OBSTETRICS AND GYNAECOLOGY
CLINICAL PRACTICE GUIDELINE

Hyperemesis Gravidarum
(Nausea and Vomiting in Pregnancy) [NEW]

Scope (Staff):	WNHS Obstetrics and Gynaecology Directorate staff
Scope (Area):	Obstetrics and Gynaecology Directorate clinical areas at KEMH and OPH

This document should be read in conjunction with the Disclaimer.

Contents

Aim

To provide information on the care of a woman with nausea and vomiting of pregnancy (NVP) and hyperemesis gravidarum (HG).

Key points

1. An objective assessment tool of the severity of nausea and vomiting such as the Pregnancy Unique Quantification of Emesis (PUQE) score is useful in classifying the severity of HG.
2. Intervention is supportive, using antihistamine and antiemetic medications. A Cochrane Review of Interventions for NVP and HG concluded that although antiemetic medications were effective, there is insufficient high-quality evidence to support the efficacy of any intervention over another therefore the suggested step wise approach is based mainly on safety data.[1, 2]
3. Consultation with a Dietitian is useful to obtain an accurate dietary history, elucidate possible nutritional avenues to pursue, and to counsel the woman. Dietary and lifestyle changes should be encouraged. Women should be advised about appropriate foods and fluids to prevent dehydration and minimise aggravation of symptoms. All repeat admissions require referral to the Dietitian.
4. Clinical Psychologists and Social Workers are also available to provide multi-disciplinary care for this condition.
5. Iron supplementation may worsen symptoms. Discontinuing iron containing multivitamins and supplements (where appropriate) may improve hyperemesis symptoms.
6. Women admitted to hospital with hyperemesis should be considered for thromboprophylaxis with a Low Molecular Weight Heparin (enoxaparin). This can be discontinued when the hyperemesis resolves.

Background

Nausea and vomiting affects up to 80% of women in the first trimester of pregnancy.[3] The peak severity for hyperemesis is around 12 weeks and whilst most will resolve by 20 weeks, 10% will continue throughout pregnancy.[1]

HG is a severe form of nausea and vomiting which occurs in 0.3% to 2.0% of pregnancies and is the most common reason for hospitalisation in the first trimester.[3] It is a diagnosis of exclusion and is given when intractable vomiting is associated with weight loss of ≥ 5% of pre-pregnancy weight, electrolyte imbalance and dehydration with ketonuria.

Severe HG with limited pregnancy weight gain is associated with intra-uterine growth restriction, low birth weight, preterm birth and low Apgars.[4]

GDF15, a member of the TGF beta family which acts on the brainstem has been associated with hyperemesis. This hormone is produced by the trophoblast and serum concentrations have

been shown to be higher in women experiencing vomiting in pregnancy compared with women who had low levels of nausea. Low levels of GDF15 in the non-pregnant state increase the risk of developing HG.[5] Higher levels of β-hCG seen with molar or multiple pregnancies are associated with more severe symptoms. If nausea and vomiting starts after 12 weeks gestation then other causes need to be excluded and the cause needs to be evaluated fully for serious obstetric and medical complications.

Note*:* β-hCG can cause gestational thyrotoxicosis through cross reaction with the TSH receptor. β-hCG is a glycoprotein similar in structure to TSH thus TSH is suppressed and in severe cases circulating levels of free T4 and T3 may be elevated. The biochemical hyperthyroidism is more significant in hyperemesis gravidarum. This is usually self-limiting and normalises in the second trimester but exclusion of other causes of hyperthyroidism are required in severe cases and occasionally anti-thyroid medication is required.[6]

Predisposing factors for NVP

• Multiple pregnancy	• Young age	• Eating disorders
• Molar pregnancy	• *Helicobacter pylori*	• Raised BMI
• Previous hyperemesis	• Depression or anxiety	• Unplanned pregnancy
• Gastric reflux	• Inflammatory bowel disease	
• Restrictive diet (e.g. lactose-free, vegetarian, or nutritional deficiency		
• Financial and other situational stresses		
• Cultural isolation, removal from country of origin, separation from spouse/family.		

