Sedatives

Key Points

- The medical use of prescription sedatives among the adult general population living in Canada (aged 15 years and older) (~10%) has remained relatively stable since 2013.
- In Canada, the prevalence of prescription sedative use is highest among older adults (aged 65 years and older) (~13%) and is higher among females (~14%) compared to males (~7%). The prevalence among older adults increased between 2013 (~14%) and 2017 (~16.5%) but decreased in 2019 (~13%).
- The non-medical use of sedatives among adults (aged 15 years and older) living in Canada who reported using sedatives in the past year only to get high was ~3%.
- The non-medical use of sedatives has significantly increased among students in grades 7 to 12 in 2018–2019 (~4%) from 2014–2015 (~1%).
- Approximately one-quarter of the postsecondary students (aged 17 to 25 years old) who reported using sedatives in 2019–2020 (~8.6%) reported problematic use.

Introduction

Sedatives are central nervous system (CNS) depressants* that depress or slow down brain activity. They are commonly used as medications to treat anxiety or insomnia and other sleep-related disorders. Other medical uses include inducing sedation for surgical and medical procedures, treatment of alcohol withdrawal, seizures and migraines, and as muscle relaxants. There are three main classes of sedatives: benzodiazepines, non-benzodiazepine sleep medications and barbiturates.† Some benzodiazepines are prescribed as anti-depressants. Examples of drugs in each of these three classes are listed in Table 1 with their generic, trade and street names. Sedatives are often referred to interchangeably as tranquillizers or hypnotics. Tranquillizers include types of muscle relaxants.

Prescription sedatives are usually taken in pill form. However, some are available as suppositories or prepared as a solution for injection. Some people tamper with the medication for non-medical use for the drug's euphoric effects. Tampering involves changing the form of the medication or the route by which it is taken or both. In this summary, "prescription sedative use" refers to use of sedatives as prescribed. "Non-medical prescription sedative use" includes using a prescription sedative without a prescription written for the individual taking the drug, using prescription sedatives provided by multiple doctors, nurses or pharmacists ("double-doctoring"), using a prescription sedative for purposes other than those indicated when prescribed (e.g., for euphoric effect), using a prescription sedative in ways other than prescribed or more or less often than prescribed.

* Alcohol is the most prominent CNS depressant. Other CNS depressants with sedative properties include anti-depressants, anti-psychotic tranquilizers and antihistamines.

† Examples of sedatives that do not fall into these main drug classes include GHB (Xyrem®), gabapentin (Neurontin®), buspirone (Buspar®), ethchlorvynol (Placidyl®) and ramelteon (Rozerem®).

Table 1. Common generic, trade and street names for sedatives

Table 1a Benzodiazepines

Generic Name	Trade Name	Street Names
Alprazolam	Xanax®	Z-bars, bars
Clonazepam	Rivotril®	K-pins, super valium
Diazepam	Valium®	Vs, benzos, tranks, downers
Estazolam	ProSom®	Bars, benzos, chill pills
Flurazepam	Dalmane®	Tranks, downers, nerve pills
Lorazepam	Ativan®	Nerve pills, tranks, downers
Nitrazepam	Mogadon®	Jellies, eggs, vallies
Oxazepam	Seresta®	Benzos, downers, nerve pills
Temazepam	Restoril®	Rugby balls, tems, jellies
Triazolam	Halcion®	Up Johns, tranks, downers

Table 1b Non-benzodiazepine sleep medication

Generic Name	Trade Name	Street Names
Zolpidem	Ambien®	Z-drug, forget-me pills, rophies
Zopiclone	Imovane®	Z-drug

Table 1c Barbiturates

Generic Name	Trade Name	Street Names
Amobarbital	Amytal®	Angels, blue heavens
Pentobarbital	Nembutal®	Barbs, M&Ms, nembies
Phenobarbital	Luminal®	Barbs, nembies, downers

Note: Common street names for all benzodiazepines include benzos, dippers, blues, heavenly blues, downers, tranks and nerve pills.

