



2. Decreased oxygen saturation
3. Skin color
4. Neurologic status assessment
5. Reduction in work of breathing after treatment
6. Improved oxygenation after breathing

Quality Improvement

Associated NEMSIS Protocol(s) (eProtocol.01) (for additional information, go to www.nemsis.org)

- 9914223 – Medical - Respiratory Distress-Croup
 - Protocol Age Category: 3602005 - Pediatric Only

Key Documentation Elements

- Document key aspects of the exam to assess for a change after each intervention:
 - Respiratory rate
 - Oxygen saturation
 - Use of accessory muscles or tracheal tugging
 - Breath sounds
 - Air entry
 - Mental status
 - Color

Performance Measures

- Time to administration of specified interventions in the protocol
- Frequency of administration of specified interventions in the protocol

References

1. Abramo TJ, Wiebe RA, Scott SM, Primm PA, McIntyre D, Mydlyer T. Noninvasive capnometry in a pediatric population with respiratory emergencies. *Pediatr Emerg Care*. 1996;12(4):252–4
2. Ausejo M, Saenz A, Pham B, et al. The effectiveness of glucocorticoids in treating croup: meta-analysis. *West J Med*. 1999;171(4):227–32
3. Bjornson CL, Klassen TP, Williamson J, et al. A randomized trial of a single dose of oral dexamethasone for mild croup. Pediatric Emergency Research Canada Network. *N Engl J Med*. 2004;351(13):1306–13
4. Bjornson C, Russell KF, Vandermeer B, Durec T, Klassen TP, Johnson DW. Nebulized epinephrine for croup in children. *Cochrane Database Syst Rev*. 2011;(2):CD006619
5. Denver Metro Airway Study Group. A prospective multicenter evaluation of prehospital airway management performance in a large metropolitan region. *Prehosp Emerg Care*. 2009;13(3):304–10
6. Ehrlich PF, Seidman PS, Atallah O, Haque A, Helmkamp J. Endotracheal intubations in rural pediatric trauma patients. *J Pediatr Surg*. 2004;39(9):1376–80
7. Freedman SB, Haladyn JK, Floh A, Kirsh JA, Taylor G, Thull-Freedman J. Pediatric myocarditis: Emergency department clinical findings and diagnostic evaluation. *Pediatrics*. 2007;120(6):1278–85
8. Gausche M, Lewis RJ, Stratton SJ, et al. Effect of out-of-hospital pediatric endotracheal intubation on survival and neurological outcome. *JAMA*. 2000;283(6):783–90
9. Grosz AH, Jacobs IN, Cho C, Schears GJ. Use of helium-oxygen mixture to relieve upper airway obstruction in a pediatric population. *Laryngoscope*. 2001;111(9):1512–4