

## Nasojejunal Tube (NJT) Insertion, care and management

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### Background

- This guideline outlines the care and management of NJ tubes at The Royal Alexandra Children's Hospital (RACH)
- Enteral feeding is a very useful method of ensuring adequate intake of nutrients in patients who, for a variety of reasons, are unable to use the oral route or are unable to take sufficient nutrients to maintain growth and development.
- Successful use of the enteral route to supply nutrients is dependent on the child having a functioning gastrointestinal tract.
- If the child is commenced on enteral feeding whilst they are an inpatient at RACH, and it is envisaged that this method of feeding will continue following discharge, discharge planning should commence at the earliest opportunity. This will facilitate smooth & effective discharge planning and prevent delay in the child's discharge.

### NJ Tubes

Jejunal tube feeding is the method of feeding directly into the small bowel. The feeding tube is passed by the nose into the oesophagus, on into the stomach, through the pylorus and into the duodenum or jejunum. This type of feeding can also be known as duodenal, post-pyloric or trans-pyloric feeding.

### Some indications for use:

- Absent gag reflex
- Severe gastro-oesophageal reflux
- Delayed gastric emptying
- Persistent vomiting

### Contraindications:

- Upper GI obstruction
- Oesophageal atresia/stenosis
- Significant upper GI bleeding
- Oesophageal varices
- Recent fundoplication
- Extensive short gut

Jejunal feeding may be initiated in any age group, although duration of feeding can be limited or difficult due to the following factors:

- The tubes are difficult to place (passage of the tube through the pylorus and into the small intestine relies on normal gut motility).
- There is an increased risk of gastrointestinal infection, therefore sterile or pasteurised feeds must be used and a non touch aseptic technique (ANTT) adhered to when manipulating the feeding set (the tube bypasses the natural microbiological defences of the stomach).
- The tube can easily become blocked so requires frequent flushing (due to narrow lumens of the tubes).
- Longer periods of feeding may result in reduced mobility of the patient (the natural reservoir of the stomach is by-passed and therefore feeds are best tolerated continuously).
- The type of feed given may require review (there is a reduction in the mixing of pancreatic and stomach enzymes, which delay fat absorption).
- The tubes may need to be passed under radiological guidance and therefore the patients incur a radiation dose.

**However it is safer and less expensive than parental nutrition (PN).**

## **NJT insertion step by step:**

### **1. Inform the child and family**

Ensure that the child and family are informed of the following:

- The reason for the NJ tube
- What it will involve
- The likely duration of the tube
- The potential difficulties of this feeding route and system
- The likely impact on the child and family

If required, involve a play specialist, psychologist or nurse to work with the family and child.

### **2. Prepare the child**

- ✓ Measure and weigh child before feeding commences. This provides a benchmark for monitoring the effectiveness of the feeding regime.
- ✓ The tube can be passed at any time of day but it is advisable to pass during the daytime hours for availability of specialist staff to confirm position on X-ray.
- ✓ Position check must be done and position confirmed before use, preferably after around an hour after passing the tube.

- ✓ The child does not have to be starved, however it is not advisable to pass the tube immediately following a big feed due to the risk of aspiration. Each patient should be individually assessed, and if in doubt, medical advice should be sought.

### 3. Prepare the equipment

The following equipment should be gathered:

- The appropriate size and type of tube. See **Appendix A** for guidance.
- Sterile water to lubricate the tube.
- Bowl and tissues in case of vomiting.
- Universal testing paper, to read the changes in pH aspirate as the tube passes through the gut.
- 50ml syringe to withdraw aspirate from the stomach.
- Sterile water to flush the tube clear of aspirate, once correct (stomach) placement has been confirmed.
- Non-sterile gloves.
- Tape to secure the tube to the child's skin.
- A drink with a straw or a dummy for the child to suck on, this aids peristalsis.

\*Ensure medical staff have arranged an X-ray to check an NJ tube placement for at least one hour **post** insertion.

