

## Nasogastric Tube (NGT) Insertion - Full Clinical Guideline - UHDB

Reference No: CG-T/2014/210

### Introduction

The reason the NPSA generated an alert regarding nasogastric (NG) feeding tubes is that these tubes are usually fine bore and can be easily misplaced into the trachea and tolerated by patients. If feed is administered via a misplaced NG feeding tube, it can have serious consequences for the patient. NG tubes inserted for drainage are a larger diameter and are usually inserted for drainage following surgery or if a patient is obstructed. Once the NG drainage/ feeding tube is inserted, gastrointestinal fluid is easily drained or aspirated, indicating the tube is correctly positioned. If the tube is misplaced in the trachea it would not be well tolerated, therefore obvious to the clinician inserting the tube that it is "in the wrong place".

Thus a distinction can be made between NG feeding tubes and NG drainage/feeding tubes.

### Aim and Purpose

To provide guidance that applies to the insertion of ALL NG feeding tubes, regardless of where in the trust they are inserted

To outline the requirements necessary when making decisions regarding the need for enteral feeding via a nasogastric tube.

Provide a framework for assessing the need for, inserting, confirming position and managing NG feeding tubes, in compliance with patient safety alert NPSA/2011/PSA002 10 March 2011.

To identify who can insert NG feeding tubes at UHDB.

### Definitions

Nasogastric tube	a tube that is inserted via the nose, through the oesophagus and into the stomach.
Nasogastric <b>feeding</b> tube	a tube inserted into the stomach (as above) for the purpose of administering feed, fluid or medication.
Nasogastric <b>drainage /feeding</b> tube	a tube inserted into the stomach (as above) for the purpose of draining the stomach of excess gastrointestinal fluid, but can then be used for feeding for up to 7 days.
Nasogastric <b>drainage</b> tube	a tube inserted into the stomach (as above) for the purpose of draining the stomach of excess gastrointestinal fluid, but must not be used for feeding eg. ryles tube.

### Key points

- NG **feeding** tubes are covered by this guidelines, NG **drainage** tubes are not (any clinician inserting an NG drainage tube must be appropriately trained to undertake this procedure).
- NG feeding tubes must only be inserted by practitioners who have been trained, competency assessed and recorded on the trust database.
- **Only** Trust approved, radiopaque NG feeding tubes can be used.
- The purpose of an NG tube should be confirmed at the time of insertion.
- The rationale for insertion of an NG feeding tube must be documented prior to insertion.
- If the tube is for feeding, fluids or medication, it is an NG feeding tube (should be a fine bore tube).
- If the tube is for drainage only, it is an NG drainage tube (usually a wide bore tube).
- If an NG tube is inserted as a drainage tube and needs to subsequently be used for feeding, fluids or medication it becomes an NG feeding tube and the correct position must to be confirmed using pH testing or x-ray. **Ryles tubes must never be used for feeding.**
- Confirmation of position is required each time an NG feeding tube is used.
- pH testing is first line method of confirmation.
- X-ray is only required if pH testing does not confirm correct position.
- Guide wires must be removed from NG feeding tubes **immediately** following insertion, they are **NOT** required for x-ray.
- NG feeding tube insertion must be documented on a trust NG sticker, not sticker from the pack (appendix 1)

## Competency to insert NG feeding tubes

NG feeding tube insertion must only be undertaken by

- Senior doctors who have received appropriate training, have signed a self-certification form (appendix 4) and are recorded on the trust database.
- Registered nurses and ACP'S who have completed competency nasogastric tube insertion training and assessment, and have been recorded on the trust database. If training was at another trust a self-certification form (appendix 5) must be completed and sent for inclusion on the trust database.
- Foundation programme doctors who have completed competency nasogastric tube insertion training and assessment **UHDB** and have been recorded on the trust database.

## Assessment for nasogastric feeding

Before a decision is made to insert an NG feeding tube, an assessment must be undertaken to identify if NG feeding is appropriate for the patient. The rationale for any decision must be recorded in the patient's medical notes, including if feeding is for a limited trial. An NG tube should not be inserted unless this is documented. As a minimum the following is required.....

