



PREVENTING DEATH AFTER OVERDOSE: BC Coroners Service Child Death Review Panel A Review of Overdose Deaths in Youth and Young Adults 2009-2013

REPORT TO THE CHIEF CORONER OF BRITISH COLUMBIA

January 2016

PREFACE

On October 28, 2014, the British Columbia Coroners Service (BCCS) held a child death review panel focused on drug and alcohol overdose deaths of young people who died between 2009 and 2013. Initially, the scope of this panel was to include the overdose and poisoning deaths of children; however, no children under the age of 13 years old died by either an overdose or poisoning during this time period. This suggests that efforts to reduce overdose and poisoning deaths in young children are effectively working. Tragically though, there continue to be overdose deaths in young people between the ages of 15 and 23.

During the 5 year period reviewed, 26 youth and 156 young adults died by an overdose. Their loss is deeply felt by the families, friends and communities with whom they shared their lives. This review of their lives and the circumstances that resulted in their deaths provided panel members with valuable information to consider in determining what could be done to prevent overdose deaths in the future.

Panel support was provided by the BCCS Child Death Review Unit (CDRU). Adele Lambert, Will Speechley and Holli Ward compiled aggregate case reviews and a review of the research and statistics which formed the basis of the panel discussions.

I am sincerely grateful to the following members of this panel for sharing their expertise, bringing the support of their respective organizations and participating in a collaborative discussion. Their contributions have generated action oriented recommendations that I am confident will contribute to reducing overdose deaths in BC.

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Bob Downie	<i>Saanich Police Department</i>
Michelle DeGroot	<i>First Nations Health Authority</i>
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On behalf of the panel, I submit this report and recommendations focused on reducing overdose deaths in young people to the Chief Coroner of BC for consideration.



Michael Egilson
Chair, Child Death Review Panel

EXECUTIVE SUMMARY

Drug and alcohol use is an ongoing concern for parents and professionals focused on the health and well-being of British Columbia's (BC) young people. Although prevention and intervention approaches exist to address use and related concerns, fatal overdoses still happen. An overdose occurs when a person takes or is administered one or more substances in an amount that results in toxic effects on the body.

The issue of drug and alcohol use in society is complex. There is a great deal of ongoing research and philosophical enquiry about the most effective programs, policies and service models to address drug and alcohol use consequences among young people and the population in general. While a review of all of the strategies to address drug and alcohol use among young people is beyond the scope of this death review panel, the reality that some young people will continue to overdose exists. Although an overdose can be fatal, it does not have to be. **This review focuses on what can be done to prevent death when a young person overdoses.**

To better understand overdose deaths in young people and identify prevention opportunities, a child death review panel appointed under the *Coroners Act* was held in October 2014. The circumstances of 26 youth¹ and 156 young adults² who died of an overdose (accidental, undetermined, or a suicide) between 2009 and 2013 were reviewed in aggregate. Research literature and statistics related to overdoses were also reviewed. The panel was comprised of professionals with expertise in drugs and alcohol, toxicology, medicine, child welfare, Aboriginal health, child psychiatry, public health, education, law enforcement and emergency health services.

The review found that many of the youth who died were in the company of someone at the time they overdosed whereas most of the young adults were alone. The overdose deaths were primarily caused by polysubstance use (a mix of drugs or a combination of alcohol and drugs) and that overall opioids, stimulants and alcohol were the most widely detected substances. In some cases, someone had expressed concern for the young person's well-being before they died. Medical intervention was attempted in over half of the youth and in less than half of the young adults.

The panel discovered that a primary issue resulting in these drug and alcohol related deaths was a delay in seeking immediate medical intervention for the person overdosing. The panel identified two key activities to address this issue: educating the people who are likely to witness an overdose to recognize the signs; and reducing possible barriers to seeking immediate medical assistance. The panel also identified that the BC Coroners Service could assist in informing the emergency response practices of BC Emergency Health Services (BCEHS).

These actions are the basis for the following recommendations forwarded to the Chief Coroner by the panel:

¹ A youth is 13 to 18 years old.

² A young adult is 19 to 23 years old.

Recommendation 1:**To reduce barriers to seeking immediate medical assistance when an overdose has occurred:**

- The BC Emergency Health Services (BCEHS) in collaboration with policing agencies and key stakeholders develop targeted strategies to promote calling 911, and to inform the public that safety, and the health and wellbeing of persons requiring medical attention is the paramount focus of police attendance at an overdose.
- The First Nation Health Authority investigate access to Take Home Naloxone as one of the tools for mitigating opiate overdoses in First Nations communities.

Recommendation 2:**To raise awareness of the importance of seeking immediate medical attention:**

- The Ministry of Children and Family Development engage with foster parents and youth networks such as the BC Federation of Youth in Care Networks, the Federation of Community Social Services, the Youth Advisory Council, and Gathering Our Voices for input on effective messaging to young people to raise awareness about the signs of an overdose and the importance of calling emergency 911 immediately.
- The Ministry of Education, in updating its physical education curriculum, specifically address the issue of calling 911 when people are in medical distress, and ensure that overdosing is identified as a form of medical distress that some young people may experience or witness.
- The Ministry of Health Provincial Emergency Services Advisory Committee review processes for discharge safety planning for patients who present with an overdose.

Recommendation 3:**To support interagency learning around overdose deaths:**

- The BCCS share Coroners Reports of overdose deaths of young people with BCEHS to inform their practice when responding to an emergency 911 call involving an overdose.
- The First Nations Health Authority examine sources of opioid overdose data for First Nations and Aboriginal people to understand opioid overdose trends.

OVERDOSE OF A YOUNG PERSON³

The majority of the young people whose circumstances of death were reviewed for this report, were using a combination of drugs, sometimes with alcohol. The following cases highlight two common themes found in the deaths reviewed: mixing of drugs and a delay in receiving immediate medical intervention.

Details that may identify the young people in these cases have been omitted to respect the privacy of the young person who died and their families. Although the pronoun, “he” is used throughout for grammatical consistency, the young person involved could be of either gender.

OVERDOSE AT A PARTY

In the morning following a house party, a young person was found cold and unresponsive in a bedroom. Emergency 911 was called and a friend started CPR until paramedics arrived. Tragically, CPR was unsuccessful and the young person died.

The coroner attended the residence to investigate and learned that around 9 p.m. the night before, the young person attended the house party with a group of friends. Friends reported that over the course of the evening the young person consumed prescription opioids and alcohol and had smoked marijuana. A friend reported the young person had taken prescription opiates from a relative without their knowledge.

At one point during the party, the young person and a friend went to a bedroom. Once in the bedroom the friend noticed the young person’s breathing was heavy and called in another person to ask what they thought. Any concerns about the young person were discounted when he said he was OK. Following this exchange, the young person went to bed.

During their investigation, the coroner learned the young person had a history of substance use and life challenges. Approximately a month before dying, the young person had been released from youth custody. A couple of weeks prior to this death, the young person had been to see a physician for injuries sustained in a fight.

At the time of his death, the young person was in contact with his parent while living with a relative who had an “open door policy” and limited house rules. Recently, the young person was making efforts to improve his life by returning to school and looking for work.

Toxicological testing of the young person detected an opiate, anticonvulsant medications, and alcohol. The coroner’s investigation determined that the young person’s death was accidental as a result of a mixed drug overdose.

OVERDOSE AT A FRIEND’S HOME

A young person was found unresponsive on the bathroom floor by a friend. Emergency 911 was called and when paramedics arrived, resuscitation attempts were made until it was determined that death had occurred.

The coroner attended the home to investigate and learned the young person was staying at a friend’s residence for the weekend. They had been staying in separate bedrooms in the lower floor of the home with access to a bathroom nearby.

³ For the purposes of this report, the term ‘young people’ refers to both youth under the age of 19 years old and young adults between the ages of 19 and 23 years old.

The night before, the two young people had both been drinking alcohol at a nearby creek side. On the way home, the friends stopped by a corner store where the young person called someone to buy drugs. When the drug dealer was late, the friend walked home alone. The young person eventually returned to the home, appearing 'under the influence'. The friend did not know what drugs the young person obtained and did not see the young person take anything upon returning to the house. Both friends retired to their separate rooms for about an hour before going upstairs to the kitchen to eat. After eating, the friend went to bed and the young person stayed upstairs to visit with the friend's parent.

The parent said the young person engaged them in a conversation and due to the young person's behaviour, the parent suspected the young person was under the influence of more than just alcohol. Specifically, the young person's eyes were "vibrating" and the young person repeated themselves.

In the morning, the parent left the residence to go shopping. The friend woke up and went upstairs to eat and watch TV. About an hour later, the friend checked on the young person who was found lying on the downstairs bathroom floor. Not knowing what to do, the friend called another friend to ask what should be done. The friend on the phone advised to call emergency 911.

