



Nasogastric Tube Management and Care

This procedural document supersedes: PAT/T 17 v.5 - Nasogastric Tube Management and Care



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Executive Sponsor(s):	David Purdue – Director of Nursing, Midwifery and Allied Health Professionals
Author/reviewer: (this version)	Hannah Stirland – Nutrition Nurse Specialist
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Amendment Form

Please record brief details of the changes made alongside the next version number. If the procedural document has been reviewed **without change**, this information will still need to be recorded although the version number will remain the same.

Version	Date Issued	Brief Summary of Changes	Author
Version 6	23 Sept 2020	<ul style="list-style-type: none"> • Revised duties and responsibilities • Comment regarding grey screens removed • Patients lacking capacity updated • Updated code for x-ray request to XNASG and x-ray confirmation section • Updated documentation requirement to include nasogastric/nasojejunal feeding tube care sheet and feed regimen 	H Stirland
Version 5	7 July 2017	<ul style="list-style-type: none"> • Latest NPSA guidance added • X-ray documents updated with emphasis on including the four criteria • Nasogastric tubes updated to specify ENFit • Procedural guidance for insertion of nasogastric tube updated 	H Stirland
Version 4	13 August 2015	<ul style="list-style-type: none"> • New format • Revised to reflect new Care Groups • Information added regarding changes to ISO connectors later this year. 	A O'Donnell
Version 3	October 2011	<p>It is recommended that this policy is read in full.</p> <ul style="list-style-type: none"> • Title change • Format updated and items re-arranged. • Policy revised to reflect Trust service changes. • Greater emphasis on X-ray interpretation. • Greater emphasis on assessment of competence. • The decision trees for adults (Appendix 3), children and infants (Appendix 4) have been revised • Removed Appendix 5 - Flowchart -Intensive Care Unit. • Decision Tree - Neonatal is now Appendix 5. 	A O'Donnell
Version 2	November 2008	Major changes made please read in full	A O'Donnell

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1. INTRODUCTION

Nasogastric tube feeding has been common practice in all groups of patients, from neonates to older people, for many years. Thousands of nasogastric feeding tubes are inserted daily without incident. However, there is a small risk that nasogastric feeding tubes can be misplaced in the lungs during insertion, or can migrate out of the stomach at a later stage.

The National Patient Safety Agency (NPSA) Patient Safety Alert 05 (2005) and Patient Safety Alert 06 (2016) (now renamed NHS England/NHS Improvements) provides guidance to the NHS on checking and confirming that a nasogastric tube had been inserted into the right place, i.e. the stomach. This followed reports to the NPSA's National Reporting and Learning System (NRLS) of patient death as a result of feeding into the lung through misplaced nasogastric tubes. Between September 2011 and March 2016, 95 incidents were reported to the NRLS where fluids or medication were introduced into the respiratory tract or pleura via misplaced nasogastric or orogastric tubes. These incidents show that risk to patient safety persist with misinterpretation of x-rays by medical staff who have not received the required competency based training as the most common type of error, with other errors including nursing staff and pH testing, unapproved placement checks and communication failures. The policy reflects the NPSA guidance (2011, 2016).

2. PURPOSE

1. To promote a clear, consistent and evidenced based approach to the insertion, care and management of nasogastric tubes.
2. To promote the safety and well-being of all patients who require a nasogastric tube.
3. To provide guidance regarding scope of professional practice, level of competence and accountability in nasogastric tube insertion, care and management.
4. To provide a framework for roles and responsibilities in nasogastric tube insertion and care thereafter.

3. DUTIES AND RESPONSIBILITIES

Clinicians

As part of a multi-disciplinary team, make the decision to insert tube following appropriate assessment and consultation with the patient /carer and other team members.

- Clinicians inserting nasogastric (NG) tubes or interpreting X-rays for NG tube placement should be able to produce evidence of satisfactory training and assessment if requested by consultant, ward manager or another senior member of the ward team.
- Clinicians must ensure x-ray is requested using XNASG code on ICE and states that the purpose of the x-ray is to identify the position of a nasogastric feeding tube, and reason for the x-ray, i.e. aspirate not obtained or pH level not between 1- 5.5. See section 4.7 (x-ray confirmation) for more detailed guidance.

- X-ray checking procedures must be timely and carried out by clinicians assessed as competent to do so. All results should be confirmed and recorded in the patient records ensuring the most current x-ray for the correct patient is reviewed, the four criteria:
 1. Follows the contours of the oesophagus/avoids the contours of the bronchi
 2. Clearly bisects the carina or the bronchi
 3. Cross the diaphragm in the midline
 4. The tip is clearly visible below the left hemi-diaphragm

for confirming gastric placement and clear instructions as to actions required are documented using the structured approach on the nasogastric/nasojejunal feeding tube care sheet and feed regimen (WPR 45990) and communicated to the relevant nursing staff (NPSA 2011,2016).

- Where there is a continuous difficulty obtaining aspirate with a pH of less than 5.5, it may be necessary for the senior medical staff to make a decision on how to manage the nasogastric tube feeding. All decisions and rationale should be documented. (NPSA 2011).

Radiographer

The radiographer must ensure that:

- the image demonstrates apices to upper abdomen as far below the diaphragm as possible.
- the exposure is adjusted to allow the nasogastric tube to be visible at the bottom of the image.
- the patient is not rotated in relation to the imaging plate.
- the image shows the bottom of both hemi-diaphragms in the midline.

Any image not as described above will not allow accurate interpretation of nasogastric tube placement. Further or repeat x-ray imaging should be performed.

Radiologist

The radiologist report of the film must document the position of the nasogastric tube and tip, and clearly state in the report when it is NOT safe to proceed with the administration of any liquids via the tube.