### 4. Measuring for a nasojejunal tube

Use two measurements to determine the NJ tube length:

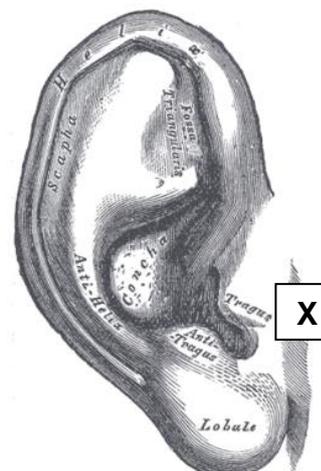
**Distance A:** the measurement from the outside to the level of the stomach.

**Distance B:** the measurement from the outside to the level of the jejunum (which will be the final position of the tube). Distance B should be clearly documented on the 'jejunal verification chart.' (See **Appendix B**)

The measurements are obtained as follows:

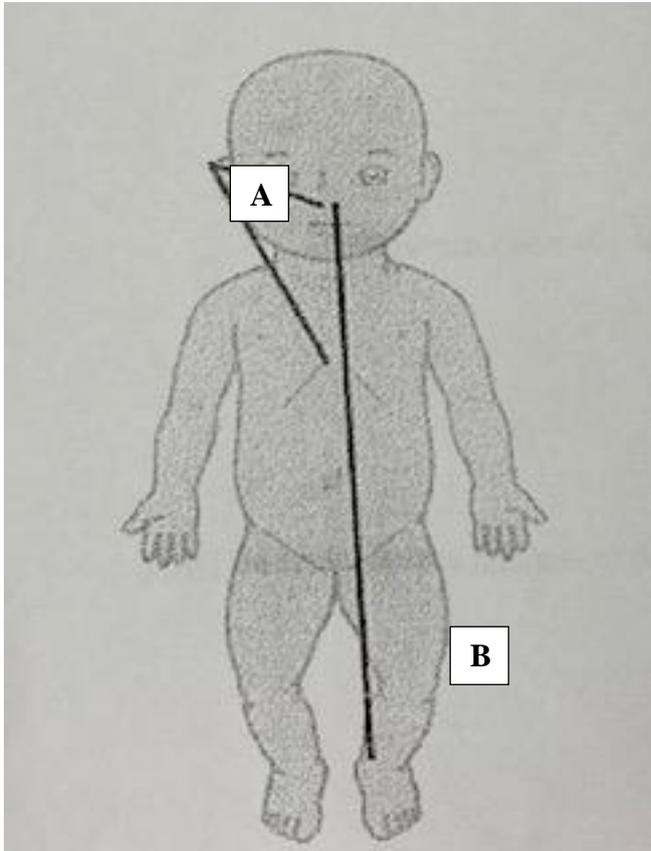
#### **Distance A (for all ages):**

- Placing the tip of the tube against the bridge of the nose.
- Run the tube along the face to the ear tragus – tragus position shown at X.
- Run the tube from the ear down to the xiphisternum.



**Distance B (is measured according to age)**

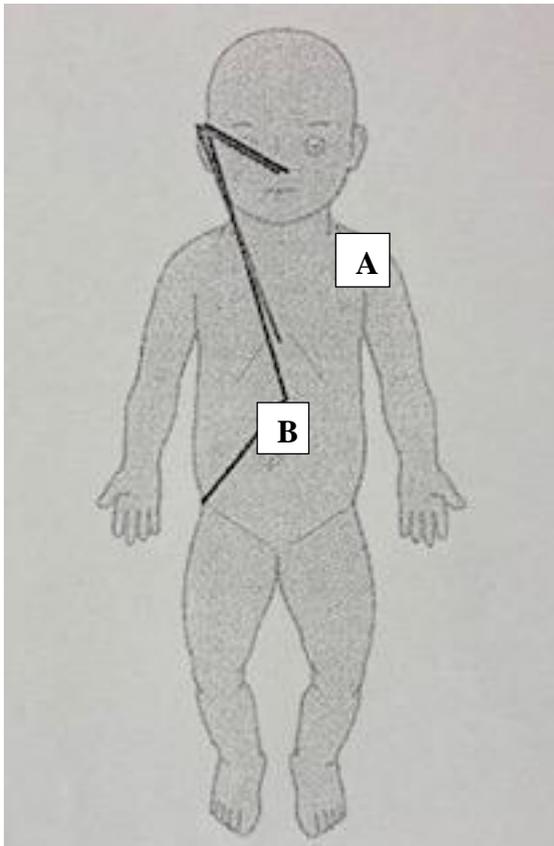
**Distance B – For Neonates**



**Neonate**

- Place the tip at the bridge of the nose
- Run down to the ankle of a fully extended leg