During their investigation, the coroner learned the young person and friend had known each other since childhood. The friend recalled that the young person was known to have tried almost any type of drug. The friend had known the young person to have experienced depression in the past but did not think this was a current concern.

The young person had a history of non-fatal overdoses that required hospitalization in addition to life challenges requiring support from child welfare services. The most recent non-fatal overdose had been a week before the young person's death. The young person did not have a history of suicide attempts or ideation.

Toxicological testing of the young person detected alcohol, opiates, methamphetamine and ecstasy. The coroner's investigation determined the death to be accidental.

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PART 1: INTRODUCTION

The use of **drugs**⁴ and alcohol is an ongoing concern for parents and professionals focused on the health and well-being of young people in BC. That concern is especially heightened if the use results in an overdose death. An overdose occurs when a person takes or is administered one or more substances in an amount that results in toxic effects on the body.

The issue of drug and alcohol use in society is complex. There is a great deal of ongoing research and philosophical enquiry about the most effective programs, policies and services models to address drug and alcohol use consequences among young people and the population in general. Currently, a number of strategies exist to address drug and alcohol use in young people, both at an individual and a population level. Some of these approaches are focused on specific areas such as prevention, intervention and treatment and others are broad covering a range of issues such as harm reduction, the legal system and public health.

The Representative for Children and Youth has investigated and reported out extensively on service and support issues for young people, and recently released a report on a young woman who died as the result of a drug overdose.⁵ While a review of all of the strategies to address drug and alcohol use among young people is beyond the scope of this death review panel, the reality is that some young people will continue to overdose. Although an overdose can be fatal, it does not have to be. **This review focuses on what can be done to prevent death when a young person overdoses.**

To better understand the issues related to overdose deaths in young people and identify opportunities for prevention, a child death review panel appointed under the *Coroners Act* was held in October 2014. The circumstances of 26 youth⁶ and 156 young adults⁷ who died of an overdose between 2009 and 2013 that was either accidental, undetermined, or a suicide were reviewed in **aggregate**.

The number of overdose deaths greatly increased from youth into young adulthood. While equal numbers of female and male youth died, the young adults who died were primarily men. In some cases, a young person was in the company of at least one other person but the signs of an overdose went unrecognized and medical intervention came too late.

DEATH REVIEW PANEL

Death review panels are established by the Chief Coroner to review the facts and circumstances of deaths to provide the Chief Coroner with advice on medical, legal, social welfare and other matters concerning public health and safety, and the prevention of deaths⁸. A death review panel can review one or more cases before, during or after a coroner's

⁴ Key terms appearing in **bold face** are defined in the glossary located at the end of the report.

⁵ Paige's Story https://www.rcybc.ca/sites/default/files/documents/pdf/reports_publications/rcy-pg-report-final.pdf

⁶ A youth is 13 to 18 years old.

⁷ A young adult is 19 to 23 years old.

⁸ *Coroners Act, SBC 2007, Chapter 15*

investigation, an inquest or a review by the BCCS Child Death Review Unit (CDRU), and regardless of any decision made by a coroner or member of the CDRU.

The *Coroners Act* mandates the review of all deaths of children under age 19 years. The Chief Coroner has established a child death review panel to meet on specific occasions throughout the year to provide recommendations on the prevention of child and youth deaths. This process is consistent with the child death review principles laid out by the Honourable Ted Hughes in his 2006 report⁹. The Chair of the CDRU was appointed chair of the child death review panel whose membership includes: a child death coroner, a CDRU coroner and professionals with expertise in: Aboriginal health, injury prevention, public health, medicine, child psychiatry, emergency health services, law enforcement, education and child welfare. In the course of reviewing youth and young adult overdose deaths that occurred between 2009 and 2013, the panel reviewed:

- BCCS investigative findings;
- Academic and research literature;
- Information provided by panel members;
- Environmental, social and medical factors associated with the deaths;
- Possible patterns, trends or themes;
- The current state of related public policy and strategies; and
- Existing challenges.

All panel members shared their professional perspectives and collectively identified actions towards preventing future overdose deaths.

LIMITATIONS AND CONFIDENTIALITY

The number of youth and young adult overdose deaths that occurred between 2009 and 2013 presents challenges in accurately analyzing and reporting information while protecting privacy and data accuracy. Provisions under the *Coroners Act* and *Freedom of Information and Protection of Privacy Act* allow for the BCCS to disclose information to meet its legislative mandate and support the findings and recommendations generated by the review process. For the purposes of this report, information about these young people is presented in aggregate. The BCCS is respectful of the privacy of the young people and families that we serve and proceeds with caution when reporting case review findings. Details that could identify individuals have been omitted.

PART 2: INTERNATIONAL AND NATIONAL APPROACHES TO OVERDOSE DEATHS AND THE BC CONTEXT

The following is an overview of existing approaches to reduce deaths in those experiencing an overdose, and general statistical information of the incidence of overdose deaths in young people. This information provides some context for understanding what is happening in BC.

A review of the research literature found that the majority of strategies specific to preventing overdose death are associated to the use of opioids (as opposed to other types of drugs and alcohol). Little of the information is specifically focused on young people. Information about the incidence of overdose deaths is limited and variances in data collection make it impossible to

⁹ *BC Children and Youth Review, 2006*

compare across jurisdictions. These limitations highlight the need for further information to identify opportunities to reduce overdose deaths.

INTERNATIONAL

Community based naloxone distribution exists in a number of countries (e.g. United States, Germany and Italy (Dong, Taylor, Wild, Villa-Roel, Rose, Salvalaggio and Rowe, 2012). Naloxone is an **opioid antagonist** that reverses life-threatening respiratory depression and restores normal breathing within minutes after administration following an opiate overdose (Tanner, Matsukura, Ivkov, Amlani, Buxton, 2014; Carter and Graham, 2013). Naloxone can be given by injection or by being sprayed in the nose (Tanner, et.al, 2014). The United States Centre for Disease Control reports that in the US, community based programs focused on opioid overdose prevention have been operating since the mid-1990's and since 1996 a number of these programs have been providing naloxone (CDC, 2012).

Supervised injection sites (SIS) provide a controlled setting for people to inject their personally acquired drugs under supervision of health care professionals, in addition to health and social services workers (Health Canada, 2008). These sites are generally established in cities experiencing "open" drug use where a significant number of people are congregating and injecting drugs in public (Health Canada, 2008). SISs currently exist in cities across Europe, in Sydney, Australia and in Vancouver, Canada (Health Canada, 2008).

The United Nations Office on Drugs and Crime (UNODC) estimates that globally in 2012, there were approximately 183,000 deaths where illicit drugs were a primary contributor. These included overdoses in addition to other means of death such as HIV and trauma (UNODC, 2014). The UNODC also reports that primary drug types causing overdoses are opioids such as heroin and including the non-medical use of prescription opioids (UNODC, 2014).

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) is a decentralised agency of the European Union that provides information about drugs and drug addiction to the European Union and its member states (European Monitoring Centre for Drugs and Drug Addiction, 2013). The EMCDDA reports that a primary cause of death among people using drugs is an overdose mainly involving opioid use (EMCDDA, 2013). The EMCDDA found that the mortality rate due to overdose in Europe is approximately 18 deaths per million population between the ages of 15 and 64 years (EMCDDA, 2013).

CANADA

Information about drug and/or alcohol overdose deaths within each province and territory is not readily available. Statistics Canada¹⁰ reports that between 2009 and 2011, specific to alcohol and drug related overdose fatalities:

- 72 youth between ages 15 to 19 years old died; and
- 240 young adults between ages 20 to 24 years old died.

In 2005, the first naloxone distribution program opened in Edmonton, Alberta which was followed by another in Toronto, Ontario in 2011 (O'Leary, Shore and Zurba, 2013, Toward the Heart, 2012). In 2012, Ontario and BC launched provincial initiatives to provide naloxone

¹⁰ Canada's national statistical agency at <http://statcan.gc.ca>

education and kits at harm reduction distribution sites and clinics attended by people who use opioids (Toward the Heart, 2012).

Health Canada announced in July 2015 that it was undertaking a review of the prescription only status of naloxone. The review is anticipated to take approximately 18 months. If the review determines that naloxone can be removed from Health Canada's list of ingredients that require a prescription, it would allow access to naloxone in a manner similar to an epi-pen.

