

12/17

# New Brunswick Disease Watch Bulletin

## Lower-risk non-medical cannabis use

Legalization of cannabis for recreational use in Canada is planned to take effect July 2018. [1] In light of the federal government's release of Bill C-45 (*Cannabis Act*), New Brunswick health-care providers will be able to counsel patients on lower risk non-medical use of cannabis.

Twenty-seven per cent (27.1%) of New Brunswick students in grades 7 to 12 used cannabis in the past 12 months; the Canadian comparator is 19.3 per cent. The average age of initiation for Canadian students is 14 years old. [2]

This article provides best practice guidelines health-care providers can communicate to their patients to reduce potential harms associated with cannabis use.

## Screening for cannabis use

Particular sub-populations have an elevated risk of experiencing cannabis-related harms. [3] Clinicians should screen these groups for drug and alcohol use

Office of the Chief Medical Officer of Health

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We welcome feedback and suggestions for topics. Please submit them to our editor Dr. Cristin Muecke, Acting Deputy Chief Medical Officer of Health at [dr.cristin.muecke@gnb.ca](mailto:dr.cristin.muecke@gnb.ca).

Electronic copies of the bulletin can also be found on the Department of Health website under publications at: <http://www2.gnb.ca/content/gnb/en/departments/ocmoh/publications.html>.

and facilitate conversations about their risks: [4]

Screen **pregnant women** and those with **mental health conditions** for adverse outcomes from cannabis use and cannabis use disorders. [3-4]

For assistance with screening questions for **children and youth younger than age 21** consult:

- Department of Health (Office

of the Chief Medical Officer of Health), CRAFFT Screening Tool: [http://www2.gnb.ca/content/gnb/en/departments/ocmoh/for\\_healthprofessionals/healthy\\_people.html](http://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/healthy_people.html)

For more information about talking to teenagers about lower-risk recreational use of cannabis:

- Drug Free Kids Canada, Cannabis Talk Kit: <https://www.drugfreekidscanada.org>

For additional information see:

- Massachusetts Bureau of Substance Abuse Services, SBIRT: A Step-By-Step Guide for Screening and Intervening for Unhealthy Alcohol and Other



**27.1%**

of New Brunswick students consumed cannabis in 2012-2013 [2]



Drug Use:

<http://www.masbirt.org/sites/www.masbirt.org/files/documents/toolkit.pdf>

The following recommendations on how to reduce the risk of harms related to cannabis use are based on the updated Lower Risk Cannabis Use Guidelines [3] and the 2015 marijuana legislative report from the Colorado Department of Public Health and Environment: [4]

**1. Abstain from cannabis use to best avoid health risks**

The most effective way of avoiding harms is to abstain from use. [3]

**2. Delay cannabis use until later in life**

Parents should talk early and often with youth about cannabis and the risks to their developing brain. The later in life use is initiated, the lower the risks will be for adverse effects on health throughout life. [3-4]

**3. Avoid frequent use of cannabis**

Daily or near-daily use is associated with adverse health and social outcomes. Users should keep their cannabis use occasional at most (e.g., use only one day/week, weekend use only). [3]

**4. Avoid synthetic cannabinoids, deep inhalation, breath-holding and smoking combusted cannabis materials**

Users should give preference to non-synthetic cannabis products and use vaporizers or edibles to reduce adverse respiratory outcomes. [3]

**5. Limit intake of higher-potency cannabis**

High Tetrahydrocannabinol (THC) content products are associated with higher risks of mental and behavioural problem outcomes. [3]

**6. Do not use cannabis and drive**

Users should not drive for at least six hours after use. Depending on individual characteristics and product properties, the wait time may need to be longer than six hours. [3]

**7. Abstain from cannabis use if you are pregnant, breastfeeding or are at risk for mental health problems**

Pregnant women and individuals with a predisposition or a first-degree family history of psychosis and substance use disorders should abstain from use. [3] Breastfeeding mothers who admit to occasional or rare use should be counselled to stop cannabis use or reduce their use as much as possible while breastfeeding to avoid exposing their infant to possible long-term neuro-behavioural effects. Mothers who admit to regular use or with a positive urine screen for THC should be strongly advised to discontinue

**Recommendations to reduce the risk of recreational use of cannabis [3-4]**



**ABSTAIN FROM CANNABIS USE TO BEST AVOID HEALTH RISKS**

Risks may be affected by individual characteristics, patterns of use and product qualities



