The misuse of prescription drugs is problematic in Canada, and may lead to serious health effects such as substance use disorder (addiction), overdose, or death. Many individuals who misuse medications obtain products diverted from legal channels. The frequency of diversion provides a measure of demand and distribution in illegal markets. We examined rates of prescription drug diversion and the association with legitimate dispensing in communities within British Columbia, Quebec, Ontario, and Manitoba.

Sex and Gender

Over the past three years, hospitalization rates have increased for both men (24%) and women (10%). While opioid poisonings tend to be higher among men, women are at greater risk for developing opioid addiction after receiving a prescription. Though we do not collect information on the gender of the diversion case, data in Canada suggests that approximately 46% of women dependent on opioids obtained prescription opioids through an illegal source.

Methods

Divergence cases reported by 22 regional/municipal law enforcement agencies participating in the Canadian Consumer Product and Pharmaceutical Safety (CCPPS) Drug Diversion Program between 1st quarter 2017 and 2nd quarter 2018 were analyzed (Table 1).

Rates of oxycodone, morphine, hydromorphone, and gabapentin cases per 100,000 person-years were calculated and presented at the census division level.

Person-years represented the number of individuals residing within an agency’s jurisdiction multiplied by number of years the agency provided data.

The association between diversion and prescriptions dispensed (IQVIA® Solutions Canada Inc. Geographic Prescription Monitor (GPM)) per person-years was measured using Spearman rank correlation.

Table 1: Agency Information

<table>
<thead>
<tr>
<th>Province</th>
<th>Agencies</th>
<th>Average Number of People Within Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario</td>
<td>8</td>
<td>539,953</td>
</tr>
<tr>
<td>Manitoba</td>
<td>2</td>
<td>2,257,014</td>
</tr>
<tr>
<td>Quebec</td>
<td>11</td>
<td>701,912</td>
</tr>
<tr>
<td>British Columbia</td>
<td>1</td>
<td>877,433</td>
</tr>
</tbody>
</table>

Disclosure

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.

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.

Prescriptions dispensed data were obtained from IQVIA® Solutions Canada Inc. The IQVIA data were calculated based on Geographic Prescription Monitor (GPM) for the opioid and pain management market. GPM is a monthly service that tracks prescriptions dispensed from retail pharmacies at multiple levels of geography using a proven geospatial projection methodology to provide the most complete view of retail dispensing information. All analysis and interpretation of results are those of CCPPS.

Results

Across provinces there was a statistically significant positive correlation between prescribing and diversion rates for:
- Oxycodone (R=0.67, p<0.001)
- Gabapentin (R=0.46, p=0.033)

Associations between prescribing and diversion were not statistically significant for:
- Morphine (r=0.21, p=0.343)
- Hydromorphone (r=0.12, p=0.585)

The Algoma, Ontario census division had the highest oxycodone (23.0 cases/100,000 person-years) and gabapentin (5.4 cases/100,000 person-years) diversion rates.

The Leeds and Grenville, Ontario census division had the highest hydromorphone (24.2 cases/100,000 person-years) and morphine (6.1 cases/100,000 person-years) diversion rates.

Conclusions

Prescription drug diversion differs across communities in Canada.

These differences are only partially explained by differences in prescriptions dispensed per person.

Diversion is a valuable measure in assessing illegal distribution of prescription opioids.

Strengths and Limitations

Divergence data provide insight into hard-to-reach, illegal drug distribution networks in a diverse set of communities.

Differences in case counts may be due to variations in targeted local law enforcement strategies.

Data are collected at the local law enforcement level and are not generalizable to the general population.