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1. Introduction and who the guideline applies to:

The aim of this guideline is to provide a framework for management of pregnant women with vomiting in pregnancy and hyperemesis gravidarum in the University of Leicester NHS Trust and is intended for use by medical and nursing staff.

The aim of this guideline is to provide a framework to gynaecologists and nurses working in University Hospitals Leicester for the outpatient and inpatient management of pregnant women with vomiting in pregnancy and hyperemesis gravidarum.

Related UHL Documents:

- [Thromboprophylaxis in Pregnancy Labour and Vaginal Delivery UHL Obstetric Guideline.pdf C1/2017](#)
- [Alcohol Withdrawal UHL Policy B30/2014](#)

Background / Definitions:

Vomiting in pregnancy is a common complaint. Milder cases can be treated in the community with regular antiemetics, thiamine supplementation and dietary advice. Moderate cases (vomiting less easily controlled but no serious sequelae nor effect on haematology or biochemistry) may be successfully treated as a daycase.

Hyperemesis gravidarum, however, is uncontrolled vomiting associated with severe dehydration, muscle wasting, electrolyte imbalance, ketonuria and weight loss of more than 5% of body weight and requires hospitalization ⁽¹⁾

Hyperemesis affects between 0.3% and 2.3% of all pregnancies.⁽²⁾ Symptoms of hyperemesis peak at 9 weeks of gestation and subside by approximately 20 weeks.⁽³⁾ Women who experience hyperemesis in their first pregnancy have a high risk for recurrence in subsequent pregnancies. ⁽⁴⁾

2. Assessment:

Assess, exclude other common causes of vomiting and commence initial treatment protocol if clinically unwell/dehydrated. Following this admit for ongoing inpatient management as clinically indicated.

2.1 Initial Assessment and treatment Protocol

- Take patient's history with particular reference to possible differential diagnoses and complications ⁽⁵⁾. Hyperemesis is a diagnosis of exclusion.
 - Infection – UTI, Hepatitis, *H. pylori*
 - Drug-Induced – Iron supplements, antibiotics
 - Metabolic – Thyrotoxicosis (other features {e.g. lid lag} and positive antibodies), hypercalcaemia, Uraemia, Diabetic ketoacidosis, Addison's disease
 - Gastrointestinal – Appendicitis, cholecystitis, small bowel obstruction, pancreatitis, peptic ulcer disease
 - Vestibular disease. ⁽⁶⁾
 - Mallory Weiss tears and oesophageal rupture
- Clinical assessment of degree of dehydration – e.g. dry mucous membranes, tachycardia, weight loss, concentration of urine
- Blood pressure, Pulse, respiratory rate, O₂ saturation
- CBG (capillary blood glucose) or random blood glucose
 - Urinalysis – ketonuria, infection (nitrites, proteinuria, haematuria) – MSU
 - NB – Consider **diabetes/DKA if glycosuria +ketones**

An objective and validated index of nausea and vomiting such as the Pregnancy-Unique Quantification of Emesis (PUQE) score can be used to classify the severity of nausea and vomiting in pregnancy ([see appendix](#)). However, at present use the protocol in [Appendix 1](#).

Commence initial treatment protocol for rehydration ([see appendix](#)) and file in notes. If after full assessment and completion of initial treatment protocol symptoms have settled, the patient may be discharged home with oral antiemetics and information leaflet.

Criteria for Ward Admission

- Intractable vomiting associated with clinical dehydration (e.g. ketonuria >3+)
- Abnormal urea and electrolytes (using normal pregnancy ranges)
- Loss of 10% body weight

- Haematemesis
- Severe abdominal pain or symptoms suggestive of another cause of vomiting
- Failure of daycase/outpatient management