Registered Nurse/Midwife (and other Healthcare Professionals, as appropriate)

- To complete the clinical skills training package *Passing a Fine Bore Feeding Tube for Enteral Feeding* and be assessed as competent.
- As part of a multi-disciplinary team, make the decision to insert tube following appropriate assessment and consultation with the patient /carer and other team members.
- Gain consent and provide verbal patient information.
- Insert the nasogastric feeding tube and confirm it is correctly sited.
- Confirm correct placement of the nasogastric feeding tube prior to every use.
- When there are continuous difficulties obtaining an aspirate with a pH less than 5.5 seek advice from senior medical staff.
- Assess patient comfort and safety through regular observation.

- Complete documentation regarding procedure and determine a written plan of care, which includes feeding regime, and management of tube, this should be documented on the nasogastric/nasojejunal feeding tube care sheet.
- Maintain appropriate clinical records.
- Liaise with the Dietitian regarding feeding regime.
- Provide patients and carers with information about the care and management of the tube.
- As an individual or part of a multi-disciplinary team assess when to remove the tube.
- Perform procedure for removal.
- For patients discharged with the tube *in situ*, ensure appropriate education has been arranged via the dietitian and delivered by the Nutricia nurse prior to discharge.
- The individual nurse or Healthcare Professional must ensure they keep up-to-date and use evidence-based practice.

Ward Sister / Charge Nurse

- Identify which members of staff are required to undertake various aspects of feeding and management of nasogastric feeding tubes.
- Ensure training and assessment of competence is undertaken and documented.
- Monitor standards of practice in their environment in relation to feeding and management of nasogastric feeding tubes.
- In consultation with the dietetic department, facilitate audit of nasogastric feeding as agreed and advise the divisional Matron of audit results and resulting action plan.

Matrons

- Ensure training and assessment of competence is undertaken and documented in each clinical area.
- Ensure audit is undertaken and action plans formulated across the clinical areas in the division.

Students

The role of a student nurse/midwife is to learn how to competently and safely perform nasogastric tube insertion, and the subsequent care and management of the patient. The student must always act under the supervision and guidance of the registered nurse, who is responsible for assessing student competence and determining the level of supervision required: either direct or non-direct. Accountability for patient care must always remain with the registered nurse.

Within this framework of supervision, student nurses/ midwives are expected to be involved in all the aspects of care regarding nasogastric tubes.

Support staff

The role of Health Care Assistants / Health Care Support Workers / Nursery Nurses and other support staff is to assist the health care professional inserting the nasogastric tube.

4. PROCEDURE

4.1 NASOGASTRIC TUBE INSERTION

A nasogastric tube may be recommended for:

- **Gastric aspiration.** If a patient requires aspiration/drainage of gastric contents, a Ryle's tube may be passed for this purpose. The procedural guideline for this can be found in appendix 1.
- **Enteral feeding**
A patient may require enteral feeding because their nutritional requirements cannot be met orally. It is important that only ENFit® compliant nasogastric tubes, which are radio-opaque throughout the entire length and have externally visible markings, are used for feeding. Fine bore tubes minimise the risk of nasal erosion and skin damage as well as being more comfortable and allowing the patient to eat and drink more easily if condition allows.

4.2 CONTRAINDICATIONS

The following patients may require referral to a specialist team i.e. ENT, radiography, endoscopy for consideration of their suitability of nasogastric tube insertion:

- Maxillo – facial disorders, surgery or Trauma
- Oesophageal tumours, strictures , fistula or surgery
- Laryngectomy
- Skull fractures
- Head and neck surgery
- Tracheostomy (unless in ICU)
- Patient who is known to have coagulopathy, is receiving anticoagulant medication, or is known to have oesophageal varices without first taking advice from senior medical staff.

Transanastamotic nasogastric tubes require special consideration and are not within the scope of this policy.

4.3 RISK ASSESSMENT

Before inserting, a nasogastric feeding tube careful assessment of the risks and benefits must be performed by at least 2 competent health care professionals, including the senior doctor responsible for the patient's care. The rationale for the final decision must be recorded in the patient's medical notes.

Patients, who are confused, comatose, have swallowing dysfunction or recurrent retching or vomiting, have higher risks of placement errors or migration of the tube.

Unless clinically urgent, if there is insufficient experienced support staff to accurately confirm nasogastric tube placement (for example at night) then placement should be delayed until support is available. The rationale for any decisions made must be documented in the patient's medical notes.

4.4 METHOD FOR CONFIRMING CORRECT PLACEMENT OF NASOGASTRIC FEEDING TUBE

Correct placement of a nasogastric feeding tube should be established by aspirating and placing a drop of aspirated fluid on **pH Indicator strips, (CE Marked)** which must be available in all wards and departments. If pH is between 1 and 5.5 feeding may be commenced. If pH is between 5 & 6 a 2nd competent nurse should check the result or retest.

DO NOT USE THE TUBE if an aspirate with a pH level of 6 or above is obtained.

Do NOT USE THE TUBE if there is any doubt about its correct placement and seek advice from senior staff.

Aspiration, feeding and flushing of tubes should be undertaken using a 50, 20 or 10 ml enteral syringe depending on patient group.

- 50ml adult /child
- 20 ml Infant
- 10ml Neonate

All staff undertaking pH testing must be trained and assessed as competent in the technique.

It is not necessary to routinely X-ray patients following insertion of a nasogastric feeding tube. Consider performing an X-ray if

- Nasogastric aspirate unobtainable
- A ph of 6 or above is recorded.
- Clinical judgement indicates that an x-ray is necessary.

DO NOT under any circumstances use the following methods to ascertain correct placement of a nasogastric feeding tube.

- **Litmus paper**
- **whoosh test**
- **Interpreting absence of respiratory distress as an indicator of correct positioning**
- **Monitoring bubbling when tube placed under water,**
- **Observing and relying on the appearance of nasogastric aspirate.**

Full procedural guidelines are outlined in appendix 2.