BRITISH COLUMBIA

In 2003, a supervised injection site (SIS) called Insite opened in Vancouver's, Downtown Eastside to address illicit drug use. Insite is the only SIS in Canada and operates under an exception to the *Controlled Drugs and Substances Act*. Health care services and programming are available to clients 19 years and older who use illicit drugs, including self-injection booths where clients can inject illicit drugs that they have brought with them, under the supervision of health care staff. Research focused on Insite found that between March 1, 2004 and February 6, 2008, there were 766,486 injections in the facility, 1,004 non-fatal overdoses and no fatal overdoses (Milloy, Kerr, Tyndall, Montaner and Wood, 2008).

The provincial Take Home Naloxone (THN) program in BC was launched in 2012 and is based on the successes of the naloxone programs elsewhere (Toward the Heart, 2012). The THN program is based at the BC Center for Disease Control (BCCDC). THN provides individuals who use opioids and are at risk of an overdose with education about overdose prevention, recognition and response, and a THN kit (Tanner, et. al, 2014, Toward the Heart, 2012). The naloxone is provided to individuals by prescription for personal use and provides for the possibility of immediate medical intervention while waiting for the paramedics to arrive (Tanner, et.al, 2014). Since its inception, the program statistics indicate that in 24 months, 2,214 people have been trained, more than 1,215 THN kits have been distributed and 125 overdoses have been successfully reversed (Tanner, et.al, 2014). It is important to emphasize that the THN does not replace calling emergency 911 for medical intervention (Toward the Heart, 2012). The THN program has expanded the number of sites where it is available. In April 2015, the College of Registered Nurses of BC approved limits and conditions that permit registered nurses to dispense naloxone.¹¹

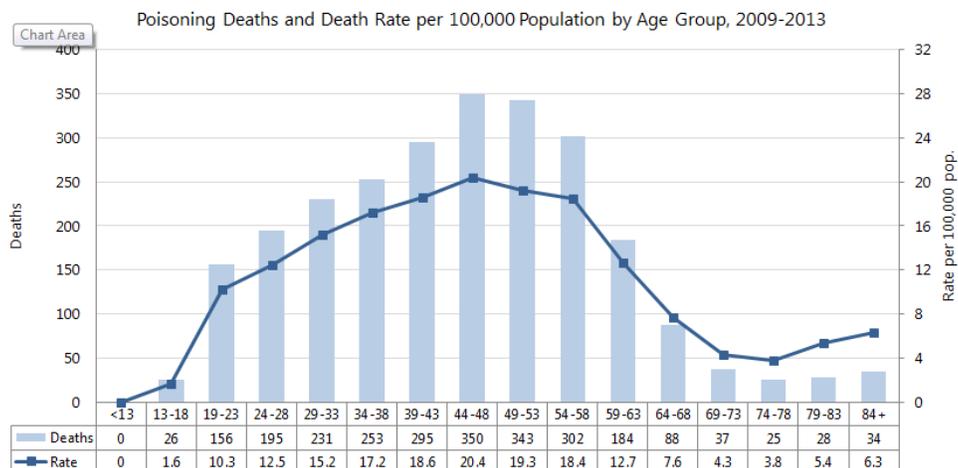
In 2013 Health Canada First Nations Inuit Health Branch BC Region services were transferred to the First Nations Health Authority (FNHA). The First Nations Health Authority has a mandate to plan, design, manage, deliver and fund the delivery of First Nations Health Programs in British Columbia. Through FNHA, there is further potential to make the THN program more widely available to First Nations communities.

Across the lifespan, the number of overdose deaths in BC increases with age until it reaches its peak between the ages of 44 to 48 years. Figure 1 shows the number of overdose deaths that occurred between 2009 and 2013. Of exceptional note is that an initial review of all cases of poisoning deaths under the age of 19 during 2009 to 2013 found no children under the age of 13 years old had died as a result of poisonings. This may suggest that child resistant drug packaging, product storage and education efforts to reduce these types of deaths in young children are effectively working.

¹¹ https://www.crnbc.ca/Standards/Announcements/2015/Pages/dispensing_naloxone.aspx

Specific to the age groups reviewed in this panel, there is a significant increase in overdose deaths from a rate of 2.6 per 100,000 in youth under age 19 years to 10.3 per 100,000 in young adults between the ages of 19 to 23 years old (see figure 1).

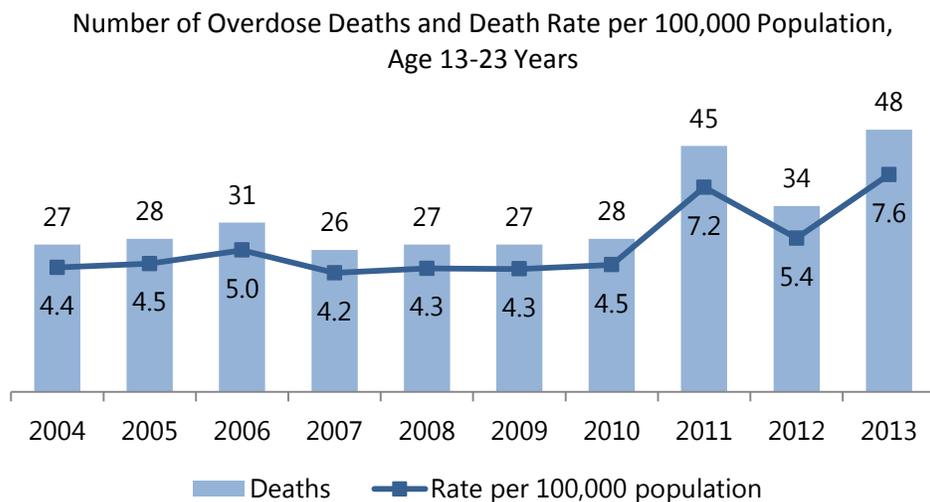
Figure 1



Source: BC Coroners Service

To provide a broad overview of overdose deaths in BC, figure 2 shows the rates of overdose deaths for youth and young people from ages 13 to 23 years old, over a 10 year span. Since 2004, the rates of overdose deaths appear relatively even, with the exception of 2011 and 2013 where there were a higher number of overdose deaths (see figure 2).

Figure 2



Source: BC Coroners Service

Currently, little is known about the difference between overdose deaths and patients experiencing major overdoses that survive. Further research and analysis is necessary to better understand those differences.

PART 3: DRUG AND ALCOHOL USE IN YOUNG PEOPLE

This report is focused on overdose deaths in young people; however, presenting research findings about drug and alcohol use provides some overall context into the types of drugs that young people use and the prevalence of use.

Research looking at drug choices across age groups suggests that as youth age, the types of drugs they try tends to broaden (Maclean, Kutin, Best, Bruun and Green, 2014, Saewyc, 2007). A Canadian study using data collected from the 2008-09 Canadian Youth Smoking Survey found a higher prevalence of youth in grade 12 reporting illicit drug use, beyond alcohol and marijuana, compared to youth in lower grades (Leatherdale and Burkhalter, 2012).

Although alcohol and marijuana are the most common drug choices among youth, the 2013 BC Adolescent Health Survey found that the percentage of youth who had ever tried alcohol or marijuana has continued to decrease since 2003. The 2013 BC Adolescent Health Survey found that 45% of youth between grades 7 and 12 had ever tried alcohol and 26% had ever tried marijuana (Smith, Stewart, Poon, Peled, Saewyc and McCreary Centre Society, 2014). Of other drugs ever tried, prescription pills without physician consent (11%) were reported to be the most used followed by hallucinogens (6%) and mushrooms (5%) (Smith, et.al, 2014). Two percent of the youth reported ever trying amphetamines and 1% reported ever trying heroin (Smith, et.al, 2014).

Considering sex differences, the 2013 BC Adolescent Health Survey found that females (12%) were likelier than males (10%) to take prescription medication without physician consent (Smith, et.al, 2014). In contrast, males were likelier to try hallucinogens (5% compared to 3% in females), mushrooms (6% compared to 4% in females), amphetamines (2% compared to 1% in females) and heroin (1% compared to <1% in females) (Smith, et.al, 2014).

Research into the effects of **polydrug** use indicates that the risk of increased intoxication and overdose is greater in comparison to the use of one drug (Kelly, Wells, Pawson, LeClair and Parsons, 2014). Depending on the types of drugs combined, the risk of an overdose may vary. Research suggests that the combination of opioids with other drugs (e.g. alcohol, cocaine, anti-depressants) is often observed in overdose deaths (Calcaterra, Glanz, Binswanger, 2013).

PART 4: BC CORONER SERVICE CASE REVIEW FINDINGS

An aggregate overview of the demographics and circumstances of the 26 youth and 156 young adults who died of an overdose between 2009 and 2013 is presented in relation to what is known about overdoses from national and international research literature. As the number of overdose deaths markedly rises in young adulthood; including these case review findings provides a broader perspective from which to consider prevention opportunities that could reduce overdose deaths.