2.2 Tests required

- **FBC** - to check for anaemia and Hct for degree of dehydration
- **U&E** - to check sodium and potassium levels and renal function
- **CBG** (capillary blood glucose) or serum **random glucose**
- **LFT** - to check for hepatic causes of vomiting, ALT is commonly raised (50% of cases) secondary to vomiting but will normalise as vomiting settles if no other underlying pathology. Consider other hepatic causes (gallstones, viral hepatitis, drug-induced hepatotoxicity {e.g. methyldopa, azathioprine, chlorpromazine, HAART}, pre-existing liver disease, auto-immune chronic active hepatitis, PBC, Sclerosing cholangitis) if does not settle as vomiting comes under control.
- **Amylase** - to exclude pancreatitis
- **Thyroid Function Tests** NOT routinely required unless history suggests thyrotoxicosis (e.g. weight loss predating pregnancy, palpitations, persistent tachycardia despite rehydration, sweating, diarrhoea). TFTs are abnormal in two-thirds of patients due to partial stimulation of TSH receptors as TSH and hCG share common α subunits. Patients are often clinically euthyroid and abnormalities resolve as hyperemesis improves. Where thyroid disease is suspected, thyroid stimulating antibodies should be performed.

2.3 Ultrasound Scan

- An Ultrasound scan (non-urgent) should be arranged to confirm gestational age and to rule out multiple pregnancy/assess for molar pregnancy.
- If not previously scanned in this pregnancy and in the absence of vaginal bleeding and/or pain, a scan may be arranged on a non-urgent basis

3. Management

Commence rehydration with Hartmann's solution as per initial treatment protocol. A fluid balance chart is required for patients requiring admission.

3.1 Fluid and Electrolyte Replacement

- 1 x 1000ml Hartmann's Solution infused at 500ml/hr then
- 2 x 1000ml Hartmann's solution each infused at 250ml/hr
- Subsequent rate of rehydration would be dependent on clinical picture, degree of dehydration and any urea and electrolyte abnormalities
- **If Hypokalaemia** is present, replace potassium as required with subsequent IV fluids as follows:
2 x 1 litre 0.9%Normal Saline with 20mmol KCL; each litre given over 4-6h

NO FURTHER HARTMANN'S TO BE GIVEN DURING THIS 24H PERIOD AND RECHECK K+ DAILY

Medical input and Cardiac Monitoring is required if $K^+ < 2$

- Strict input-output chart
- **If Hyponatraemia (<120mmol/L)** is present, may cause lethargy, seizures and respiratory arrest.
- Both severe hyponatraemia and its rapid reversal may cause central pontine myelinolysis (pyramidal tract signs, spastic quadraparesis, pseudobulbar palsy and impaired consciousness). It may co-exist with Wernicke's encephalopathy. Involve the on call medical team with the management of severe hyponatraemia.

Hypoglycaemia is unusual in the absence of diabetes. Traditional teaching is to never treat hypoglycaemia prior to giving thiamine due to risk of precipitating Wernicke's encephalopathy. It is important to involve the on call medical team in such cases and never delay treatment of hypoglycemia.

3.2 Antiemetics

Anti-emetic Therapy

1. Withhold non-essential medications associated with nausea and vomiting e.g. oral iron
2. First dose of antiemetic should be given I.V or I.M.
3. Give regular antiemetic I.V. or I.M. until patient is eating without vomiting
4. A combination of medications may be required after trying one from each drug family in turn, each for at least 24h.

First Line Anti-emetics ^{(5), (7)}

- **Antihistamines** - Promethazine – PO/IM – 25mg qds or Cyclizine – PO/IM – 50 mg 8 hourly (avoid Cyclizine by all routes in patients with history of IVDU)
- **Phenothiazines** – Prochlorperazine – deep IM – 12.5mg 8 hourly or 5-10mg PO 8-12 hourly or Buccastem 3- 6 mg buccal bd

Metoclopramide and Domperidone are no longer recommended for use in pregnancy for longer than 5 days duration and therefore not useful in this clinical situation.

Extra-Pyramidal Side Effects

Initial symptoms of restlessness, agitation, malaise, or a fixed stare. Characteristically, there are muscular spasms of neck – [torticollis](#), eyes – [oculogyric crisis](#), tongue, or jaw. May occur with phenothiazines and Metoclopramide. Treatment is with **Procyclidine** 5mg IM/IV. This is stocked on GAU, or in theatre¹⁷ or Delivery suite if none available on GAU.

