



What's in Toronto's Drug Supply?

Results from Samples Checked by Toronto's Drug Checking Service
January 1 – December 31, 2020



CENTRE ON
DRUG POLICY
EVALUATION

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Acknowledgements

We acknowledge the members of our community advisory board, our partner organizations, and those that have lost their lives – both in the ongoing drug poisoning crisis and long before – due to policies of drug criminalization.

We acknowledge that the land on which we operate Toronto’s drug checking service is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee, and the Wendat peoples, and is now home to many diverse First Nations, Inuit, and Métis peoples.

We acknowledge that racialized communities and survivors of colonization are disproportionately impacted by unjust drug policies. We strive to support the development of equitable drug policies that are responsive to the needs of racialized people who use drugs – including Black, Indigenous, and People of Colour – and their communities.

We thank our community advisory board of people who use drugs in Toronto who consult on the design and execution of Toronto’s drug checking service.

We thank our partners, funders, and regulators for their ongoing commitment to Toronto’s drug checking service:

- Alliance for Collaborative Drug Checking
- British Columbia Centre on Substance Use
- Canadian Centre on Substance Use and Addiction’s National Drug Checking Working Group
- Centre for Addiction and Mental Health
- Health Canada’s Drug Analysis Service
- Health Canada’s Office of Controlled Substances
- Health Canada’s Substance Use and Addictions Program
- Moss Park Consumption and Treatment Service
- Office of the Chief Coroner for Ontario
- Ontario Harm Reduction Network
- Ontario Poison Centre
- Parkdale Queen West Community Health Centre
- Public Health Ontario
- South Riverdale Community Health Centre
- St. Michael’s Hospital (Unity Health Toronto)
- St. Michael’s Hospital Foundation
- Street Health
- The Works at Toronto Public Health
- Toronto Harm Reduction Alliance
- Toronto Paramedic Services
- Toronto Public Health
- Trip! Project
- Vancouver Island Drug Checking Project

About Toronto's Drug Checking Service

Coordinated by the [Centre on Drug Policy Evaluation, Toronto's drug checking service](#) launched in October 2019 to:

- Offer people who use drugs timely and detailed information on the contents of their drugs, helping them to make more informed decisions
- Publicly share information on Toronto's unregulated drug supply, helping harm reduction workers and clinicians tailor the care they provide to people who use drugs
- Advocate for services and safer alternatives for people who use drugs

Toronto's drug checking service is free, anonymous, and available to everyone. Accepted samples include a substance (a small amount of a powder, pill, blotter, or liquid) and paraphernalia after it's been used (a cooker, filter, or leftover liquid from a syringe).

Samples are collected at five harm reduction agencies in Toronto where supervised consumption services are offered:

- [Parkdale Queen West Community Health Centre \(Queen West site\)](#)
- [South Riverdale Community Health Centre](#)
- [The Works at Toronto Public Health](#)
- [Moss Park Consumption and Treatment Service](#)
- [Parkdale Queen West Community Health Centre \(Parkdale site\)](#)

Five days per week, samples are transported to a nearby laboratory at the [Centre for Addiction and Mental Health](#) or [St. Michael's Hospital](#) to be analyzed using [mass spectrometry technologies](#) (gas chromatography and liquid chromatography).

Results are available within a business day or two and are communicated to clients by harm reduction staff in person or by phone. Along with these results, clients receive tailored harm reduction supports, guidance, and referral to services (e.g., supervised consumption, naloxone training, primary health care).

Onsite drug checking using other technologies is offered at participating harm reduction agencies (currently limited to benzodiazepine test strips).

Toronto's drug checking service helps to uncover the makeup of Toronto's unregulated drug supply by combining results from samples checked and posting them [online](#) every other week.

What's the Unregulated Drug Supply?

The unregulated drug supply includes illegal drugs, as well as legal drugs diverted from regulated markets for sale through criminal channels.

Service Operations: 2020 at a Glance

2020 marks the first full year of operation for Toronto's drug checking service. Operational accomplishments achieved in 2020 included:

- Checking and providing individual results for 1,657 samples
- Publishing 28 [reports](#) on combined results from samples checked, including a detailed report on [samples checked between October 2019 – March 2020](#)
- Releasing 5 formal [alerts](#) related to noteworthy drugs found unexpectedly in Toronto's unregulated drug supply:
 - [ACHMINACA](#) and [AMB-FUBINACA](#) (synthetic cannabinoid-related)
 - [Carfentanil](#)
 - [Xylazine](#) (animal tranquilizer)
- Launching [Toronto's drug checking service interactive website](#) to publicly share timely information on Toronto's unregulated drug supply
- Expanding the service by 2 additional harm reduction agencies to collect samples and communicate results to clients: [Moss Park Consumption and Treatment Service](#) and the [Parkdale site of Parkdale Queen West Community Health Centre](#)
- Publishing 2 academic articles related to scientific research on Toronto's drug checking service:
 - [Evaluating networked drug checking services in Toronto, Ontario: study protocol and rationale](#)
 - [Detection of synthetic cannabinoid adulteration in the unregulated drug supply in three Canadian settings](#)
- Developing a method to determine the absolute quantity of five drugs that pose the highest risk for overdose and/or contamination (rollout in 2021)
- Introducing benzodiazepine test strips onsite at participating harm reduction agencies
- Over 450 people joining the [mailing list](#) for Toronto's drug checking service
- Over 3,000 unique visitors to [Toronto's drug checking service interactive website](#)

COVID-19: Implications for Service Delivery

When the COVID-19 state of emergency was declared in March 2020, physical distancing and service restrictions limited clients' ability to access the harm reduction agencies where Toronto's drug checking service is offered.

