CHAPTER 6
OBSTETRICS

Note: For medical complications during pregnancy, refer to the relevant chapters. Only common conditions specific to pregnancy or requiring special management in pregnancy are included in this chapter.

6.1 ANAEMIA IN PREGNANCY

O99.0 + (D50.9/D64.9)

DESCRIPTION

Haemoglobin (Hb) <11 g/dL. Anaemia in pregnancy is most commonly due to iron deficiency. Hb levels in pregnancy should be checked routinely on-site at the first antenatal visit, and again at 30 weeks and 38 weeks. If Hb falls below 10g/dL, commence treatment with iron and do a FBC.

LoE:IVb[i]

GENERAL MEASURES

A balanced diet to prevent nutritional deficiency.
Advise against eating soil, clay, charcoal, and excessive consumption of tea and coffee.

MEDICINE TREATMENT

Prophylaxis Z34.9 + (Z29.9)

- Ferrous sulfate compound BPC (dried), oral, 170 mg (± 55 mg elemental iron) twice daily.

OR

LoE:IVb[ii]

Ferrous fumarate, oral, 200 mg (± 65 mg elemental iron) daily.

If daily iron is poorly tolerated (e.g., epigastric pain, nausea, vomiting, and constipation), intermittent iron supplementation may be administered:

- Ferrous sulfate compound BPC (dried), oral, 340 mg per week, (± 110 mg elemental iron), with meals.

OR

- Ferrous fumarate, oral, 400 mg per week (± 130 mg elemental iron).

LoE:IVb[iii]

(For folic acid supplementation guidance to prevent neural tube defects, see Primary Health Care STGs and EML, section 6.4.1: Antenatal supplements).

Treatment: Iron deficiency (Hb <10g/dL)

- Ferrous sulfate compound BPC, oral (dried), 170 mg (± 55 mg elemental iron) 12 hourly.

OR

LoE:IIb[iv]

Ferrous fumarate, oral, 200 mg (± 65 mg elemental iron) 12 hourly.
- Continue for 3-6 months after Hb reaches normal to replenish iron stores.
- Hb is expected to rise by at least 1.5 g/dL in two weeks.
- When using iron together with calcium supplementation, ensure that iron and calcium are taken at least 4 hours apart from one another.
- If Hb has not increased after 4 weeks of therapy, do a FBC to confirm hypochromic microcytic anaemia.

LoE:IIIb[v]

Parenteral iron - See section: 2.1.1 Anaemia, iron deficiency.
If there is no response to oral iron, and iron deficiency is confirmed, review adherence to oral iron, and consider:

- Iron, IV, e.g.:
- Iron sucrose, IV, 200 mg in 200 mL sodium chloride 0.9%, over 30 minutes, given on alternate days until the total dose has been given**.**
  - **Note:** Test dose is not required but administer only where personnel and therapies are readily available to manage anaphylactic-type reactions.
  - An initial total dose of 600 mg is usually adequate to raise the Hb to acceptable levels.
  - For markedly anaemic or very obese women, consult the package insert on the total dose of iron infusion.

LoE:IVb

REFERRAL/CONSULTATION
No response to management.

6.2 DIABETES MELLITUS IN PREGNANCY
O24.0-4/O24.9
This condition should ideally be managed in consultation with a specialist.

DESCRIPTION
Established diabetes: Diabetes (type 1 or 2) predating pregnancy.
Gestational diabetes mellitus (GDM): carbohydrate intolerance first recognised during pregnancy. It does not exclude the possibility that diabetes preceded the pregnancy.

Diagnostic criteria for GDM
Either a fasting plasma glucose ≥5.6 mmol/L **OR** a plasma glucose of ≥7.8 mmol/L two hours after a 75 g oral glucose tolerance test.

The following women should be screened for GDM, between 24 and 28 weeks of gestation:
» Women of Indian ethnic origin.
» BMI >35 kg/m^2.
» Age >40 years of age.
» GDM in previous pregnancy.
» Family history (first degree relative) of diabetes.

