Naloxone Administration Decision Support Tool

Naloxone Administration for Suspected Opioid Poisoning

Last Update: May, 2024

Provincial Health Services Authority

BC Centre for Disease Control
Provincial Health Services Authority

Acknowledgements

The BCCDC provides services to a diverse population, including First Nations, Métis peoples and Inuit living in various settings and communities across British Columbia. As a provincial network, we operate on the unceded traditional and ancestral lands of First Nations. We recognize that there is systemic racism within and throughout our healthcare institutions, and that we individually and collectively have the responsibility and power to foster culturally safe and appropriate environments of care.
We thank all individuals involved in engagement and consultation to ensure best practice is reflected in these recommendations. We are grateful to harm reduction providers who continue to work within a challenging context, and for those who continue to advocate for safer drug use practices and policies.

Prepared by

BCCDC Harm Reduction & Substance Use Services, in consultation with:

- PEEP
- Regional Health Authority stakeholders and providers, including Medical Health Officers and Regional Harm Reduction Coordinators
- BC nurses in Harm Reduction Community of Practice

This in an update to the original version, published in 2019.

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Introduction

Aim

This document provides a systematic process intended for regulated health professionals (i.e., those who register with a regulatory body to be able to practice, such as a nurse, social worker, or physician) to follow when administering naloxone as part of the management of a suspected opioid poisoning.[a]

Scope

This guidance is for any regulated health professional employed in any healthcare setting in BC, who is trained and equipped to respond to a suspected opioid poisoning,

This guidance does not replace employer or organizational policies and procedures.

Regulated health professionals are required to also follow provincial and federal legislation and regulations, organizational policies and procedures, and applicable health profession regulations.

[a] The term "opioid poisoning" is used instead of "overdose" because it is a more accurate term used in toxicology to describe the physiological harms that can occur from consumption of opioids, particularly inadvertent consumption of poisoned drugs. The term "overdose" implies that an individual took too much of a substance, whether intentionally or unintentionally.

Drug Poisoning and Stigma

People who use substances experience many barriers to safe, appropriate, and high-quality care. This includes judgement, stigma, and discrimination when accessing care.[1] Healthcare professionals are often the first point of contact people who use substances have with the health system, and have a significant influence on the quality of care received.[2]

Using non-judgmental, people-first language and being aware of how language, organizational policies and procedures, and individual biases may be harmful to some populations can help address stigma and improve the quality of care for people who use substances.

Drug Poisoning in British Columbia

Drug poisoning deaths have risen sharply across British Columbia (BC) since the public health emergency was declared in 2016. In 2023, 2,546 people died from suspected drug poisoning, a 44% increase from 1,774 deaths in 2020.[3] Fentanyl—alone or in combination with other substances—continues to be frequently involved in drug poisoning deaths (85.8% from 2019-2022), followed by cocaine (44.5% from 2019-2022) and methamphetamines (41.9% from 2019-2022).[3]

Drug poisoning deaths disproportionately impact Indigenous peoples, males between the ages of 19-39, persons with mental health disorders, and people experiencing housing instability and poverty.[4,5] In 2022, First Nations represented 16.4% of all drug poisoning deaths in BC, whilst constituting only 3.3% of the Canadian population.[6] First Nations women have a particularly high rate of drug poisoning death, which is now 11.2 times the rate of non-First Nations women.[7]

Findings from provincial drug checking services and the BC Coroners Service reflect the toxicity and unpredictability of the unregulated drug supply across the province. For example, the potency of unregulated fentanyl differs widely and can contain extreme concentrations of fentanyl and other highly potent opioids (e.g., carfentanil). Unknown or harmful substances are routinely detected across the unregulated drug supply, including adulteration of opioids with stimulants, fillers, cutting agents, and other substances.

Benzodiazepines and benzodiazepine analogues[b] (e.g., etizolam) are frequently identified in BC's unregulated drug supply,[4] and are increasingly involved in drug poisoning deaths (15.8% from 2019-2022).[3] Benzodiazepines combined with opioids can slow breathing and cause complex drug poisoning presentations, such as prolonged sedation.[8] Further, the ongoing presence of benzodiazepines in the unregulated drug supply may contribute to physical dependence, which can occur quickly. People with benzodiazepine dependence may experience harmful withdrawal symptoms if benzodiazepines are abruptly stopped or decreased.[8]

Up-to-date information on the unregulated drug supply can be found on the Unregulated Drug Poisoning Emergency Dashboard.

[b] For the purposes of this document, the term "benzodiazepines" includes benzodiazepine analogues.

Factors Associated with Increased Opioid Toxicity

Toxicity is the measure of how harmful, or poisonous, a substance is. Many factors influence opioid toxicity and increase the risk of an opioid poisoning.