As a result, **we experienced a 62% decrease in sample collection between February and April 2020**. Sample collection recovered by July, with an average of 189 samples checked each month from July to December.

Changes in Toronto's unregulated drug supply coincide with the COVID-19 pandemic – most notably, an **escalation in the contamination of fentanyl**. Increases in benzodiazepine-related drugs, synthetic cannabinoids, carfentanil, xylazine (animal tranquilizer), as well as several fentanyl-related drugs presenting in expected fentanyl samples were observed. This increase in fentanyl contamination corresponds with a **record number of both fatal and non-fatal overdoses** at local, provincial, and national levels.

In order to better understand the relationship between these co-existing crises, the Centre on Drug Policy Evaluation was funded by the Canadian Institutes of Health Research to [rapidly assess the impact of the COVID-19 pandemic on people who inject drugs in Toronto](#), with a focus on clinical and social outcomes, service utilization, and trends in the unregulated drug supply.



Results from Samples Checked

January 1 – December 31, 2020

Key Findings: January 1 – December 31, 2020

- 1,657 samples were checked: 59% were substances and 41% were used paraphernalia
- 53% of samples checked were expected to be fentanyl
- Expected fentanyl samples were varying shades of purple, pink, red, blue, green, yellow, or white
- 7% of expected fentanyl samples were known to be associated with an overdose: 98% of those samples contained fentanyl and 77% of those samples contained both fentanyl and a benzodiazepine-related drug
- Xylazine, a tranquilizer used by veterinarians, was first identified in September and presented in 7% of expected fentanyl samples in October to December
- Carfentanil resurged in September, presenting in 2% of expected fentanyl substances in July to December
- 63% of expected fentanyl substances contained benzodiazepine-related drugs in October to December, compared to 39% in January to March
- 31% of expected heroin substances contained fentanyl
- Presence of the two most common cocaine adulterants – phenacetin and levamisole – increased by more than 100% between January and December in expected cocaine substances
- Substances expected to be opioids continue to be significantly more contaminated than other expected drugs – meaning there were a lot of other drugs found in each expected opioid substance:

- 5% of fentanyl substances contained only fentanyl
- No heroin substances contained only heroin

Meanwhile:

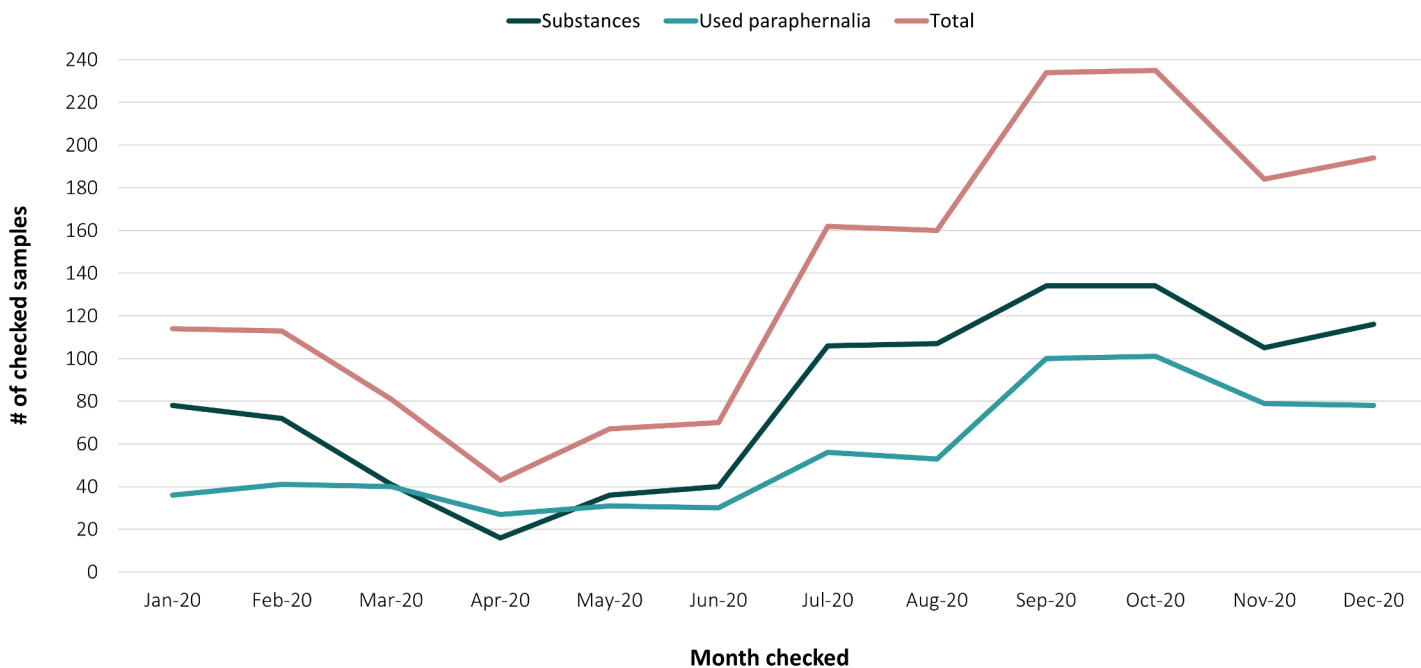
- 78% of ketamine substances contained only ketamine
- 75% of methamphetamine substances contained only methamphetamine
- 45% of cocaine substances contained only cocaine

