, Oasis Program
			Parkdale Queen West Community Health Centres — Parkdale site
			Parkdale Queen West Community Health Centre — Queen West site
			Ottawa Inner City Health
			NorWest Community Health Centres
			Four Counties Addiction Services

continued

Jurisdiction	Number of organizations offering services	Number of sites	Organization
Quebec	6	11	PACT de rue
			SABSA
			Dopamine
			Centre d'intervention et de prévention en toxicomanie de l'Outaouais (CIPTO)
			Spectre de rue
			Groupe de recherche et d'intervention psychosociale (GRIP)
New Brunswick	1	1	Ensemble
Nova Scotia	0	0	Not applicable
Prince Edward Island	1	Not available	PEERS Alliance (anticipated)
Newfoundland and Labrador	0	0	Not applicable
Northwest Territories	0	0	Not applicable
Yukon	2	4	Blood Ties Four Directions Centre
			Yukon Emergency Medical Services
Total	30	73	Not applicable

Program and Operational Characteristics

Program Characteristic — Service Model

Organizations providing drug-checking services use many approaches to collecting samples. Most of the responding organizations receive samples from clients in person (83%). Others have collection boxes (10%), mail (3%) and outreach or staff collection (3%). More than half of the organizations providing services in Canada were located in a stationary or fixed site[2] (60%), while other services adopted mobile service delivery,[2] usually through modified van or portable testing equipment (20%). Some provided both modes of service delivery (20%).

At these sites, drug-checking services were often provided with other harm reduction services, including naloxone distribution and syringe services or needle exchange programs. While many organizations offered event-focused services, including services geared toward festivals and nightlife, most were community based with regular operating hours. Some organizations offered both event– and non-event–focused service models of operations to

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[2] Refer to Appendix A for definitions.

expand the reach and access to their services, particularly for people located in more rural or remote communities.

Figure 3: Community drug checking mode of sample collection
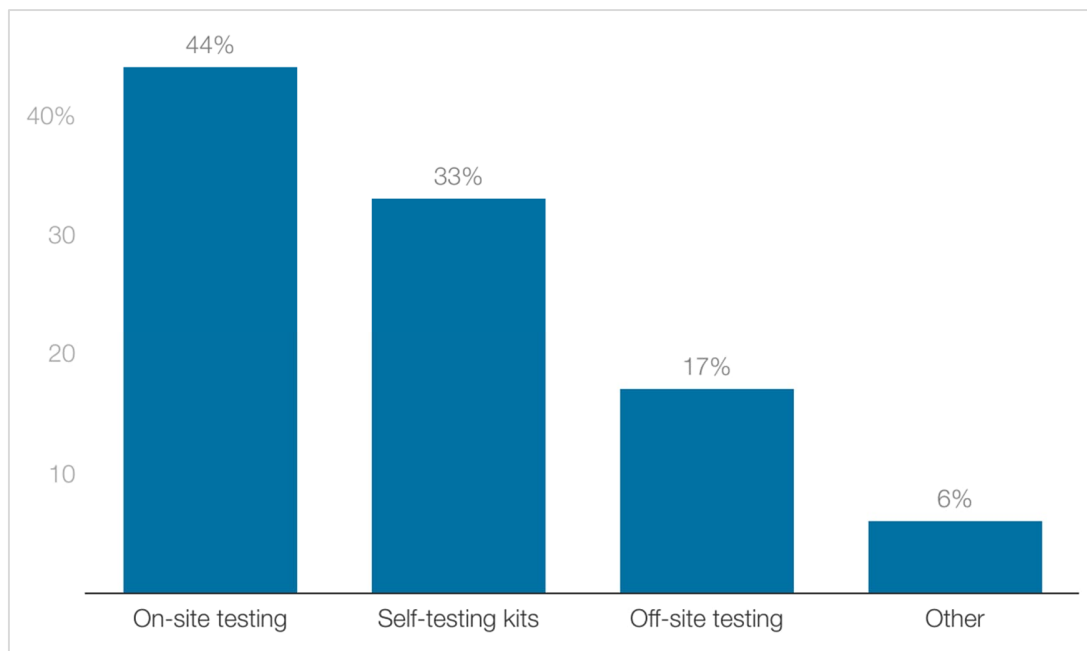
British Columbia, Ontario and Quebec have established provincial networks or strategies sharing knowledge, providing training and offering implementation services to drug-checking technicians, other harm reduction workers and public health officials in their jurisdictions. While Manitoba, Prince Edward Island and New Brunswick did not report having plans to establish similar networks or strategies, Yukon and Saskatchewan are working with organizations and partners to establish ones for their jurisdictions.

Program Characteristic — Technologies

Different types of drug-checking technologies are used across Canada. Figure 4 details the types of technologies used for both on-site and off-site testing in each jurisdiction. All organizations reported using a combination of technologies to provide a more complete result for service users. A combination of Fourier transform infrared (FTIR) spectroscopy and immunoassay test strips were commonly used across all jurisdictions in Canada particularly in British Columbia[3] and Quebec. (Refer to Drug Checking Technologies in this document for more information on FTIR and immunoassay test strips.) Ontario and New Brunswick used a combination of Raman spectroscopy and immunoassay test strips for testing in their jurisdictions. However, gas and liquid chromatography–mass were the most commonly used

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[3] One organization in British Columbia did not provide information on the type of technologies they used.

instruments in Ontario. British Columbia is the only province with a paper spray mass spectrometry (PS–MS) machine, which is used for on-site and off-site testing.

Figure 4. Number of organizations using each type of technology by jurisdiction
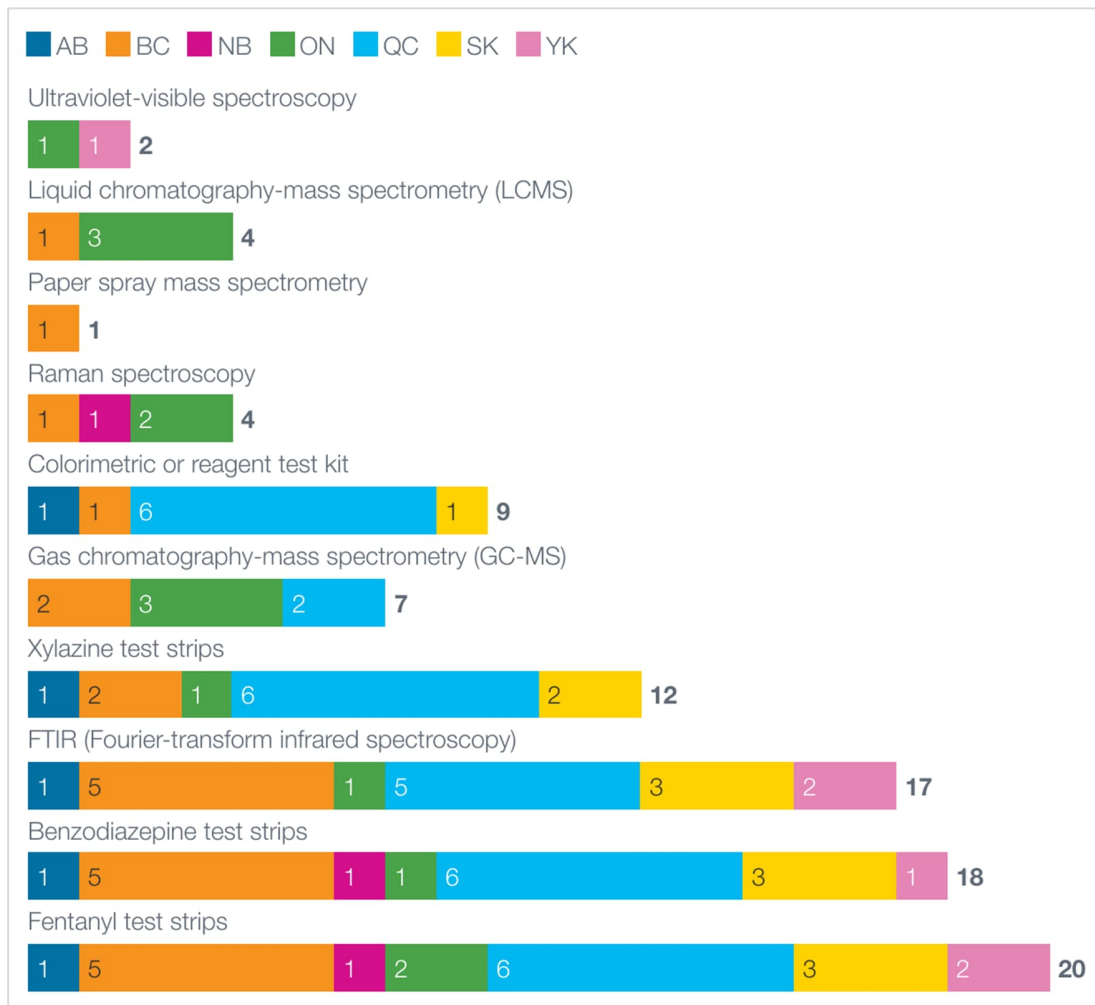
For an accessible version of this figure, please refer to Appendix D.

