

# Cocaine

## Key Points

- The percentage of cocaine use in the Canadian population is low (~2%).
- The rate of past year cocaine use in older youth (ages 20-24) is increasing.
- Despite low prevalence of consumption, cocaine is responsible for the highest costs to the criminal justice system of any substance in Canada following alcohol.

## Introduction

Cocaine is derived from the coca shrub grown primarily in South America. Extracting cocaine from the coca plant involves soaking the coca leaves in chemical solvents and crushing the leaves to form a paste. This paste is then treated with oxidizing agents and acids to create cocaine hydrochloride, commonly referred to as cocaine.<sup>1</sup>

Cocaine is a white powder that is often mixed with substances similar in appearance, such as corn starch. This powder can be taken through the nose by snorting or it can be dissolved and injected.<sup>2</sup> Commonly used street names for cocaine include “coke,” “coca,” “coco,” “snow,” “Charlie,” “dust,” “snowflake” and “powder.”<sup>3</sup>

Freebase cocaine is made when the hydrochloride is removed from cocaine hydrochloride, thus liberating cocaine to a “freebase.” This is done to create a smokeable form of cocaine, but the technique for producing freebase cocaine can be very hazardous.<sup>1</sup>

A more common and less hazardous way to create smokeable cocaine is to dissolve cocaine in a mixture of water and baking soda to form whitish, opaque crystals. These crystals are commonly referred to as crack or “rock,” as the crystals look like rocks.<sup>4</sup> When the crack “rock” is heated, it makes a crackling sound, thus the term “crack.”<sup>3</sup> Crack or freebase cocaine can be smoked or dissolved and injected. Using other drugs with cocaine,\* particularly opiates, either at the same time (“speedballs”) or consecutively, is associated with an increased risk of overdose.<sup>5</sup>

## Effects of Cocaine Use

**Short term:** Cocaine use can cause a state of euphoria accompanied by a large burst of energy (called the “rush,” “flash” or “high”). If cocaine is injected or smoked, the extremely intense effect is felt within seconds and only lasts five to 10 minutes. If cocaine is snorted, the effect is less intense, but lasts between 15 and 30 minutes.<sup>1</sup> Other effects include increased energy and alertness; increased body temperature; increased heart rate and blood pressure;<sup>6,7</sup> agitation; paranoia; suppressed appetite; muscle spasms; stroke; fainting; and overdose. An overdose can involve chest pain, arrhythmia, confusion, convulsions, respiratory depression, coma or death.<sup>6</sup>

\* Unless otherwise specified, use of the term “cocaine” in the remainder of this document also encompasses “crack.”



**Long term:** Longer term effects of cocaine use are sleep disturbance; weight loss; tolerance to the drug; depression; cardio-vascular problems;<sup>7,8</sup> nasal damage (through snorting); kidney failure;<sup>9</sup> throat and bronchial damage (through crack smoking);<sup>10</sup> headaches; hallucinations; seizure; and attention and memory disruptions. Maternal use of cocaine during pregnancy can also result in low birth weight (and related long-term health complications) for newborns.<sup>9,11</sup> Injecting cocaine is associated with greater risk for human immunodeficiency virus (HIV) and hepatitis C virus (HCV)<sup>12</sup> and crack smoking may be independently associated with HIV and HCV infections.<sup>13,14,15</sup>

## Legal Status of Cocaine in Canada

Cocaine is a Schedule I drug under the Canadian *Controlled Drugs and Substances Act*. Possession of the drug can result in seven years' imprisonment, while trafficking and production of the drug can result in life imprisonment. Driving while impaired by cocaine is also a criminal offence under the *Criminal Code* of Canada, as is refusing to comply with drug tests enforced by police officers; penalties for those convicted are equivalent to those for alcohol impairment.

## Past-Year Use of Cocaine in Canada

**General population (age 15+):** According to data collected from the Canadian Tobacco, Alcohol and Drugs Survey (CTADS), 2.5%<sup>†</sup> of Canadians aged 15 and older reported using cocaine during the past year in 2017, which is comparable to the 1.2% who reported such use in 2015, but a significant increase from the 0.9%<sup>†</sup> who reported such use in 2013 (Figure 1).<sup>16,17,18</sup> This pattern aligns with an increase in cocaine use in North and South America during this time period.<sup>19,20</sup>