» Previous unexplained third trimester fetal death.
» Previous baby with birthweight >4.5 kg.
» Polyhydramnios in index pregnancy.
» Glycosuria (≥1+ glucose in urine on 2 or more occasions).
» A fetus that is large for gestational age. *LoE:IIIb*[vi]

GENERAL MEASURES

» Stop smoking.
» Moderate exercise.
» Dietary advice.

Elective delivery at about 38 weeks' gestation.

MEDICINE TREATMENT

If fasting glucose is <7 mmol/l at diagnosis, promote lifestyle changes (diet and moderate exercise).
Assess after 2 weeks. *LoE:IIIb*[vii]

Fasting glucose ≥7 mmol/l, or no response to lifestyle changes:

- Metformin, oral, 500 mg daily.
  - Increase dose to 500 mg 12 hourly after 7 days.
  - Titrate dose to a maximum of 850 mg 8 hourly according to glucose control.
  - Contra-indications to metformin: liver or renal impairment.
  - If not tolerated, change to insulin.

Do capillary (fingerprick) glucose profiles, i.e. pre-prandial and 1-hour or 2-hour (2-hours more practical) post-prandial for breakfast, lunch and supper.
Aim for:

» Preprandial level <5.3 mmol/L and either
» 1-hour postprandial <7.8 mmol/L or
» 2-hour postprandial <6.4 mmol/L

LoE:IVb[viii]

Abnormal profiles

Women with diabetes treated with metformin but with poor glucose control should be admitted.
Add insulin.
Insulin requirements may increase with increasing gestation and later readmission may be necessary.

Preferred insulin regimen

- Insulin, short-acting with all 3 meals to maintain the 2-hour postprandial glucose levels <6.4 mmol/L.

AND

- Insulin, intermediate-acting at bedtime (with a bedtime snack) to maintain the fasting (morning) preprandial glucose levels <5.3 mmol/L.

Insulin dosing (in addition to metformin):

- Total daily dose: SC, 0.1 units/kg/day.

- One third of the total dose: intermediate acting insulin at bedtime.
- The remaining two thirds divided into three equal doses: short-acting insulin given before each meal (breakfast, lunch and supper).
- Adjust insulin dosage daily according to blood glucose profiles, until control is adequate.

LoE:IIIb[ix]

Where the above recommended regimen is not feasible

Twice-daily regimen with biphasic insulin.

- Insulin, biphasic.
  - Daily dose: SC, 0.5 units/kg/day, two thirds, 30 minutes before breakfast and one third 30 minutes before supper.
  - Titrate to achieve target capillary (fingerprick) glucose as above.

LoE:IIIb[x]

Delivery

Plan induction of labour at 38 weeks' gestation, provided glucose control is adequate, or earlier with maternal co-morbid conditions, or if glycaemic control is poor. If the estimated fetal weight (EFW) on ultrasound is >4 kg, offer elective Caesarean delivery.

During labour:

Monitor glucose hourly.

Stop subcutaneous insulin.

Administer short-acting insulin to maintain physiological blood glucose levels.

- Insulin, short-acting, continuous IV infusion, 20 units plus 20 mmol potassium chloride in 1 L dextrose 5% at an infusion rate of 50 mL/hour, i.e. 1 unit of insulin/hour.
  - If blood glucose <4 mmol/L, discontinue insulin.
  - If >7 mmol/L, increase infusion rate to 100 mL/hour.

Postpartum insulin requirements decrease rapidly.

During the first 48 hours give insulin 4-hourly according to blood glucose levels.

Resume pre-pregnancy insulin or oral hypoglycaemic regimen once eating a full diet.

The newborn is at risk of:

» hypoglycaemia
» hyperbilirubinaemia
» respiratory distress syndrome
» congenital abnormalities

Postpartum management

Contraception Z30.0 + (O24.3-4/O24.9)

Tubal ligation should be considered.