Effects of Sedatives

Short-Term

Most sedatives increase the activity of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA), which causes a decrease in brain activity. Some sedatives as well as other CNS depressants (e.g., antidepressants and antipsychotics with sedative properties) slow brain activity through different mechanisms. Low to moderate doses of sedatives can relieve mild to moderate anxiety and have a calming and relaxing effect. Higher doses of these medications can relieve insomnia and severe states of emotional distress, and result in drowsiness and impaired coordination. Other short-term effects of sedatives include dilated pupils, slurred speech, irregular breathing, decreased heart rate and blood pressure, loss of inhibition, and impaired judgment, learning and memory. These medications can also cause side effects such as confusion, disorientation, amnesia, depression and dizziness, and, more rarely, agitation and hallucinations. These medications can affect the ability to drive a motor vehicle and increase the risk of collision, especially if they are taken in combination with alcohol or other drugs.

Long-Term

The long-term effects of sedatives can include chronic fatigue, vision problems, mood swings, aggressive behaviour, slowed reflexes, breathing problems, liver damage, sleep problems and sexual

dysfunction. Long-term use can lead to the development of tolerance, which serves to reduce the effects of the drug and prompts those who use prescription sedatives to increase the dose to reinstate the desired effects. The potential for dependence and substance use disorder increases with repeated use of higher doses.

Long-term regular use of these drugs should be reduced gradually, with medical supervision. People who are physically dependent on a sedative will experience withdrawal symptoms if they stop using the drug abruptly. The severity of withdrawal symptoms depends on the type of medication used, the amount used, the duration of use and whether the drug was stopped abruptly. Withdrawal symptoms can include headache, insomnia, tension, sweating, difficulty concentrating, tremors, sensory disturbances, fear, fatigue, stomach upset and loss of appetite. Severe withdrawal symptoms from regular use of sedatives in high doses can include agitation, paranoia, delirium and seizures.

Sedatives should generally not be combined with any other medication or substance that causes reduced activity of the CNS, including alcohol, opioids and some over-the-counter cold and allergy medications. Possible overdose symptoms include slurred speech, confusion, severe drowsiness, weakness, staggering, slow heartbeat, breathing problems and unconsciousness.

Legal Status of Sedatives in Canada

Most prescription sedatives are classified as Schedule IV drugs under the *Controlled Drugs and Substances Act* (CDSA). (Some non-benzodiazepine sleep medications are not included in the CDSA.) Their use is legal only when they are prescribed by a licenced practitioner and used by the person for whom they are prescribed and according to the directions of the practitioner (e.g., dose and frequency). Possession of sedatives is not, in and of itself, illegal. However, "double doctoring" (obtaining a prescription from more than one practitioner without telling the prescribing practitioner about other prescriptions received in the past 30 days) can result in 18 months imprisonment. Trafficking, importing, exporting or the production of sedatives can result in three years imprisonment.[1]