*“Mr X has been NBM for 24 hours due to having an unsafe swallow following a CVA (for example). An assessment has been made by speech and language therapy and it is unsafe for Mr X to take diet, fluids and medication orally. A NG tube is required for feeding”*

## Bedside insertion of an NG feeding tube

Most NG feeding tubes will be inserted by ward nursing staff or ACP's. However there are some patients where nurses would not be expected to insert NG tubes (feeding or drainage):

- Maxillo-facial / laryngectomy/Head and neck surgery
- Recent oesophagectomy/oesophageal cancer/stricture
- Known oesophageal fistula, pharyngeal pouch
- Basal skull fracture.
- Recent nasal fracture (broken nose)

In these situations experienced doctors who are recorded on the trust database may be able to insert an NG feeding tube or alternatively may request insertion under fluoroscopy.

Care should be taken when inserting NG tubes into patients with tracheostomies and it should be established whether the cuff is inflated or deflated before attempting insertion and cuff pressure should be checked.

## Timing of NG tube insertion

Under normal circumstance NG feeding tubes must always be inserted between 7am and 9pm at RDH, 8am and 4pm at QHB. The only exception to this are patients who require critical medication e.g. post cardiac arrest patients who have had stents placed and require urgent antiplatelet drugs to be administered.

## Confirmation of position

- **First line method** to confirm position is pH testing, with pH 5.5 or less used as confirmation of correct position.
- **Second line method** to confirm position is x-ray, used only at the time of insertion, when no aspirate can be obtained (despite trying all appropriate techniques, see appendix 2) or pH indicator strip has failed to confirm the correct position. **Guide wires must be removed prior to x-ray.** Once an x-ray has confirmed an NG tube is correctly positioned feeding should be commenced. The only indication for a repeat x-ray would be if the tube has been dislodged, the patient develops new or unexplained respiratory symptoms, if oxygen saturations decrease, when there is suggestion of tube displacement or following episodes of vomiting, retching or coughing spasms or if the pH was previously 5.5 or less but is now >5.5

pH testing is required **every time** the NG feeding tube is used for feed, fluid or medication, the result must be recorded on the nasogastric feeding tube position confirmation record (appendix 3) an x-ray is not required every day. Drugs such as PPI (e.g. Omeprazole) or H2 antagonists (e.g. Ranitidine) can cause the pH of gastric fluid to be raised. When these drugs are being used (and position at the time of insertion was confirmed by x-ray) the tube may still be used if subsequent pH readings remain above pH 5.5, as long as the external position of the tube has not changed and a second competent person

has checked the pH reading and the external position of the tube. If the tube is marked with permanent marker pen, ensure this remains at the entrance to the nose.

### **If chest x-ray is required**

A chest x-ray is **NOT** required to confirm NG feeding tube position, **UNLESS** it has not been possible to aspirate fluid with a pH 5.5 or less, an x-ray will not be required for the majority of NG tubes.

**Please note that there are some differences in x-ray reporting of NG feeding tube position at RDH and QHB, please follow the site specific guidelines below.**

### **Royal Derby Hospital site**

The chest x-ray request must be phoned through as urgent, and an urgent report requested.

Adult & all 'out of hours' requests: 83223 / 88916  
Paediatrics: 09:00 to 16:30 Monday to Friday: 85540.

The chest x-ray must be requested by a doctor and clearly state that the purpose of the x-ray is to confirm NG feeding tube position as well as other relevant clinical information. This will allow the radiographer to perform the appropriate examination.

**Note: Guide wires must be removed prior to x-ray as NG tubes used within the Trust are still radio-opaque (visible on x-ray) without the guide wire.**

It is part of the radiographer's role to satisfy themselves that appropriate first line tests have been attempted before performing the x-ray. If this information is not included in the request, they may need to ask the requesting doctor for further information, which must be provided before the examination can proceed.

If the NG tube is removed prior to x-ray or position has been successfully confirmed by pH testing, the referrer is responsible for cancelling an x-ray request, this must include phoning the x-ray department.