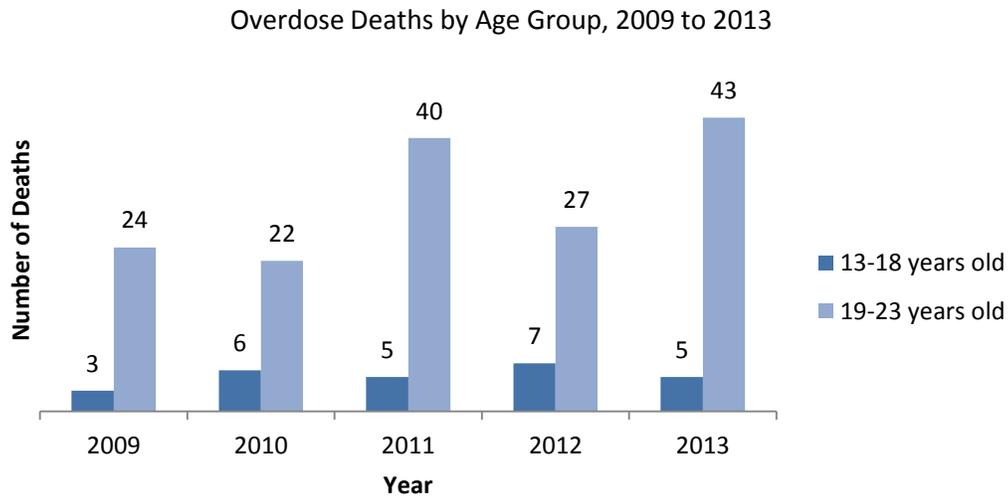
A. THE YOUNG PERSON

The young people who died were primarily young men between 19 and 23 years old. Most of these young people had a history of drug use. Few attended a detox or treatment centre in the past and many were managing a mental health diagnosis.

AGE

In each year throughout the 5 year time period reviewed, the number of overdose deaths in young adults was much higher than in youth (see figure 3).

Figure 3



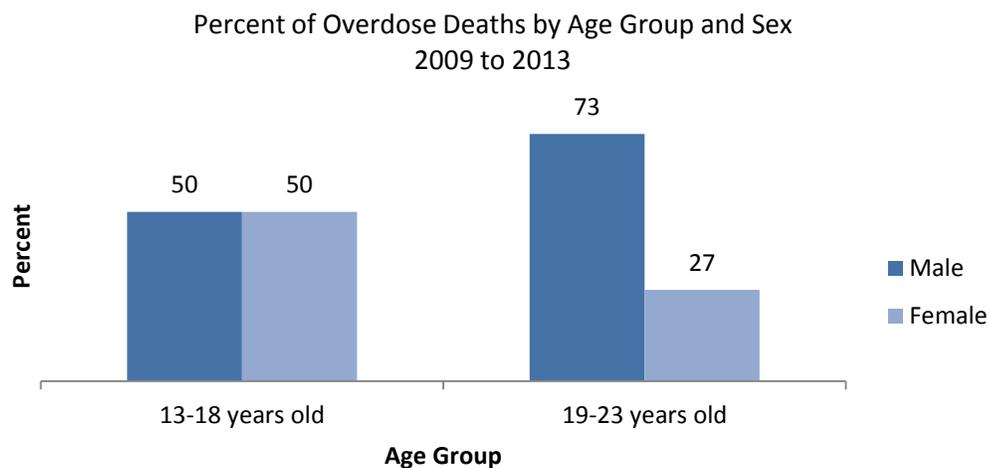
Source: BC Coroners Service

The findings of this review are consistent with research literature investigating poisoning deaths, including overdoses, indicating that the rates of poisoning increase with age up to a peak in middle age. (Bohnert, Fudalej, Ilgen, 2010).

SEX

An equal number of male (50%, n=13) and female (50%, n=13) youth died of an overdose. These findings are in contrast to the young adult age range where the majority of deaths were males (73%, n=114) to females (27%, n=42) respectively (see figure 4).

Figure 4



Source: BC Coroners Service

The overall findings of this current review; that the majority of deaths occurred in males are consistent with the research literature. Most studies considering sex differences have found that males are likelier to die from an overdose than females (Calcaterra, et.al, 2013; Bohnert, Roeder and Ilgen, 2010).

FAMILY INVOLVEMENT

Family involvement was considered in terms of whether opportunities exist to reduce the risk of a fatal overdose in young people. Research appears to focus on the effects of family involvement on a young person's drug use generally (e.g. genetic predisposition, familial influence and the effects of family structure on drug use) as opposed to actions that may be taken to reduce a young person's risk of a fatal overdose (Barker and Hunt, 2004).

In the context of general prevention, 16 (62%) of the youth who died were noted to have family members who were aware of their current and/or past drug use. In some instances their family had thought the youth was abstaining from drug use. Some families actively supported the youth's attempts to seek counselling, treatment or detox for drug misuse. Not all youth were residing with family, which may have impacted their level of influence on the youth's drug use and related issues.

MENTAL HEALTH

The mental health of the young people who died was reviewed to consider any linkages with overdoses.

One third of the young adults (n=52) and almost one third of the youth (n=8) were noted to have a mental health diagnosis at the time of their death. Diagnoses included but were not limited to: depression, attention deficit hyperactivity disorder, polysubstance abuse and anxiety. At the time of their death, 12% (n=3) of the youth were engaged in Child and Youth Mental Health (CYMH) services provided through Ministry of Children and Family Development (MCFD). Although prevalence of mental health issues among the young people whose deaths were reviewed is much higher than in the general population, it is important to note that this group represents a tiny fraction of young people challenged by mental health issues.

Research indicates that mental health diagnosis is more common among older youth or young adults, and that this may be because this is often the period of time when symptoms arise and a diagnosis is made (MacLean, et.al, 2014).

Overdose as a means of suicide in youth is uncommon. In the 2013 BC Coroners Child Death Review Panel report on youth suicides between 2008 and 2012, 3% of the suicides (n=91) were the result of an overdose (BC Coroners Service, 2013). Research indicates that suicide attempts by an overdose are strongly associated with drug misuse generally (Bohnert, et.al, 2010). Research also suggests there is a correlation between a history of overdose and a history of suicide attempt(s) and that females are likelier than males to attempt suicide by overdosing on drugs (Bohnert, et.al, 2010). One particular study considering accidental overdose among street youth suggests that in addition to intentional overdose, there are occasions where an overdose could occur due to ambivalence towards death (Richer, Bertrand, Vandermeerschen and Roy, 2013).

DRUG AND ALCOHOL USE

The majority of the youth (80% n=21) and young adults (90% n=140) were noted to have a history of drug and alcohol use although the frequency of use (e.g. bingeing on weekends, daily) was not necessarily known.

Information about how the drugs ingested at the time of the fatal overdose were accessed (e.g. a street dealer, doctor's prescription) was also limited. Twelve percent (n=3) of the youth had used medication that was prescribed to a family member and 8% (n=2) of the youth had used medication prescribed to a non-family member. One youth had used medication that was prescribed to them. Twenty-three percent (n=6) of the youth consumed a drug that was other than what they thought they were consuming or was adulterated with another substance. (e.g. cocaine that ended up containing fentanyl).

Factors that increase the risk of an overdose when using, in particular, opioids, include (Carter, et.al, 2014):

- Whether the person is using in combination with other drugs, especially alcohol or sedatives; and
- The person's level of tolerance, which may be affected by a period of non-use.

For information about research findings related to young people's use of drugs and alcohol, refer to part 3 *Drug and Alcohol Use in Young People* of this report.

ATTENDANCE TO TREATMENT AND/OR DETOX

Twenty percent (n=5) of the youth and 19% (n=29) of the young adults were noted to have attended either a rehabilitation or detox facility at least once before their death; however, information about how long the fatal overdose occurred after they were discharged is unknown. Further, information about the type and amount of drug use following attendance to treatment and/or detox is unknown. Case review findings noted that at the time of their death, 8% (n=2) youth were scheduled to attend treatment in the upcoming weeks.

For the purposes of this review, attending treatment and/or detox was considered in the context of its risk of a fatal overdose. Research related to adults indicates that the incidence of overdoses is higher among those who have recently completed or are going through treatment or a detox program, especially for opioid users (Wines Jr., Saitz, Horton, Lloyd-Travaglini and Samet, 2007; Fielden and Marsh, 2007). This occurs because of tolerance level changes so that their bodies cannot metabolize a similar amount of drug taken before there was a period of abstinence (Wines Jr., et.al, 2007).

PREVIOUS NON-FATAL OVERDOSES

Approximately one third of the youth (31%, n=8) were reported to have been hospitalized on a previous occasion for an overdose. Of the young adults, 17% (n=26) were reported to have experienced an overdose on a previous occasion (which may or may not have required hospitalization). It is unknown whether, at the time of the non-fatal overdose, the young people who were hospitalized were provided information to reduce the risk of a future overdose.

