College of Physicians and Surgeons of British Columbia

Position Statement

Inhalational Sedation and Analgesia

DETAILS

Department/program: Non-Hospital Medical and Surgical Facilities Accreditation Program

Date: July 8, 2020

PURPOSE

Position statements from the College provide background information and express or clarify the College's intent on a particular matter. They are intended as guidance for stakeholders in areas where events are evolving or changing rapidly, the implementation of processes and procedures may be premature, the implementation of a guideline or standard may not be necessary, another credible body (i.e. professional association) has already established guidelines or standards, or it is timely to communicate the College's broad intent before or as policies and procedures are developed.

This document addresses the administration of inhalational sedation and analgesia.

BACKGROUND

Inhaled nitrous oxide is an analgesic/anxiolytic agent causing central nervous system (CNS) depression and euphoria which can safely and effectively reduce anxiety and provide short-term pain relief during a range of medical procedures.

Penthrox™ (methoxyflurane) is an anesthetic agent that is administered using an inhaler. It is used for the short-term relief of pain associated with trauma or medical procedures.

The position statement outlines the regulatory requirements for the use of inhalational sedation and analgesia in the community-based office or private clinic setting (i.e. not a public hospital or health authority clinic).

POSITION

The Non-Hospital Medical and Surgical Facilities Accreditation Program (NHMSFAP) Committee is responsible for determining the medical, surgical, dental and anesthesia procedures that in the community setting may only be performed in accredited non-hospital facilities.

In addition, the NHMSFAP Committee is responsible for establishing accreditation standards, policies, rules, procedures and guidelines to ensure the delivery of high-quality and safe services in non-hospital facilities.

Appropriate setting

- Inhaled nitrous oxide for sedation and analgesia using a mixture of less than or equal to 50% nitrous oxide in oxygen can be administered in the community-based (non-accredited) setting (i.e. physician office) with the condition that **no other** sedation or analgesic medication by any route, including oral and/or sublingual, is administered.
- Inhaled nitrous oxide for sedation and analgesia using a mixture of less than or equal to 50% nitrous oxide in oxygen with the use of other sedation or analgesic medication by any route, including oral and/or sublingual, must only be administered in an accredited non-hospital facility.
- Inhaled nitrous oxide for sedation and analgesia using a mixture of greater than 50% nitrous oxide in oxygen with or without the use of other sedation or analgesic medication by any route, including oral and/or sublingual, must only be administered in an accredited non-hospital facility.
- Penthrox™ can be administered in the community-based (non-accredited) setting (i.e. physician office) with the condition that **no other** sedation or analgesic medication by any route, including oral and/or sublingual, is administered.
- Penthrox™ with the use of other sedation or analgesic medications by any route, including oral and/or sublingual, must only be administered in an accredited non-hospital facility.

Governance and leadership

- Physicians who administer and/or direct the administration of inhalational sedation and analgesia in the community-based (non-accredited) setting should possess the appropriate training, skills and currency in the use of this anesthesia and in the appropriate emergency response to any adverse events.
- Physicians who administer and/or direct the administration of inhalational sedation and analgesia in the community-based (non-accredited) setting should hold current basic life support certification for health professionals (BLS provider). Certification should be renewed every two years.
- Inhalational sedation and analgesia practices in accredited non-hospital facilities must comply with NHMSFAP accreditation standards (i.e. training, staffing levels, patient monitoring and equipment).
- Non-hospital facilities where the highest level of anesthesia provided is minimal or moderate sedation by any route of administration (e.g. intravenous (IV) procedural sedation and analgesia and/or inhaled nitrous oxide for sedation and analgesia) are considered class 2 facilities.

Informed consent

- In accredited non-hospital facilities, a written consent form must be completed for medical/surgical procedures that involve the administration of inhalational sedation and analgesia. This is in addition to documentation of the consent discussion in the patient's medical record.
- In community-based (non-accredited) facilities, from a risk management perspective, written consent for medical/surgical procedures that involve the administration of inhalational sedation and analgesia is strongly advised.