While BCCSU provides most of the training in British Columbia, other service providers include Interior Health, Get Your Drugs Tested and founding members of the DRED Project.

Table 2. Source of technology training for drug-checking staff in Canada

Source of training	Percentage
More established drug-checking services or programs	29%
External consultant or organization	21%
Manufacturer	17%
Regional health authority or unit	12%
Self-taught	10%
University program	2%
Provincial or territorial agency	2%

Program Characteristics — Staffing

Half of the organizations reported having one or more full-time staff dedicated to provided services (refer to Table 3). However, most organizations rely on part-time or full-time staff who balanced their drug-checking activities with other responsibilities at the organization.

Table 3. Staff capacity of drug-checking service providers

Staff capacity	None	One or more staff	Unknown
Dedicated full-time staff	42.0%	50.0%	8.0%
Part-time or full-time staff who perform other roles	7.7%	84.6%	7.7%

The staff employed by these organizations possessed diverse educational backgrounds. Four per cent of staff in all participating organizations had a degree in pharmacology while 8% possessed degrees in chemistry and laboratory sciences. Thirty-eight per cent of the programs' staff had other biomedical or health science degrees, including primary care and paramedical degrees. However, 42% of the staff lacked any specialized training or degrees. For these staff, all drug checking–related competencies were obtained as part of their role as a drug-checking technician or harm reduction co-ordinator.[4]

Operational Characteristic — Funding

Overall, 68% of all drug-checking services' combined funding comes from the government, particularly at the provincial and territorial level. Funding cycles vary depending on the source of government funding. Service providers reported the typical length of a project or program funding was one to two years. Short-term project or program funding has often left

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[4] The data presented here represents the responses from 24 of the 26 organizations offering services. Two organizations did not respond to this question.

many organizations in precarious situations as they struggle to keep providing life-saving services to PWUD.

> The one thing I would flag is if an organization is going to do a more comprehensive drug-checking service, the capital costs are like the first barrier that needs to be overcome.
>
> Harm reduction co-ordinator (Participant P001)

Other sources of funding include donations (15%), others (include fundraising and merchandise sales) (10%) and research grants (5%) as showing in Figure 4. Fundraising activities have been instrumental in implementing drug-checking services. For example, fundraising and crowd funding were largely responsible for the purchase of the first FTIR spectroscopy used at the Shambhala Music Festival in British Columbia 2018, while merchandise sales and donations fund some service provision in Saskatchewan.

Figure 5: Sources of funding for drug-checking services
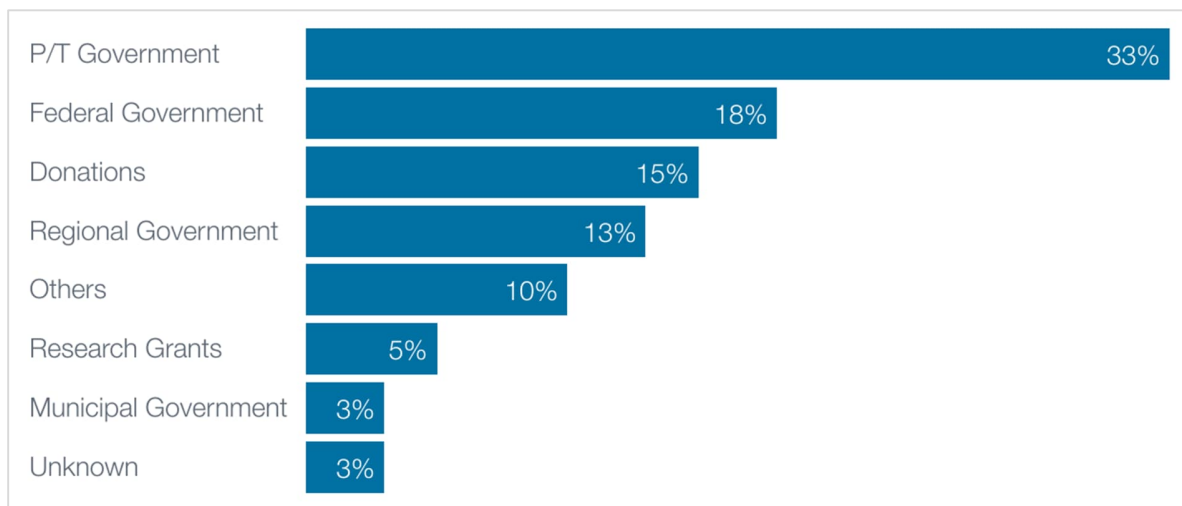
Operational Characteristic — Primary Affiliation

Programs were primarily affiliated with a community-based organization (44%), supervised consumption cite or overdoes prevention site (32%), hospital or health centre (12%), university (6%), health department (3%) or peer-led no-for-profit organization (3%).[5]

Operational Characteristic — Exemptions

Organizations must have an exemption from the *Controlled Drugs and Substances Act* to provide drug-checking services. While 22 (84.6%) organizations reported having a Section 56 exemption, the remaining four organizations that already offer services were either not

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[5] Multiple responses were selected in this category.

aware of the details of their exemption or preferred not to answer the question. (Refer to Appendix A for more information on Exemptions.)

Exemptions are available to organizations, not individuals. Therefore, some drug-checking service providers may be unaware of the complexity of applying for exemptions. The application process can be time consuming and challenging depending on the type of support the organization receives from their government officials in public health and Health Canada. While 31% of the organizations were not aware of the types of support they received during their application process, 22% only received support for approval by the federal government. Others received varying levels of support from their jurisdictions. However, 13% of organizations did not receive any support to guide their exemption application process, as shown in Figure 6.

Figure 6: Level of government support for Section 56 exemption applications.
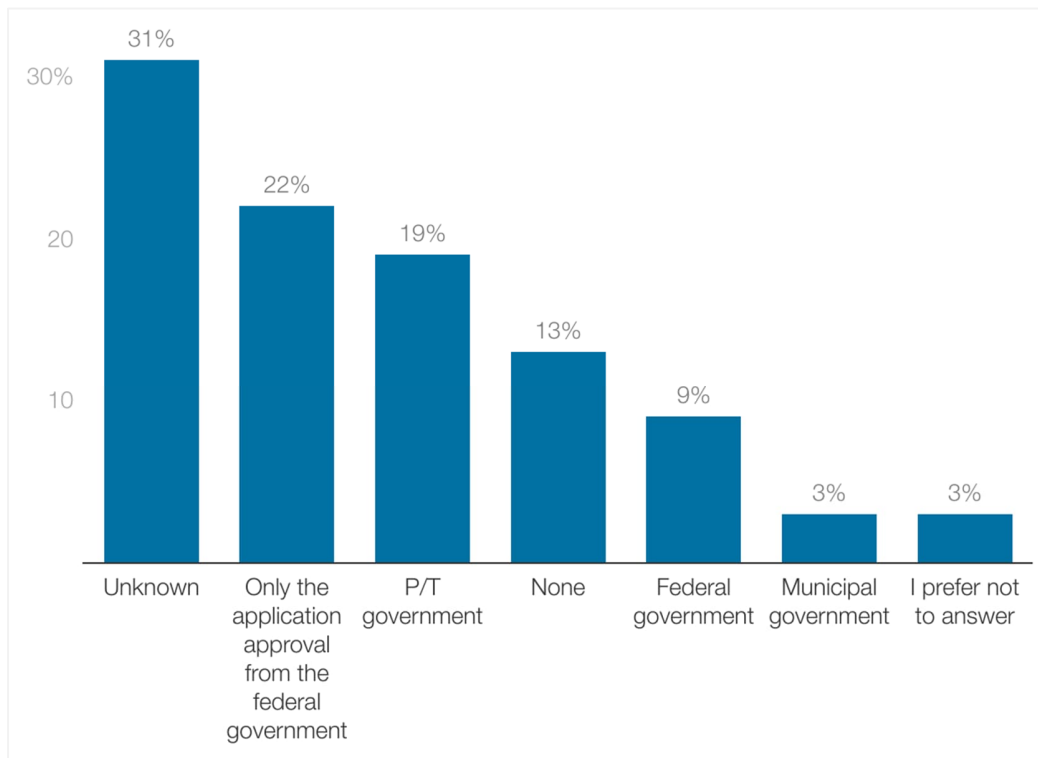
Themes from Key-Informant Interviews

Motivations for Implementing Drug-Checking Services

Based on interview synthesis, the demand for community drug-checking services increased with the rise in unintentional drug poisoning deaths — especially among people using drugs alone or in isolation — and the toxicity of the unregulated drug supply. The information, education and access to other services provided by drug-checking services is saves lives of PWUDs by reducing the risk of unintentional drug poisonings.