Research indicates there is strong association between previous non-fatal overdoses and future non-fatal overdoses; however, research investigating the association of non-fatal overdoses as

a risk factor to a fatal overdose is limited (Stoove, Dietze and Jolley, 2009). An Australian study considering this association found there was a substantial increase in risk for a fatal overdose in adults who required emergency services for at least two previous non-fatal overdoses (Stoove, et.al, 2009).

PEER ASSOCIATIONS

At the time of their overdose, most of the youth (77%, n=20) and one third of the young adults (37%, n=58) were reported to be in the company of other people. Some of these other people were reported to also be using drugs at the time of the young person's overdose, although the exact number is unknown. In 23% (n= 6) of the cases involving youth, the coroner noted that the youth was either placed in a recovery position by someone or a wellness check was completed.

Research generally suggests that youth drug users are likely to use in the presence of friends (Kirst, Erickson and Strike, 2009). Much of the research focused on youth and their peer associations relates to exposure to drugs and use in terms of peer pressure and peer influence (Foster and Spencer, 2013).

Research specific to peer association during an overdose is primarily focused on adult opioid users and indicates that recognition of the signs of an overdose followed with calling for medical intervention and then taking lifesaving actions (e.g. administering naloxone, resuscitation) are crucial to reducing the risk of a fatal overdose (Kerr, Dietze, Kelly, Jolley, 2009). Research also suggests that due to the high prevalence of overdose incidences involving opioids, opioid users are likely to witness an overdose or experience an overdose themselves (Kerr, et.al, 2009; Wagner, Iverson, Wong, Bloom, McNeeley, Davidson, McCarty, Kral and Lanckenau, 2013).

Youth peers witnessing an overdose or personally experiencing a non-fatal overdose may be limited. Considering the circumstances of the young people in this review, it is unknown how many of the peer associations who were present at the time of the fatal overdose had previously witnessed or personally experienced an overdose. It is also unknown in any of the circumstances, whether someone recognized signs of distress as being specific to an overdose.

LIVING ARRANGEMENTS

The living arrangements of the youth who died varied and information about living arrangements for the young adult group was limited.

Half of the youth (50%, n=13) resided with family at the time of their death. Thirty-eight percent (n=10) of the youth were living independently from family; in some of these cases, staying temporarily at someone's residence. Twelve percent (n=3) of youth resided in a group or foster home. No youth were noted to be living on the street exclusively. In the cases where the youth was living with others (excluding family), at least one other person they were residing with was aware of their current or historical drug use. Two percent (n=3) of the young adults were identified as homeless¹².

Research indicates that youth involved or living on the street are more likely to use more drugs more often than youth who are housed (Kirst, et.al, 2009). Research further suggests that young adults using drugs (i.e. marijuana, alcohol, methamphetamine, opiates, ecstasy) are likelier to be residing in an insecure housing or homeless situation (MacLean, et.al, 2014).

¹² Homeless is defined as either 'street homeless' or 'sheltered homeless' (living in a shelter overnight or temporarily sheltered).

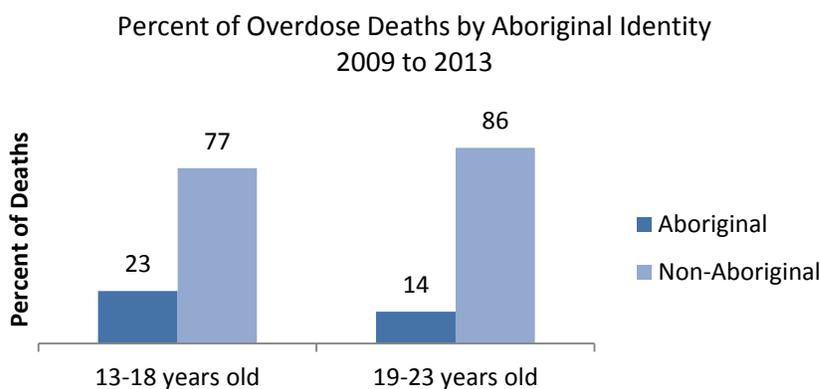
B. POPULATION LEVEL ATTRIBUTES

The review included analysis of Aboriginal identity and involvement with child welfare. These groups are not mutually exclusive as some of the young people identified with both.

ABORIGINAL YOUNG PEOPLE

Overdose deaths occur more frequently in socially and economically disadvantaged groups of people. Approximately 23% (n=6) of the youth and 14% (n=22) of the young adults who died of an overdose identified as **Aboriginal** (see figure 5).

Figure 5



Source: BC Coroners Service

Between 2009 and 2013, there was an overrepresentation of Aboriginal young people who died of an overdose by a factor of 2 to 2.5 based on BC Stats population rates¹³.

The findings in this review are consistent with research findings. A population-based analysis of overdose deaths rates in **First Nations** in BC (between 16 years and <66 years) between 2001 and 2005 found overdose death rates for First Nations individuals were at least two and at most, five times higher than provincial overdose mortality rates (Milloy, et.al, 2011).

CHILD WELFARE

There is an overrepresentation of youth who were either currently or historically involved with services provided by the Ministry of Child and Family Development (MCFD). Seventy-seven percent (n=20) of the youth who died had contact with MCFD. Twelve of these youth were receiving services at the time they died, three were in care and five had a previous history of involvement. Over half of the young adults (53%, n=84) had a history of MCFD contact. All of the Aboriginal youth (n=6) were receiving MCFD services at the time of their deaths. Much of the available research literature focused on the correlation between child welfare and injury finds that children and youth involved with child welfare are more frequently from homes that pose a higher risk of injury, compared to the general population. Although overrepresented in

¹³ <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/2011Census.aspx>

this review compared to the general population, the number of youth and young adults who died represents a very small percentage of the total number of young people MCFD provides service to in a given year. MCFD delivers or funds services to approximately 156,000 children, youth and families every year.¹⁴

Considering these findings, young people who are in contact with child welfare services may be particularly vulnerable and could benefit from messaging about recognizing the signs of an overdose and seeking immediate medical intervention.

*MIXING OPIOIDS WITH OTHER DRUGS AND/OR ALCOHOL
INCREASES THE RISK FOR AN OVERDOSE*

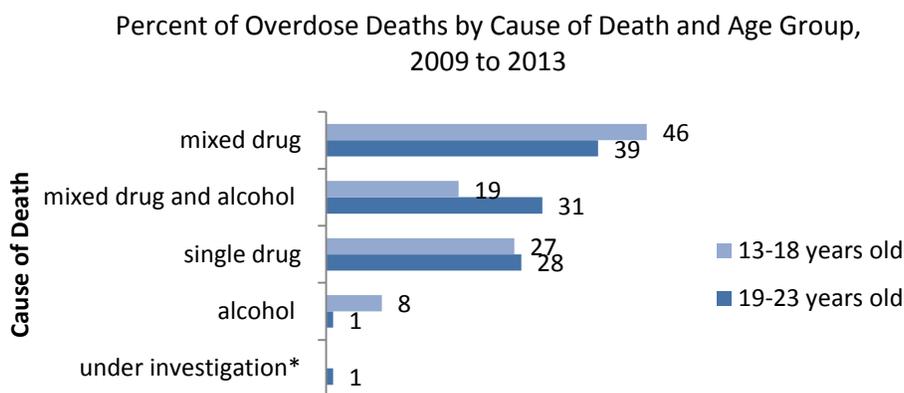
C. THE OVERDOSE DEATH

This section is intended to provide information about the overdose deaths. Information about toxicological analysis, including its limitations, is presented and the classification of the deaths is summarised. Additionally, information about region and physical location are presented to provide further context of fatal overdose events.

CAUSE OF DEATH

Thirty-nine percent (n=60) of the overdose deaths among young adults and 46% (n=12) of deaths among youth were the result of mixing drugs (see figure 8). Other deaths were caused by a mixture of drugs and alcohol, and in some cases by a single drug (see figure 6). These

Figure 6



*pending the outcome of the toxicological analysis

Source: BC Coroners Service

¹⁴ MCFD Performance Management Report Volume 6 March 2015
http://www.mcf.gov.bc.ca/about_us/pdf/mcfd_pmr_mar_2015.pdf

findings are consistent with research considering drug use type in overdose deaths (Buxton, Skutezky, Tu, Waheed, Wallace and Mak, 2009; Calcaterra, et.al, 2013).