Consider:

- Low-dose combined contraceptive in well-controlled cases.
- Progestin-only preparation **or** intra-uterine contraceptive device if planning to breastfeed.

See Primary Health Care chapter 7: Family planning.

Need for ongoing anti-diabetic therapy

Offer women diagnosed with GDM during the index pregnancy an oral glucose tolerance test after 6 weeks postpartum to assess whether they have diabetes needing ongoing therapy.

REFERRAL/CONSULTATION

» Obese women (BMI > 40 kg/m^2)
» Excessive fetal growth despite adequate diabetes control.
» Poor glucose control despite adequate insulin.

6.3 HEART DISEASE IN PREGNANCY

O99.4 + (I51.9)

All women with heart disease require referral for specialist evaluation and risk assessment. The risk is particularly high in women with mechanical valves, Eisenmenger's syndrome or pulmonary hypertension. Termination of pregnancy (TOP) is an option for women with severe heart disease if recommended by a specialist.

GENERAL MEASURES

All pregnant women with haemodynamically significant heart disease require multidisciplinary management in consultation with both obstetrician and physician/cardiologist.
Consider thyrotoxicosis, anaemia, and infection, which may precipitate cardiac failure.
Spontaneous delivery is usually preferable to Caesarean delivery, unless there are obstetric reasons for surgery.
Women with prosthetic heart valves should be counselled about the risks of pregnancy to themselves and their fetus; and offered effective contraception.

During labour:

» Nurse in semi-Fowler's position.
» Avoid unnecessary intravenous fluids.
» Give adequate analgesia.
» Give antibiotic prophylaxis for infective endocarditis, guided by the nature of the heart lesion (for cardiac indications and antibiotic recommendations see section 3.5: Endocarditis, Infective). Procedures for which endocarditis prophylaxis is indicated include:
  – Vaginal delivery in the presence of suspected infection.
  – Caesarean delivery.
  – Assisted vaginal delivery.
  – Prelabour rupture of membranes.
» Avoid a prolonged second stage of labour by means of assisted delivery with forceps (preferably) or ventouse.
» Avoid ergometrine after delivery of the newborn.
» Observe in a high care area for 24 hours post-delivery, as the risk of pulmonary oedema is highest in this period.

Contraception, including the option of tubal ligation should be discussed during the antenatal period and after delivery in all women with significant heart disease.
Women who had life-threatening complications during pregnancy should be advised not to become pregnant again.

Anticoagulation during pregnancy:
Indications for full anticoagulation during pregnancy (high risk):

» *Valvular disease with atrial fibrillation*: Women with valvular heart disease should be guided to consider completing their family early and then consider family planning including tubal ligation, before progressing to requiring mechanical valves.
» *Mechanical prosthetic heart valves:* Women with mechanical prosthetic heart valves should be offered contraception (preferably a LARC not containing estrogen); see PHC STGs and EML, chapter 7: Family planning. If they conceive, offer the option of TOP or refer to tertiary centre for anticoagulation management by a multi-disciplinary team.

MEDICINE TREATMENT

A. Thromboprophylaxis for pregnant women with valvular disease and atrial fibrillation:

1. First trimester

- Enoxaparin SC, 1 mg/kg 12 hourly.

OR

- Unfractionated heparin, IV, 5 000 units as a bolus.
  - Followed by 1 000–1 200 units/hour as an infusion.

OR

- Unfractionated heparin, SC, 15 000 units 12 hourly.
  - Adjust the dose to achieve a mid-target PTT at 2–3 x control.

Practise strict infection control if using multi-dose vials, with one vial per patient and use of needle-free adaptor.

2. Second trimester until 36 weeks

- Warfarin, oral, 5 mg daily.
  - Adjust dose to keep INR within the therapeutic range of 2–3.

3. After 36 weeks until delivery

- Enoxaparin SC, 1 mg/kg 12 hourly.