Consequences of NVP

- NVP can affect a women's quality of home and work life, relationships and use of healthcare resources.
- Depression is common, either preceding or resulting from hyperemesis.
- Vomiting increases the risk of Diabetic Ketoacidosis in those with Type 1 Diabetes Mellitus.
- Electrolyte disturbances as seen in any patient with persistent vomiting – hypochloraemic alkalosis, hypokalaemia and hyponatraemia.
- Protein-calorie malnutrition, muscle wasting and accompanying ketosis, anaemia, hypoalbuminaemia.
- Vitamin / mineral deficiencies and accompanying problems – e.g. Wernicke's encephalopathy from thiamine deficiency, folate deficiency, iron deficiency.
- Thyroid dysfunction – e.g. "pseudothyrotoxicosis" – suppressed TSH resulting from thyroid stimulation by HCG.
- Renal dysfunction– (reversible) elevated urea and creatinine. Rarely, acute tubular necrosis.
- Hepatic dysfunction accompanying hyperemesis – elevated ALT, AST, low albumin, elevated bilirubin, subsequent to malnutrition and catabolic changes.
- Ulcerative oesophagitis.
- Mallory Weiss tear

Management

History

1. Obtain details of current pregnancy:
   - Determine first day of the last menstrual period.
   - Check whether an ultrasound has been performed in this pregnancy, at what gestation and where it was performed. If this was performed outside KEMH, arrange for the report to be faxed to KEMH and following review & initialling, a copy filed in the woman's hospital notes.
   - Confirm single or multiple pregnancy of what gestation.
   - Determine whether there has been any vaginal bleeding.
   - Seek information regarding the woman's anxiety about progress of her pregnancy – some cases require ultrasound to confirm fetal viability.

2. Obtain a specific history of nausea and vomiting pattern and dietary history to ascertain state of nutrition and recent intake:
   - At what gestation did vomiting start?
   - What is being kept down after ingestion?
   - Can they keep down fluids?
   - Does anything precipitate the nausea?
   - Is the appetite normal/decreased?
   - Ask specifically - what have you been eating?
   - Pregnancy-Unique Quantification of Emesis/Nausea (PUQE-24) Index score, as below.

PUQE: Pregnancy-Unique Quantification of Emesis and Nausea Index Score[7]

Circle the answer that best suits the situation in the last 24 hours:

1. On average in a day, for how long do you feel nauseated or sick to your stomach?

>6 hours 5 points	4-6 hours 4 points	2-3 hours 3 points	≤1 hours 2 points	Not at all 1 point

2. On average in a day, how many times do you vomit or throw up?

≥7 times 5 points	5-6 times 4 points	3-4 times 3 points	1-2 times 2 hours	Not at all 1 point

3. On average in a day, how many times have you had retching or dry heaves without bringing anything up?

≥7 times 5 points	5-6 times 4 points	3-4 times 3 points	1-2 times 2 hours	Not at all 1 point

Total score (sum of replies for 1, 2 and 3): **mild** - NVP ≤6
moderate - NVP 7-12
severe - NVP ≥13

Quality of life question:

On a scale of 0 to 10, how would you rate your wellbeing? _____

0 (worst possible)	to	**10** (as good as you felt before pregnancy)

3. Determine the presence of other symptoms. The following is a list of differential diagnoses or factors that aggravate hyperemesis:

Urinary tract infection	Cholelithiasis	Gastro-enteritis
Pyelonephritis	Hepatitis	Gastric ulcer/ dyspepsia
Pancreatitis	GI obstruction	Thyroid disease
Inflammatory bowel disease	*Helicobater Pylori*	Vestibular neuronitis
Raised intracranial pressure	Recurrent Migraine	Positional vertigo

Ask about:

- Bowel habits and the presence of diarrhoea and/or constipation
- Urinary symptoms such as dysuria, frequency and suprapubic pain
- Presence of abdominal/pelvic/back pain
- Fevers, rigors or shivering
- Past surgical, medical and psychiatric history (diabetes, depression/ anxiety)
- The amount, type and frequency of use of alcohol, smoking and other recreational drugs
- Social circumstances
- Current medications and allergies
- Anxiety, low mood and negative thoughts towards herself and the baby

Examination

A full examination is required as there are a large number of differential diagnoses.

