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ADMINISTRATION OF NALOXONE

INTRODUCTION

This decision support tool is intended for use by registered nurses who administer naloxone in the management of individuals suspected of, or witnessed to have experienced, opioid overdose.

Opioids are substances that are active at the opioid receptors in the central nervous system. They are most commonly prescribed to relieve pain but are also infrequently used as cough suppressants and antidiarrheal agents. Methadone and buprenorphine (suboxone) are used to treat opioid use disorder. They are both synthetic opioids.

Overdose deaths, related to prescription and illicit opioids, and potent synthetic opioids such as fentanyl, has risen sharply across Canada in recent years. (Further information on opioids as a class of drugs is provided in Appendix A.)

Opioid overdose that is not detected or treated in a timely manner can lead to neurological damage or death resulting from anoxia due to respiratory depression or arrest. Naloxone is a safe treatment that can help prevent these outcomes in situations where opioid overdose is suspected.

On March 22, 2016, in response to the significant increase in opioid-related deaths, Health Canada removed naloxone from the Prescription Drug List. This allowed for emergency use naloxone to be available without a prescription. On September 16, 2016, emergency use naloxone became unscheduled in BC; thus naloxone can be available anywhere and purchased by anyone.

On Oct. 13, 2016, regulations under the Health Professions Act and the Emergency Health Services Act were amended to enable all healthcare professionals, first responders (e.g. police, firefighters), social workers and citizens to administer naloxone outside of a hospital setting.

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CONSIDERATIONS FOR WORKING WITH PEOPLE WHO USE SUBSTANCES

Nurses and other health care providers play a vital role in the care of people who use substances.

First and foremost - language matters. Language should be used to describe or refer to the person first; for example, a 'person with a substance use disorder', as opposed to 'a drug abuser' or 'addict'. Adopting accurate, clinical, and non-judgemental language when communicating about addiction will serve to positively influence perceptions and reduce assumptions made about addiction, those it affects, and its therapy.

Stigma often drives people to isolation and alienation; distancing themselves from their communities and families, and building reluctance in accessing healthcare services or treatment.

Interactions and conversations should begin with compassion, care, and engagement. Utilize a trauma-informed approach recognizing that individuals have different lived-experiences that shape their behaviours, sense of self and well-being, sense of safety, and engagement with others.

Actively involve and invite individuals to participate in their own care. Incorporate an environment of safety, trust and acceptance (focus on the person rather than the behaviour).

These simple approaches, when used alongside harm reduction strategies, the provision of harm reduction information and supplies, and evidence-based interventions, can assist in yielding the best opportunities for helping individuals access and get the care and treatment they need to achieve the highest level of health possible.

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CLINICAL FEATURES OF OPIOID OVERDOSE

Signs and symptoms of opioid intoxication include:

- Absence of respirations (apnea) or decreased respiratory rate – a respiratory rate of <10-12/min is the best clinical predictor of opioid intoxication
- Gurgling or snoring type sounds
- Altered mental status to loss of consciousness (minimally responsive to unresponsive) (see Appendix B)
- Constricted/pinpoint pupils – the presence of pinpoint pupils alone is not sufficient to infer opioid intoxication
- Slow, erratic or absent heart rate
- Vomiting
- Cold and clammy skin (may appear cyanotic (blueish) especially around the lips +/- nailbeds in individuals with lighter skin; individuals with darker skin may be grayish or ashen)

Ongoing assessment of opioid intoxication should largely be based on respiratory rate and mental status/level of consciousness.

ASSESSMENT

Subjective and objective assessments should be rapidly performed to determine if opioid overdose is suspected and whether naloxone administration is indicated. The assessment should also look for factors that might complicate the management of overdose and thus trigger more rapid referral to a hospital setting. When available, subjective information from individuals, family and friends should be taken, however, objective findings should guide clinical decision-making.

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Subjective Assessment

- History of opioid use from individual, family or friends
- Information about specific drug use, amount used, route of administration and time of use
- Past Medical History*
  - •Any recent severe infections
  - •Diabetes
  - •Cardiovascular or respiratory disease
- Head injury or trauma*
  Seizure disorders*
- Medications* including methadone, lithium, phenytoin, and insulin
- Concomitant use of other drugs or alchohol*

Objective Assessment

- Vital Signs
  - •Absence of respirations (apnea) or decreased respiratory rate – **a respiratory rate of <10-12/min is the best clinical predictor of opioid intoxication**
  - •Slow, erratic or absent heart rate
  - •Oxygen saturation of < 90% on room air
- Visible signs of head trauma*
- Other Signs of Opioid Intoxication
  - •Gurgling or snoring type sounds
  - •Altered mental status to loss of consciousness (minimally responsive to unresponsive)
  - •Constricted/pinpoint pupils
  - •Vomiting
  - •Cold and clammy skin (may appear cyanotic (blueish) especially around the lips +/- nailbeds in individuals with lighter skin; individuals with darker skin may be grayish or ashen)

*THESE COMPLICATE MANAGEMENT AND TRIGGER MORE RAPID REFERRAL TO HOSPITAL.