OR

- Unfractionated heparin, IV, 5 000 units as a bolus.
  - Followed by 1 000–1 200 units/hour as an infusion.

OR

- Unfractionated heparin, SC, 15 000 units 12 hourly.

- Adjust dose to keep aPTT 2–3 x control.

4. Delivery
Stop heparin on the morning of elective Caesarean delivery (6 hours before scheduled surgery) or when in established labour, and re-start 6 hours after vaginal delivery or 12 hours after Caesarean delivery, as long as there is no concern that the patient is bleeding.

Secondary prophylaxis for venous thromboembolism - see chapter 2: Blood and blood forming organs, section 2.8.1: VTE during pregnancy and the puerperium.

B. Cardiac failure during pregnancy O99.4 + (I50.9)
See section 3.4: Congestive Cardiac Failure.
Treatment is as for non-pregnant women, except that **ACE-inhibitors, ARBs and spironolactone are contra-indicated.** *LoE:IVb*[xi]

If a vasodilator is needed:
- Hydralazine, oral, 25 mg 8 hourly.
  - Maximum dose: 200 mg daily.

AND
- Isosorbide dinitrate, oral, 20 mg 12 hourly.
  - Maximum dose: 160 mg daily.

C. Delivery by a cardiac patient O99.4 + (I51.9)
Contraction and retraction of the uterus after delivery increases the total peripheral resistance, and causes a relative increase in circulating volume. This may precipitate pulmonary oedema.

In women with NYHA grade II dyspnoea or more, consider the use of furosemide:
- Furosemide, IV, 40 mg with delivery of the baby.
  - Monitor for 48 hours thereafter for pulmonary oedema.

REFERRAL
» All pregnant women with mechanical prosthetic heart valves requiring anticoagulation.

Pregnant women with mechanical prosthetic valves should not receive LMWH unless antifactor Xa levels can be monitored reliably weekly. Therapeutic range is pre-dosing level 0.6 units/mL and a 4-hour peak level of 1–1.2 units/mL

6.4 HYPERTENSIVE DISORDERS IN PREGNANCY
O10.0/O11/O14.0-2/O14.9/O16

DESCRIPTION
Hypertensive disorders are one of the most common direct causes of maternal

mortality and are responsible for significant perinatal and maternal morbidity. These disorders include chronic hypertension, pre-eclampsia, eclampsia and HELLP Syndrome. Early detection and timely intervention is essential to prevent maternal and perinatal complications.

GENERAL MEASURES

Bed rest, preferably in hospital.
Lifestyle adjustment and diet.
Monitor BP, urine output, renal and liver function tests, platelet count, proteinuria, and fetal condition.
Consider delivery when risks to mother outweigh risks of prematurity to baby.

MEDICINE TREATMENT

Treatment

Antihypertensives

Medicine treatment will be dictated by blood pressure response.
Monitor progress until a stable result is achieved.
In general, diuretics are contra-indicated for hypertension in pregnant women.
When needed, combine drugs using lower doses when BP >160/100 mmHg, before increasing single medication doses to a maximum.

- Methyldopa, oral, 250 mg 8 hourly as a starting dose. *LoE:IVb*[xii]
  - Increase to a maximum of 750 mg 8 hourly, according to response.

AND/OR

- Long-acting calcium channel blocker, e.g.:
- Amlodipine, oral, 5 mg daily.
  - Increase to 10 mg daily. *LoE:IIb*[xiii]

Preeclampsia

Preeclampsia is defined as hypertension with significant proteinuria developing for the first time after 20 weeks' gestation, and can also be superimposed on chronic hypertension - evidenced by the new onset (after 20 weeks' gestation) of persistent proteinuria in a woman who had an initial diagnosis of chronic hypertension.

Pre-eclampsia without severe features:
A diastolic BP of 90-109 mmHg and/or systolic BP of 140-159 mmHg; but no symptoms or organ dysfunction.