Investigations

- Document pre pregnancy weight and BMI- this should be in history section
- Patient's current weight and percentage weight loss
- Urinalysis: To look for ketonuria or signs of infection
- Blood glucose
- Blood tests: FBC, UEC's, LFT's, TFT's
- Ultrasound Scan: Arrange if this has not already been performed to exclude molar or multiple pregnancies which precipitate hyperemesis
- Other investigations in severe vomiting or electrolyte abnormality:
  - Serum magnesium, phosphate and calcium
  - Bicarbonate level
  - Blood gases if required
- Women with diabetes should be monitored carefully as vomiting and dehydration increase the risk of diabetic ketoacidosis

Treatment

Management of hyperemesis is supportive, using vitamins, antihistamines, antiemetic medications and IV fluid therapy. It is important to reassure women that symptoms will subside by 20 weeks in 90% of cases. [1]

Dietary and lifestyle changes

- It is important to stay hydrated and try to have small meals regularly. Eating something before getting out of bed or before you get hungry is helpful.
- Avoid fatty and spicy foods
- Have small sips of fluids throughout the day – icy poles, diluted juice, sports drinks , flat lemonade, smoothies, soups, broths, oral rehydration solution (ORS)
- Try and identify nausea triggers and avoid them (e.g. perfumes, smoke)
- Referral to a dietitian may be necessary in moderate to severe NVP.
- Refer to KEMH Clinical Guideline, O&G: Discomforts in Pregnancy: Common for further dietary advice.
- Adequate sleep is important in the first trimester as the need for sleep increases. Fatigue may aggravate symptoms.
- Getting outside for fresh air and exercise is good for relieving physical symptoms and also for improving mental health.
- It is beneficial to have a supportive family member or close friend who is aware of the patient's symptoms and is able to help around the house/ with kids and look out for their general wellbeing.
- It is common for women to suffer from low mood and anxiety and referral to Psychological Medicine may be appropriate.

First- line pharmacotherapy

Pyridoxine (Vitamin B_6)

There is limited data to support the monotherapy of pyridoxine.[1,8] A placebo-controlled trial did not demonstrate any improvement in nausea, vomiting or rehospitalisation in 46 women given 20mg orally tds in addition to IV fluids and metoclopramide compared with a control group.[9]

- 25 mg tablet: 25 mg orally up to four times per day. Toxicity may occur with prolonged treatment at high doses[9].

Note: The Therapeutic Goods Administration (TGA) has recently put out a safety alert regarding increased reports of peripheral neuropathy associated with pyridoxine toxicity. Reports of toxicity have been reported to have occurred at daily doses of less than 50mg. The use of pyridoxine should be immediately stopped if there are signs of peripheral neuropathy (tingling, burning or numbness)[10].

Doxylamine

A sedating antihistamine. Evidence shows that a combination of pyridoxine and doxylamine reduces the severity and duration of NVP in patients with a past history or risk factors for hyperemesis.[2,11,12] It must be taken regularly and not used for acute **nausea** and vomiting. Once NVP has improved a dose reducing regime should be adopted rather than ceasing medication immediately.[13]

- 25mg tablet: Start with 12.5mg (half a tablet) orally at night.
  Increase as tolerated to 12.5mg morning and midday and 25mg at night.

Note: Use caution when taking sedating antihistamines if working or driving.

Second- line pharmacotherapy

If nausea and vomiting persists then a second sedating antihistamine should be added. H_1 antagonists are safe for use in pregnancy.[14]

Promethazine

H_1 antagonist but also has a weak dopamine agonist effect.

- 10-25mg tablet orally three to four times per day. Maximum 100mg in 24 hours
- 12.5mg by IM injection three to four times per day

Note: Use caution when taking sedating antihistamines if working or driving.

