

# CVICU Pain and Sedation Protocol



Adult Protocol - Intubated > 18 years or > 50kg	
Considerations	Notify provider when at maximum infusion rate Consider Toradol prior to opiates if clinically appropriate
Infusions	Fentanyl 0.5 mcg/kg/hr if < 50 kg (Max dose: 1.5 mcg/kg/hr); 50 mcg/hr if > 50kg (Max dose: 100 mcg/hr) <b>and</b> Dexmedetomidine 0.5 mcg/kg/hr (Max dose: 1.2 mcg/kg/hr)  Midazolam 0.05 mg/kg/hr if < 50kg (Max dose: 0.2 mg/kg/hr); 1 mg/hr if > 50kg (Max dose: 3mg/hr) - if Dexmedetomidine contraindicated
Initial PRNs	Fentanyl 50mcg Midazolam 2mg Morphine 4mg Dilaudid 0.5mg
Incremental Infusion Change	Fentanyl 0.5 mcg/kg/hr or 25 mcg/hr (whichever lower) Dexmedetomidine 0.2 mcg/kg/hr Midazolam 0.05 mg/kg/hr or 0.5 mg/hr (whichever lower)
Exclusions	Toradol: ≤ POD 1, < 6mo, on active anticoagulation, renal injury/failure, thrombocytopenia

## Adult Protocol - Intubated > 18 years or > 50kg

Anticipated intubation > 12hr

Begin Infusion

Anticipated intubation < 12hr

Use PRNs

Assess SBS, Pain Score every 2 hr and PRN

SBS > Goal

Consider non-pharmacologic interventions and consider Acetaminophen

Pain Score ≥ 4

Give Fentanyl PRN

Pain Score ≥ 4

Repeat additional PRN after 15 min x 2

Pain Score ≥ 4

If ≥ 3 PRN doses given in 4 hours, consider initiating/increasing Fentanyl gtt  
Notify Provider after 3<sup>rd</sup> PRN

SBS at Goal

Pain Score < 4

Initiate/increase Dexmedetomidine gtt

SBS > Goal

Give Midazolam PRN

SBS > Goal

Repeat additional Midazolam PRN after 15 min x 2

SBS > Goal

Consider delirium - Notify Provider

SBS < Goal

Consider decrease in sedation infusion rate

SBS < Goal

Contact Provider

## CVICU Pain and Sedation Protocol References

- Smith, H. A., Besunder, J. B., Betters, K. A., Johnson, P. N., Srinivasan, V., Stormorken, A., Farrington, E., Golianu, B., Godshall, A., Acinelli, L., Almgren, C., Bailey, C. H., Boyd, J., Michael, C., Mihaela, D., deAlmeida, M. L., Jamer, F., Fenton, K., Gilliland, F., ... Berkenbosch, J. W. (2022). 2022 Society of Critical Care Medicine clinical practice guidelines on prevention and management of pain, agitation, neuromuscular blockade, and delirium in critically ill pediatric patients with consideration of the ICU environment and early mobility. *Pediatric Critical Care Medicine*, 23(2), e74-e110. <https://doi:10.1097/PCC.0000000000002873> (Level V)
- Grant, M. J. C., Schneider, J. B., Asaro, L. A., Dodson, B. L., Hall, B. A., Simone, S. L., Cowl, A. S., Munkwitz, M. M., Wypij, D., & Curley, M. A. (2016). Dexmedetomidine use in critically ill children with acute respiratory failure. *Pediatric Critical Care Medicine: A Journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies*, 17(12), 1131-1141. <https://doi:10.1097/PCC.0000000000000941> (Level II)
- Curley, M. A. Q., Wypij, D., Watson, R. S., Grant, M. J. C., Asaro, L. A., Cheifetz, I. M., Dodson, B. L., Franck, L. S., Gedeit, R. G., Angus, D. C., & Matthay, M. A. (2015). Protocolized sedation vs usual care in pediatric patients mechanically ventilated for acute respiratory failure: a randomized clinical trial. *JAMA*, 313(4), 379-389. <https://doi:10.1001/jama.2014.18399> (Level II)
- Curley, M. A. Q., Harris, S. K., Fraser, K. A., Johnson, R. A., & Arnold, J. H. (2006). State Behavioral Scale (SBS): a sedation assessment instrument for infants and young children supported on mechanical ventilation. *Pediatric Critical Care Medicine*, 7(2), 107-114. <https://doi:10.1097/01.pcc.0000200955.40962.38> (Level IV)
- Crellin, D. J., Harrison, D., Santamaria, N., & Babl, F. E. (2015). Systematic review of the Face, Legs, Activity, Cry and Consolability scale for assessing pain in infants and children: is it reliable, valid, and feasible for use? *Pain*, 156(11), 2132-2151. <https://doi:10.1097/j.pain.000000000000305> (Level I)
- Mody, K., Kaur, S., Mauer, E. A., Gerber, L. M., Greenwald, B. M., Silver, G., & Traube, C. (2018). Benzodiazepines and development of delirium in critically ill children: estimating the causal effect. *Critical Care Medicine*, 46(9), 1486-1491. <https://doi:10.1097/CCM.0000000000003194> (Level IV)
- Walker, T., & Kudchadkar, S. R. (2019). Pain and sedation management: 2018 update for the Rogers' textbook of pediatric intensive care. *Pediatric Critical Care Medicine*, 20(1), 54-61. <https://doi:10.1097/PCC.0000000000001765> (Level V)
- Pan, W., Wang, Y., Lin, L., Zhou, G., Hua, X., & Mo, L. (2016). Outcomes of dexmedetomidine treatment in pediatric patients undergoing congenital heart disease surgery: a meta-analysis. *Paediatric Anesthesia*, 26(3), 239-248. <https://doi:10.1111/pan.12820> (Level I)