Maternal features of severe disease:
» Acute severe hypertension (diastolic BP ≥ 110 mmHg and/or systolic ≥160 mmHg).
» Thrombocytopenia (platelet <100 000/µL).
» Impaired liver function (ALT or AST >40 IU/L).
» Severe persistent right upper quadrant or epigastric pain.
» HELLP syndrome (platelets <100 000 and AST >70 U/L and LDH >600 U/L).
» Serum creatinine ≥120 micromol/L.
» Pulmonary oedema.

» New-onset severe headache unresponsive to medication.
» Visual disturbances.

Hypertensive emergency O10.0/9
SBP ≥160 mmHg and/or DBP ≥110 mmHg. Admit to a high-care setting for close monitoring.

- Nifedipine, oral, 10 mg.
  - Repeat after 30 minutes if needed, until systolic blood pressure <160 mmHg and diastolic blood pressure <110 mmHg.
  - Swallow whole. Do not chew, bite or give sublingually.

LoE:IIIb[xiv]

If unable to take oral or inadequate response:

- Labetalol, IV infusion, 2 mg/minute to a total of 1–2 mg/kg.
  - Reconstitute solution as follows:
    - Discard 40 mL of sodium chloride 0.9% from a 200 mL container.
    - Add 2 vials (2 x 100 mg) of labetalol (5 mg/mL) to the remaining 160 mL of sodium chloride 0.9% to create a solution of 1 mg/mL.
    - Start at 40mL/hour to a maximum of 160 mL/hour.
    - Titrate against BP – aim for BP of 140/100 mmHg.
  - Once hypertensive crisis has resolved, switch to an oral preparation.

LoE:Ia[xv]

Delivery

- Oxytocin, IM, 10 units as a single bolus after delivery of the baby.

LoE:IVb[xvi]

Ergot-containing medicines are contraindicated in hypertensive women, including pre-eclampsia, following delivery of the baby.
Pre-eclamptic and eclamptic women are often hypovolaemic, particularly when the haematocrit exceeds 40%, but are also susceptible to pulmonary oedema. Consequently, hypotension is a risk during anaesthesia. Careful infusion of IV fluids is important. Limit blood-loss at Caesarean section.

6.4.1 PREECLAMPSIA

O11/O14.0-2/O14.9

DESCRIPTION

Preeclampsia is defined as hypertension with significant proteinuria developing for the first time after 20 weeks' gestation, and can also be superimposed on chronic hypertension - evidenced by the new onset (after 20 weeks' gestation) of persistent proteinuria in a woman who had an initial diagnosis of chronic hypertension.

Pre-eclampsia without severe features:
A diastolic BP of 90-109 mmHg and/or systolic BP of 140-159 mmHg; but no symptoms or organ dysfunction.

Maternal features of severe disease:
» Acute severe hypertension (diastolic BP ≥ 110 mmHg and/or systolic ≥160

mmHg).
» Thrombocytopenia (platelet <100 000/µL).
» Impaired liver function (ALT or AST >40 U/L).
» Severe persistent right upper quadrant or epigastric pain.
» HELLP syndrome (platelets <100 000 and AST >70 U/L and LDH >600 U/L).
» Serum creatinine ≥120 micromol/L.
» Pulmonary oedema.
» New-onset severe headache unresponsive to medication.
» Visual disturbances.

Prevention of pre-eclampsia Z29.2 + O10.0/O24.0-3/O99.1/O99.8 + (D68.6/M32.9)
For women at high risk of pre-eclampsia, e.g. pre-eclampsia in a previous pregnancy, chronic hypertension, diabetes, antiphospholipid syndrome, or SLE.

From 6 weeks' gestation onwards, preferably starting before 16 weeks' gestation:
- Aspirin, oral, 150 mg daily until 36 weeks. *LoE:Ia*[xvii]

At confirmation of pregnancy
- Calcium, oral.
  - For high-risk patients: Calcium carbonate, oral, 500 mg 12 hourly (equivalent to 1 g elemental calcium daily).
  - Although the benefit is greatest in high-risk women, consider use of this agent in all pregnant women.
  - When using iron together with calcium supplementation, ensure that iron and calcium are taken at least 4 hours apart from one another.