Unexpected Fentanyl in Other Drug Types

In 2020, fentanyl was found in 1 of 61 expected MDMA substances, 3 of 103 expected methamphetamine substances, and 4 of 29 expected benzodiazepine substances checked by Toronto's drug checking service. While we have heard about fentanyl contamination in other drug types from the community of people who use drugs in Toronto, we are not, currently, seeing a trend toward increasing fentanyl adulteration of cocaine, crack cocaine, methamphetamine, or other stimulants, psychedelics, or depressants. There is general agreement in the drug checking community that the unexpected presence of fentanyl in other drug types is accidental and a product of cross contamination. That said, unexpected fentanyl poses significant risk, especially for those who do not regularly use opioids. It's always a good idea to get your drugs checked.

Checked Samples by Sample Type

Two types of samples are accepted by Toronto’s drug checking service: substances and used paraphernalia. Between January 1 – December 31, 2020, 1,657 samples were checked: 59% (985) were substances and 41% (672) were used paraphernalia.

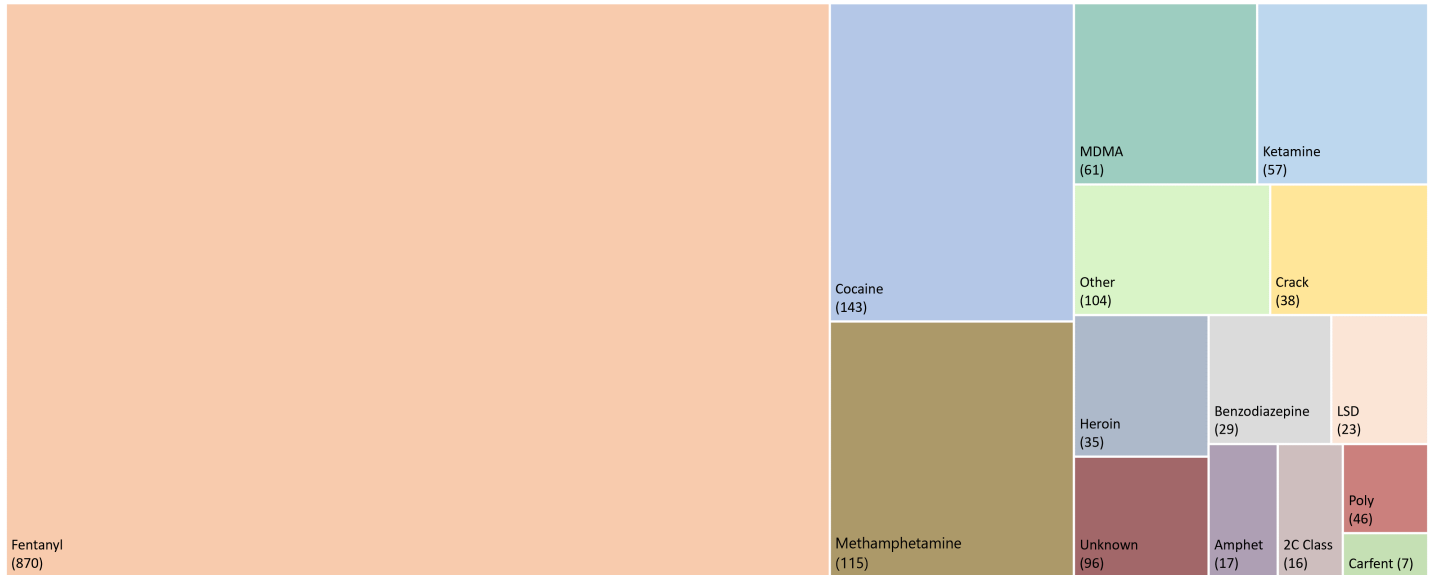


Substances could be a small amount of powder, a crushed bit of a pill, blotter, or a small amount of liquid.

Used paraphernalia could be a used cooker or filter, or leftover liquid from a syringe.

Checked Samples by Expected Drug

When a sample is submitted to be checked, the drug that sample is expected to contain is recorded (and is known as the “**expected drug**”). This graph shows the expected drug for the 1,657 samples checked between January 1 – December 31, 2020.



