



# neonatal perspectives

## NICU Enteral Feeding Extension Set Change Policy

Evi Dewhurst / July 2015

Neonatal intensive care units must rely on enteral feeding tubing to provide nourishment to certain infants in their care. These infants may be preterm or experiencing any number of congenital or developmental issues which prevent them from breastfeeding or bottle feeding directly.

Typically there are three disposable components used when delivering a syringe pump enteral feed: the syringe, the extension set and the feeding tube. While some NICUs bypass the extension set, a majority use this piece of equipment to provide ample length of tubing and to help prevent accidental tugging at the orogastric or nasogastric feeding tube. Unintentional movement or removal of the feeding tube could create multiple problems resulting in minor to severe health impacts for an infant.

All three of these items (syringe, extension set and feeding tube) are considered disposable. Unfortunately they are not recyclable, due to the nature of human milk as a biological fluid and the inability to completely sanitize such tiny and inaccessible inner tubing and connector cavities. Once a syringe or enteral tubing has been exposed to enteral nutrition, it should be discarded, with the exception of feeding tubes, which can remain intubated for differing lengths of time based on the tubing material.

- **PVC** feeding tubes: For use up to 3 days
- **Polyurethane** feeding tubes: For use up to 30 days
- **Silicone** feeding tubes: For use up to 30 days

Many clinicians have wondered, however, about the extension set duration of use. After all, it appears to be one item of equipment that can be rinsed or washed thoroughly for reuse, as it does not remain intubated in the patient. On the face of the matter, it seems simple enough. But there are three main reasons to avoid reusing extension set tubing beyond its initial, single use:

- Most extension sets are PVC and **may not withstand repeated reuse**
- The inner tubing and connector cavities **may not be reliably disinfected**
- The tubing may **harbor unacceptable levels of bacteria** after the initial feed<sup>1</sup>

In fact, it is widely recommended that the extension set be changed every four hours in order to prevent bacterial growth, especially when administering a continuous feed. The American Dietetic Association states in its Guidelines for Preparation of Human Milk and Formula in Health Care Facilities, “If continuous feeds are used, the syringe and tubing should be changed every 4 hours to avoid unacceptable levels of bacteria in the milk.”<sup>1</sup>

The American Society of Parenteral and Enteral Nutrition (ASPEN), states “While food in general is not sterile, it goes directly to the body’s defense mechanisms (hydrochloric acid and bile) which kill off many organisms in healthy individuals. Tube feeding products are perfect growth media.”<sup>2</sup> This is of particular importance when dealing with neonatal intensive care infants who are at risk due to their immature and oftentimes compromised immune systems.

The Human Milk Banking Association of North America (HMBANA) Guidelines address this issue as well by recommending “changing the tubing and syringe and feeding every 4 hours, particularly with breast milk that has previously been frozen.”<sup>3</sup>

Defining your internal protocol on this subject may oftentimes be influenced by budgetary concerns out of the control of NICU professionals. If that is the case with your unit, be sure to use these studies and others to educate and inform. Improper enteral tubing handling could result in a variety of issues for all patient populations, but most especially for the neonatal patient population, who often suffer from severely compromised immune systems.

Looking for more on this topic? Sandy Sundquist Beauman, MSN, RNC-NIC, wrote a previous blog on Infections and Feeding Tubes. Read it [here](#).

#### References:

1. Robbins S, Meyers R. Pediatric Nutrition Practice Group. (2011). [Infant feedings: Guidelines for preparation of human milk and formula in health care facilities](#) 2<sup>nd</sup> ed. American Dietetic Association.
2. The American Society of Parenteral and Enteral Nutrition (2009). *Enteral Nutrition Practice Recommendations*. ASPEN: Silver Spring, MD
3. The Human Milk Banking Association of North America, Inc. (2011). *Best Practice for Expressing, Storing and Handling Human Milk in Hospitals, Homes and Child Care Settings*. HMBANA: West Hartford, CT.

Correction dated August 6, 2015: The following reference was removed from this article:

1. AWOHNN, NANN, AACN (2014). [AACN Core Curriculum for Neonatal Intensive Care Nursing, \(4th Ed.\)](#). T. Verklan and M. Walden, (eds.) St. Louis: Elsevier.

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## About the Author



Evi Dewhurst is a Senior Manager, Marketing Communications for Medela, Inc. As a proud mother of two young children, she is passionate about healthcare for youngsters everywhere and has a serious soft spot for babies. She is part of the dedicated team at Medela, who together are committed to designing and manufacturing products to advance human milk healthcare. Have a question? Evi can be reached at [evi.dewhurst@medela.com](mailto:evi.dewhurst@medela.com)

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