LoE:Ia[xviii]

Prevention of eclampsia
To prevent eclamptic seizures, magnesium sulfate is recommended for patients with severe features. In some cases this allows for delivery to be delayed to improve neonatal outcome. When used for prevention of eclampsia, magnesium sulfate is administered for 24 hours, and then stopped. The same dose regimens are used as for eclampsia. Women with severe features should be managed under specialist care.

6.4.2 ECLAMPSIA
O15.0-2/O15.9

DESCRIPTION
Generalised tonic-clonic seizures after 20 weeks of pregnancy or within 7 days after delivery associated with hypertension and proteinuria. Exclude any other obvious cause of the seizure before making the diagnosis. Management will include preventing further seizures, controlling the blood pressure, referral to a high-care unit, and delivery of the baby if not already post-delivery.

GENERAL MEASURES

Place patient in left-lateral position.
Clear airway. If necessary, insert oropharyngeal airway.
Abort seizures with magnesium sulfate.

MEDICINE TREATMENT

If necessary:

- Oxygen via nasal prongs or face mask to maintain a saturation of >90%.

Treatment

Where infusion pumps are not available:

- Magnesium sulfate, IV, 4 g in 200 mL sodium chloride 0.9% over 20 minutes.

Follow with:

- Magnesium sulfate, IM, 5 g every 4 hours administered at different sites, until 24 hours after delivery or following the last convulsion.

In high-care setting:

- Magnesium sulfate, IV, 4 g in 200 mL sodium chloride 0.9% over 20 minutes (loading dose).

Follow with:

- Magnesium sulfate, IV infusion, 1 g every hour, until 24 hours after delivery, or after the last convulsion (maintenance dose).

STOP MAGNESIUM SULFATE IF KNEE REFLEXES BECOME ABSENT OR IF URINE OUTPUT <100 ML/ 4 HOURS OR RESPIRATORY RATE <16 BREATHS/MINUTE.

IF RESPIRATORY DEPRESSION OCCURS:

- Calcium gluconate 10%, IV, 10 mL given slowly at a rate not exceeding 5 mL/minute.

Recurrent eclamptic seizure despite magnesium sulfate loading dose administration:

- Magnesium sulfate, IV, 2 g over 10 minutes.

For agitated and restless women with eclampsia:

- Lorazepam, IV/IM, 4 mg.
  - May be repeated after 10-15 minutes.
  - Maximum dose: 8 mg.

OR

Clonazepam, IV, 2 mg.

- May be repeated after 5 minutes.
- Maximum dose: 4 mg.

OR

If above not available:

Diazepam, IV, 10–20 mg, not faster than 2 mg/minute.

Notify the person who will resuscitate the newborn that a benzodiazepine and/or magnesium has been given to the mother.

REFERRAL

Refer all eclampsia cases to a high or intensive care facility.

6.4.3 CHRONIC HYPERTENSION

O10.0-4/O10.9

GENERAL MEASURES

Lifestyle modification

» No alcohol should be taken.
» Regular moderate exercise, e.g. 30 minutes brisk walking at least 3 times a week.
» Smoking cessation.
» Aim to keep BP <140/90 mmHg.

Screen for end-organ damage.
Fetal surveillance by symphysis-fundus height (SFH) growth. Umbilical artery Doppler screening (where available) at 24-26 weeks.
Ask mother about fetal movements at each antenatal visit. *LoE:IIb*[xix]

Consider labour induction if:
» BP persistently ≥160/110 mmHg, or
» pregnancy of ≥38 weeks duration, or
» in the presence of maternal or fetal compromise, e.g., poor SFH growth and oligohydramnios, etc.

MEDICINE TREATMENT

See prevention and treatment of pre-eclampsia.
Switch ACE-inhibitors and diuretics to methyldopa and/or amlodipine. Women should be advised that there is an increased risk of congenital abnormalities if ACE-inhibitors were taken during pregnancy.