OTHER CAUSES OF ALTERED MENTAL STATUS/LOSS OF CONSCIOUSNESS

The diagnosis of opioid overdose includes toxic and nontoxic conditions that can alter mental status and/or respiratory rate.

Substances which can alter mental status and/or respiratory rate and thus confound the diagnosis of opioid overdose include but are not limited to:

- Alcohol
- Gamma Hydroxybutyrate (GHB)
- Marijuana
- Sedative-hypnotics (eg. barbiturates, benzodiazepines)
- Clonidine
- Hypoglycemic medications
- Carbon monoxide

Medical conditions producing an altered mental status or loss of consciousness may be mistaken for opioid overdose or can be concomitant. Other conditions that should be considered broadly during assessment are:

- Acute neurological presentations of opportunistic infections
- Sepsis
- Metabolic causes such as hypoglycaemia and electrolyte disturbances, and
- Structural causes such as head trauma and intracranial hemorrhage.

Several bodies of evidence suggest there is no maximum dose of naloxone that can be administered; however, other causes of altered mental status/loss of consciousness should be considered if there is no clinical response following administration of multiple doses of naloxone. Clinical judgment needs to be weighed against the number of doses of naloxone given, time elapsed since administration of first dose (e.g. if 5-6 doses of naloxone are given, this should equate to a time lapse of approximately 20-30 minutes), client responsiveness (most importantly presence or absence of pulse and/or respirations) and presenting scenario.

Regardless, it remains important to stay with the individual until EMS arrives. Continue rescue breathing +/- CPR until the individual is able to breathe on their own.

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INFORMATION ON NALOXONE HCL

Classification	Pure opioid antagonist
Mechanism	Temporarily reverses the effects of opioids by competing for the same receptor sites. Naloxone has no pharmacological affect if administered in the absence of opioids.
Indications	Administered for complete or partial reversal of opioid depression.
Contraindications	Hypersensitivity to naloxone or to any ingredient in the formulation or component of the container
Dose	Initial dose*: 0.4mg IM If insufficient response to initial dose, subsequent dosing should be administered according to the following schedule: Subsequent dose: 0.4 mg, 0.4 mg **Each dose should be administered 3-5 minutes apart** Naloxone can be given until EMS arrives or individual is able to breathe on their own. Clinical judgment to discontinue naloxone administration needs to be weighed against the number of doses of naloxone given, time elapsed since administration of first dose, client responsiveness and presenting scenario.
Route of Administration	IV, IM, SC **Intramuscular (IM) is the preferred route of administration in the community setting**
Onset	IV = Less than 2 min IM/SC = 3-5 minutes
Duration of Action	20 to 90 minutes
Elimination	Metabolized in the liver; excreted in urine

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Side Effects	Abrupt reversal of opioid depression may result in: **CNS**: Excitation; **GI**: Nausea, Vomiting, Diarrhea, Cramping **CVS**: Tachycardia, Hypertension, Arrhythmias **Skin**: Sweating, Tremulousness **Emotional state**: Irritable, Agitated, Confused/startled **Other**: Pain/pain crisis (if opioid used for pain management)
*Special Considerations	An initial dose of 0.2 mg IM/SC of naloxone may be administered in select clinical environments such as supervised consumption sites or mobile medical units - where extra supports (e.g. pulse oximetry and/or supplemental oxygen, bag-valve-masks) are available and capacity exists for continued resuscitation and monitoring. Similarly, in these select clinical environments (advanced practice settings), 911 may not necessarily be activated if adequate staffing and training support the capacity to continually monitor individuals and resuscitate and provide care as needed. Refer to your site specific organizational guidelines or policies. Naloxone is not effective in counteracting depression due to barbiturates, tranquilizers, psychostimulants (e.g. cocaine), alcohol or other non-opioid anesthetics or sedatives. Can cause abrupt state of opioid withdrawal in the physically dependent individual. Side effects such as agitation and aggressiveness can be symptoms of opioid withdrawal and may be exacerbated by an individual regaining consciousness in a potentially unfamiliar environment. Naloxone's duration of action (20 to 90 minutes) is shorter than that of all opioids; therefore, individuals should be observed until the opioid effect has worn off. Special attention should be given to individuals that may have ingested long acting opioids such as methadone.
Storage	Store between 15^0C-30^0C. Keep away from light.

