

## Naso-jejunal tube (NJT) insertion **and clinical management**

### Introduction:

A naso-jejunal tube is a long silastic tube which is inserted via the nostril into the stomach, through the pylorus, past the duodenum and into the proximal part of the jejunum. Once in the correct place, milk feeding can be commenced safely without the risk of reflux as the stomach is effectively bypassed. Gut peristalsis moves the feed along the small bowel where it is digested and absorbed by the child. Feeding can only be given by continuous infusion as there is no capacity for storage in the small bowel. Although some medications can be given by NJT, the majority need to be given directly into the stomach for activation by gastric acid. Advice from a paediatric pharmacist may be useful. A dietician should be involved in the care of babies or children on NJT feeds to ensure adequate nutrition and hydration. Insertion of a NJT should always be carried out in hospital. Considerations should be given for orojejunal rather than nasojejunal tube if there is a basal skull fracture, maxillo facial or nasopharyngeal abnormalities

### Indications:

Severe gastro-oesophageal reflux disease  
Life threatening episode of aspiration related to reflux  
Rarely, anatomical problems of stomach or oesophagus  
Persistent vomiting

### Risks:

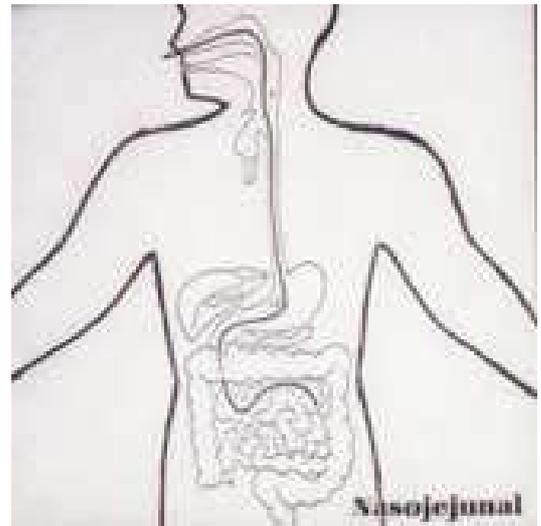
Small bowel perforation especially duodenal perforation  
Gastric bleeding  
NJT displacement e.g. back into stomach  
Failure of NJT to pass beyond pylorus with resultant coiling in stomach  
Radiation exposure from serial X-rays

### Equipment:

Tape measure  
Silicone NJ tube (for suggested sizing see below)  
Standard NG tube  
5ml Feeding syringe  
5ml sterile water for injection  
Tape or Tegaderm dressing for fixing  
Duoderm for protecting face  
pH strips  
Non sterile gloves  
Dummy for baby to suck on

### Size of NJT:

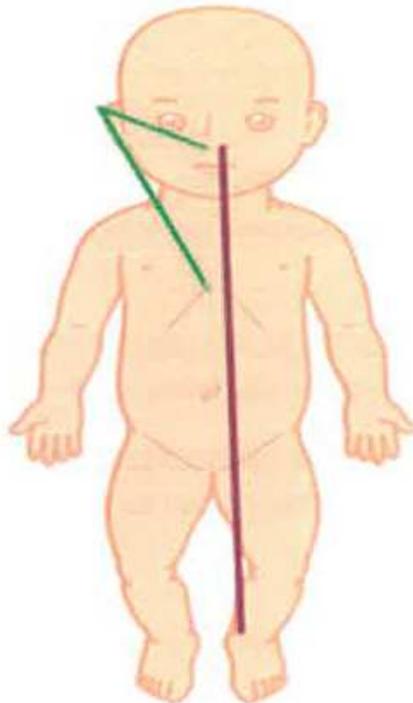
French size 6 for babies below 4kg.  
A smaller french of 5 should be sought if baby is below 2kg but is not essential.