Second Line Anti-emetics (in addition to first line)

- Ondansetron - IV- 4 – 8 mg **12hourly** for 2 doses ⁽⁷⁾
Then – PO – 4 - 8mg **12 hourly**

3.3 Steroids

Steroids (Refractory Cases only)

Steroids have a direct effect on the vomiting centre of the brain by stimulation of appetite. They should only be used

1. after Consultant review of patient
2. after other common causes of vomiting excluded
3. all anti-emetic treatments have failed

Hydrocortisone – IM/IV - 100mg bd for 48 h or until patient tolerating oral fluids.
Once the patient responds and is eating, continue with following regimen;

Prednisolone – po – 20mg bd for 7 days
Then Prednisolone – po – 15mg bd for 7 days
Then Prednisolone – po – 10mg bd for 7 days
Then Prednisolone – po – 5mg bd for 7 days
Then Prednisolone – po – 5mg od for 7 days and then usually stop if >16/40

Steroids cannot normally be discontinued until a gestation at which hyperemesis would have resolved spontaneously (approx 16/40). In some extreme cases this may need to be continued to delivery. ⁽⁵⁾

Pts who have required steroids will subsequently require

- Follow up in Consultant Direct 2/52 later
- Referral to General Obstetric Clinic
- 10 micrograms per day Vitamin D supplementation (e.g. with Adcal D3 PO 7 od) is recommended to all pregnant and breastfeeding women and is particularly important where steroids are prescribed and with BMI>30⁽¹¹⁾
- Hydrocortisone cover in labour – Women receiving oral steroids (Prednisolone >7.5mg/day for >2/52) prior to delivery {ie all those on the above regime} should receive parenteral Hydrocortisone 50-100mg tds/qds during labour. ⁽⁵⁾

If patient does not respond to steroid therapy, it should be discontinued. The patient should be referred to Gastroenterology consultant of the week. This should be via Consultant-to-Consultant referral for consideration of Endoscopy (to exclude peptic ulcer, *H.pylori* infection, hiatus hernia and malignancy) and concurrent insertion of a nasojejunal feeding tube (NJT) under direct vision. Subsequent feeding through the tube will involve the Nutrition team and dieticians, HENS (Home Enteral Nutritional Support) team and subsequent follow up with the maternal medicine team (please refer accordingly).

When patients cannot tolerate NJT, insertion of a PEG- J may be considered or very rarely parenteral feeding (TPN) will be considered as a last resort.

3.4 Thromboprophylaxis

Administer Thromboprophylaxis as per [Thromboprophylaxis in Pregnancy Labour and Vaginal Delivery UHL Obstetric Guideline.pdf](#)

VTE assessment should be completed on admission. Anti-embolic stockings and Low molecular weight heparin (LMWH - Dalteparin) should be given to all clinically dehydrated, pregnant patients admitted to hospital. Re-assessment is required on discharge to verify whether LMWH needs to be continued and/or referral made to the Haematology Obstetric clinic.

3.5 Thiamine

Administer thiamine replacement therapy and give nutritional support

Thiamine Replacement

Thiamine should be a routine supplement in patients with protracted vomiting

- Pabrinex on admission diluted in 100ml of 0.9% sodium chloride infused over 30 to 60 minutes, weekly or up to alternate days in the most severe cases ⁽⁶⁾
- Oral Thiamine for all women once tolerated – 50mg -100mg bd

-Where Wernicke's encephalopathy or Korsakoff's psychosis is suspected (confusion, ataxia, memory loss, visual disturbance, hallucinations), Pabrinex is given by intravenous infusion of 2 pairs (4 ampoules) tds for 3 days followed by 1 pair OD for 3-5 days followed by oral Thiamine 200mg daily and twice daily *Vitamin B compound, strong*. Follow UHL guidance for Alcohol-related Wernicke's encephalopathy ⁽¹⁰⁾

Nutrition

- Nil by mouth until dehydration corrected followed by small frequent feeding. Allow patient to eat if hungry
- Encourage clear fluids initially
- Early involvement of dieticians (beware of amount of Vitamin A contained in some supplements)
- If remains unresponsive to all treatment measures, patient will require consultant to consultant referral to the gastroenterology team ⁽⁵⁾ see *Recommendation 3.3 - section on Steroids above*

4. Discharge

Patients will be discharged with antiemetics to be taken regularly up to 16/40. *Ondansetron* may not be prescribed by GPs in community so there is an agreement with the CCG that patients may return to GAU for repeat prescriptions if required.