**Distance B – For Infants < 1 year**

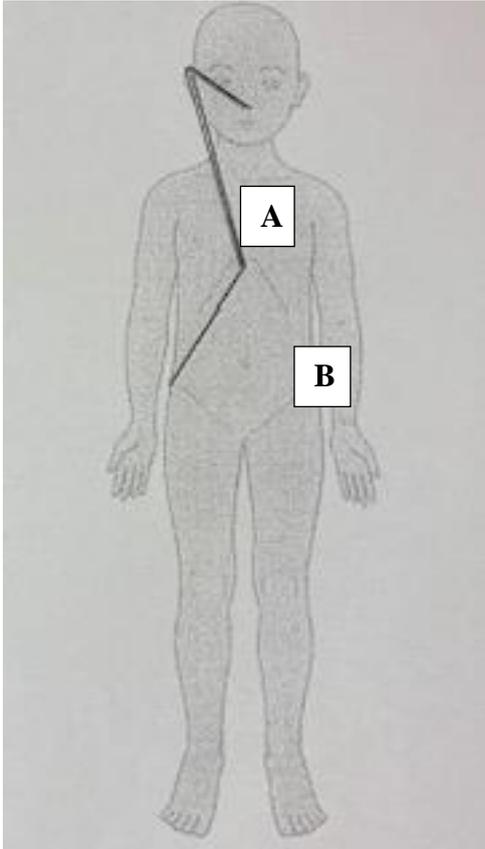


**Infant**

Distance B – for infants under 1 year

- 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

**Distance B – For Children > 1 year**



**Child**

Distance B – for children over 1 year

- Place the tip of the tube against the bridge of the nose
- Run the tube along the face to the ear
- Run the tube down to the mid-xiphisternum
- Continue to the right iliac crest

**5. Inserting the NJ tube**

- a) Wash and dry hands thoroughly, gathering together all the equipment needed and place on a clean tray.
- b) Position the child/infant lying on their right side with the head of the bed raised 15-30 degrees if possible, this aids peristalsis.
- c) Ensure the chosen nostril is clear of debris. Ask the child, if age appropriate, which side they would prefer to have the tube positioned.
- d) Wash & dry hands thoroughly, put on non-sterile gloves.
- e) Check that the tube is intact. The tube should be gently stretched to remove any shape retained from being packaged.
- f) Measure distance A and distance B as described above insuring these are both documented.
- g) Lubricate the end of the tube in sterile water; do not use lubricating jelly as this may affect the pH reading.
- h) Bend the child's head slightly forward and gently pass the tube into the child's nostril, advancing along the floor of the nasopharynx to the oropharynx. At this point, ask the child to swallow a little water or offer a younger child their dummy, to assist passage of the tube down the oesophagus until the required length of the tube to **Distance A** has been inserted.
- i) Never advance the tube against resistance, to avoid the risk of perforation.

- j) If the child shows signs of breathlessness or severe coughing, remove the tube immediately as the tube may have been passed into the trachea.
- k) **Lightly** secure the tube with tape, or have an assistant hold the tube in place until the position has been checked.
- l) Aspirate, test and document successful position of tube in the stomach in accordance with Trust policy for NGT.

### **Once correct placement for NG has been confirmed, advance to NJ position**

- 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 2mls of water prior to advancing each time (for flush volume in fluid restricted patients or neonates, please seek advice from clinical team) 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 through the pylorus) confirm tube position with an x-ray.

#### **Documentation in the child's notes must include**

- ❖ Confirmation that the x-ray viewed was the most recent for that patient.
- ❖ How the placement was interpreted.
- ❖ Clear instructions as to any required actions.
- ❖ The length of the feeding tube at the nostrils at the time of x-ray.
- ❖ If the x-ray has been formally reported upon, a clinician must write in the healthcare record that they have viewed the radiologist's report and that the feeding tube position is confirmed as satisfactory.