**Adults (age 25+):** 2.2%<sup>†</sup> of Canadian adults report past-year cocaine use according to the 2017 CTADS.<sup>18</sup> This level of use is a significant increase from the 0.6% reporting such use in 2013 (Figure 1).<sup>16,18</sup>

**Youth (age 15-19):** Rates of past year use of cocaine for youth ages 15–19 have remained steady between 2013 (1.5%<sup>†</sup>) and 2017 (1.6%<sup>†</sup>) (Figure 1).<sup>16,17,18</sup>

**Youth (age 20-24):** Unlike the younger age group, past year use of cocaine for youth ages 20–24 has significantly increased from 3.3%<sup>†</sup> in 2013 to 6.2% in 2017 (Figure 1).<sup>16,17,18</sup>

**Students (grades 7-12):** In the Canadian Student Tobacco, Alcohol and Drugs Survey (CSTADS) 2.3% of youth in grades 7–12 reported past-year cocaine use in 2016–2017, which is comparable to the 2.0% reported in 2014–2015.<sup>21,22</sup> However, in 2017, past year use among grades 10–12 students (3.8%) was significantly higher than among grades 7–9 students (0.8%).<sup>22</sup> Although the Ontario Student Drug Use and Health Survey (OSDUHS) noted an increasing trend in the use of cocaine (2.5% in 2015 to 3.1% in 2017) among students in grades 9–12, this increase was not significant.<sup>23,24</sup> Also, the level of cocaine use has declined since the early 2000s and has remained stable in recent years.<sup>24</sup> That said, cocaine use increases significantly with grade, to up to 5.5% of students in grade 12 using cocaine in the last year. However, past year cocaine use among students in grade 12 has not significantly changed since 1999.<sup>24</sup>

**Post-secondary students:** Data from the spring 2016 National College Health Assessment Survey, which is drawn from a convenience sample of 41 Canadian post-secondary institutions and therefore is not representative of all post-secondary students in Canada, indicates that 93% of post-secondary

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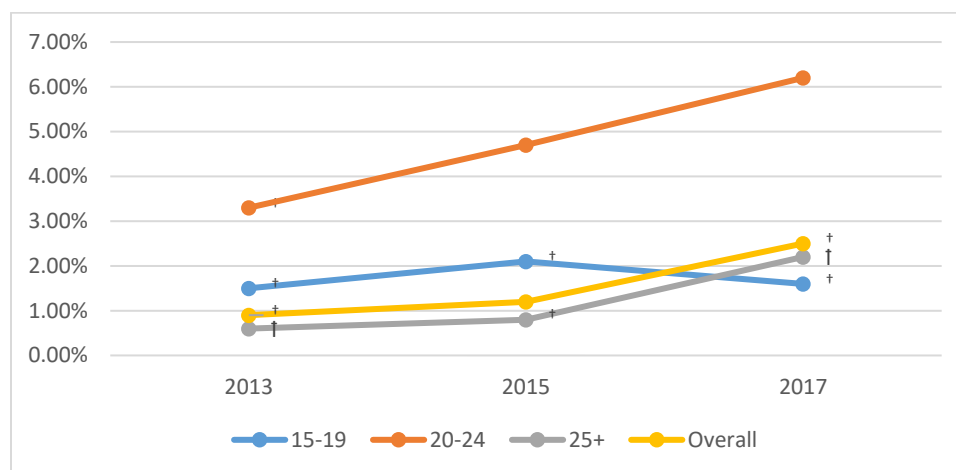
<sup>†</sup> Note: All figures identified with a cross (†) should be interpreted with caution due to small sample size.



students had never used cocaine, 5.3% had used cocaine, but not in the past 30 days, and around 1.7% had used cocaine sometime in the past 30 days.<sup>25</sup>

**Gender:** There has been a significant increase in cocaine consumption by males in Canada from 1.3%,<sup>†</sup> in 2013 to 3.7%<sup>†</sup> in 2017.<sup>16,17,18</sup> However, consumption of cocaine by females has not changed significantly between 2013 (0.5%<sup>†</sup>) and 2017 (1.3%<sup>†</sup>).<sup>16,18</sup> The 2017 CTADS reports a statistically significant difference between men (3.7%<sup>†</sup>) and women (1.3%<sup>†</sup>) in cocaine use within the past year.<sup>18</sup> The 2017 CSTADS also reported a significant difference in past year cocaine use between males (2.9%) and females (1.7%) for youth in grades 7-12.<sup>18</sup>

**Figure 1: Prevalence of self-reported, past-year cocaine use among Canadians by age category**



Source: CTADS 2013, 2015, 2017<sup>16,17,18</sup>

Note: Figures identified with a cross (†) should be interpreted with caution due to small sample size.