Third- line pharmacotherapy

Metoclopramide

An antiemetic and gastroprokinetic drug. It is safe for use in pregnancy.[15]

- 5-10mg tablet orally or by IM/IV injection three times per day. Maximum 30mg in 24 hours.
- Maximum treatment duration of **5 days**[16]

Note: The Therapeutic Goods Association (TGA) updated guidelines on the duration of use of metoclopramide to reduce the risk of potentially serious neurological adverse events, including extrapyramidal disorders and tardive dyskinesia, as well as rare cardiac conduction disorders.[16,17]

OR

Prochlorperazine

A sedating antihistamine that is effective for treating nausea and vertigo.

For short term use only, prolonged use can increase risk tardive dyskinesia.

- 5-10mg tablet orally three times per day
- 12.5mg by IM/IV injection 8 hourly

Note: Use caution when taking sedating antihistamines if working or driving

Fourth- line pharmacotherapy

Ondansetron

A $5HT_3$ antagonist and an effective antiemetic in HG.

It should be used If other antiemetics are ineffective or poorly tolerated.

- 4-8mg wafer or tablet orally or by IV injection 12 hourly. Maximum 16mg in 24 hours.

Note: There appears to be an increase in oral clefts from a background risk of 11 cases per 10000 to 14 cases per 10000 births with ondansetron.[18] Ondansetron should be considered as a non-first line agent for the treatment of nausea and vomiting in pregnancy. An alternative medication should be used in first trimester when possible.

Famotidine and Omeprazole

Treatment of reflux often improves symptoms of nausea and vomiting

Fifth- line pharmacotherapy

Steroids should only be used if antiemetic medications and IV hydration have failed. Glucose levels should be monitored for hyperglycemia which has adverse effects on the fetus.

Hydrocortisone

- 100mg IV twice daily followed by oral steroid once tolerated

Prednisolone

- 10mg orally tds increasing to 15mg tds after 48 hours if required. Wean by 5mg per week unless symptoms recur.

Note: Most studies describing the use of maternal corticosteroids have not reported an increased risk of major malformations.[1-4] Early reports have suggested an association between corticosteroid use and increased risk of cleft lip and palate.[1,6] but more recent data have shown no increased risk of orofacial clefts or preterm birth. [4,13] Long term use of steroids should be avoided if possible as significant side effects are frequent.

Mirtazapine

Mirtazapine is an antidepressant that at low doses inhibits the serotonin 5HT2 and 5HT3 receptors with anti- emetic and appetite stimulating effects. It has been described to be effective in small case series.[19] Randomised trial results and further safety data are awaited but it appears to be highly effective with less maternal side effects than steroids.

Ginger (Zingiber officinale) [20]

Ginger is no longer suggested as a treatment for HG. A cross-sectional survey of 512 women with HG found that ginger foods or tablets have little or no efficacy but caused unpleasant adverse effects and worsening of symptoms in over half (54%) of participants. Recommendations to try ginger by a healthcare professional resulted in a loss of trust and damaged clinician- patient relationships.

IV Fluid therapy

Dehydration can exacerbate nausea, cause headaches, muscle aches and lethargy.

Even if urinalysis and UEC do not suggest dehydration, history, examination and clinical judgement should determine whether IV fluids are necessary.

- 0.9% Sodium Chloride 1000mL. Rate as per clinician
- In hypokalaemia oral supplementation is preferred. However if the patient has ECG changes or cannot tolerate oral supplements then Potassium Chloride (KCl) can be given IV.
- Do **not** exceed 10mmol per hour.
- Potassium is also available as effervescent tablets.
- IV multivitamins may be needed if the patient has a history of malnutrition.

