Monitoring new drugs and new drug use trends in Canada

Ontario Harm Reduction Conference
October 2015
Matthew M. Young, PhD
Substance abuse is a complex problem, too significant and too deeply rooted to be solved by one group, or one approach

- CCSA is Canada’s only national agency dedicated to reducing the harms of alcohol and other drugs on society, informing policy and practice and improving services and supports.
- Created by an Act of Parliament in 1988, CCSA has provided national leadership, and advanced research knowledge and concrete solutions to address alcohol- and other drug-related harms, for over a quarter-century.

We bring people and knowledge together to make a difference in the lives of Canadians.
CCSA’s National Priorities and Areas of Action

Children & Youth

First Nations & Inuit

Substance Abuse & Co-Occurring Issues

Prescription Drug Misuse

National Alcohol Strategy

Monitoring & Surveillance

Impaired Driving

Workforce Development

Treatment and Recovery

Canada’s National Framework for Action

Why CCSA’s Work Matters

Health
• Major contributor to 60+ diseases like cancer, heart disease, diabetes, HIV/AIDS

Economics
• Substance abuse costs over $40 billion per year in Canada

Public safety
• Significant factor in the commission of crime; as many as 80% of federal offenders have a history of substance abuse issues
• In 2010, nearly as many drivers died in road crashes after using drugs (34.2%) as those who had been drinking (39.1%)
Global Scope and Impact of Substance Use

- The World Health Organization (WHO) estimates there are 2 billion alcohol users, 1.3 billion smokers, 185 million illicit drug users and that 12% of all deaths are attributable to tobacco and alcohol use.

- The United Nations Office on Drugs and Crime (UNODC) reports that of those who use psychoactive substances, 10%-14% will develop substance use problems.

Despite this, substance abuse is preventable and treatable, and recovery is a reality for many.
Monitoring New Drug Trends in Canada

- Novel Psychoactive Substances
- Monitoring new drugs in Canada
- Drug trends of immediate (September 2015) concern
Monitoring New Drug Trends in Canada

• Novel Psychoactive Substances

• How do we monitor new drugs in Canada

• Specific trends that are currently (September 2015) of concern
Novel Psychoactive Substances (NPS)

- Also known as ‘designer drugs’, ‘herbal highs’, ‘synthetic drugs’, ‘research chemicals’ and ‘legal highs’
- Designed to mimic the effects of commonly abused drugs
- Often marketed as legal substitutes for more common illicit drugs
- Sometimes uncontrolled (or were not controlled when they emerged) by relevant drug legislation
- Available via
  - Internet (e.g., www.party-pill.biz)
  - Drug paraphernalia shops (“head-shops”)
  - Dealers
Novel Psychoactive Substances (NPS)

More than 450 substances currently being monitored by the EMCDDA

More than half emerging in the last 3 years

Novel Psychoactive Substances (NPS)

HOW MUCH PURE DRUG IS NEEDED TO MAKE 10 000 DOSES?

- Carfentanil: 0.1 g
- 2-Methylfentanyl: 2.5 g
- 25I-NBOMe: 5 g
- PB-22: 100 g
- Amphetamine: 100 g
- Cocaine: 200 g
- MDMA: 750 g

New drugs
'Old' drugs

Monitoring New Drug Trends in Canada

• Novel Psychoactive Substances

• How do we monitor new drugs in Canada

• Specific trends that are currently (September 2015) of concern
Challenges monitoring new drugs

- Rapid appearance of new substances on the market
- Short life cycle of any specific substance product
- Users are often unaware of what they are taking
  - [www.ecstasydata.org](http://www.ecstasydata.org)
  - greater potential for harms
- Mix of chemicals and contaminants frequently found in any one product
- Products easily accessible via the Internet, so they may not follow known trafficking routes
Monitoring new drug trends in Canada

- Self-report surveys (Health Canada)
- Enforcement data (Health Canada)
- Internet monitoring (Health Canada)
- Event based surveillance (CCSA)
- Sentinel surveillance (CCSA)
Self-report surveys

Students in grades 7-12 reporting past 12-month use

Enforcement data

Number of Exhibits Analysed, Canada 2005-2014*

Source: Health Canada, Drugs Analysis Service - Laboratory Information Management System

*preliminary – data extracted on May 7, 2015
Internet monitoring

- Monitoring the products/chemicals being sold by Canadian distributors or sites that will ship to Canada
  - changes on a regular basis
  - many websites have moved from the surface web to the ‘deep’ web

**Retailers Selling to Australia**

Van Buskirk, Roxburgh, Bruno, Burns (2013, 2014)

Event-Based Surveillance
Why Use of Media to Monitor NPS?