The likelihood of experiencing an opioid poisoning varies according to[9-11]:

- Route of ingestion (e.g., inhalation, oral, injection)
- The person's opioid tolerance
- The person's health (e.g., comorbidities, nutritional status) and pharmacokinetics (how the body interacts with the substance)
- Potency of ingested opioid (e.g., fentanyl is about 100 times more potent than morphine)
- Concurrent polysubstance use (ingestion of multiple substances at or around the same time, including prescription medications and alcohol)
- Presence of adulterants in the ingested opioid (e.g., xylazine, benzodiazepines)

Factors associated with increased risk for opioid poisoning include:

- Using unregulated substances[11]
- Using substances alone[11]
- Previous opioid poisoning[11]
- Decreased tolerance from a period of reduced or no substance use (e.g., incarceration, detox)[10,11]
- Polysubstance use,[10,11] particularly with other respiratory or central nervous system depressants (e.g., benzodiazepines, alcohol)
- Conditions that compromise respiratory function[10] (e.g., congestive heart failure, chronic obstructive pulmonary disease, obesity, obstructive sleep apnea)
- Conditions that compromise liver function[12] (e.g., viral hepatitis, cirrhosis, liver failure)
- A high prescribed dose of opioids[13] (i.e., >100 mg of morphine or equivalent daily)
- Concurrent disorders[13] (having a substance use and mental health disorder)

Signs of Opioid Poisoning

The unpredictable and toxic unregulated drug supply in addition to the use of multiple substances at or around the same time contributes to variable signs of opioid poisoning. Opioid poisoning can appear differently from person to person, and from one situation to the next.

Typical Signs of Opioid Poisoning

Opioid poisoning is usually characterized by[9-11,14]:

- Decreased level of consciousness: unresponsive or decreased responsiveness to verbal or painful stimuli.
- Respiratory depression: not breathing or slow, irregular, abnormal (e.g., agonal breathing, or gasping) or shallow breathing.
- Pinpoint or constricted pupils (miosis).

Impaired breathing and low levels of oxygen in the body contribute to other common signs, including[9,11]:

- Skin, lips, and nailbeds appear blue or purple in lighter skin tones, or grey or ashen in darker skin tones.
- Cold and clammy skin.

Signs of Complex Opioid Poisoning

Complex opioid poisoning includes the above-mentioned typical signs in addition to other signs that can make management more complicated. These include:

- Muscle rigidity, characterized by[15]:
    - Clenched jaw
    - Rigid chest or torso
    - Decorticate posturing (abnormal body posture with arms bent in towards the body, legs straight, and fists clenched)
    - Standing, unable to sit down
    - Fixed or staring gaze, unable to speak
- Dyskinesia[15] (involuntary muscle movements: “flailing”)
- Prolonged sedation[15] (often from a combination of substances, such as opioids with benzodiazepines)
- Seizure[15]

- Slow heart rate (bradycardia)[11,15] or irregular heart rate (arrhythmia)[15]
- Confusion or delirium[15]
- Vomiting[15]

Similar Clinical Presentations

Sometimes there are other reasons a person may look like they are experiencing an opioid poisoning. Certain substances and medical conditions can cause a person to show signs similar to those of an opioid poisoning. For example, ingestion of central nervous system depressants (e.g., alcohol), sedative-hypnotics (e.g., z-drugs), or anxiolytics (e.g., benzodiazepines), or medical emergencies such as traumatic brain injury, diabetes-related, stroke, or heart attack may appear similar to an opioid poisoning[14,16,17].

Individuals responding to a suspected opioid poisoning are encouraged to involve emergency care services to ensure the person experiencing the event receives the most appropriate care, and the person responding receives support. Depending on the setting, this may mean calling 911, a code blue, or initiating other site emergency protocols.
Assessment, monitoring, and evaluation of interventions and response is necessary to avoid missing potentially critical clinical conditions that do not relate to drug poisoning.

Naloxone

Naloxone is an opioid antagonist medication that temporarily reverses the effects of opioids by attaching to opioid receptors, removing other opioids from receptors, and blocking their effects.[18,19] Naloxone has no pharmacological effect if administered in the absence of opioids.[20-22]

In 2016, naloxone was made available to use without a prescription when responding to a suspected opioid poisoning.[c23] Following this, the *Health Professions Act* and the *Emergency Health Services Act* were amended to allow any person to administer naloxone for suspected opioid poisonings regardless of setting (e.g., at a hospital, in the community). This includes regulated health professionals and first responders as well as people whose regular responsibilities and scope of practice does not include administration of naloxone or other drugs, such as unregulated health providers, administrative staff, and bystanders.[24,25]

Currently in BC, intramuscular (IM) naloxone is the formulation provided by the provincial naloxone program, although naloxone is also available in intravenous, subcutaneous, and intranasal formulations.[20-22] It is important to consider that whatever formulation of naloxone a person has available, and will use, is the best formulation.

Intravenous (IV) naloxone is recommended in acute settings when administered by a regulated healthcare professional,[20] as it allows for rapid response in individuals with an intravenous line. Intranasal (NAS) naloxone is used by a small subset of populations for reasons such as accessibility (which includes ease of use for people with disabilities, as well as those who cannot easily replenish IM supplies), lack of IM training, and fear of injection or needles. In most community settings, and for all unregulated providers and bystanders, IM is the preferred route for suspected opioid poisonings[20] as research consistently shows it is superior in terms of bioavailability and outcomes.[26,27]

The effectiveness of NAS naloxone varies. Several factors influence its effectiveness, such as[26-29]:

- Whether the person experiencing an opioid poisoning has impaired absorption (e.g., due to illness, septal defect, or damage from drug insufflation).
- The importance of proper insertion into the nostril so naloxone is not lost when administered.

[c] For more information see the BC Drug Schedules Regulation.