Health Care Professionals who rely on x-ray confirmation of the feeding tube position should confirm before feeding:

- That the entry in the patient's healthcare record is the most recent one.
- That the tube has not become significantly dislodged by cross-checking the length of the tube at the nostril with the entry confirming correct tube placement.

- Once tube position has been confirmed mark the tube with hyperfix or a permanent marker at the nose and record in the child's notes the date and time, as well as the size and type of tube that has been used. Label the tube with a label that clearly says Jejunum on it.
- Record the length of tube inserted and record that correct placement has been confirmed and record the length of visible tube from the nostril to the end (i.e. outside the child's body).

Any tubes identified to be in the lung are to be removed immediately, whether in the x-ray department or the clinical area.

### **Confirming the position of a NJ tube;**

The tube marking at the nostril and length of the jejunal tube left outside of the child's body from the nose or mouth must be checked and documented:

- After insertion
- Before any liquid, feed or medications is introduced via the tube.
- At the change of feed if the child is receiving continuous tube feeding.

And in the event of the child having an episode of:

- Retching
- Vomiting
- Excessive coughing
- Respiratory distress following a successful attempt to resolve a blocked tube.
- In the event that the tube appears to have been partially dislodged (e.g. when visible tube length has increased/changed).

## **Management**

### **Tube management**

- ! Do not aspirate the NJT as it can cause collapse and recoil of the tube.
- ! Do not bolus feed as the jejunum has no capacity for storage.
- ! If a tube has originally been passed as an NG tube DO NOT advance it to the NJ position. It must be removed and a designated NJ tube used and re-passed.

The nasal passages should be checked regularly to ensure they are kept clean and clear and checked for any signs of them being:

- Red / Sore / Swollen / Bloody

If any of the above is present, an experienced nurse or doctor should be consulted regarding management of the problem and the possibility of re-siting the tube discussed.

The tube should be flushed with 3-5ml of sterile water (1-2mls for neonates) using a turbulent flush. This will prevent blockage of the fine bore and medicines sticking to the inner surface of the tube.

Flushing should occur:

- prior to each feeding session
- after each feeding session
- prior to administration of medicines
- after administration of medicines
- four hourly if the tube is not in use

Flushing the tube should be done using an ANTT and standard precautions (bacterial contamination is possible because the gastric juices are being by-passed).

The flushing should be recorded on the child's fluid balance chart.

Contact an experienced nurse or doctor if the tube cannot be flushed to discuss a plan.

Unblocking must not be performed using pressure as this may split the tube, cause oesophageal trauma or gut perforation.

Unblocking may be achieved by the use of carbonated or warm water.

When not in use the tube should be closed using the integral stopper.

Document any insertion/use/positioning on NJT Verification chart. **(See Appendix B)**

### **Administration of feed**

- When feeding directly into the small bowel, feeds must be delivered continuously via a feeding pump. The small bowel cannot hold large volumes of feed. Bolus feeds can result in diarrhoea, vomiting & abdominal discomfort.
- To provide a total daily intake the feed will need to be administered over a long period of time. This usually commences continually over 24 hours but may go over shorter periods of time prior to discharge/in the community.
- Feeding regimen including choice of feed will be determined by the dietitian who will need to be informed of any new NJ placement.
- Administer only the prescribed feed.
- Avoid thickened feeds as these may have the potential to block the tube.
- If the feed is to be administered via feed bottles, these and the giving sets must be changed every 4 hours to minimise the risk of infection.
- If the child is going to be mobile during the day a portable pump may be indicated. If this is the case contact the dietician for a backpack.
- All feeds should be monitored and recorded hourly using a fluid balance chart (along with any other oral/gastric feeds).
- Mouth care will be required if the child is having no oral intake to maintain oral hygiene.
- If no oral intake is permitted oral stimulation will be required to aid development. Advice can be sought from the hospital's Speech & Language specialist.

