NASOGASTRIC (NG) & NASOJEJUNAL (NJ) FEEDING TUBES – POLICY FOR INSERTION AND MANAGEMENT IN ADULT PATIENTS (EXCLUDES PAEDIATRICS AND NEONATES)

POLICY

Reference	CPG/TW/NG
Approving Body	Nutrition and Hydration Steering Group
Date Approved	14th July 2021
For publication to external SFH website	**Positive confirmation received from the approving body that the content does not risk the safety of patients or the public:**

YES	**NO**	**N/A**
X		

Issue Date	30th September 2021
Version	v2.0
Summary of Changes from Previous Version	X-ray interpretation and pH testing are the most common causes of error leading to nasogastric (NG) tube related never events. The Healthcare Safety Investigation Branch (HSIB) issued a report in December 2020 highlighting the on-going safety issues relating to the placement of nasogastric tubes. The report set out a series of safety recommendations indicating the most reliable method of confirming the position of a NG tube is by chest radiograph and reported by a radiologist or a radiographer in conjunction with pH testing. Based on these recommendations SFHT will now publish an approved report by an accredited person (radiologist or reporting radiographer) when undertaking chest radiograph to confirm the correct placement of a nasogastric tube.
Supersedes	v1.1, issued September 2019 to Review Date Oct 2021 (ext2)
Document Category	• Clinical
Consultation Undertaken	• Dr Stephen Foley (Consultant Gastroenterologist and Chair of Nutrition Steering Group) • Katie Townsend (Clinical Lead Dietitian – Adult Inpatient Team) • Carl Miller, Associate Chief AHP/Lead Reporting Radiographer
Date of Completion of Equality Impact Assessment	23rd July 2021
Date of Environmental Impact Assessment (if applicable)	Not Applicable
Legal and/or Accreditation Implications	This policy is required by the trust to help support implementation/ compliance with the associated National Patient Safety Alert(s).
Target Audience	All clinical Trust staff who treat and care for adult patients.
Review Date	July 2024
Sponsor (Position)	Chief Nurse
Author (Position & Name)	Nutritional Specialist Nurse, Jenna Parsons
Lead Division/ Directorate	Corporate
Lead Specialty/ Service/ Department	Nursing – Nutrition Team
Position of Person able to provide Further Guidance/Information	Nutrition Specialist Nurse

Associated Documents/ Information	Date Associated Documents/ Information was reviewed
• Enteral Feeding Starter Regimen • Enteral Tube Feed Monitoring Chart (Adults) • '*Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube'*. Copies for use in practice are to order via the trusts Forms Management system using ref FKIN030372. • Guideline for glycaemic control in patients with diabetes taking enteral nutrition • Guidance for imaging of nasogastric tubes in adults, children and infants	*July 2021 via Nutrition and Hydration Steering Group* *Pending approval, Oct-21 via Nutrition and Hydration Steering Group*
Template control	June 2020

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KEY MESSAGES

- Nasogastric (NG) tube feeding is the choice for patients who require short term enteral feeding i.e. 4-6 weeks and who have a functioning Gastro intestinal tract.
- The insertion of the tube will be completed by a competent practitioner, and details of insertion documented on the Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube
- A maximum of 3 attempts at inserting the tube should be made at any one time to prevent trauma to the nasal/oesophageal mucosa, and if difficulty in inserting the tube this should be escalated accordingly via the medical team to ensure adequate attempts are made to secure a safe enteral route for nutrition/fluid/medication.
- The position of a NG tube on initial placement will be confirmed by pH of 5 or below as first line test, with x-ray only being used when no aspirate could be obtained or pH indicator paper has failed to confirm the location of the NG and all the recommended steps to gain an aspirate as documented on the NPSA decision tree have been followed
- ***Following insertion of the tube the guidewire must be removed immediately. The NG tubes at SFHFT are radiopaque and NPSA compliant. Guidewires should never be reinserted under any circumstances.***
- Nasogastric tubes must not be flushed or any liquid/feed introduced through the tube following initial placement, until the tube tip is confirmed by pH testing or x-ray to be in the stomach.
- The position of the NG tube must be checked and confirmed prior to any feed, medication or fluids being administered via the tube, and the result MUST be documented on the 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube Care Plan'.
- Where an X-ray is indicated to confirm the position, the NG tube must only be used when an approved report has been issued by an accredited person (radiologist or reporting radiographer)
- **Whoosh tests, acid/alkaline test using litmus paper, the absence of respiratory distress or interpretation of the appearance of aspirate are NEVER to be used to confirm nasogastric tube position as these are not reliable.**

1.0 INTRODUCTION

NG feeding tubes are tubes passed into the stomach via the naso-pharynx for the purpose of providing nutrition. NG tubes are commonly used across the Trust, in a wide range of clinical settings. Nasogastric feeding is an active nutritional support commonly used to maintain or improve the nutritional status of patients who are unable to take sufficient nutrition orally (Stroud et al 2003). It is the commonest way of providing artificial nutritional support to patients in hospitals.

A Patient Safety Alert issued in 2016 Nasogastric tube misplacement: continuing risk of death and severe harm states that the use of misplaced nasogastric and orogastric tubes were first recognised as a patient safety issue by the National Patient Safety Agency (NPSA) in 2005 and three further alerts were issued by the NPSA and NHS England between 2011 and 2013. A further Health Service Investigation Branch (HSIB) report was published in 2020.

Introducing fluids or medication into the respiratory tract or pleura via a misplaced nasogastric or orogastric tube is a Never Event. Never Events are considered 'wholly preventable where guidance or safety recommendations that provide strong systemic protective barrier are available at a national level, and should have been implemented by all healthcare providers'

Between September 2011 and March 2016, 95 incidents were reported to the National Reporting and Learning System (NRLS) and/or the Strategic Executive Information System (StEIS) where fluids or medication were introduced into the respiratory tract or pleura via a misplaced nasogastric or orogastric tube. There have been further incidents despite the advice previously issued and HSIB used a reference event to make further recommendations.

While this should be considered in the context of over 3 million nasogastric or orogastric tubes being used in the NHS in that period, 7 of these incidents show that risks to patient safety persist. Checking tube placement before use via pH testing of aspirate and, when necessary, x-ray imaging, is essential in preventing harm.

Nasojejunal (NJ) tubes should be placed either radiologically or endoscopically. Please refer to these separate departments should they be required.