**DELAY CANNABIS USE UNTIL LATER IN LIFE**

Using cannabis at a young age (i.e., most clearly of which begins before age 16) is associated with multiple subsequent adverse health & social effects in young adults



**AVOID FREQUENT USE OF CANNABIS**

Daily or near-daily use is related to risks of adverse health and social outcomes



**AVOID SYNTHETIC CANNABINOIDS, DEEP INHALATION, BREATH-HOLDING, & SMOKING COMBUSTED CANNABIS MATERIALS**



**LIMIT INTAKE OF HIGHER-POTENCY CANNABIS**

Users should use cannabis products with low THC content



**DO NOT USE CANNABIS AND DRIVE**

Users should not drive for at least 6 hours (or longer) after use



**ABSTAIN FROM CANNABIS USE IF YOU ARE PREGNANT OR AT RISK FOR MENTAL HEALTH PROBLEMS**

Some groups should abstain from use due to their elevated risk of use-related problems.



**ENSURE A SMOKE-FREE ENVIRONMENT**

Discuss the health impacts of smoking cannabis and the impacts of secondhand smoke



**KEEP CANNABIS IN SAFE STORAGE**

Discuss the importance of keeping cannabis out of reach of children and in child-resistant packaging



**CAUTION TAKING MEDICATION & USING CANNABIS**

Combining medications and cannabis may cause drug interactions

use while breastfeeding. [5] THC levels in breastmilk are up to eight times that of maternal plasma levels. THC is absorbed and metabolized by the breastfed infant.

**8. Ensure a smoke-free environment**

Second-hand smoke from cannabis has many of the same cancer-causing chemicals as tobacco smoke. A smoke-free environment is the safest and healthiest. Users should abstain from smoking around children. [4]



## 9. Keep cannabis in safe storage

Users should store cannabis in child-resistant packaging, in a locked area, and out of reach of children. [4]

## 10. Use caution when taking medication and using cannabis

Combining medications and cannabis may cause drug interactions. [4]

The combination of risk behaviours listed in the above recommendations increases the likelihood of adverse outcomes and should be avoided. [3] Hence, clinicians should speak to patients who consume cannabis for recreational use about these to reduce potential harms.

### References:

1. Liberal Party of Canada. *Marijuana*. 2017 [cited 2017 June 14]. Available from: <https://www.liberal.ca/realchange/marijuana/>
2. Health Canada. *Youth Smoking Survey 2012-13 – Supplementary tables (Tables 14 and 15)*. 2014 [cited 2017 June 14]. Available from: <https://www.canada.ca/en/health-canada/services/publications/healthy-living/youth-smoking-survey-2012-2013-supplementary-tables.html#t15>
3. Fischer, B. et al. Lower-Risk Cannabis Use Guidelines: A Comprehensive Update of Evidence and Recommendations. *AJPH*. 2017;107(8):e1-e12.
4. Colorado Department of Public Health and Environment, Retail Marijuana Education Program. *2015 Legislative Report*. 2015 [cited 2017 June 14]. Available from: [https://www.colorado.gov/pacific/sites/default/files/MJ\\_RMEP\\_Legislative-Report\\_2015.pdf](https://www.colorado.gov/pacific/sites/default/files/MJ_RMEP_Legislative-Report_2015.pdf)
5. Reece-Stremtan, S., Marinelli, K.A. and the Academy of Breastfeeding Medicine. ABM Clinical Protocol #21: Guidelines for Breastfeeding and Substance Use or Substance Use Disorder, Revised 2015. *Breastfeed Med*, 2015;10(3):135-141.

## Laboratory testing and its importance for Public Health actions

For Public Health officials, laboratory test results provide information that underpins Public Health intervention. Laboratory results can deliver case confirmation, data for cluster detection, evidence of disease burden and efficacy of vaccines. New Brunswick does not operate a Public Health laboratory; therefore hospital laboratories perform test processing and reporting for Public Health functions.

The reporting of many notifiable diseases is carried out directly by the laboratories to Public Health regional offices for patient notification and investigation. In addition to notifiable disease reports, laboratory samples (bacterial, parasitic and viral investigations) provide Public Health with important information.

Not all confirmatory tests require a culture, however many regularly performed laboratory tests do require culture. Cultures are required to perform analyses such as genetic fingerprinting techniques; pulse-field gel electrophoresis (PFGE) and whole genome sequencing. These can define an etiologic organism and can help identify and define an outbreak. For example, typing of influenza viruses and *Streptococcus pneumoniae* provide valuable information on the strains circulating in the province. This information is necessary to evaluate vaccine efficacy and aids in determination of the influenza vaccine formulation for the next season.