## Methods:

1. This procedure should be performed using Aseptic Non Touch Technique.
2. Select an appropriately sized NJT and ensure you have the correct feeding syringe to fit onto this.  
**Familiarise your self with the tube's markings for length.**
3. **The NJT comes with a guidewire which must be removed prior to insertion.** Putting the NJT in a freezer for approx 30mins before insertion to make it slightly stiffer can make it easier to site.
4. Measure the distance for insertion of a nasogastric tube, from nose to ear then down to xiphisternum. Record this length as **distance A** (the gastric tube length).
5. Measure the distance for insertion of the naso-jejunal tube, from the bridge of nose down the body to the ankle with legs extended (see picture below). Record this as **distance B** (the jejunal tube length). You can place a tape marker on the NJT at this length if you wish.
6. Consider wrapping the baby in a sheet or blanket to aid positioning and comfort of the baby.
7. Lie the infant right side down and insert the NJT through the nostril as you would a gastric tube until you reach distance A.
8. Initial testing to ensure the NJ tube has reached the stomach. At this point the position must be checked using the NPSA decision tree for NGT placement checks (NPSA,2011). pH testing using universal indicator strip must be the first line method of checking the tube position for **Distance A** (to the stomach):
  - Aspirate a small amount of stomach contents using a 20ml or 50ml syringe in infants and children. For neonates use a 2-5ml syringe (Auckland District Health Board, 2014; Knox and Davie, 2009). Test the aspirate on CE marked universal indicator strip intended by the manufacturer to test human gastric aspirates.
  - For the tube to be confirmed at **Distance A** (in the stomach) the **safe pH range is between 1 and 5.5.**
  - Each test and test results must be documented on the NJ testing chart as appropriate and must be kept at the child's bedside.
9. Once correct placement for NG has been confirmed, flush the tube with 2mls of water (0.5mls for neonates) to encourage peristalsis and then slowly start to advance the tube 1cm every 15-30 minutes for neonates, 2-4cm every 5-10 minutes for infants and small children and 4-6cm every 5-10 minutes for bigger children, flushing with 0.5 - 2mls of water prior to advancing each time until Distance B has been reached. If any resistance is felt try flushing with water to aid passage, if resistance is still felt pull back a small amount and try again. NEVER push against resistance. If possible keep the child positioned on their right side with the head of the bed raised 15-30 degrees. After at LEAST one hour (to allow time for peristalsis to move tube through the pylorus) confirm tube position with fluoroscopy or out of hours an extended chest x-ray.
10. If the baby shows signs of unusual breathlessness or severe coughing during passing, remove the tube immediately.
11. Leave the child in the same right side down lateral position for 3-4 hours to allow peristalsis to carry the NJT through the pylorus into small bowel.
12. Check position of both tubes with a single X-ray of chest and abdomen. A doctor must confirm that the position is satisfactory before feeding via the NJT commences.
13. Document length of NJT insertion clearly on nursing charts. Ensure all staff are clear about which tube is gastric and which jejunal.

**Measurements for Neonate:**



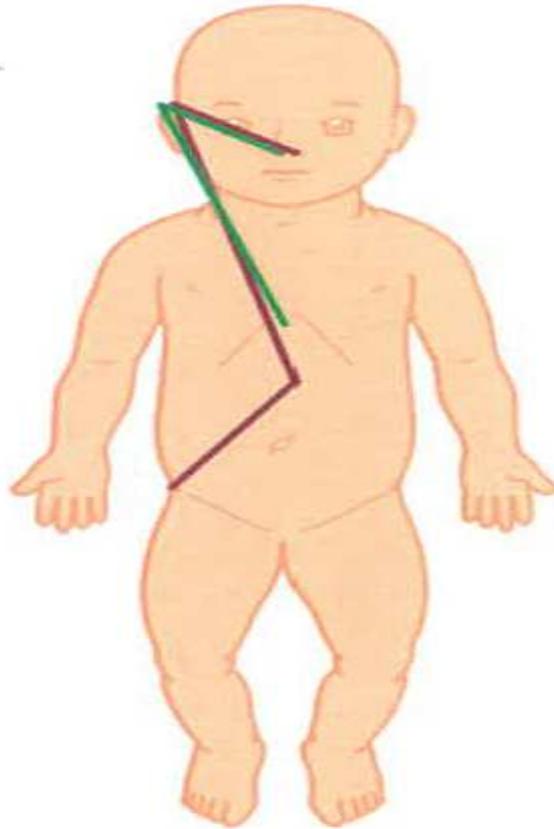
**Distance A-----**

Measure from nostril to ear and then down to the xiphisternum. This equals length A, for insertion of a nasogastric tube into the stomach.

**Distance B-----**

Measure the distance from the bridge of the nose down to an ankle with the leg fully extended. This is length B, for placing a nasojejunal tube into the jejunum.

## Measurement for infant <1year



### **Distance A -----**

Measure from nostril to ear and then down to the xiphisternum. This equals length A, for insertion of a nasogastric tube into the stomach.