The Trust is committed to reducing the incidence of incorrectly placed NG and NJ tubes and this policy sets out the trust standards which must be followed in practice.

2.0 POLICY STATEMENT

The scope of this policy is to provide guidance to all healthcare professionals who care for patients with an NG tube for feeding. This policy is aimed at standardising the care of patients with NG feeding tubes to ensure that insertion and on-going management is safe, effective and comfortable for the patient. The policy includes principles for the safe insertion of NG tubes. The policy also includes safe methods for checking the position of NG feeding tubes and advises on unsafe methods, which should not be used. It is applicable to adults only. Children and neonates guidance can be sought via the current Nasogastric Tube Feeding in Children Guideline.

3.0 DEFINITIONS/ ABBREVIATIONS

Enteral Feeding	Feeding into the gastro intestinal tract
Nasal Bridle	A tube retaining device which is placed around the septum to secure the nasogastric/nasojejunal tube
Naso gastric feeding tube	A fine bore feeding tube where the tips sits within the stomach lumen
Naso jejunal feeding tube	A fine bore feeding tube which is longer than 110cm where the tip sits within the first part of the small bowel some are weighted or have modified ends to aid passage into the small bowel.
NEX Measurement	The NEX measurement is estimated as follows :place exit port of the NG tube at tip of nose ,extend the tube to the earlobe and then to the xiphisternum
KMH	King's Mill Hospital
MCH	Mansfield Community Hospital
NH	Newark Hospital
PEG	Percutaneous Endoscopic Gastrostomy
RIG	Radiologically Inserted Gastrostomy
PEG-J	Percutaneous Endoscopic Jejunostomy
RIG-J	Radiologically Inserted Jejunostomy
ED	Emergency Department

4.0 ROLES AND RESPONSIBILITIES

Responsibility for ensuring the application of this policy lies with the Clinical Chair, Head of Nursing, Divisional Manager and Matron of each division

Nutrition and Hydration Steering Group

- The Nutrition and Hydration Steering Group is accountable to the Trust Board via the Patient Safety and Quality Group and will send activity reports to Nursing, Midwifery and AHP Committee.

Medical Staff

- Medical staff are responsible for ensuring the dissemination and implementation of this policy within Divisions and for demonstrating compliance of staff competency through audit.

Dietitian

- The Dietitian is responsible for completing a nutritional assessment of the patient and designing an appropriate feeding regimen, taking account of any risks.

Matrons/ Sister/Charge Nurses

- Matrons/ Sister/Charge Nurses are responsible for ensuring the dissemination and implementation of this policy within their clinical ward areas and for demonstrating compliance of staff competency through audit.

Registered Nursing Staff

- Registered nursing staff, are responsible for ensuring their own compliance with this policy.

5.0 APPROVAL

Following consultation, this policy has been approved by the trust's Nutrition and Hydration Steering Group.

6.0 DOCUMENT REQUIREMENTS (POLICY NARRATIVE)

6.1 OVERVIEW

Insertion of NG feeding tubes must be carried out in accordance with procedures outlined in the Royal Marsden Manual procedure 'NG intubation with tube using an introducer'.

Management of patients thereafter should be carried out in conjunction with this Trust Policy.
All information pertaining to the insertion and on-going management of NG tubes should be recorded in the '*Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube*'. Copies for use in practice are to order via the trusts Forms Management system using ref FKIN030372.

All patients starting NG feeding should be referred to a dietitian. High risk patients should be referred to a specialist with expert knowledge of NG tube insertion and management.

The bedside checklist within the pathway of care for patients undergoing maintenance of feed via Nasogastric Tube should be completed for all patients requiring nasogastric tube placement, on insertion and on all subsequent insertions, before administration of artificial nutrition or medication via the nasogastric tube.

Any additional information should be recorded in the patient's medical or nursing notes as appropriate.

6.2 CONTRAINDICATIONS

The following are relative contraindications but in these patient groups the insertion of a nasogastric tube must be discussed with the medical team in charge of the patient's care and specialist advice sought where appropriate. The decision and plan of care should be documented in the patient's medical notes. Such patients may require NG tube insertion using fluoroscopic guidance.

- Anatomical deformities
- Non-functioning GI tract e.g. ileus.
- Large gastric aspirate and/or high risk of aspiration.
- Intractable vomiting not resolved by anti-emetics.
- Maxillo-facial surgery/trauma/disease
- Oral, nasal or oesophageal tumours/surgery
- Basal skull fractures as the tube may enter the brain if incorrectly positioned (oro-gastric positioning may be appropriate).
- Severe gastro oesophageal reflux disease
- Mucositis
- Allergies – to NG tube or securing material
- Oesophageal varices

- Vomiting responding to anti-emetics
- Recent radiotherapy to head and neck
- Advanced neurological impairment
- Obstructive pathology in oropharynx or oesophagus preventing passage of the tube e.g. stricture, tumour, pharyngeal pouch. Procedure may need to be done under endoscopic or fluoroscopic control. Specialist input advised.

6.3 COMPLICATIONS

There are some potential complications to NG tube insertion that practitioners should be aware of in order to recognise and appropriately respond to these if and when they may occur.

Fine bore NG feeding tubes are preferred for gastric feeding as large bore tubes (Ryles-type) NG tubes are harder to tolerate by patients and can cause rhinitis, oesophageal reflux and strictures. Wide bore NG tubes are therefore only recommended for gastric decompression or very short term feeding in Critical Care Unit.

The use of fine bore NG feeding tubes however carries risk as some patients may tolerate accidental intubation of the trachea and bronchi without any obvious signs of distress. If a misplaced tube is not spotted and feeding commenced, the consequences can be serious. Such complications include:

- Pneumothorax
- Severe pneumonia
- Emphysema
- Pulmonary haemorrhage
- Death – depending on the response to any of the above.

6.4 CONSIDERATIONS REGARDING THE DECISION TO INSERT AN NG FEEDING TUBE

6.4.1. CONSIDER: IS NG TUBE FEEDING THE RIGHT DECISION FOR THIS PATIENT?

For most people, eating is an enjoyable and social experience as well as a physiological necessity. A patient who is tube fed may no longer be able to eat and drink orally and enjoy their food. If this is so, healthcare professionals have a responsibility to help the patient come to terms with this situation and endeavour to help the patient not feel isolated.