> I think the motivation to provide drug-checking services is clearly to identify toxic drug supply and certainly to hopefully offer people who use drugs an opportunity to test and avoid potential harms, including overdose.
>
> Program manager (Participant L001)

While not necessarily a motivation for implementing drug-checking services, the valuable information gained on drug-related trends has been a major benefit to the community at large.

> Another benefit would be around public health surveillance, and by that, I mean having more proactive data on what is in the illicit drug supply.
>
> Harm reduction co-ordinator (Participant P001)

Public health and safety interventions can react in real-time and rapidly disseminate information, adjust the response to the overdose crisis, improve programs for PWUD, and assess and plan for future demand for services and supports.

Technical Competency

Maintaining technical competencies with instruments through formal training and on-the-job testing of samples was identified by key informants as a barrier to sustaining quality service provision, particularly in jurisdictions that have low volumes of samples.

> So of course, like one of the barriers is financial. It does cost minimum $3,000 to send one staff to Vancouver for a week, including like flight…. Sending them to Get Your Drugs Tested or wherever else for shadowing, it's just kind of a real endeavour because we don't have anywhere else to send folks.
>
> Service provider (Participant N001)

Lack of sustainable funding also affects staff training and professional development, particularly for organizations outside of British Columbia that need to pay travel expenses as well as training fees. Funding is also needed to hire external consultants for trainings and create educational resources to support drug checking.

Staffing

Key informants identified inadequate staffing as barrier that limits the development and growth of drug checking in their jurisdictions. As mentioned in Table 3, most organizations that participated in the scan rely on part-time or full-time staff who balance their drug-checking activities with other responsibilities. Inadequate staffing caused by high staff turnover due to emotional and psychological job stress has implications for maintaining technical competencies, finances and service expansion.

> We only have two people that can operate the drug checking at a given time, so obviously we'd love to do more. But you have to be able to pay those people a little bit more and then pay to keep the lights on and things like that.
>
> Service provider (Participant H001)

Key informants suggested improving access to training and resources through more local opportunities or remote solutions. They also suggested providing ongoing comprehensive mental health support and resources for staff to address the pain and trauma associated with their work to reduce staff turnover.

Funding

Key informants expressed a significant need for ongoing and consistent funding that allows for program flexibility. They perceived the grant-based cycle as a barrier, frequently prioritizing new projects over sustaining existing and effective services, which causes interruptions in life-saving interventions. Sustained funding for community drug checking would recognize these services as legitimate health interventions, rather than grassroots or ad-hoc operations.

> Well, funding by project is short-term vision, and it puts the stress on the organization to keep the service alive and find other sources of revenue. And this should not be the way we do things.
>
> Service provider (Participant J003)

Key informants stressed the need for more funding and support from provincial and territorial governments. Funding from the federal government (for example Health Canada's Substance Use and Addictions Program [SUAP] grants) has been useful for service provision, particularly in jurisdictions that have limited political and community support. They also stressed the importance of educating policy makers on the impact of drug-checking services to secure stable funding (refer to McDonald et al., 2023).

Working Together

Lack of organized collaborations between organizations, community partners and relevant partners was mentioned as a major challenge by key informants. This creates missed opportunities for advocacy and defining jurisdictional priorities, sharing information (particularly among recipients of the same funding source) and working with community partners to expand existing services to include harm reduction.

> What we learned is that you need letters of support from those groups (local clinicians, local coroners, toxicologists, police services) because all of those groups do benefit from drug-checking services. And when you're working in a province where a government is not necessarily super supportive of harm reduction services but will kind of listen to doctors and coroners and toxicologists and police and academics…. you really need support from those groups.
>
> Drug checking lead (Participant O001)

Key informants pointed to multidisciplinary collaboration among various governments, harm reduction organizations, healthcare providers, confirmatory testing, law enforcement agencies, community groups and PWUD as being the best way to develop and implement

comprehensive drug-checking programs. This collaboration leverages the expertise, resources and community support needed for effective service delivery.

Exemptions

The process of obtaining legal exemptions (e.g., length of time, completing applications, getting letters of support) plays a key role in establishing services in a jurisdiction. While the process is relatively easier as organizations become more established in their services, the initial application process is lengthy and unclear, particularly for jurisdictions without support from the government and connections with other community drug-checking service providers in Canada.

> So yeah, we went back and there was honestly not much back and forth with the federal government at that time. It's just like review times where very long. So, [the application] spent a lot of time just like kind of sitting with the Office of Controlled Substances because, of course, they have many priorities.
>
> Service provider (Participant R001)

To reduce the time needed begore offering services, key informants suggested expediting and simplifying the exemptions process.

Clear Government Guidance and Support for Drug Checking

Key informants identified several critical areas that would greatly benefit from government support and intervention, including oversight, local government backing, co-ordination between services and supports, and data use and management. They raised the possibility of regulatory frameworks to govern the operation of drug-checking services, ensuring compliance with legal and safety standards, such as BCCSU.

> [BCCSU] is a backbone organization for substance use that focuses on clinical guidance, the development of evidence-based clinical guidance and related tools, operational stuff, all of that bucket that provides professional education and training to clinicians, as well as people with lived experience, families, caregivers and folks affected by substance use in some way, and conducts evaluation and research in the substance use area. So those are our three functions.
>
> Policy advisor (Participant C001)

Organizations like BCCSU lay the foundation for expanding reach, improving access and integrating services in healthcare systems to enhance co-ordination and collaboration with the continuity of care. This includes facilitating partnerships between drug-checking and healthcare providers to support referrals, follow-up care and other harm reduction interventions.

Integration in the broader healthcare system lends itself to institutionalizing the role of drug checking and drug checkers. This will provide better protections, benefits, salaries and career paths.

Other regulatory frameworks cover the handling, testing and disposal of unregulated substances (exemptions), as well as the protection of privacy and confidentiality for service users. Integration will also ensure that the data generated from drug checking is used in a meaningful way to inform policy and address unintentional poisonings.

Public Education

PWDs often experience widespread stigma and discrimination, including negative stereotypes, which lead to a reluctance to access healthcare or harm reduction services. Stigma also limits the social and political will to support the creation and maintenance of services.

> Like, there's so much damage control we need to do now because the general public thinks they don't work.
>
> Data and evaluation specialist (Participant M002)

Key informants suggested investing in public education to address stigma and build understanding of harm reduction services among the public, community leaders and policy makers.

> In terms of the drug checking and stigma related to that, I mean…there are high levels of stigma that go along with drug use. We are working to, you know, help dispel some of those myths, whether it be through, you know, those townhall meetings, community consultations and different working groups. It still exists, and I think that's part of a bigger thing that other partners have to be involved in as well. So, it locally for that's [city name] Public Health, you know, because they have really the infrastructure to support those, education initiatives at a bigger scale.
>
> Program manager (Participant O002)

Public education is key to addressing the stigma of substance use and accessing supports. Increasing public awareness about the complexities of substance use and the effectiveness of harm reduction can help change the sociopolitical climate around substance use. Addressing stigma supports the need for clear government policy and funding, which set the tone for sociopolitical discussions on substance use in each jurisdiction.