4.5 WHEN SHOULD TESTING TAKE PLACE?

- Following insertion of the nasogastric feeding tube
- Before the administration of each feed
- Before giving medication (If feed not already in progress)
- At least once a day during continuous feeding in adults and children, and prior to changing syringe feeds in infants and neonates
- Following episodes of vomiting, retching or coughing
- Following evidence of tube displacement, e.g. visible external tube length is longer than previously recorded, loose tapes

4.6 LIMITATIONS OF PH TESTING METHOD

While none of the existing bedside methods for testing the position of nasogastric feeding tubes are totally reliable, there is evidence to suggest that a pH reading of between 1 and 5.5 can reliably exclude pulmonary placement. A pH between 1 and 5.5 does not necessarily confirm gastric placement of the nasogastric feeding tube and there is a small possibility that the tube is sitting in the oesophagus, which carries a higher risk of aspiration.

Medication and feeding frequently can affect the pH of the stomach. Continuous feeding may prevent the build-up of acid and pH readings greater than 5.5 may be recorded.

Gestation and postnatal age, presence of amniotic fluid in the stomach, may affect the pH.

Obtaining aspirate from fine bore nasogastric tubes can sometimes be difficult, but this is often a result of poor technique, which can be overcome with training and education.

Radiography may need to be used for these groups of patients.

pH test strips should be used and stored according to manufacturer's instructions.

4.7 X- RAY CONFIRMATION

X-ray is used only as a second line test when no aspirate could be obtained or pH indicator strips have failed to confirm the location of the nasogastric feeding tube.

- The request using XNASG code on ICE must clearly state that the purpose of the x-ray is to establish the position of the nasogastric tube for feeding.
 - Referrals using incorrect ICE code (ie Xchest) or that lack clinical history will be declined
 - Referrer will be contacted by radiographer to add new request with correct code/clinical history
- The radiographer must ensure that the nasogastric feeding tube can be clearly seen on the x-ray to confirm its position.
- X-rays must be interpreted and nasogastric tube position confirmed by someone competent to do so.
- If there is any difficulty in interpretation the advice of the duty radiologist should be sought. (The number is 644549 9am-5pm, 644537 5pm-8:30pm weekdays and 644537 9am-6pm weekends/bank holidays, if you want to put that in here).

Any nasogastric feeding tube found in the lung should be removed immediately in an appropriate clinical area by a qualified clinician

If the x-ray demonstrates the nasogastric tube within the lung. The radiographer will:

- contact the referrer or nurse in charge of the patient's care
- explain the tube is seen within the lung
- the patient will be returned to the ward for urgent attention
- the radiographer will detail all actions on the patient's examination record on Zillion RIS

In situations such as when patients are fed continuously, or when acid reducing medication is in use, it may not be possible to obtain aspirate with a pH between 1 and 5.5 and daily x-rays are not safe or practical. The multi-disciplinary team led by the senior consultant will need to make a decision on how to manage this situation on an individual patient basis. All decisions and rationale to be documented in the patient's medical notes.

4.8 DOCUMENTATION

At insertion of the nasogastric feeding tube record the following:

- Type and size of tube
- External length of tube or cm marking at nostril
- pH of aspirate

At each subsequent test document:

- the external tube length measurement or cm marking at nostril, checked against the initial measurement for movement
- The pH reading
- Any actions taken

4.9 DOCUMENTATION FOLLOWING X-RAY SHOULD INCLUDE

- Who authorised x-ray
- Who confirmed the position of the nasogastric feeding tube? The person must be assessed as competent to do so.
- Confirmation that any x-ray viewed was the most recent x-ray for the correct patient.
- All documentation must include the four criteria for confirming gastric placement and clear instructions as to the required actions. A clear instruction whether it is 'safe to feed' or other required actions reduces the risk of communication error.

4.10 EXCEPTIONAL CIRCUMSTANCES

Patients in Intensive Care

The majority of level 3 critical care patients are not able to have oral diet because of; risks of aspiration, reduced consciousness, mechanical ventilation. In these patients the benefits outweigh the risks. The documented reason for these patients to receive NG or NJ feeding will be recorded as 'Level 3 patient' on the Critical Care NG/NJ feeding sticker.

A large proportion of level 2 patients can take oral diet. However, some level 2 patients may require NG or NJ feeding. In these patients where the decision making may be more complex and there is a reduced risk benefit ratio the decision to commence feeding must be discussed with the Critical Care Consultant and clearly documented in the patient's medical notes.

Critical Care patients will be only be fed and receive medication via tubes which are radio-opaque throughout the full length. Wide bore tubes that only have a radio-opaque tip will only be used for gastric drainage.

The minimal documentation for all patients in critical care will contain

- Type of tube and insertion length in cm (specify if external length measurement is used) documented on daily chart.
- Critical Care NG/NJ feeding sticker inserted in patient's medical notes when a NG/NJ tube is inserted or feeding is commenced in an existing tube.

- TDS position confirmation of the feeding tube in patients who are receiving continuous feed by pH testing documented on the daily chart. If pH less than 5.5 cannot be achieved a risk assessment (see below) should be performed and documented in the nursing notes.
- Patients on intermittent feed or medication should have confirmation of the feeding tube position by pH testing prior to instillation documented on the daily chart. If pH less than 5.5 cannot be achieved a risk assessment (see below) should be performed and documented in the nursing notes.

Ulcer prophylaxis in critical care patients increases the pH of the stomach and the jejunum has a higher pH therefore it may not be possible to achieve pH <5.5. To maintain feeding in these patients and reduce the need for repeated CXR a risk assessment should be performed by the nurse allocated to the patient for that shift.

4.11 RISK ASSESSMENT SHOULD COMPRISE:

- Checking against the documented insertion position to ensure the tube has not moved
- Ensuring the tube is securely fixed in position
- Assessing the patient's mouth to ensure the tube is not coiled there
- Checking whether any other device has been removed from the oesophagus that may have altered the position of the feeding tube (If this is the case the tube position must be confirmed on CXR if pH testing is not possible)
- Ensuring that the patient has not dislodged the tube by excessive vomiting

If there are any concerns following the risk assessment, feed or medication must not be given via the tube until authorised by the Critical Care Consultant.