Routine mouth care is vitally important for the patient unable to eat or drink; mouthwashes and oral mouth care should be offered.

The decision to start NG tube feeding should be made following a risk assessment. Where possible this will include a Nutrition Nurse Specialist or Dietitian, a senior doctor responsible for the patients care, a senior ward nurse familiar with the patient and if appropriate the patient and their next of kin should be involved in the decision to insert an NG tube for feeding. A decision must be made that balances the risks of feeding with the need to feed. The rationale for inserting a nasogastric tube should be recorded in the patient's medical notes.

The following patient groups are at higher risk of placement error or tube migration:

- Patients with a reduced level of consciousness.
- Patients who are agitated or confused.
- Patients with swallowing dysfunction.
- Patients who are retching, vomiting or coughing.

Patients receiving medication which has an antacid effect are more likely to have stomach aspirate pH levels of 5 or above, making identification of an incorrectly placed tube more difficult.

6.4.2. CONSIDER: IS THIS THE RIGHT TIME TO PLACE THE NG TUBE FOR FEEDING?

Where possible, elective placement of NG tubes for administration of feed or medication should not occur at night.

When a decision is made to insert or reinsert an NG tube out of hours, the rationale for the decision must be documented in the patient's medical notes. It is anticipated that these patients will be being cared for in areas where sufficient senior support is available at all times of night and day.

6.4.3. CONSIDER: IS THERE SUFFICIENT KNOWLEDGE / CAPACITY TO TEST FOR SAFE PLACEMENT OF THE NG TUBE?

All staff involved in the insertion of NG tubes and/or position checks must have undergone training. Nurses/AHP must be certified as competent to carry out this procedure and on-going care. Prior to undertaking this extended role doctors will be subject to a peer review.

6.4.4. CONSENT

Informed verbal consent must be obtained as per Trust Consent Policy from the patient prior to the insertion of a NG tube. If capacity is in doubt, a complete TWO STAGE TEST must be completed. If the patient lacks capacity, follow this by completing the BEST INTERESTS check list. This must be clearly documented in the patient's medical notes and indicated on the ''Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube'. Staff must follow guidance according to the SFH Policy For Consent to Examination, Treatment and Care

6.5. TYPE OF TUBE

National Patient Safety Alert (NPSA 2016 and resource pack) Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants.

- The tubes should be fully radio-opaque with externally visible markings to enable accurate measurement, identification and documentation of their position (NPSA 2016).

Feeding tubes must comply with:

- National Patient Safety Alert NHS/PSA/RE/2016/006 "Nasogastric tube misplacement: continuing risk of death and severe harm 22nd July 2016 (NHS Improvement 2016). Promoting safer measurement and administration of liquid medicines via oral and other enteral routes.

- Must have an integrated ENFit end or ENFit adaptor attached. Enteral feeding systems should not contain ports that can be connected to intravenous syringes, or that have end connectors that can be connected to intravenous or other parenteral lines.
- Enteral feeding systems should be labelled to indicate the route of administration.
- Recommended tube size for adults –10f refer to Appendix A – Flow Chart for the insertion of a Nasogastric tube.

6.6. SYRINGES

All syringes used to access nasogastric tubes and to administer feeds, medications or to aspirate should be purple enteral EnFit syringes and in hospital are single use only.

6.7. INSERTION

It is the responsibility of the person inserting the NG tube to complete the insertion record section of the 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube'. All qualified healthcare professionals must ensure that the insertion record shows a signed and printed confirmation of correct NG tube position before using the NG tube.

Prior to insertion, the tube length should be estimated for each patient by measuring the distance from the patient's tip of the nose to their earlobe plus the distance from the earlobe to the bottom of the xiphisternum. (NEX measurement – see Appendix A). Inserting the tube at the correct length for each patient increases the chances of successful tube aspiration. Aspiration of the tube allows for the pH to be checked on initial insertion and also thereafter if there is any cause for concern about tube position.

NG tube insertion is a clean procedure and health care professionals should adhere to universal infection control precautions throughout.

The NG tube should not be flushed or lubricated with water prior to insertion as this may give a falsely low pH reading, indicating correct placement when the tube is in fact incorrectly placed. A small amount of lubricating jelly can be used to assist insertion and increase patient comfort. Care must also be taken when obtaining subsequent aspirates to check pH. If water has been used to flush the tube following completion of an earlier feed, then approximately 5mls of fluid will need to be aspirated from the NG tube and discarded before obtaining a further aspirate sample to confirm gastric pH.

If the patient has an intact swallow they should be encouraged to drink sips of water during insertion of the NG tube enabling the inserter to progress the tube safely and comfortably with each swallow (whilst considering the risk of false pH readings as described). For patients who do not have a safe swallow, a plastic tipped oral care brush can be used to moisten the mouth which will make it easier for the patient to swallow as the tube is inserted. The tube should be removed immediately if the patient shows any signs of respiratory distress and, if possible, another attempt at insertion made.

If the tube meets resistance and cannot be advanced further the procedure should be abandoned, the patient reassured and a referral made to a more experienced practitioner.

Once the tube is safely inserted ***and the guidewire has been removed*** the pH of the aspirate should be checked and the internal tube length documented on the 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube' Care Plan.

It is possible for the tip of the tube to displace upwards into the oesophagus, **particularly with retching, coughing or vomiting**, increasing the risk of aspiration, even if the external length appears unchanged (NNNG 2004). If suspected, additional checks as per initial insertion are necessary to confirm gastric placement. Removal and replacement of the tube may be necessary if this is suspected and if additional checks do not confirm gastric placement.

Refer to Flowchart for the insertion of a Nasogastric tube (Appendix A)

6.8. SAFE METHODS FOR TESTING CORRECT POSITION

6.8.1. POSITION OF A NASOGASTRIC FEEDING TUBE ON INITIAL PLACEMENT

This will be confirmed by:

- pH paper measured at 5 or less
- Chest radiograph with approved report confirming correct position
- Placement with fluoroscopy guidance and approved report confirming position appearances
- Direct vision if NG tube is inserted during surgery

No other method is acceptable

Skin Dressings should be changed every 7 days and their security checked each shift, taking note of any skin sensitivity. If the dressing is loose or coming away from the skin, it should be changed.

Nasal care: Where possible nostrils should be swapped each time the tube is replaced to prevent nasal erosion and discomfort. Observe nostril daily for signs of discomfort and pressure damage.