- A longer duration in the body of approximately 2 hours, which means the person receiving NAS naloxone needs to be monitored for rebound opioid poisoning for longer than with IM naloxone.
- Greater potential for precipitated withdrawal due to a higher single dose (4mg/mL) as compared to a single dose of IM naloxone (0.4mg/mL).

Intranasal naloxone is available for free to First Nations peoples in BC: see the First Nations Health Authority (FNHA) Fact Sheet for more details.

It is recommended that providers take and regularly update drug poisoning response training, including naloxone administration (e.g., Toward the Heart's Naloxone Administration Course), CPR training, and other required organizational training for drug poisoning response.

Responding to Suspected Opioid Poisoning

Equipment and Scope

Opioid poisoning response varies based on available equipment, supplemental oxygen and ventilation methods, and mode of naloxone administration. Available equipment and resources also vary by provider scope and training, as well as organizational policies and procedures.

The following equipment may be available for opioid poisoning response:

- **Basic equipment** (e.g., naloxone kit):
  - naloxone ampoules and safety syringes *or* intranasal naloxone
  - CPR face shield or pocket mask
  - basic personal protective equipment (e.g., gloves)
  - sharps disposal container

- **Advanced equipment** (e.g., crash cart):
  - basic equipment *plus*
  - pulse oximeter
  - oral and nasopharyngeal airways
  - bag-valve-mask
  - simple face mask
  - supplemental oxygen
  - suction and yankauer catheters
  - automatic external defibrillator (AED)
  - blood pressure cuff and stethoscope
  - thermometer
  - glucometer
  - pen light
  - emergency medications (e.g., epinephrine, glucose tabs)
  - sharps disposal container
  - timekeeper (e.g., clock, phone)
  - personal protective equipment
  - *and* any other emergency supplies

Many advanced response practices are restricted activities for regulated health professionals (e.g., inserting a nasopharyngeal airway). Providers need to be aware of their professional scope of practice, organizational policies, and individual competence.

Conduct an Initial Rapid Assessment of the Scene

Check the scene and implement precautions and procedures:

1. Identify potential hazards and risks (e.g., hazardous materials, sharps, access to emergency response equipment).
2. Apply necessary precautions and measures (e.g., personal protective equipment, safe removal of sharps).

Observe the person to determine if an opioid poisoning is suspected. Typical signs are:

1. Decreased level of consciousness[d]
    a. Drowsiness, sedation, lethargy, or confusion
    b. Unresponsive or decreased response to verbal or painful stimuli
2. Slow or no breathing
    a. No breaths or less than 10 breaths per minute (opioid-induced respiratory depression)
    b. Slow, irregular, or shallow breathing
    c. Presence of abnormal sounds such as choking, gurgling, snoring, wheezing or agonal breathing (i.e., gasping)
    d. Decreased oxygen saturation (less than 90% on room air by pulse oximetry)
    e. Skin, lips, and fingernails appear grey or ashen in darker skin tones, or blue or purple in lighter skin tones
    f. Cold and clammy skin
    g. Pinpoint or constricted pupils

Complex opioid poisoning signs are:

1. Abnormal heart rate (more than 100 or less than 60 beats per minute) or rhythm
2. Muscle rigidity
3. Abnormal muscle movements

[d] Use the relevant mental status assessment tool endorsed by your organization, such as the Glasgow Coma Scale (GCS), Alert-Verbal-Pain-Unresponsive (AVPU) Scale, Pasero Opioid-Induced Sedation Scale (POSS), Richmond Agitation and Sedation Scale (RASS), or Stage of Intoxication Scale.

4. Dizziness, confusion, light-headedness or fainting (due to low blood pressure)
5. Seizure
6. Vomiting
7. Unequal pupil size (anisocoria)
8. Cardiac Arrest

If the scene is safe to proceed, precautions have been implemented, and opioid poisoning is suspected, respond quickly and follow the SAVE ME steps.

SAVE ME Steps

Stimulate

Assess level of consciousness and elicit a response.

1. Use verbal stimuli.
    a. Call their name, ask a question, or make noise.
    b. If they are responsive, encourage them to take deep breaths.
2. If they do not respond, use noxious stimuli.
    a. Firmly squeeze the trapezius muscle, or apply pressure to the side of the finger or the fingertip for 10-20 seconds.[e]
        i. Always say what you are going to do before touching someone, even if they are non-responsive.
3. If they do not respond, activate the relevant emergency response procedure.
    a. Call 911, Code Blue, etc.

Proceed to the next step: *Airway.*

Airway

Assess for respiratory depression and maintain patent airway.

1. Determine ventilation and oxygenation status.

[e] Evidence shows that both sternum rubs and pressure to the nailbed can cause damage, such as bruising and rib fractures for sternum rubs, and loss of fingernails and sensation with nailbed pressure.[31] These methods of eliciting a pain response are no longer recommended.

a. Assess respiratory rate[f] and quality of respirations.
b. Assess oxygen saturation using an oximeter[g] (if available) and clinical signs or symptoms of hypoxia.
c. Assess airway patency and protection.