Source: Keller et al. (2009)
HUMAN PSYCHOPHARMACOLOGY
Published online in Wiley Online Library
(wileyonlinelibrary.com) DOI: 10.1002/hup.2477

SPECIAL ISSUE ON NOVEL PSYCHOACTIVE SUBSTANCES

Detecting a signal in the noise: monitoring the global spread of novel psychoactive substances using media and other open-source information†

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Objective To determine the feasibility and utility of using media reports and other open-source information collected by the Global Public Health Intelligence Network (GPHIN), an event-based surveillance system operated by the Public Health Agency of Canada, to rapidly detect clusters of adverse drug events associated with ‘novel psychoactive substances’ (NPS) at the international level.

Methods and Results Researchers searched English media reports collected by the GPHIN between 1997 and 2013 for references to synthetic cannabinoids. They screened the resulting reports for relevance and content (i.e., reports of morbidity and arrest), plotted and compared with other available indicators (e.g., US poison control center exposures). The pattern of results from the analysis of GPHIN reports provided the pattern map from the other indicator.
Event-Based Surveillance

Number of calls to U.S. poison control centers about synthetic cannabinoids

Number of media reports regarding synthetic cannabinoids from the U.S.

Source: CESAR FAX (2013)
Event-Based Surveillance

Proportion of posts referring to synthetic cannabinoids relative to all monthly posts on the drug forum Bluelight.ru


Number of reports regarding synthetic cannabinoids in English
Sentinel surveillance
CCENDU sentinel sites

- Vancouver
- Edmonton
- Winnipeg
- Saskatoon
- Montreal
- Quebec
- Halifax
- St John’s
- Toronto
CCENDU Alerts and Bulletins

www.ccendu.ca

Subscribe to receive CCENDU Alerts and Bulletins

CCENDU Bulletin

Deaths Involving Fentanyl in Canada, 2009–2014

Summary

- Between 2009 and 2014, there were at least 655 deaths in Canada where fentanyl was determined to be a cause or a contributing cause. This represents an average of one fentanyl-implicated death every three days over this time period. This figure is likely an underestimate.
- Between 2009 and 2014, there were at least 1,019 drug poisoning deaths in Canada where post-mortem toxicological screening indicated the presence of fentanyl. More than half of these deaths occurred in the latter two years, 2013 and 2014. On average, this represents almost two deaths every three days over these two years. This figure is likely an underestimate.
- Within the last six years, the number of deaths involving fentanyl in Canada’s four largest provinces has increased markedly. Increases across the years examined have ranged from almost doubling to an increase of over 20 times (see Table 1). Due to jurisdictional differences in legislation, regulation and criteria for reporting, investigating and classifying deaths, extreme caution is advised when making comparisons across provincial and territorial boundaries.
- To allow for more accurate national estimates of drug poisoning deaths in the future, this bulletin

www.ccsa.ca

Canadian Centre on Substance Abuse
Centre canadien de lutte contre les toxicomanies
CCENDU Impact

Between 2012 and 2015

- Over 700 people signed up to receive alerts and bulletins
- There were over 850 media stories published that referred to CCENDU Alerts or Bulletins
- CENDU alerts and bulletins have been accessed from the CCSA website more than **57,000 times** (as of August 28, 2015).
Monitoring New Drug Trends in Canada

- Novel Psychoactive Substances

- Monitoring new drugs in Canada

- Drug trends of immediate (September 2015) concern
CCENDU Alerts and Bulletins

Deaths Involving Fentanyl in Canada (2009-2014)
Deaths Involving Fentanyl

Number of fentanyl seizures analyzed by Health Canada’s Drug Analysis Service

- 2009: 29
- 2010: 50
- 2011: 90
- 2012: 231
- 2013: 455
- 2014: 894

www.ccsa.ca  •  www.cclat.ca
Deaths Involving Fentanyl

Between 2009 and 2014, there were at least 655 deaths in Canada where fentanyl was determined to be a cause or a contributing cause.

Seizures and anecdotal reports suggest overdoses occurred among individuals who thought they were using:
- oxycodone
- heroin
- cocaine or another substance
## Deaths Involving Fentanyl

Table 1. Increase in fentanyl-implicated and fentanyl-detected deaths in the four largest provinces in Canada.