Other expected drugs include: 3-MeO-PCE, 3-MeO-PCP, 4-AcO-DET, 4-AcO-DMT, 4-AcO-MET, 4-FA, 4-HO-MET, 4-HO-MiPT, 4-MPM, 5-APB/6-APB, 5-MeO-DiPT, 5-MeO-DMT, 5-MeO-MiPT, Adderall, AMT, codeine, DiPT, DMT, DPT, down, etaqualone, GHB, hydromorphone, iohexol, MDA, mescaline, methylone, modafinil, morphine, naloxone, O-DSMT, O-PCE, OxyContin, Percocet, phenidate, Soma, Vyvanse, and Z-drugs.

Unknown includes samples that did not have a recorded expected drug.

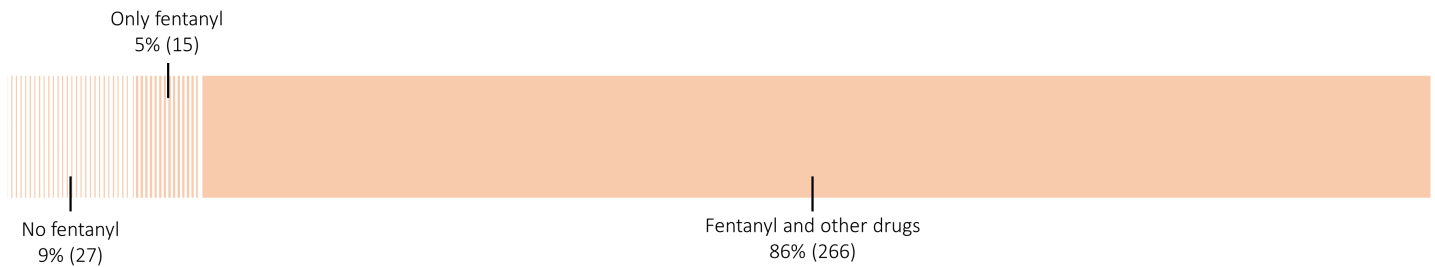
Polysubstance includes samples that had two or more expected drugs (e.g., fentanyl and methamphetamine).

Opioids

Expected Fentanyl Substances

Of the 985 substances checked between January 1 – December 31, 2020, 31% (308) were expected to be fentanyl.

Presence of fentanyl in expected fentanyl substances (308)



In substances expected to be fentanyl that **contained no fentanyl**, the most commonly found drugs were caffeine, heroin, and cocaine.

Expected fentanyl substances containing fentanyl and other drugs (266)

86% (266) of expected fentanyl substances checked **contained fentanyl and other drugs**, including:

- 91% (242) contained caffeine
- 56% (150) contained a benzodiazepine-related drug:
 - 53% (141) contained etizolam (!)
 - 5% (13) contained flualprazolam (!)
 - 1% (3) contained flubromazolam (!)
 - Less than 1% (1) contained deschlor-etizolam (!)
- 42% (113) contained despropionyl fentanyl (4-ANPP) (!)
- 8% (21) contained acetyl fentanyl (!)
- 7% (19) contained phenacetin (!)
- 3% (7) contained furanyl UF-17 (opioid-related) (!)
- 2% (5) contained carfentanil (!)

- 1% (3) contained a synthetic cannabinoid-related drug:
 - 1% (2) contained AMB-FUBINACA (!)
 - Less than 1% (1) contained ACHMINACA (!)
- 1% (2) contained methyl fentanyl (!)

Of note from expected fentanyl samples that were used paraphernalia (562)

Unexpected noteworthy drugs (!) found only in expected fentanyl samples that were used paraphernalia included: several other fentanyl-related drugs (butyryl fentanyl, furanylethyl fentanyl, parafluorofentanyl, valeryl fentanyl, and variations of these drugs), benzodiazepine-related drugs (alprazolam (Xanax), clonazepam, and meclonazepam), AB-FUBINACA (synthetic cannabinoid-related), levamisole, and xylazine.

Expected Heroin Substances

Of the 985 substances checked between January 1 – December 31, 2020, 3% (29) were expected to be heroin.

Presence of heroin in expected heroin substances (29)



In substances expected to be heroin that **contained no heroin**, the most commonly found drugs were caffeine, cocaine, despropionyl fentanyl (4-ANPP) (!), and fentanyl (!).

Expected heroin substances containing heroin and other drugs (21)

72% (21) of expected heroin substances checked **contained heroin and other drugs**, including:

- 95% (20) contained caffeine
- 76% (16) contained morphine
- 67% (14) contained codeine
- 38% (8) contained dextromethorphan
- 24% (5) contained cocaine
- 19% (4) contained fentanyl (!)
- 5% (1) contained etizolam (benzodiazepine-related) (!)
- 5% (1) contained levamisole (!)
- 5% (1) contained phenacetin (!)

Expected Percocet Substances

Of the 985 substances checked between January 1 – December 31, 2020, 1% (12) were expected to be Percocet:

- 58% (7) contained acetaminophen
- 50% (6) contained oxycodone
- 17% (2) contained fentanyl (!)