### **Distance B -----**

Place the tip of the tube against the nose.  
Run the tube along the face to the ear  
Run the tube down to the mid-point between xiphisternum and umbilicus.  
Continue to right iliac crest.

## X-ray interpretation

The NJT tip should go through the pylorus and around the c-shaped duodenum. The tip should lie either in the midline (over a vertebral body) or to the left of the patients' midline in the jejunum (**Picture 1**).

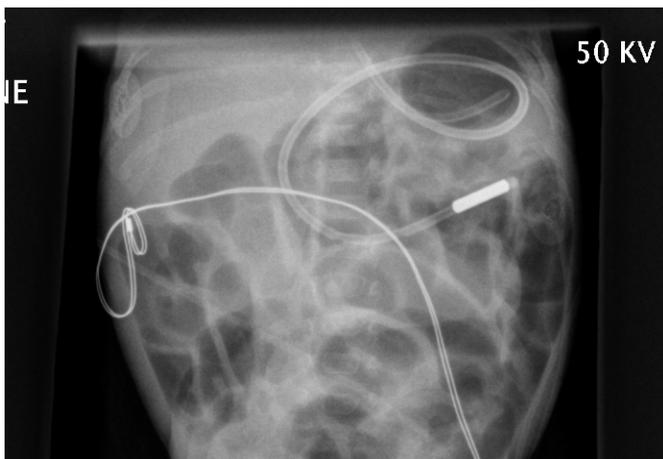
If NJT is too far in e.g. seen to curl in small bowel loops, gently withdraw. You can measure the exact distance to withdraw on the X-ray.

If NJT is through the pylorus but lies short, then loosen the securing tapes and advance further as necessary (**Picture 2**). Re-X-ray to confirm final position before feeding is commenced.

If NJT tube is coiled in the stomach, without going through the pylorus then remove tube and prepare for another attempt at insertion.

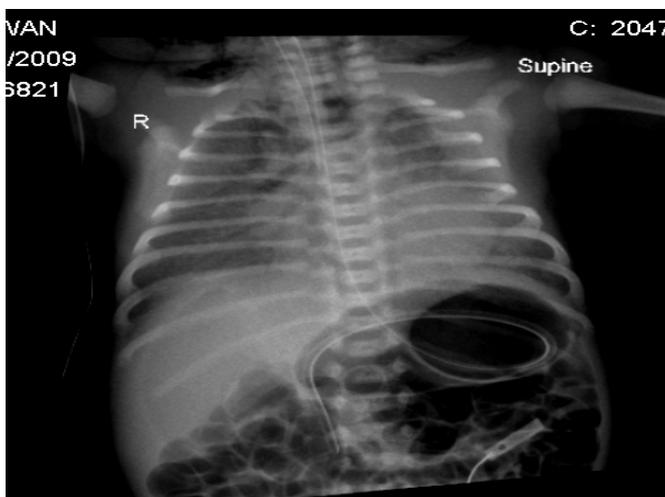
If the NJT has taken an unusual path within the bowel then remove the tube and discuss case with a senior colleague (**Picture 3**).

**Ensure the doctors have fully documented position of tube following X-ray and clearly document what was done in order to adjust the position if required.**



**Picture 1:**

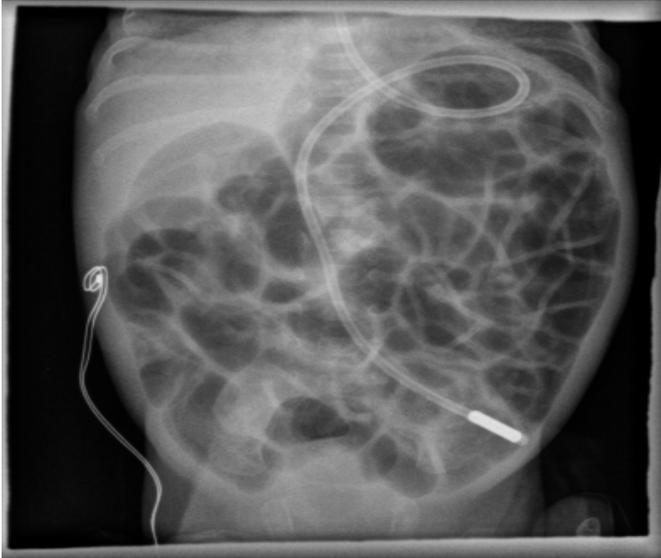
NJT loops in stomach and the tip lies in jejunum to the left of midline. Note the c-shaped duodenum. This is the correct position.