2. Maintain airway.
    a. Look inside mouth and remove any visible obstructions (e.g., needle cap)
        i. Do not perform a finger sweep if unable to see anything in their mouth, as this may push an object deeper into their airway.
        ii. If there is vomit in their mouth, suction orally (if it is within professional scope of practice and available) or turn them on their side and with gloved hands, scoop out any visible vomit.
    b. If the person is sitting in a chair or slumped position, protect their head and, while using appropriate body mechanics, slide them onto their back on the floor.[h]
    c. If available and within scope of practice, insert an airway.[i] Jaw or teeth clenching may make it hard to put in an airway.

3. Check for a pulse[j] for no longer than 10 seconds.[k]
    a. If no pulse, begin CPR with chest compressions and rescue breathing immediately. Use an AED if available.

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[f] For individuals with opioid-induced respiratory depression, a respiratory rate of 10 or more breaths per minute is considered normal.[9,32]

[g] Oxygen saturation should be more than 90% on room air.

[h] Staff are encouraged to review their organizational policies and procedures regarding safe transfer of individuals (e.g., those in a wheelchair).

[i] Usual practice is to insert an oropharyngeal airway. If unable, consider insertion of nasopharyngeal airway if in professional scope of practice and competent.

[j] The carotid pulse is recommended in unconscious persons because the absence of a radial pulse (at the wrist) does not indicate the absence of a heartbeat, only that it isn't strong enough to reach the end of the arm. A carotid pulse check is the most reliable in an unconscious person.[35]

[k] Taking no more than 10 seconds to check for a pulse is critical so as not to delay starting CPR.[34]

If a pulse is detected, proceed to next step *Ventilate* if[9]:

- Less than 12 breaths per minute unassisted *OR*
- Oxygen saturation is less than 90% on room air *AND*
- Unusual breathing sounds *OR*
- Airway obstruction or unable to protect airway.

Ventilate

Provide assisted ventilation and oxygenation.

1. Perform head-tilt-chin-lift or jaw thrust maneuver.
2. Provide assisted ventilation and supplemental oxygen, if within scope of practice.
    i. 1 breath every 5 seconds using a CPR face shield or pocket mask *OR*
    ii. a simple face mask or non-rebreather with oxygen at 6-10 litres per minute, *or* a bag-valve-mask at 15-25 litres per minute
3. If the person starts breathing normally on their own at any time:
    a. Place them in the recovery position.[l]
    b. Monitor respiratory rate, oxygen saturation, and level of consciousness.
    c. If respiratory depression recurs, repeat SAVE ME steps.

Proceed to next step: *Evaluate.*

Evaluate

Reassess clinical status.

1. Reassess ventilation and oxygenation.
    a. Assess respiratory rate and quality of respirations.
    b. Assess oxygen saturation using an oximeter (if available) and clinical signs or symptoms of hypoxia.
    c. Assess airway patency and protection.
        i. Re-insert airway if necessary.
2. Reassess level of consciousness.

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[l] The recovery position involves putting a person on their side in a stable position (i.e., not able to roll onto their stomach) that does not put pressure on their chest and allows their head to rest on their arm or the ground, with the chin lifted away from the throat. This is intended to reduce airway obstruction (e.g., the person's tongue), reduce the risk of aspiration (e.g., breathing in vomit), and reduce chest pressure—particularly if a person cannot be continuously monitored.[38]

    a. Assess verbal and pain stimuli responses.
3. Reassess pulse.
    a. If no pulse, begin CPR with compressions and rescue breathing immediately. Use an AED if available.

If respiratory rate is less than 10 breaths per minute unassisted, *OR* oxygen saturation is less than 90% on room air, proceed to *Medication*.

Medication

Administer naloxone.

- Inject 0.4 (1 ampoules) IM into deltoid or vastus lateralis, *OR*
- Spray one dose (4 mg) of NAS into nostril, OR
- Healthcare facilities: 0.04 mg to 0.1 mg through intravenous (IV).

Naloxone dosing

First dose and subsequent dosing

The recommended first dose of naloxone is 0.4 mg IM every 3 minutes; 4 mg intranasal (NAS) spray every 3-5 minutes; and 0.04 mg to 0.1 mg through intravenous (IV) in healthcare facilities.

There is a risk of precipitating acute opioid withdrawal when multiple naloxone doses are given[20]; however, this risk should be weighed against the risk of brain injury or death when a person does not get enough oxygen. The risks of an unmanaged opioid poisoning where the person is not getting oxygen are greater than those associated with acute opioid withdrawal. Responders should prioritize the delivery of oxygen and restoring breathing. In some cases, this may require multiple doses of naloxone.[30-32]

Escalated dosing schedule

Clinical settings with adequate resources (e.g., acute inpatient settings) may use an escalated dosing schedule. If clinical assessment indicates an insufficient response to the initial dose, repeat doses are administered every 2 minutes intravenously (IV).

If there is insufficient response to the initial dose, subsequent doses should be administered every 2 minutes IV to reverse respiratory depression according to the following schedule: 0.4 mg IV; 0.8 mg IV; 2 mg IV, 4 mg IV, and 10 mg IV as a final dose if there is high clinical suspicion of opioid intoxication. [18,33] If there is no response after this dosing schedule, alternate causes should be explored. [9]

Proceed to next step: *Evaluate & Support*.

Evaluate & Support

Reassess clinical status.