CXR interpretation to determine NG or NJ placement will be performed by a doctor who is competent at interpreting X-rays in critically ill patients. Details of this interpretation will be recorded in the patient's medical notes and affirmation of correct feeding tube position on the Critical Care NG/NJ feeding sticker. When any CXR has been performed and is interpreted, all visible invasive devices (endo-tracheal tube, central venous access lines, NG tubes) will be routinely checked and positions documented in the patient's medical notes.

4.12 CHILDREN AND YOUNG PEOPLE

4.12.1 Children's Wards

Nurses on the children's wards follow the procedure laid out in appendix 4. Parents/carers should be involved in the care plan and assist in the tube management and feeding as appropriate.

4.12.2 Neonates

Nurses on the Neonatal Unit and Special Care Baby Unit follow the procedural guidance laid out in appendix 5. Nursery Nurses and Health Care Support Workers may be involved in the care plan and assist with tube management and feeding as appropriate. It is the responsibility of the Senior Nurse for Neonatal Services to ensure that training and assessment of competence is undertaken and documented.

4.13 PATIENTS LACKING CAPACITY

Sometimes it will be necessary to provide care and treatment to patients who lack the capacity to make decisions related to the content of this policy. In these instances staff must treat the patient in accordance with the Mental Capacity Act 2005 (MCA 2005).

- A person lacking capacity should not be treated in a manner which can be seen as discriminatory.
- Any act done for, or any decision made on behalf of a patient who lacks capacity must be done, or made, in the persons Best Interest .
- Further information can be found in the MCA policy, and the Code of Practice, both available on the intranet.

There is no single definition of Best Interest. Best Interest is *determined on an individual basis. All factors relevant to the decision must be taken into account, family and friends should be consulted, and the decision should be in the Best interest of the individual. Please see S5 of the MCA code of practice for further information.*

5. TRAINING/ SUPPORT

The training requirements of staff will be identified through a training needs analysis. Role specific education will be delivered by the service lead.

All nurses and midwives have a responsibility to ensure that they have sufficient knowledge, skills and competence to perform any procedure as outlined by the Nursing and Midwifery Council (NMC 2015). It is expected that student nurses/midwives will gain the knowledge and skills necessary to perform wide bore (Ryles tube) nasogastric insertion during their education. Upon registration they will gain competence under guidance of a preceptor until they can complete the procedure independently. For fine bore nasogastric insertion, registered nurses/midwives must extend their scope of practice and undertake additional education and training using the Trust Clinical Skills Training Package.

All nurses, midwives and medical staff working within inpatient areas or those who are likely to access nasogastric feeding tubes have a responsibility to ensure that they have received training and been assessed as competent on the use of pH indicator strips and the NPSA Guidelines for confirming the correct placement of nasogastric feeding tubes.

All registered adult nurses working within inpatient areas must complete the eLearning module 'guide to nasogastric and nasojejunal feeding'. Once completed this must be revalidated every 3 years and will form part of the wards nutrition and hydration ward accreditation.

6. MONITORING COMPLIANCE WITH THE PROCEDURAL DOCUMENT

What is being Monitored	Who will carry out the Monitoring	How often	How Reviewed/ Where Reported to
Compliance with the policy	Division	Twice a year	Datix reports reviewed by the Nutrition Steering Group
Compliance of completion of eLearning package 'guide to NG and NJ feeding'	Recorded on OLM as part of nutrition ward accreditation	Yearly	Nutrition and hydration ward accreditation reported back to Divisions

7. DEFINITIONS

1. **Nasogastric feeding tube** – Fine Bore tube used for administration of feed and medicines.
2. **Nasogastric drainage tube** – Ryles tube used for aspirating gastric fluid.
3. XNASG- Code on ICE used to request x-ray for nasogastric tube placement

8. EQUALITY IMPACT ASSESSMENT

The Trust aims to design and implement services, policies and measures that meet the diverse needs of our service, population and workforce, ensuring that none are disadvantaged over others. Our objectives and responsibilities relating to equality and diversity are outlined within our equality schemes. When considering the needs and assessing the impact of a procedural document any discriminatory factors must be identified.

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment For All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment was identified. See Appendix 6.

9. ASSOCIATED TRUST PROCEDURAL DOCUMENTS

Equality Impact Assessment – CORP/EMP 27

Fair Treatment for all policy – CORP/EMP 4

Hand hygiene policy – PAT/IC 5

Mental Capacity Act 2005 – Policy and Guidance, including Deprivation of Liberty Safeguards (DoLS) - PAT/PA 19

Nasogastric/nasojunal feeding tube care sheet and feed regimen (WPR 45990)

Privacy and Dignity Policy - PAT/PA 28

10. DATA PROTECTION

Any personal data processing associated with this policy will be carried out under 'Current data protection legislation' as in the Data Protection Act 2018 and the General Data Protection Regulation (GDPR) 2016.

For further information on data processing carried out by the trust, please refer to our Privacy Notices and other information which you can find on the trust website:

<https://www.dbth.nhs.uk/about-us/our-publications/information-governance/>

11. REFERENCES

Colgiovanni L (1999) Taking the tube Nursing Times supplement **95**(21)63-66

Medical Devices Agency 2004 Enteral feeding tubes (Nasogastric) MDA 2004/026

Department of Constitutional Affairs

Mental Capacity Act (2005): Code of Practice, 2007

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/497253/Mental-capacity-act-code-of-practice.pdf

National Patient Safety Agency (2005) Reducing the harm caused by misplaced nasogastric feeding tubes.

National Patient Safety Agency (2005) Confirming the correct position of nasogastric feeding tubes in critically ill patients.

National Patient Safety Agency (2011) Patient Safety Alert NPSA/2011/PSA002 Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants

<http://www.nrls.npsa.nhs.uk/alerts/?entryid45=129640>

National Patient Safety Agency (2016) Patient Safety Alert NPSA/PSA/RE/2016/006 Nasogastric tube misplacement: continuing risk of death and severe harm.

National Patient Safety Agency (2012) Rapid Response Report NPSA/2012/RRR001 Harm from flushing of nasogastric tubes before confirmation of placement.

