Nasogastric and orogastric feeding tube acknowledged risk assessment: a nurse-led safety improvement project

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Background

2020 routine audits noted the process for NG tube tip position confirmation was inconsistent & could have safety implications

Reasons for inconsistent approaches were related to the reliance on chest x-rays for NGT position confirmation and concerns regarding radiation exposure

Efforts made to understand the current processes and barriers.

COVID-19 affected the progress of this project

24hr feeding was standard practice, changed to 20hr feeding. Improved practice allowing GI rest and a 'window' to obtain a gastric pH

Trouble-shooting training for pH testing. Persistent pH problems due to medications

The *ARA was developed in 2023 based on learning from other organisations (Royal Free and St. Georges Hospitals)

Aims

- Assess the safety of the ARA tool
- Evaluate the accuracy & functionality of the ARA tool
- Assess compliance with ARA risk review at initiation & during daily reviews
- Identify areas requiring improvement to ensure safe NG/OG tube management

Clinical Audit Standards

Based on NHSI (2016) NG/OG tube placement guidance and locally developed ARA protocol:

Initiation standards

- CXR within 24 hours prior to ARA start
- Full completion of initiation risk assessment by 2 nurses

Daily ARA standards

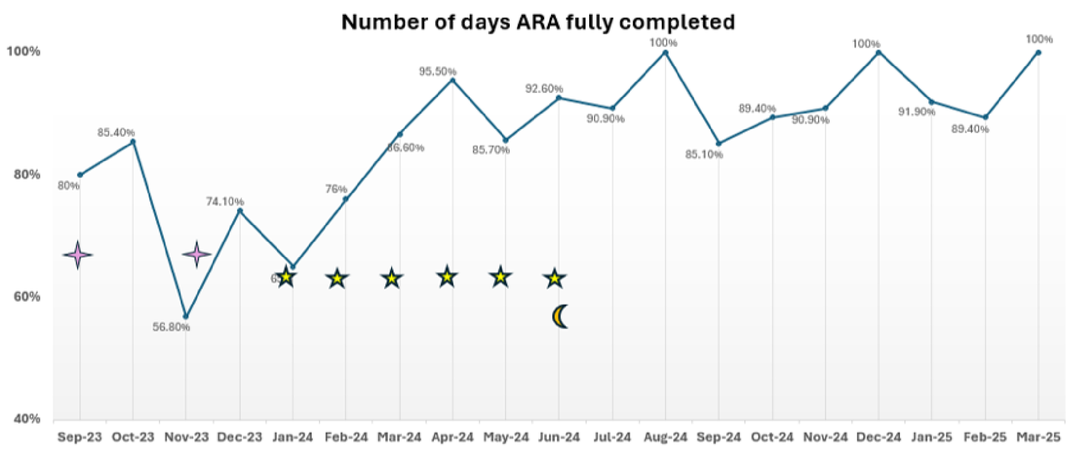
- Daily completion of risk assessment
- Evidence of attempt to position confirm by pH testing

Project Methodology

Bespoke audit tool developed for ICU, extracting data from ARA forms, CXR reports, and ICU documentation. In addition, daily audit of ARA forms for each NG/OG tube for up to 7 days.
Data collected retrospectively across an 18-month period (Sept 2023–Mar 2025).
As data was collected training and communication initiatives developed in response to results (see change log). Monitoring of clinical incidents and near misses.

Patient sample were those admitted to the ICU requiring NG/OG tube feeding.
Total: **134 patients**, with **689 audited ARA days**

Change log



= ARA training provided to ITU staff
= Educational posters distributed to ITU
= ITU carried out ARA survey

Results

This table demonstrates over the implementation period consistent improvement in results across the clinical standards.

	Sept 2023 – Mar 2024	Apr 2024 – Sept 2025	Sept 2024 – Mar 2025
Initiation			
Total patients	**57**	**40**	**37**
The initiation assessment was completed in full	59.7%	90.0%	97.3%
A chest X ray carried out within 24hrs prior to starting ARA	87.7%	95.0%	94.6%
The initiation of ARA was completed by 2 nurses	87.7%	97.5%	97.3%
Ongoing care			
Total Days	**310**	**190**	**189**
ARA was completed daily and in full	67.0%	91.5%	92.6%
ARA was completed by 2 nurses	92.3%	98.9%	97.4%

Below 80% Between 80-89% Between 90-94% Between 95-100% - compliant

Project Limitations

Variation in data collection period (14 days at the beginning of the project reduced to 7 days due to service capacity).
Staff turnover and reliance on bank/agency nurses.
Documentation inconsistencies — primarily due to staff documenting on the incorrect assessment form, leading to incomplete or missing data.
Early implementation phase affected by unfamiliarity with the tool.
Progress with the project was limited during the Covid-19 pandemic.

