

UPDATE - NG Tube Verification of Placement

Evidence-Based Practice – May 2015

Effective June 2nd, NG tube placement will be verified by multiple methods. The methods used will be based on whether the patient is a high risk for tube malposition and whether the patient is a neonate. Potential adverse events that could occur from a misplaced tube can be aspiration, pneumonia, pneumothorax and even death. Small bore NG tubes can also migrate out of position, knot, occlude or rupture. The goal is to standardize the practice of NG tube placement verification and on-going verification within care communities using the safest practices currently identified in the literature.

Current practice:

- NG tube placement is initially verified by x-ray in non-neonatal areas
- With all feedings and medications, ongoing verification is confirmed by auscultation
- **Issues:** Auscultation and aspiration of gastric contents have been shown to be ineffective methods to determine placement of NG tubes. In a retrospective review of 15 published case reports of pulmonary placement in NG tubes, auscultation **failed to detect** malposition in all seven cases where it was used (Metheny & Meert, 2014). X-ray verification remains the gold standard but raises concern with repeated exposure, particularly in neonates.

New practice (See “Verification of Placement” grid at the end of the clinical standard):

- NG tube placement is initially verified by x-ray in patients identified as “high risk” and in those receiving appropriate x-rays for other reasons.
- Initial tube placement must be verified by two trained caregivers (i.e. providers or RNs). X-ray read by a provider may constitute double-check. Double-check must be documented in the EMR.
- All patients will have NG tube placement verified by **multiple methods**. These include external tube length measurement, assessment of clinical condition and pH testing. Auscultation is not included in these methods.
- On-going assessment and verification of NG tube placement will take place prior to feedings and medications for patients on intermittent feeds, and once per shift for patients on continuous feedings. See grid for specifics and trouble-shooting when pH cannot be obtained.
- To verify placement with pH:
 - Clear tube with 2-5mL of AIR before drawing back aspirate. Do NOT flush the tube with water due to gastric placement has not yet been confirmed and the water may affect the pH level.
 - If unable to obtain aspirate, may inject another 1-5 ml of air as tube may be against the stomach wall. May repeat 2-3 times.
 - If unable to obtain aspirate, place patient on left side and wait a few minutes. This may help the tube fall down below the fluid level in the stomach. Reattempt aspiration.

- For patients who are NPO may perform oral cares to stimulate gastric secretion production.
- Ask another RN to attempt aspiration.
- If multiple interventions are ineffective yet external tube length remains unchanged and there are no changes in clinical condition, you may cautiously proceed with feeding or medication administration.

pH Finding	What it means
5 or less	<ul style="list-style-type: none"> • Can be correlated with correct placement in the stomach • Aspirate color (clear, light yellow, light green) will vary
5 to 6	<ul style="list-style-type: none"> • Most likely placed in the stomach but could indicate intestinal or respiratory placement
Greater than 6	<ul style="list-style-type: none"> • May indicate intestinal or respiratory placement – consult with provider re: possible x-ray to confirm placement, especially if this is a change in pH • Can at times, indicate stomach placement if the child is receiving acid suppression medications or continuous feedings.

- **If you are concerned at any time, regardless of pH or any other assessment, notify provider to discuss verification by x-ray.**

Please see clinical standard “Nasogastric/Orogastric Tube Insertion, Verification and Removal (Pediatric and Neonatal)” for full information.

If you have questions about this process, contact your clinical educator or CES.

References:

American Association of Critical Care Nurses. (2009). *Verification of feeding tube placement (blindly inserted)*. Retrieved from <http://www.aacn.org/wd/practice/does/practicealerts/verification-feeding-tube-placement.pdf?menu=aboutus>

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