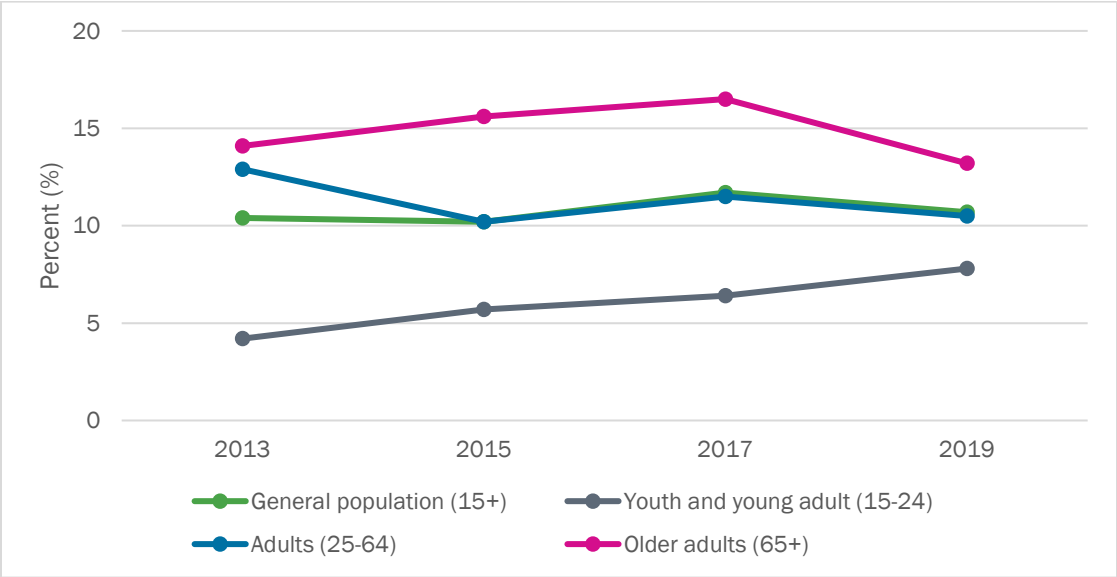
Medical Use of Prescription Sedatives in Canada

Self-Reported Use in the Past-Year

- **General population (age 15+):** According to the 2019 Canadian Alcohol and Drugs Survey (CADS), the prevalence of use for prescription sedatives among the general population was 10.7%, unchanged from 2017 (11.7%).[2,3]
- **Youth and young adults (age 15–24):** Youth and young adults have the lowest prevalence of prescription sedatives use among all people living in Canada (7.8% in 2019, an increase from 6.4% in 2017).[2] Among youth aged 15–19 years old, the rate of past-year prescription sedatives use was 3.4% in 2019; the corresponding use of prescription sedatives was higher among young adults aged 20–24 years old (12.0%).[2]
- **Adults (age 25+):** The prevalence of past-year use of prescription sedatives among adults living in Canada in 2019 (11.1%) was approximately 1.5 times higher than among youth aged 15–24 years old (7.8%).[2] The rate of past-year use of prescription sedatives among adults living in Canada was higher in 2017 (12.6%).[3]
- **Older adults (age 65+):** Older adults have the highest rate of prescription sedatives use among all people living in Canada at 13.2% in 2019, as shown in Figure 1 (in 2017 the rate was higher at 16.5%).[2,3]

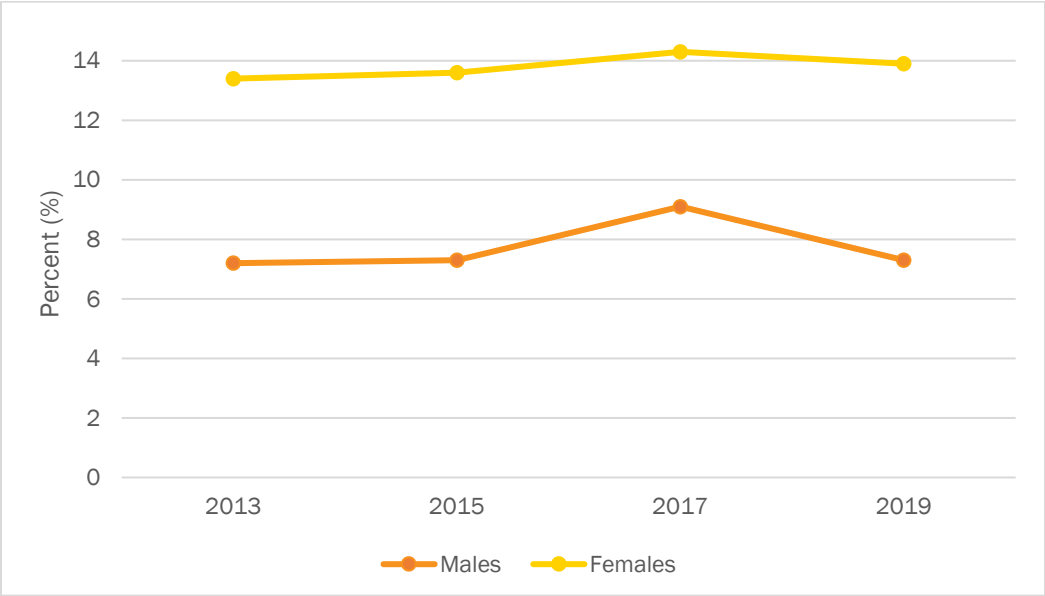
- **Sex:** Data from the 2019 CADS indicates that past-year prevalence of prescription sedatives use is significantly higher among females (13.9%) compared to males (7.3%).[2] This difference is consistent with the figures reported from the 2017 CTADS (Figure 2).[3]
- **Provincial differences:** The 2019 CADS data indicated that the provinces with the lowest prevalence of past-year prescription sedatives use were Alberta and Manitoba (8.9% and 9.3%, respectively), while New Brunswick, Newfoundland and Labrador, and Prince Edward Island had the highest prevalence (18.5%, 17.4% and 15.2%, respectively).[2] There is a significant difference between these two groups of provinces.