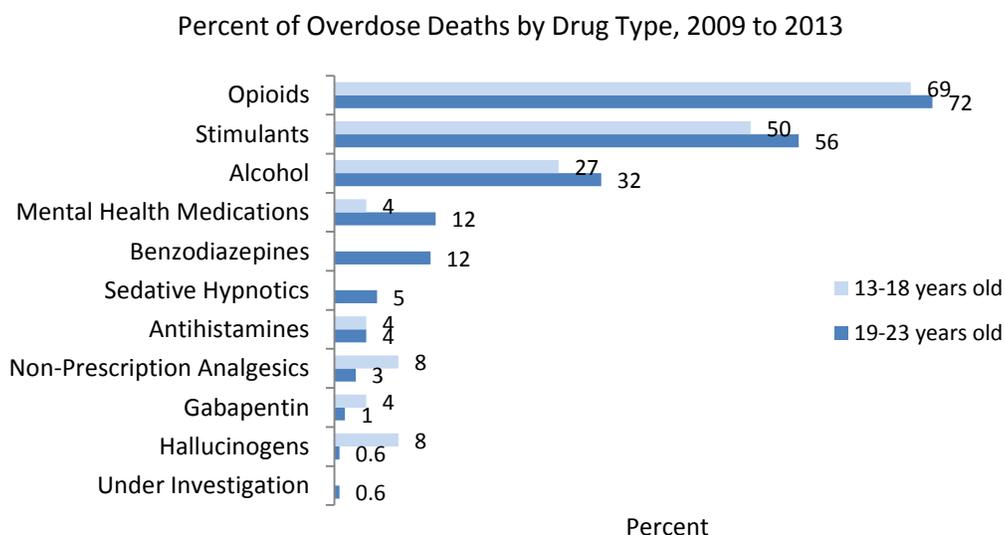
TOXICOLOGICAL ANALYSIS

Toxicological analysis is used to identify substance types and drug amounts present in a body after death. The Provincial Toxicology Centre (PTC) in BC conducts toxicological analysis upon receiving the samples and produces a report that identifies and quantifies the substances found in the body. There is a high level of accuracy in this type of testing with respect to identifying the types of drugs in a body; however when interpreting the results, the following limitations need to be considered:

- The degree that a particular type of drug(s) is metabolised in a body is inconsistent across bodies;
- Reactions to a drug(s) vary across individuals. Depending on an individual’s tolerance and factors such as weight, a particular dose that may not cause death in one person may result in the death of another; and
- The ability to determine when a drug was last used by a person is challenging.

Toxicological analysis was conducted for of all the young people (n=182) who died. The most common drugs in both youth and young adults included opioids (e.g. codeine, fentanyl, heroin, hydromorphone, methadone and oxycodone), stimulants (e.g. cocaine, methamphetamine, amphetamine and pseudoephedrine) and alcohol which were either used alone or in combination (see figure 7). Almost three quarters of the young people (71%, n=130) were found to have either opioids only or an opioid(s) combined with another drug in their body. Research indicates that the combination of an opioid with others (e.g. cocaine, alcohol and/or other sedatives) can increase a person’s risk for an overdose (European Monitoring Centre for Drugs and Drug Addiction, 2015, Carter and Graham, 2013).

Figure 7



Source: B.C. Coroners Service

CLASSIFICATION OF DEATH

A classification of death is identified following the completion of a coroner's investigation. The majority (88 percent (n=161)) of the overdose deaths across all the young people were accidental. Twelve percent (n=3) of the youth and 6% (n=10) of the young adults died by suicide. The deaths of 4% (n=8) of the youth and young adults were classified as undetermined as the evidence was inconclusive with respect to a specific classification (e.g., determining whether a death was a suicide or accidental).

An overdose death is classified as accidental when the person using the drug did not intend to die. For example, a young person may have mistaken the type of drug used for another or they used a mixture of drugs without realizing the combination was lethal. Research indicates that the risk of an overdose is increased following a period of abstinence (Bohnert, et. al, 2010). As noted earlier, abstinence can change a person's level of tolerance for a drug(s). Research also suggests that factors such as: health issues, polysubstance use, the manner of use (e.g. injection) and pattern of drug use may increase the risk of an overdose (Bohnert, et.al, 2010).

REGIONS¹⁵

It was not possible to present comparisons between regions for overdose deaths of young people due to small numbers and potential to identify¹⁶. Instead a comparison was completed in the context of whether the deaths of the young people happened in either an urban or rural area of the province.

The young people died across 55 locations throughout BC. The majority of deaths (91%, n=166) were in urban centres (e.g. Greater Vancouver, Victoria or Prince George) compared to rural areas (9%, n=16).

Research focused on drug use related mortality, including overdose deaths, indicates that deaths are likelier to happen in urban areas where a disproportionate number of drug users are located (Fischer, Popova, Rehm and Ivsins, 2006). While this may be the case, research also suggests there has been an increase in the number of young people living in rural areas who are using drugs (Martino, Ellickson and McCaffrey, 2008).

PART 5: SIGNS OF AN OVERDOSE

Recognizing the signs of an overdose and knowing what actions to take are imperative to making sure that the appropriate type(s) of medical intervention is administered.

An overdose occurs when either one or a combination of drugs (physician prescribed, legal or illegal) is ingested and the body is unable to metabolize the drug(s) and detoxify itself. As a result, a person's **central nervous system** does not function properly, which can be life-threatening. Signs of an overdose vary, depending on the type(s) of drugs the person has taken. Treatment for an overdose is time sensitive and also depends on the type of drug(s) taken.

The following is a summary of possible presenting signs that could indicate a person is overdosing:

¹⁵ Based on the BC Coroners Service regions as outlined in Appendix 1

¹⁶ Refer to Part 1 of this report in the section *Limitations and Confidentiality*

Depressants (i.e. opioids, benzodiazepines, alcohol) slow the central nervous system causing breathing and heart rate to slow.

Stimulants (i.e. amphetamines such as speed, cocaine) increase the heart rate and risk of a heart attack, stroke, seizure or drug induced psychotic episodes.

**CALL 911 IMMEDIATELY ANYTIME A
PERSON IS IN MEDICAL DISTRESS**

Signs of overdose may include:

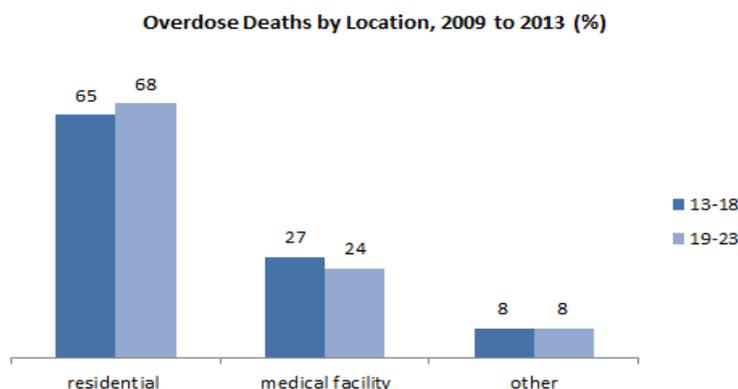
Depressants (i.e. opioids, benzodiazepines)	Alcohol	Stimulants (i.e. amphetamines such as speed, cocaine)
<ul style="list-style-type: none"> • Shallow breathing; • Snoring or gurgling; • Blue lips or fingertips; • Floppy arms and legs; • Disorientation; • No response to stimulus • Unconsciousness 	<ul style="list-style-type: none"> • Disorientation; • Loss of coordination; • Vomiting; • Seizures; • Irregular or slow breathing; • Blue tinged or pale • Unconsciousness 	<ul style="list-style-type: none"> • Chest pain; • Disorientation/confusion; • Severe headache; • Seizures; • High temperature; • Difficulty breathing; • Hallucinations; • Unconsciousness

PART 6: MEDICAL INTERVENTION FOR AN OVERDOSE

At the time of their overdose, more than three quarters of the youth (77%, n=20) and one third of the young adults (37%, n=58) were reported to be with other people. Half (n=13) of the youth cases were noted to be with people who were also using drugs. The number of people using drugs with the young adults is unknown. The presence of others increases the possibility that medical distress is witnessed. If medical distress is witnessed and recognized, it increases the likelihood that emergency health services (911) are called.

Most of the youth (65% n=17) and young adults (68% n=106) died at a residential location (e.g. a friend's or parent's house) (see figure 8). The youth and young adults who died in a medical facility were initially brought into the facility for the treatment of the overdose, 75% (n=34) of which had occurred at a residential location. Getting medical help immediately is essential when an overdose is occurring.