<table>
<thead>
<tr>
<th>Province</th>
<th>Fentanyl-implicated deaths (fentanyl was a cause or contributing cause of the death)</th>
<th>Fentanyl-detected deaths (fentanyl was detected in the body irrespective of cause)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia</td>
<td>Data not provided</td>
<td>Increased close to 7 times from 13 in 2012 to 90 in 2014</td>
<td>Accidental and undetermined deaths in illicit circumstances; 2014 data includes pending cases; data for 2009–2011 not provided.</td>
</tr>
<tr>
<td>Alberta</td>
<td>Increased more than 14 times from 2011 (data suppressed) to 29 in 2014</td>
<td>Increased more than 20 times from 6 in 2011 to 120 in 2014</td>
<td>“Unclassified”^7 deaths; 2014 data included pending cases for fentanyl-detected deaths; data for 2009–2010 not provided.</td>
</tr>
<tr>
<td>Ontario</td>
<td>Increased more than 1.7 times from 63 in 2009 to 111 in 2013</td>
<td>Data not provided</td>
<td>Accidental and undetermined deaths; data for 2014 not provided.</td>
</tr>
<tr>
<td>Quebec</td>
<td>More than doubled from 5 in 2009 to 12 in 2013</td>
<td>Increased three times from 7 in 2009 to 21 in 2013</td>
<td>Accidental and undetermined deaths.</td>
</tr>
</tbody>
</table>
Deaths Involving Fentanyl

- Fentanyl Deaths Bulletin
  - 695 media stories
    - 568 stories mentioned CCSA (82%)
    - 161 mentioned CCLT (23%)
    - 7(1%) mentioned CCENDU
  - Followed by …
    - several high-profile editorials and commentaries from the Globe and Mail,
    - a statement from the Canadian Pharmacists Association
    - news conferences by Toronto Police Services as well as Winnipeg Police Services
    - a joint statement from Health Canada and the Public Health Agency of Canada warning the public about the dangers of illicit fentanyl

Joint Statement on Fentanyl - Dr. Supriya Sharma, Health Canada Chief Medical Advisor and Dr. Gregory Taylor, Chief Public Health Officer of Canada

Health Canada and the Public Health Agency of Canada are deeply concerned about recent reports of an increase in overdoses and deaths in Canada due to the illicit use of fentanyl. A recent report from the Canadian Centre on Substance Abuse indicates that as many as 485 Canadians may have died between 2009 and 2014 as a result of fentanyl overdoses. Health Canada’s Drug Analysis Service labs have also been detecting fentanyl more and more often in street drugs being sent to them for testing by law enforcement.

Fentanyl is a synthetic opioid drug used primarily to treat severe pain. Because of its strength and the potential for side effects and addiction, it isn’t intended as a first choice for pain management. It is available in Canada on a prescription-only basis, usually in the form of a slow-release patch. However, reports suggest that illicit fentanyl in powder form is being abused, mixed with street drugs such as heroin, or being presssed into pills and made to look like legal oxycodone, before being sold on the street.

When used incorrectly or abused, fentanyl in any form can pose significant health risks. Fentanyl is a highly potent drug and is many times more powerful than other opioid drugs. Abuse or misuse can lead to death, even in small amounts.

There’s no such thing as a safe street drug. Even a small amount of fentanyl can have very serious consequences when not used properly. When you’re dealing with a street drug, you have no idea how it has been made or what’s in it.

It’s also important that if you are prescribed fentanyl legitimately, that you follow your prescription instructions closely, keep your supply in a secure place and dispose of the unused patches properly.

Health Canada is working to support provinces, territories and law enforcement on responding to this issue. This includes increasing the prescription-only status of the opioid-carfentanil combination up to an opioid base.

Health Canada and the Public Health Agency of Canada will continue to monitor this issue and will continue to work closely with provinces, territories, law enforcement, and other stakeholders to help protect the health and safety of Canadians.

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Deaths Involving Fentanyl

PacMan has multiple lives but in real life you only get one GAME OVER.
Deaths Involving Fentanyl

Social Media Campaign by partners in British Columbia

www.knowyoursource.ca
Deaths Involving Fentanyl

The FACTS about street FENTANYL
There is no such thing as a safe street drug. Know the risks.

Fentanyl is often added to other illegal drugs without people knowing.

Fentanyl has been used illegally in various forms including:
- Pills
- Pure powder
- Powder mixed with other drugs
- Patches

50 - 100 times more potent than Heroin • Oxycodone • Morphine

Overdose Signs
- Trouble walking or talking
- Pinpoint pupils
- Seizures
- Slow heartbeat
- Shallow breathing
- Bluish or cold/clammy skin

Slang Terms
- Fake oxy
- Greenies
- Green beans
- Green apples
- Apples
- Eighties
- Shady eighties

You can’t See it, Smell it, or Taste it.

Visit saskatchewan.ca/addictions for more information.