4.1 Discharge

- TTOs for Thiamine and oral/buccal antiemetic even if clinically well, to be continued until 16-20/40.
- Adcal D3 and folic acid should also be prescribed to all women
- If patient on Ondansetron, prescribe Ondansetron 4-8mg po 12hourly to cover up to 16/40. If longer prescriptions are likely to be required, this will need to be provided by GAU as GPs are unable to prescribe this in the community (Red listed). If prescription runs out and patient requires a further prescription, she can return to GAU/MAU to collect an outpatient prescription of Ondansetron.
- Patient information leaflet on vomiting in pregnancy should be given to the patient.
- Patients should be given advice on diet, seabands, ginger supported with a patient information leaflet.

4.2 General advice

- Eat dry bread, biscuit or cereal before getting out of bed. Get out of bed slowly.
- Drink liquids between rather than with meals

- Avoid large meals and fatty/ highly spiced foods and dairy products
- Suck something sour e.g. lemon or ice
- Try foods and drinks containing ginger ⁽⁹⁾ and peppermint
- Try travel sickness *Seabands*

4.3 Nursing Input

- Fluid balance should be kept on EWS chart
- Weigh on admission and then weekly thereafter
- Provide emotional and psychological support

Patients will have open access to telephone advice/admission as necessary following admission for vomiting in pregnancy up to 16/40 gestation. Thereafter they will be referred to the Maternity Assessment Unit of their booked hospital (either LGH or LRI). Patients will be given a take home card 'green card' which will have information about their visit to the hospital and the medications administered. They will be asked to bring the card with them for each admission to the hospital for hyperemesis (see Appendix 4 for the 'green card'.

5. Education and Training:

None

6. Monitoring and Audit Criteria:

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Admission criteria adhered to	Audit	HoS	3 yearly	Departmental audit group
Antiemetics tried in turn for 24h	Audit	HoS	3 yearly	Departmental audit group
Correct fluid replacement regime adhered to	Audit	HoS	3 yearly	Departmental audit group
Pabrinex given on admission	Audit	HoS	3 yearly	Departmental audit group
Alternative diagnoses were excluded (bloods/urine)	Audit	HoS	3 yearly	Departmental audit group
VTE assessment completed/LMWH given on admission and discharge	Audit	HoS	3 yearly	Departmental audit group
Patients unresponsive to treatment were referred to Gastroenterology	Audit	HoS	3 yearly	Departmental audit group

6. Supporting References:

1. RCOG: The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum (2016). London <https://www.rcog.org.uk/media/y3fen1x1/gtg69-hyperemesis.pdf> (accessed March 2022)
2. UHL Guideline: Acute alcohol withdrawal guideline
3. NICE Guideline: PH11 Maternal and child nutrition: guidance 26 March 2008 <https://www.nice.org.uk/guidance/ph11/chapter/2-Public-health-need-and-practice> (accessed March 2022)

8. Keywords

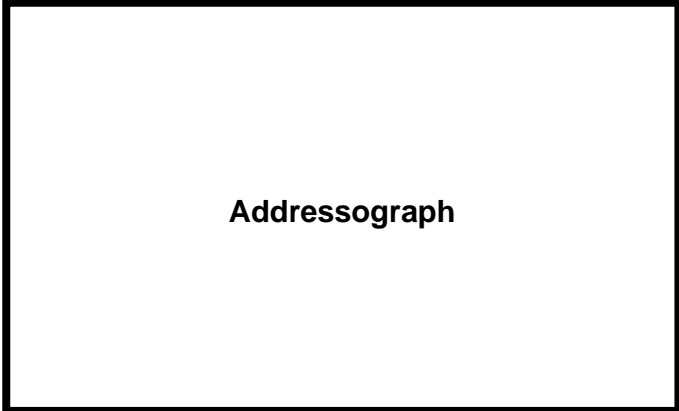
Hyperemesis Vomiting in pregnancy

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.