All chest x-rays performed to confirm NG feeding tube position must be reported by a radiologist, who will make an assessment of the NG tube position. No doctor other than a radiologist is permitted to assess NG tube position on an x-ray.

### **Radiologist's report**

Reporting of x-rays to confirm NG tube position will not be undertaken after 10pm.

The only exception to this is when an NG feeding tube would be required overnight. One example is a patient presenting obtunded with a cardiac emergency e.g. post cardiac arrest who requires critically important cardiac antiplatelet medication to be administered enterally. In this situation an NG feeding tube (required for medication) needs to be inserted as an emergency and confirmation of position will be required initially using pH testing, but radiological confirmation will be required if pH testing does not confirm position. There will be a radiology SpR on site and able to report the images, although they will need to be phoned and the report requested as urgent. Exceptionally there will be no on site radiology reporting staff, and an x-ray may need to be reported via a remote radiology reporting service. This report must be requested as an emergency to enable confirmation of position and administration of essential medication.

If the tube is correctly positioned the report will include the following phrase:-

*"NG tube noted in situ with its tip projected over the stomach beneath the left diaphragm. The radiological assessment, valid at the time the image was obtained, is that it is safe to proceed with administration of liquids via the tube."*

The NG tube must not be used until the radiologist report has been recorded in the notes by a doctor, AP or competent registered nurse. Doctors who are not radiologists are not permitted to interpret NG tube position on CXR.

### **Queens Hospital Burton site**

The chest x-ray request must be phoned through as urgent, the referrer must also request an urgent formal report.

Call 5158 8am to 4pm

The chest x-ray must be requested by a doctor and clearly state that the purpose of the x-ray is to confirm NG feeding tube position as well as other relevant clinical information. This will allow the radiographer to perform the appropriate examination.

### **Note: Guide wires must be removed prior to x-ray as NG tubes used within the Trust are still radio-opaque (visible on x-ray) without the guide wire.**

It is part of the radiographers role to satisfy themselves that appropriate first line tests have been attempted before performing the x-ray. If this information is not included in the request, they may need to ask the requesting doctor for further information, which must be provided before the examination can proceed.

If the NG tube is removed prior to x-ray or position has been successfully confirmed by pH testing, the referrer is responsible for cancelling an x-ray request, this must include phoning the x-ray department.

All chest x-rays performed to confirm NG feeding tube position must be reported by an appropriately qualified reporting radiographer or radiologist who will make an assessment of NG tube position. No person other than an appropriately qualified reporting radiographer or radiologist is permitted to assess NG tube position on an x-ray.

### **Qualified reporting radiographers/radiologists report**

Reporting of x-rays to confirm NG tube position will not be routinely undertaken after 4pm.

The only exception to this is when an NG feeding tube would be required overnight. One example is a patient presenting obtunded with a cardiac emergency e.g. post cardiac arrest who requires critically important cardiac antiplatelet medication to be administered enterally. In this situation an NG feeding tube (required for medication) needs to be inserted as an emergency and confirmation of position will be required initially using pH testing, but radiological confirmation will be required if pH testing does not confirm position. After 4pm and at weekends there is no on site radiology reporting staff and in this situation an x-ray will need to be reported by the TMC, remote radiology reporting service. This report must be requested as an emergency to enable confirmation of position and administration of essential medication.

If the tube is correctly positioned the report will include the following phrase:-

*“NG tube noted in situ with its tip projected over the stomach beneath the left diaphragm. The radiological assessment, valid at the time the image was obtained, is that it is safe to proceed with administration of liquids via the tube.”*

The NG tube must not be used until the appropriately qualified reporting radiographer /radiologist report has been recorded in the notes by a doctor, AP or competent registered nurse. Doctors who are not radiologists are not permitted to interpret NG tube position on CXR.