Addressing the Context in Which Drug Checking Takes Place

Drug-checking services are identifying new substances at an increasing pace as the introduction of new adulterants to the unregulated drug supply is constant, rapid and unpredictable. As the increasing toxicity of the unregulated drug supply continues to worsen the drug crisis in Canada, key informants suggested comprehensive approaches to broadly address the unpredictability and toxicity of the supply, rather than focusing on individual substances being identified by drug checking. This might help service providers to be more proactive in meeting the needs of PWUD and remove some of the burdens and pressures on drug-checking services. Key informants also emphasized the need to respond to the broader

social determinants — such as housing, mental health services and the impacts of colonization and racism — which affect drug use and harm reduction efforts, including drug checking.

Discussion

The findings from the environmental scan highlight several key themes and insights that inform the current state and the future direction of community drug-checking services in Canada. Since 2017, community drug checking has expanded its reach, with 30 organizations providing services in early 2024. However, they face several operational, legal and program challenges.

Regional Variations

There were great regional variations in community drug-checking services, including program characteristics, technology and service operations. While Canadian community drug-checking services are scaling up rapidly, these services expressed a need for increased financial investments and favourable health policy environments to support program implementation and public education. The regional distribution of community drug-checking services in Canada shows considerable concentration. British Columbia, Quebec and Ontario have the most organizations, reflecting a more developed infrastructure for community drug-checking services. Other regions have gaps in service provision, and all regions have difficulty providing community drug-checking services in remote areas.

Technology

Technological challenges exist despite advancement and the diversity of technologies used for drug checking. Operationally, drug-checking services use various technologies, often in combination, to provide comprehensive results. However, this creates challenges for harmonizing data across the country at a national level and locally across services within a jurisdiction. To address this, it is critical that data collection protocols and indicators be standardized. Ensuring interoperability between systems in each jurisdiction and harmonizing data from different technologies would effectively and efficiently inform public health strategies.

Diverse technologies also mean diverse and expensive training. Many drug-checking technicians received training from other established services or through self-taught methods. The findings of our scan highlight a reliance on part-time and full-time staff balancing multiple responsibilities, indicating a need for more dedicated staffing and specialized training.

Funding

Funding is an important component to implementing and sustaining community drug-checking services. Our findings reveal that most funding for community drug checking is from government sources, primarily at the provincial and territorial level. Findings also highlight that funding cycles are often short term and precarious. In some cases, a lack of

funding has led to very limited hours of operation. This adds pressure to program development and sustainability, and affects staffing, maintaining technical skills and providing life-saving services for PWUD. While funding is a key barrier to implementing services, short-term funding cycles are symptomatic of the overall funding situation for non-governmental organizations in Canada.

Collaboration

Using expertise, resources and community support is key for effective service delivery. Establishing communities of practice and working groups can foster learning and engagement across jurisdictions, enhancing the overall effectiveness of drug-checking services. Many organizations have formed working groups or are in the process of establishing communities of practice to increase access to information on trends, operational practices and training. Such collaborations have fostered learning and engagement across jurisdictions.

At the pan-Canadian level, two such organizations exist: the NDCWG and the DRED Project. CCSA is uniquely positioned to build and improve collaborative relationships across jurisdictions. As a co-chair of the NDCWG, CCSA can address gaps in professional development for drug checkers by creating knowledge exchange opportunities.

Exemptions

Legal exemptions remain a challenge in implementing services. Our findings show that many services received limited support with exemption applications, which is a complex, lengthy and time-consuming process. The DRED Project developed a playbook for implementing services, including extensive documentation on the process. Newer organizations can use as a guide through the exemption process for their services (refer to Sage et al., 2022). However, there is still a need to simplify and streamline the process.

Government Guidance

The scan findings underscore that clear government guidance, oversight and support for community drug checking can help integrate these services with the healthcare systems and improve the availability of data for informed public health policy decision making. While this is unique to British Columbia, developing similar frameworks that govern drug-checking services in other jurisdictions can also provide protections and career paths for drug-checking professionals.

Stigma

Stigma around substance use affects the social and political support for community drug-checking and other harm reduction services and supports. In our scan, stigma impeded the location or implementation of services and affecting how PWUD access drug-checking services in their communities.

Comprehensive public education about drug checking and other harm reduction approaches can be provided as part of a suite of evidence-based services across the substance use

health continuum of care — from prevention to treatment. This could help shape the perception on harm reduction services among the public, community leaders and policy makers.

Health Equity

Improving health equity and addressing barriers to implementing, accessing and using drug-checking services are key to improving the lives of PWUD. Our scan includes ideas for improving equitable access by implementing services across multiple settings and using innovative approaches to service provision. That was observed in British Columbia, where a pharmacy-based model of delivery has been implemented to meet the needs of PWUD. Providing equitable access to self-testing kits and health education can be an option for jurisdictions that do not have community drug-checking service provision.

Broader Context

Some of the needs expressed by drug-checking service providers could be reduced by addressing the broader context in which drug checking operates. This includes addressing the unpredictability of the unregulated drug supply, as well as the social and structural determinants of health.

Conclusions

Our environmental scan revealed critical insights into the current state and the future direction of community drug-checking services in Canada. The primary goal of these services is to protect PWUD from the unpredictable drug supply by enabling informed decision making. Drug checking results can also provide valuable information on drug trends to the community at large, helping with the prevention of substance-related harms. Despite significant progress since 2017, with 30 organizations providing these services in January 2024 and more expected to start,[6] several operational, legal and program challenges remain.

The data from our scan can support policy discussions on implementation gaps and provide jurisdictional governments with a tool to guide program development or improvement. Our findings highlight the multifaceted nature of drug-checking services in Canada and the critical need for comprehensive support from various partners.

Integrating drug-checking services with the broader social support systems is essential for improving the lives of PWUD by reducing substance use risks, improving the delivery of more effective and tailored clinical care and supports, and increasing access to health and other social services. Developing comprehensive and partner-informed responses to the barriers and challenges described in this report could improve the landscape of drug-checking services, ultimately contributing to better health outcomes and reducing the harms associated with the unregulated drug supply.

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[6] Since January 2024, many organizations have started providing services in their respective jurisdictions.

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Appendix A: Terminology

Service Models

- **Stationary or fixed site:** Drug checking is done in a community organization, clinic or university building, for example.
- **Mobile site:** Drug checking is done in a temporary site (e.g. outreach vehicle, portable testing equipment). By nature, mobile sites provide services at various locations throughout the community or service area and include harm reduction vans.

Other service models exist but were not explored in the environmental scan.

Sample Collection and Testing

- **On-site:** Samples are collected and tested at the same location as sample drop-off (e.g. an event, festival, stationary or mobile site).
- **Off-site:** Samples are collected and tested at different locations (e.g. samples can be collected from the community and transported to organizations that provide drug-checking services).

Drug-Checking Technologies

Drug-checking technologies are instruments used for drug testing. These include:

- **Immunoassay test strips:** These single-use strips test a small amount of substance dissolved in water to detect fentanyl, benzodiazepines, xylazine and other substances. They confirm the presence of a drug in the sample used for testing but do not indicate how much of the drugs is in a sample.
- **Reagent or colorimetric testing:** A few drops of a liquid reagent is applied to a pinhead sized amount of a drug sample. The reagent causes a chemical reaction that changes the colour of the liquid. The colour is compared with a reference chart.
- **Fourier transform infrared (FTIR) spectrometer:** FTIR produces a graphic readout based on infrared light absorption from a drug sample. The readout is compared with a library of known substances to identify the unknown component (Gozdzialski et al., 2021).
- **Raman spectrometer:** This test involves shining a laser on a substance and collecting the scattered light, which provides a chemical signature. These spectra are then compared with a library of known spectra to determine the identity of the substance (Aasen et al., 2022).
- **Liquid chromatography–mass spectrometry (LC–MS):** This technique uses liquid to separate the sample into its individual components.
- **Gas chromatography–mass spectrometry (GC–MS):** This technique uses gas to separate the sample into its individual components.

- **Paper Spray Mass Spectrometry (PS–MS):** This technique produces ions from a drug sample and generates a report from the mass spectrometer that is verified by a drug-checking technician.

Return to Figure 1 or Programmatic Characteristics — Technologies

Exemptions

- *Controlled Drugs and Substances Act* (CDSA): This Canadian legislation provides the framework for the control of drugs and the chemicals used to make them, which can result in harm when misused or diverted to an illegal market. Drug checking involves the collection, handling, transportation, storage, and/or disposal of samples of illegal drugs, which requires an exemption under subsection 56(1) of the CDSA. Two legal exemptions exist for drug checking in Canada:
    - **Section 56(1) Exemption:** Section 56.1(1) Exemption for medical purpose — supervised consumption site gives site-specific exemptions to organizations for the purpose of conducting drug-checking activities involving illegal substances.
    - **Urgent Public Health Needs Site (UPHNS) Exemption:** UPHNS for drug checking is a fast-tracked exemption granted at the discretion of a province or territory. It allows them to address urgent public health needs related "to opioid-related overdose deaths and hazards related to adulterated illegal substances" (Health Canada, 2022) and COVID-19 (Sage et al, 2022).

