Comfort Sedation for the Actively Dying Pediatric Patient Outside of the Intensive Care Unit

Definition: Comfort sedation is the use of medication(s) to relieve severe and intractable suffering that cannot be controlled by other means. It aims to reduce a patient's level of consciousness but does not have the intent of hastening or causing death. It may be used outside of the intensive care unit under specific conditions, outlined below.

Patient Eligibility: (ALL criteria must be met)

- Patient has a life-limiting illness and prognosis is limited to hours to days, if illness runs its anticipated course
- Caregivers intend for patient to remain at North Carolina Children's Hospital until time of death
- A DNR/DNI order is in place
    - If a DNR/DNI order is **not** in place, the patient must go to the Pediatric Intensive Care Unit (PICU)
- A Comfort Measures order (from "Comfort Orders for Actively Dying Patients – Pediatrics" order set) is in place
- Patient has refractory, distressing symptoms that are unable to be managed using typical treatment strategies utilized on the acute care floor
- An Advance Care Planning note has been entered in the electronic medical record to document consent to pursue palliative sedation **and** physical consent form has been signed per PolicyStat ID 12475781

The nursing manager on the desired acute care unit will determine if there is appropriate staffing and support to manage an eligible patient on the acute care floor. *If appropriate staff and support is **not** available, the eligible patient will need to be transferred to the PICU for end-of-life care.*

Situational Awareness: In addition to the patient's primary medical team, all the following teams' attending physicians must be made aware of the intent to administer comfort sedation on the acute care floor:

- Children's Supportive Care Team
- Pediatric Pain & Sedation Service
- Pediatric Intensive Care Unit
- Unit Nursing Manager

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Prescribing:

- Infusions of fentanyl, morphine, or hydromorphone can be ordered and titrated by the patient's primary team
- Orders for ketamine, midazolam, and/or dexmedetomidine may be initiated by the primary medical team after consultation with the Pediatric Pain & Sedation Team or the PICU and approval by the attending
    - Pediatric Pain & Sedation Team will be consulted for patients who are DNR/DNI and the PICU will be consulted for patients who remain full code
        - Consulting team will provide recommendations for initial dosing and titration, but ultimate management & dosing of end-of-life medications will be decided on & ordered by the primary team
    - Pediatric Intensive Care Unit charge nurse will assist the floor nurse with the initial setup of these medications, if needed

Medications: The following medications may be utilized: See Appendix 1 for suggested starting doses.

- Fentanyl*
- Hydromorphone*
- Morphine*
- Ketamine*
- Midazolam*
- Dexmedetomidine

If assistance with medication titration or symptom management is needed, a pediatric rapid response should **not** be called but rather, the primary team should contact the Pediatric Pain & Sedation Team attending directly. For off-hours, in-person assessment, the primary team should contact the Pediatric Intensive Care Unit (PICU) fellow or attending directly.

Monitoring

- Vital sign assessment, pulse oximetry, cardiorespiratory, and other monitors are not required, as they may provide unnecessary anxiety and stress to the patient and family
    - Typical monitoring procedures are not indicated unless the patient or family has requested that the patient remain on monitors

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Appendix 1. Typical Starting Doses

Medication	Loading Dose	Starting Infusion Rate
Dexmedetomidine	• 0.5 – 1 mcg/kg	• 0.2 – 0.5 mcg/kg/hour
Fentanyl	• < 40 kg: 0.5 – 2 mcg/kg • ≥ 40 kg: 50 – 100 mcg	• < 40 kg: 0.5 – 2 mcg/kg/hour • ≥ 40 kg: 50 – 100 mcg/hr
Hydromorphone	• < 40 kg: 0.001 – 0.005 mg/kg • ≥ 40 kg: 0.5 - 2 mg	• < 40 kg: 0.001 – 0.005 mg/kg/hour • ≥ 40 kg: 0.5 - 2 mg/hr
Ketamine	• < 40 kg: 0.5 – 1 mg/kg • ≥ 40 kg: 25 - 50 mg	• < 40 kg: 0.5 – 1 mg/kg/hour • ≥ 40 kg: 0.3 - 0.6 mg/kg/hour
Midazolam	• < 40 kg: 0.025 – 0.1 mg/kg • ≥ 40 kg: 0.5 – 2 mg	• < 40 kg: 0.025 – 0.1 mg/kg/hour • ≥ 40 kg: 0.5 - 2 mg/hour
Morphine	• < 40 kg: 0.025 – 0.1 mg/kg • ≥ 40 kg: 2 – 4 mg	• < 40 kg: 0.025 – 0.1 mg/kg/hour • ≥ 40 kg: 2 – 4 mg/hour

1. Initial doses may exceed typical therapeutic doses for acute pain based on the intensity of pain, disease progression, and tolerance to medications.
2. To control pain and suffering at the end of life, medications may require rapid titration.
3. There is no delineated maximum dose in this scenario; medications will be titrated to effect.

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