### **NG tubes inserted in theatre or endoscopy**

NG feeding tubes or NG drainage tubes may be inserted peri operatively by anaesthetists or endoscopically to allow gastric drainage, or feeding. The anaesthetist/endoscopist will place the NG tube under direct/endoscopic vision and confirm correct position at the time. However where feeding is to be initiated by the nursing staff it may be several days after the NG tube was inserted and there is the potential

for the NG feeding tube to have become misplaced. In this situation pH testing must be performed first (with a subsequent x-ray if pH testing is not confirmatory).

### **NG tubes inserted in x-ray**

The radiologist will insert the NG feeding tube under fluoroscopic guidance and will confirm correct position. pH testing should be performed by the nursing staff before starting feed, however if pH testing does not confirm position a repeat x-ray is not required and the original radiological confirmation of position will be accepted. The only indication for a repeat x-ray would be if there is suggestion of tube displacement or the patient develops new or unexplained respiratory symptoms, if oxygen saturations decrease or following episodes of vomiting/ retching/ coughing spasms or if the pH was previously 5.5 or less but is now >5.5.

### **NG tube stocks**

**All NG feeding tubes stocked within UHDB must be Trust approved and radiopaque.**

#### **Royal Derby Hospital site**

High use areas (ICU, wards 304 and 305, 410) order their own supply of NG feeding tubes, theatres, Endoscopy and x-ray also maintain stocks. These areas will not supply tubes to any other ward or department.

Low use areas keep a small supply of tubes that are maintained by pharmacy top up services. Other areas must obtain NG feeding tubes, when required from pharmacy ward services. Pharmacy opening hours Mon - Fri 08.15 to 17.45, Sat - Sun 09:00 to 13:00

A small number of NG feeding tubes are stored in the equipment locker **for out of pharmacy hours use only**

#### **Queens Hospital Burton site**

ICU, theatres and neonates order their own supply, all other areas have a small stock maintained by stores top up.

