# Five Program System for Post-Marketing Surveillance of Prescription Drug Misuse

Janetta Iwanicki<sup>1</sup>, Colleen M. Haynes<sup>1</sup>, Beth Sproule<sup>2,3</sup>, Steven P. Kurtz<sup>4</sup>, Theodore J. Cicero<sup>5</sup>, Nabarun Dasgupta<sup>1</sup>, Richard C. Dart<sup>6,1</sup>, Jody L. Green<sup>6,1</sup> <sup>1</sup>Rocky Mountain Poison & Drug Center - Denver Health, CO; <sup>2</sup>Centre for Addiction and Mental Health, University of Toronto, Toronto, Ontario, Canada <sup>3</sup>Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada; <sup>4</sup>Center for Applied Research on Substance Use and Health Disparities, Nova Southeastern University, Miami, FL, US <sup>5</sup>Department of Psychiatry, Washington University, St. Louis, MO, US; <sup>6</sup>Canadian Consumer Product and Pharmaceutical Safety Inc., Toronto, Ontario, Canada

## **Background & Objective**

#### Background

- A surveillance system was developed to measure product-specific and geo-specific trends of misuse by using complementary data streams.
- This system utilizes a mosaic approach to measure rates of misuse, abuse, and diversion of prescription and illicit drugs in Canada.

### Objective

 Describe misuse, abuse, and diversion of prescription drugs in Canada.

### Methods

### **Program Descriptions (Figure 1)**

- Opioid Dependence Treatment (1Q16-3Q16, Ontario): Patients entering treatment for opioid addiction voluntarily complete a questionnaire about use of prescription or illicit opioids "to get high" in the past 30 days.
- Drug Diversion (1Q14-3Q16, Ontario): Law enforcement agencies report on new cases of prescription drug diversion quarterly.
- StreetRx (1Q12-3Q16, pan-Canada): Street price information is voluntarily submitted to the open access website StreetRx.com/Canada.
- Web Monitoring (1Q15-4Q15, pan-Canada): Posts from publicly available blogs, news articles, forums, and public social media accounts are monitored for mentions of prescription drugs in Canada and analyzed for themes of abuse/misuse.
- Survey of Non-Medical Use of Prescription Drugs (3Q16, pan-Canada): 10,000 youth and adults in the general population (age 15+) voluntarily complete an online survey on lifetime non-medical use (NMU) of prescription medications. Results are weighted to provide a national estimate of NMU in Canada.
- NMU: without a doctor's prescription or for any reason other than what was recommended by one's doctor.

### Analysis (Table 1)

- Buprenorphine, fentanyl, hydromorphone, morphine, and oxycodone were studied across programs.
- For Web Monitoring, the proportion for each opioid was calculated by dividing the number of abuse/misuse mentions for the opioid by the total number of mentions analyzed for the opioid.
- For all other programs, proportions for each opioid were calculated by dividing the primary measure by the total number of responses for the five opioids within the program.



The System is supported by subscriptions from pharmaceutical manufacturers for surveillance, research and reporting services. The System is the property of Canadian Consumer Product and Pharmaceutical Safety Inc. which retains exclusive ownership of all data, databases and systems. Subscribers do not participate in data collection or analysis, nor do they have access to the raw data. The RADARS System is supported by subscriptions from pharmaceutical manufacturers, government and non-government agencies for surveillance, research and reporting services. RADARS System is the property of Denver Health and Hospital Authority, a political subdivision of the State of Colorado. Denver Health retains exclusive ownership of all data, databases and systems. Subscribers do not participate in data collection nor do they have access to the raw data.

Center Sements 16	Law Enforcement Diversion Cases 1Q14-3Q16	Crowd-Sourced Purchase Reports 1Q12-3Q16		
<u>Ontario</u>				
6)	23 (2.7%)	25 (1.3%)		
%)	181 (21.2%)	57 (3.0%)		
%)	318 (37.3%)	1,175 (61.3%)		
%)	69 (8.1%)	122 (6.4%)		
%)	262 (30.7%)	537 (28.0%)		
	853	1,916		
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**Online Abuse/Misuse** Mentions

**Online Survey** National Estimates of Lifetime NMU **3Q16** 

Pan-Canada

9.5%	1,092,472 (13.5%)
3.0%	2,624,812 (32.4%)
7.9%	722,496 (8.9%)
4.5%	1,362,362 (16.8%)
9.9%	2,287,296 (28.3%)
n/a¹	8,089,438 <sup>2</sup>

### Results

• In Ontario, hydromorphone (37.3%) and oxycodone (30.7%) were the most commonly diverted opioids. Oxycodone (33.2%) and hydromorphone (26.9%) also led endorsements for recent abuse by

Across Canada, fentanyl (32.4%) received the most NMU endorsements followed by oxycodone (28.3%). Hydromorphone (61.3%) and oxycodone (28.0%) had the highest proportion of reports to StreetRx. Misuse/abuse was discussed in 9.9% of oxycodone posts, 9.5% of buprenorphine posts, and 7.9% of

# Conclusions

Of the opioids examined, oxycodone, hydromorphone, and fentanyl emerge as primary prescription drugs of misuse in Ontario and

Studying multiple behaviors and sub-populations across data sources offers insight into the opioid crisis in Canada. Our results are supported by convergent validity from diverse program data.