MANAGEMENT

Begin management if opioid overdose is suspected following assessment and there are no contraindications. Naloxone is used alongside the principles of basic life support (BLS) +/- cardiopulmonary resuscitation (CPR; compressions plus ventilation) in the management of suspected or witnessed opioid overdose.

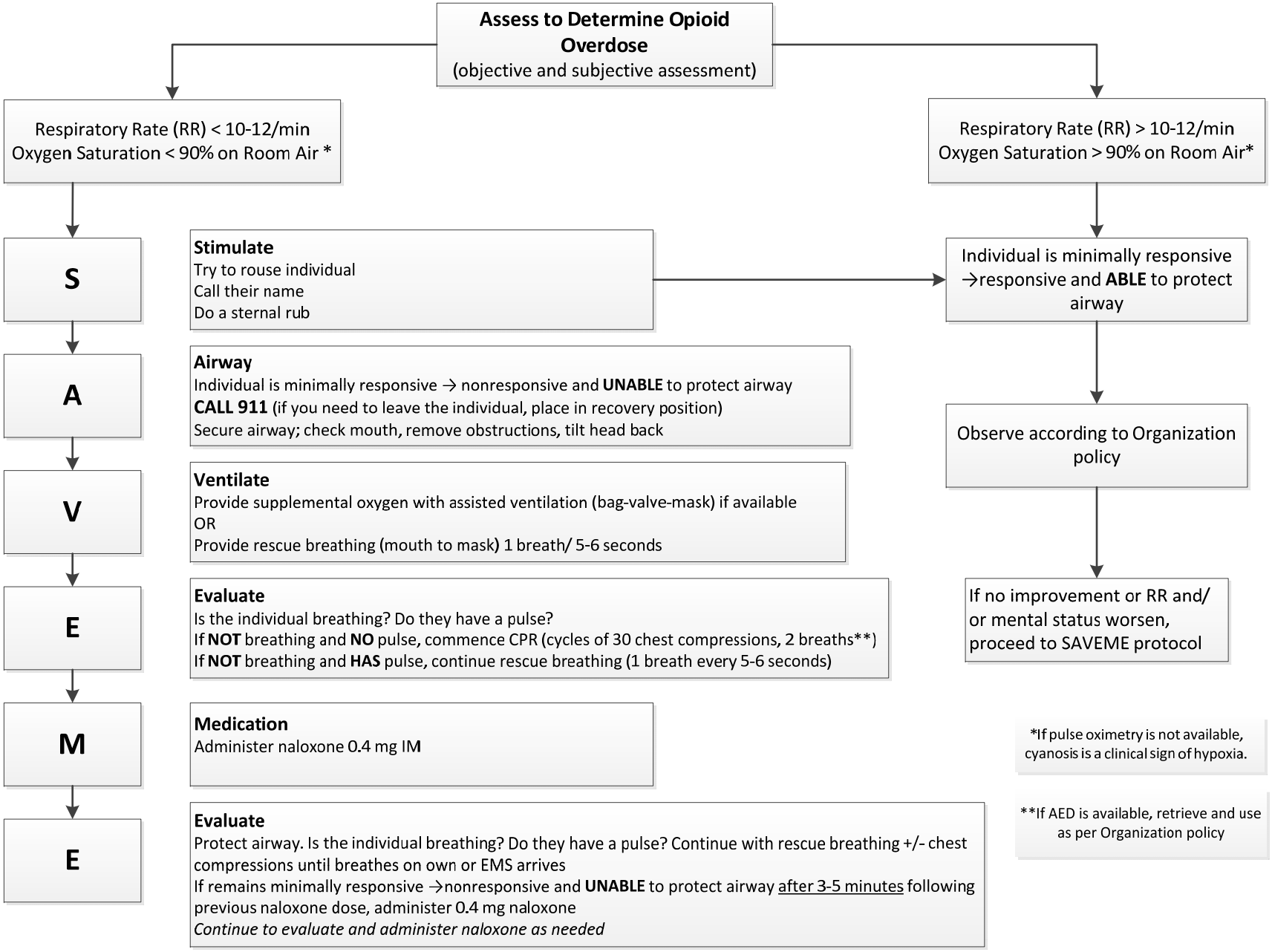
Responders should not delay access to more advanced medical services while awaiting the individual's response to naloxone or other interventions. Unless the individual refuses care, individuals who respond to naloxone administration should access advanced healthcare services.