- The child's output should be measured & recorded to maintain an accurate fluid balance and monitor the effectiveness of the feed.
- The child's doctor or dietician should be notified if the child's fluid balance is excessively negative or positive for reassessment of the feeding regime.
- The child should be measured and weighed before feeding commences and then twice weekly. Length measured monthly.
- The use of this feeding method should be re-assessed, evaluated & recorded daily.

### **Administration of medicines**

- Oral drug administration via a NJ tube should be discussed with a pharmacist and child's doctor. This is because medication may not be suitable for intestinal administration and could cause harm; they may not be properly absorbed and may be incompatible with the small intestine.
- If possible the tube should not be used for the administration of medicines and if necessary syrups and suspensions should be avoided, they may be incompatible with the feed or block the tube.
- The NJ tube should be flushed with a turbulent flush before & after drug administration using 3-5ml sterile water (1-2mls for neonates) to maintain the patency of the tube.
- An ANTT must be used to minimise the risk of infection.

### **Completing Treatment**

When feeding using this method is no longer required, e.g. if it has been unsatisfactory or normal nutritional intake can be commenced, the tube can be removed gently by withdrawing the tube from the nostril using standard precautions.

- ! The tube must not be removed without prior discussion with the child's doctor and dietician.
- ! The child's weight & height must be recorded at the end of treatment and be continued to be monitored going forwards.
- ! Document the removal of the tube in the child's records.

#### **References:-**

- Great Ormond Street-** Clinical Guidelines, Nasojejunal-nj-and-oral management, Great Ormond Street Hospital. Version 3.0 Review 22 Jan 2018.
- Southern Health & Social Care Trust** – Children & Young People's Directorate, Procedure/Guidelines/Protocol Checklist & Version Control Sheet. CG0094(1) 31/10/2019.
- Ashford and St. Peters Hospitals NHS Foundation Trust** – Naso-jejunal tube (NJT) insertion and clinical management, by Dr. Y Salek-Haddadi, Paediatric SpR. May 2018.
- The Use of Jejunal Tube Feeding in Children: A Position Paper by the Gastroenterology and Nutrition Committees of the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition 2019** – JPGN, Volume 69, Number 2, August 2019.

**APPENDIX A**

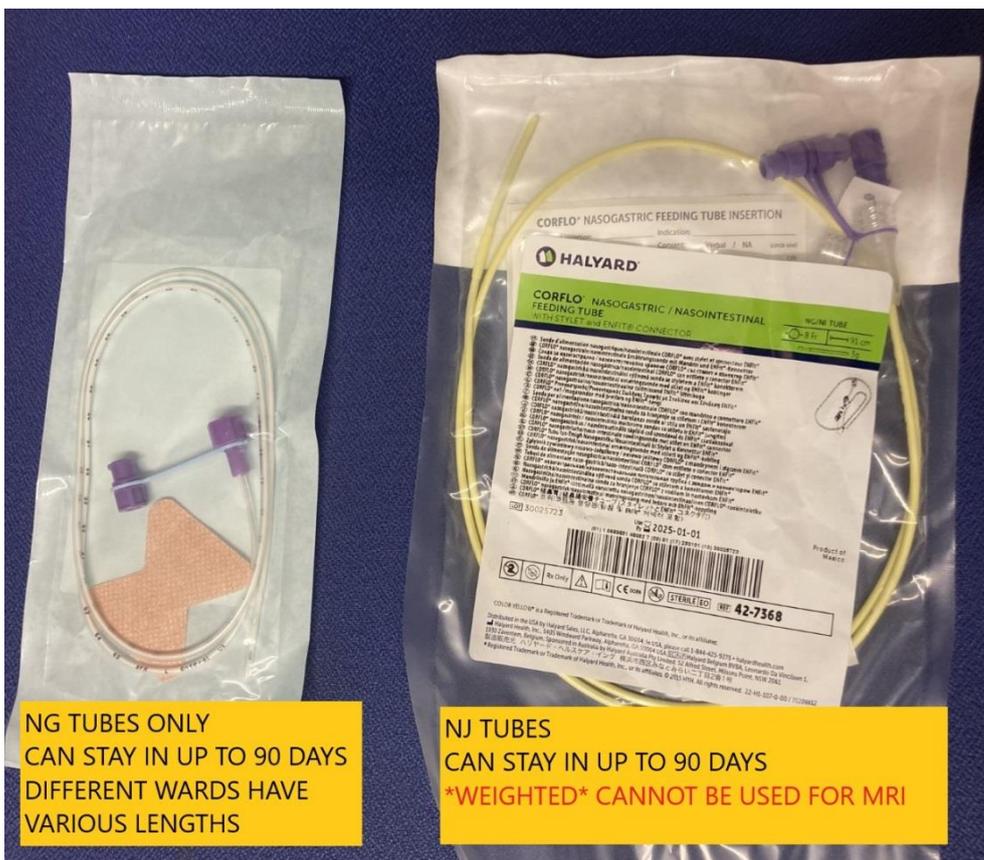
Please ensure you have the correct type & size of tube prior to commencing insertion. If in any doubt please seek assistance from L9 Medical Ward RACH.