Figure 1. Prevalence of self-reported, prescription sedative use among people living in Canada by year and age category



Source: CTADS 2013,[5] 2015,[6] 2017,[7] CADS 2019[2]

Figure 2. Prevalence of self-reported prescription sedative use among people living in Canada by year and sex



Source: CTADS 2013,[8] 2015,[4] 2017,[3] CADS 2019[2]

Community-Dwelling Residents

Community-dwelling residents are people who live in a private residence, which could include a retirement community but not a personal care home (a nursing home) or government-funded supportive housing. Community-dwelling older adults are people who live in private residences, as opposed to personal care homes or supportive housing facilities.[17]

According to a cross-sectional study among community-dwelling residents in Ontario, the overall rate of benzodiazepine use decreased by 13% between 2013 and 2019 (from 6.4% to 5.5%). The annual prevalence of benzodiazepine use increased among residents aged 24 years old or younger (from 2.7% in 2013 to 3.3% in 2019), remained relatively stable among those aged 25 to 34 years old (about 4%) and decreased among those aged 35 years old or older (from 9.1% to 7.5% among those aged 45 to 64 years old, relative decrease of 17.4%).[16]

In Manitoba, the percentage of community-dwelling older adults (aged 75 years old and older) using benzodiazepines decreased from 20.4% in 2010–2011 to 18.5% in 2016–2017.[23] There is a lack of data about the prevalence of benzodiazepine prescribing use among younger age groups and people who live in the community dwelling.[16]

Prescribing Trends

Between January 2017 and December 2020, the rate of benzodiazepines that was dispensed in Canada declined approximately 20%, with a 5.2-fold difference in rates between the highest dispensing province (New Brunswick, 222 tablets per 100 population) and the lowest dispensing province (Saskatchewan, 43 tablets per 100 population) in March 2020. The dispensing rate for older adults (aged 65 years and older) was over 12 times higher than young adults (aged 19–29 years old) in March 2020 (230 and 19 tablets per 100 population, respectively).[21]

