



Madison County EMS



Nitrous Oxide Guideline

Nitrous Oxide is a self-administered inhaled analgesic containing a mixture of 50% oxygen and 50% nitrous oxide that provides quick, safe sedation and pain relief. Negative pressure is required to open the valve, so the patient must have an airtight seal at the facemask or mouthpiece. The inhaled analgesic provides a quick onset of action, lasts for only a short period of time, and has virtually no adverse effects. It's efficacy in the prehospital environment has been proven in numerous journals and studies worldwide.

Actions: Potent analgesic that produces rapid, reversible pain relief. A 50:50 nitrous oxide and oxygen mixture is equivalent to 15-20mg of morphine sulfate. (NitroNox website)

1. Analgesia begins within 20 seconds of inhalation
2. Peak analgesia occurs within 40-120 seconds
3. Duration of action is 2-5 minutes.
4. When it is discontinued, complete exhalation of then nitrous oxide occurs in approximately 3 minutes.

Indications:

1. Pain from musculoskeletal trauma
2. Pain associated with burns
3. Severe pain in morphine-allergic patients
4. Pre-medication for TCP, cardioversion, and EZ-IO insertion

Contraindications:

1. Any patient who cannot self administer the gas; however, in patients with bilateral arm injuries, the provider can help with administration of the gas.
2. Head injuries and/or altered level of consciousness (GCS < 14)
3. Severe Maxillofacial injuries
4. COPD, respiratory distress, pneumothorax
5. Pregnancy
6. Known bowel obstruction
7. Chest trauma
8. Nitrogen narcosis (the Bends from SCUBA)

Precautions:

1. Nitrous oxide is not flammable but will support combustion in the same manner as oxygen.
2. Carefully monitor vital signs and oxygen saturation, which must be >90% prior to, and during, the administration of nitrous.
3. Nitrous can cause hypotension in some patients.

Administration:

1. Nitrous should not be used in the ambulance for any reason except in extenuating circumstances. For the health benefit of the AIC and driver, the ambulance must be well-ventilated with windows down and exhaust vent open for any use in the truck. The reason must be well documented.
2. When opening the package, it is essential that you keep the old seal for accountability purposes. This policy will be strictly enforced.
3. Instruct patients to administer nitrous to themselves by placing the mask tightly against their face or mouthpiece in mouth and breathe deeply and slowly.
4. Allow mask/mouthpiece to fall away from face spontaneously when effects are felt.
5. EMS personnel must not place or replace the mask on the patient's face unless in the case of bilateral arm injuries.



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Adverse Reactions: Nausea, Vomiting, and bizarre behavior

Peds:

NitroNox[®] should not be administered to patients under 12 years of age without authorization from medical command.

Accountability: Each cylinder contains 30 minutes of gas and is single-use per patient. The cylinder will remain on Response 3 and will be fully wasted into the atmosphere with a supervisor witness after each use. The Nitronox machine will be checked after each use and documented on the Nitrous Oxide check sheet. *You must keep track of the old seal. If the tank is found to be empty before patient use, notify the supervisor immediately.*