ENTERAL (NASOGASTRIC TUBE) FEEDING

Enteral feeding refers to the introduction of a complete liquid formula directly into the stomach or small intestine via a narrow, specifically designed tube, in the presence of a functioning gut.

**Contraindications** for nasogastric tube feeding as main source of feeding. This list is not inclusive:
- Bowel obstruction
- Fistula
- Perforation
- Enteritis (radiation, drug induced, infective etc)
- True paralytic ileus

**Outcome**
The most suitable tube is appropriately inserted and safely placed to facilitate feeding of the actual or potentially nutritionally compromised patient. Feeding is commenced in a timely manner and for the appropriate duration. The multidisciplinary team, on an ongoing basis, assesses the patient’s status in terms of nutrition and infectious, mechanical and metabolic risks.

**Variance Management**
If a nasogastric tube is unable to be passed the patient’s health care team must be informed and appropriate arrangements made as soon as practical.

If enteral feed is not tolerated the patient’s health care team must be notified and alternative arrangements made in a timely manner.

If an enteral tube is displaced, feeding must be suspended immediately, the patient’s condition assessed and the tube repositioned as soon as practical, or alternative arrangements made. Confirmation of correct tube placement must be undertaken as per evidence-based guidelines

Refer to Policy and Procedure for “Insertion of nasogastric tubes”
Refer to policy and procedure for “Removal of nasogastric tubes”
ENTERAL (NASOGASTRIC TUBE) FEEDING cont’d

Procedure:

Commencing of enteral formula

A Registered nurse may commence enteral feeds once the following has been established:
- Tube feeding is prescribed by the medical officer or dietitian
- Blood levels: Potassium, Phosphate and Magnesium are within normal range- see Appendix A and B
- Appropriate investigations have been performed to confirm correct placement of the nasogastric tube. A chest x-ray must be performed on all patients following insertion of a nasogastric tube to confirm placement.
- If the ward dietitian is available refer to Appendix A
- If a ward dietitian is not available refer to Appendix B

The dietitian will prescribe a feeding regimen to suit the individual patient’s nutritional requirements in liaison with the medical and nursing staff.

Feeds should never be diluted, should be shaken well and at room temperature before administration.

Administration of specialised food or anything other than specialised feed is contraindicated due to the high risk of bacterial contamination, poor nutritional content, high osmolarity and increased risk of tube blockage.
### Troubleshooting Complications with Enteral feeding

<table>
<thead>
<tr>
<th>Category</th>
<th>Feeding Complication</th>
<th>Suggested Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal side</td>
<td>Nausea &amp; Vomiting</td>
<td>• Check feed administration rate&lt;br&gt;• Check when bowels were last open and treat appropriately&lt;br&gt;• Elevate head of bed 45 degrees if possible&lt;br&gt;• Ensure the feed is being administered at room temperature</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td></td>
<td>• Check feed administration rate&lt;br&gt;• Ensure the feed is being administered at room temperature&lt;br&gt;• Ensure good infection control practises i.e. Refrigerate and label open cans, discard administration sets daily, <strong>wash hands before and after patients contact and feed preparation</strong>&lt;br&gt;• Discontinue broad-spectrum antibiotics if possible&lt;br&gt;• Re-examine enteral intake regimen in consultation with Dietitian and MO&lt;br&gt;• Stool specimen and stool chart&lt;br&gt;• Ensure the patient does not become dehydrated&lt;br&gt;• Anti-diarrhoeal agents should only be considered if the above measures are unsuccessful &amp; stool culture is clear</td>
</tr>
<tr>
<td>Constipation</td>
<td></td>
<td>• Administer appropriate medication ie. Enema, laxative, bulking agent&lt;br&gt;• To ensure adequate hydration, check that enteral formula and water flushes are being administered as per dietitian’s recommendations. Consult dietitian and MO&lt;br&gt;• Keep patient mobile if possible&lt;br&gt;• Chart bowels daily</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Aspiration pneumonia</td>
<td>• Elevate head of bed 45 degrees if possible&lt;br&gt;• Q4h aspiration for tube gastric residual&lt;br&gt;• Pump controlled feed administration&lt;br&gt;• Review when bowels were last opened&lt;br&gt;• Administer regular prokinetic medications that assist with increasing the rate of gastric emptying eg. Metoclopramide</td>
</tr>
<tr>
<td>Tube related</td>
<td>Tube Blockage</td>
<td>• Prevention- flush regularly with water for irrigation&lt;br&gt;• Avoid administering drugs via the feeding tube&lt;br&gt;• In the event of tube obstruction the following interventions are suggested (in order of execution)&lt;br&gt;1. Flush and aspirate with warm sterile water&lt;br&gt;2. Flush and lock with alkalisising agent i.e. Sodium citrotartrate (Urál)/ Sodium Bicarbonate.&lt;br&gt;3. Pancreatic enzyme solution has been shown to digest clots of feed. Administer these in consultation with pt’s healthcare team and as prescribed by the MO</td>
</tr>
<tr>
<td>Psychosensory</td>
<td>Thirst, dry mouth/lips</td>
<td>• Routine and prn mouth care&lt;br&gt;• Lubricate lips and give ice to suck</td>
</tr>
<tr>
<td>Food deprivation</td>
<td></td>
<td>• Reassure and support pt&lt;br&gt;• To ensure adequate hydration, check that enteral formula and water flushes are being administered as per Dietitians recommendations and consult Dietitian and MO.</td>
</tr>
</tbody>
</table>

(Adapted from POWH Clinical Policy and Procedures Manual, 2003)
Refeeding Syndrome

APPENDIX 1: Refeeding Syndrome

What is Refeeding Syndrome?
Refeeding syndrome is the term used to describe the adverse metabolic effects and clinical complications that may arise when a starved or seriously malnourished individual commences refeeding by any route. When the malnourished patient is fed carbohydrate, anabolism leads to intracellular influx of anabolic ions in response to insulin. The resulting electrolyte shifts can lead to dangerously low plasma levels of these ions.

