



## DYE IN ENTERAL FEEDING

### Expected Practice:

- Dye should not be added to enteral feeding as a method for identifying aspiration of gastric contents.

### Supporting Evidence:

- Research and case reports of aspiration have shown that dye in enteral feedings is not visually detectable in situations similar to aspiration pneumonia.<sup>1-4</sup> A recent consensus statement on methods for identifying aspiration in critically ill patients recommended that dye be eliminated from enteral feeding since it lacks sensitivity for identifying aspiration of gastric contents.<sup>5</sup>
- The addition of dye to enteral feeding has been associated with several adverse events, including gastric bacterial colonization and diarrhea, systemic dye absorption, and death.<sup>6-9</sup> The FDA recently issued a Public Health Advisory based on reports of toxicity and death associated with dye in enteral feeding, although a direct causal relationship has not yet been definitively confirmed.<sup>9</sup> The majority of reported cases of toxicity and /or death occurred in patients with sepsis.
- Use of glucose testing of tracheal aspirates,<sup>1,10</sup> once proposed as a method for identification of gastric aspiration, is no longer recommended as a viable strategy.<sup>4</sup>

### What You Should Do:

- Do not use dye in enteral feedings as a method for identifying pulmonary aspiration.
- If your current practice includes use of dye in enteral feedings, consider forming a multidisciplinary task force (nurses, physicians, dieticians, respiratory therapists, clinical pharmacists) or a unit core group of staff to address the need for removing dye from enteral feedings at your institution.
- Assure that written practice documents (e.g., policies, procedures or standards of care) about enteral feeding do not include the addition of dye.
- Educate staff about the reasons for removal of dye from enteral feedings.

### Need More Information or Help?

- Talk with a clinical practice specialist for additional information / assistance at [www.aacn.org](http://www.aacn.org) then select PRN.

### References:

1. Potts R, Zaroukian M, Guerrero P, Baker C. Comparison of blue dye visualization and glucose oxidase test strip methods for detecting pulmonary aspiration of enteral feedings in intubated adults. *Chest*. 1993;103:117-121.
2. Thompson-Henry S, Braddock B. The modified Evan's blue dye procedure fails to detect aspiration in the tracheostomized patients: Five case reports. *Dysphagia*. 1995;10:172-174.
3. Metheny N, Dahms T, Stewart B, et al. Efficacy of dye-stained enteral formula in detecting pulmonary aspiration in intubated adults. *Chest*. 2002;122:276-281.
4. McClave S, Lukan J, Stefater J et al. Poor validity of residual volumes as a marker for risk of aspiration in critically ill patients. *Critical Care Medicine*. 2005;33(2):324-330.
5. McClave S, DeMeo M, DeLegge M, et al. North American Summit on Aspiration in Critically Ill Patients: Consensus statement. *JPEN*. 2002;26:S80-85.
6. File T, Tan J, Thomson R et al. An outbreak of *Pseudomonas aeruginosa* ventilator-associated respiratory infection and the significance of gastric colonization preceding Nosocomial pneumonia. *Infect Control Hosp Epidemiol*. 1995;16:417-418.
7. Maloney J, Halbower A, Fouty R et al. Systemic absorption of food dye in patients with sepsis (letter). *N Engl J Med*. 2000;343:1047-1048.
8. Bell R, Fishman S. Eosinophilia from food dye added to enteral feedings (letter). *N Engl J Med*. 1990;322:1822.

9. Acheson D. FDA Public Health Advisory: Reports of blue discoloration and death in patients receiving enteral feedings tinted with the dye, FD&C Blue No. 1. FDA Web site. Accessed September, 29, 2003, <http://www.cfsan.fda.gov/~dms/col-ltr2.html>
10. Metheny N, St.John R, Clouse R. Measurement of glucose in tracheobronchial secretions to detect aspiration of enteral feedings. *Heart and Lung*. 1998;27:285-292.

**Other Articles of Interest:**

1. Maloney J, Metheny N. Controversy in using blue dye in enteral feedings as a method for detecting pulmonary aspiration. *Crit Care Nurse*. 2002;22:84-86.
2. Aschenbrenner D. Drug Watch: Blue dye No. 1 advisory. *AJN* 2004;104:71.
3. Maloney J, Ryan T, Brasel K, et al. Food dye use in enteral feedings: A review and a call for a moratorium. *Nutr Clin Pract*. 2002;17:169-181.