

Drug Checking Models and Techniques

There are a range of different drug checking models but they largely fall into five categories:

On-site (at an event): This is a temporary pop-up service that is taken down at the end of an event. This occurs most commonly at music festivals but can also happen at other events such as conferences and concerts.

Fixed-site (in community): This is based in a permanent or semi-permanent space, ideally located within a larger community organization that offers other services to which people can be referred (e.g., counseling, harm reduction supplies, Overdose Prevention Sites (OPS), naloxone training, housing support or opioid replacement).

Mobile: This often involves adding drug checking services to mobile overdose prevention sites or harm reduction vans.

Off-site: This typically involves a location in the community which is used for sample collection. Collected samples are then couriered off to a central drug checking site (like a hospital) where they are analyzed. The results are then communicated back to the community location, where results are disseminated back to the service user, along with appropriate messaging. This option can be logistically complicated and requires consistent communication and coordination between sites.

Mail-in: This consists of people taking a sample of their substance and sending it through the postal service to a drug checking location. Results are communicated directly to the service user or coded and posted on the organization's website to ensure anonymity. Depending on the organization, the service may have a cost or be free of charge. In British Columbia, there are currently two free services: Get Your Drugs Tested and the Vancouver Island Drug Checking Project. [Drug Checking Techniques](#)

Generally, drug checking services operate individually and the chemical drug analysis techniques used may vary considerably depending on the specific setting. The technology used can be organized into three tiers.

Summary of drug checking analysis techniques				
Technique	How it works	Is the sample destroyed through testing?	Benefits	Drawbacks
Tier 1: Test strips	A drug dissolved in water is applied to a test strip	Yes	• Cost effective • Easy to use; results are ready within minutes • Are able to detect specific compounds at low concentrations (10-200 nanograms per milliliter) • Accurately detects fentanyl and some benzodiazepines	• Limited information can be drawn with the positive or negative result because the test does not show the type or specific amount of a substance • Limited number of substances that can be tested Dipsticks can detect fentanyl and benzo but not the amount of the chemical present
Tier 2: Fourier Transform Infrared Spectroscopy (FTIR) machine or Raman Spectrometry	Measures amount of infrared radiation absorbed	No	• Results ready within minutes • Can test for multiple substances • Can be used at a mobile site or within an existing agency • Fairly easy to use with limited training	• Can detect the presence of fentanyl over 5 per cent but this is very difficult with opiates and the supply being so volatile and containing so many variants and compounds with similar molecular structure
Tier 3: Mass Spectrometry (gas or paper spray)	Gold standard test that can detect chemicals at trace concentrations	Yes	• Very detailed results are provided on the substance and additives • Can be used to measure fentanyl and other chemicals or compounds with similar molecular structure	• Used in a laboratory setting, lab technician required to operate the machine, very expensive, results take much longer (2 days to 1 week).

Attachment 1

It is important to note that limitations exist within the current technology available (especially with onsite testing) to test for opiates and substances that may be added that are more deadly.