1. Allow naloxone enough time to work (3 minutes IM; 3-5 minutes NAS; 2 minutes IV). Continue to provide assisted ventilation.[32]
2. Reassess ventilation and oxygenation status.
    i. Assess respiratory rate and quality of respirations.
    ii. Assess oxygen saturation using an oximeter (if available) and clinical signs and symptoms of hypoxia.
    iii. Assess airway patency and protection.
        i. Re-insert airway if necessary.

If there continues to be respiratory depression, repeat *Medication* and *Evaluate & Support*:

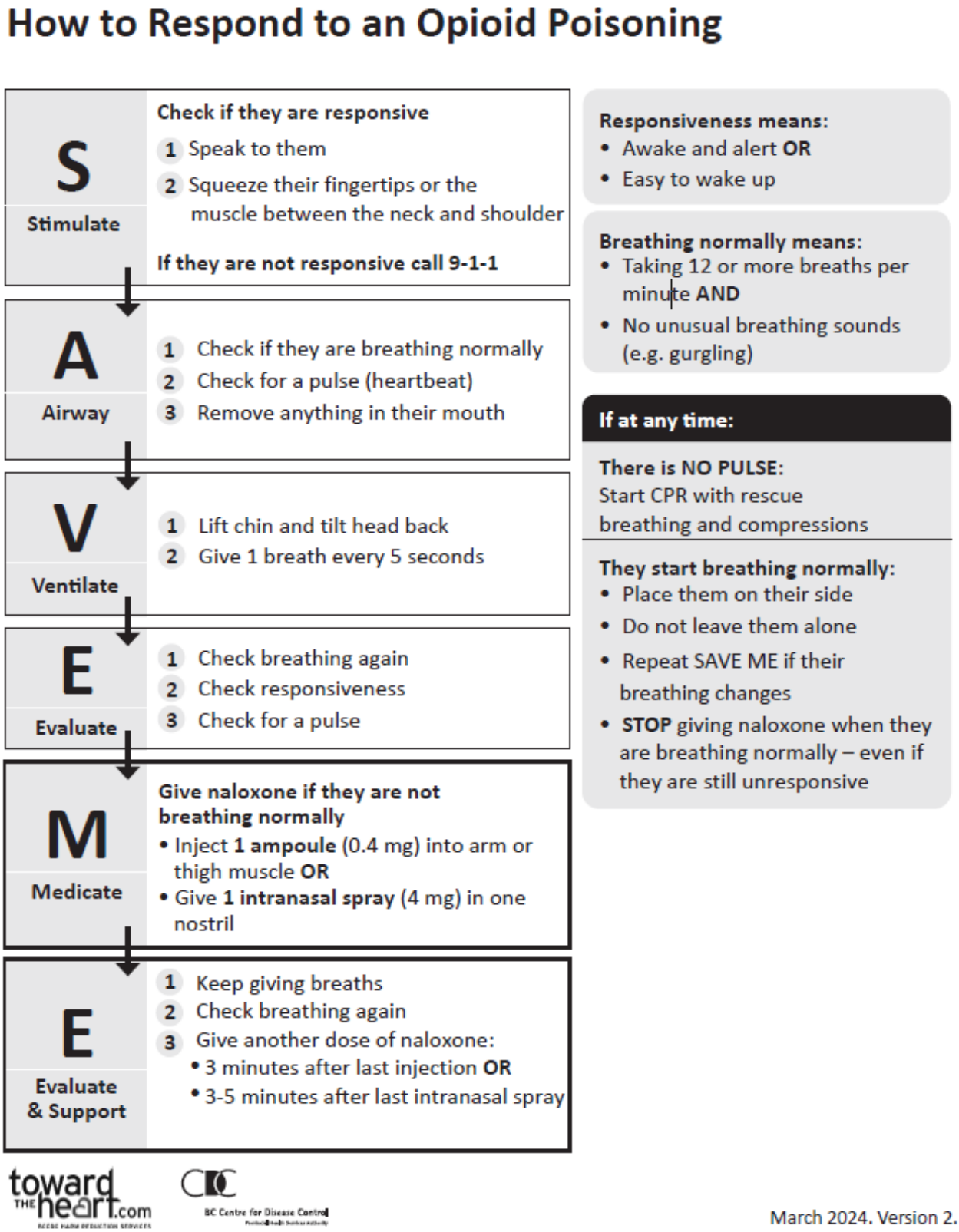
1. Give another dose of naloxone if respiratory rate is less than 12 breaths per minute unassisted, *OR* oxygen saturation is less than 90% on room air.

If breathing returns to normal, stop SAVE ME steps and provide support:

1. Place in the recovery position.
2. Monitor respiratory rate, oxygen saturation, and level of consciousness.
3. If respiratory depression recurs, repeat SAVE ME steps.

Continue following SAVE ME steps and escalated dosing schedule until the person becomes responsive or breathing is restored, or 911 or other emergency response arrives. In rural and remote communities, it may take emergency services longer to arrive. In these cases, it is recommended that providers account for this and have additional supplies ready and prepared to manage the situation for longer amounts of time.

