

# Evidence-Based Practice (EBP) - E176

## Poster

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### Abstract Title:

**Reducing Feeding Tube Placement Complications Utilizing Electromagnetic Technology**

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### Background & Purpose:

Although early enteral feeding in the critically ill trauma patient is an important contributor to positive outcomes, the traditional "blind" placement of a small bore feeding tube is one that can have complications and risks. An estimated 1.2 million feeding tubes are placed in the U.S. annually with 1-2 percent of these "blind" placements resulting in airway/lung misplacement leading to serious injury. A review of data confirmed a total of 6 misplaced feeding tubes from 2009-2011 at the study facility. The purpose of this initiative was to decrease the number of misplaced feeding tubes and promote safer feeding tube placement through the use of an electromagnetic placement device (EMPD).

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### Study/Project Design:

Review of feeding tubes placed using the EMPD system from August 2011 - September 2012.

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### Setting:

716 bed, Level 1 Trauma Center, 24 bed multi-specialty ICU located in South Florida.

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### Sample:

A total of 600 feeding tubes were placed utilizing the EMPD system. 121 feeding tubes placed in 97 patients, ages 22 and older were reviewed.

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### Procedures:

The procedure for this study utilized EMPD technology to place a small bore feeding tube. Placement was performed by a critical care nurse educated in the use of the EMPD system. Prior to x-ray verification, placement of the feeding tube was visualized and interpreted by the clinician based on the screen tracing provided. Tracing results were then documented in the medical record. An x-ray exam was obtained and interpreted by a radiologist and the results were compared to the EMPD tracing. Time from tube placement to x-ray result availability was analyzed and recorded. Additional variables collected included the name of clinician placing the tube and any complications that occurred including bleeding, pneumothorax and undetected pulmonary placement.

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### Findings/Results:

Retrospective data review of 121 random feeding tube placements utilizing EMPD technology found that zero occurrences of misplaced tubes or complications resulted. Further analysis showed that 69% of tubes placed with this technology had x-ray reports verifying placement in the small bowel. In addition, the amount of time from tube placement to x-ray report for clinicians to view was analyzed and found to be approximately 2.8 hours per tube placed which is important since early implementation of enteral feeding is a vital contributor to the promotion of healing and improved patient outcomes. Utilizing EMPD technology from 2011 - 2012 reduced the number of x-rays to one per feeding tube placement as compared to the national average of 2 - 3 exams for blind placement with a cost of each x-ray exam at approximately \$500. The prospective savings of eliminating post-placement x-rays by the use of EMPD technology is estimated to be approximately \$300,000 annually.

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### Discussion/Conclusions/Implications:

The implementation of the EMPD system assisted in the avoidance of misplaced small bore feeding tubes. The accuracy of the EMPD technology in determining small bore feeding tube placement as compared to an abdominal radiograph interpreted by a radiologist demonstrated safe and reliable results in the sample population. By utilizing this technology, the elimination of x-ray exams to verify feeding tube placement can significantly impact prolonged wait times associated with reading and transcribing radiology results and promote faster implementation of feeding while achieving a safe and cost effective tube placement process organizationally.