6.8.2 PH TESTING

pH testing is the second most common cause of error leading to NG tube related never event. Causative factors are use of non CE marked indicator strips and the use of multiple brands of pH testing strips. SFH has a single pH system in place which is CE marked. pH testing is the first line test method of checking NG tube position. The pH of an aspirate from the NG tube can be tested effectively using pH indicator strips CE marked for use in human gastric aspirate (NHS Improvement Resource Pack). A pH aspirate reading of between 1 and 5 confirms correct gastric placement. Reducing the accepted pH to 0-5 increases the colour difference between safe and unsafe colour matches. This adaption recognises pH can be a safe method of confirmation of position when all safety measures are employed. Fluid administration through the NG feeding tube can be commenced when the 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube' Care Plan has been completed.

pH range

Sherwood Forest Hospitals have made the decision to set the acceptable limit for pH aspirate to 5 as the recommended safe pH to deliver a feed.

There are a number of different brands of pH testing strips which have the potential of a slight variation in the colour which can make identifying a colour change difficult to interpret. Reducing the accepted pH to 0-5 increases the colour difference between safe and unsafe colour matches. This adaption further increases assurance of a correct reading resulting in the limit for chest radiograph confirmation of position. At the same time it recognises the pH can be a safe method of confirmation of position when all safety measures are employed.

6.8.3. PROBLEMS OBTAINING AN ASPIRATE

Aspirating fluid from NG tubes can be problematic. Some useful advice is as follows:

- Ensure that correct length of tube is established on initial insertion using NEX measurement (see Appendix A) to ensure aspirate can be obtained.
- Use the correct sized, purple-coloured oral/enteral polyurethane syringe as advised by the NG tube manufacturer
- **On initial placement only** instil air into the NG tube prior to aspiration. This will clear any debris from the end of the tube and dislodge the tip of the NG tube if it is imbedded in the gastric mucosa. The patient's medical condition should be taken into account prior to instilling air down the NG tube, and if there is any doubt as to whether this is appropriate air should not be injected. This method must not be used for subsequent checks once the tube has been used for feeding and medications
- If safe to do so, ask the patient to drink a small amount of water then try again to aspirate.
- Change the position of the patient in order to move the fluid level in the stomach e.g. if sitting up, turn the patient onto the left side which will allow the tip of the tube to enter the gastric pool.
- If possible advance or withdraw the tube (10-20cm in an adult, 1-2cm in infants and children). This may allow the NG tube to pass into the stomach if it has been in the oesophagus.
- Check the NEX measurement and external length to assess whether the tube has moved (advance the tube 5-10cm over the NEX measurement if safe to do so).
- Provide mouth care (doing so may stimulate the secretion of gastric acid).
- Then try aspirating again.

IMPORTANT

If unable to obtain an aspirate or the aspirate is higher than 5.0 a Chest X-ray MUST be obtained to confirm position.

6.8.4. IF THE PH IS ABOVE 5

The aspirate obtained may have a pH above 5 because the NG tube has been misplaced into the lungs on initial insertion or become displaced at a later stage either into the intestine or the lung.

There are some limitations to the testing for gastric pH. Gastric pH can also be affected by medications, particularly proton pump inhibitors (e.g. Omeprazole, Lansoprazole, Pantoprazole) and H2 receptor antagonists (e.g. Cimetidine, Ranitidine, Nizatidine). Consideration should be given to changing the timing of medication administration or aspiration to enable correct pH readings to be carried out.

The most likely reason for an elevated pH is the dilution of gastric acid by feed. Feeding being stopped for up to an hour will allow time for the stomach to partially empty and the pH to reduce. If there is any doubt about the position of the tube and/or the pH of the aspirate then feeding should not be commenced. A risk assessment should be carried out and medical advice sought from the responsible team.

IMPORTANT

If unable to obtain an aspirate or the aspirate is higher than 5.0 on initial insertion, an X-ray MUST be obtained to confirm position.

6.8.5. X-RAY, refer to:

- **SOP for Imaging of Nasogastric tubes in adults, children and infants**

HSIB have indicated the most reliable method to confirm the position of an NG tube is to obtain a chest radiograph and this to be interpreted by someone with specific image interpretation skills. Used in conjunction with pH testing as described above, chest radiography is an appropriate second line test.
Chest radiograph misinterpretation is the most common cause of NG tube related never event (NHS Improvement 2016, NPSA 2005, 2011, HSIB 2020). If a chest radiograph is appropriate, an approved report issued by a specifically trained and accredited person in the interpretation of chest radiographs must be completed before an NG tube can be used for feed, medication and/or fluid administration. Other limitations to the use of x-ray include exposure to radiation, loss of feeding time and increased patient movement (Metheny 1990). It must also be remembered that an x-ray only confirms tube position at the time the x-ray was taken. The NG tube can become displaced at any time.

It is essential that a request for chest radiography to confirm position of NG tube clearly states this is the purpose of obtaining the image. This allows the acquisition technique to be adapted and the person reporting to be clear the report must be both expedited and contain clear indication of the position.

If an NG tube is inserted in the operating theatre during laparotomy, surgical confirmation of intra-gastric or post-gastric positioning, either manually or by direct vision, this will be sufficient to allow immediate use without further assessment. NG tubes that are inserted under direct vision by specialist practitioners using endoscopy and fluoroscopy may also be used without the need for pH testing or X-ray. Where tube position has been confirmed in this manner, a free text note to this effect should be made on the ‘Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube ’.
Subsequent use of the tube will be subject to the checks detailed in this policy.

IMPORTANT

Nasogastric tubes must not be flushed with water, nor should any feed be introduced prior to confirmation of gastric placement.

This is important because:

- **Any flush could cause an aspiration pneumonia if the tube is placed in the lungs**
- **pH testing for gastric placement relies on collecting aspirate via the tube; anything introduced down the tube will contaminate this aspirate, potentially leading to false positive pH readings.**

6.9 ONGOING CHECKS OF NG TUBE POSITION

The position of the NG tube should be checked by pH and if required x-ray imaging in the following circumstances;

- Before restarting feed after a rest period.
- Daily in the case of continuous feeding.
- Before administering medication.
- If there are any concerns that the tube may have become displaced (e.g. loose tape, episodes of retching or coughing, excessive sneezing, any change in external length).