The type/difference in NGT/NJT is shown in the picture below. Level 9 Medical Storeroom keeps these tubes.

Please be aware that they are not compatible with MRI as weighted.

Please also check correct size is chosen for child's size of nares.

Age of child	Approx Size
Neonates	6 FG
Infants up to 5yrs	8 FG
Over 5yrs	8 – 10 FG



NG TUBES ONLY  
CAN STAY IN UP TO 90 DAYS  
DIFFERENT WARDS HAVE  
VARIOUS LENGTHS

NJ TUBES  
CAN STAY IN UP TO 90 DAYS  
**\*WEIGHTED\* CANNOT BE USED FOR MRI**

Date & Time of Insertion  
\_\_\_\_\_

Name of person initially inserting  
\_\_\_\_\_

Ward where tube initially inserted  
\_\_\_\_\_

Type & Size of Tube  
\_\_\_\_\_

Distance A \_\_\_\_\_ Distance B \_\_\_\_\_

Method of marking Mefix/pen  
\_\_\_\_\_

Length at Nostril (cm)  
\_\_\_\_\_

**Patient details** (affix sticker)

Name:.....

Trust ID number:.....

DOB:.....

Ward:.....

**PLEASE NOT THE FOLLOWING METHODS OF VERIFYING TUBE PLACEMENT ARE UNRELIABLE AND SHOULD NOT BE USED:**

- Auscultation of air insufflated through feeding tube ('Whoosh Test')
- Observing for signs of respiratory distress/absence of respiratory distress
- Monitoring bubbling at the end of the tube
- Observing the appearance of feeding tube aspirate
- Testing of pH aspirate
- If unable to verify the position of a jejunal tube you **MUST NOT** inject water into the tube

If there is any movement of the tube / history of it being pulled / coughing / gagging / milk present in **nasogastric** aspirate (if also insitu), tube must be radiologically checked.

**Document date, time and result of any radiological checking below:**

<b>Date</b>					
<b>Time</b>					
<b>Method</b> Fluroscopy / X-Ray					
<b>Reason</b> <i>See below</i>					
<b>Result</b> <i>See below</i>					
<b>Signature</b>					

**Reason:** 1. Tube pulled 2. Change in documented measurement  
3. Coughing/gagging 4. Milk present in **NG** aspirate.

**Result:** 1. Tube in position & safe to use 2. Tube in incorrect position & removed  
3. Tube in incorrect position & repositioned 4. Tube removed & replaced in video fluoroscopy

**Guidance Notes:-**

- On initial insertion document date, time, tube size, distance A & B, length at nose, where inserted, method of marking.
- Document date, time, marker position & sign **every** time the NJ position is checked at **every** use.
- Document **every** radiological verification, reason & result.

**Patient details** (affix sticker)

Name:.....

Trust ID number:.....

DOB:.....

Ward:.....

Confirm tube remains at documented position and there has been no evidence of movement, coughing or gagging on the chart below at **every** use:-

Date									
Time									
cm @ nose									
Sign									

Date									
Time									
cm @ nose									
Sign									

Date									
Time									
cm @ nose									
Sign									

Date									
Time									
cm @ nose									
Sign									

**Patient details** (affix sticker)

Name:.....

Trust ID number:.....

DOB:.....

Ward:.....

Date									
Time									
cm @ nose									
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