NHS England (2013) Patient Safety Alert NHS/PSA/W/2013/001 Placement devices for nasogastric tube insertion DO NOT replace initial checks.

Nursing and Midwifery Council (2015) Code of professional conduct.

Royal Marsden Manual of Clinical Procedures 9th edition (2015) Procedural guidelines for the insertion of a nasogastric tube without using an introducer, John Wiley and sons

APPENDIX 1 – PROCEDURAL GUIDELINE FOR INSERTION OF A NASOGASTRIC DRAINAGE TUBE WITHOUT USING AN INTRODUCER, E.G. RYLE'S TUBE

1. Indications

Patients who require gastric aspiration.

2. Contraindications

The following patients may require referral to a specialist team i.e. ENT, radiography, endoscopy for consideration of their suitability of nasogastric tube insertion;

- Maxillo – facial disorders, surgery or Trauma
- Oesophageal tumours, fistula or surgery
- Laryngectomy
- Skull fractures
- Head and neck surgery
- Tracheostomy (unless in ICU)
- Patient with a known coagulopathy is receiving anticoagulant medication, or known to have oesophageal varices without first taking advice from senior medical staff.

3. Equipment

- Clinically clean tray
- Nasogastric tube
- Topical gauze
- Fixation tape
- 50, 20 or 10ml syringe depending on patient group (oral/enteral or catheter tip syringe should be used when available)
 - 50ml adult /child
 - 20 ml Infant
 - 10ml Neonate
- pH indicator strips (CE marked)
- Receiver
- Spigot
- Glass of water

4. Procedure (Royal Marsden Manual of clinical nursing procedures 9th edition, 2015)

Action	Rationale
Explain and discuss the procedure with the patient.	To ensure that the patient understands the procedure and gives his/her valid consent.
Arrange a signal by which the patient can communicate if he/she wants the nurse to stop e.g. by raising his/her hand.	The patient is often less frightened if he/she feels able to have some control over the procedure.
Assist the patient to sit in a semi-upright position in the bed or chair. Support the patient's head with pillows. Note: The head should not be tilted backwards or forwards (Rollins 1997).	To allow for easy passage of the tube. This position enables easy swallowing and ensures that the epiglottis is not obstructing the oesophagus.
Using a small piece of tape mark the distance which the tube is to be passed by measuring the distance on the tube from the patient's ear lobe to the bridge of the nose plus the distance from the bridge of the nose to the bottom of the xiphisternum (NEX measurement)	To identify the length of tube that needs to be inserted to ensure it is in the correct position..
Wash hands with soap and water and assemble the equipment. Put on gloves and apron	To ensure the procedure is as clean as possible
Check the patient's nostrils are patent by asking him/her to sniff with one nostril closed. Repeat with the other nostril.	To avoid any blockages or anatomical abnormalities
Lubricate about 15-20 cm of the tube with a thin coat of lubricating jelly that has been placed on gauze swab.	To make insertion of the tube easier
Ensure receiver is placed beneath the end of the tube	To prevent spillage and reduce the risk of infection
Insert the proximal end of the tube into the clearer nostril and slide it backwards and inwards along the floor of the nose to the nasopharynx. If an obstruction is felt, withdraw the tube and try again in a slightly different direction or use the other nostril.	To avoid unnecessary trauma to the nose and nasopharynx

As the tube passes down the nasopharynx, ask the patient to start swallowing. Offer sips of water	To ensure the tube passes easily through the oesophagus
Advance the tube through the pharynx as the patient swallows until the tape-marked tube reaches the point of entry into the external nares. If the patient shows signs of distress, e.g. gasping or cyanosis, remove the tube immediately.	Reaching the NEX measurement on the tube indicates that it should have advanced far enough down the oesophagus to be correctly positioned in the stomach. If there are signs of distress this may indicate the tube is incorrectly positioned in the bronchus
Secure the tube to the nostril with fixation tape An adhesive patch (if available) will secure the tube to the cheek.	To hold the tube in place, and ensure patient comfort.
Use syringe to gently aspirate and stomach contents and then attach the tube to a drainage bag	Aspiration and/or drainage of stomach contents will indicate that the tube is in the correct position in the stomach
Assist the patient to find a comfortable position	To ensure comfort following the procedure
If unsure of the position of the tube to confirm that it is in the stomach by using the following methods: Aspirating 0.5-1ml of stomach contents and testing this with pH indicator strips. A pH of between 1 and 5.5 is reliable confirmation that the tube is not in the lung, however it does not 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 this is a concern, the patient should proceed to x-ray in order to confirm position. Where pH readings fall between 5 and 6 it is recommended that a second competent person checks the reading or retests.	Indicator strips can distinguish between gastric acid (pH<3) and bronchial secretions (pH>6)
Remove gloves and apron and dispose of all equipment safely. Wash hands using soap and water	For infection prevention and control
Record the procedure, NEX measurement, length of visible portion of the tube from the tip of the nose and tip position in patient notes	To maintain accurate documentation

APPENDIX 2 – GUIDELINES FOR CONFIRMING THE CORRECT PLACEMENT OF NASOGASTRIC FEEDING TUBE

1. Aspirate nasogastric feeding tube

- 1.1 Advise patient
- 1.2 Equipment required
 - Packet of pH indicator strips 0-6 (CE marked)
 - Oral/enteral or catheter tip syringe
 - 50ml adult /child
 - 20 ml Infant
 - 10ml Neonate
 - Paper tissue
- 1.3 Aspirate the nasogastric tube using gentle pressure, as excessive vacuum can cause the tube to collapse. To avoid this problem withdraw the plunger to draw in 5mls of air (infants and children) to 20mls (adults) of air into the empty syringe prior to attaching the syringe to the port of the nasogastric feeding tube.
- 1.4 Once aspirate has been obtained replace the port cap, Remove a pH strip from the packet ensuring that you do not touch the coloured squares, **and Replace the lid on the packet.** Place strip face up on the paper tissue, inject aspirate onto the 3 coloured squares ensuring they are all coated with aspirate.
- 1.5 Hold the pH strip next to the colour chart on the pack, read result after 10 seconds. The result should be read within 60 seconds; otherwise the test should be repeated.
- 1.6 Measure the external length of the nasogastric feeding tube and compare with initial measurement.
- 1.7 Document the results of the procedure.
- 1.8 If the pH is between 5 and 6, a second competent person must check result or re-test.
- 1.9 If the **pH is 5.5 or less**, proceed to feed.