The goal of naloxone administration is to:

- Achieve adequate spontaneous ventilation (RR > 10/min)
- Protect the airway
- Not precipitate acute withdrawal symptoms

The following flow diagram is intended to assist in the management of witnessed or suspect opioid overdose.

MANAGEMENT OF WITNESSED OR SUSPECT OPIOID OVERDOSE



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CLINICAL FEATURES OF ACUTE OPIOID WITHDRAWAL

Following naloxone administration, acute opioid withdrawal may occur in individuals who are chronic opioid users.

Signs and symptoms of opioid withdrawal include but are not limited to:

- Anxiety, irritability, aggressive behaviour
- Dilated (mydriatic) pupils
- Sweating, chills, goosebumps (cutis anserine)
- Nausea and vomiting
- Diarrhea
- Abdominal cramps
- Tachycardia (increased heart rate)
- Tremulousness
- Muscle and joint pain

FOLLOW-UP CARE

The effects of naloxone wear off after 20-90 minutes while the effect of most opioids last much longer. It is recommended that persons who receive naloxone be monitored until EMS arrives (see ‘special considerations’ for advanced practice settings – page 7).

If individuals refuse follow-up care, encourage them to stay with someone who can assist them or call for help if needed and/or remain in a public space. Advise them not to use further opioids for a minimum of 2-3 hours following the last dose of naloxone.

It is recommended that individuals be monitored for a minimum of 2-3 hours following the last dose of naloxone to ensure they do not experience opioid effects following wear-off of naloxone. Give naloxone again as needed.

If the individual has ingested opioids, or are on methadone and buprenorphine, and have required more than 2 doses of naloxone (> 0.9 mg) to regain responsiveness, they remain at higher risk for prolonged opioid effects and will need to be monitored for a longer period of time. Advise to go to nearest emergency department or inpatient assessment.

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CLIENT EDUCATION

- Explain the events leading to the decision to administer naloxone
- Explain the effects of naloxone wear off after 20-90 minutes while most opioids last much longer. This is why it is important to stay with the individual until help arrives or for at least 2 hours
- If individual is opioid dependent, let them know that when the naloxone wears off, withdrawal symptoms will subside
- Explain the importance of not taking more opioids following naloxone administration because overdose can return and/or the opioids themselves may not work in the presence of naloxone (i.e. the individual will not get "high")
- Explain the importance of going to the hospital for follow-up care and monitoring – overdose may return, they may have inadvertently hit their head when they overdosed, they may have aspirated on vomit (risk for pneumonia)
- Offer new or replacement THN kit
- Give specific harm reduction information as needed:
    - Know one's health status and tolerance
        - People who have had an overdose are at an increased risk for an overdose happening again
        - After a period of abstinence tolerance is reduced
            - consider using less
            - changing route of administration (e.g. switch from IV use to oral/nasal administration)
    - Do not mix drugs and alcohol
        - Educate about the additive effects of medications or alcohol
    - Do not use alone if possible
        - Leave your door unlocked
        - Tell someone to check on you
    - Do 'testers' - a small amount of a substance (smaller than which is "normally" consumed) to check for potency
        - Try a small portion first
        - Use less
        - Pace yourself
    - Ask if they would consider incorporating family or friends into safety plan and educating those identified about overdose

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Administration of Naloxone

DOCUMENTATION

Document according to your organization's policies.

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APPENDIX A. BASIC INFORMATION ON OPIOIDS

Opioids are substances that are active at the opioid receptors in the central nervous system (CNS). The term opioid refers to natural and synthetic substances with morphine-like activity.

Opioids have analgesic and CNS depressant effects, as well as the potential to cause euphoria.

Opioid dependence or addiction is defined as continued use of opioids despite significant opioid-induced problems; these problems may be cognitive, behavioral, or physiological. Repeated drug use results in opioid tolerance, withdrawal symptoms, and compulsive drug taking.

Commonly used opioids:

- Codeine
- Heroin
- Morphine
- Meperidine
- Methadone
- Hydromorphone
- Fentanyl
- Opium
- Pentazocine
- Oxycodone

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APPENDIX B. RESPONSE INDEX*

Responsive – Individual is alert and awake and able to maintain spontaneous eye opening, verbal response and coordinated motor functions

Minimally Responsive – Individual is able to respond when spoken to (clear or incomprehensible speech or sounds), and responsive when pain stimulus applied (eye opening, localized flexion, withdrawal, extension)

Non-Responsive – Individual has no response to voice or pain.

*Adapted from the Glasgow Coma Scale