Diverging Epidemics: Shifting patterns of opioid use between treatment-seeking opioid users in Canada and the United States

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No conflicts of interests to declare
Shared history of the opioid epidemic

• Pain as the ‘fifth vital sign’
• Encouragement of professional orgs
• Pharmaceutical influence
• Introduction of extended-release opioids
• Misconceptions of abuse potential
• Motivations of use/mental health stigma
Shared history of the opioid epidemic

Sources: International Narcotics Control Board; World Health Organization population data
By: Pain & Policy Studies Group, University of Wisconsin/WHO Collaborating Center, 2018
Shared history of the opioid epidemic

Some responses shared

• Both countries have expanded access to naloxone without a prescription
  • Although access/cost varies and is not well understood
• Prescribing guidelines
• Abuse-deterrent formulations
• Prescription Drug Monitoring Programs
Differing Responses: Canada

• Medically supervised injection facilities
• Guidelines for the treatment of opioid use disorder
  • Emphasis on avoiding certain interventions
• Access to treatment
  • Network of recovery services
• Drug-testing services
• Focus on ‘demand’: prevention and harm reduction
Differing Responses: United States

• Greater focus on supply
  • Pill mill legislation
  • Law enforcement/DEA

• Access to treatment is biggest problem
  • No set guidelines
  • Staffing/resource issues, insurance, Medicaid
  • No comprehensive network of services

• Many states against/ban harm reduction
  • Stigma
How have opioid trends changed in response to differing responses of US and Canada?
Data Source: United States

- Survey of Key Informants’ Patients Program
  - Part of the national RADARS® Surveillance System

- 146 opioid use disorder treatment programs
  - Public and private
  - Various treatment modalities
  - 47 states

- Anonymous paper survey
  - 2016-2018: 7,385 respondents
Data Source: Canada

- Opioid Dependence Treatment Program
  - Part of Canadian Consumer Product and Pharmaceutical Safety, Inc.

- 53 opioid use disorder treatment programs
  - Primarily Ontario, Alberta and British Columbia

- Anonymous paper survey
  - 2016-2018: 1,551 respondents
RACE/ETHNICITY: CANADA
USER POPULATIONS
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• US is trending toward more males
• Canada has a more equal gender distribution of users
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- Both countries have aging user populations
USER POPULATIONS

• US is trending toward more males
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• Both countries have aging user populations
• Percentages of white users are decreasing
• First nation users second greatest user population
OPIOID TRENDS
Opioid Use: UNITED STATES

Any Rx Opioid (% change= -2%)
Any Heroin/Non-Rx Fentanyl (% change= +16%)

Percent of population

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

2016q1 2016q2 2016q3 2016q4 2017q1 2017q2 2017q3 2017q4 2018q1 2018q2 2018q3 2018q4

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Opioid Use: CANADA

- **Rx Only** (% change = -64%)
- **Heroin/Non-Rx Fentanyl Only** (% change = +433%)
- **Rx Opioids & Heroin/Non-Rx Fentanyl** (% change = +18%)

Percent of population
- 2016q1
- 2016q2
- 2016q3
- 2016q4
- 2017q1
- 2017q2
- 2017q3
- 2017q4
- 2018q1
- 2018q2
- 2018q3
- 2018q4
PRESCRIPTION OPIOID TRENDS
OXYCODONE

Oxycodone-CA  Oxycodone-US
HYDROMORPHONE

- Hydromorphone-CA
- Hydromorphone-US

Bar chart comparing the usage of Hydromorphone in different years and quarters.
ILLICIT OPIOID TRENDS
Illicit Opioid Use: UNITED STATES

- Heroin (% change= +49%)
- Non-Rx Fentanyl (% change= +104%)

![Graph showing the increase in illicit opioid use from 2016 to 2018, with a significant rise in Non-Rx Fentanyl.](graph.png)
Illicit Opioid Use: CANADA

- Heroin: (% change = +69%)
- Non-Rx Fentanyl: (% change = +395%)
Injection of Illicit Opioids