Even if laboratory testing does not change diagnosis or treatment, laboratory specimens can still be important for public health action. Please consider submitting appropriate specimens from cases for testing during clusters and outbreaks in closed settings such as long-term care facilities, day cares and schools. Accurate data can facilitate Public Health actions to prevent additional cases and mitigate the illness impact on the community.



# Carbon monoxide poisoning

Carbon monoxide (CO) is a tasteless, odourless, colourless gas produced by incomplete combustion of organic materials or fossil fuel. CO poisoning is the leading cause of death from poisoning in the United States, accounting for approximately 3,500 accidental or suicidal deaths per year. [1] [2] The incidence of nonlethal and lethal poisoning is difficult to assess because the symptoms of CO poisoning often lead to misdiagnosis. [3] [13] CO poisoning symptoms are nonspecific and no sign is pathognomonic. [4] [11]

## Common symptoms of CO poisoning

- headache
- dizziness
- weakness
- nausea
- difficulty concentrating
- shortness of breath
- chest pain
- visual disturbance
- sleep disturbance and
- loss of consciousness [7] [11]

CO absorption is proportional to the concentration in the air. CO combines with hemoglobin (COHb), for which it has an affinity of 230 to 260 times that of oxygen. [5] Fetal hemoglobin has a higher affinity for CO than adult hemoglobin. [12] With this high affinity, COHb results in hypoxia, chemical asphyxiation of tissues and production of free radicals. [6] [11] Duration of exposure and the elapsed time since the exposure influence COHb levels.

## Clinical evaluation for CO poisoning

A detailed environmental history is important to uncover whether other people such as family members or sports team members are having similar symptoms. Use of the furnace, generator, fireplace, venting fans or a history of smoke inhalation can suggest an environmental exposure. [12] If carbon monoxide poisoning is not correctly diagnosed, patients may return to a hazardous environment where ongoing exposure leads to chronic toxicity. [11]

Increased COHb levels on coximetry or multiwave pulse oximetry are diagnostic of CO toxicity. [11] However, a normal COHb level does not preclude a diagnosis, especially if there are recurrent low-level



exposures. [12] Arterial blood gas measurements, which might show a metabolic acidosis and decreased oxygen saturation can aid in diagnosis. Other laboratory investigations such as glucose, electrolytes, lactate, cardiac and renal function markers help evaluate other etiologic intoxications or indicate tissue damage. Neurological exams may reveal deficits. Neuroimaging (MRI) results do not necessarily correlate with clinical outcome. A delayed neuropsychiatric syndrome can occur even if there is not obvious initial cerebral impairment. [12]

## Treatment

Patients with CO toxicity need to be removed from the exposure. Therapy consists of provision of 100 per cent oxygen to facilitate carboxyhemoglobin elimination. [11] Hyperbaric oxygen therapy can be an adjunct to elimination but the indications for its use and the extent of its benefit are not clear. [11] [12]

## CO poisoning sources

CO poisoning can have seasonal peaks in the winter when people are indoors with heating supplied by fuel combustion and the public more frequently attends indoor skating arenas. In most instances of CO intoxication in arenas, the culprit is malfunctioning or poorly maintained ice resurfacing equipment. Other CO sources include exposure to exhaust from motor vehicles, propane fueled generators and forklifts and building fires. [12]



Prolonged power failures during the winter months can lead to population morbidity from CO poisoning. New Brunswick experienced such an incident during the 2017 ice storm in the Acadian Peninsula. During the 14 day crisis, 46 people were reported to have been poisoned by CO. Two deaths from CO intoxication were reported by Vitalité Health Network. As in previous and similar storms in Ontario, Quebec and Maine, the cause of the CO poisoning was the use of improperly vented gas-powered generators or the indoor use of alternative heat sources such as charcoal, camp stoves and barbecues. [8] [9] The Office of the Chief Medical Officer of Health is studying the contributing factors to the illnesses among the 46 individuals. The study will review the testing, diagnosis and treatment received during their hospitalizations.

With climate change impacting the type and quantity of precipitation in New Brunswick, a higher frequency of damaging ice storms is expected. [10] In conjunction with the increasing residential use of portable generators, and their availability at retail stores, additional incidents of CO poisoning are likely to occur. Physicians should be suspicious for CO intoxications during periods of prolonged power outages in residential areas.