### **Documentation Controls**

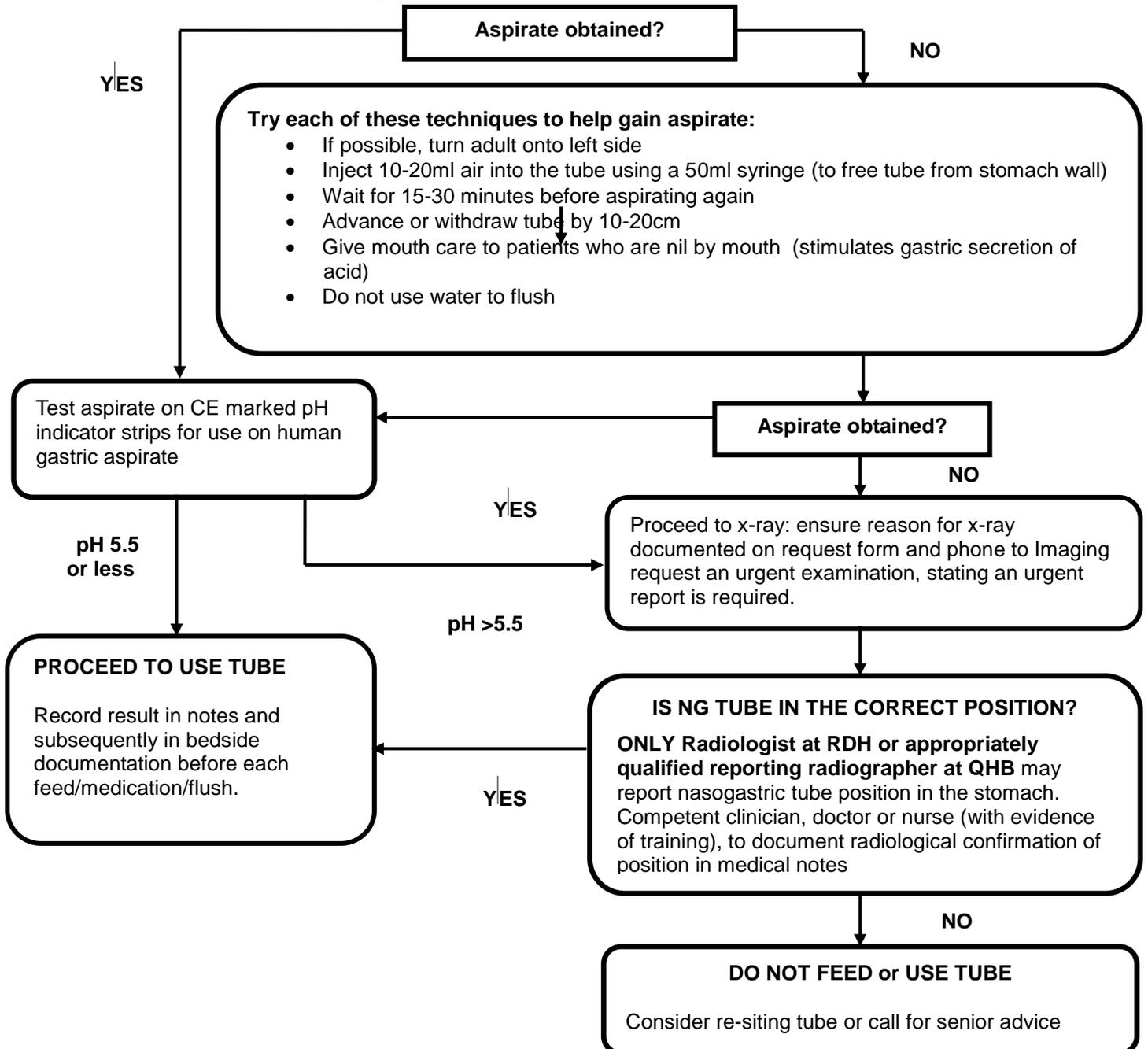
Development of Guideline	Liz O'Dell, Lead Nutrition Nurse Specialist Dr Stephen Hearing, Consultant Gastroenterologist
Consultation with:	Dr Low ITU Consultant Nutrition team Nutrition and hydration steering group Radiology
Approved By:	Nutrition team 6th December 2019 Nutrition and hydration group January 2020 Patient safety Medicine Division - 17/01/20 Surgical Division - 19/11/19 CDCS - 4/2/20 (Therapies) Penny Owens - 14/2/20  Addition of Appendices 1 and 3, approved by Med Div 22/12/2020
Review Date:	April 2023
Key Contact:	Liz O'Dell, Lead Nutrition Nurse Specialist

## Trust NG insertion sticker

NG FEEDING TUBE INSERTION					
<b>DO NOT USE THE NG TUBE UNTIL ALL DETAILS BELOW ARE COMPLETED</b>					
Patient name					
Hospital number		Ward			
Type of tube		Size	fg		
LOT number		Expiry date			
Date of insertion		Time of insertion			
NEX measurement	cm		Tube length at nose (cm mark)	cm	
Nostril used for insertion	LEFT	RIGHT	Aspirate obtained	YES	NO
pH of aspirate (if obtained)			Is x-ray required (eg if pH >5.5)	YES	NO
Tube inserted by	sign		print		
<b>THE GUIDE WIRE <u>MUST</u> BE REMOVED IT IS NOT REQUIRED FOR X-RAY</b>					
Guide wire removed by	sign		print		
Witnessed by	sign		print		
X-RAY CONFIRMATION					
X-ray report by radiologist / qualified reporting radiographer ONLY					
Date of x-ray interpretation			Time of x-ray interpretation		
Is this the most current x-ray?	YES	NO	Is this x-ray for the correct patient?	YES	NO
If it is safe to feed via NG tube the x-ray report will include the following phrase <b><i>“NG tube noted insitu with its tip projected over the stomach beneath the left hemi diaphragm. The radiological assessment, valid at the time the image was obtained, is that it is safe to proceed with administration of liquids via the tube”</i></b>					
X-ray report read by: (Doctor or Trust approved Nurse for NG insertion)	(sign & print)				