6.4.4 GESTATIONAL HYPERTENSION

See to PHC STGs and EML, Chapter 6: Obstetrics and gynaecology, sections 6.4.2.2: Gestational hypertension: no severe features, and 6.4.2.3: Gestational hypertension: with severe features.

6.5 CORONAVIRUS DISEASE-19 (COVID-19) IN PREGNANCY

U07.1/U07.2
*Notifiable medical condition.

ANTENATAL CARE:

» Antenatal care is an essential service and should not be scaled down during lockdown periods.
» Screening and testing criteria for SARS-CoV-2 infection during pregnancy is the same as for the general population.
» Vaccination against Covid-19 and influenza is safe at all gestations of pregnancy and during COVID-19 pandemic it is important that pregnant women take up the COVID-19 and influenza vaccine to reduce their risk of contracting either. (See PHC STGs and EML, Section 13.7: Other vaccines).
» The clinical course and outcome of COVID-19 is not different in pregnancy and most pregnant women who are infected with SARS-CoV-2 will experience only mild or moderate symptoms.
» Up to 75% of infected women in pregnancy may be asymptomatic, and appropriate PPE must be used for all deliveries, regardless of the status of the mother. All pregnant women attending hospital, including women in labour, should wear masks.
» Maternal COVID-19 is associated with an approximately three times greater risk of preterm birth and women should be counselled on warning signs of spontaneous preterm labour. *LoE:IIIb*[xx]
» Risk factors for more severe disease or admission to hospital with COVID-19 include: *LoE:IIIb*[xxi]
  - Obesity (pre-pregnancy BMI >30 kg/m^2).
  - Co-morbidity, such as pre-existing diabetes (see section 6.2: Diabetes mellitus in pregnancy) and chronic hypertension (see section 6.6: Chronic hypertension).
  - Age >35 years
» SARS-CoV-2 infection is not associated with an increase in the incidence of congenital abnormalities..

THROMBOPROPHYLAXIS:

All pregnant women admitted with confirmed or suspected COVID-19 should be offered prophylactic LMWH or unfractionated heparin for 10 days, unless birth is expected within 12 hours. See section 2.8: Venous thrombo-embolism.

DELIVERY:

» COVID-19 infection is not an indication for delivery, unless delivery is required as part of maternal resuscitation to improve maternal oxygenation.
» When a woman with COVID-19 presents with spontaneous preterm labour, suppression of labour (to delay delivery in order to administer antenatal corticosteroids) should not be done.
» All women with confirmed or suspected SARS-CoV-2 infection must preferably deliver in a dedicated COVID-19 hospital or ward.

MEDICINE TREATMENT

Observe oxygen saturation measurement hourly.

- Oxygen, if saturation is <94%.

Symptomatic relief of headache:

- Paracetamol, oral, 1 g 4–6 hourly when required.
  - Maximum dose: 15 mg/kg/dose.
  - Maximum dose: 4 g in 24 hours.

Note: Avoid morphine analgesia if patient is respiratory compromised.

In pregnant patients who require supplemental oxygen:

» Corticosteroids crosses the placenta and may have long-term deleterious effects on the child.

If corticosteroids are also needed to accelerate fetal lung maturity: See section 6.12: Preterm labour (PTL) and preterm prelabour rupture of membranes (PPROM).

If corticosteroids are not needed for fetal lung maturity:

- Corticosteroids, e.g.:
- Dexamethasone, IV, 6 mg daily for up to 10 days, or until discharge.

If there is a concern over in-utero steroid exposure, use alternative therapy (with less placental transfer):

- Prednisone, oral 40 mg daily, for up to 10 days, or until discharge.
  OR
  Hydrocortisone, IV, 80 mg 12 hourly for up to 10 days, or until discharge.