Expected Carfentanil Substances

Of the 985 substances checked between January 1 – December 31, 2020, less than 1% (4) were expected to be carfentanil:

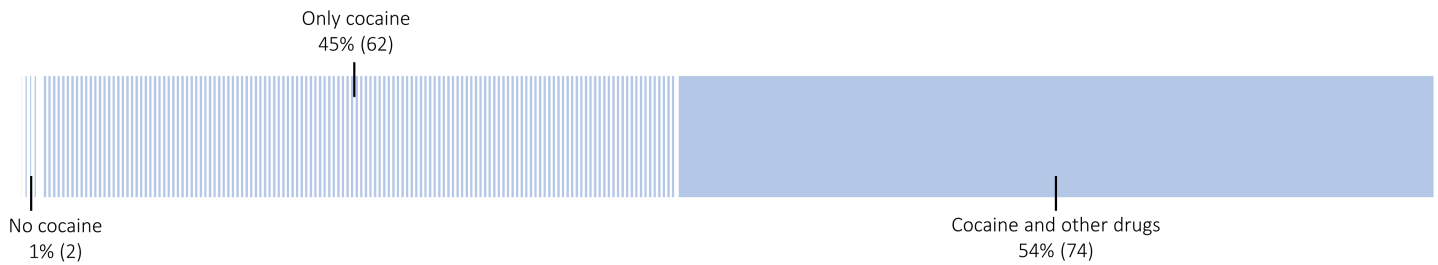
- None contained carfentanil
- 75% (3) contained fentanyl (!)
- 25% (1) contained despropionyl fentanyl (4-ANPP) (!)
- 25% (1) contained etizolam (benzodiazepine-related) (!)
- 25% (1) contained furanyl UF-17 (opioid-related) (!)

Stimulants

Expected Cocaine Substances

Of the 985 substances checked between January 1 – December 31, 2020, 14% (138) were expected to be cocaine.

Presence of cocaine in expected cocaine substances (138)



In substances expected to be cocaine that **contained no cocaine**, the only drug found was acetaminophen.

Expected cocaine substances containing cocaine and other drugs (74)

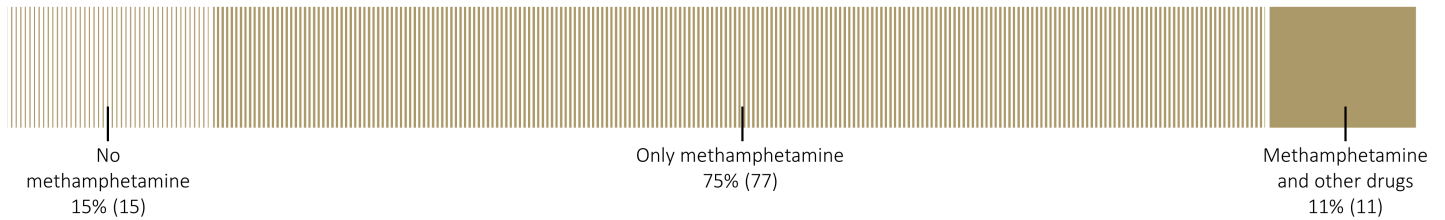
54% (74) of expected cocaine substances checked **contained cocaine and other drugs**, including:

- 42% (31) contained phenacetin (!)
- 41% (30) contained levamisole (!)
- 3% (2) contained benzocaine (!)
- 1% (1) contained etizolam (benzodiazepine-related) (!)

Expected Methamphetamine Substances

Of the 985 substances checked between January 1 – December 31, 2020, 10% (103) were expected to be methamphetamine.

Presence of methamphetamine in expected methamphetamine substances (103)



In substances expected to be methamphetamine that **contained no methamphetamine**, the most commonly found drug was caffeine.

Expected methamphetamine substances containing methamphetamine and other drugs (11)

11% (11) of expected methamphetamine substances checked **contained methamphetamine and other drugs**, including:

- 36% (4) contained cocaine
- 27% (3) contained caffeine
- 9% (1) contained etizolam (benzodiazepine-related) (!)
- 9% (1) contained fentanyl (!)
- 9% (1) contained levamisole (!)
- 9% (1) contained phenacetin (!)

Expected Crack Cocaine Substances

Of the 985 substances checked between January 1 – December 31, 2020, 3% (26) were expected to be crack cocaine.

Presence of cocaine in expected crack cocaine substances (26)



In substances expected to be crack cocaine that **contained no cocaine**, there were no other commonly found drugs.

