

Decreasing Incidence of Pneumothorax Associated with Weighted Feeding Tube Placement

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Problem

Nutritional support of the hospitalized patient is an essential component to improve morbidity and mortality. Early initiation of nutrition has been shown to improve patient outcomes.¹ Many times in the acute phase of illness or injury, nutritional support is delivered via a weighted feeding tube. The practice of placing weighted feeding tubes is not without risk. Sorokin & Gottlieb, 2006, reported malposition rates ranging from 1.3 to 2.2% when placing feeding tubes blindly.² From January 2015 through December 2016, our hospital had a 275% increase in pneumothorax (PTX) associated with weighted feeding tube placement. We evaluated our insertion methods to see if our practice was supported by evidence. Our review led us to the PICO question: In an adult Level 1 regional teaching hospital, would utilization of colormetric CO₂ detector during weighted enteral feeding tube placement reduce incidence of pneumothorax?

Practice Change

Evidentiary placement practices were reviewed and discussed with the goal of improving enteral nutritional support and decreasing iatrogenic PTX associated complications. After considering costs and educational requirements, we decided to trial a 2 step insertion process utilizing colormetric capnography and CXR on select units. Six units were included in the trial period with 65 RNs receiving education on the changes.

Practice Implications

Based on the trial findings, the practice change was instituted throughout the hospital. Since going house-wide with this practice change, one instance of a PTX associated with tube placement has been identified. Tracking and trending continues.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
2014						1		1	1			1
2015				1		1	1	1				
2016			1		1		1	4	3		1	

Literature Review

The literature describes several methods to avoid pulmonary complications related to weighted feeding tube placement. Bennetzen, LV. et al found 2b evidence supporting colormetric capnography as a valid process.³ Moreover, the American Association of Critical Care Nurses (AACN) recommends the inclusion of capnography and confirmatory chest x-ray (CXR) in its practice alert on verification of feeding tube placement.⁴ Other sources suggest the formation of tube insertion teams, a two-step chest x-ray process as well as utilization of magnetic devices.⁵



Outcomes

During the CO₂ detector trial, no PTX associated with feeding tube placement were reported. Trial participants were asked to complete an evaluation form in which 91% felt the CO₂ detector was easy to use and caused no delay in the process. Several instances of false positive CO₂ detection occurred in which the vendor was brought back in-house for further education.

References

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