

## FEATURE ARTICLE

# Enteral Feedings With Comfort and Safety

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**F**eeding tubes provide nutritional support to patients who cannot eat by mouth, such as patients experiencing dysphagia or anorexia not associated with physiologic disorders, upper aerodigestive tract cancers or upper gastrointestinal (GI) disorders.

Enteral feedings maintain the structural and functional integrity of the GI tract by preventing atrophic changes. In addition, they prevent cholestasis by stimulating bile flow. Compared with parenteral feeding, enteral nutrition improves systemic immunity and lowers infection risk. Even if only a small portion of the nutritional needs are met via the gut, physiologic benefits result (Bowers, 2000).

Factors to consider when selecting feeding tubes include the anticipated duration of nutritional support, aspiration risk, function of the GI tract, placement technique, and the patient's overall condition (see Table 1).

## Verifying Placement

Before any feeding tube can be used, correct placement must be confirmed by aspirating gastric fluid or by radiologic verification. Small bore tubes and weighted tubes intended for small bowel placement should be verified initially by x-ray (Metheny & Titler, 2001). Many institutional policies make this a requirement.

When surgically placed feeding tubes are replaced in a mature tract, placement can be verified by aspiration or drainage of the appropriate GI contents. Small lumen tubes, especially those in the small bowel, cannot

Patients who are unable to eat by mouth can be fed in a manner that maintains the structural and functional integrity of the gastrointestinal tract. The appropriate choice of type of feeding tube to use is based on the reasons patients need to be tube fed and the expected duration of need for the tube. Once the tubes are placed, verification of placement is critical for safe use. Patients, family caregivers, and staff must assess for potential complications. Misplacement is the most common problem of feeding tubes. Life-threatening complications can include "refeed syndrome" and "buried bumper syndrome." Additional threats include contaminated tube feeding and inappropriate medication administration. Feeding too rapidly into the small intestine can cause necrosis of the small bowel. To maintain patient comfort, site care is critical. Nasogastric tubes can cause permanent deformity of the nares. Gastric drainage on the skin can cause painful excoriation that is difficult to manage. With careful monitoring of tube feedings, positive nutritional status can be achieved. A positive nutritional status assists in promoting health and immune function.

be aspirated easily. These tubes frequently will drain the appropriate fluid when placed to straight drain. Feeding tube placement should be confirmed at the time the tube first is inserted, before intermittent feedings, and during continuous feedings using the procedures that follow (Metheny & Titler, 2001).

Check for chest or abdominal x-rays from the past 24 hours that may confirm placement. Check that the mark on the tube at the exit site indicates that the exposed tube length is unchanged (Metheny & Titler, 2001).

When giving intermittent feedings via a nasogastric tube, instill air, then aspirate before checking for residuals prior to feeding. If fluid can be aspirated, check for indicators

of gastric placement, pH less than or equal to five, and a gastric color, such as grassy green, clear and colorless, or cloudy white, with residual formula from previous feedings. If fluid cannot be aspirated or pH is six or greater, determine the patient's risk for dislodgement. Risk is increased by retching, vomiting, severe bouts of coughing, or frequent nasotracheal suctioning. If the risk is low and the tube has remained taped in its original position, the next feeding can be started. If the risk is high and the tube has moved, consider the need for an x-ray to verify placement (Metheny & Titler, 2001).

When giving continuous feedings, if the patient is tolerating the feedings without incident, the mark on the tube's exit site is in its original position, and the most recent x-rays indicate the placement is correct, the feedings can be continued. If the risk of displacement is high and the tube has moved, consider the

need for x-ray verification of placement. The pH measurement is not useful during continuous feedings because the formula raises the pH (Metheny & Titler, 2001).

None of these methods are fail-safe, so do not rely on one test alone. When in doubt, hold the tube feedings and obtain x-rays (Metheny & Titler, 2001).

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