## Ranking Among Top Five Substances

According to CTADS 2017 data, cocaine was the third most used substance after alcohol and cannabis (besides tobacco), for those above the age of 19 years old.<sup>18</sup> In contrast, youth aged 15–19 were more likely to consume hallucinogens and salvia or any prescription drug problematically (including to get high) than they were to consume cocaine.<sup>18</sup> (Table 1)

**Table 1: Top five substances used in the past year by Canadians**

	#1	#2	#3	#4	#5
<b>General Population (15+)</b>	Alcohol (78.2%)	Cannabis (14.8%)	Cocaine/Crack (2.5%) <sup>†</sup>	Hallucinogens and Salvia (1.5%)	Problematic Prescription Drugs (1.2%) <sup>†</sup>
<b>Youth (15–19)</b>	Alcohol (56.8%)	Cannabis (19.4%)	Hallucinogens and Salvia (2.8%)	Problematic Prescription Drugs (2.1%) <sup>†</sup>	Ecstasy (1.6%) <sup>†</sup> Cocaine/Crack (1.6%) <sup>†</sup>
<b>Youth (20–24)</b>	Alcohol (83.5%)	Cannabis (33.2%)	Cocaine/Crack (6.2%)	Hallucinogens and Salvia (5.1%)	Problematic Prescription Drugs (3.6%) <sup>†</sup>
<b>Adults (25+)</b>	Alcohol (79.4 %)	Cannabis (12.7%)	Cocaine/Crack (2.2%) <sup>†</sup>	Number suppressed	Number suppressed

Source: CTADS, 2017<sup>18</sup>

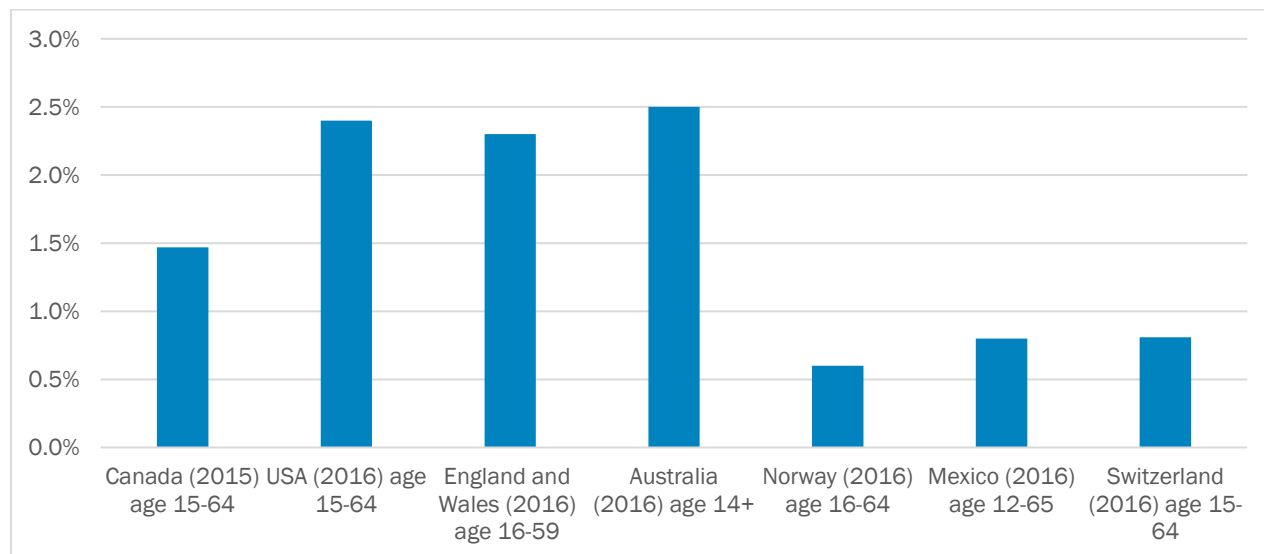
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## Past-Year Use of Cocaine Internationally

According to the United Nations Office on Drugs and Crime (UNODC), annual prevalence of cocaine use among the general population in Canada (15-64) in 2015 was relatively high at 1.47% compared to the global estimate of 0.37% for 2016. However, rates in Canada remain lower than in the United States (2.4%), England and Wales (2.3%), and Australia (2.5%) (Figure 2).<sup>20,26</sup>

**Figure 2. Prevalence of self-reported past-year cocaine use among the general population by country**



Source: UNODC 2018<sup>20</sup>

Note: International prevalence rates are not directly comparable due to variations in survey dates and population age ranges.