SAVE ME Steps Graphic



Prolonged Sedation

The term "prolonged sedation" refers to when a person is unresponsive and cannot be woken up for an extended period (usually a few hours) after an opioid poisoning has been reversed and their breathing is normal. This may be due to the presence of potent non-opioid central nervous system depressants, such as xylazine or benzodiazepines, or other novel or unknown contaminants, in the unregulated opioid supply. During a prolonged sedation:

- Place the person in the recovery position to protect their airway.
    a. Reposition them every 30 minutes to reduce the risk of injury, such as "Saturday night palsy".[34m] Adjust their joints (e.g., wrists, neck) for comfort, and relieve areas of pressure by wedging blankets or rolled-up clothing underneath pressure areas (e.g., hips).
- Do not leave the person alone. It is critical to continue monitoring and supporting their breathing.
    a. If frequent observation is not possible, transfer the person to an alternative care environment (e.g., hospital) that can provide monitoring and medical care.
- Do not assume a person is experiencing prolonged sedation because of contaminated opioids. Several other conditions can cause unresponsiveness including brain injury, high or low blood sugar, heart conditions, and other substances.
    a. Regulated healthcare professionals may conduct a comprehensive head-to-toe assessment to investigate other potential causes or contributors, such as neurological and cardiac assessments and blood glucose monitoring.
- Continue to follow the SAVE ME steps if opioid poisoning remains the primary suspected cause of sedation.
- Consider storing and securing the person's items to prevent loss.

Conduct a Secondary Assessment

If clinically indicated, conduct a rapid and systematic secondary assessment to ensure ongoing management and evaluation of clinical condition. This includes airway management and additional doses of naloxone, as indicated.

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[m] Saturday night palsy is a relatively common condition where the radial nerve is compressed from prolonged immobilization in an unnatural position, wherein an individual is not conscious enough to correct their position, resulting in motor and sensory deficits.

Clinical indications for secondary assessment include:

- Underlying cause of clinical presentation is unknown or uncertain
- New or unresolved signs or symptoms appear after SAVE ME steps (e.g., prolonged sedation)
- The appearance of new or ongoing clinical issues

Secondary assessment components depend upon:

- The person's known past medical or health history
- The person's current medications
- The person's clinical presentation
- Trends in the unregulated drug supply
- The responder's scope of practice
- The responder's clinical judgment

Secondary assessment may involve:

- A focused health history
  - Presenting signs and symptoms
  - Allergies
  - Medications
  - Relevant medical history
  - Events related to current presentation
- Vital signs
- Pain assessment
- Blood glucose level
- Neurologic assessment
  - Pupil size
  - FAST screen (facial drooping, arm or limb weakness, speech, time of onset)
- Cardiovascular assessment
  - Pulse rate and rhythm
  - Apical auscultation
  - Extremity capillary refill
- Respiratory assessment

    - Auscultate breaths
    - Inspect chest
    - Accessory muscles
    - Cough
    - Sputum
- Skin assessment
    - Hydration
    - Medication patches
    - Colour
    - Temperature
    - Diaphoresis
- Signs of infection
    - Elevated temperature
    - Coughing
    - Wounds
    - Cellulitis
- Signs of physical trauma
    - Head injury
    - Bruising
    - Lacerations
    - Fractures
- Odour (e.g., ethanol, fruity breath)
- Signs of seizure activity

Consider referral or consultation with available advanced care practitioner (e.g., NP, MD) if secondary assessment indicates a particularly complex opioid poisoning, or assessment findings indicate a response that requires additional assessment and clinical management. If this is not available, escalate to emergency care for further medical assessment and treatment.

Considerations for People who are Pregnant or Breast/Chest-feeding

People who are pregnant or breast/chest-feeding and using substances experience significant stigma and discrimination as well as drug poisonings. Fear of child separation and substance use surveillance is a driver of drug poisoning among parenting people. Parenting women identify the fear of child welfare involvement and child separation as reasons to hide substance use and use alone, greatly increase the risk of drug poisoning.[35]

The child welfare mandate and duty to report guidelines in BC pertain to living children and do not extend to a fetus. Non-punitive policies and relational care are necessary to support caregivers and children. Substance use or drug poisoning, without indication or concern of risks for harm to child(ren), does not necessitate a report to the Ministry of Children and Family Development (MCFD) or Indigenous Child and Family Services Agency (ICFSA).[36]

Not all substance use affects a parent's ability to provide safe care. Health and social providers have a duty to report to the MCFD/ICFSA if there are specific, imminent concerns that the parent(s) or family are unable to provide safe care due to significant impairment in judgement, behaviour, or level of consciousness where there are no adequate arrangements for the child(ren)'s care.[36]

Approach care with people who are pregnant or breast/chest-feeding by following the Provincial Blueprint for a Perinatal Substance Use Continuum of Care, which includes the guiding principles of trauma- and violence-informed care, Indigenous cultural safety and anti-racism, and harm reduction.

Opioid Poisoning Response for Pregnant Persons

Although data is limited on the use of naloxone during pregnancy [18], administration of naloxone is recommended for suspected opioid poisonings in pregnant persons as the benefits (i.e., reversal of potentially fatal drug poisoning or extended oxygen deprivation) outweigh the risks (i.e., precipitated withdrawal). Despite the potential for precipitated withdrawal to cause fetal distress and premature labour [37], administration of naloxone should be prioritized to prevent fatality.

Management of suspected opioid poisoning during pregnancy follows standard recommendations, with additional considerations:

- If available, use IV naloxone (0.04 mg to 0.1 mg).
- If IV naloxone is unavailable, administer the lowest effective initial dose of naloxone (0.4 mg IM) to avoid precipitating withdrawal [38]. Repeat dosing depending on the route of

administration (3 minutes IM; 3-5 minutes NAS; 2 minutes IV) until breathing normally unassisted [38].