This check consists of checking the internal length of the tube by noting the length markings at the nostril, and also ensuring that the tube is securely taped or fastened. This check should be documented on 'The Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube'.

6.9.1 WHEN NOT TO FEED

In the following circumstances, patients should NOT have feed started unless a pH of between 1 and 5 has been obtained and documented OR correct tube placement is recorded by either direct vision in surgery OR confirmation is included in an approved report following radiography, most commonly a chest radiograph or occasionally by an interventional radiologist following fluoroscopic guided placement.

- following initial insertion;
- following episodes of vomiting, retching or coughing spasms(note that the absence of coughing does not rule out misplacement or migration);
- when there is suggestion of tube displacement (for example, loose tape or portion of visible tube appears longer);
- In the presence of any new or unexplained respiratory symptoms or reduction in oxygen saturation.

These checks should be recorded on the 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube' form and in the medical or nursing notes.

6.10 NASOJEJUNAL (NJ) TUBES

Nasojejunal tubes are fine bore feeding tubes that are longer than 110cm. The tip of an NJ tube sits within the first part of the small bowel some are weighted or have modified ends to aid passage into the small bowel.

Indications:

- Post pyloric feeding required
- Gastric reflux/ gastroparesis
- Therapeutic requirement to bypass duodenum eg pancreatitis
- Upper gastro-intestinal obstruction/ fistula
- Peri-operative feeding

Absolute Contraindications:

- Basal skull fracture
- Trachea-oesophageal fistula

Relative Contraindications:

- Frequent nose bleeds
- Nasal polyps/ injuries
- Upper GI obstruction
- Coagulation disorder
- Oesophageal stricture
- Oesophageal pouch

The make and size of NJ tube should be documented in the nursing and medical records. Patients who have a Nasojejunal tube should have their pre and post procedure and ongoing care documented in their nursing and medical records. The length of tube clearly documented in the nursing notes so that any movement of the tube is easily identified.

Post placement care:

As this method bypasses the gastric acid, it is important to ensure sterile procedures during feed preparation. The feeding regimen must be followed carefully as the rate must be gradually increased to prevent nausea and diarrhoea as there is no stomach reservoir to hold large amounts of feed. The patient is likely to be fed over 24 hours initially as there is no reservoir to hold large feed volumes. NJ tubes must be flushed a minimum of 8 hourly using sterile water and a push/ pause technique. As these tubes easily block it is recommended that drugs are not administered via the NJ tube. Suitable alternatives should be discussed with Pharmacy. It is possible for NJ tubes to migrate back into the stomach. Feed noticed in vomit, gastric aspirate or an increase in pain in patients should be notified to the medical staff and dietitian.

Care of a jejunostomy tube

Ensure that the jejunal tube is flushed with sterile water whenever the feed is interrupted. Otherwise the feed should be administered as directed by dietician. If the jejunal tube is not in use ensure that the tube is flushed at least every 8 hours with sterile water using a 60ml oral/enteral syringe.

Drug administration via Nasojejunal tubes

Ensure that the clinical pharmacist is aware that the tube is jejunal rather than gastric.
In all cases patients should be monitored for clinical signs .To establish that the drug is being sufficiently absorbed to give therapeutic levels.

When liquid preparations are administered it is important to be aware that they are hypertonic and will not be diluted with gastric contents as with intragastric administration. The hyperosmolar solution creates a gradient across the intestinal mucosa that inhibits water absorption and can cause osmotic diarrhoea.

Radiologically/endoscopically placed N.J. tubes
When the patient arrives back on the ward, make a note of the centimetre markings at the nose ensure this is the same as immediately post procedure.
The position of the tube should be checked pre and post using and at least once each shift handover
If vomiting occurs or the nurse is in any doubt that the tube is in the correct position, ascertain tube position with X-ray.

6.11. NASAL BRIDLE

Nasal Bridle – insertion and management in adults to secure a nasogastric or nasojejunal tube. See Appendix B

Bridles are loops which go through each nostril around the posterior aspect of the nasal septum and are then secured to the feeding tube in front of the nose. They are intended as a method of securing feeding tubes so that they are not easily displaced. They should be used only when at least 3 feeding tubes have become dislodged.

If a patient is assessed as requiring a nasal bridle and capacity is in doubt, complete a TWO STAGE TEST. If the patient lacks capacity, follow this by completing the BEST INTERESTS check list. This should be clearly documented in the patient's medical notes and indicated on the 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube'

The patient must have Deprivation of Liberty completed; refer to the trusts **Deprivation of Liberty Safeguards Policy (For Adults 18 years and over).** Further advice can be sought form the Trusts Safeguarding Team.

6.12. DISCHARGE TO COMMUNITY CARE

Discharging a patient from acute to community services with an enteral feeding tube in place requires careful planning. A multidisciplinary risk assessment should be performed and documented (NHS Improvement 2016, NPSA 2011). Guidance and support can be provided by contacting the Nutrition Nurse Specialist.

6.13. LEARNING FROM PATIENT SAFETY INCIDENTS

Feeding into the lung as the result of a misplaced NG tube was designated a 'Never Event' in England by the NPSA in 2009. 'Never Events' are serious, largely preventable patient safety incidents that should not occur if the available preventative measures have been implemented.
In the interest of patient safety and in order to learn from any mistakes made within our Trust, all misplacement incidents must be reported to your immediate line manager, the Trust Governance Support Unit and recorded as an incident on Datix.

7.0 MONITORING COMPLIANCE AND EFFECTIVENESS

Compliance with this policy will be monitored by the Nutrition and Hydration Group, who will monitor the number and type of incidents. Audit of NG insertion practice and documentation will be carried out by Nutritional Nurse Specialist across the Trust every six months to ensure ongoing monitoring and review of practice.