Expected crack cocaine substances containing cocaine and other drugs (19)

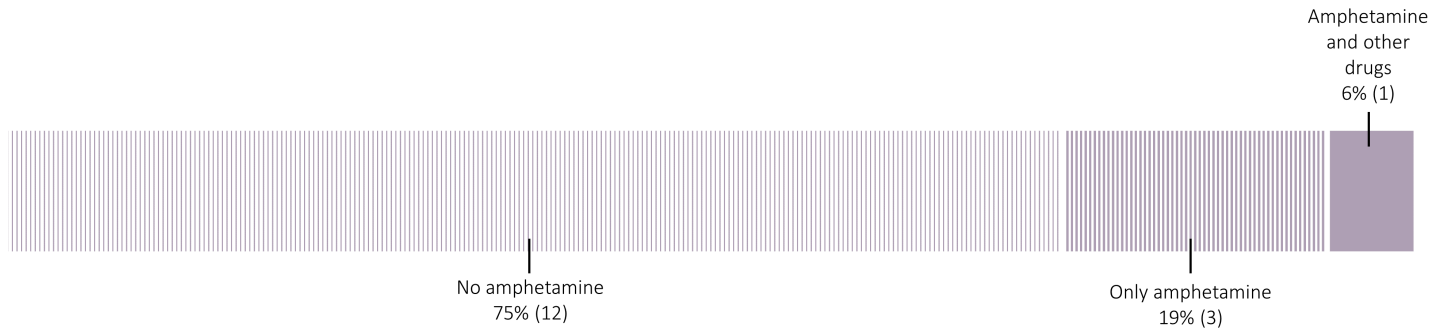
73% (19) of expected crack cocaine substances checked **contained cocaine and other drugs**, including:

- 89% (17) contained phenacetin (!)
- 26% (5) contained levamisole (!)

Expected Amphetamine Substances

Of the 985 substances checked between January 1 – December 31, 2020, 2% (16) were expected to be amphetamine.

Presence of amphetamine in expected amphetamine substances (16)



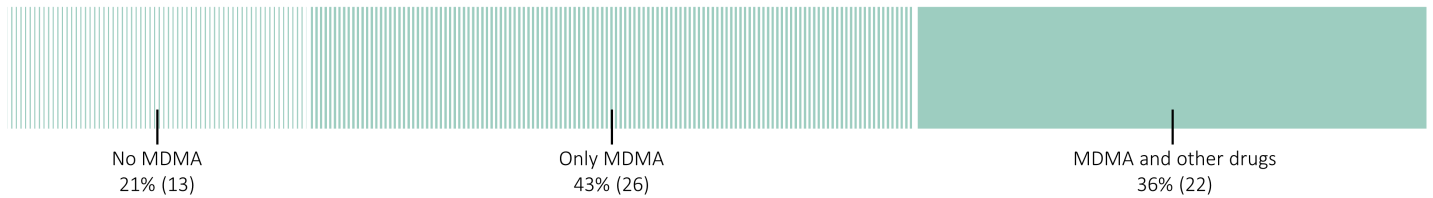
In substances expected to be amphetamine that **contained no amphetamine**, the most commonly found drug was methamphetamine.

Psychedelics

Expected MDMA Substances

Of the 985 substances checked between January 1 – December 31, 2020, 6% (61) were expected to be MDMA.

Presence of MDMA in expected MDMA substances (61)



In substances expected to be MDMA that **contained no MDMA**, the most commonly found drugs were MDA and methamphetamine.

Expected MDMA substances containing MDMA and other drugs (22)

36% (22) of expected MDMA substances checked **contained MDMA and other drugs**, including:

- 64% (14) contained MDA
- 32% (7) contained MDEA
- 9% (2) contained etizolam (benzodiazepine-related) (!)
- 5% (1) contained fentanyl (!)

Expected Ketamine Substances

Of the 985 substances checked between January 1 – December 31, 2020, 6% (55) were expected to be ketamine:

- 96% (53) contained ketamine

Expected LSD Substances

Of the 985 substances checked between January 1 – December 31, 2020, 2% (23) were expected to be LSD:

- 95% (22) contained LSD
- 4% (1) contained levamisole (!)

Expected 2C Class Substances

Of the 985 substances checked between January 1 – December 31, 2020, 2% (16) were expected to be a 2C class drug:

- 75% (12) contained a 2C class drug

Expected 2C class drugs included 2C-B, 2C-C, 2C-D, 2C-P, 2C-T-4, and 2C-T-5.

Expected GHB Substances

Of the 985 substances checked between January 1 – December 31, 2020, 1% (14) were expected to be GHB:

- 100% (14) contained GHB
- 7% (1) contained etizolam (benzodiazepine-related) (!)
- 7% (1) contained phenacetin (!)

Depressants

Expected Benzodiazepine Substances

Of the 985 substances checked between January 1 – December 31, 2020, 3% (29) were expected to be a benzodiazepine-related drug:

- 76% (22) contained a benzodiazepine-related drug
- 14% (4) contained fentanyl (!)
- 3% (1) contained despropionyl fentanyl (4-ANPP) (!)

Expected benzodiazepine-related drugs included alprazolam (Xanax), clonazepam, etizolam, and lorazepam (Ativan).