Conclusion

Compliance with the ARA improved significantly across the 18-month period, with initiation and daily completion rates rising from **~60–67%** to **>90%**.

The project demonstrates:

- **Improved safety** - no reported incidents or near misses
- **Consistency** in NG/OG tube management & documentation
- Strong **engagement** from ICU staff
- Clear **evidence** of learning and practice change

This project aligns with:

- **Getting It Right First Time (GIRFT)** principles through standardisation, reduction of unwarranted variation & improved patient safety
- **Putting Patients First** — reducing risk of tube
- **Empowering Staff** — structured assessment, training, & confidence in decision-making

Actions

- Mandatory online training for bank and agency nurses
- Ongoing training for new nursing staff
- Trust governance agreement to formally establish ARA in ICU
- Update Trust policy & NG/OG feeding tube assessment
- Continue monitoring & re-audit

ARA Tool

FOR USE IN THE ADULT INTENSIVE CARE UNIT ONLY

ICU Acknowledged Risk Assessment for NG and OG Tubes

ICU Acknowledged Risk Assessment (ARA) for use with existing nasogastric (NG)/orogastric (OG) tubes used for administration of feed, fluids, or medication, when confirmation of gastric position of the tube tip has not been possible with pH testing and the patient has been exposed to X-rays for NG/OG tube confirmation on a regular basis. On the first use of this ARA, an X-ray within the last 24hrs must have confirmed gastric placement of the current NG/OG tube using the **CXR review for NGT position check preconfigured template in CRS**.

Aspiration for pH testing must be attempted daily before the morning ward round. If unable to confirm gastric placement the ICU Consultant will decide if another X-ray is required or to use this ARA. This ARA must be reviewed and agreed daily by the patients ICU Consultant **during the morning ward round**.

Mark boxes with an "X", as applicable.

	Unable to obtain 1ml of aspirate (despite following recommended troubleshooting procedure)
	At least 1 ml of aspirate with pH of 5 or less

Previous radiological confirmation of placement

Date and time of **tube insertion**	
Date and time of **most recent** NG confirmation X-ray	

	Written interpretation of X-ray confirming correct placement of this tube → Continue ARA
	Placement not confirmed and/or documented → STOP and proceed to NG/OG chest X-ray

ASSESSMENT PRIOR TO EACH USE INCLUDING INITIAL ASSESSMENT

External tube length

External length at last NG/OG confirmation X-ray		cm
External length now		cm
Difference		cm
	Difference ≤ 2 cm →Continue risk assessment	
	Difference > 2 cm → STOP and proceed to NG/OG position confirmation with X-ray	

*External tube length is measured at the nostril (NG tubes) or lips (OG tubes)

Risk factors for displacement Have any of the following events occurred since tube placement was last confirmed.

Risk Factor	YES	NO
Forceful coughing, choking, vomiting, or retching		
New, unexplained respiratory deterioration		
Convulsive seizure		
Loosening /detachment of tube securement device		
Tube coiled in oropharynx on visual inspection		
Procedures associated with risk of tube displacement (e.g., intubation, extubation, tracheostomy, bronchoscopy, trans-oesophageal echocardiography)		
	No risk factors for displacement →Tube may be used unless or until the tube length changes by > 2 cm, or any risk factors present	
	Any risk factors for displacement →STOP and proceed to NG/OG position confirmation with X-ray (or remove if no longer required)	

Multidisciplinary team agreement with risk assessment approach Name and Signature

Nursing team member(s) contributing to this risk assessment	
Medical team member(s) leading this risk assessment Consultant or ST3 and above	

References

- NHS Improvement (2016). *Initial placement checks for nasogastric and orogastric tubes.* https://www.england.nhs.uk/wp-content/uploads/2016/07/Resource_set Initial_placement_checks_for_NG_tubes_1.pdf
- St George's & Royal Free Hospitals – NG and OG tube tools

Acknowledgements

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