<table>
<thead>
<tr>
<th>Year</th>
<th>Injected-CA</th>
<th>Injected-US</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>69.7%</td>
<td>65.2%</td>
</tr>
<tr>
<td>2017</td>
<td>52.2%</td>
<td>68.5%</td>
</tr>
<tr>
<td>2018</td>
<td>67.4%</td>
<td>64.3%</td>
</tr>
</tbody>
</table>
OPIOID USE TRENDS

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• Use of illicit opioids alone is now most common form of use in Canada
• Non-rx fentanyl use now equal to heroin use in Canada
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• Injection of illicit opioids is similar between countries
Source(s) of Opioid Drug(s)
FRIEND/RELATIVE

Friend/relative-CA   Friend/relative-US
PHYSICIAN’S PRESCRIPTION

- Physician's prescription-CA
- Physician's prescription-US

[Bar chart showing prescriptions for different quarters from 2016 to 2018]
OVERDOSE HISTORY
Overdose History: UNITED STATES

- **Heroin overdose**
- **Prescription opioid overdose**
- **Other drug overdose**

The chart shows the percentage of overdose cases by type over the quarters of 2017 and 2018.
Overdose History: CANADA

- Heroin overdose
- Prescription opioid overdose
- Other drug overdose

Graph showing trends from 2017Q3 to 2018Q4.
CHRONIC PAIN HISTORY
Chronic Pain History: UNITED STATES

- Red Circle: Suffered from chronic pain
- Blue Circle: Visited healthcare provider for chronic pain
- Green Circle: Received prescription for an opioid for chronic pain

Graph shows trends from 2017q3 to 2018q4.
Chronic Pain History: CANADA

- Suffered from chronic pain
- Visited healthcare provider for chronic pain
- Received prescription for an opioid for chronic pain

Data points for each quarter from 2017q3 to 2018q4.
Opioids: WEST vs. CENTRAL CANADA

- Oxycodone: AB/BC 46.5%, ON 49.8%
- Non-Rx Fentanyl**: AB/BC 57.6%, ON 22.2%
- Rx Fentanyl*: AB/BC 21.6%, ON 15.6%
- Hydrocodone: AB/BC 13.6%, ON 9.6%
- Hydromorphone: AB/BC 36.8%, ON 36.8%
- Morphine: AB/BC 35.1%, ON 27.4%
- Codeine**: AB/BC 32.0%, ON 20.8%
- Methadone**: AB/BC 21.9%, ON 9.1%
- Buprenorphine**: AB/BC 17.5%, ON 5.5%
- Tramadol**: AB/BC 10.5%, ON 2.2%
- Oxymorphone: AB/BC 7.0%, ON 4.4%
- Heroin**: AB/BC 66.2%, ON 43.7%

* indicates p<.01
** indicates p<.001
Non-Opioids: WEST vs. CENTRAL CANADA

- Rx Amphetamine**: 16.1% AB/BC, 5.8% ON
- non-Rx Amphetamine**: 36.5% AB/BC, 11.8% ON
- Methylphenidate: 5.1% AB/BC, 3.9% ON
- Rx THC**: 33.3% AB/BC, 22.7% ON
- non-Rx THC*: 48.2% AB/BC, 37.5% ON
- Pregabalin: 2.4% AB/BC, 2.0% ON
- Gabapentin**: 17.3% AB/BC, 3.5% ON
- Benzodiazepines**: 29.8% AB/BC, 14.6% ON

* indicates p<.01, ** indicates p<.001
Conclusions

• Despite a shared history, Canada and United States have differed on responses to the opioid epidemic
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• Strong regional differences and greater influence of fentanyl in Canada
  • Greater need for harm reduction
Limitations

• Treatment-seeking users may not be representative of opioid use in general
• Sample size and coverage
• No causal inferences
• Other factors
  • Supply chain differences
  • Structural differences
Future research

• Causal associations
• Understanding treatment outcomes
  • Wrap around services/Continuum of Care
• First drug of use
• Polysubstance use
• The impact of structural differences
QUESTIONS?