Minimum Requirement to be Monitored **(WHAT – element of compliance or effectiveness within the document will be monitored)**	**Responsible Individual** **(WHO – is going to monitor this element)**	**Process for Monitoring e.g. Audit** **(HOW – will this element be monitored (method used))**	**Frequency of Monitoring** **(WHEN – will this element be monitored (frequency/ how often))**	**Responsible Individual or Committee/ Group for Review of Results** **(WHERE – Which individual/ committee or group will this be reported to, in what format (eg verbal, formal report etc) and by who)**
Trust-wide audit to assess compliance with NG Policy, in particular 'Pathway of Care for Patients undergoing maintenance of feed via Nasogastric Tube'.	Nutrition Clinical Nurse Specialist.	Audit of NG insertion practice and on-going care via AMAT system	6 Monthly	Nutrition and Hydration Steering Group
All incidents involving NG feeding tubes reported will be categorized according to level of risk Datix reports will be compiled and any themes for concern identified	Nutrition Nurse Specialist	Incidents recorded on Datix will be monitored and reviewed	Monthly	Nutrition and Hydration Steering Group

8.0 TRAINING AND IMPLEMENTATION

8.1 NG INSERTION TRAINING & ONGOING CARE

All registered doctors and nurses who insert NG tubes and perform testing of gastric aspirate must have been trained to do so. All registered nurses involved in the ongoing care of patients with NG feeding tubes should also have been trained to do so.
NG tube insertion training for registered nurses is currently available through Nutrition Nurse Specialist as appropriate. For registered nurses this must be used as documentary evidence of competency to practice. Competency should be recorded on the Trust's centrally held training registers.
Trust Registered Nursing and AHP staff seeking competency to insert NG tubes should be compliant with the following standards of training:

- Attendance at a recognised face-to-face classroom based theory session
- Complete and pass a theory assessment
- Complete a period of supervised practice

8.2 X-RAY INTERPRETATION

Doctors and other registered practitioners (as appropriate to role) who check NG tube position by interpreting X-ray must be trained and competent to do so (NHS Improvement, 2016).

When a chest x-ray is obtained to confirm position of an NG Tube, an approved report must be issued by a person accredited in the interpretation of chest radiographs within 2 hours of the image being acquired. The tube must not be used until this report is issued and approved. Should tube use be urgent expedited reporting can be arranged by contacting Radiology.

9.0 IMPACT ASSESSMENTS

- This document has been subject to an Equality Impact Assessment, see completed form at Appendix D.
- This document is not subject to an Environmental Impact Assessment

10.0 EVIDENCE BASE (Relevant Legislation/ National Guidance) AND RELATED SFHFT DOCUMENTS

Evidence Base:

- Dougherty, L & Lister S 2008. The Royal Marsden Manual of Clinical Nursing Procedures. 7th Edition, Blackwell Science, Chapter 24
- Health Service Investigation Branch (HSIB) December 2020 Placement of Nasogastric Tubes.
- MHRA Notice (2004) MHRS/MS/026
- Metheny, NA & Titler, M (2001) Assessing placement of feeding tubes. *American Journal of Nursing;* 101: 36-45.
- Metheny, NA et al (1998) Detection of improperly positioned feeding tubes. *Journal of Healthcare Risk Management;* 18(3): 37-48.
- Metheny, NA et al (1990) Effectiveness of the auscultatory method in predicting feeding tube location. *Nursing Research*; 39; 262-267.
- National Nurses Nutrition Group, (2004) Guidelines for confirming correct positioning of NG feeding tubes. Working party report.

- National Patient Safety Agency (2005) Reducing the harm caused by misplaced NG tubes. Interim advice for healthcare staff.
- National Patient Safety Agency (2011) Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants, NPSA/2011/PSA002 http://www.nrls.npsa.nhs.uk/alerts/?entryid45=129640
- Neumann MJ., Meyer CT, Dutton JL & Smith R. (1995) Hold that x-ray: Aspirate pH and auscultation prove enteral tube placement. *Journal of Clinical Gastroenterology,* 20, 293-295.
- National Patient Safety Agency: Rapid Response Report (2012) Harm from flushing of nasogastric tubes before confirmation of placement, NPSA/2012/RRR001 http://www.nrls.npsa.nhs.uk/resources/?EntryId45=133441
- Rollins, H. (1997) A nose for trouble. *Nursing Times*; 93: 66-67.
- Stroud, M, Duncan H & Nightingale J. (2003) Guidelines for enteral feeding in adult hospital patients. *GUT* 52 Suppl vii, 1-12.

- See also list of Alerts with Links in Appendix C

RELATED SFHFT DOCUMENTS:

- Policy for consent to examination, treatment and care
- SFH Mental Capacity Act Policy
- Guideline for the Prevention and Management of Refeeding Syndrome in Adults
- Deprivation of Liberty Safeguards Policy (for adults 18 years and over)
- Nasogastric Tube Feeding in Children Guideline.

11.0 KEYWORDS

NG; NGT; NJ; enteral;

12.0 APPENDICES

Appendix A – Flow Chart for the insertion of a Nasogastric tube

Appendix B - Safe Practice for the Insertion and Management of a Nasal Bridle (NB) in adults to secure a NGT

Appendix C – Alerts Links

Appendix D – Equality Impact Assessment

APPENDIX A

Flow chart for the Insertion of a Nasogastric tube.

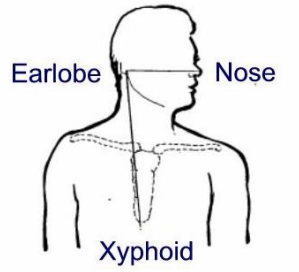
Key points before insertion of a nasogastric Tube

- Is this necessary (NBM/dysphagia/poor nutritional intake)
- Has consent been obtained?
- If patient is deemed to lack capacity, is this in their best interests?
- Are you competent to insert a nasogastric tube?
- If out of hours, is this essential at this point in time?

If you are not competent at NG insertion, contact the Stroke Unit as all nurses are trained to insert NG's and may be able to come and help. See policy for further understanding.

Gather equipment needed for NG insertion:

- Flocare NG tube 10fr
- 60ml Enteral syringe
- pH testing strips
- Nasofix
- Lubricating gel
- PPE



Introduce self and explain procedure to the patient. Obtain their informed consent.
If patient lacks capacity complete a 2 stage mental capacity test and decide if this in their best interests.

Measure to NG tube from the tip of the nose, extend the tube to the earlobe and then to the Xiphisternum.

Check the guidewire moves freely in the tube and secure in place by tightening it at the end with the screw cap.

Lubricate the tip and begin to insert the NG tube up the chosen nostril. Insert to around 12-14cm and ask the patient to swallow (this will help with insertion). Once a swallow is felt advance the tube down the oesophagus until at measured length.
If rebound is felt or patient is coughing/distressed remove the tube and retry once patient is more comfortable.

Once in place secure to nose using the nasofix. Remove the guidewire and insert 20ml of **AIR** into the NG. Pull back to obtain aspirate to confirm placement.

