



Opioids, Driving and Implications for Youth

This summary is one in a series of four that briefly review the current state of scientific evidence on the effects of various classes of drugs on driving behaviour, while highlighting implications for young drivers. This summary focuses on opioids (also referred to as narcotic analgesics, opioid pain relievers); others in the series focus on cannabis, central nervous system (CNS) stimulants, and CNS depressants. These categories of drugs were selected as they represent the most common licit and illicit drugs that are used by youth. This summary is intended for a broad audience, including drivers licensing bodies, health promotion and drug use prevention professionals, educators, health professionals and parents.

Definitions

Opioids are a family of drugs that have analgesic effects. Some opioids occur naturally in opium, a substance collected from the seed pod of the opium poppy (e.g., morphine, codeine). Other opioids are prepared from naturally occurring opioids (e.g., heroin, oxycodone), while others are made from chemicals without using a naturally occurring opioid (e.g., fentanyl).

Use of Opioids among Youth

In 2013, 14.9% of Canadians reported having used opioid pain relievers in the previous 12 months. Among youth aged 15–19, 13.6% reported past-year use of opioid pain relievers; 15.9% of those aged 20–24 reported past-year use.

Prescription opioids are used in the medical treatment of acute and chronic moderate to severe pain, and are also effective cough suppressants and anti-diarrheal medications. While prescription opioids are prescribed for therapeutic purposes, they have the potential to be misused because of their psychoactive properties. These medications are often misused for feelings of well-being or euphoria (i.e., the “high”) that they produce. Among 15–19 year olds who used opioid pain relievers in 2013, 5.8% reported that they had used them to get high. When opioids are used without medical supervision, used for the wrong purpose or administered inappropriately, there is an increased risk for adverse effects and harms.

Driving after Opioid Use among Youth

A series of random surveys of nighttime drivers in British Columbia conducted between 2008 and 2012 found that 1.4% of all drivers tested positive for opioids. Among drivers aged 16–24, 1.1% were positive for opioids.

Overall, among drivers killed in motor vehicle crashes in Canada between 2000 and 2010, 5.5% tested positive for opioids. Among drivers aged 16–24, 2.2% had a positive test for opioids. It should be noted that a positive test for opioids does not necessarily imply that the driver was impaired.



Legal Status in Canada

In Canada, prescription opioids are highly controlled substances. Their use is legal when they are prescribed by licensed practitioners (physicians, dentists) and used by the person for whom they are prescribed. The exception is heroin, which is illegal. Conviction for illegal possession, distribution, selling or importation of opioids results in a criminal record, affecting future options for education, employment and travel.

Driving while impaired by an opioid is an offence under the *Criminal Code of Canada* and those convicted face the same penalties as those impaired by alcohol. Specially trained police officers can demand that drivers suspected of being impaired by opioids submit to a series of behavioural and clinical tests, including providing a sample of blood, breath or oral fluid to determine drug content. Refusing to comply is an offence that carries penalties equivalent to those for impaired driving.

Active Ingredients

True opiates (morphine and codeine) are naturally occurring substances extracted from opium, which is derived from the resin of the poppy plant (*Papaver somniferum*). The plant is cultivated in South America, Tasmania, Southeast Asia, Afghanistan, Turkey and Mexico. A variety of pharmaceutical products are prepared from morphine (e.g., heroin, oxycodone and referred to as semisynthetic opioids) or from other precursor compounds (e.g., fentanyl and referred to as synthetic opioids). Opioids exert their pain relieving action (analgesia) by acting on brain mechanisms responsible for the perception of pain.

Absorption, Distribution, Metabolism and Elimination

Prescription opioids are available in various strengths and forms, including tablets, capsules, syrups, solutions, liquid form for injection, skin patches, transmucosal preparations, suppositories and nasal sprays. Depending on the dose, route of administration and extent of previous exposure, the effects of opioids begin within 15 to 30 minutes and can last several hours. Some prescription opioids are formulated to deliver a steady dosage of the drug over a longer period of time.

Some non-medical users of opioids crush tablets so they can be injected. Raw opium can be smoked. Heroin powder can be smoked, snorted or injected intravenously. The onset of effects is rapid and lasts for several hours.

Opioids are widely distributed throughout the body, but their primary action is on the brain, not the site of the pain. Opioids act directly on the brain mechanisms responsible for the perception of pain in particular. Outside of the brain, opioids have a direct effect on the intestines, causing intestinal tone to increase, slowing the movement of food, and dehydration. These intestinal effects make opioids very effective antidiarrheal medications. When used for pain relief, however, constipation is a common side effect.