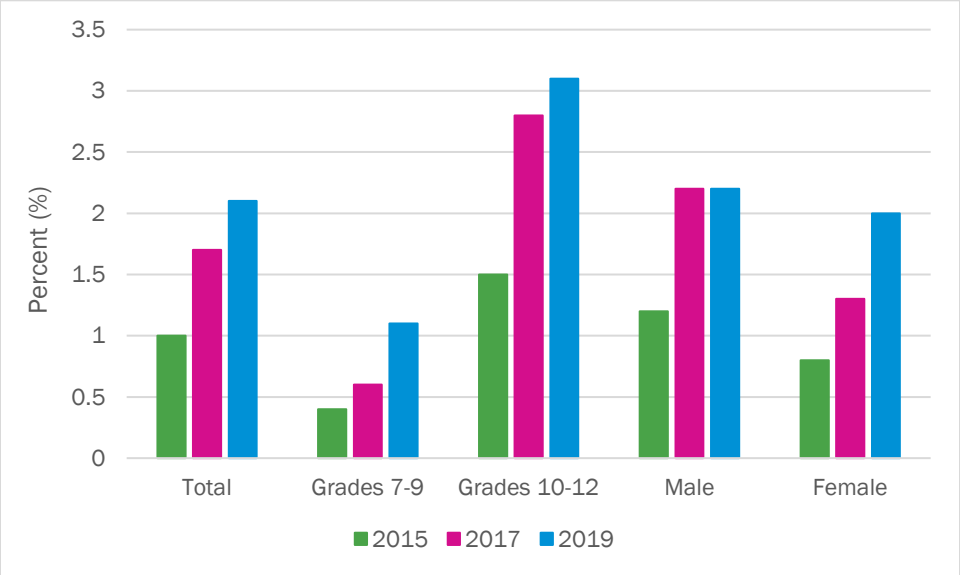
Non-Medical Use of Prescription Sedatives in Canada

Self-Reported Use in the Past-Year

Sedatives have the potential for non-medical use because of their psychoactive properties. The risk for psychological and physical dependence (addiction) is increased through accessibility, multiple opportunities for diversion along the supply chain (i.e., the means through which prescription medicines make their way to patients, which can include manufacturers, wholesale distributors and pharmacies), and perceptions of relative safety compared with illegal drugs, among other factors. Those who use prescription sedatives for non-medical purposes might take the drug in ways other than prescribed (e.g., using more than prescribed or mixing the medication with alcohol) or tamper with the medication to achieve a more rapid and intense effect.

- General population (age 15+): Data from the 2019 CADS revealed that among people living in Canada aged 15 years and older who reported using sedatives in the past-year, 2.6% reported using sedatives only for non-medical use to get high (0.3% of the total population; interpret with caution due to moderate sampling variability).[2] Among those who used sedatives in the past-year, the prevalence of non-medical use was higher among males than females (5.3% and 1.2%, respectively).[2]
- Students (grades 7–12): According to the Canadian Student Tobacco, Alcohol and Drugs Survey, in 2018–2019, 1.1% of students living in Canada in grades 7 to 9 reported past-year use of sedatives or tranquillizers to get high and not for medical purposes, an increase from 0.6% in 2016–2017. Past-year use remained relatively stable among students in grades 10 to 12 between 2018–2019 (3.1%) and 2016–2017 (2.8%). Among students in grades 7 to 12, 2.2% of males reported past-year use in 2018–2019, which is comparable to females (2.0%). However, females in 2018–2019 reported higher past-year use compared to 2016–2017 (1.3%). With respect to the use of sleeping medicine to get high, 3.2% of students in grades 7 to 9 and 4.8% of students in grades 10 to 12 reported such use in 2018–2019 (3.9% of males and 4.1% of females in grades 7 to 12).[9] This is a significant increase in reported use compared to 2014–2015 (0.7% in grades 7 to 9 and 1.6% in grades 10 to 12) (Figure 3).[11]
- Postsecondary students: Data from the 2019–2020 Canadian Postsecondary Education Alcohol and Drug Use Survey (CPADS), which collects data among postsecondary students aged 17 to 25 years old who are studying at a university or college in Canada, indicated that 8.6% (5.2% of males and 12.0% of females) of postsecondary students had used sedatives in the past 12 months. Among those who reported using sedatives in the past 12 months, 23.8% reported problematic use. Males (31.4%) were more likely to report problematic use in the past 12 months than females (20.4%).[12]

Figure 3. Prevalence of self-reported past-year non-medical use of sedatives/tranquillizers among students living in Canada by year, grade and sex