As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

CONTACT AND REVIEW DETAILS			
Guideline Lead (Name and Title) Miss Olivia Barney - Consultant Mr Ashok Banerjee - Consultant		Executive Lead Chief Nurse	
Original authors: : A Gyesi-Appiah, O Barney Mr A Banerjee, R Meakin, C Jeary			
Details of Changes made during review:			
Date	Issue Number	Reviewed By	Description Of Changes (If Any)
April 2015	2	Miss Olivia Barney, Dr Sanjeev Pattni (Consultant Gastroenterologist) Gynae guidelines group	Hypoglycaemia should be managed jointly with Medical team on call Patients may have open access following admission with vomiting in pregnancy Adcal D3 should be prescribed to all women Consultant to consultant referral pathway agreed with gastroenterology for patients unresponsive to treatment
April 2019	3	Miss N Potdar	Insertion of Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) index
March 2022	4	Miss N Potdar - Consultant	Added hyperemesis card Format update

Appendix 1:Initial treatment protocol



Addressograph

Vomiting in Pregnancy – Initial treatment Protocol

Clinical assessment

Ketones ≤ 3+: After clinical assessment, if the patient is NOT dehydrated and does not need to be admitted to the ward for another concern, an oral prescription can be given for either Promethazine, Cyclizine or Prochlorperazine. The patient should be counselled on diet, ginger and seabands before discharging and given a patient information leaflet.

Ketones > 3+: Consider admission for re hydration and tolerance to oral fluid and diet. See guideline

Treat on Symptoms and not Ketones if patient eating and drinking not vomiting, tolerating fluids and diet – discharge home with antiemetics and thiamine

Blood tests required

Blood Test	Time & date	Results within 4 hours	Action taken Y /N	Repeat tests where applicable Y/N
FBC				
Glucose or CBG				
Urea				
Creatinine				
Sodium				
Potassium				
TSH (readmission)				
FTT				
Bilirubin				
ALT				
Amylase				

when following completed

- Weight.....kg. BMI..... VTE Dietician referral
 Book ultrasound scan Counsellor referral CBG EWS score

Intravenous Treatment to be prescribed as a complete ‘set’

<input checked="" type="checkbox"/>	iv fluids	Rate		
<input type="checkbox"/>	1L 0.9% Hartmanns	500ml/hour		
<input type="checkbox"/>	1L 0.9% Hartmanns	250ml/hour		
<input type="checkbox"/>	1L 0.9% Hartmanns	250ml/hour		
<input type="checkbox"/>	IV Ranitidine 50mg	TDS		Consider continuing orally (150mg bd) 1 pair ampoules mixed in 100ml normal saline/30min
<input type="checkbox"/>	IV Pabrinex	Stat		

<input checked="" type="checkbox"/>	Order	Drug	Dose	Route	Frequency
<input type="checkbox"/>	1 st	Promethazine	25mg	PO/IM	QDS
<input type="checkbox"/>	2 nd	Cyclizine	50mg	PO/IM/IV	TDS
<input type="checkbox"/>	3 rd	Prochlorperazine	12.5mg	IM	TDS
		Prochlorperazine	3mg-6mg	Buccal	BD
		Prochlorperazine	5-10mg	PO	TDS
<input type="checkbox"/>	4 th	Add Ondansetron	4mg-8mg	PO/IV/IM	BD

Try each Antiemetic Treatment in turn for 24 hours (NB consider antiemetic Hx)