- Estimate NEX measurement (Place exit port of tube at tip of nose. Extend tube to earlobe, and then to xiphisternum).
- Insert fully radio-opaque nasogastric tube for feeding (follow manufacturer's instructions for insertion)
- Confirm and document in notes secured NEX measurement
- Aspirate with a syringe using gentle suction
- Guide wire **MUST** be removed following insertion, even if x-ray is required to confirm position

## Decision tree for nasogastric tube placement checks in ADULTS



PPI or H2 antagonist use can cause the pH of gastric fluid to be raised. When these drugs are being used (and NG tube position has been confirmed on insertion by x-ray), the NG tube may continue to be used even if subsequent pH readings continue to fall between 5 – 6, as long as feed is tolerated and the external position of the tube has not changed. However a second competent person must check the reading or retest the pH prior to use.

A pH of 5.5 or less is reliable confirmation that the tube is not in the lung, however it does not absolutely confirm gastric placement as there is a small chance the tube tip may sit in the oesophagus, where it carries a higher risk of aspiration. If aspiration or feed regurgitation occurs proceed to x-ray in order to confirm tube position.





# **Fine Bore Nasogastric Feeding Tube Insertion**

## **Self-certification Document for Doctors in insertion of nasogastric feeding tubes**

## CRITERIA FOR COMPETENCE

To meet the Trust's requirements for the insertion of NG feeding tubes, doctors must either be:

Consultants or SAS doctors who are substantive in post at Royal Derby Hospital or Queen's Hospital Burton, with previous experience of insertion of Nasogastric feeding tubes and who understand and agree to follow the Trust Clinical Guideline on "NG feeding tube – confirmation of position"

or

Doctors-in-Training who are new to the trust who:

1. Have previously undertaken training and have been certified as competent in the skill of feeding NG feeding tube insertion.
2. Maintain competence by inserting a **MINIMUM** of 2 NG feeding tubes a year.
3. Doctors-in-Training must not practice this skill if they have been unable to maintain their competence within the previous 12 months and must re attend training.

**Foundation Programme doctors are not permitted to self-certify and must attend a Trust training session on NG feeding tube insertion.**

## Information for staff inserting fine bore NG tubes at UHDB

- All staff who insert fine bore NG tubes must be competency trained, assessed, and recorded on the trust database.
- To maintain competence, a **minimum** of 2 fine bore NG tubes must be inserted each year.
- All staff who insert fine bore NG tubes must have undertaken verification of tube position (pH testing) training and competency assessment, and be recorded on the trust verification of tube position database.
- The rationale and aims of feeding must be documented
- Unless an emergency, NG tubes are not to be inserted after 10pm.
- NEX measurement must be assessed prior to insertion.
- **The guide wire must be removed immediately following insertion, even if x-ray is required for confirmation of position, as the tubes are radio opaque.**
- A **trust** NG insertion sticker must be completed and put in the medical notes.
- Nasogastric tube position confirmation record “pH form” must be completed each time a tube is inserted or pH tested.
- pH must be tested every time the tube is accessed.
- X-ray is only required to confirm position if a pH of 5.5 or less cannot be obtained at the time of insertion.
- If pH remains between 5 and 6 after initial confirmation of position with x-ray, two trained practitioners must check and document tube position and pH, repeated x-rays are **NOT** required.
- **ONLY** Radiologists at RDH or Advanced practitioner radiographers/radiologists at QHB can interpret the x-ray and report nasogastric tube position in the stomach
- If the NG tube is correctly positioned the report will include the phrase-  
*“NG tube noted in situ with its tip projected over the stomach beneath the left diaphragm. The radiological assessment, valid at the time the image was obtained, is that it is safe to proceed with administration of liquids via the tube.”*
- Competent clinicians (with evidence of training) may document radiological confirmation of position in medical notes.
- A decision tree for checking NG tube position can be found on the back of the pH form.
- All enteral/oral syringes are single use only.

**OLH reference:** nasogastric feeding tube placement- external

# **Nasogastric Feeding Tube Insertion – External**

## **STATEMENT OF EXTERNAL TRAINING AND ASSESSED COMPETENCE**

**Practitioners Name**.....

*Print clearly as shown on payslip*

**Designation**.....

**I confirm that:**

- I have previously received training and supervision and now undertake independent practice in insertion of NG feeding tubes (Substantive Consultants and SAS doctors only).

