

Gastric Tube Placement in Young Children

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Dates of Support: 2004-2009

Funding Agency: National Institutes of Health

Abstract

Feeding by nasogastric/orogastric (NG/OG) tube is preferred when the gastrointestinal system is functional and the need for assisted feeding is expected to be short term. It is estimated that approximately one million enteral tubes are placed in adults and children in the United States annually. Preliminary studies show that between 21% and 44% of these tubes are placed incorrectly. When tubes are out of place, children can be seriously harmed, causing increased morbidity and occasionally death. Tube placement in children is especially understudied. Increasing the safety of NG/OG feeding in this population requires knowledge development in three areas – predicting the insertion distance for correct tube placement, determining tube position, and maintaining correct tube positioning. The proposed study addresses the first two of these knowledge needs. Goals are to determine the best method to predict the insertion distance for placing NG/OG tubes and to determine the best clinical methods of testing the location of NG/OG tubes once they are inserted. In addition, because the CO₂ monitor has not been adequately tested previously, this study will provide critical preliminary information about this method.

The sample will be 300 hospitalized children \leq 100 months of age requiring gastric tubes. Subjects will have their tubes placed using one of three randomly assigned insertion-length predictors: age-related, height-based; nose-ear-xiphoid; or nose-ear-midumbilicus. Immediately after insertion the position of the tube will be tested for unsuspected misplacement into the respiratory tree by measuring carbon dioxide (CO₂) levels within the tube. Next pH and bilirubin levels of tube aspirate will be measured to detect gastric or intestinal location. Actual tube location will then be determined by abdominal radiograph to assess the adequacy of both the insertion length predictors and placement-insertion-length predictors and to compare the accuracies among the placement-locating methods. Results from this study will increase the safety of using gastric tubes in young children.

Performance Site(s)

Indiana University School of Nursing
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Key Personnel:

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