Drug Dictionary

Drug name	Description
2C class drugs	A family of psychedelic drugs with varying potencies
AB-FUBINACA	A synthetic cannabinoid, manufactured to be like the main psychoactive component in cannabis, THC, considered to be ultrapotent
Acetyl fentanyl	An active fentanyl-related drug, considered to be more potent than heroin and less potent than fentanyl
ACHMINACA	A synthetic cannabinoid, manufactured to be like the main psychoactive component in cannabis, THC, considered to be ultrapotent
Alprazolam (Xanax)	A high-potency, short-acting benzodiazepine used to treat anxiety
AMB-FUBINACA	A synthetic cannabinoid, manufactured to be like the main psychoactive component in cannabis, THC, considered to be ultrapotent
Benzocaine	A local anesthetic (numbing medication) used to relieve pain that can reduce the amount of oxygen carried by a person's blood throughout their body
Butyryl fentanyl	An active fentanyl-related drug, considered to be less potent than fentanyl
Carfentanil	An active fentanyl-related drug, considered to be ultrapotent: approximately 100 times stronger than fentanyl, 4,000 times stronger than heroin, and 10,000 times stronger than morphine
Clonazepam	A high-potency, long-acting benzodiazepine used to prevent and control seizures and treat panic attacks
Deschloroetizolam	A benzodiazepine-related drug, structurally similar to etizolam, although half as potent and lasting twice as long
Despropionyl fentanyl (4-ANPP)	An inactive fentanyl-related drug, which is an impurity found in fentanyl preparations
Dextromethorphan	A medication used to relieve cough caused by the common cold or flu
Etizolam	A short-acting benzodiazepine-related drug, used in some countries to treat anxiety and insomnia

Drug name	Description
Flualprazolam	A high-potency, short-acting benzodiazepine-related drug, similar to alprazolam (Xanax)
Flubromazolam	A high-potency, long-acting benzodiazepine-related drug
Furanyl UF-17	An opioid-related drug with unknown potency and effects
Furanylethyl fentanyl	An active fentanyl-related drug
Levamisole	A medication used to treat worm infections in animals, pulled from the Canadian market in the early 2000s, that has been associated with skin sores and a reduction of infection-fighting white blood cells
Lorazepam (Ativan)	A high-potency, short-acting benzodiazepine used to treat anxiety
Meclonazepam	A benzodiazepine used to treat parasitic worms
Methyl fentanyl	An active fentanyl-related drug, considered to be significantly more potent than fentanyl
Parafluorofentanyl	An active fentanyl-related drug, considered to be similarly potent to fentanyl
Phenacetin	A pain-relieving, fever-reducing medication, pulled from the Canadian market in the 1970s for its association with kidney and bladder cancers
Valeryl fentanyl	An active fentanyl-related drug, considered to be more potent than morphine and much less potent than fentanyl
Xylazine	A tranquilizer typically used by veterinarians on horses, deer, dogs, and cats for sedation, muscle relaxation, and pain relief

Tips & Help

Checking your drugs is one way to reduce the harms associated with using drugs from an unregulated supply. Toronto's drug checking service is offered alongside other harm reduction services in Toronto, including supervised consumption. These services have the most impact when used together.

1. **Carry and be trained to use naloxone.** Naloxone, also known by the brand name Narcan, is a drug that can temporarily reverse an opioid overdose. Naloxone can be picked up for free from your [local harm reduction agency or pharmacy](#) and [free training](#) is available online. Consider carrying multiple doses of naloxone.
2. **Get your drugs checked before using.** In Toronto, [drug checking services](#) are offered at [Moss Park Consumption and Treatment Service](#), Parkdale Queen West Community Health Centre ([Queen West](#) and [Parkdale](#) sites), [South Riverdale Community Health Centre](#), and [The Works at Toronto Public Health](#). You can also check your drugs after you have used them by submitting paraphernalia, like a cooker or a filter.

Other drug checking services in Canada include [British Columbia Centre on Substance Use Drug Checking Service](#), [Get Your Drugs Tested](#), and [Vancouver Island Drug Checking Project](#).

3. **Use at a supervised consumption site or overdose prevention site.** Here is a [list of sites that offer supervised consumption in Toronto](#) and an [interactive map of sites that offer supervised consumption across Canada](#).
4. **Use with someone else and take turns spotting for each other.** A buddy system is safer than using alone. Stay 6 feet from your buddy if you are not from the same household to avoid passing COVID-19.
5. **If you must use alone, let someone know before you use.** Call someone you know and have them stay on the phone with you while you use. Tell them your address and keep your door unlocked. If you are in Ontario, you could call the [Overdose Prevention Line](#) at 1-888-853-8542. The [National Overdose Response Service](#) is available to anyone in Canada and can be reached at 1-888-688-NORS (6677). [BeSafe](#) is an app that can be downloaded on your phone and provides another way to let someone know before you use.
6. **Do a small test dose** first.
7. **Call 911 in an overdose situation.** The [Good Samaritan Drug Overdose Act](#) provides legal protection from drug-related charges for carrying drugs for personal use and other simple possession offences.
8. If your drugs did not contain what you were expecting, **consider talking to the person you got your drugs from**, or get your drugs from another source if possible.
9. **If you use opioids, learn more about safer supply programs.** Safer supply programs provide people who use drugs with prescribed alternatives to opioids obtained from the unregulated supply.

Here is an [interactive map of sites that operate safer supply projects across Canada](#) and a [toolkit to advocate for safer opioid supply programs](#).

Alternatively, you could **speak to a health care provider about options** like methadone or suboxone. Your [local harm reduction agency](#) could likely refer you to methadone or suboxone providers. Or you could contact [ConnexOntario](#).