Note: Do **not** administer IV Glucose. If the patient is thiamine deficient this can worsen hyponatraemia and cause Wernicke's encephalopathy.
Symptoms include ataxia, confusion or ophthalmoplegia.[6]

Admission to hospital

- Admit if the woman continues to vomit or remains dehydrated after initial treatment in emergency/ hospital in the home.
- Rehydrate with IV fluids. Where possible, provide warmed fluids and blankets to reduce caloric loss from shivering.
- Correct electrolyte abnormalities.
- Fast the woman until the mode of treatment has been determined. If she is not to be fasted, offer dry crackers, lemonade and ginger beer. Provide advice on oral hygiene as vomiting affects oral health.
- Administer IV anti-emetics and change to oral when tolerated.
- Provide compression stockings as per VTE Prophylaxis - refer to WNHS O&G Venous thromboembolism (VTE): Prevention and management Clinical Practice Guideline.
- Commence a fluid balance chart.
- Do not rush oral intake. It may help to keep the woman fasted or suck ice cubes for the first 24 hours until the anti-emetics become effective.
- Seek dietitian review and provide dietary education.
- Seek clinical psychology and social work review.
- Perform a daily ward urine test for ketones.
- Assess bowel function daily.
- Weigh patient weekly
- Thiamine (Vitamin B1) 100mg once daily to prevent Wernicke's encephalopathy.
- Folic acid and multivitamins.
- H2 antagonist or PPI for prophylaxis/ treatment of gastritis.
- Consider mirtazapine or steroid therapy if symptoms remain severe
- Patients can be discharged once, they are tolerating oral fluid and diet and electrolytes have been corrected.
- They must have weekly follow up arranged.

Enteral feeding

- Consider enteral feeding in extreme cases of intractable vomiting that do not respond to any of the above interventions.[21]
- Effectiveness is not well established and a recent trial showed that early enteral feeding had no effect on maternal or neonatal outcomes.[22]
- There is no set criteria, but indications are:
  - Significant weight loss or failure to achieve an appropriate gestational weight gain
  - Inability to tolerate oral feeding despite antiemetic treatment
  - Multiple hospital admission for hyperemesis gravidarum
  - Poor nutritional status
  - Significant vitamin deficiencies
  - Persistently abnormal LFTs.

Parenteral feeding

- Total parenteral nutrition (TPN) is a complex high-risk intervention - refer to WNHS O&G Total Parenteral Nutrition (TPN) Clinical Practice Guideline (link via HealthPoint Intranet).
- Maternal complications associated with PICC line placement are substantial and the use of PICC lines for the treatment of hyperemesis gravidarum should not be routinely used.[23]

- If a PICC line is used consider VTE prophylaxis - refer to WNHS O&G Venous thromboembolism (VTE): Prevention and Management Clinical Practice Guideline.
- 100mg IV thiamine twice daily should be given before starting TPN

For consideration

Iron supplementation

Oral iron supplements can worsen the symptoms of nausea and vomiting. Iron absorption increases in the second trimester of pregnancy so unless the woman is anaemic, iron supplements or supplements containing iron can be stopped or swapped for a lower does in the first trimester.[24]

- Ferrous fumarate (Ferro F tab®) products cause less GI side-effects than ferrous sulphate (Ferro-grad C®).
- Iron polymaltose (Maltofer®) products have the least GI side-effects however are more expensive and not available through KEMH pharmacy.
- If oral iron cannot be tolerated due to nausea and vomiting, an iron infusion is available.
- Folic acid should be encouraged during the first trimester. Taking supplements at bedtime may be better tolerated than in the mornings on an empty stomach.

Gastro-oesophageal reflux and *H. pylori* infection

Gastric reflux is common in pregnancy due to relaxation of the lower oesophageal sphincter and delayed gastric emptying. It can worsen symptoms of NVP.

- Antacids should be used as first line therapy. Aluminium and calcium-based products are safe. Bicarbonate products should be avoided as they may cause metabolic alkalosis and maternal and fetal fluid overload.[24]
- If antacids are ineffective, consider H2 receptor antagonist (e.g. famotidine), where appropriate.
- There is a strong association between *H. pylori* and hyperemesis. Where there is intractable vomiting or reflux, investigation should be considered for *H. pylori* infection.[25]

Quality of life

NVP can have a profound effect on a woman's quality of life. Persistent nausea is debilitating and can lead to feelings of isolation from partners, friends and family. The inability to complete simple daily tasks and look after children may lead to strained relationships at home and being unable to attend work may also lead to further tension and financial stress. Women commonly feel that friends and family lack understanding surrounding the condition and that clinicians are reluctant to treat NVP due to belief that it is psychogenic.

