



COVID-19

Nitrous oxide sedation during COVID-19 pandemic

Updated April 3, 2020

Practice Guideline

Purpose: During the COVID response period it is crucial to minimize the risk of viral transmission to staff providing direct patient care.

Background: In an effort to prevent potential airborne viral spread, all devices that may provide a high gas flow rate to patients have been evaluated to estimate their ability to generate aerosols. Based on this estimate, they have been stratified as either high, moderate, or low/theoretical risk as an aerosol generating procedure (AGP).

AGP risk estimation: The MXR flowmeter/Nitrouseal system currently used for nitrous oxide sedation at Children's has been evaluated both by investigation of the internal mechanics and by on-site "field testing" of the system. Nitrous oxide sedation has been placed into the moderate AGP category based on the ability to produce positive pressure during forced exhalation against the system and the inability to ensure a tight mask seal at all times. Because the positive airway pressure is generated during exhalation, when flow ceases due to an internal non-rebreathing valve, the nitrous oxide flowmeter is **not** comparable to devices that generate positive pressure via gas flow (e.g., CPAP, BiPAP, HFNC) or assisted ventilation.

Other considerations:

- Inadequate sedation may affect the child's future sedation episodes and potentially other future health care encounters. Changing from a sedation regimen that is known to be effective for these patients may therefore have far-reaching consequences.
- Transition of all patients from nitrous oxide sedation to alternative sedatives is likely to result in shortages of these medications in other care area, including critical care units.

Practice points:

- Nitrous oxide sedation may continue to be provided to patients who pass screening for specific nitrous oxide contraindications as per policy.
- Although the risk of aerosolization during nitrous oxide administration is only moderate, there is also a risk of contact/droplet transmission from a COVID positive patient to staff which is heightened by the fact that a healthcare worker must hold the mask directly over the nose and mouth of a potentially uncooperative patient.
- Minimize bedside personnel to only those required for the procedure.
- Contact/droplet/eye precautions should be followed during nitrous oxide administration to an asymptomatic patient. Administration to patients with respiratory symptoms/PUIs (persons under investigation) would require airborne precautions, preferably in a negative airflow room.
- Nitrous oxide sedation would optimally be provided by a nitrous oxide sedation "team" to minimize the potential for staff exposure.
- It is always important to use good technique. Maintaining a **tight mask seal** and **avoiding overfilling the reservoir bag** are always important for occupational safety. Consider assigning the task of mask placement and reservoir bag monitoring to separate individuals during the procedure.

Reviewers: Zier, Maresh, Nolan

Date: 4/3/2020

Disclaimer: This guideline is designed for general use with most patients; each clinician should use his or her own independent judgment to meet the needs of each individual patient. This guideline is not a substitute for professional medical advice, diagnosis or treatment.