Source: CSTADS 2015,[11] 2017,[10] 2019[9]

Seizures in Canada

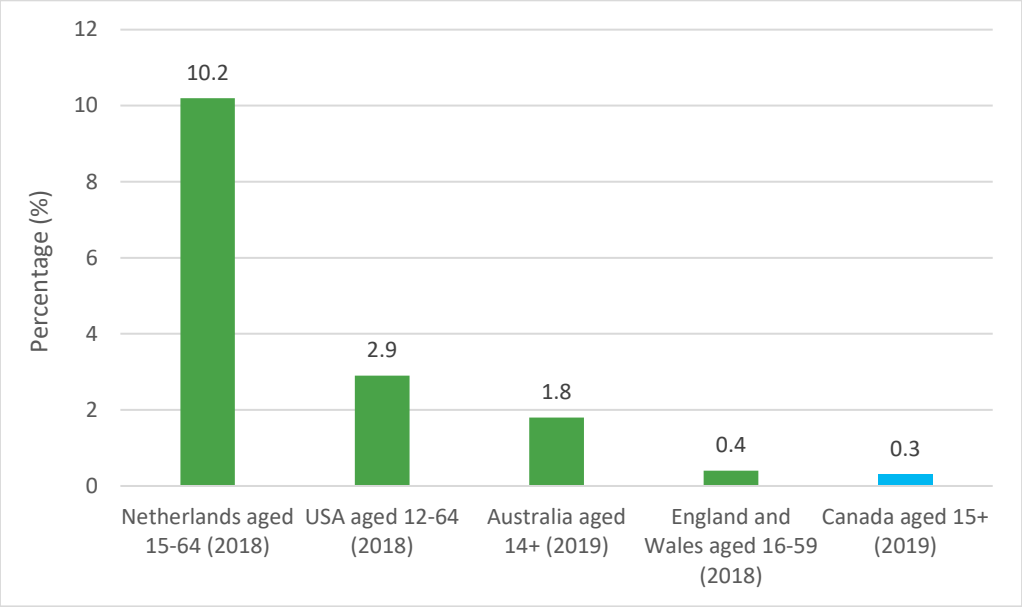
Seizure data provide a supply-related indicator of the availability of drugs in the illegal supply.

- **National:** The United Nations Office on Drugs and Crime (UNODC) reported that in 2019 about 48.5 kilograms of benzodiazepines were seized in Canada, over 1.5 times more than in 2017 (27.6 kilograms).[22] The UNODC also reported that in 2019 about 365.5 kilograms of gamma hydroxybutyrate (GHB), a CNS depressant that is prescribed to treat sleep disorders but that can be used illegally, were seized in Canada, a five-fold increase from 2017 (72.2 kilograms).[22]
- **Drug Analysis Service:** The service analyses suspected illegal drugs seized by Canadian law enforcement agencies. The drugs analysed do not represent the total number of substances seized by law enforcement and should not be used to estimate the number or types of drugs available on the street. A single sample can contain more than one substance. Results from the Drug Analysis Service indicated that the proportion of samples containing benzodiazepines more than doubled between 2020 and 2021 (from 4,262 samples to 9,646). The proportion of samples containing GHB was unchanged between 2020 and 2021 (1,059 and 1,058, respectively).[24]
- **Provincial differences:** Detection of benzodiazepines was not the same across Canada. Results from the Drug Analysis Service indicated that the highest number of samples of benzodiazepines identified in 2021 were in Ontario (4,865 samples), Quebec (1,502 samples), British Columbia (1,386 samples) and Alberta (1,366 samples).[24]

Past-Year Non-Medical Use Internationally

According to the UNODC, the annual prevalence of non-medical use of tranquillizers or sedatives among the general population in Canada aged 15 years and older in 2019 was 0.3%, remaining relatively stable from 2015 (0.4%),[2] which is lower than other selected Western countries (Figure 4).[13]

Figure 4. Prevalence of self-reported past-year non-medical use of tranquillizers and sedatives use among the general population by country and year



Source: UNODC 2021[13]
Note: International prevalence rates are not directly comparable due to variations in survey dates and population age ranges.