2. If aspirate cannot be obtained

- 2.1 if aspirate cannot be obtained consider the following:
 - The end of the nasogastric feeding tube has adhered to the wall of the stomach
 - The end of the tube is obstructed by debris.
 - The tube has been inserted too far, and has migrated through the stomach into the duodenum.
 - The tube is in the lungs
 - The tube has not been inserted far enough, and is situated in the oesophagus.

2.2 If aspirate cannot be obtained

- Check for signs of tube displacement, e.g. loose tape, compare external tube length of tube with previously documented results, Check patients throat for coiled tube. Reposition or repass tube as appropriate and retest.
- Try changing patients position, turn onto left side if medical condition allows.
- Inject air [10 – 20mls (adult); 1 – 5mls (infant and children); 1 -2mls (neonates)] this will dislodge any debris blocking the tube, and/or release the tube from the wall of the stomach.
- Aspirate the tube again.
- If you are still unable to obtain aspirate, advance the tube 10 -20cms (adults), 1 -2cms (infants, children and neonates) and repeat the aspiration
- If the patient is alert, has an intact swallow and is taking oral fluids, as in the case where nasogastric feeding is supplementary, ask the patient to sip a coloured drink and aspirate the tube. If the coloured fluid is aspirated back, then the tube is in the stomach.
- Give mouth care to patients who are nil by mouth (to stimulate gastric secretion of acid)
- If no aspirate is obtained after trying, all of the above consider replacement/repassing the tube and /or check X-ray.

3. If pH level is 6 or above consider the following

- Patient is on continuous feeding causing dilution of the gastric acid by the enteral feed.
- Patient is on acid inhibiting medication.
- Gestation, postnatal age and the possible presence of amniotic fluid in the stomach of newborn babies.
- Nasogastric feeding tube is in the lung.
- Nasogastric feeding tube has passed into the duodenum where the ph is higher.
- Aspirate is milk that has been sitting in the tube and has had no contact with gastric secretions.

3.1 If the pH level is 6 or above

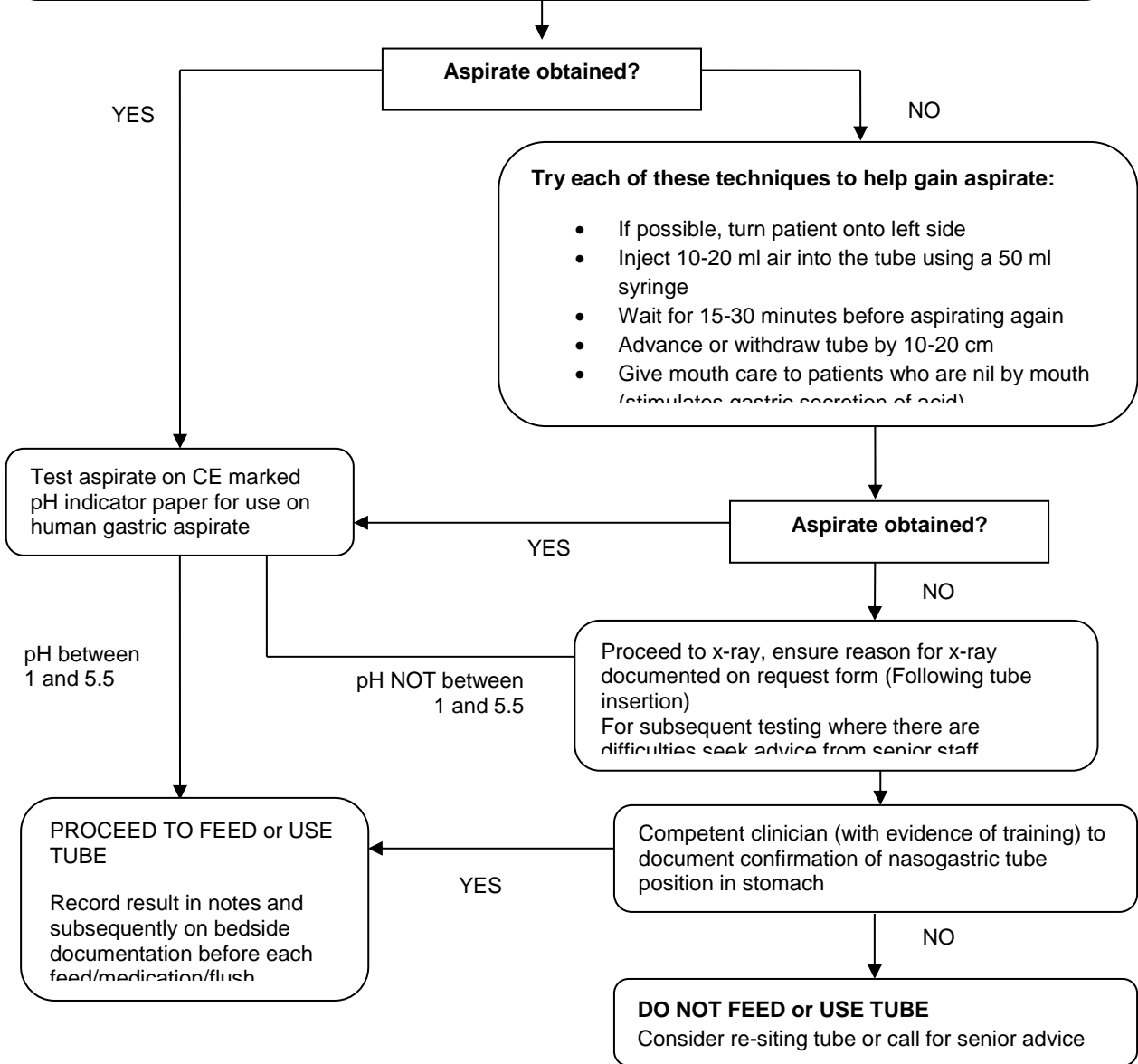
- **Do not feed or use tube**
- Proceed to X-ray, documenting reason for X-ray on request form,.
- A Competent Clinician (with evidence of training) to confirm and document nasogastric feeding tube position in stomach

The decision to feed must be made by experienced senior medical and nursing staff.