Call 911 if you suspect someone has overdosed!

www.ccsa.ca  •  www.cclat.ca
Deaths Involving Fentanyl

Naloxone

Warning people who use drugs
• Most of the new substances that are being detected at present fit into two categories
  – Synthetic cathinones
  – Cannabimimetics
Cathinones

- Chemically similar to naturally occurring cathinones found in the Khat plant, a shrub native to the Horn of Africa and the Arabian Peninsula
- Also known as amphetamine-type stimulants because of similar short term effects
- Frequently referred to as “Bath Salts”
- Frequently found in pills or powders being sold as “Molly” or “Ecstasy”

Examples
- Mephedrone – “Meow Meow”, “Plant Food”
- Methylenedioxypyrovalerone (MDPV) – “Bath Salts”
- Alpha-PVP – “Flakka” or “Gravel”
‘Flakka’ or ‘Gravel’

- A synthetic cathinone called Alpha PVP
- Often sold as powder or crystals
- Routes of administration
  - Snorting, Oral, Injection, Smoking (Use with electronic cigarettes increasing)
- Desired effects last for a few hours
- Adverse side effects can last from hours to days
- In the U.S. associated with several cases on induced psychosis as well as several fatalities.
- In Canada, we have very little information on its presence
  - Exception of DAS data

Cannabimimetics

- Also known as synthetic cannabinoids, THC homologues, these are synthetic cannabinoid receptor agonists that mimic the effects of THC
  - K2
  - “Spice drugs”, etc.
- Over 130 different compounds identified
Recent cluster of harms in U.S.

Maryland Poison Center
1-800-222-1222

URGENT!

- MAB-AB-CHMINACA
- FUBINACA
- FUB-PB-22
- XLR11

CHMINACA and FUBINACA (and α receptors: 1 and 2 (α, and αβ). It act as α,β receptors. Because of exposure to synthetic cannabinoids, 31 patients were treated for depression, or a combination of GI, tachycardia, others with Bradycardia and hypotension. No hospital and no "send-out" laboratory can isolate these new compounds. Synthetic cannabinoids do not test positive for THC in the urine.

Management of these patients includes supportive care, including hydration clinically indicated. Agitation and seizures should be treated with lorazepam. Intravenous naloxone has not been used. The Maryland Poison Center is interested in hearing about all synthetic cannabinoids exposures. 1-800-222-1222. We will also be tweeting additional information on this topic as needed. Follow us on twitter! @MPCTweets

Did you know that...
The first use of "not" synthetic marijuana in the medical literature dates back to 1976, when investigators reported that phenocaine (PCP) was "misrepresented as synthetic marijuana" in Los Angeles. The original synthetic was PCP.

Press Release

American Association of Poison Control Centers Issues Warning About Reemerging Synthetic Drugs

April 23, 2015 | Download PDF

ALEXANDRIA, VA – The American Association of Poison Control Centers (AAPCC) and the experts at America’s 55 poison centers are warning the public about a group of dangerous new synthetic cannabinoids which have recently led to a dramatic spike in poison center exposure calls in the United States, according to Stephen T. Kaminski, JD, AAPCC executive director.

Poison centers across the country have been receiving increased levels of calls related to these substances. From Jan. 1, 2015, through April 22, 2015, poison centers have received 1,900 exposure calls from people seeking help for adverse reactions to these drugs: this is almost four times the rate of calls received in 2014. In New York, Governor Andrew Cuomo issued a health alert stating that New York emergency departments have reported seeing more than 160 patients in a nine-day period. Alabama has seen 317 synthetic cannabinoid-related emergency department visits in an 18 day window as of April 20, 2015. Other states such as New Jersey, Mississippi, Texas, Florida and Arizona have also seen dramatic increases in reports, signaling this is a national problem.

Synthetic "marijuana" products, also known as THC homologs, are in reality very different from marijuana. Health effects from the drug can be life-threatening and can include:

- Severe agitation and anxiety
- Fast, racing heartbeat and higher blood pressure
- Nausea and vomiting
- Muscle spasms, seizures, and tremors
- Intense hallucinations and psychotic episodes
- Suicidal and other harmful thoughts and/or actions

Regulations issued at the Governor’s urging in 2012.
Other substances/trends

Possible increase in methamphetamine use

25I-NBOME

Shatter – THC extract in which cannabis is soaked in a solvent (frequently butane)

E-cigs as delivery mechanism for NPS

Recently caused harms in Europe
  • Stimulant 4,4’-DMAR
  • Opioid MT-45
Issues of Substance 2015 Conference

November 16–18, 2015, in Montreal, Quebec

Theme: Addiction Matters

• Concurrent disorders: substance use, problem gambling, mental health
• Emerging drugs and legal considerations: marijuana, novel psychoactive substances, etc.
• Substance abuse prevention and early identification
• Coordinated approaches to addressing gaps in care
• Skill-based workshops

Register at www.ccsa.ca
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