Return to Site Operations —Exemptions

Overdose Prevention Site

Overdose prevention sites (OPSs) are safe use sites (e.g. tents, trailers, vans) in a province or territory that have been granted an emergency exemption by the ministry of health in each jurisdiction. Since COVID-19, the federal government also issued federal exemptions for OPSs for all jurisdictions that want them (Foreman-Mackey et al., 2019; Sage et al., 2022).

Supervised Consumption Site

Supervised consumption sites (SCS) refer to the supervision of injecting, smoking or both of illegally obtained substances and are exempted under subsection 56.1 (Wallace et al., 2019).

Appendix B: Survey Tool

Thank you for your interest in providing data for the Canadian Centre on Substance Use and Addiction (CCSA) environmental scan on drug-checking services in Canada. The data provided will describe the existing capacities, gaps and potential for improving services.

Your contribution: Your responses will highlight the needs and challenges unique to your jurisdiction and serve as a tool for policy makers to support and facilitate drug-checking initiatives across Canada.

Survey length: This survey will take 30 minutes to complete. Once completed, please contact jnoseworthy@ccsa.ca for compensation for your time.

Deadline: Please complete the survey by Jan. 31, 2024.

Note: Mandatory questions are marked with an asterisk (*). Your response is needed.

If you have any questions or feedback, or if you encounter any difficulty completing this survey, please email agiwa@ccsa.ca.

Thank you for your time and expertise.

Privacy statement: Your personal information, such as your name, phone number, email and address, is not automatically gathered by CCSA. However, your organization may be identifiable in the scan results as the data and comments will be used to determine drug-checking needs by jurisdiction. This may occur if there is only one organization or a small number of organizations in the same jurisdiction.

Select the language of your choice by ticking the box below.*

Veuillez sélectionner la langue de votre choix en cochant la case correspondante.

- ☐ English
- ☐ Français

Please complete the option that applies to you.*

- ☐ Select and Answer ONLY Section A if your organization operates a drug-checking service.
- ☐ Select and Answer ONLY Section B if your organization plans on operating a drug-checking service.

Section A

Section 1 — Background

The purpose of this section is to provide background information about where and how your service operates.

1. Name of organization.* (Type "I prefer not to answer" if you prefer not to answer.) [Text box]

2. Which category best describes your organization?* (Select one option.)
    - ☐ Health department
    - ☐ Hospital or health centre
    - ☐ University
    - ☐ Supervised consumption site or overdose prevention site
    - ☐ Community-based organization
    - ☐ Private laboratory
    - ☐ Other (please specify) _____
    - ☐ I prefer not to answer

3. In which province or territory is your organization located?* (Use drop-down menu to select province or territory.)

4. What public health authority, unit, region, centre or network is your organization located in? (Type "I prefer not to answer" if you prefer not to answer.)
    [Text box]

5. Who is funding your drug-checking service?* (Select all that apply.)
    - ☐ Service users (fee for service) (Insert name and length of funding.)
    - ☐ Donations (may be service users or other individuals) (Insert name and length of funding.)
    - ☐ Federal government (Insert name and length of funding.)
    - ☐ Provincial or territorial government (Insert name and length of funding.)
    - ☐ Regional government (Insert name and length of funding.)
    - ☐ Municipal funding (Insert name and length of funding.)
    - ☐ Private philanthropy or foundation (Insert name and length of funding.)
    - ☐ Research grants (Insert name and length of funding.)
    - ☐ Other (Insert name and length of funding.)
    - ☐ Unknown
    - ☐ I prefer not to answer

6. Has your organization ever been given, or does it hold a Section 56 exemption to receive and conduct testing of controlled substances?* (Select one option.)
    - ☐ Yes
    - ☐ No
    - ☐ Unknown
    - ☐ I prefer not to answer

    6a. If yes when does your exemption expire?* Please insert day, month, and year. Select the first day of the month if actual date is unknown.
    [Text box]

7. When you applied for a Section 56 exemption, did you receive support from any levels of government? * (Select all that apply.)
    ☐ Federal government
    ☐ Provincial or territorial government
    ☐ Municipal government
    ☐ None, only the application approval from the federal government
    ☐ Unknown
    ☐ None
    ☐ I prefer not to answer

8. Was your exemption related to any designations (e.g., UPHNS, SCS)?* (Select one option.)
    ☐ Yes
    ☐ No
    ☐ Unknown
    ☐ I prefer not to answer

    8a. If yes, select all that apply.
        ☐ Yes, urgent public health needs site (UPHNS)
        ☐ Yes, supervised consumption site (SCS)
        ☐ Yes, overdose prevention site (OPS)
        ☐ Yes, other (please specify) _____

9. Does your jurisdiction have a provincial or territorial network or strategy on drug checking, or does it plan to develop one? (Select one option.)
    ☐ Yes
    ☐ No, but plans to develop one
    ☐ No
    ☐ Unknown
    ☐ I prefer not to answer

Section 2 — Service Provision Model

The purpose of this section is to understand how drug-checking services are provided, including the reach and type of service and technology used for drug-checking services in your jurisdiction.

1. Is your organization's program stationary or mobile?* (Select one option.)
    ☐ Stationary site (in a building)
    ☐ Mobile sites (i.e., outreach vehicle or portable testing equipment)
    ☐ Both
    ☐ Unknown
    ☐ I prefer not to answer

2. How many sites or access points does your organization offer drug-checking services at? This includes the number of collection sites where samples are collected and, if separate, testing sites even if that number is 0*.
    - ☐ Insert number of sites (stationary and mobile) where samples are tested [*Number box*]
    - ☐ Insert number of sites where samples are collected and then taken to a testing site even if that number is 0 [*Number box*]
    - ☐ Insert number of stationary sites [*Number box*]
    - ☐ Insert locations of stationary sites [*Text box*]
    - ☐ Insert number of mobile sites [*Number box*]

3. Where does your organization's program serve (whether stationary or mobile)?* (Select all that apply).
    - ☐ Primarily festivals, nightclubs and other mass gatherings
    - ☐ Not event focused
    - ☐ Both
    - ☐ Other (please specify) _____
    - ☐ I prefer not to answer.

4. What drug-checking services does your organization's program offer to clients (including services performed by a third party)?* (Select all that apply.)
    - ☐ Self-testing kits (e.g., take-home kits)
    - ☐ On-site testing (i.e., test performed at same location as sample drop-off)
    - ☐ Off-site testing (i.e., test performed at different location from sample drop-off)
    - ☐ Other (please specify) _____
    - ☐ I prefer not to answer

5. How long does it take for clients to receive results from your self-testing program? Please, specify the unit (e.g., minutes, days, weeks).
    [*Text box*]

6. If your organization offers on-site testing, which instruments are used for this program? In each case, insert the number of each type of instrument and provide the brand where possible. (Select all that apply.)
    - ☐ Fentanyl test strips (Insert the number of each type of instrument and provide the brand where possible.)
    - ☐ Benzodiazepine test strips (Insert the number of each type of instrument and provide the brand where possible.)
    - ☐ Xylazine test strips (Insert the number of each type of instrument and provide the brand where possible.)
    - ☐ Colorimetric or reagent test kit (Insert the number of each type of instrument and provide the brand where possible.)