10. **Visit your local harm reduction agency for free supplies**, including safer injection and smoking equipment. Here is a list of [harm reduction agencies in Ontario](#).
11. **If you are a youth who uses drugs, connect with organizations like the Trip! Project**. The [Trip! Project](#) is a Toronto-based youth-led harm reduction health information service for the dance music scene and youth who use drugs.
12. **Stay informed** by [signing up](#) to receive alerts, reports, and other information on the unregulated drug supply from Toronto's drug checking service. Results from samples checked by Toronto's drug checking service are combined and [shared online](#) every other week. You can also sign up for [Toronto Public Health's mailing list](#) to receive alerts and other drug-related information.
13. **Act to advance the health, human rights, and dignity of people who use drugs** by connecting with and supporting advocacy organizations such as [Toronto Harm Reduction Alliance](#), [Canadian Association of People who Use Drugs](#), [Canadian Students for Sensible Drug Policy](#), and [Canadian Drug Policy Coalition](#).

Notes

Reporting Standards for Drugs Found

As part of our evolution as a pilot program, we are learning how to most accurately report drugs found through analysis to clients and the public. This means our reporting will change and improve over time.

Toronto's drug checking service is currently the only drug checking service in Canada that uses gas chromatography- and liquid chromatography-mass spectrometry as the primary instruments for analysis. Gas chromatography- and liquid chromatography-mass spectrometry analysis are typically conducted within a laboratory, meaning results take longer to report and are not immediately available at the point of collection.

The benefits of using these instruments are their comprehensive and regularly updated libraries, allowing them to detect hundreds if not thousands of drugs, as well as their ability to detect very trace amounts of drugs. This is particularly beneficial for drug market monitoring of noteworthy drugs that typically only present in trace amounts but can increase risk of overdose or adverse effects, such as benzodiazepine-related drugs and carfentanil in opioids or fentanyl in stimulants and psychedelics.

The drawbacks of using such sensitive instruments are that some of the drugs they report are inactive or drug precursors and their inclusion in reporting may not add value to clients' and the public's understanding of their own drug samples or the unregulated drug supply.

A role of Toronto's drug checking service is to translate analysis results to meet the needs of different audiences. Part of this involves simplifying results by reducing the number of drugs reported directly to clients and on our website. Examples of drugs we no longer plan to share with clients or on our website include norfentanyl, which is a fentanyl-related drug that is believed to be an inactive precursor, in fentanyl samples or benzoylecgonine, an inactive metabolite of cocaine, in cocaine samples.

For routine reporting to clients and on our website, we will focus on drugs for which there is information available on their potency or effects, and drugs that are a known potentiator or psychoactive filler.

Noteworthy Drugs (!)

Throughout this report and our website, we use **(!)** to signify an unexpected noteworthy drug. "Noteworthy drugs" are drugs that:

- Are linked to overdose or other adverse effects
- Are highly potent or related to highly potent drugs
- May not be desired by some clients

Noteworthy drugs are flagged when they are unexpectedly found in checked samples.

Limitations of Toronto's Drug Checking Service

It is important to understand the limitations of this drug checking service:

1. Checking a sample **cannot guarantee that a drug is safe to use.**
2. The results for a sample **may not represent the rest of the drugs that sample was taken from** (this is known as the Chocolate Chip Cookie Effect).
3. Due to technological limitations, some **drugs may be missed.**
4. Due to technological limitations, **non-drug fillers are not reported.** This could include non-drug fillers that may be dangerous, such as bacteria, metals, pesticides, or inorganic salts. Other non-drug fillers may not be dangerous, such as sugar or laxatives.
5. **Results for used paraphernalia have other limitations:**
 - Paraphernalia, like cookers, are often re-used. The mass spectrometry technologies used for Toronto's drug checking service are so sensitive that very trace amounts of drugs may be found. This means that **when paraphernalia is re-used, drugs from past use may present in the results for the sample that is being checked.** This can interfere with current drug market monitoring, which is why we rely only on substance samples when reporting trends.
 - Fatty acids are more commonly found in samples that are taken from used paraphernalia, most likely from oils on skin. These **fatty acids can interfere with the mass spectrometry analysis.** It may be difficult to see past them to determine which drugs are present.

What's the Chocolate Chip Cookie Effect?

The results for a sample that is checked may not represent the rest of the drugs that sample was taken from. You can imagine your drugs as a chocolate chip cookie. If you check a piece of the cookie that is only dough, your results may not identify chocolate as present. Mixing a powder or scratching different parts of a pill when preparing a sample can increase the representativeness of your sample.

For these reasons, **checking substances instead of used paraphernalia is preferred.**



The [Centre on Drug Policy Evaluation](#) strives to improve community health and safety by conducting research and outreach on best practices in drug policy. We work collaboratively with governments, affected communities, and civil society to guide effective and evidence-based policy responses to substance use. The Centre on Drug Policy Evaluation is housed within MAP Centre for Urban Health Solutions at St. Michael's Hospital, a site of Unity Health Toronto, in Toronto, Canada.

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Questions or comments? We'd love to hear from you. You can reach us at drugchecking@cdpe.org.