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EBP to EBQI: Eliminating the Routine Use of X-rays to Confirm Feeding Tube Placement in a PICU

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Background

- PICU RNs routinely place ND feeding tubes
- RNs trained and implemented use of CORTRAK® 2 ENTERAL ACCESS SYSTEM (EAS) device in 2013
  - Allows RN to visualize tube real-time via electromagnetic tracing
- Gold standard is x-ray confirmation of feeding tube placement
- RNs began questioning:

" Why do we need an x-ray if the feeding tube placement had already been visualized on the CORTRAK® 2 *?"*

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EBP Project

- CNS adopted this question as an EBP project
- Used Fineout-Overholt and Melynk's EBP Model
- Searched the literature (pediatric and adult)
- Collected tracings from the CORTRAK® 2 device and compared with the actual Xray for one year
- Internal data showed CORTRAK® 2 tracings correlated to the x-rays
- Implemented a process to eliminate routine x-ray to verify ND placement when criteria met on CORTRAK® 2 placement

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EBP Steps

- Step 0 • Cultivate a spirit of inquiry & EBP culture
- Step 1 • Ask the PICO(T) question
- Step 2 • Search for the best evidence
- Step 3 • Critically appraise the evidence
- Step 4 • Integrate the evidence with your clinical expertise and patient preferences to make the best clinical decision
- Step 5 • Evaluate the outcome(s) of the EBP practice change
- Step 6 • Disseminate the outcome(s)

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Step 0: Problem/Clinical Inquiry

Why are we still getting an x-ray?

X-Ray has been the standard to confirm placement of feeding tubes prior to initiating feeds. The PICU practice has been to continue to obtain an x-ray after tube placement even with CORTRAK® 2 placement.

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Step 1: PICO(T) Question

"IN CRITICALLY-ILL PEDIATRIC PATIENTS, HOW DOES SMALL BOWEL FEEDING-TUBE CONFIRMATION VIA ELCTRO-MAGNETIC PLACEMENT COMPARED TO RADIOLOGIC CONFIRMATION AFFECT ACCURACY OF PLACEMENT?"

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Step 2: Search Strategy

- Literature search of professional databases
  - CINHAL
  - Pub Med
  - Up to Date
  - Google Scholar
- Search terms included:
  - "Small bore feeding tubes", "nasogastric", "transpyloric", "electromagnetic", "verification", "radiographic", "pediatric" & "critically ill"

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Step 3: Critically Appraise the Evidence

- Powers, M.H., Fischer, M.H., Ziemba-Davis, M., Brown, J., & Phillips, D.M. (2013). Elimination of radiographic confirmation for small-bowel feeding tubes in critical care. *American Journal of Critical Care, 22*, 521-527.
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- Rivera, R., Campana, J., Hamilton, C., Lopez, R., & Seidner, D. (2011). Small bowel feeding tube placement using an electromagnetic tube placement device: Accuracy of tip location. *Journal of Parenteral and Enteral Nutrition. 35*(10). 636-642.

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Step 4: Integrate the Evidence

(with Clinical Expertise and Patient Preferences to Make Clinical Decision)

- Evidence showed that small bowel feeding tubes placed via an electromagnetic placement device may offer a viable alternative confirmatory technique to radiography.
- There are significant risks associated with exposure to radiation.
- There are additional costs associated radiography labor and film interpretation.
- No xray could reduce time to initiate feeds

What is the risk of implementing/risk of not implementing?

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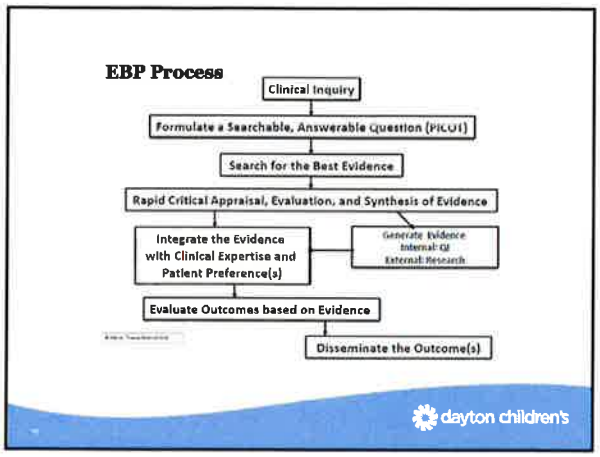

Step 5: Evaluate the Outcomes of the EBP Practice Change

- (Where do we go from here?)
- Review ND tubes placed via Cortrak2® in PICU
- Compare recorded tracings with X-ray results
- Compare Cortrak2® RN interpretation versus X-ray interpretation
- Track number of tubes placed
- Track number of x-rays obtained
- Assess any complications/incorrect placements

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Step 6: Disseminate the Outcomes

- Educate other units on use of Cortrak2®
- Collect PICU data on Cortrak2® tubes placed
- Publish/present the EBP project

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Oh no....we have a problem

We had two small bowel perforations in a short period of time...Halted the use.

- Looked at machine
- Looked at catheters
- Looked at process
- Reviewed our QI data (tracings and xrays)
- Reached out to other institutions
- Evidence showed that in our patients under 1 year of age that we were going deeper than intended.

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What did we learn?

- Two RN process
- Never meet all 5 criteria in the smaller anatomy patient
- Xray for all children less than 1 year of age
- Changed practice to use ND tubes a little more cautiously in children under 1 year of age
- Consider sedation prior to placing

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Where now?

- QI QI QI QI
- Annual training
- No spread to other areas in our hospital until there is an owner
- Protect our nursing process

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New EBP Project

- Can we eliminate the routine use of xrays for pyloric NG tubes placed via Cortrak2® RN
- PICOT Question
- Never ends

Thank You

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References

Melnyk, B. M., & *Fineout-Overholt*, E. (2005). Evidence-based practice in nursing & healthcare: A guide to best practice (2nd Ed). Philadelphia: Lippincott Williams & Wilkins.

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