Inhalational nitrous oxide and oxygen equipment and administration

- Premixed 50% nitrous oxide and 50% oxygen gas (e.g. ALnox™, Entonox®, Liqui-Med Analgesic Gas) should be used in the community-based (non-accredited) setting. Systems that allow for titration of the percentage of nitrous oxide delivered are contraindicated in the community-based (non-accredited) setting.
- Inhaled nitrous oxide for sedation and analgesia should be administered using a demand-valve (demand-flow/trigger-flow) system. Continuous flow systems are contraindicated in the community-based (non-accredited) setting.
- Inhaled nitrous oxide for sedation and analgesia should be self-administered by having the patient hold the face mask or mouthpiece in place. Assisting the patient to hold the mask or mouthpiece in place and/or securing the mask or mouthpiece in place (i.e. using headpiece/strap) are contraindicated.
- Fasting should be considered before the administration of inhaled nitrous oxide and oxygen sedation and analgesia.
- Patients should be under the direct visual supervision of a regulated health professional (i.e. nurse, physician) at all times during the administration of and recovery from inhaled nitrous oxide for sedation and analgesia.
- Continuous pulse oximetry should be used during the administration of and recovery from inhaled nitrous oxide for sedation and analgesia.
- Inhalational equipment should have an appropriate scavenging system to minimize room air contamination and occupational risk.

Penthrox™ equipment and administration

- Penthrox™ should be self-administered by having the patient hold the Penthrox™ inhaler in place. Assisting the patient to hold the inhaler in place and/or securing the inhaler in place is contraindicated.
- Penthrox™ dosing must not exceed 6 mL.
- Fasting should be considered before the administration of Penthrox™.
- Patients should be under the direct visual supervision of a regulated health professional (i.e. nurse, physician) at all times during the administration of and recovery from vapourized Penthrox™.
- Continuous pulse oximetry should be used during the administration of and recovery from vaporized Penthrox™.
- The Penthrox™ inhaler must be assembled and used in accordance with the manufacturer's instructions for use, which includes attaching an activated carbon chamber. The patient should exhale into the Penthrox™ inhaler to minimize room air contamination and occupational risk.

Infection, prevention and control for inhalational nitrous oxide and oxygen equipment

- A single-use bacterial filter should be attached between the demand valve and the face mask or mouthpiece. The filter is discarded after each patient use.

- Single-use respiratory therapy and anesthesia equipment (e.g. face masks, mouthpieces) should be used and discarded after each patient use.
- Respiratory therapy and anesthesia equipment (e.g. face masks, demand valve, mouthpiece) that has not been labelled as single-use by the manufacturer must be cleaned and high-level disinfected, at a minimum (sterilization is preferred), after each patient use. Only accredited non-hospital facilities may use reusable respiratory therapy and anesthesia equipment.

Infection, prevention and control for Penthrox™

- The Penthrox™ inhaler is single-use and must be discarded after patient use.

Emergency preparedness

- Inhalational sedation and analgesia should only be administered in a setting that has the proper infrastructure, personnel and equipment to safely use the anesthetic agent and manage any reasonably foreseeable emergency (e.g. emergency cart, qualified staff).
- The room/area where inhalational sedation and analgesia is administered should be equipped with oxygen equipment including an oxygen supply (i.e. central medical gas system, separate oxygen cylinder) and regulator, nasal cannulas, and oxygen masks.
- The room/area where inhalational sedation and analgesia is administered should be appropriately equipped to monitor the patient and manage any reasonably foreseeable adverse event.
- There should be a second regulated health professional (i.e. nurse, another physician) immediately available to assist in the event of an emergency in addition to the physician performing the procedure.
- The emergency cart should be checked every procedural day before the start of the first case of the day to ensure the cart is appropriately stocked, medications are within their labeled expiry date, and the equipment is in proper working order.
- Periodic simulated emergency drills should be performed every six months at a minimum.
- Written policy and procedures for medical emergencies (e.g. cardiac arrest, respiratory emergencies) including patient transfer to hospital should be in place.

General safety

- When not in use, inhalational nitrous oxide systems and cylinders must be stored in an area not accessible to patients and non-authorized personnel.
- To ensure stability (prevention of gas separation and partial liquefaction), nitrous oxide in oxygen should be stored in a horizontal position and at temperatures above -7^{o}C. If nitrous oxide in oxygen is stored in a vertical position, follow the manufacturer's instructions for use to enhance mixing.
- Medical gas cylinders must be secured in carts or stands to prevent falling during storage, transportation and use.
- Each medical gas cylinder must be clearly labeled with the cylinder's contents.
- Each medical gas cylinder must be shut off when not in use.

- Penthrox™ should be managed as a controlled/targeted substance by storing it in a secure environment (i.e. locked metal safe that is securely anchored to the building) and taking reasonable steps taken to protect it from loss and theft (i.e. physical inventory counts).
- Penthrox™ should be safely contained and disposed of by replacing the cap onto the Penthrox™ bottle, placing the Penthrox™ inhaler and used bottle(s) in a sealed plastic bag and placing the sealed bag in a general waste container.

REFERENCES

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CONTACT

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