

Emergency Department Procedural Sedation Guidelines during COVID-19 Pandemic for Children and Adults

General Principles:

- Recognize that while procedural sedation carries a very low risk of an aerosol generating procedure (AGP) occurring, no delay can occur when and if a potential AGP is required
- Recognize that bag mask ventilation and endotracheal intubation are aerosol-generating and require AGP PPE while low-flow oxygen therapy including nasal prongs, simple mask and non-rebreather mask up to 15L/min are not considered an AGP¹. See [FH Aerosol Generating Procedures \(AGP\) in Acute Care Standard Operating Procedure](#)
- Avoid deep sedation whenever possible - consider local, regional anesthetic or a combination of local / regional anesthesia with light sedation
- Document on the procedural sedation record.

Assessment / Planning

- Confirm need for procedural sedation and consider non-sedation options.
- Assess risk for COVID². See [FH ED COVID-19 Risk Algorithm](#).
- If high-risk for COVID consider anesthesia consult, operating room or non-sedation option.
- For low-risk COVID patients deemed high-risk for AGP consider anesthesia consult or operating room.
- Consider ketamine analgesia rather than opiate analgesia to limit risk of respiratory depression³. Suggested dose 0.1 – 0.3 mg/kg IV over 15 minutes³
- Consider ketamine as the sole sedation agent whenever possible⁴. Suggested dose 1.0 mg/kg IV initial bolus, then 0.25 mg/kg IV repeat dose as required.
- If using propofol or ketamine-propofol combination (ketofol)*, dose in small increments slowly to limit respiratory depression.⁵ Suggested dose 0.5 mg/kg IV initial bolus, then 0.25 mg/kg aliquots; If age>60 use (100-age) as initial bolus. Doses to be injected slowly over 30-60 seconds.
*In sites where ketofol is approved for use common mixing ratios include 1:1 ketamine/propofol, and 1:4 ketamine/propofol^{6,7}
- Nitrous oxide is considered moderate risk for AGP and it is recommended to avoid its use, especially in patients meeting COVID screening criteria. If chosen, bedside personnel should be in AGP PPE and the number of staff minimized. Ensure an in-line filter is used.
- Intra-nasal (IN) medications can be used for sedation and anxiolysis as per approved protocols and should be preferably performed in a closed room. Staff should be donned in droplet precautions PPE, stand behind the patient and immediately place a mask over the patient's mouth and nose after the IN administration. When targeting moderate or deep sedation the RT and the EP should be donned in AGP PPE. In

patients meeting COVID screening criteria this route should be avoided, and if performed staff should be donned in AGP PPE.

Setting / Team Members

- Procedures should take place in negative-pressure isolation room whenever possible.
- If negative-pressure room is not available a closed-door room should be used, or curtains closed around the patient in an open bay if no other options available.
- Emergency Physician (EP) and Respiratory Therapist (RT) or 2nd Health Care Provider to be in AGP PPE.
- All other team members to be in droplet precautions PPE.
- Alternative method of communication established (2-way radio, baby monitor).

Sedation Procedure

- Bag Valve Mask (BVM) prepared with filter and hooked up to flow meter.
- Pre-oxygenate with non-rebreather mask with one-way exhalation valve (standard FH unit) at 15L/min for minimum 3 minutes⁶.
- Remove mask and continue nasal prongs oxygenation during the procedure⁸.
- Consider placing surgical mask on patient to minimize droplet spread⁹.
- Use capnography to facilitate early detection of apnea / respiratory depression¹⁰.

Hypoventilation Management

- Oxygen desaturation with apnea or hypoventilation should be managed initially with jaw thrust and stimulation maneuvers⁵.
- Apnea or hypoventilation with normal oxygenation should be managed with watchful waiting and/or stimulation and jaw thrust⁵.
- If assisted ventilations required, communicate to team before attempting.
- All team members to leave room and close door except providers wearing AGP PPE.
- Two-handed seal and low tidal volume breaths recommended.
- Communication to occur to outside room to avoid excessive entry/exit regarding status of patient and what assistance is required.

REFERENCES

- 1) FH Aerosol Generating Procedures (AGP) in Acute Care Standard Operating Procedure.
- 2) FH COVID-19 Novel Coronavirus (COVID-19) Emergency Department Procedures, April 9, 2019.
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- 4) Green SM, Roback M, Kennedy R, et al. Clinical practice guideline for emergency department ketamine dissociative sedation: 2011 Update. *Ann Emerg Med.* 2011; 57:449-461.
- 5) Green SM, Andolfatto G. Managing Propofol Hypoventilation. *Annals of Emergency Medicine.* 2015; 65:57-60.
- 6) Andolfatto G, Abu-Laban RB, Zed PJ, et al. Ketamine-propofol combination (ketofol) versus propofol alone for emergency department procedural sedation and analgesia: A randomized double-blind trial. *Ann Emerg Med.* 2012; 59:50-512.
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- 8) Deitch K, Chudnofsky CR, Domenici P. The utility of supplemental oxygen during emergency department procedural sedation and analgesia with propofol: A randomized controlled trial. *Ann Emerg Med.* 2008; 52:1-8.
- 9) Leonard S, Atwood C, Walsh B et al. Preliminary findings of control of dispersion of aerosols and droplets during high velocity nasal insufflation therapy using a simple surgical mask: Implication for high-glow nasal cannula. *CHEST* (2020), doi: <https://doi.org/10.1016/j.chest.2020.03.043>.
- 10) Deitch K, Miner J, Chudnofsky CR, et al. Does end tidal CO₂ monitoring during emergency department procedural sedation and analgesia with propofol decrease the incidence of hypoxic events? A randomized, controlled trial. *Ann Emerg Med.* 2010; 55:258–264.