

Enteral Feeding in Hyperemesis Gravidarum Patients

Purpose

To provide guidance on when to use, and how to manage enteral feeding (EN) in patients with hyperemesis gravidarum (HG). This document is intended to be used as additional information to the PRISM documents [Enteral Feed Policy](#) and [Vomiting in Pregnancy](#).

Applicability

Christchurch Women's Hospital:

- Medical Officers
- Dietitians
- Registered Nurses (RN)
- Midwives/lead maternity carers (LMC)
- Enrolled Nurses within the scope of their practice
- Nursing Students within the scope of their practice
- Pharmacists within the scope of their practice

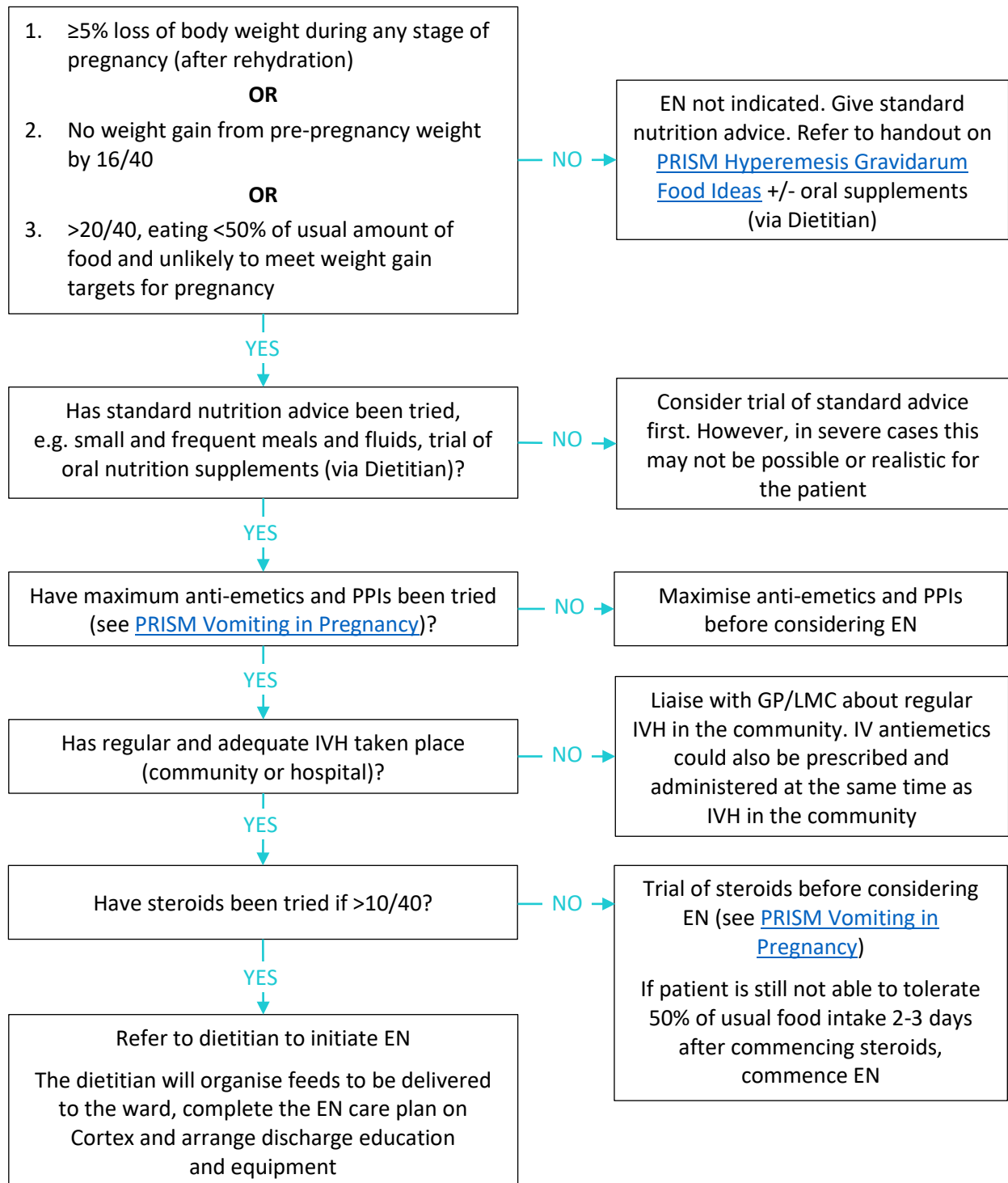
Abbreviations

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|---------------------------------------|-------------------------------|
| • EN – enteral nutrition | • LMC – lead maternity carer |
| • GAU – gynaecology assessment unit | • MAT – maternity ward |
| • GDM – gestational diabetes mellitus | • NGT – naso-gastric tube |
| • GYU – gynaecology ward | • NJT – naso-jejunal tube |
| • HG – hyperemesis gravidarum | • PPI – proton pump inhibitor |
| • IVH – intravenous hydration | |

Dietitian referral criteria for nausea and vomiting in pregnancy

- Greater than 5% weight loss or body mass index (BMI) less than 18.5
- Prolonged vomiting and nausea for longer than 2 weeks
- Unable to take prescribed vitamin therapy
- Oral intake less than 50% of normal
- Triplet pregnancy
- Previous moderate or severe hyperemesis that required nutrition support
- Severe or persistent hyperemesis and/or no weight gain by second trimester
- More than 1 admission to hospital.

Decision Process – EN algorithm for HG patients



Which ward?

- Less than 22 weeks gestation (<22/40) – patient to go to the gynaecology ward (GYU)
- 22 weeks gestation or more (≥22/40) – patient to go to the maternity ward (MAT)

Discussion points with patient

It is important to discuss the benefits and possible side-effects of EN with the patient so that they can make an informed decision. This can be done by medical staff or the dietitian.

BENEFITS	POSSIBLE SIDE EFFECTS
Some women have reduced nausea and vomiting once EN is initiated. For others there is no change. It is unlikely to worsen symptoms.	The feeding tube may be dislodged or come up when vomiting, which would require readmission to hospital and reinsertion.