NVP can result in feelings of grief for the pregnancy. Women may also feel guilty that they are unable to eat healthily, and that taking medications may harm their baby.

It is important for medical practitioners to be empathetic, offer reassurance and explain the condition to the patient and partner and explain that most anti-emetics are safe during pregnancy. Referral to clinical psychology should be considered.

Hyperemesis: Management in the home

Silver Chain home management:

Out-patient management for women with uncomplicated hyperemesis requiring:

- Intravenous (IV) hydration
- Oral or IV antiemetic medication

Inclusion

- Women < 20 weeks pregnant

Exclusions

- Women > 20 weeks pregnant
- Co-existing medical conditions requiring hospital admission.
- Electrolyte abnormalities.
- Uncontrollable nausea and vomiting.

Referrals

- Complete Hospital in the Home Referral Form (on Silverchain website).
- Copy the UEC and FBC results with the referral.
- You MUST call Silver Chain to confirm the referral request. They are available out of hours.
- Hydrate the woman with IV fluids before transferring them to Hospital in the Home– leave an IV cannula in situ on discharge.
- On the referral form the emergency doctor needs to order:
    - IV fluids with date, time, type and volume of IV fluids required.
    - Antiemetic medication with date, time and dose as per guideline.
    - Women prescribed IV antiemetic medication will need a script.

Discharge from WNHS and follow-up

- Women who are >20 weeks pregnant who are still experiencing HG are to be referred to the WNHS Medical Clinic or attend the Maternal Fetal Assessment Unit.
- Women should be discharged with a detailed and individual management plan and WNHS Hyperemesis Gravidarum Information Pack (provided by the Emergency Centre).
- Patients should be followed up weekly through their General Practitioner to assess their wellbeing and hydration, the effectiveness of their medication regime, for signs of dehydration, and whether escalation or withdrawal of medication is required.
    - Antiemetic medications should be provided and continued on discharge. They should be continued for a whole week after nausea and vomiting has stopped.
    - If vomiting has continued into the second and third trimester, serial scans should be organised to monitor fetal growth.

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Related WNHS procedures and guidelines

Obstetrics & Gynaecology:

- Discomforts in Pregnancy: Common
- Venous Thromboembolism (VTE): Prevention and Management
- Total Parenteral Nutrition (TPN) (access via HealthPoint intranet only)
- Peripheral Parenteral Nutrition (PPN) (access via HealthPoint intranet only)

Pharmacy:

- Cytotoxic Agents: Safe Handling of (access via HealthPoint intranet only)
- Medications A-Z: Doxylamine; Famotidine; Folic acid; Hydrocortisone; Methotrexate; Metoclopramide; Ondansetron; Prednisolone; Prochlorperazine; Promethazine; Pyridoxine; Thiamine (Monophosphothiamine)

Useful resources (including related forms)

WNHS Patient Information:

- Morning sickness (2017)
- Nausea and vomiting in pregnancy (2024)

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Printed or personally saved electronic copies of this document are considered uncontrolled			

Version History

Number	Date	Summary
1.0	November 2025	First version. Content removed from WNHS O&G **Pregnancy Care: First Trimester Complications** Clinical Practice Guideline. Content reviewed by key stakeholders including Pharmacy, Dietetics, Medical, and nursing staff from Emergency Centre. Evidence-based changes and updates made to content, with recommended objective assessment tool for the severity of nausea and vomiting is the Pregnancy Unique Quantification of Emesis (PUQE) score. Ginger no longer suggested as a treatment for HG.

The health impact upon Aboriginal people has been considered, and where relevant incorporated and appropriately addressed in the development of this policy.

This document can be made available in alternative formats on request for a person with a disability.