Opioids are extensively metabolized and eliminated in the urine. Opioid use can be detected in urine for about three days after use.

Patterns of Use

With repeated use, tolerance to opioids develops relatively quickly, which causes a reduction in the effectiveness of the drug and requires an increase in dose to maintain the desired effect. Opioid dependence is a common problem associated with long-term use. In those dependent on opioids, abrupt discontinuation of use results in a very unpleasant withdrawal syndrome marked by pain,



irritability, restlessness, hostility, anxiety, insomnia, chills, depression and diarrhea. These symptoms can last for five to ten days, with psychological effects lingering for several months.

The concurrent use of opioids with other drugs, such as alcohol or anti-anxiety medications, can increase sedation, drowsiness and respiratory depressant effects thereby increasing the risk of severe respiratory depression, profound sedation, coma and death. Amphetamines can increase the pain-relieving effects of morphine and reduce the sedative effects. Heroin is known to be used in combination with methamphetamine or cocaine (called a “speedball”) to increase the euphoric effects and lessen the negative effects associated with declining levels of heroin after the initial rush.

Effects of Opioids

The ability of opioids to produce a feeling of well-being or euphoria (“high”) is the reason for their recreational use. When used under the supervision of a physician, opioids can effectively relieve pain and improve function. In addition to their analgesic (i.e., pain relieving) effects, opioids are associated with a wide variety of other effects. Opioids can cause drowsiness, sedation and droopy eyelids, creating a state that resembles sleep, often referred to as being “on the nod.” Other effects include lowered heart rate and respiration, inability to concentrate, reduced physical activity, fixed and constricted pupils, nausea, and flushing of the face and neck. With high doses, the depression of respiration can be sufficiently profound so as to cause a cessation of breathing, cardiac arrest and death.

Repeated use of opioids can lead to physical dependence and addiction. These are serious health problems that often require specialized treatment services and supports.

Effects of Opioids on Driving

Opioids cause sedation and drowsiness that can have a significant impact on the ability to operate a vehicle safely. Effects include slowed reaction time, sleepiness, poor psychomotor performance, poor coordination, reduced ability to divide attention, inattentiveness, increased errors and difficulty following instructions. These effects can last for up to four hours following a single administration of the drug.

When used over long periods of time, a significant degree of tolerance to some of the impairment produced by opioids can develop. This means that opioid impairment might no longer be evident after a period of use. An increase in the dose of the drug would be expected to reinstate the impairment.

The driving behaviour of someone who has used opioids might include noticeably slower driving, weaving, poor vehicle control and delayed reactions. Drivers might appear sleepy, have difficulty following instructions and exhibit poor motor coordination.

Studies of traffic crashes reveal that drivers who test positive for the use of opioids are up to eight times more likely to be involved in a traffic crash.

Detecting Opioid Use in Drivers

Drivers who have been using opioids often display one or more telltale signs of use. These include:

- Constricted pupils;
- Little or no reaction to light;
- Droopy eyelids;
- Sluggish responses; and
- Appearing drowsy or sleepy.



These signs are often sufficient for police officers to form a reasonable suspicion of drug use, which allows them to proceed with a demand for the driver to submit to a Standardized Field Sobriety Test (SFST). Drivers who demonstrate impaired performance on these tests are required to accompany the officer to the station for drug influence evaluation by an officer trained in the Drug Evaluation and Classification (DEC) program. The evaluation includes a demand for a sample of blood, urine or oral fluid to be tested for drugs.

Implications for Young Drivers

It is well known that young drivers are at particularly high risk of crash involvement, in part as a result of their relative inexperience with the complex demands of the driving task. Youth who have been prescribed opioid medication should check with their physician, dentist or pharmacist about the risks of driving while taking the medication. Youth who use opioids for non-medical purposes would be expected to exhibit impaired driving. The impairment caused by these drugs can be particularly profound on those who are still acquiring the skills and experience required to operate a vehicle safely in a complex driving environment.

Riding with a driver who has used opioids can also be dangerous. Opioid impairment might not be obvious, leading passengers to believe that the person they expect to drive them home is safe to do so. Passengers should avoid riding with any driver who has used opioids in the previous few hours, particularly if they have used opioids in combination with other substances.

Additional Resources

- Impaired Driving in Canada (Topic Summary)
- Prescription Opioids (Canadian Drug Summary)
- Cannabis, Driving and Implications for Youth (Topic Summary)
- Stimulants, Driving and Implications for Youth (Topic Summary)

Selected References

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