Women may have more energy once EN is initiated.	Insertion of feeding tubes can be uncomfortable.
Nutrition is important for the patient's energy levels and strength, immunity, mental health, vitamin and mineral status. Nutrition is important for baby's growth and development.	The tube may cause nose/throat irritation or soreness. Medications can be used to decrease this discomfort.
The feeding tube can be easily removed if symptoms improve and it is no longer required.	There is low risk of serious side-effects such as infection or aspiration.

EN feeding tubes

Nasogastric

- Nasogastric tubes (NGT) should be trialled first in patients:
 - with nausea but no or minimal vomiting, or
 - when vomiting is only triggered by eating or drinking, or
 - when there are significant delays to the insertion of an NJT.
- They can be inserted on the ward by experienced nursing staff. If the patient is on MAT ward, staff from another ward may need to come to insert the NGT.
- A 12 French NGT is recommended – this may have to be sourced from another ward.
- Position of NGTs should be checked by x-ray prior to using, with an abdominal shield

Naso-jejunal

- Naso-jejunal tubes (NJT) feed distal to the stomach and in theory, feeding may be better tolerated. They should be trialled first in patients who are vomiting even when they are not eating or drinking.
- They should be inserted endoscopically, not in interventional radiology, to reduce radiation exposure to the foetus.
- Obstetrics and gynaecology team to:
 - refer to Gastroenterology for NJT insertion endoscopically,
 - provide the patient with information on the safety of medications that may be required during endoscopy and [Midazolam in pregnancy – mothertobaby.org/fact-sheets/midazolam](https://mothertobaby.org/fact-sheets/midazolam)
 - [Fentanyl in pregnancy – mothertobaby.org/fact-sheets/fentanyl](https://mothertobaby.org/fact-sheets/fentanyl)
 - complete a consent form with the patient prior to the procedure. The following resource may be helpful to structure discussions: [Patient information: gastroscopy](#)

Refeeding syndrome

- Patients are often at risk of refeeding syndrome. The usual management of refeeding syndrome should be followed - refer to [Hospital HealthPathways: Refeeding Syndrome](#).

