Onsite drug checking technology purchase and partnership considerations

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Onsite (i.e., point of care) drug checking technologies are emerging with the intent to improve service accessibility, turnaround times for results, and detection of drugs in very small amounts. For the most part, these technologies are being developed by for-profit companies from outside the harm reduction space. Increasingly, these companies are approaching community-based organizations to promote or seek partnership to pilot their technologies.

The purpose of this document is to equip community-based organizations to make informed decisions about partnering with a for-profit drug checking venture or purchasing an onsite drug checking technology.

It is important to remember that drug checking as a response to the toxic drug supply crisis is in its infancy. Incredibly sophisticated and sensitive technologies continue to be required to effectively check highly contaminated drugs that are most likely to contribute to overdose. At this time, there is no perfect drug checking technology or model. All have trade-offs in terms of quality of results, turnaround times, and cost.

Here is a list of **questions you may choose to ask for-profit companies that approach you to purchase or pilot their technology**:

Company-related	• Describe your organization's mission, motivation, management team, legal structure and ownership, and revenue model. • What experience does your organization have in the field of harm reduction, if any? • How does your organization give back to the community of people who use drugs?
Technology-related	• Describe how your technology works in lay terms. • How has your technology been validated? Describe validation using reference standards (i.e., pharmaceutical grade known compounds in known amounts), as well as drugs from the unregulated supply, if

	applicable. Provide reports, peer-reviewed publications. **Please note that drug checking technologies are not assessed by Health Canada to determine their safety, effectiveness, or quality before being authorized for sale in Canada (something that is a requirement for medical devices). For this reason, it is critically important that claims made about what a drug checking technology can do (specifically, which compounds it can detect) are backed by concrete evidence.** • Provide detailed limitations for your technology. • Has your technology been piloted in the community? If so, how, where, and could you provide a community contact we could connect with to learn about their experience? • Is your technology new or does it build upon a technology already used for drug checking? • How much does your technology cost? What are upfront and ongoing costs related to subscriptions and supplies? • How is your technology serviced? What are anticipated service and maintenance costs? • How do we access instrument support? How long do we have to wait for instrument support? Are there costs associated with accessing instrument support? • What qualifications or training are required of those that conduct drug checks using your technology? • How much physical space does your technology require? Is your technology portable? How durable is your technology (i.e., could it be used outdoors or in a vehicle)?
Sample-related	• What sample types can be checked using your technology? E.g., substances (powder, crystals, rocks, pills, blotter, liquid), residue on used drug equipment. • Are samples checked in raw form or are they diluted? If diluted, with what? • What expected drugs can be checked using your technology? • Does your technology destroy the sample that is checked?
Results-related	• How long are turnaround times for results? • Which drugs can your instrument detect? • Can your instrument detect non-drug fillers and other types of compounds? If so, which ones?

	• How well does your instrument differentiate between drugs that have very similar chemical structures? E.g., fentanyl-, benzodiazepine-, high-potency opioid-related drugs, by-products, etc. • Does your technology report information about how much of a compound is found in a checked sample (i.e., quantified results)? If so, within what range of precision (i.e., how accurately)? • What is your technology's limit of detection (i.e., the smallest amount of a compound that can be detected with confidence)? • How often are "new" compounds added to your technology's database or library of drugs it can detect?
Data-related	• What data, if any, does your technology collect from service users? How is that data stored? Where is that data stored? What does your organization do with that data? Are we free to do what we want with that data? • Do you plan to share your drug sample analysis data with existing networks of publicly funded drug market monitoring systems for public dissemination?
Partnership-related	• What benefits do community partners receive (e.g., free or discounted instruments)?

Please note that the most important compounds drug checking services for opioid overdose prevention can identify are what we call "noteworthy drugs". Noteworthy drugs are drugs that (i) are linked to overdose or other adverse effects, (ii) are highly potent or related to highly potent drugs, or (iii) may not be desired by some service users. **Emerging drug checking technologies that prioritize opioid overdose prevention and claim to be improvements to existing onsite technologies should ideally be able to identify many of the noteworthy drugs found by Toronto's Drug Checking Service**: fentanyl and related drugs (4-Fluorobutyrylfentanyl (4-FBF)/4-Fluoroisobutyrfentanyl, acetyl fentanyl, benzyl fentanyl, bromofentanyl, butyryl fentanyl, carfentanil, despropionyl carfentanil, despropionyl fentanyl (4-ANPP), fentanyl, fluorofentanyl, furanyl fentanyl, furanylethyl fentanyl, n-methyl norcarfentanil, ocfentanil, valeryl fentanyl), non-fentanyl synthetic opioids (5-Aminoisotonitazene, etodesnitazene, etonitazene, etonitazepyne, isotonitazene/protonitazene, metonitazene, n-desethyl isotonitazene, furanyl UF-17, U-51754), benzodiazepine-related drugs (adinazolam, alprazolam (Xanax), bromazolam, clonazepam, clonazolam, desalkylflurazepam, desalkylgidazepam, deschloroetizolam, diazepam (Valium), etizolam, flualprazolam, flubromazepam, flubromazolam, flunitrazepam, flurazepam, lorazepam

(Ativan), meclonazepam, oxazepam, temazepam), synthetic cannabinoids (4F-MDMB-BUTINACA, AB-FUBINACA, ACHMINACA, AMB-FUBINACA, BZO-HEXOXIZID), other (levamisole, phenacetin, xylazine).

Our **advice to for-profit companies promoting or seeking partnership for their technologies** is to:

1. Be honest about what your technology can achieve at its current stage. It is understood that checking drugs is complex and challenging. Transparency builds trust.
2. Focus your time and energy on building a solid technology. Leave program delivery and translation of results to harm reduction and drug checking experts.

We are here to help! We appreciate you may be new to drug checking and the answers to these questions may be overwhelming. We are learning too but are a resource to the community and could attempt to assist with translation if that would be helpful to you. You can reach us at **drugchecking@cdpe.org**.

Toronto's Drug Checking Service *is a public health service that aims to reduce the harms associated with substance use and, specifically, to prevent overdose by offering people who use drugs timely and detailed information on the contents of their drugs. Beyond educating individual service users, results for all samples are combined, analyzed, and publicly disseminated every other week to communicate drug market trends and inform care for people who use drugs, advocacy, policy, and research.* ***Sign up*** *to receive reports, alerts, and other information on Toronto's unregulated drug supply.*

(e) **drugchecking@cdpe.org** | (t) **@drugpolicyctr** | (f) **facebook.com/centreondrugpolicyevaluation**