- ☐ FTIR (Fourier transform infrared spectroscopy) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Raman spectroscopy (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Gas chromatography–mass spectrometry (GC–MS) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Ultraviolet-visible spectroscopy (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Liquid chromatography–mass spectrometry (LC–MS) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ High-performance liquid chromatography (HPLC) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Thin layer chromatography (TLC) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ High-pressure portable mass spectrometry (including MX908)(Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Paper spray mass spectrometry (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Other (please specify)_____

7. How long does it take for clients to receive results from your on-site testing program? Please, specify the unit (e.g., minutes, days, weeks). [Text box]

8. If your organization offers off-site testing, which instruments are used for this program? In each case, insert the number of each type of instrument and provide the brand where possible. (Select all that apply.)
   - ☐ Fentanyl test strips (Insert the number of each type of instrument and provide the brand where possible.)
   - ☐ Benzodiazepine test strips (Insert the number of each type of instrument and provide the brand where possible.)
   - ☐ Xylazine test strips (Insert the number of each type of instrument and provide the brand where possible.)
   - ☐ Colorimetric or reagent test kit (Insert the number of each type of instrument and provide the brand where possible.)
   - ☐ FTIR (Fourier transform infrared spectroscopy) (Insert the number of each type of instrument and provide the brand where possible.)
   - ☐ Raman spectroscopy (Insert the number of each type of instrument and provide the brand where possible.)
   - ☐ Gas chromatography–mass spectrometry (GC–MS) (Insert the number of each pe of instrument and provide the brand where possible.)

- ☐ Ultraviolet-visible spectroscopy (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Liquid chromatography–mass spectrometry (LC–MS) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ High-performance liquid chromatography (HPLC) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Thin layer chromatography (TLC) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ High-pressure portable mass spectrometry (including MX908) (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Paper spray mass spectrometry (Insert the number of each type of instrument and provide the brand where possible.)
- ☐ Other (please specify)_____

9. Where do you send samples for off-site testing? [*Text box*]

10. How long does it take for clients to receive results from your off-site testing program? Please, specify the unit (e.g., minutes, days, weeks). [*Text box*]

11. Has your organization's program previously offered different types of drug-checking services?* (Select one option.)
    - ☐ Yes
    - ☐ No
    - ☐ I prefer not to answer

12. What types of programs were offered? (Select all that apply.)
    - ☐ Self-testing kits (e.g., take-home kits)
    - ☐ On-site testing (i.e., test performed at same location as sample drop-off)
    - ☐ Off-site testing (i.e., test performed at different location from sample drop-off)
    - ☐ Both on-site and off-site testing
    - ☐ Others (please specify) _____

13. If your organization previously offered on-site testing, which instruments were used for this program? (Select all that apply.)
    - ☐ Fentanyl test strips
    - ☐ Benzodiazepine test strips
    - ☐ Xylazine test strips
    - ☐ Colorimetric or reagent test kit
    - ☐ FTIR (Fourier transform infrared spectroscopy)
    - ☐ Raman spectroscopy
    - ☐ Gas chromatography–mass spectrometry (GC–MS)
    - ☐ Ultraviolet-visible spectroscopy

☐ Liquid chromatography–mass spectrometry (LC–MS)

☐ High-performance liquid chromatography (HPLC)

☐ Thin layer chromatography (TLC)

☐ High-pressure portable mass spectrometry (including MX908)

☐ Paper spray mass spectrometry

☐ Others (please specify) _____

14. Why did your organization stop offering on-site testing? [*Text box*]

15. If your organization previously offered off-site testing, which instruments were used for this program? (Select all that apply.)

☐ Fentanyl test strips

☐ Benzodiazepine test strips

☐ Xylazine test strips

☐ Colorimetric or reagent test kit

☐ Other test strips or kits (please specify) _____

☐ FTIR (Fourier transform infrared spectroscopy)

☐ Raman spectroscopy

☐ Gas chromatography–mass spectrometry (GC–MS)

☐ Ultraviolet-visible spectroscopy

☐ Liquid chromatography–mass spectrometry (LC–MS)

☐ High-performance liquid chromatography (HPLC)

☐ Thin layer chromatography (TLC)

☐ High-pressure portable mass spectrometry (including MX908)

☐ Paper spray mass spectrometry

☐ Other (please specify) _____

16. Why did your organization stop offering off-site testing? [*Text box*]

17. How does your organization's program collect samples for testing?* (Select all that apply.)

☐ In-person drop-off

☐ Collection boxes

☐ Mail-based sample submission

☐ Outreach or staff collection

☐ Other (please specify) _____

☐ I prefer not to answer

18. Does your organization have any drug-checking services planned but not currently offered?* (Select one option.)

☐ Yes

☐ No

☐ Unknown

☐ I prefer not to answer.

18a. If Yes, select one or all of the following options.

☐ Yes, self-testing kits (e.g., take-home kits)

☐ Yes, on-site screening (e.g., strips, dropper bottles)

☐ Yes, on-site testing (e.g., test performed at program location)

☐ Yes, off-site testing, including testing performed elsewhere

☐ Yes, mail-based testing program

☐ Yes, other (please specify) _____

19. Does your organization's program have access to confirmatory drug testing? (Confirmatory drug testing with laboratory-based, gold-standard technologies allows for a more refined analysis of samples collected at point-of-care drug checking and greater insight into the drug supply.)* (Select one option.)

☐ Yes

☐ No

☐ I prefer not to answer

19b. If yes, who provides confirmatory testing? (Select all that apply.)

☐ DAS Lab

☐ University or hospital lab

☐ Private lab

☐ Other (please specify) _____

☐ Unsure

20. What instruments are used for confirmatory testing? (Select all that apply.)

☐ Gas chromatography–mass spectrometry (GC–MS)

☐ Liquid chromatography–mass spectrometry (LC–MS)

☐ High field nuclear magnetic resonance (NMR) spectroscopy

☐ Paper spray mass spectrometry

☐ Unsure

☐ Other (please specify) _____

Section 3 — Staff Capacity and Technical Expertise

The purpose of this section is to get a sense of existing capacity, expertise and potential training needs for drug-checking services in your jurisdiction.

1. How many people at your organization work directly on the drug-checking program. Insert number even if that number is 0.

2. Of this total, how many are full-time dedicated to drug checking. Insert number even if that number is 0.

3. Of the total, how many are doing drug checking part time, including full-time staff who do drug checking as only one part of their responsibilities. Insert number even if that number is 0.

4. How many staff (full or part time) identify as people with lived or living experience (PLLE) (i.e., previously or currently make, sell or use drugs). Insert number even if that number is 0.

5. Among the PLLE, how many are volunteers as opposed to paid staff. Insert number even if that number is 0.

6. Do any drug-checking operators (people using instruments to conduct testing of samples) have a degree or specialized training (do not include drug-checking training) in any of the following. In each instance, please include the number of operators: (Select all that apply.)

   ☐ Pharmacology
   ☐ Chemistry
   ☐ Laboratory sciences
   ☐ None, no specialized training nor degrees among staff operating devices
   ☐ Other (please specify) _____

7. Which organization or organizations provided training on using the drug-checking instruments? For each, please insert text for resource or resources used or name of organization that provided the training. (Select all that apply and insert text with training details.)

   ☐ Self-taught [Text box]
   ☐ External consultant or organization [Text box]
   ☐ Manufacturer [Text box]
   ☐ Federal agency [Text box]
   ☐ Provincial or territorial agency [Text box]
   ☐ Regional health authority or unit [Text box]
   ☐ University program [Text box]
   ☐ Another, more established drug-checking service or program [Text box]
   ☐ Other (please specify) _____

8. List all training resources that your organization found helpful for your team and that you would recommend to others (e.g., names of organizations and websites or organizational policies):* (Type "I prefer not to answer" if you prefer not to answer.)

Section 4 — Service Outputs

The purpose of this section is to assess the reach and impact of drug-checking services in your jurisdiction.

1. Does your organization keep or own the data on the services provided? (Select one option.)
   □ Yes
   □ No

2. Who is the target population or demographic of the service?
   (Select all that apply.)
   □ People who use supervised consumption site or overdose prevention site
   □ People who do not use supervised consumption site or overdose prevention site
   □ Healthcare providers or first responders who care for people who use drugs
   □ Event focused (people who go to festivals, nightclubs and other mass gatherings)
   □ Unsure
   □ Other (please specify) _____

3. In addition to drug checking, are there other services that your program offers on-site?
   (Select all that apply.)
   □ Naloxone distribution
   □ Syringe services or needle exchange
   □ Supervised drug consumption
   □ Rapid HIV testing
   □ HIV PrEP or PEP
   □ Rapid STD testing
   □ Rapid HCV testing
   □ Methadone, buprenorphine, naltrexone or MOUD
   □ Mental health counselling
   □ Other medical services
   □ Recovery support-groups
   □ Recovery support-peer coaching
   □ Housing or shelter
   □ Case management
   □ Laboratory testing services
   □ Other (please specify) _____

4. What types of samples are tested? (Select all that apply)
   □ Drugs: powders
   □ Drugs: crystals
   □ Drugs: pills
   □ Drugs: liquids
   □ Empty drug bags/capsules
   □ Used syringes
   □ Used cookers, cottons or other injection paraphernalia
   □ Smoking paraphernalia (e.g., stems, pipes)
   □ Snorting paraphernalia (e.g., straws)

- ☐ Vape pods
- ☐ Urine
- ☐ Blood
- ☐ Wastewater
- ☐ Other (please specify) _____

5. When did your organization start providing drug-checking services? (Insert year)

6. How many visits has the service had since it started (if known)? (Insert number or unsure.)

7. How many of those were unique visits (if known)? (Insert number or unsure.)

8. How many visits has the service had per week in the past year (if known)? (Insert number or unsure.)

9. Since the start of your service, about how many samples has your service checked in total (if known)?* (Insert number or unsure.)