- Use NAS naloxone (4 mg)[39] only if no other formulations are available, as the risk for precipitated withdrawal is greater with NAS due to significantly higher plasma levels of naloxone.
    - Administer doses based on respiratory rate. If more than one dose of NAS naloxone is administered, anticipate precipitated withdrawal in the pregnant person and fetus [39].
- After 20 weeks gestation, the weight of the uterus can cause aortocaval compression in the supine position, decreasing cardiac output and blood pressure [38]. To relieve pressure and improve circulation:
    - Tilt the person 15-30 degrees to their left by wedging soft items (e.g., pillows, blankets) under their right buttock or hip. The right hip should be higher than the left.
    - If within scope of practice and individual competence, manually displace the uterus to the person's left. [38]

Following opioid poisoning response:

- Provide support with non-judgmental, de-stigmatizing language.
- Offer additional services and supports as determined and desired by the pregnant person receiving care. This includes information on available harm reduction services and practices, including culturally-relevant supports, as well as connection to perinatal substance use services.
- Discuss the person's preferences and offer transport to a healthcare facility (depending on site resources and location) for post-opioid poisoning monitoring of maternal and fetal health.

Opioid Poisoning Response in Breast/chest-feeding Persons

Administration of naloxone to people who are lactating does not cause infant exposure to naloxone through human milk. Naloxone may be excreted in human milk, however it is not bioavailable when ingested by an infant [40].

- Naloxone should be administered to a person who is breast/chest-feeding without concern for adverse effects on the breast/chest-fed infant.[46,47]
- If naloxone is given to a person breast/chest-feeding, it is important to monitor the infant and seek urgent care for signs of opioid withdrawal as well as respiratory depression, increased sleepiness, difficulty feeding, or limpness.[49-51]

Following an opioid poisoning response:

- Through collaborative consultation with person who is breastfeeding/chest-feeding and their healthcare team, explore and determine the optimal feeding option [41] for their situation. The decision to breastfeed/chest-feed is personal and each situation is different [41,42].
    - There is a risk for opioid poisoning if a child consumes opioids through human milk [43]. Opioid poisoning in a child requires urgent monitoring and care [44,45]. If the lactating person regularly uses unregulated substance, the safest option is for the child is to avoid breastfeeding/chest-feeding [41]. For people who prefer to breastfeed/chest-feed, a temporary pause breastfeeding/chest-feeding until the opioid is out of the lactating person's system can reduce the risk for opioid poisoning [42,46].
- Monitor the breast/chest-feeding child closely and escalate care if they show signs of opioid withdrawal or opioid poisoning [43,47].
    - While naloxone is not bioavailable to the infant through human milk, cessation of breastfeeding following opioid poisoning may cause abrupt cessation of opioids available in the milk [18,40]. The abrupt cessation of opioids may contribute to opioid withdrawal in a child that has developed opioid tolerance [37,47,48]. Opioid withdrawal in a child requires urgent monitoring and care [44,49].
    - The amount of opioids in breastmilk and subsequent risk for adverse events are influenced by the type of substance ingested by the person who is lactating, patterns of the lactating parent's substance use, the child's age, lactation stage, and lactating parent and child health histories [43,50,51] as well as the potency and variability of the unregulated drug supply.

Potential Complications

The most common adverse effect of naloxone is acute opioid withdrawal. A rare but severe complication is noncardiogenic pulmonary edema [52,53].

Acute Opioid Withdrawal

Naloxone, particularly when multiple doses are administered, can cause acute opioid withdrawal if the person has opioid tolerance [19,45,54].[32]

Signs and Symptoms of Acute Opioid Withdrawal

tachycardia	diarrhea	tremor
sweating	nausea	anxiety
chills	vomiting	irritability
muscle or joint pain	abdominal cramps	dilated pupils

Withdrawal from other substances, such as benzodiazepines or alcohol, can present similarly to acute opioid withdrawal and require differentiation.

Noncardiogenic Pulmonary Edema

Naloxone-induced noncardiogenic pulmonary edema (NCPE) is a rare complication that can occur 12-24 hours after naloxone administration. Naloxone-induced NCPE is an acute condition where excess fluid in the lungs causes difficulties breathing, making it difficult for oxygen to be delivered to the body[52]. NCPE usually presents as acute respiratory distress syndrome (ARDS) characterized by acute onset respiratory distress with dyspnea, tachypnea, increased work of breathing, and hypoxia. This condition is life-threatening and requires immediate emergency medical treatment. Monitoring for hypotension, ventricular tachycardia or fibrillation, and pulmonary edema in patients with pre-existing cardiac disease[52] is recommended.

Monitoring and Follow-Up Care

Rebound Opioid Poisoning

Intramuscular naloxone works for around 30-120 minutes, while most opioids last much longer in the body.[20,55] After naloxone is given, a secondary opioid poisoning may occur due to the presence of opioids in the body after naloxone wears off.[9,20] These opioids return to the opioid receptors that naloxone vacated, which—depending on the amount and potency of the opioid—can result in another opioid poisoning event.

Following naloxone administration, closely monitor respiratory and mental status, or if this is not possible, follow organizational policy to transfer the person receiving care to an alternative care environment (e.g., emergency) where ongoing clinical monitoring is available.