Harms Associated with Use

Hospitalization

Data collected by the Canadian Institute for Health Information between October 2020 and June 2021 indicated that 4,200 people 10 years of age and older living in Canada were hospitalized due to CNS depressants use, either medical or non-medical, including benzodiazepines. There is evidence to suggest that non-medical use and co-use with synthetic opioids such as fentanyl may increase the risk for hospitalization. This number represents 4% of all hospital stays for harms caused by substance use with the highest rates recorded for Ontario and British Columbia (40% and 23%, respectively; data for hospitalizations in Quebec is not available). About 40% of people living in Canada who stay in hospital due to CNS depressants use were between 20 and 39 years old. More females were associated with hospital stays due to CNS depressants use than males (56% and 44%, respectively).[14]

Mortality

There are no national Canadian estimates that show the prevalence of drug poisoning deaths caused by or partially caused by sedatives. CNS depressants (excluding alcohol and opioids) were, however, estimated to be a factor in 509.1 deaths in Canada in 2017, a 12% decrease from 2015 (580.4 deaths).[15]

Data from British Columbia and Ontario indicate that benzodiazepines are frequently involved in overdoses deaths:

- **British Columbia:** Benzodiazepines were detected in approximately 50% of suspected overdose deaths in January 2021, which is more than three times higher than the percentage reported in August 2020 (16%).[20]
- **Ontario:** Benzodiazepines continue to be frequently involved directly in opioid-related deaths in Ontario but did not increase significantly during the pandemic. About one-third of deaths had a benzodiazepine detected both prior to the pandemic (cohort from December 1, 2019, to March 15, 2020) (31.5%) and during the pandemic (32.9%) (from March 16, 2020, to June 30, 2020).[18]

The combination of nonmedical benzodiazepines and opioids increases the risk of drug poisoning fatalities as both substances slow vital functions such as breathing. In Ontario, a report on opioid-related deaths during the COVID-19 pandemic showed that benzodiazepines were detected in 46% of opioid-related deaths recorded from March to December 2020, a significant increase from the 30% recorded from March to December 2019. In British Columbia, the presence of benzodiazepines in illegal drug toxicity deaths increased from 15% in July 2020 to 47% in June 2021.[25]

Impaired Driving

According to the National Drug Driving Research Project, which collected data from 4,976 injured drivers treated in 15 trauma centres across Canada between January 2018 and May 2021, CNS depressants, including benzodiazepines, were found in about one in five drivers (20.7%), with a greater prevalence in females (23.9%) than males (19.1%). The highest prevalence of CNS depressants was found in drivers over the age of 55 (24%).[19]

Costs Associated with Use

Most of the social costs of CNS depressants (not including alcohol and opioids) in 2017 were in lost productivity (about $590.6 million) and other direct costs (e.g., fire or motor vehicle damage; estimated $599.4 million).[15] Premature mortality, long-term disability, absenteeism and impaired performance are all ways that productivity can be lost due to CNS depressant use. Overall lost productivity costs due to CNS depressant use decreased by 6% from $17 per person in 2015 to $16 per person in 2017.[15] More than 90% of the other direct costs associated with CNS depressants related to motor vehicle damage. These costs were about $16 per person in 2017, unchanged from 2015.[15]

Additional Resources

- Canadian Substance Use Costs and Harms 2015–2017 (Report)
- The Effects of Psychoactive Prescription Drugs on Driving (Report)
- Improving Quality of Life: Substance Use and Aging (Report)
- Alert Changes Related to COVID-19 in the Illegal Drug Supply and Access to Services, and Resulting Health Harms (CCENDU Alert)
- Risks and Harms Associated with the Nonmedical Use of Benzodiazepines in the Unregulated Drug Supply in Canada (CCENDU Bulletin)

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