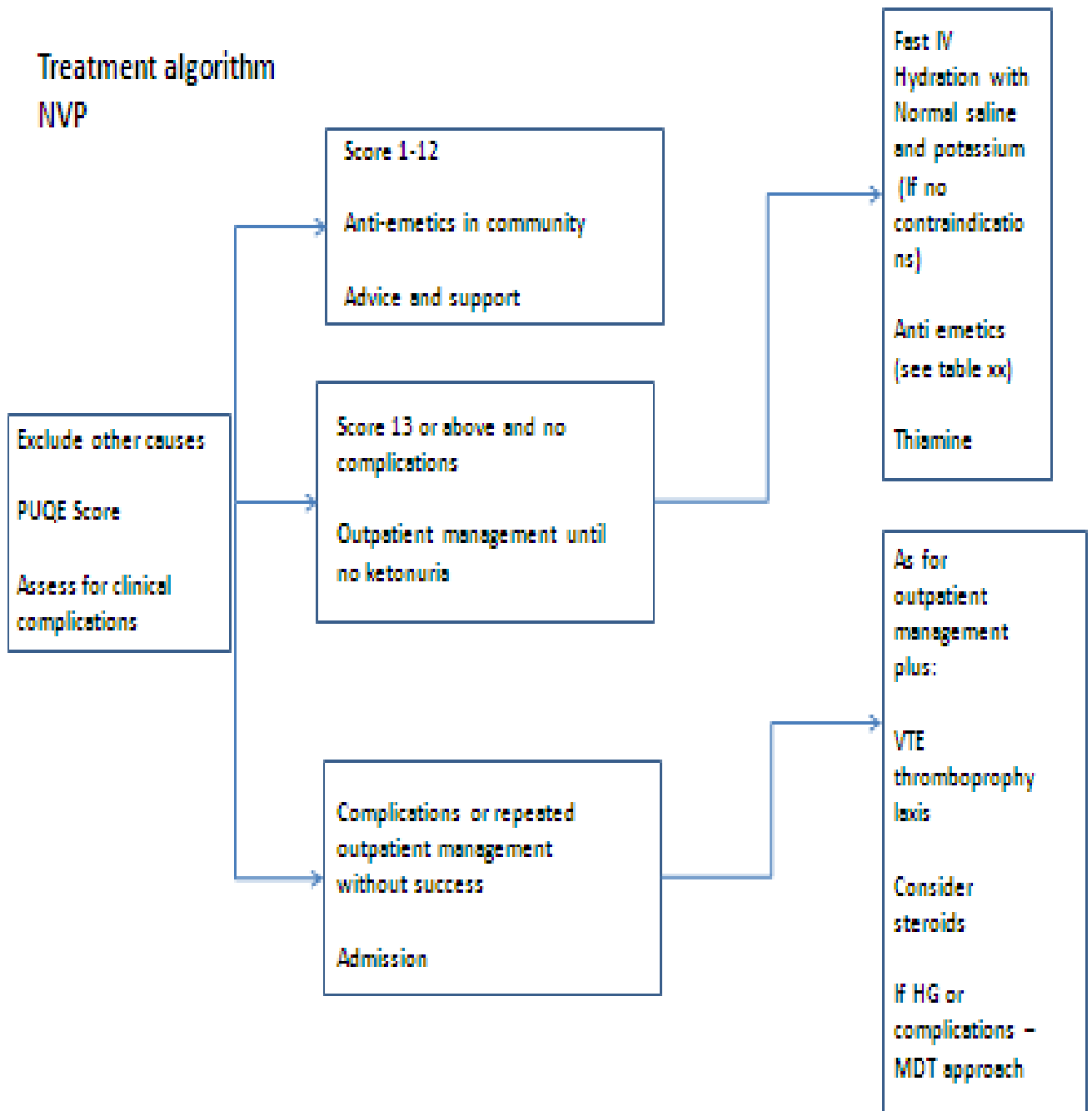
Appendix 2: PUQE

Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) index

Total score is sum of replies to each of the three questions. PUQUE 24 SCORE: Mild = ≤ 6 ; Moderate = 7–12; Severe NVP = ≥ 13 . Reprinted with permission from Koren et al.

1. In the last 12 hours, how much have you felt nauseated or sick to your stomach?				
>6 hrs (5)	4-6hrs (4)	2-3hrs (3)	≤ 1 hr (2)	Not at all (1)
2. In the last 12 hours, how many times have you vomited?				
7 or more times (5)	5-6 times (4)	3-4 times (3)	1-2 times (2)	None (1)
3. In the last 12 hours, how many times have you had retching or dry heaves without bringing anything up?				
7 or more times (5)	5-6 times (4)	3-4 times (3)	1-2 times (2)	None (1)
Total PUQE Score:				
Source: Koren G, Piwko C, Ahn E, Boskovic R, Maltepe C, Einarson A, Navioz Y, Ungar WJ Validation studies of the Pregnancy Unique-Quantification of Emesis (PUQE) scores. J Obstet Gynaecol. 2005 Apr;25(3):241-4.				

Appendix 3: Treatment algorithm for NVP



Appendix 4: Hyperemesis card

This card has been developed by Dr Fathima Shaikh (ST4) and Mr Asok Banerjee (Consultant Gynaecologist)

Early pregnancy / Hyperemesis card
Leicester Royal Infirmary
University Hospitals of Leicester
Contact: GAU 01162586259

Patient label/s.no

Gravida:

Para:

LMP:

Allergies:

Medical History:

Current Medications:

Diagnosis: Hyperemesis / PUL /Ectopic

Line of Order of Antiemetics

Promethazine, /Cyclizine/ Prochlorperazine / Ondansetron

