Intelligence MEMOS

C.D. HOWE INSTITUTE

From: Rosalie Wyonch and Mariam Ragab

To: Anil Arora, Chief Statistician of Canada

Date: October 17, 2019

Re: INNOVATIVE MEASUREMENT: STATISTICS CANADA'S USEFUL NEW TOOL

Statistics Canada recently released the results of a pilot program to test wastewater for traces of drugs. This analysis examined 14 wastewater processing plants in five of Canada's major cities: Halifax, Montreal, Toronto, Edmonton and Vancouver.

Statistics Canada is to be commended for this effort. The data collected from wastewater complement and supplement information about drug consumption habits across the country from surveying individuals and other sources. Given the stigma and illegality associated with drug consumption, an objective source of information is much needed. The wastewater data provide information about aggregate consumption levels and can be monitored over time.

The results from the wastewater pilot project show that consumption patterns vary significantly across the country. Cannabis use varies significantly; wastewater from Halifax and Montreal had higher concentrations of THC-COOH (cannabis metabolite) than Vancouver, Toronto, and Edmonton. This is somewhat surprising given survey results suggest that cannabis consumption in Quebec is significantly lower, and consumption in Nova Scotia significantly higher, than the national average. This result illustrates the fundamental uncertainty about consumption habits. There are a few possible explanations for the result: cannabis consumption in Montreal is higher than the provincial average or individuals in Quebec are under-reporting their consumption.

Wastewater in the five cities was also tested for contaminants/metabolites of cocaine, opioids and methamphetamine. Consumption of these substances also varies across the country, except for cocaine, which was relatively evenly distributed. The concentration of methamphetamine was more than 3.7 times higher in Vancouver and Edmonton than the other cities (Halifax had the lowest concentration by far – more than 19 times below the average across cities).

Concentration of opiates (morphine and codeine) was lower in Toronto and Montreal than the other cities. These early results suggest that different regions are likely facing different challenges related to substance abuse. Understanding these regional consumption patterns could help target treatment, harm reduction and law enforcement efforts more effectively throughout the country.

Analyzing wastewater contamination as a source of population-level data is new in Canada, but has become well-established in Europe and continues to be a valuable source of information about aggregate consumption patterns and monitoring trends over time. The Canadian data show significant variation across geography, but also time. It is too early to determine whether monthly fluctuations are seasonal consumption patterns, but if there are, this information could be used to optimize the timing of public health awareness and prevention campaigns and to allow for better resource planning in anticipation of higher utilization of health services related to substance abuse at particular times of year or jurisdictions.

Statistics Canada should continue to collect this data, and expand the number of facilities it examines. These data are essential to providing a more complete picture of drug consumption behaviour and supplements the information from other sources.

Being able to monitor aggregate consumption across jurisdictions and time would inform cannabis and illicit drug policy moving forward, and allow for assessment of the effectiveness of law enforcement actions and harm reduction policies after implementation.

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