Figure 8



Source: BC Coroners Service

As previously mentioned in this report (in the section on *Peer Associations*), in 23% percent (n=6) of the youth deaths, someone had expressed concern about the youth's well-being based on observing behaviours such as: confusion, collapsing, respiratory difficulty, overheating, agitation and/or the inability to walk. It is unknown if any of these people recognized these signs as being specifically related to an overdose. A few (15%, n=4) of these youth were either placed in a recovery position or monitored in some way (e.g. a wellness check while they were sleeping) but emergency 911 was not contacted at that time. Resuscitation was known to be attempted with over half of the youth (58%, n=15). In fewer than half of the young adult cases (44%, n=68), emergency medical intervention including resuscitation attempts or naloxone administration by friend, family and/or emergency personnel were used.

EMERGENCY RESPONSE

When a person overdoses, immediate medical intervention is critical to reducing the risk of death or serious injury. As mentioned previously (in sections: *Peer Associations and Medical Intervention for an Overdose*), in 15% (n=4) of the youth deaths, someone expressed concerns about the youth's well-being but 911 emergency was not contacted at that point. Reasons for not calling at that point are unknown but it is possible that people may not have recognized the youth was overdosing.

Contact with emergency personnel (e.g. ambulance, police, fire) is initiated by calling emergency 911. Once the emergency 911 dispatcher identifies the nature of the call as a medical emergency, the call is transferred to BC Emergency Health Services (BCEHS) (BC Ambulance Service) and a standardized practice to respond is initiated, including recording the date, time and location of the emergency and assigning a dispatch code and response category (BC Emergency Health Services presentation, 2014). The purpose of dispatch coding is to ensure an appropriate level of care, based on information provided by the emergency 911 caller. If the call is identified to be caused by a toxic substance, including prescribed medication, over the counter medication, street drug or a chemical, the code assigned by BCEHS is 'poisoning' (BC Emergency Health Services presentation, 2014). It is important to emphasize that not all emergency 911 calls related to an overdose are identified as 'poisoning' to indicate an overdose has occurred. Based on the information provided by the caller, an overdose may be recorded as 'unconscious/fainting' (BCEHS correspondence, 2014).

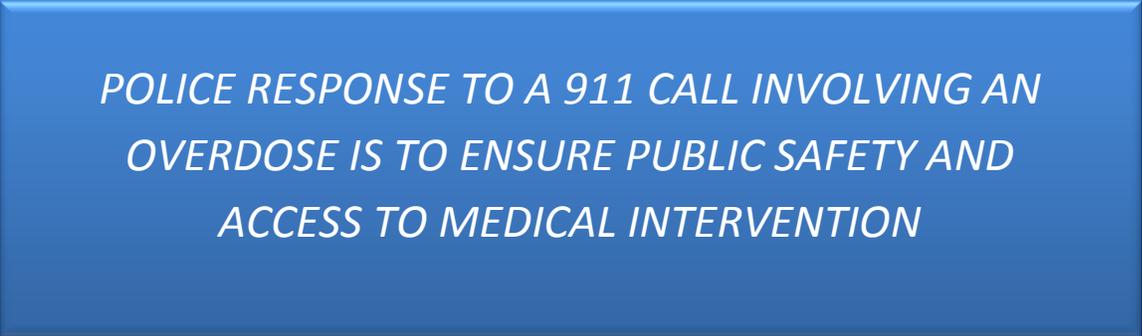
In communities where BCEHS services are not directly available, fire department first responders (if a participating agency) will be notified to respond. Remote communities may be

serviced by volunteer fire department first responders who provide basic first aid and support of airway, breathing and circulation until the closest BCEHS resource can arrive to provide care and transport (BCEHS correspondence, 2014).

BCEHS paramedics have 24 hour telephone access to an emergency physician for consultation. They may also have naloxone available to administer in the event of an opioid overdose. To administer naloxone in BC, emergency personnel must have a minimum license level as a Primary Care Paramedic (PCP) (BCEHS correspondence, 2014). With the exception of naloxone, there are no other drug antidotes available to counteract the effects of an overdose. BCEHS paramedics have the capacity to provide initial emergency medical intervention (e.g. CPR) and transport the person to hospital for further care. Once the person is admitted to the hospital emergency department, contact with BCEHS paramedics is concluded.

Each year, BCEHS receives approximately 450,000 emergency calls (BC Emergency Health Services presentation, 2014). In 2013/14, BCEHS received 5,188 calls specific to poisonings, including overdoses. Of these, 532 calls involved youth between 13 and 18 years old and 764 calls involved young adults between 19 and 24 years old (BC Emergency Health Services presentation, 2014). Considering that the emergency medical intervention provided by BCEHS is a critical component in responding to an overdose, it would be beneficial for this agency to be advised when a death occurs. This would provide BCEHS the opportunity to review its practices with respect to responding to an overdose.

With some exceptions, police routinely attend emergency 911 calls involving a suspected overdose. Research indicates that in some cases fear of police involvement may influence a witness's decision to contact emergency services (Banjo, Tzemis, Al-Qutub, Amlani, Kesselring and Buxton, 2014; Cerda, Ransome, Keyes, Karestan, Koenen, Tardiff, Vlahov and Galea, 2013; Waterloo Region Crime Prevention Council, 2012; Tobin, Davey and Latkin, 2005). In reviewing the circumstances of the young people in this report, it is unknown whether there were delays in calling emergency 911 because of fear of police attendance.



*POLICE RESPONSE TO A 911 CALL INVOLVING AN
OVERDOSE IS TO ENSURE PUBLIC SAFETY AND
ACCESS TO MEDICAL INTERVENTION*

In BC, the Royal Canadian Mounted Police (RCMP), 11 independent police departments¹⁷ and one First Nation- administered police service¹⁸ provide police services (Ministry of Justice, 2014). Additionally, there are integrated teams that are comprised of police officers from more than one police agency or from different levels of policing (federally, provincially and regionally)

¹⁷ Vancouver, Victoria, Saanich, Central Saanich, Oak Bay, Delta, Abbotsford, New Westminster, West Vancouver, Nelson, Port Moody.

¹⁸ Stl'atl'imx Tribal Police

(Ministry of Justice, 2014). Of these police departments, the Vancouver Police Department (VPD) is known to have policy about police attendance to an overdose. VPD police officers do not normally attend calls involving a non-fatal drug overdose unless BCEHS advises that assistance is required. The rationale for this is to reduce the potential reluctance that people will have to seek emergency medical intervention when someone is overdosing.

When police attend an emergency 911 call for a suspected overdose, the health and well-being of the person who requires medical attention remain the paramount focus. It would be beneficial for all police agencies to reinforce the message of calling 911 to report people in medical distress in an effort to reduce any perceived barriers to seeking help. It may also be beneficial for police agencies to review if and how they are reinforcing that message publicly and work in partnership with provincial emergency providers, health authorities, schools, and community agencies to support this messaging.

HOSPITAL EMERGENCY ROOM AND/OR HOSPITALIZATION

Upon admission to an emergency room, a young person will receive care from an emergency room physician. Depending on the circumstances, the young person may be treated and released or, when necessary, admitted to hospital for further treatment. If the young person is admitted to hospital, care is transferred from the emergency room physician to a hospital-based physician and additional services (e.g. psychiatry, social services) based on the patient's individualized plan of care are provided. Health care professionals who have patient management questions about drugs or poisonous substances are encouraged to call the BC Drug and Poison Information Centre.

A review of hospitalizations in BC between 2008/09 and 2010/11 for poisonings, including non-fatal overdoses, shows an average of 379 hospitalizations per year of youth between 15 and 19 years old and 358 hospitalizations per year of young adults between 20 and 24 years old¹⁹ (BC Injury Research and Prevention Unit, 2014).

As previously mentioned (see section *Previous Non-Fatal Overdoses*), the BC Coroners Service file records indicated that 31% (n=8) of the youth had been hospitalized on a previous occasion for an overdose. 17% (n=26) of the young adults were reported to have experienced an overdose on a previous occasion (which may or may not have required hospitalization).

PART 7: OVERDOSE PREVENTION AND HARM REDUCTION TREATMENT APPROACHES

Approaches specific to the prevention and treatment of drug and alcohol overdoses mainly focus on harm reduction and medical response/intervention.

Harm reduction appears to be a widely used approach to managing overdose incidents. It focuses on keeping people who are engaging in high risk behaviours safe from death, disease and injury while understanding that the behaviours placing them at risk may continue.

¹⁹ These numbers are those people who were admitted to hospital. Emergency room admissions are not included.