## Prevention

The public can reduce their risk of carbon monoxide exposure by placing CO detectors in their home if they have a fuel-burning appliance. The detectors should be on the level of the appliance and other levels of the home so that the alarm can easily be heard from all bedrooms. [11] Combustion appliances, fireplaces, flues and chimneys should be frequently inspected and maintained. Cars should not be idled in garages and unvented cooking devices and heaters should not be used indoors. [12]

Under the *Public Health Act*, physicians can report clusters of illness thought to be respiratory, presenting with unknown etiology, or symptoms that do not fit any recognizable picture to the Regional Medical Officer of Health. This reporting can enable response that might prevent further exposures.

## References

1. Olson KR: Carbon monoxide poisoning: mechanisms, presentation, and controversies in management. *J Emerg Med* 1984; 1: 233-243
2. Winter PM, Miller JN: Carbon monoxide poisoning. *JAMA* 1976; 236: 1502-1504
3. Grace TW, Platt FW: Subacute carbon monoxide poisoning. Another great imitator. *JAMA* 1981; 246: 1698-1700
4. Buckley AR: Still forgotten. *Lancet* 1984; (1): 165-166
5. Joels N, Pugh LG: The carbon monoxide dissociation curve of human blood. *J Physiol* 1958; 142: 63-77
6. Stewart RD, Stewart RS, Stamm W et al: Rapid estimation of carboxyhemoglobin level in fire fighters. *JAMA* 1976; 2(35): 390- 392.
7. Burney RE, Wu SC, Nemiroff MJ: Mass carbon monoxide poisoning: clinical effects and results of treatment in 184 victims. *Ann Emerg Med* 1982; 11: 394-399
8. Hampton NB, Stock AL, Storm-related Carbon monoxide poisoning: Lessons learned from recent epidemics. *Undersea Hyperb Med* 2006;33(4):257-263
9. Ernst, Armin, M.D., and Zibrak, Joseph D., M.D.: *N Engl J Med* 1998; 339:1603-1608
10. Cheng, CS, Auld, H., Li, G., Klaassen, J., Li, Q.: Possible impacts of climate change on freezing rain in south-central Canada using downscaled future climate scenarios. *Nat. Hazards Earth Syst. Sci.*,2007;71-87
11. Wu P E. , Juurlink DN, Carbon monoxide poisoning. *CMAJ* 2014; (186): 8: 611
12. Abelsohn, A., Sanborn MD, Jessiman BJ, Weir E. Identifying and managing adverse environmental health effects: 6. Carbon monoxide poisoning. *CMAJ* 2002 166; (13): 1685-1690
13. Raub JA, Mathieu-Nolf M, Hampson, NB, Thom SR. Carbon Monoxide poisoning - a Public health perspective. *Toxicology*. 2000j 145(1): 1-14



# Healthy Toddler Assessment

A free developmental assessment for toddlers in New Brunswick.

Visit [gnb.ca/healthytoddler](http://gnb.ca/healthytoddler) for more details



Early child development is a powerful determinant of health. [1] Children who have the opportunity to develop their full potential are most likely to succeed at school and enjoy a healthy life. [2] Identifying children at risk of poor developmental attainment early in life can help ensure they receive the appropriate services and support they need to reach their full potential.

Many factors, such as poverty, stress, abuse or neglect, can put children at risk of poor development. [3] Socio-economic status is a risk factor for poor child development, but there are children in all socio-economic groups who are not reaching their optimal development.

To foster healthy child development, the Government of New Brunswick offers a free developmental assessment for New Brunswick toddlers. All families with children receive an invitation to participate in the Healthy Toddler Assessment when the children reach 18 months. These children can participate in the assessment until they reach the age of two. The program is delivered by Public Health nurses in the regional health authorities.

The Healthy Toddler Assessment complements the important role physicians and nurse practitioners play in enhancing the health of young children and their families. The purpose of the assessment is to evaluate the growth and development of young children and to detect needs for services and

support. During the assessment, a Public Health nurse evaluates the child's:

- language development;
- physical skills;
- personal and social relationships; and
- dental, vision and hearing development.

During the assessment, the Public Health nurse discusses healthy lifestyle choices, practices and behaviours with parents/guardians. They receive information on nutrition, injury prevention and immunization, and they can ask questions about their child's development.