**Picture 2:**

NJT is looped in stomach and then passes through the pylorus but lies in 2<sup>nd</sup> part of duodenum, to the right side of the vertebral body.

Plan: Tube needs advancing further to reach jejunum.



**Picture 3:**

NJT had passed through pylorus into duodenum but then has taken a very abnormal path straight down. This is not the correct position and raises suspicion of duodenal perforation. This tube needs removing immediately.

### **Naso-jejunal feeding instructions:**

#### **Additional Information:**

1. Ensure NJT is at the correct length at nose.
2. Ensure a gastric tube (NGT/ OGT) is also present for aspirating and administering medication.
3. Ensure NPSA Alert 2005 is followed in order to reduce harm caused by misplaced feeding tubes in NICU's.
4. Feeds should run by continuous infusion through the NJT via a pump.
5. Giving sets should be changed every 4 hours when fresh milk is decanted, unless the spiked giving set with bottle is used which is 24 hourly.
6. Aspirate the OGT/NGT every 6 hrs (even if not using it) to ensure no milk is returned from the stomach. If milk is returned this indicates that the NJT has slipped back into the stomach and feeds should be stopped until tip position is confirmed to be satisfactory.
7. **Many medications are designed to begin absorption with the help of acid gastric contents therefore medication may not always be suitable for intestinal administration as absorption is reduced and can cause harm. In general oral medication should be given by the gastric tube and not the NJT.** Please discuss any queries with the pharmacist.
8. Confirmation of NJ/OJ tubes by recording the markings at the nostril should be done after each insertion and at every change of feed. Any deviation, please seek medical advice.
9. Document fully and use the enclosed sticker sheet provided with the NJT in the notes after passing.

#### **Tube Management:**

The nasal passages should be checked regularly to ensure they are clean and clear of any blockages. Special attention should be given to redness, soreness, swelling and bleeding. The tube should be flushed with 1-2mls of sterile water every 4 hours if the tube is not in use and before and after feeds if the baby is having time off from the pump feeds.

#### **Warnings:**

Do not aspirate the NJT – it causes collapse and recoil of the tube.

Do not bolus feed via NJT as jejunum has no capacity for storage.  
 If baby vomits milk then repeat an X-ray to check for position of NJT tip.  
 If NJT becomes blocked flush gently with 1-2 ml sterile water – if permanently blocked a new one needs inserting.  
 If NJT migrates out a few cm, push back down and consider repeating X-ray to check position of tip. If X-ray is not deemed necessary, aspirate gastric tube shortly after restarting feeds via NJT to ensure no milk is returned.  
 If NJT migrates out by a long distance then stop the feeds and consider either placing a new NJT or pushing the same one back in to the desired length with the baby lying right side down, as for initial insertion. Check tube position with an X-ray after 30-60mins.

**Duration of NJT feeding:**

Silicone NJTs can stay in place for 4 weeks although in practice they may need replacing sooner. Care should be taken not to accidentally remove the NJT when the NGT is replaced.

**Discharge home with an NJT:**

Children that go home with an NJT will require open access to the paediatric A&E department for tube replacement in the event of displacement. An NJT should not be replaced in the community due to risks of insertion plus the need for X-ray confirmation of final position.

**References:**

1. Protocol for transpyloric feeding. Brighton and Sussex University Hospital, December 2008.
2. Insertion of a naso-jejunal feeding tube. St Thomas Hospital Neonatal Intensive care Unit. January 2006.
3. Passing a Naso-Jejunal Tube. Guideline from St George's Hospital Neonatal Unit.
4. Nasogastric/ Orogastric Tube measurement, fixing and checks. St Peters Hospital NICU nursing protocol.
5. Best Practice Guideline for passing a naso-gastric tube in the neonate. Yorkhill Children's Hospital, Glasgow. October 2006.
6. Nasojejunal and Orojejunal Management. GOSH updated January 2015.
7. NPSA 2005 Reducing the harm caused by misplaced naso and orogastric feeding tubes in babies under the care of neonatal units.
8. Nottingham Neonatal Service Clinical Guideline G13 updated August 2016.

Guideline developed by Dr. Y Salek-Haddadi, Paediatric SpR

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Review July 2012

Reviewed Feb 2013 Dr. Peter Reynolds no changes

Next review Feb 2016

Reviewed January 2017 by Sara Robertson, Matron NICU some additions applied, agreed by Neonatal Guideline Committee

Few additions added August 2017 and May 2018

Next Review January 2022