Or (Delete as appropriate)

- I have previously received training and have undertaken a period of assessed, supervised practice, and previously certified as competent (Doctors-in-Training).
- I have maintained my competence.
- I accept my professional accountability for unsupervised practice when performing this skill.
- I have undertaken UHDB verification of tube position (pH testing) training and have been included on the trust database

**Signature of Practitioner**.....

**Date:** .....

**When this form has been completed please return it to:-  
The Learning Hub, Level 3, Rehab Block RDH**

Retain a copy of this form for your professional portfolio



**University Hospitals of  
Derby and Burton**  
NHS Foundation Trust

## **Fine Bore Nasogastric Feeding Tube Insertion**

**Self-certification and Information for practitioners who  
have received training at another trust.**

## CRITERIA FOR COMPETENCE

To meet the Trust's requirements for the insertion of fine bore NG tubes, practitioners who are new to the trust must:-

- ▶ Have previously undertaken a period of training, supervised practice and have been certified as competent in the skill of fine bore NG tube insertion.
- ▶ Completed competency training for verification of tube position (pH testing) training, and be recorded on the trust database
- ▶ Maintain competence by inserting a **MINIMUM** of 2 NG tubes a year.
- ▶ Practitioners must not practice this skill if they have been unable to maintain their competence within the previous 12 months and must re attend training.

## Information for staff inserting fine bore NG tubes at the UHDB

- All staff who insert fine bore NG tubes must be competency trained, assessed, and recorded on the trust database.
- To maintain competence, a **minimum** of 2 fine bore NG tubes must be inserted each year.
- All staff who insert fine bore NG tubes must have undertaken verification of tube position (pH testing) training and competency assessment, and be recorded on the trust verification of tube position database.
- The rationale and aims of feeding must be documented in the medical notes
- Where ever possible NG tubes should not be inserted after 10pm.
- NEX measurement must be assessed prior to insertion.
- **The guide wire must be removed immediately following insertion, even if x-ray is required for confirmation of position, as the tubes are radio opaque.**
- A **trust** NG insertion and guide wire removal sticker must be completed and put in the medical notes.
- Nasogastric tube position confirmation record “pH form” must be completed each time a tube is inserted or pH tested.
- pH must be tested every time the tube is accessed.
- X-ray is only required to confirm position if a pH of 5.5 or less cannot be obtained.
- If pH remains between 5 and 6 after initial confirmation of position with x-ray, two trained practitioners must check and document tube position and pH.
- **ONLY** Radiologists at RDH or Advanced practitioner radiographers/radiologists at QHB can interpret the x-ray and report nasogastric tube position in the stomach.
- If the NG tube is correctly positioned the report will include the phrase-  
*“NG tube noted in situ with its tip projected over the stomach beneath the left diaphragm. The radiological assessment, valid at the time the image was obtained, is that it is safe to proceed with administration of liquids via the tube.”*
- Competent clinicians (with evidence of training) may document radiological confirmation of position in medical notes.
- A decision tree for checking NG tube position can be found on the back of the pH form.
- All enteral/oral syringes are single use only.

## Nasogastric Feeding Tube Insertion – External

### STATEMENT OF EXTERNAL TRAINING AND ASSESSED COMPETENCE

**Practitioners Name**.....

*Print clearly as shown on payslip*

**Designation**.....

**I confirm that:**

- I have previously received training and have undertaken a period of assessed, supervised practice, and certified as competent at another trust.
- I have maintained my competence since training.
- I accept my professional accountability for unsupervised practice when performing this skill.
- I have undertaken UHDB verification of tube position (pH testing) training and have been included on the trust database

**Signature of Practitioner**.....

**Date:** .....

**When this form has been completed please return it to:-  
The Learning Hub, Level 3, Rehab Block RDH**

Retain a copy of this form for your professional portfolio