EN feeding regimen – the information below is intended primarily for Dietitians

- The dietitian will organise feeds to be delivered to the ward, complete the EN care plan on Cortex and arrange discharge education and equipment.
- Midwives on the maternity ward do not regularly use EN. Clinical midwife coaches and coordinators on the ward have been trained in EN, however they may still require extra support around pump set up and feeding. There is an EN manual, with step-by-step feeding pump instructions, on the ward.
- For MAT ward – Kangaroo and FreeGo giving sets and ENfit syringes are kept in a drawer in the medication room. Sterile water, 'water for irrigation', is available from the birthing suite or will need to be ordered to the ward.
- If oral fluid intake is inadequate, ensure IVH before and during commencement of EN, until fluid requirements can be met with EN alone. EN may be less tolerated if the patient is dehydrated.
- It is recommended that the patient does not eat whilst EN is being established. Add diet code *No meal required* to flovew and inform the patient. Once EN has been established, oral intake can resume if tolerated and not triggering vomiting (vomiting increases the risk of tube displacement).
- Default feed – 1kcal/mL, fibre containing feed e.g. Jevity. A fibre containing feed is preferred to prevent constipation.
- Use estimated energy requirements of 25kcal/kg Adjusted Ideal Body Weight (AIBW) and 1g protein/kg AIBW as a starting point. Requirements can be increased during outpatient follow-up based on weight gain targets.
- Fluid requirements – aim for 2-3 litres fluid/day (total fluid from feed + flushes).
- Start feeding rate at 30mL/h, running the feed continuously for 24 hours.
- Increase the feeding rate by 5mL/h every 4 hours as tolerated, until the target rate is reached.
- Some patients do not tolerate larger water flushes, therefore start with smaller flushes, e.g. 30mL, until tolerance is established. If the patient is using a joey pump, hourly flushes should be given.
- Once the goal rate is reached, aim to add a break in feeding or provide patient with a discharge plan to increase the rate and add a break in feeding.
- Consider discharging home once refeeding syndrome is managed and the patient is confident with pump/equipment use.
- Consider ordering only 2 weeks of feed and equipment in case EN is not successful.
- Provide the patient with 2x clog zapper on discharge (available from GYU), in addition to feeding plan and feeding equipment.

Bowels

- Constipation is common in pregnancy and may worsen with the inadequate food and fluid intake associated with HG. It can contribute to nausea and vomiting and poor EN tolerance.
- If the patient is constipated on admission, bowels should be opened prior to discharge.
- The use of a fibre-containing feed and increased hydration with EN should help to prevent constipation, however PRN laxatives should still be prescribed on discharge if constipation has been an issue for the patient.

Medications

- All patients should be reviewed by pharmacy to ensure medications are suitable for administration via enteral feeding tube.
- Once a patient is tolerating goal rate of enteral feeding:
 - Ongoing thiamine 50mg daily is not required. Ensure that the appropriate doses for management of refeeding syndrome have been given.
 - Potassium iodate 253µg daily should be continued throughout the pregnancy and whilst breastfeeding. It can be crushed, dispersed in water, and given via enteral feeding tubes.
- A sore throat is more common after tube insertion, possibly due to irritation of the throat from vomiting. Liquid paracetamol can be trialled first to help manage this. If pain is severe, consider a trial of bensedamine (Difflam spray) for the shortest possible time (days).

Outpatient follow-up

- The patient's Lead Maternity Carer (LMC) should be updated on discharge via the discharge summary.
- Patient to be reviewed regularly by Christchurch Women's Hospital Dietitians – by phone and face:face to coincide with obstetric appointments.
 - If HG is present until birth, follow-up should continue after birth as some women continue to experience ongoing issues such as food aversions and early satiety.
- If <22/40, GAU card to be provided to patients to contact if the feeding tube is dislodged or blocked.
- If ≥22/40, advise the patient to contact their midwife who can then refer to the on-call obstetric registrar.
- ≥22/40, patient to be booked into outpatient clinic for follow-up with OG4 team (only enterally-fed, not all HG patients).

