

# CSCC Award for Innovation in Laboratory Medicine

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## Toronto's Drug Checking Pilot Program at St Michael's Hospital and the Centre for Addiction and Mental Health (CAMH)

In response to the opioid crisis, Toronto Drug Checking team designed and developed a Drug Checking Service in 2017 as an integrated harm reduction tool and public health monitoring strategy. This involves clinical laboratory testing of pills, powders, liquids or used paraphernalia to identify the composition of unknown street drug substances. This testing was implemented in the clinical biochemistry laboratories at St. Michael's Hospital and the Centre for Addiction and Mental Health (CAMH) in Toronto thanks to a generous 5-year grant from Health Canada.

For people who use drugs (PWUD), drug checking allows for informed decision-making and the option to avoid ingestion/injection of previously unknown drugs with potentially dangerous adulterants (e.g., carfentanyl). As part of a harm reduction strategy, it also connects individuals with other supports and services like safe housing, counselling, and medical attention. From a public health point of view, it allows for monitoring and surveillance of the unregulated street drug supply that can inform paramedics, clinicians, and hospitals; helping to better respond to the overdose

crisis. It also provides data to policy makers at the provincial and national level, enabling a better understanding and better response to a crisis that is constantly changing. In 2018, the initial pilot program was the first of its kind in North America and was successfully funded by Health Canada at \$2.14 million CAD for 5 years, and by St. Michael's Hospital foundation for \$150,000 CAD. The service model (Maghsoudi et al. 2020) involves collaboration with Toronto Public Health, St. Michael's Hospital, CAMH, and Toronto's Safe Consumption Sites (SCS), and allows PWUDs to anonymously submit 1-10 mg of their drug (1/10th a single use dose) for drug analysis by mass spectrometry at St. Michael's Hospital or CAMH.

The Drug Checking Service has been incredibly successful thus far and has allowed us to characterize the extremely toxic and highly unpredictable street drug supply in Canada (Scarfione et al. 2022), demonstrated by unexpected contaminants such as xylazine (Bowles et al. 2021), synthetic cannabinoids (Ti et al. 2021), and designer benzodiazepines (Scarfione et al. 2022). The emergence of synthetic opioids – including fentanyl and fentanyl analogs – has been a major factor in the rise of mortality rates, and are being further characterized by our drug checking service in terms of prevalence and quantity in the street drug supply. This data is directly submitted to Health Canada on a monthly basis to provide the essential data they lack, in an effort to help inform policy makers and potential funding programs (i.e. Health Canada Substance Use and Addictions Program-SUAP). More recently (in February 2021), our Drug Checking Program has begun to identify the emergence of a new potent opioid drug class in Canada's street drug supply, nitazene opioids (i.e. isotonitazene, etonitazene), that are 5-10x more potent than fentanyl. The findings were presented in collaboration with Public Health Ontario (video link: <https://www.youtube.com/watch?v=cBOIS4Ahk-A>), as well as internationally (American Association of Clinical Chemists (AACC) 2021 scientific meeting).

This program has inspired other provinces (more recently Alberta and Saskatchewan) to consider Drug Checking as a harm reduction tool and have reached out to our team for information and assistance.

Toronto's Drug Checking program is lead by a group of scientists, clinical biochemists, and managers based at St. Michael's Hospital and the Centre for Addiction and Mental Health (CAMH). The core members include:

Dr. Dan Werb (Epidemiologist, St. Michael's Hospital)  
Dr. Daniel Beriault (Head of Biochemistry, St. Michael's Hospital)  
Dr. Sarah Delaney (Clinical Biochemist, St. Michael's Hospital)  
Dr. Cristiana Stefan (Clinical Biochemist, CAMH)  
Mark Evert (Research technician, St. Michael's Hospital)  
Ernest Wong (Mass Spectrometry specialist, CAMH)  
Karen MacDonald (Research Program Manager, St. Michael's Hospital)  
Hayley Thompson (Senior Research Coordinator, St. Michael's Hospital)

The program also involves:

- Dr. Margaret Thompson (ED physician, director of the Ontario Poison Control Center)
- Five Safe Consumption Sites (with many members at each site)
- Toronto Public Health
- Many members of the community (as part of the Drug Checking Advisory Committee)