Since parental health has a direct impact on a child's health and well-being, parents/guardians are questioned about their mental health (using the Edinburgh Postnatal Depression Scale) and their literacy skills.

If the parent/guardian and/or child require further assessment, they are referred to the appropriate health professionals (e.g., physician, audiologist, speech language pathologist). Public Health nurses may also refer parents/guardians to community resources, such as literacy organizations or family resource centres, and to family or early childhood interventionists.

Following the assessment, primary care providers receive a report about the child's assessment so that, at the next patient visit, they can address any concerns that were raised.



The assessment is an opportunity for child health promotion, prevention and early intervention. The following are ways New Brunswick health-care providers can help enhance healthy child development in this province:

- Promote the Healthy Toddler Assessment to parents/guardians and encourage them to contact their local Public Health office for more information and to make an appointment at [www.gnb.ca/HealthyToddler](http://www.gnb.ca/HealthyToddler).
- Remind parents/guardians of the importance of early child development and its impact on their child's long term health. [4]
- Encourage parents/guardians to access parenting and play programs offered in the community (e.g. family resource centres, public libraries). [4]
- Remind parents/guardians of the importance of reading and encourage them to read to their child every day. [4]

#### References:

1. Public Health Agency of Canada. What Determines Health? Available from: <https://www.canada.ca/en/public-health/services/health-promotion/population-health/what-determines-health.html>.
2. McCain M, Mustard F, Shanker S. 2007. *Early Years Study 2: Putting Science into Action*. Toronto: Council for Early Child Development.
3. To T, Guttman A, Dick P, et al. What factors are associated with poor developmental attainment in young Canadian children? *Can J Public Health* 2004;95:258-63.
4. Williams R, Clinton J. 2011. Position Statement of the Canadian Paediatric Society, Early Years Task Force. Getting it right at 18 months: In support of an enhanced well-baby visit. *Paediatric Child Health* 2011;16(10):647-50.

## Opioid overdose surveillance in New Brunswick



Canada is facing an opioid crisis evident most dramatically in the morbidity and mortality observed in Western Canada. The growing number of overdoses and deaths caused by opioids, including fentanyl, has prompted federal and provincial action. [1]

In New Brunswick, there were 23 accidental opioid-related deaths in 2016, including three related to fentanyl. [2] In 2017 (up to the end of June), 15 deaths were caused by either accidental opioid overdose or overdose of undetermined intent. Five of these deaths were related to fentanyl. [3]