10. How many samples has your service checked per week in the past year (if known)?

Thank you for completing the survey.

Section B

Section 1 — Background

The purpose of this section is to provide background information about where and how your service operates.

1. Name of organization.* (Type "I prefer not to answer" if you prefer not to answer.) [Text box]

2. Which category best describes your organization?* (Select one option.)

- ☐ Health department
- ☐ Hospital or health centre
- ☐ University
- ☐ Supervised consumption site or overdose prevention site
- ☐ Community-based organization
- ☐ Private laboratory
- ☐ Other (please specify) _____
- ☐ I prefer not to answer

3. In which province or territory is your organization located?* (Use drop-down menu to select province or territory.)

4. What public health authority, unit, region, centre or network is your organization located in? (Type "I prefer not to answer" if you prefer not to answer.) (Insert text with full name of public health authority, unit, region, centre, network.)

5. Who will provide funding to support your anticipated drug-checking service?* (Select all that apply.)

    ☐ Service users (fee for service)
    ☐ Donations (may be service users or others) (Insert name and length of funding)
    ☐ Federal government (Insert name and length of funding)
    ☐ Provincial or territorial government (Insert name and length of funding)
    ☐ Regional government (Insert name and length of funding)
    ☐ Municipal funding (Insert name and length of funding)
    ☐ Private philanthropy or foundation (Insert name and length of funding)
    ☐ Research grants (Insert name and length of funding)
    ☐ Other (Insert name and length of funding)
    ☐ Unknown
    ☐ I prefer not to answer

6. Does your organization hold or has it ever held a Section 56 exemption to receive and conduct testing of controlled substances?*(Select one option.)
    ☐ Yes
    ☐ No
    ☐ No, but we have applied for one
    ☐ Unknown
    ☐ I prefer not to answer

7. If you have applied for a Section 56 exemption, did you receive support from any levels of government?* (Select all that apply.)
    ☐ Federal government
    ☐ Provincial or territorial government
    ☐ Municipal government
    ☐ Only the application approval from the federal government
    ☐ Unknown
    ☐ None
    ☐ I prefer not to answer

8. If you received an exemption, was it related to any designations (e.g., UPHNS, SCS)?* (Select one option.)
    ☐ Yes
    ☐ No
    ☐ Unknown
    ☐ I prefer not to answer

    8b. If you answered Yes, please specify the designation. (Select all that apply.)

    ☐ Yes, urgent public health needs site (UPHNS)

☐ Yes, supervised consumption site (SCS)
☐ Yes, overdose prevention site (OPS)
☐ Yes, other (please specify) _____

9. Does your jurisdiction have a provincial or territorial network or strategy on drug checking or does it plan to develop one? (Select one option.)
☐ Yes
☐ No, but it plans to develop one
☐ No
☐ Unknown
☐ I prefer not to answer

Section 2 — Service Provision Model

The purpose of this section is to understand how drug-checking services will be provided, including the reach and type of service and technology that will be used for drug-checking services in your jurisdiction.

1. Will your organization's anticipated program be stationary or mobile?* (Select one option.)
☐ Stationary (e.g., in a building)
☐ Mobile sites (i.e., outreach vehicle or portable testing equipment)
☐ Both
☐ Unknown
☐ I prefer not to answer

2. How many sites or access points do you anticipate offering drug-checking services at? This includes the number of collection sites and, if separate, testing sites, even if that number is 0.* (Insert number)

3. Where will your organization's program serve (whether stationary or mobile)?*
☐ Primarily festivals, nightclubs and other mass gatherings
☐ Not event focused
☐ Both
☐ Other (please specify) _____
☐ I prefer not to answer

4. What drug-checking services will your organization's program offer to clients (including services performed by a third party)?* (Select all that apply.)
☐ Self-testing kits (e.g., take-home kits)
☐ On-site testing (i.e., test performed at same location as sample drop-off)
☐ Off-site testing (i.e., test performed at different location from sample drop-off)
☐ Other (please specify) _____
☐ I prefer not to answer

5. If you anticipate offering on-site testing, which instruments will be used for this program? In each case, insert the number of each type of instrument and provide the brand were possible. (Select all that apply.) (Insert the number of each type of instrument and provide the brand where possible)

    ☐ Fentanyl test strips
    ☐ Benzodiazepine test strips
    ☐ Xylazine test strips
    ☐ Colorimetric or reagent test kit
    ☐ FTIR (Fourier transform infrared) spectroscopy
    ☐ Raman spectroscopy
    ☐ Gas chromatography–mass spectrometry (GC–MS)
    ☐ Ultraviolet-visible spectroscopy
    ☐ Liquid chromatography–mass spectrometry (LC–MS)
    ☐ High-performance liquid chromatography (HPLC)
    ☐ Thin layer chromatography (TLC)
    ☐ High-pressure portable mass spectrometry (including MX908)
    ☐ Paper spray mass spectrometry
    ☐ Other (please specify) _____

6. If you anticipate offering off-site testing, which instruments will be used for this program? For each, insert the number of each type of instrument and provide the brand were possible (Select all that apply.) (Insert the number of each type of instrument and provide the brand where possible)

    ☐ Fentanyl test strips
    ☐ Benzodiazepine test strips
    ☐ Xylazine test strips
    ☐ Colorimetric or reagent test kit
    ☐ FTIR (Fourier transform infrared) spectroscopy
    ☐ Raman spectroscopy
    ☐ Gas chromatography–mass spectrometry (GC–MS)
    ☐ Ultraviolet-visible spectroscopy
    ☐ Liquid chromatography–mass spectrometry (LC–MS)
    ☐ High-performance liquid chromatography (HPLC)
    ☐ Thin layer chromatography (TLC)
    ☐ High-pressure portable mass spectrometry (including MX908)
    ☐ Paper spray mass spectrometry
    ☐ Other (Please specify) _____

7. Where would you send samples for off-site testing? [Text box]

8. How does your organization anticipate collecting samples for testing?*(Select all that apply.)

   ☐ In-person drop-off
   ☐ Collection boxes
   ☐ Mail-based sample submission
   ☐ Outreach or staff collection
   ☐ Other (please specify) _____
   ☐ I prefer not to answer

9. Will your program offer confirmatory drug testing? (Confirmatory drug testing with laboratory-based, gold-standard technologies allows for a more refined analysis of samples collected at point-of-care drug checking and greater insight into the drug supply.)* (Select one option.)

   ☐ Yes
   ☐ No
   ☐ I prefer not to answer

9a. If yes, where do anticipate sending samples for confirmatory testing? (Select all that apply.)

   ☐ DAS Lab
   ☐ University or hospital lab
   ☐ Private lab
   ☐ Other (please specify) _____
   ☐ Unsure

10. What instruments would be used for confirmatory testing? (Select all that apply.)

   ☐ Gas chromatography–mass spectrometry (GC-–MS)
   ☐ Liquid chromatography–mass spectrometry (LC–MS)
   ☐ High field nuclear magnetic resonance (NMR) spectroscopy
   ☐ Paper spray mass spectrometry
   ☐ Unsure
   ☐ Other (please specify) _____

Section 3 — Staff Capacity and Technical Expertise

The purpose of this section is to get a sense of anticipated capacity, expertise and potential training needs for drug-checking services in your jurisdiction. (Insert number even if that number is 0.)

1. How many people at your organization do you anticipate would work directly on the drug-checking program.

2. Of this total, how many would be **full-time** dedicated to drug checking.

3. Of the total, how many would be doing drug checking **part time**, including full-time staff who do drug checking as only one part of their responsibilities.