If there is any doubt that the tube is in the correct place, do not feed or use the tube, but take the necessary action.

APPENDIX 3 – DECISION TREE FOR NASOGASTRIC FEEDING TUBE PLACEMENT CHECKS IN ADULTS

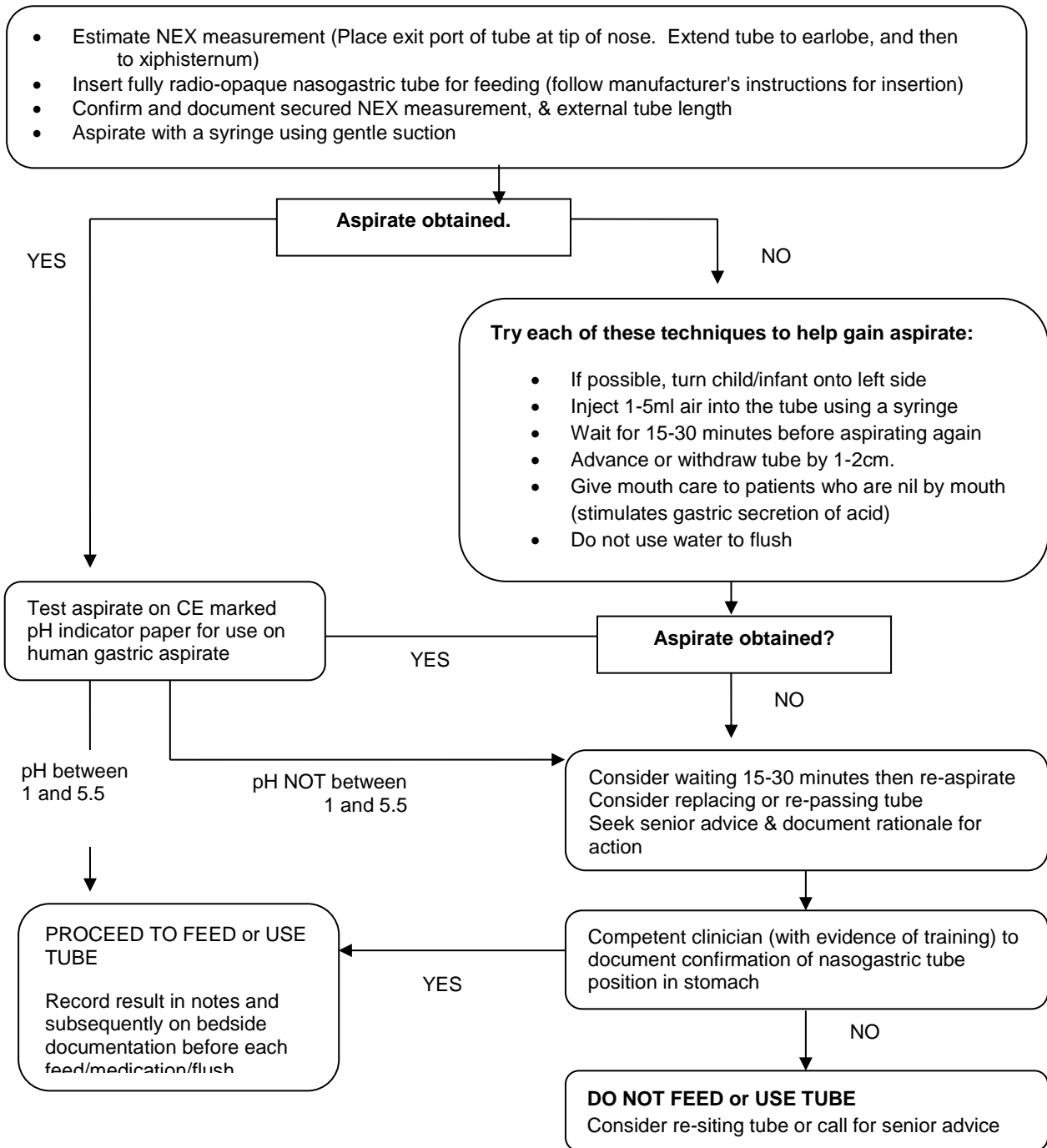
- Estimate NEX measurement (Place exit port of tube at tip of nose. Extend tube to earlobe, and then to xiphisternum)
- Insert fully radio-opaque nasogastric tube for feeding (follow manufacturer's instructions for insertion)
- Confirm and document secured NEX measurement & external tube length
- Aspirate with a syringe using gentle suction



A pH of between 1 and 5.5 is reliable confirmation that the tube is not in the lung, however it does not 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 this is any concern, the patient should proceed to x-ray in order to confirm tube position.

Where pH readings fall between 5 and 6 it is recommended that a second competent person checks the reading or retests.