## Associated Harms

Hospital data provide an important measure of the impact of substance use on the healthcare system. Data produced by the Canadian Institute for Health Information (CIHI) indicate that the rate of hospital separations or visits (defined as the number of inpatient events ending in discharge or death) where cocaine use was recorded doubled between 1996 and 2005, from 22 to 45 per 100,000 discharges.<sup>27</sup> However, more recent data provided by CIHI have shown a 55% decrease in the number of cocaine-related hospital separations between 2006 and 2011, mainly due to a drop in admissions among 25–44 year olds.<sup>28</sup>

In 2014, cocaine was attributed to 1,572 hospital stays in Canada for conditions that are wholly (i.e., cocaine poisonings) or partially (i.e., HIV) attributable to cocaine. This represents 0.6% of all hospital stays in Canada (not including Quebec) attributable to substance use in 2014.<sup>29</sup> Despite a 60.3% decrease in per-person healthcare costs associated with cocaine from 2007–2014, \$80 million of healthcare costs were attributable to cocaine in 2014.<sup>29</sup>

Lost productivity is another attributable harm of cocaine use. Premature mortality, long-term disability, absenteeism and impaired performance (presenteeism) are all ways that productivity can be lost due to substance use. Cocaine was estimated to be a factor in 297 premature deaths and 883 people being removed from the workplace in Canada in 2014. Although the per-person costs of lost productivity due to cocaine use decreased by over 22% from 2007 to 2014 (\$11 per person and \$8 per person respectively), cocaine was attributed to \$300 million of lost productivity in Canada in 2014.<sup>29</sup>



## Treatment

According to 2014–2015 data from the National Treatment Indicators report, 28.1% of treatment episodes in Ontario were for individuals who identified cocaine as one of the primary substances for which they were seeking treatment. In Ontario, the third most commonly reported reason for seeking treatment was cocaine, preceded by alcohol and cannabis.<sup>30,31</sup> In Alberta, cocaine was the third most common substance used within the 12 months preceding treatment access.<sup>31</sup>

Research is ongoing, but at present there is no evidence to support the use of pharmacological treatments (i.e., anticonvulsants,<sup>32</sup> antidepressants,<sup>33</sup> stimulants,<sup>34</sup> antipsychotics<sup>35</sup> or dopamine agonists<sup>36</sup>) or vaccines<sup>37,38</sup> for treating cocaine use or dependence.

However, although there are no comprehensively effective treatment options, there are behavioural therapies that have been found to be effective for treating cocaine dependence and cocaine-related disorders. Currently, cognitive behavioural therapy and contingency management have demonstrated efficacy,<sup>39,40,41</sup> and are the most strongly supported interventions for cocaine-related disorders.<sup>42,43</sup>

Despite the challenges accessing comprehensive, effective treatment interventions, there are initiatives in place to reduce the harms associated with the use of cocaine, including:

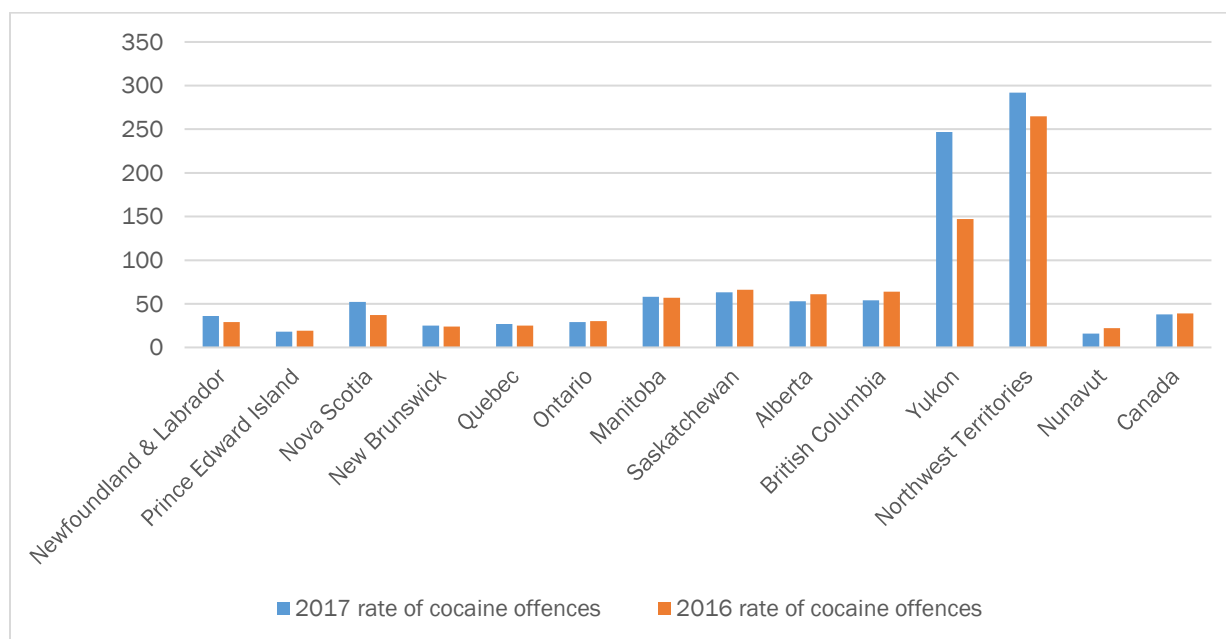
- Needle syringe programs that provide sterile injection equipment (needles, syringes, alcohol swabs, acidifiers, non-latex tourniquets, sterile filters, sterile cookers and sterile water), as needed by the service user, which are present in urban centres and many rural locations across Canada;<sup>44</sup>
- Crack kit dispensaries that provide sterile pipes, stems, screens, push sticks and mouth pieces for inhaling crack cocaine, which are present in a limited number of Canadian urban centres;<sup>44</sup> and
- Supervised injection facilities and mobile sites where people can inject cocaine under the supervision of health professionals, which are now operating in Alberta, British Columbia, Ontario and Quebec.<sup>45</sup>

## Enforcement

According to the UNODC, Canada reported the seizure of 2,440 kilograms of cocaine by law enforcement in 2016, an increase of about 45% compared to seizures in the previous year (1,095 kilograms).<sup>19</sup> However, in 2017 cocaine-related drug offences in Canada continued to decline for the fifth consecutive year, dropping 5% from 2016 according to police records. From 2016 to 2017, rates of cocaine offences dropped by 35% in Nunavut, 16% in British Columbia and 15% in Alberta. However, rates of cocaine offences increased by 71% in Yukon, 37% in Nova Scotia and 23% in Newfoundland and Labrador.<sup>46</sup> (See Figure 3.)



Figure 3. Rate of cocaine-related offences in Canada by province



Cocaine was responsible for the highest costs to the criminal justice system of any substance in Canada following alcohol in 2014.<sup>29</sup> The total justice costs attributable to cocaine in Canada in 2014 totalled just under \$1.9 billion. Almost 90% of these costs were attributable to the policing, court costs and corrections costs of violent offences such as homicide or assault and non-violent offences such as theft or arson, with only around 10% associated with *Controlled Drugs and Substances Act* (CDSA) violations (e.g. trafficking, possession, etc.). Despite around 2% of people in the general Canadian population using cocaine in 2014, cocaine was associated with over 20% of all substance use attributable criminal justice costs in 2014.<sup>29</sup>

### Driving Following Cocaine Use

A 2012 roadside survey conducted in five communities in British Columbia found that cocaine was the second-most commonly detected illegal† drug, following cannabis. Cocaine showed the greatest increase in percentage of drug-positive samples, moving from 24.3% in 2010 to 33% in 2012.<sup>47</sup> In addition, an ongoing cross-sectional telephone survey of Ontario adults over five years (2002–2004, 2006 and 2008) found that the prevalence of self-reported collision involvement in the past year was significantly higher among those reporting cocaine use in the past 12 months compared to those who had not used cocaine (18.9% versus 7.4%, respectively).<sup>48</sup>

### Additional Resources

- [The Impact of Substance Use Disorders on Hospital Use \(Technical Report\)](#)
- [Licit and Illicit Drug Use during Pregnancy: Maternal, Neonatal and Early Childhood Consequences \(Substance Abuse in Canada Report\)](#)
- [National Treatment Indicators Report: 2014–2015 Data](#)
- [Stimulants, Driving and Implications for Youth \(Topic Summary\)](#)
- [Canadian Substance Use Costs and Harms](#)

† Illegal at the time; cannabis is now legal in Canada.



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