Removal of EN feeding tube

- The decision to remove a feeding tube should be made in consultation with the Dietitian, SMO and patient. The patient should be meeting 75% of nutrition and fluid requirements orally and be tolerating antiemetics orally before removal.
- In prolonged cases of HG, patients may experience food aversions and difficulties eating after birth. There should be a discussion with the dietitian, SMO and patient about whether to keep the feeding tube in situ until it is certain that they can meet nutrition requirements orally.

Readmissions

- Tube dislodgement in patients with HG is common.
- A feeding tube should only be reinserted after consideration of the following:
 - Is tube feeding still required? Discuss with Dietitian.
 - Reason for feeding tube failure? How long did the tube last?
 - See the flowchart below for occluded/blocked tubes.
 - Is the same type of tube, or a different tube required (NGT vs. NJT)?
 - How many feeding tubes have been placed?
 - In repeated tube displacement, consider x-ray after endoscopic placement to check for any loops in the stomach, as this increases the risk of tube displacement with vomiting.
 - The tip of many endoscopically placed NJTs actually lies in the duodenum. Consider tube advancement to jejunum in Interventional Radiology (IR) in discussion with SMO and radiologist.
 - Is the patient meeting fluid requirements? Does IVH need to be regularly administered in the community to improve symptoms and the chances of EN succeeding?

- Patient's thoughts and feelings around tube reinsertion.
- Parenteral nutrition should be considered as a last option if enteral feeding is repeatedly unsuccessful.
- The patient should re-admitted and managed under the OG4 team.

Steps for tube occlusion/bandage

1. Massage tube from nares to distal attachments to break up any feed or medications that may have collected in the tube.
2. Half fill a 20ml ENFit syringe with warm water and use a piston action flush to dislodge occlusion.
3. If debris is visible in syringe, refill with clean water and repeat this step. It may take several attempts to clear the tube (up to 20 minutes).
4. Administer clog-zapper (available from GYU) as per manufacturer instructions. Leave in the tube for 30-60 minutes before attempting to flush again. This can be repeated up to three times if needed.

Tube remains occluded

Naso-gastric tubes (NGT):

Replace the tube

Naso-jejunal tubes (NJT):

Order abdominal X-ray with abdominal shield to assess tube position. NJT can migrate out of the small bowel into the stomach.

If tube is kinked or mispositioned, discuss with gastroenterology registrar. Replacement may be required.

*If the tube became blocked when the patient was an outpatient, refer to dietitian and pharmacist prior to discharge with new feeding tube to assess for causes of blockage.

Testing for Gestational Diabetes Mellitus (GDM)

Women with HG are unlikely to tolerate the Oral Glucose Tolerance Test (OGTT), that is recommended at 24-28 weeks of pregnancy, to screen for GDM. The patient should be referred to the Diabetes in Pregnancy Team at Christchurch Women's Hospital to screen for GDM using finger prick testing.

Supporting material

Controlled documents

- Hyperemesis Gravidarum Food Ideas, Document ID: 2406514
- Enteral Feeding Policy, Document ID: 2403604
- Vomiting in Pregnancy, Document ID: 2400180

Supporting research

1. Grooten IJ, Koot MH, van der Post JA, et al. Early enteral tube feeding in optimizing treatment of hyperemesis gravidarum: the maternal and offspring outcomes after treatment of hyperemesis by refeeding (MOTHER) randomized controlled trial. *Am J Clin Nutr.* 2017;106(3):812-820.
2. StokkeG, Gjelsvik BL, FlaattenKT, et al. Hyperemesis gravidarum, nutritional treatment by nasogastric tube feeding: a 10-year retrospective cohort study. *Acta Obstet Gynecol Scand.* 2015;94(4):359-367.