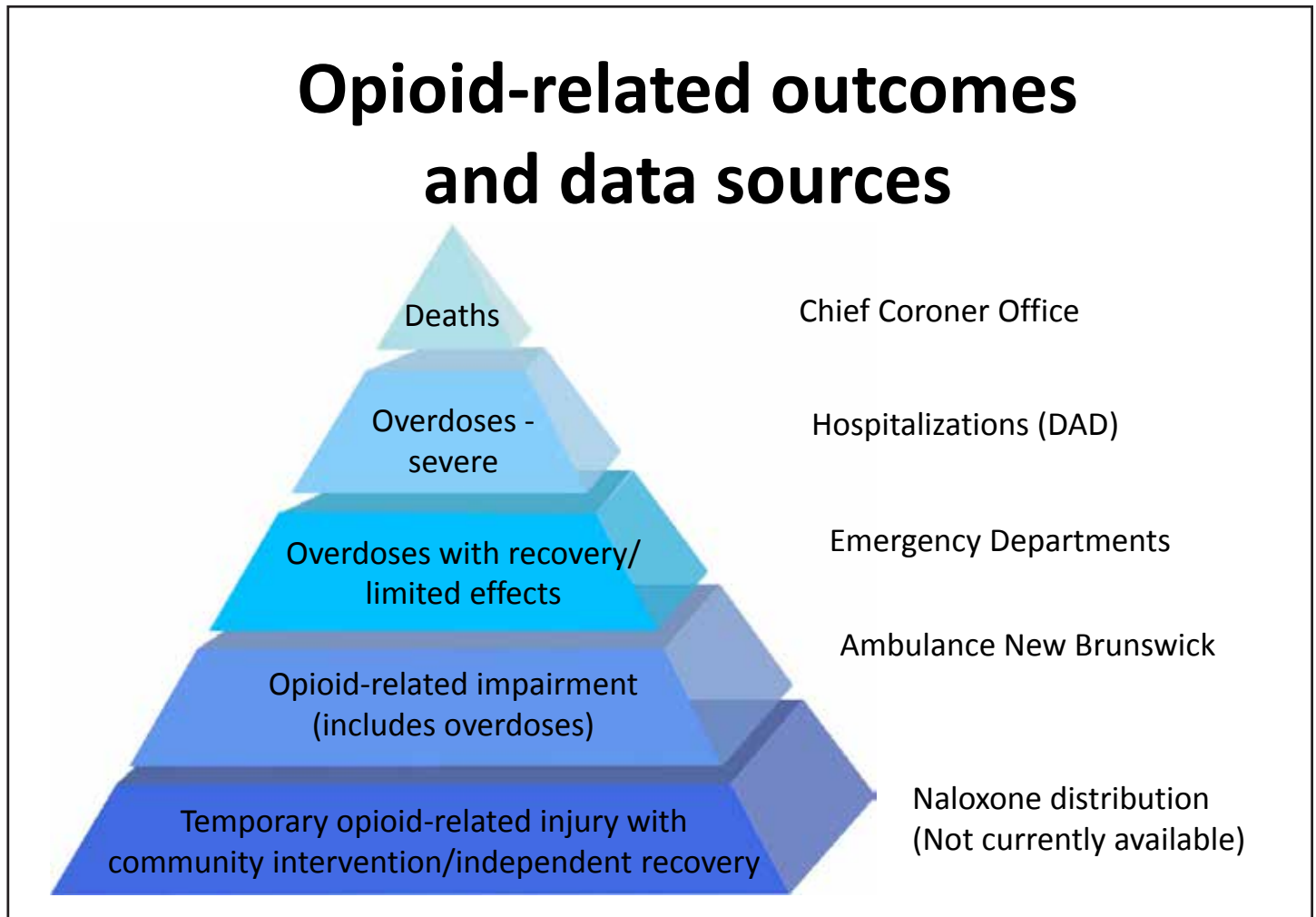
Monitoring of the data on opioid overdose harms is important to assess the situation and to plan and evaluate interventions. In New Brunswick, data are collected from different sources to draw a comprehensive picture of the opioid situation. The injury pyramid [4] (Graph 1) was adapted to identify the needed information for opioid overdose surveillance. Provincial consultation with multiple stakeholders is ongoing to build on available information systems and develop new reporting processes where data are not readily available.

The selected outcomes for opioid overdose surveillance in New Brunswick are:

- opioid-related deaths;
- hospitalizations due to opioid poisoning;
- Emergency Department visits due to non-suicidal opioid overdose: **Health care providers should note that complete and accurate charting is crucial to complete these surveillance activities;**
- Ambulance New Brunswick dispatches that resulted in Naloxone administration.



**Graph 1. Opioid-related outcomes and data sources, opioid overdose surveillance, New Brunswick, 2016**



Adapted from: Public Health Agency of Canada presentation to the Special Advisory Committee on the Epidemic of Opioid Overdoses (2017) and the injury pyramid (World Health Organization, 2010) Retrieved from [http://www.who.int/violence\\_injury\\_prevention/key\\_facts/VIP\\_key\\_fact\\_5.pdf](http://www.who.int/violence_injury_prevention/key_facts/VIP_key_fact_5.pdf)

**References:**

1. Public Health Agency of Canada. Responding to Canada's opioid crisis. Accessed on August 17, 2017 and available from: <https://www.canada.ca/en/health-canada/services/substance-abuse/prescription-drug-abuse/opioids/responding-canada-opioid-crisis.html>

2. New Brunswick Department of Health. Apparent deaths related to opioid overdose in New Brunswick. Summary of 2016 and Quarter 1 of 2017. Accessed on August 17, 2017 and available from: <http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/MentalHealth/Apparent-DeathsRelatedOpioidOverdose.pdf>
3. New Brunswick Department of Health. Apparent opioid-related deaths. 2017 Quarter 1 and 2. Accessed on August 17, 2017 and available from: [http://www2.gnb.ca/content/gnb/en/corporate/promo/opioids/public\\_health\\_surveillance.html](http://www2.gnb.ca/content/gnb/en/corporate/promo/opioids/public_health_surveillance.html)
4. World Health Organization. The injury pyramid. 2010. Accessed on August 17 2017 and available from: [http://www.who.int/violence\\_injury\\_prevention/key\\_facts/VIP\\_key\\_fact\\_5.pdf](http://www.who.int/violence_injury_prevention/key_facts/VIP_key_fact_5.pdf)

