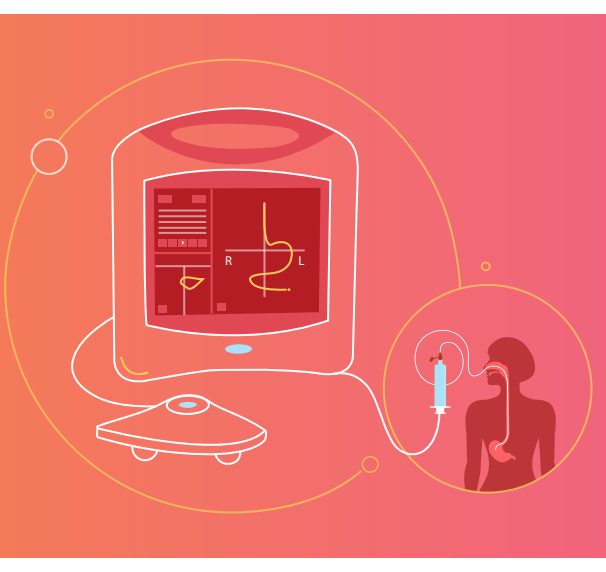
CHALLENGES OF CONVENTIONAL TUBE PLACEMENT CONFIRMATION TECHNIQUES



Gastric and post pyloric feeding tube placements may be associated with adverse events.[1]

- Tube misplacement may result in devastating and significant patient harm.[1]

There is a need for a safe, accurate and reliable method to insert and confirm feeding tube tip location.[2]

Methods used to confirm feeding tube tip location and associated limitations

Visual inspection of aspirate[2]

- Visual appearances can be highly variable[2]
- Aspirates from respiratory system can appear similar[2]

pH analysis of aspirate[2]

- False positive in case of GERD and if tip is in esophagus[2]
- Medication (antacids), buffering effect of food and partial gastrectomy can alter the stomach pH[2]
- Tracheal and duodenal pH can be similar[2]

Enzymatic analysis of aspirate[2]

- Not a true bedside test[2]
- Difficulty in distinguishing location in lungs vs stomach[2]
- Presence of gastroesophageal reflux can be a problem[2]

Bilirubin analysis of aspirate[2]

- Unable to distinguish between gastric and small bowel location[2]
- Low sensitivity (leads to inaccuracy in determining respiratory placement)[2]

Auscultation[2]

- Poor localization[2]
- Requires experience[2]

Blind placement[2]

- Highest risk of misplacement[2]

Palpation[2]

- High level of expertise required[2]
- Obesity may complicate technique[2]

Radiological[2]

- Patient exposure to radiation, expensive, time-consuming, inconvenient[2]
- Mobile fluoroscopy allows bedside visualization, but with radiation exposure to those in proximity[2]

Bubbling[2]

- Can also occur when the feeding tube is in GI tract[2]
- No bubbles with respiratory misplacement may indicate blockage of feeding tube with mucous[2]

Endoscopy[2]

- Invasive procedure, may require general anesthetic/sedation[2]
- Probable feeding tube dislodgement on endoscope removal[2]

Did you know ?

Various proposed and experimental methods exist to confirm feeding tube tip location. These include—[2]

- Capnography/capnometry
- Colorimetric capnography/capnometry
- ECG guidance
- Electromagnetic field detection
- External magnet guidance
- Illumination
- Ultrasonography

However, these come with their own limitations—need for extra equipment and devices, not bedside in nature, expensive, need for training, etc.[2]

Benefits of using electromagnetic (EM)-guided placement technique for feeding tube placement

Placement at bedside[1]

Visual tracking of the tube pathway[1]

Helps avoid malposition (lung placement) and complications[1]

Timely identification of potential malposition in 'real time'[1]

Broader team approach[1]

Nurses or dietitians can be trained to use the technique[1]

Decreased radiation exposure[1]

Better accuracy compared to X-ray[1]

Cost savings associated with reduced X-ray usage[1,3,4]

Reduced time to feed[4]

Feeding tube insertion using EM-guided placement technique requires focused training until confirmation of necessary skills.[4]

Our Solution

Feed patients faster, so they recover faster.[5]

An electromagnetic stylet provides real-time location information on tube tip placement within a patient's anatomy.[5] » On-screen visualization provides immediate feedback on tube placement.[5]

Efficient placement[5]

- Visualization at bedside
- Direct tubes to desired feeding placement with real-time feedback
- Immediately identify misplaced tubes
- Minimize complications, such as lung placements

Timely feeding[5]

- Can significantly reduce time-to-feed
- More efficient than blind placements with X-ray confirmation

Reduced burden[5]

- Address feeding needs more quickly
- Can improve patient outcomes
- Save time and resources

Allows clinicians to confidently place tubes in an optimal feeding position, quickly confirm location, and reduce the time to nutrition delivery.[5]

Institution protocols must always supersede the use of the CORTRAK*2. Clinical judgment must always take precedence.[6]

GI: gastrointestinal; GERD: gastroesophageal reflux disease; ECG: electrocardiography

References:
1. Powers J, Brown B, Lyman B, Escuro AA, et al. Development of a Competency Model for Placement and Verification of Nasogastric and Nasoenteric Feeding Tubes for Adult Hospitalized Patients. Nutr Clin Pract. 2021; 36(3):517-533. **2.** Milsom SA, Sweeting JA, Sheahan H, Haemmerle E, Windsor JA. Naso-enteric tube placement: a review of methods to confirm tip location, global applicability and requirements. World J. Surg. 2015; 39(9):2243-52. **3.** Gray R, Tynan C, Reed L, et al. Bedside electromagnetic-guided feeding tube placement: an improvement over traditional placement technique? Nutr Clin Pract. 2007; 22(4):436-44. **4.** McCutcheon KP, Whittet WL, Kirsten JL, Fuchs JL. Feeding Tube Insertion and Placement Confirmation Using Electromagnetic Guidance: A Team Review. JPEN J Parenter Enteral Nutr. 2018; 42(1):247-254. 5. Avanos CORTRAK* 2 ANZ brochure. 6. CORTRAK 2 Quick Start Guide_15M1360.

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