If unable to closely monitor or transfer the person to an alternative care environment (e.g., the person declines monitoring, staffing shortages), providers are encouraged to offer information on harm reduction strategies related to rebound opioid poisoning, including[8]:

- Intramuscular naloxone works for around 30-90 minutes in the body.
    a. Intranasal naloxone can last longer in the body, for around 2 hours.[26-29]
- Rebound opioid poisoning can happen after naloxone wears off because the effects of most opioids last longer than naloxone.
- If the person has a tolerance to opioids and naloxone has caused acute withdrawal, unpleasant opioid withdrawal symptoms will improve when naloxone wears off.
- If there is naloxone in their body, taking more opioids within 90 minutes will not result in typical effects (e.g., pain relief, euphoria).
- Recommend someone check their breathing and consciousness at minimum every 15 minutes for the next 90 minutes. That person needs to have a naloxone kit and know how to use it, and be able to call for help if needed.
- Recommend avoiding use of opioids for a minimum of 2 hours (120 minutes) following the last dose of naloxone due to the risk of secondary opioid poisoning.

A Calm, Supportive Environment

After opioid poisoning response, give the person receiving care space and ensure a safe, calm, and quiet environment as they wake up and become reoriented. This includes decreasing environmental stimulation (e.g., dim lights, turn off music, request bystanders move away) and offering food and beverages, if available.

Regaining consciousness in an unfamiliar environment without memory of preceding events in addition to the discomfort of withdrawal can cause anxiety, fear, and agitation. Larger doses of naloxone may cause precipitated opioid withdrawal and physical discomfort.[20]

Use a trauma-informed approach to explain what happened to the person who experienced the opioid poisoning. This includes where they are, the time, and the amount of naloxone given. This may include a brief explanation of the specific events that happened during the opioid poisoning and the reasons for naloxone.

Be prepared for a range of responses from the person who experienced the opioid poisoning. While attending to personal safety and the safety of others, respect their self-determination if they do not want to speak about the event, or appear agitated or angry.

Education

Offer information on harm reduction strategies for future safety planning:

- Use with another person.
- If using alone, have a drug poisoning response plan with someone (e.g., have them check on you when you are planning to use).
- Consider a virtual service such as Lifeguard or Brave apps, or a phone service such as NORS.
- Use with an episodic overdose prevention service (eOPS) provider or at an overdose prevention site (OPS).
- Where to access drug checking services, safer supply, and harm reduction supplies.
- A take home naloxone kit and training.

If appropriate and desired by the person receiving care, provide information on local substance use treatment services and referrals:

- For OAT clinics accepting new patients, see the BC Centre on Substance Use.
- For information on perinatal substance use, see the BC Women's Hospital Perinatal Substance Use Program.
- For information on Indigenous treatment centres, see the First Nations Health Authority.

Additional Resources

- Toward the Heart offers information on safer drug use (inhalation and injection).

- Toward the Heart provides a site finder tool to search for local overdose prevention sites, harm reduction supplies, naloxone distribution sites, and hormone injection supplies.
- To find local drug checking services, see the BCCSU Drug Checking Sites.
- To receive Toxic Drug and Health Alerts by text message, text "JOIN" to 253787 (ALERTS).

Unusual Drug Poisoning Events or Clusters

Due to the unpredictability of the toxic unregulated drug supply, emerging trends and drug poisoning events provide valuable information for people who use substances and those who respond to drug poisonings.

Providers and people who use substances are encouraged to notify the BCCDC Harm Reduction and Substance Use Services, as well as their appropriate regional health authority toxic drug alert system, of clusters of unusual or complex drug poisonings, including severe drug poisonings or other trends.

Documentation

Documentation requirements differ across organizations, sites, and between regulated and non-regulated providers. Documentation requirements are determined by organizational guidelines and professional standards and regulations.

It is important for all providers to know their organizational documentation requirements related to drug poisoning response. Regulated health professionals should also understand their unique professional documentation responsibilities.

Documentation for Regulated Health Professionals

Regulated health professionals are required to document according to their organizational policies and procedures as well as their professional regulatory body's standards and guidelines for practice.

Nurses

- include licensed practical nurses, nurse practitioners, registered nurses, and registered psychiatric nurses.
- make up a large number of regulated providers who respond to drug poisonings in health settings across BC.
- must meet their regulatory body's (BC College of Nurses and Midwives) guidelines and standards.
- who provide care during a drug poisoning response are required to document all emergency events (e.g., drug poisoning), medication administration (e.g., naloxone), interventions and response in the person's medical record.

Documentation for Health Authority Sites

- Provincial and regional health authority sites using the BC Patient Safety and Learning System (PSLS) are required to report a drug poisoning as a patient safety event in PSLS.
    - The PSLS report is not linked to a patient and should not include identifying patient information.
- Sites should follow their health authority policy for guidance on any other required reporting procedures.

Debriefing and Support

There are local and provincial supports available for individuals responding to drug poisonings, regardless of the context (e.g., first-time responders, multiple and complex or fatal events). Providers and organizations are encouraged to prioritize normalizing debriefing and creating space after critical events such as drug poisonings. The Provincial Overdose Mobile Response Team is available to all providers, and offers psychosocial support to people working in and responding to drug poisonings.

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