APPENDIX 4 – DECISION TREE FOR NASOGASTRIC FEEDING TUBE PLACEMENT CHECKS IN CHILDREN AND INFANTS (NOT NEONATES)

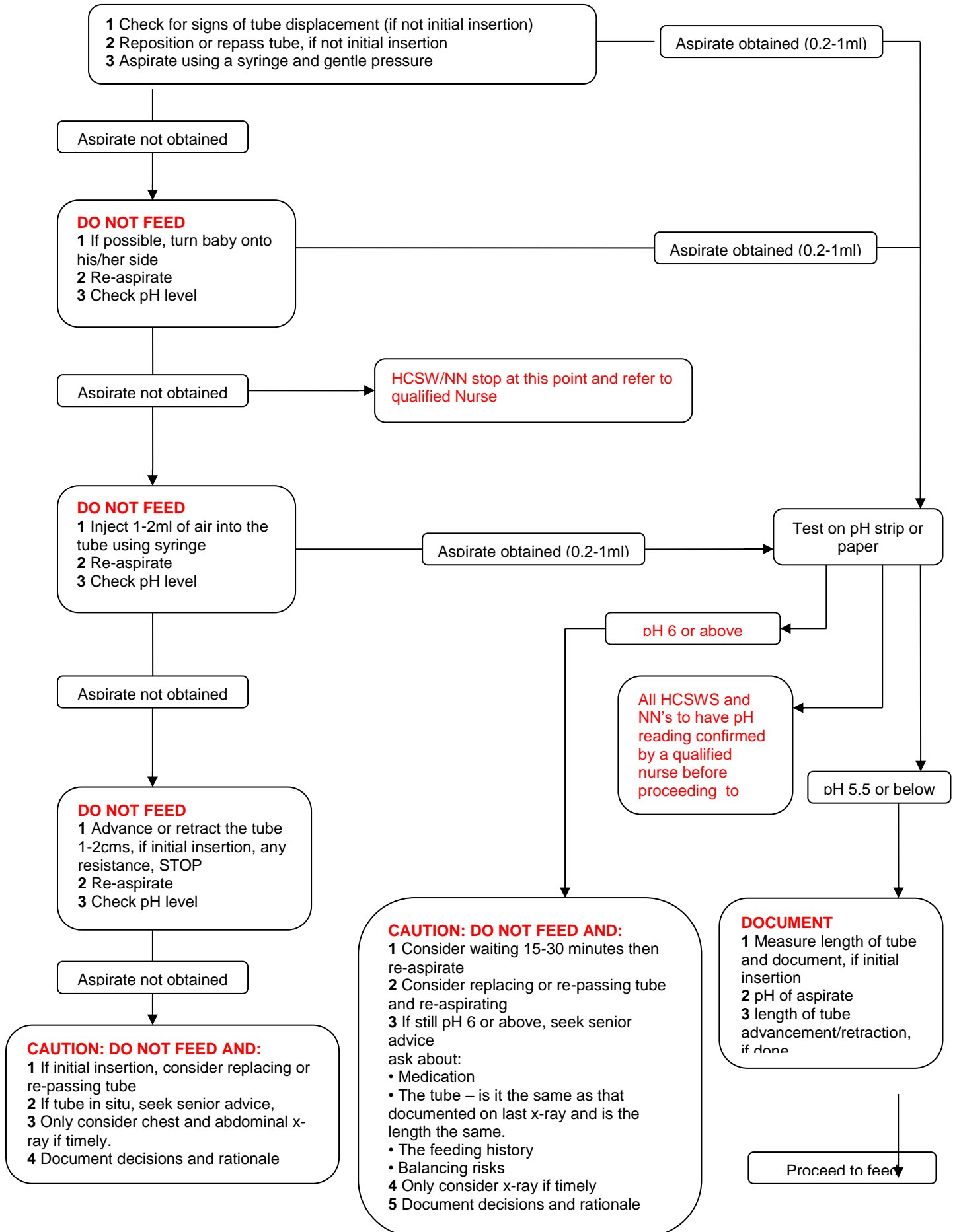


A pH of between 1 and 5.5 is reliable confirmation that the tube is not in the lung, however it does not confirm gastric placement as there is a small chance the tube tip may sit in the oesophagus where it carries a higher risk of aspiration. If this is any concern, the patient should proceed to x-ray in order to confirm tube position.

Where pH readings fall between 5 and 6 it is recommended that a second competent person checks the reading or retests.

**APPENDIX 5 - DECISION TREE FOR NASOGASTRIC FEEDING TUBE
PLACEMENT CHECKS IN NEONATES**

PAT/T 17 v6



APPENDIX 6 – EQUALITY IMPACT ASSESSMENT - PART 1 INITIAL SCREENING

Service/Function/Policy/Project/Strategy	Division/Executive Directorate and Department	Assessor (s)	New or Existing Service or Policy?	Date of Assessment
Nasogastric tube management and care PAT/T 17 v.6	Trust wide – Hannah Stirland	Hannah Stirland	Existing policy	07/07/2020
1) Who is responsible for this policy? Name of Division/Directorate: Surgical division				
2) Describe the purpose of the service / function / policy / project/ strategy? Who is it intended to benefit? What are the intended outcomes? Policy				
3) Are there any associated objectives? Legislation, targets national expectation, standards No				
4) What factors contribute or detract from achieving intended outcomes? Behaviour and understanding				
5) Does the policy have an impact in terms of age, race, disability, gender, gender reassignment, sexual orientation, marriage/civil partnership, maternity/pregnancy and religion/belief? No				
<ul style="list-style-type: none"> If yes, please describe current or planned activities to address the impact [e.g. Monitoring, consultation] 				
6) Is there any scope for new measures which would promote equality? [any actions to be taken No				
7) Are any of the following groups adversely affected by the policy?				
Protected Characteristics	Affected?	Impact		
a) Age	No			
b) Disability	No			
c) Gender	No			
d) Gender Reassignment	No			
e) Marriage/Civil Partnership	No			
f) Maternity/Pregnancy	No			
g) Race	No			
h) Religion/Belief	No			
i) Sexual Orientation	No			
8) Provide the Equality Rating of the service / function /policy / project / strategy – tick (✓) outcome box				
Outcome 1 ✓	Outcome 2	Outcome 3	Outcome 4	
<i>*If you have rated the policy as having an outcome of 2, 3 or 4, it is necessary to carry out a detailed assessment and complete a Detailed Equality Analysis form in Appendix 4</i>				
Date for next review: August 2023				
Checked by: Sophie Hemsall			Date: 27/08/2020	