Harm reduction can include a number of strategies that directly or indirectly relate to overdoses. Examples include:

- Education and outreach;
- Referrals to health and social services;
- Low threshold support services;
- Law enforcement policies and protocols;
- Needle exchange programs;
- Methadone maintenance treatment

In BC, the following harm reductions strategies are used (Tanner, et.al, 2014):

- The supervised injection site called Insite (see Part 2) provides a supervised environment for people aged 19 years and over who use substances. It is located in Vancouver's Downtown Eastside.
- The Take Home Naloxone (THN) program for reversing the effects of an opioid overdose (see Part 2);
- Opioid substitution treatment programs that provide methadone or prescription heroin to replace the use of other opioids used illicitly;
- Education, including through the Drug Overdose and Alert Partnership (DOAP). The DOAP committee is comprised of community and public agencies to identify and provide timely information about drug use related events such as increases in overdoses, adverse reactions and contaminated products; and
- The BC Harm Reduction Strategies and Services (HRSS) Committee is comprised of representatives from each regional Health Authority, Ministry of Health, BC Centre for Disease Control, First Nations Health Authority and other key stakeholders. This committee uses evidence based policy and guidelines to provide a structure to facilitate harm reduction initiatives in BC.

These harm reduction strategies are not specific to the youth population. In terms of youth, education targeting students appears to be the one harm reduction strategy used. For high school students, school districts work closely with police and other local community partners to educate students about drug use which may include information about the signs of an overdose and the need to seek immediate medical intervention. The Ministry of Education (MoE) is currently updating the physical education curriculum to provide a broader view of health which will include the topic of drug use. This curriculum will be available to students enrolled in BC public schools. Opportunities for educating youth who do not attend school or young adults are limited to what is available to the general public. Engaging in discussions with young people about what opportunities could work best around educating them about overdoses could be helpful in targeting this age range and the young people who are likely to either experience an overdose or witness one.

PART 8: RECOMMENDATIONS

The overall findings of this review indicate that as youth who are using drugs enter into young adulthood, their risk of a fatal overdose increases, especially for young men. Most of the youth who died were with someone at the time of the overdose whereas; most of the young adults were alone. The overdoses were often caused by a mix of drugs or a combination of alcohol and drug(s). Opioids, stimulants and alcohol were the most widely detected drugs. In 23% of the youth cases, someone had expressed concern for the young person's well-being prior to their death but it is unknown whether they associated these concerns with an overdose. Medical intervention was attempted in more than half of the youth and in fewer than half of the young adults.

The panel identified the need to educate people who may be likely to witness an overdose to recognize the signs. The panel also determined that a delay in seeking medical intervention is a key factor to be addressed. Additionally, the panel identified that Emergency Health Services could benefit from receiving information provided by the BC Coroners Service in order to inform emergency response practices to an overdose.

The recommendations arising from the death review panel were developed in a manner that was:

- Collaborative;
- Attributable to the deaths being reviewed;
- Focused on identifying opportunities for improving public safety and prevention of future deaths;
- Targeted to specific parties;
- Realistically and reasonably implementable; and
- Measurable.

REDUCING BARRIERS TO SEEKING IMMEDIATE MEDICAL ASSISTANCE

Most of the overdoses, and the resulting deaths, of the young people happened at a residential location such as a friend or parent's house. In some cases, at least one person expressed concern for the young person's wellbeing; however, they may not have associated their concerns with an overdose and there was a delay in calling emergency 911 for medical intervention.

There are a number of reasons why a delay in seeking medical attention for an overdose might happen. Research identifies that in relation to drug use; a particular reason may be fear of police involvement (Banjo, et.al, 2014; Cerda, et.al, 2013 and Tobin, et.al, 2005). As previously mentioned, police attendance to an emergency 911 call involving a suspected overdose varies. With some exceptions, most police agencies in BC will respond to an emergency 911 call involving a possible overdose.

When police attend an emergency 911 call for a suspected overdose, the health and well-being of the person who requires medical attention remain the paramount focus. It would be beneficial for all police agencies to reinforce the message of calling 911 to report people in medical distress and for those police agencies to review if and how they are reinforcing that message publicly. This may be achieved through the development of messaging with key partners such as BCEHS, health authorities, schools and police.

The THN program has expanded the number of sites where it is available since the inception of the program in 2012. In April 2015, the College of Registered Nurses of BC approved limits and conditions that permit registered nurses to dispense naloxone. Health Canada announced in July 2015 that it was undertaking a review of the prescription only status of naloxone. There is further potential to make the THN program more widely available to First Nations communities.

Recommendation 1:

To reduce barriers to seeking immediate medical assistance when an overdose has occurred:

- The BC Emergency Health Services (BCEHS) in collaboration with policing agencies and key stakeholders develop targeted strategies to promote calling 911 and to inform the public that safety, and the health and well-being of persons requiring medical attention is the paramount focus of police attendance at an overdose.
- The First Nation Health Authority investigate access to Take Home Naloxone as one of the tools for mitigating opiate overdoses in First Nations communities.

EDUCATION AND AWARENESS

The panel determined that two key issues to reducing overdose deaths relate to educating people in the presence of someone overdosing to:

- a) Recognize the signs of an overdose; and
- b) Seek medical intervention.

At the time of their death, over three quarters of the youth (77%, n=20) and a third of the young adults (37%, n=58) were reported to be with at least one other person at the time of their overdose. There were only 6 cases (23%) where it was noted that someone expressed concern for the youth's well-being prior to their death. The number of young adult cases where someone expressed concern for their well-being is unknown.

Opportunities that focus on these key issues and target people who are likely to witness an overdose are limited. With respect to public high school students, school districts work closely with police and other local community partners to ensure students are informed about drug use which may include information about overdoses. The panel determined that engagement with youth and young adults about an effective means of messaging was important to reaching the young people who are most likely to witness an overdose. Appreciating that the education system has a limited ability to educate young people about every conceivable health and social issue, it may be more effective to link responding to an overdose to the more general topic of responding to someone in medical distress.

Young people who are in contact with child welfare services may be a particularly vulnerable group that could benefit from messaging about recognizing the signs of an overdose and seeking immediate medical intervention.

As well, 31 percent of youth were reported to have been hospitalized on a previous occasion for an overdose, while 17 percent of the young adults were reported to have experienced an

overdose on a previous occasion (which may or may not have required hospitalization). There may be an opportunity to consider emergency room processes for safety planning with patients who present with an overdose.

Recommendation 2:

To raise awareness of the importance of seeking immediate medical attention:

- The Ministry of Children and Family Development engage with foster parents and youth networks such as the BC Federation of Youth in Care Networks, the Federation of Community Social Services, the Youth Advisory Council, and Gathering Our Voices for input on effective messaging to young people to raise awareness about the signs of an overdose and the importance of calling emergency 911 immediately.
- The Ministry of Education, in updating its physical education curriculum, specifically address the issue of calling 911 when people are in medical distress, and ensure that overdosing is identified as a form of medical distress that some young people may experience or witness.
- The Ministry of Health Provincial Emergency Services Advisory Committee review processes for discharge safety planning for patients who present with an overdose.

INFORMATION SHARING

When a person overdoses and emergency 911 is called, a number of agencies and services are engaged to provide immediate and initial medical intervention.

Where available in BC, BCEHS paramedics or first responders are dispatched to respond to an overdose. While most of the young people died in a residential setting, 27% (n=7) of youth and 24% (n=38) of young adults died in a medical facility, generally transported there by ambulance.

Once admitted to hospital, the responsibility of care is transferred from BCEHS to hospital staff and the outcome is unknown to BCEHS. The panel determined that in order to assist BCEHS in identifying strengths and challenges in the context of responding to emergency 911 calls involving an overdose; it would be beneficial for BCCS to share relevant information about these deaths.

Recommendation 3:

To support interagency learning around overdose deaths:

- The BCCS share Coroners Reports of overdose deaths of young people with BCEHS to inform their practice when responding to an emergency 911 call involving an overdose.
- The First Nations Health Authority examine sources of opioid overdose data for First Nations and Aboriginal people to understand opioid overdose trends.

PART 9: GLOSSARY AND REFERENCES

GLOSSARY

Aboriginal: Reference used to encompass First Nations (status and non-status), Metis and Inuit people in Canada.

Aggregate: Presentation of individual findings as a collective sum.

Central nervous system: The part of the human body that includes the brain and spinal cord and is responsible for regulating blood pressure and breathing.

Drugs: A common term used for prescription, illicit and psychoactive substances that alter brain functioning. For this purposes of this report, this terms excludes alcohol, which is referred to separately.

First Nations: Status and non-status “Indian” peoples in Canada. An individual recognized by the federal government as being registered under the Indian Act is referred to as a Registered Indian (commonly referred to as a Status Indian).

Opioid antagonist: A substance that blocks the effects of an opioid and prevents the body from responding to the effects of opioids.

Polydrug: The use of two or more drugs at the same time or sequentially (WHO)

Psychoactive substance: This is another term used for drugs and/or alcohol and is any chemical substance that alters brain functioning.

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APPENDIX 1: BC CORONERS SERVICE REGIONS

