

# REAL-TIME BEDSIDE CONFIRMATION OF NASOGASTRIC TUBE PLACEMENT USING AN ELECTROMAGNETIC VISUALISER

Enhance Patient Safety, Reducing Delays, Improving Confidence

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## 1. WHY IT MATTERS

At Ren Ci Community Hospital, nasogastric tube feeding is commonly used for patients in the chronic sick unit, many of whom have complex conditions, poor tolerance or challenging anatomy. However, tube insertion and placement confirmation can be delayed when gastric aspirate cannot be obtained, leading to repeated repositioning, chest X-ray confirmation, delayed feeding and increased patient discomfort.



To address this, the Smart Nurse initiative introduced an electromagnetic NGT Visualiser to provide real-time bedside tracking of tube placement.



### NGT Placement System

- Real-time tracking at the bedside
- Improves safety and efficiency
- Radiation - free confirmation

## 2. KEY CHALLENGES

- Narrow Lumen Affects Feeding Efficiency**
  - Slower feeding flow and difficulty in maintaining a secure connection
- Need for Tube Repositioning**
  - Misplacement leads to delays and repeated adjustments
- Usability & Workflow Gaps**
  - Staff unfamiliarity with the visualizer impacted confidence and use

## 3. METHODOLOGY

1 PLAN	2 DO	3 STUDY	4 ACT
<ul style="list-style-type: none"> <li>Selected pilot ward (Chronic Sick Unit)</li> <li>Trained nursing staff</li> <li>Developed workflow and protocol</li> <li>Defined success measures</li> </ul>	<ul style="list-style-type: none"> <li>Piloted NGT Visualiser with selected patients</li> <li>Implemented bedside-guided workflow</li> <li>Collected real-time procedure data</li> <li>Recorded workflow challenges</li> </ul>	<ul style="list-style-type: none"> <li>Compared pre- and post-implementation outcomes</li> <li>Measured insertion and confirmation time</li> <li>Evaluated reduction in X-ray use</li> <li>Assessed staff and patient experience</li> </ul>	<ul style="list-style-type: none"> <li>Refined workflow and procedures</li> <li>Addressed implementation gaps</li> <li>Continues outcome monitoring</li> <li>Prepare for wider rollout</li> </ul>

## 4. RESULTS

	<b>NGT Insertion time</b> ~ <b>74%</b> ↓	Each insertion
	<b>Serious Adverse Events</b> <b>ZERO</b>	Observed
	<b>Placement confirmation time</b> ~ <b>98%</b> ↓	Each placement
	<b>Estimated Savings</b> <b>\$48.9K - \$61.1K</b>	Saved per year

## WHAT CHANGED

	<b>Real - time correction</b> <ul style="list-style-type: none"> <li>Nurses could identify mouth coiling or misdirection and rectify placement immediately.</li> </ul>
	<b>Reduced radiation exposure</b> <ul style="list-style-type: none"> <li>Fewer patients required confirmatory chest x-rays when bedside confirmation was achieved.</li> </ul>
	<b>Improved comfort</b> <ul style="list-style-type: none"> <li>Faster confirmation helped reduce prolonged waiting, repeated repositioning and feeding delays.</li> </ul>
	<b>Better staff efficiency</b> <ul style="list-style-type: none"> <li>Time saved from insertion and nil-aspirate checks reduced workload and supported smoother care delivery.</li> </ul>

## 5. KEY TAKEAWAYS

- Successful adoption of NGT Visualiser depended on both the technology used and it's fit with bedside workflows.
- Structured hands-on training, clear guidance and ongoing support to build confidence.
- Equipment issues highlighted the need for end-to-end testing before wider implementation.
- Smart technology works best when paired with practical workflow planning, staff engagement and continuous frontline feedback.

## 6. CONCLUSION

The NGT Visualiser project shows how smart bedside technology can improve safety, efficiency and staff confidence at Ren Ci Community Hospital.

Reduced insertion time by about **74%** and placement confirmation time by about **98%**. It reduced delays, X-ray reliance and patient discomfort.

This Smart Nurse initiative turns a routine high-risk procedure into a safer, faster and more reliable care process.