Aspirate obtained <5.0pH

Ensure patient is positioned at a minimum of a 30^{o} angle (to reduce the risk of aspiration), flush with 30mls of water and commence feeding as per feeding guideline.

No Aspirate or Aspirate obtained >5.0pH

If no aspirate is obtained or the pH is either above 5 or equivocal request a chest radiograph specifying it is to **confirm the position of an NG tube.**

A completed chest radiograph must have an approved report issued by an accredited person and available on PACS related systems before the tube is used.

Appendix B – Guidance for the safe practice for the insertion and management of a nasal bridle (NB) in adults to secure a nasogastric tube (NGT)

See also Flow chart for patients who repeatedly pull out NG tubes at end of this guidance.

This guidance (or part thereof) is for use by:

- Consultant Physicians
- Junior Medical Doctors
- Relevant Specialist Nurses

Indications for a nasal bridle

- Patients whom at least 3 NG tubes have become dislodged or where intubation has been difficult.
- Patients who require medium or long term (LT) feeding via a fine bore NG tube (using size 10).
- Patients to be discharged home with long term NG tube feeding.
- Confused patients in the short term, but they may attempt to pull them out (see flowchart at end of this guidance)

NB: LT enteral feeding via NG tube would be very unusual, a Percutaneous Endoscopic Gastrostomy (PEG) being preferred in this situation. If LT NG tube is to be used it should be replaced every 30 days. LT use of a nasal bridle may damage the nasal septum.

Exclusions: Basal skull fracture
Deviated nasal septum
Nasopharyngeal deformity.

Capacity

Assume patient has capacity:

- offer information in an appropriate way for the individual
- treat any medical condition that may influence capacity
- Consider asking the question at another time when patient is better able to communicate, if capacity seems impaired.

Assessment:

- Does the patient have impairment of mind/brain which affects the way it works?
- Is the patient unable to make the decision in question as a result of this?

The following questions might be employed:-

- Does the patient have a general understanding of the decision to be made and the need to make it?
- Does the patient understand the consequences of making / not making this decision?
- Is the patient able to understand / retain / use / weigh up the information relevant to the decision?
- Can the person communicate a decision by any means, including help of a specialist?
- Can the choice be made without any outside influences?

If the patient's responses to the above are not all affirmative, then this implies she/he may lack capacity.

Any act or decision made on behalf of a person without capacity must be done / made in their best interests.

When acting in a person's best interest:-

- Encourage participation in the decision making process.
- Identify choices the person would have taken into account when acting for themselves.
- Find out person's views: Past / present verbal or written
  Any personal beliefs/values that may influence choices

Do not make assumption on basis of age/condition/appearance/behaviour.
Will person regain capacity?
No assumption should be made about quality of life.
Consult with others (e.g. friends, relatives, carers, lasting power of attorney, court appointed deputy). Consider using an Independent Mental Capacity Advocate.
Avoid restricting a person's rights.

Weigh up all of these factors, discuss with MDT. Consult with independent clinician or Ethics in Clinical Practice Committee.
Arrive at a final decision
Document discussion / conclusion

Procedure

The bridle may be placed prior to or following the NG tube insertion. For guidelines on safe insertion and management of NG tubes, see Practical Guidelines on Enteral Tube Feeding in Adults, on the Trust intranet. Instructions are available in the packet.

Re Nasal Bridle

- The aseptic non-touch technique should be used
- Lubricate the distal ends of both introducing probes with water soluble jelly
- Insert the retrieving probe into the nostril until the first rib is at the bottom of the nostril
- Insert the bridle catheter into the opposite nostril with the stylet in place to stiffen it.
- Gently manipulate the probes until contact is made between the 2 magnets at the end of the probes. An audible click will be heard.
- If no contact has occurred, advance the bridge and retrieving probes to the second rib.
- Once contact has occurred, remove the stylet completely from the catheter.
- Slowly withdraw the retrieving probe while allowing the bridle catheter to advance into the nose. Continue until only the umbilical tape is in the nose.
- Using scissors cut the bridle catheter off the umbilical tape, leaving only the tape in the nose. Dispose of both the catheter tube and probe.
- Select the correct size retaining clip for the feeding tube.
- Place the umbilical tape and the NG tube in the deep channel of the clip. This should be positioned so that it just rests on the upper lip when released. Snap the 2 halves of the clip shut until it clicks. Verify that the clip has closed tightly. Knot the ends of the tape together and trim any excess tape.
- Note the position of NG tube at either end of the bridle and mark with indelible ink. Record in the patient's notes and monitor this regularly to use as a guide when checking for feeding tube migration.
- Monitor carefully for discomfort.
- Inspect regularly for local trauma.

- Ensure the date of insertion is documented in the patients' medical notes and/or nursing notes.

Hygiene/ After Care

Clean and dry the nasal bridle at least daily.
It may be necessary to do this more frequently if there are excessive secretions from the nose. The nasal mucosa should be observed carefully each day for signs of irritation or bleeding.
Mouth care should be provided as per the Trust's oral hygiene guidelines.