4. How many staff (full or part time) would identify as people with lived or living experience (PLLE) (i.e., previously or currently make, sell or use drugs).

5. Among the PLLE, how many would be volunteers as opposed to paid staff.

6. Would any drug-checking operators (people using instruments to conduct testing of samples) have a degree or specialized training (do not include drug-checking training) in any of the following. In each instance, please include the number of operators: (Select all that apply.) (In each instance, please include the number of operators.)
   - ☐ Pharmacology
   - ☐ Chemistry
   - ☐ Laboratory sciences
   - ☐ None, no specialized trainings nor degrees among staff operating devices
   - ☐ Other (please specify) _____

7. Which organization or organizations would provide training on using the drug-checking instruments? For each, please insert text for resource or resources that you plan to use or name of organization that would provide the training. (Select all that apply and insert text with training details.)
   - ☐ Self-taught [Text box]
   - ☐ External consultant or consultants or organization [Text box]
   - ☐ Manufacturer [Text box]
   - ☐ Federal agency [Text box]
   - ☐ Provincial or territorial agency [Text box]
   - ☐ Regional health authority or unit [Text box]
   - ☐ University program [Text box]
   - ☐ Another, more established drug-checking service or program [Text box]
   - ☐ Other (please specify) _____

   List all training resources that your organization plans to use or have started and that you would recommend to others (e.g., names of organizations and websites or organizational policies):* (Type "I prefer not to answer" if you prefer not to answer.) [Text box]

Section 4 — Service Outputs

The purpose of this section is to assess the reach and impact of your planned drug-checking services in your jurisdiction.

1. Will your organization keep or own the data on the services provided? (Select one option.)
   - ☐ Yes

☐ No

2. Who will be the target population or demographic of the service? (Select all that apply.)
   ☐ People who use supervised consumption site or overdose prevention site
   ☐ People who do not use supervised consumption site or overdose prevention site
   ☐ Healthcare providers or first responders who care for people who use drugs
   ☐ Event focused (people who go to festivals, nightclubs and other mass gatherings)
   ☐ Unsure
   ☐ Other (please specify) _____

3. In addition to drug checking, are there other services that your program offers on-site? (Select all that apply.)
   ☐ Naloxone distribution
   ☐ Syringe services or needle exchange
   ☐ Supervised drug consumption
   ☐ Rapid HIV testing
   ☐ HIV PrEP or PEP
   ☐ Rapid STD testing
   ☐ Rapid HCV testing
   ☐ Methadone, buprenorphine, naltrexone or MOUD
   ☐ Mental health counselling
   ☐ Other medical services
   ☐ Recovery support-groups
   ☐ Recovery support-peer coaching
   ☐ Housing or shelter
   ☐ Case management
   ☐ Laboratory testing services
   ☐ Other (please specify) _____

4. What types of samples will be tested? (Select all that apply)
   ☐ Drugs: powders
   ☐ Drugs: crystals
   ☐ Drugs: pills
   ☐ Drugs: liquids
   ☐ Empty drug bags or capsules
   ☐ Used syringes
   ☐ Used cookers, cottons, other injection paraphernalia
   ☐ Smoking paraphernalia (e.g., stems, pipes)
   ☐ Snorting paraphernalia (e.g., straws)
   ☐ Vape pods
   ☐ Urine

☐   Blood

☐   Wastewater

☐   Other (please specify) _____

Thank you for completing the survey.

Appendix C – Interview Guide

Invitation for partners and interested people and organizations to participate in interviews for a drug-checking environmental scan conducted by the Canadian Centre on Substance Use and Addiction

Dear colleague,

The Canadian Centre on Substance Use and Addiction (CCSA) is conducting an environmental scan of drug-checking services in Canada. The environmental scan will describe the existing capacities, gaps and potential for improving services. The data generated will serve as a tool for policy makers to support and facilitate drug-checking initiatives across Canada.

CCSA is inviting you to take part in an hour interview to discuss the needs and challenges in implementing drug-checking services unique to your jurisdiction. The interview will focus on the history and current status of drug checking in your jurisdiction, including legal sanctions or exemptions to implement drug-checking services and areas of focus for government agencies about the unregulated drug market and harm reduction. The questions are on the next page for you to consider.

CCSA appreciates your expertise and looks forward to hearing from you to schedule a time that is convenient for you.

If you have any questions or concerns, please email me at agiwa@ccsa.ca.

We value your expertise and time.

Sincerely,

Aisha Giwa

Questions for partners with insights on drug checking in each jurisdiction

1. Please describe in detail the history of drug-checking in your province, territory or region.
    *   Motivations behind supporting (or not supporting) the implementation of drug-checking services
    *   Social and political climate around substance use and harm reduction (past and present)
    *   Types of support available or needed to run drug-checking services, including collaborations with other organizations in your province.
2. Are you aware of any difficulties or challenges experienced by service providers in obtaining a legal sanction to provide drug-checking services?

3. In your opinion, what areas would harm reduction services and the illicit drug supply benefit from the support from governments and agencies?
4. Does your jurisdiction have or plan on developing a provincial or territorial network or strategy on drug checking? If so, please explain.

Invitation for partners and colleagues providing drug-checking services to participate in interviews for drug-checking environmental scan conducted by the Canadian Centre on Substance Use and Addiction

Dear colleague,

The Canadian Centre on Substance Use and Addiction (CCSA) is conducting an environmental scan of drug-checking services in Canada. The environmental scan will describe the existing capacities, gaps and potential for improving services. The data generated will serve as a tool for policy makers to support and facilitate drug-checking initiatives across Canada.

As a follow-up to our survey, CCSA is inviting you to take part in an hour interview to expand on your responses and discuss the needs and challenges in implementing drug-checking services unique to your jurisdiction. The interview will focus on funding and other barriers to implementation, including staffing, legal sanction or exemptions, procedure challenges, the history and current status of drug checking in your jurisdiction, and areas of focus for government agencies about the illicit drug market and harm reduction. The questions are on the next page for you to consider.

CCSA appreciates your expertise and will offer a small token of $50 to compensate you for your time. We look forward to hearing from you to schedule a time that is convenient for you.

If you have any questions or concerns, please email me at agiwa@ccsa.ca.

We value your expertise and time.

Sincerely,

Aisha Giwa

Questions for partners providing drug checking services

1. Please describe in detail the history of your drug-checking service in your province, territory or region.
   - Motivations (or facilitators) behind operating or starting drug-checking services
   - Social and political climate around substance use and harm reduction (past and present)
   - Types of support needed to run drug-checking service, including collaborations with other Organizations in your province

2. Please describe in detail how your services are funded.
   - Who and how much does your organization spend on providing drug-checking services in your province, territory or region?
   - What concerns, if any, do you have about funding drug-checking services? Can you expand on these concerns?
   - What organization or level of government should fund drug-checking services in your province, territory, or region?

3. Do you have a legal sanction or exemption to receive and conduct testing of controlled substances? If so, what type?
   - When does your exemption or legal sanction expire?
   - How long did it take to fill out the application for the exemption or legal sanction?
   - Can you describe the application process in detail?
   - Did you experience any difficulties or challenges in applying for a legal sanction or exemption?

4. In your opinion, where do you think government agencies can be most helpful with respect to the illicit drug market and harm reduction?

5. What are the major barriers to operating your program? Factors could include:
   - Technical
   - Staffing/Training
   - Funding
   - Legal
   - Time
   - Other competing priorities
   - Lack of interest or Trust among service users
   - Safety

6. Does your jurisdiction have or plan on developing a provincial or territorial network or strategy on drug checking?

Appendix D: Number of organizations using each type of technology by jurisdiction.

Type of technology	British Columbia	Alberta	Saskatchewan	Ontario	Quebec	New Brunswick	Yukon
Fentanyl test strips	5	1	3	2	6	1	2
Benzodiazepine test strips	5	1	3	1	6	1	1
Xylazine test strips	2	1	2	1	6	0	0
Colorimetric or reagent test kit	1	1	1	0	6	0	0
FTIR (Fourier transform infrared spectroscopy)	5	1	3	1	5	0	2
Raman spectroscopy	1	0	0	2	0	1	0
Ultraviolet-visible spectroscopy	0	0	0	1	0	0	1
Paper spray mass spectrometry	1	0	0	0	0	0	0
Gas chromatography–mass spectrometry	2	0	0	3	2	0	0
Liquid chromatography–mass spectrometry	1	0	0	3	0	0	0

Return to Figure 4.