Signs of refeeding syndrome include:
- Severe hypophosphataemia, hypokalaemia or hypomagnesaemia;
- Vitamin deficiencies (most notably, thiamin depletion);
- Glucose intolerance;
- Fluid balance disturbances.

The risk of refeeding syndrome is increased in patients who are on PN as the rapidly administered parenteral carbohydrate speeds the metabolic effects.

Who is at risk?
Any malnourished patient is at risk, specifically if any one of the following is present:
- Severe underweight (BMI < 17)
- Severe recent weight loss (> 10% in less than 4 months)
- Chronic alcoholism
- Unfed, or on intravenous hydration only, for >7-10 days with evidence of stress and depletion.

Precautions to be taken
1. Identify at-risk patients.
All patients should be assessed for risk of refeeding syndrome by the medical team or dietitian prior to commencing feeding.

2. Treat electrolyte abnormalities.
Electrolyte levels (in particular phosphate, potassium and magnesium) must be assessed at baseline and any abnormalities corrected.

3. Provide vitamin supplementation.
Thiamine should be provided prior to commencement of refeeding, and daily thereafter.

4. Deliver energy and fluids slowly.
The dietitian will provide recommendations on starting rates for patients at risk of refeeding syndrome.

5. Monitor the patient.
Fluid balance should be carefully documented so as to avoid fluid overload. Biochemistry should be monitored intensively during the first week of feeding and any abnormalities corrected (specifically phosphate, potassium and magnesium).
Tube Feed Details

Appendix A

Type of Enteral Tube: ........................................ Date:..............................

Enteral Feed Name: ........................................

FEEDING REGIMEN

*Commence at ............ mls/hr

*Continue at this rate to/for .........................

*Increase feed by ............ mls every ............ hrs, until final rate of ............ mls/hr is achieved.

* Feed over ............... hrs i.e. from ............... hrs, to ............... hrs

* Flush the tube with ........ mls of water, □ before and after each feeding period

□ .....................hourly during feeding

□ .....................hourly over 24 hours

Flush tube with at least 30mls of water before and after administration of any medications given via the tube.

PLEASE NOTE:

- Adjust rate, volume and type of intravenous fluids if necessary
- Ensure patient's upper body is elevated by at least 45° during feeding
- Use a new spike set for every new bottle of ready to hang formula
- Hang feed for a maximum of 24 hours. Discard leftover feed, bottle and used spike set.
- Chart bowels and maintain fluid balance chart
- Please see medical records for details of feed regimen

Final rate will provide: ............ mls feed/day (Energy: ............ Protein: ............)

 ............ mls water/day (*not including water to flush medications)

Signature: .................................

Print Name and Page No. ..............................
Appendix B

Commencing Nasogastric Tube feeding regimens when the dietitian is *not* available:

**Before commencing NG Feeding:**

Check Nasogastric tube placement with CXR and confirm with medical team  
Medical team to order blood and check results of serum Potassium, Magnesium, Phosphate and Calcium levels

*If patient at risk of refeeding syndrome please refer to Refeeding Syndrome policy prior to commencing NG feeding.

*Commence feed at 30ml/hr and hold until dietitian review; if the dietitian is away for an extended period of time please refer to the below table.*

*Flush the tube with 50 mls of water, before and after commencing each feeding period, 4 hourly during feeding and before and after administration of any medications given via the tube.*

**PLEASE NOTE:**
- Adjust rate, volume and type of intravenous fluids if necessary
- Ensure patient’s upper body is elevated by at least 45° during feeding
- Use a new spike set for every new bottle of ready to hang formula
- Hang feed for a maximum of **24 hours**. Discard leftover feed, bottle and used spike set.
- Chart bowels and maintain fluid balance chart

Contact the dietitian and inform them of the commencement of nasogastric feeds and the relevant patient details.  Page:47302 Extension: 26544

Once the dietitian is available to review the patient their individual regimen will be documented accordingly.

If the dietitian is unavailable for an extended period of time the following guide can be used. Rate increase depends on risk of refeeding syndrome and should be done at 10-20ml/hr per 24 hours depending on the patient.

This table provides an outline of goal rates based on body weight of patient, using Schofield equation for energy prediction and injury factor 1.2-1.3, activity factor 1.2 (bed rest).  
**([using Isosource 1.5 feed])**:

<table>
<thead>
<tr>
<th>Pt weight (kg)</th>
<th>Goal rate (ml/hr)</th>
<th>kCal/day</th>
<th>Protein g/day</th>
<th>Free fluid/day</th>
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</thead>
<tbody>
<tr>
<td>50</td>
<td>50</td>
<td>1800</td>
<td>81.6</td>
<td>934</td>
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<td>90</td>
<td>65</td>
<td>2340</td>
<td>106</td>
<td>1214</td>
</tr>
</tbody>
</table>

Risk rating: Extreme risk  
Review period: 12 months