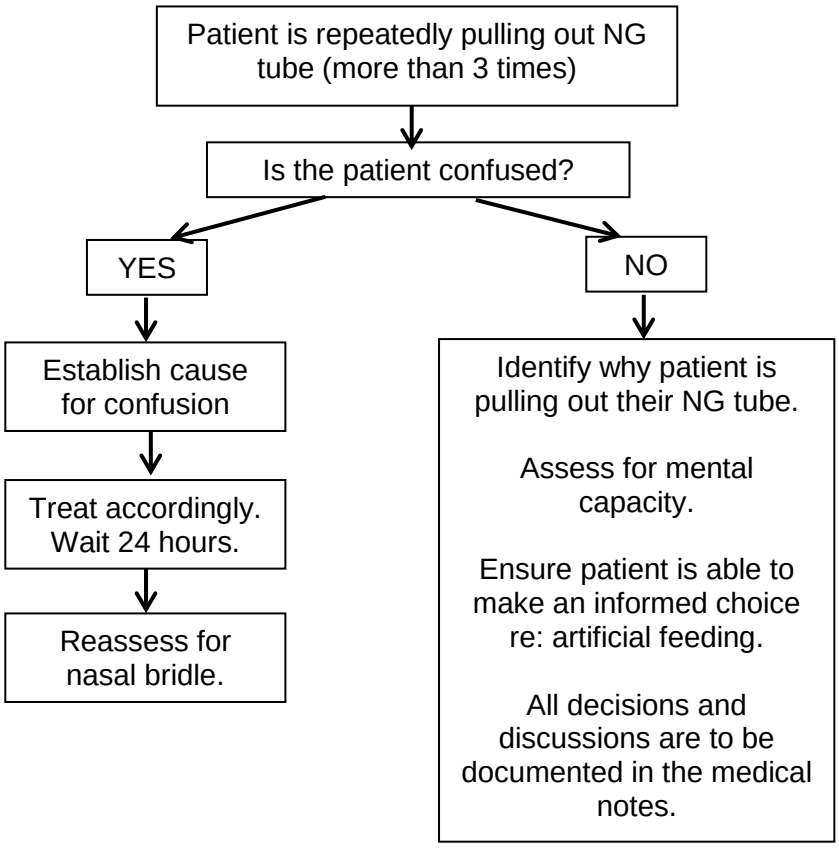
Removal

The bridle can remain in situ for up to 30 days as per manufacturer instructions, after this there is a risk of damage to the nasal septum.
When removal is required, cut one side of the umbilical tape (between nose and clip) and gently pull both the bridle and feeding tube out at the same time.
Document removal in patients' medical and/or nursing notes.

TRAINING REQUIREMENTS

Ensure all nurses who undertake any activities within this guideline complete the relevant documentation to evidence competency.

Flow chart for patients who repeatedly pull out NG tubes



APPENDIX C – ALERT LINKS

Reference	Alert Title	Originated By	Issue Date
MDA/2017/035	Nasogastric (NG) feeding tubes – recall due to risk of neonatal or paediatric patient choking on ENF ...	MHRA Medical Device Alerts	19-Dec-2017
NHS/PSA/RE/2016/006	Nasogastric tube misplacement: continuing risk of death and severe harm	NHS Improvement	22-Jul-2016
NHS/PSA/W/2013/001R	Placement devices for nasogastric tube insertion DO NOT replace initial position checks	NHS England	06-Dec-2013
NHS/PSA/W/2013/001	Placement devices for nasogastric tube insertion DO NOT replace initial position checks	NHS England	05-Dec-2013
MDA/2013/009	Nasogastric feeding tubes – Ryles tubes (weighted tip). Manufactured by Vygon Ltd. Size 12FG 125cm, ...	MHRA Medical Device Alerts	26-Feb-2013
NPSA/2012/RRR001	Harm from flushing of naso gastric tubes before confirmation of placement	National Patient Safety Agency	22-Mar-2012
NPSA/2011/PSA002	Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants.	National Patient Safety Agency	10-Mar-2011
MDA/2011/003	Nasogastric feeding tube. Feeding tube with male Luer lock. Manufactured by Unomedical. Sizes: 4Fr ...	MHRA Medical Device Alerts	06-Jan-2011
HSIB/2020	Placement of nasogastric tubes	HSIB	17-Dec-2020

APPENDIX D – EQUALITY IMPACT ASSESSMENT FORM (EQIA)

Name of service/policy/procedure being reviewed: Nasogastric (NG) and Nasojejunal (NJ) Feeding Tubes – policy for insertion and management in adult patients (excludes paediatrics and neonates)			
New or existing service/policy/procedure: Revised Policy			
Date of Assessment: 23rd July 2021			
For the service/policy/procedure and its implementation answer the questions a – c below against each characteristic (if relevant consider breaking the policy or implementation down into areas)			
Protected Characteristic	**a) Using data and supporting information, what issues, needs or barriers could the protected characteristic groups' experience? For example, are there any known health inequality or access issues to consider?**	**b) What is already in place in the policy or its implementation to address any inequalities or barriers to access including under representation at clinics, screening?**	**c) Please state any barriers that still need to be addressed and any proposed actions to eliminate inequality**
The area of policy or its implementation being assessed:			
Race and Ethnicity	No direct impact identified	Not applicable	None identified
Gender	No direct impact identified	Not applicable	None identified
Age	The Policy covers older adults with cognitive impairment through acute delirium or Dementia..	Where required mental capacity will be assessed and decisions around NG insertion made with the managing consultant and based on the best interest of each individual patient with the involvement of patient ,family and carers as appropriate.	None identified
Religion	No direct impact identified	Appropriate enteral liquid feed options for NG feeding are available for patients with specific dietary requirements and specialist Dietetic advice is available.	None identified
Disability	The Policy promotes mandatory safe practice. Six monthly Trust wide audits Traffic light documents are available for patients with learning disabilities which prompt staff to consider what reasonable adjustments may be required, and facilitate sharing of	The Trust will has a Learning Disability Specialist Lead who will help support patients with learning difficulties by ensuring that advocates are available to assist in best interest decision making. If following appropriate assessment a patient with learning difficulties lacks the mental capacity to provide informed consent for procedure and ongoing care decision will be made in the best interest of each	None identified

	information in regard to nutritional care and patient preferences.	patient along with the managing consultant, with involvement of any family and carers as appropriate. Traffic light documents are available for patients with learning disabilities which prompt staff to consider what reasonable adjustments may be required, and facilitate sharing of information in regard to nutritional care and patient preferences.	
Sexuality	No direct impact identified		None identified
Pregnancy and Maternity	No direct impact identified		None identified
Gender Reassignment	No direct impact identified		None identified
Marriage and Civil Partnership	No direct impact identified		None identified
Socio-Economic Factors (i.e. living in a poorer neighbourhood / social deprivation)	No direct impact identified		None identified

What consultation with protected characteristic groups including patient groups have you carried out?

- No direct consultation undertaken as no specific barriers identified.

What data or information did you use in support of this EqIA?

- Review of evidence from knowledge and library service review.

As far as you are aware are there any Human Rights issues be taken into account such as arising from surveys, questionnaires, comments, concerns, complaints or compliments?

-

Level of impact

From the information provided above and following EQIA guidance document Guidance on how to complete an EIA (click here), please indicate the perceived level of impact:

Low Level of Impact

For high or medium levels of impact, please forward a copy of this form to the HR Secretaries for inclusion at the next Diversity and Inclusivity meeting.

Name of Responsible Person undertaking this assessment: Nutrition Clinical Nurse Specialist

Signature: Nutrition Clinical Nurse Specialist

Date: 23rd July 2021