LoE:IIa[xxii]

Anaesthetic:

- Spinal anaesthesia is the anaesthetic of choice in the absence of contra-indications. See section 12.7: Anaesthesia, spinal (intrathecal). The patient should wear a surgical facemask for the duration of the perioperative period.

POSTPARTUM:

» Infection with SARS-CoV-2 is not a contra-indication to breast feeding.

» There is no contra-indication to the use of post-partum contraception (See PHC STGs and EML, Chapter 7: Family planning).

6.6 HIV IN PREGNANCY

O98.7 + (Z21/B24)

Consult the most recent National Department of Health Guideline for the Prevention of Mother to Child Transmission of Communicable Infections
https://www.knowledgehub.org.za/elibrary/guideline-prevention-mother-child-transmission-communicable-infections

All pregnant women should receive routine counselling and voluntary HIV testing at their very first antenatal visit.

All women who test negative or who decline testing, should be offered repeat HIV testing at every routine visit throughout pregnancy (8 visits in all), at labour/delivery, at the 6-week EPI visit, and three monthly throughout breastfeeding.

WLHIV should be clinically staged and have a blood sample taken for CD4 cell count and serum creatinine on the same day as diagnosis. The results must be obtained within a week.
Initiate lifelong ART in all pregnant or breastfeeding women on the same day of diagnosis regardless of CD4 count or infant feeding practice.

Provide adequate support and counselling, particularly addressing ART adherence.

Discuss postpartum contraceptive use in the antenatal period.

Educate all women during the antenatal period about the benefits of exclusive breastfeeding for the first 6 months and breastfeeding with complimentary feeding from 6 months until at least 2 years after delivery. (Only in circumstance where the mother has confirmed 2nd or 3rd line ART regimen failure (VL >1000 copies/mL), advise not to breastfeed and prescribe replacement feeds).

Perform a TB symptom screen for all pregnant women at each visit. If any of the answers to the screening questions are positive, do further TB investigations. A TB geneXpert test must be done for all pregnant women with a new diagnosis of HIV disease, or known HIV positive women with a new pregnancy.

Screen and treat all patients for syphilis and other STIs, in line with basic antenatal care.
Test partner for HIV and perform routine cervical cancer screening.

Assist women with unwanted pregnancies <20 weeks' gestation with access to TOP services.

MEDICINE TREATMENT

» Patients should receive ART at the first antenatal visit, whether newly diagnosed or known to be living with HIV but not on ART.
» Tenofovir should not be used in pregnant women with a calculated creatinine clearance <60 mL/minute or a serum creatinine ≥85 micromol/L (the latter is a more sensitive measure of renal impairment in pregnancy).
» Pregnant women may be initiated on/switched to a dolutegravir-containing

regimen.

LoE:IIb[xxiii]

» Switching between TEE and TLD regimens requires a VL <50 copies/mL in the last 6 months. See section 10.1: Antiretroviral therapy.
» Initiate antenatal supplementation (see PHC STGs and EML, section 6.4.1: Antenatal supplements), noting that calcium and DTG should not be taken together on an empty stomach, but can be taken together with food.

1st ANC visit	
Pregnant women not on ART, with normal renal function, **without** TB.	• TDF, oral, 300 mg daily. **AND** • 3TC, oral, 300 mg daily. **AND** • DTG, oral, 50 mg daily. Provided as a fixed dose combination (FDC).
Pregnant women not on ART, with normal renal function, **with** TB. (DTG requires boosting with TB treatment)	• TDF, oral, 300 mg daily. **AND** • 3TC, oral, 300 mg daily. **AND** • DTG, oral, 50 mg daily. Provided as a fixed dose combination (FDC). **WITH** DTG, oral 50 mg 12 hours later.
Pregnant woman on TDF + FTC + EFV.	Switch to TDF+3TC+DTG: » **Switch only if VL is <50 copies/mL in the last 6 months**
Pregnant woman already on ART with a VL between 50-1000 copies/ml	See section 10.1: Antiretroviral Therapy
2nd ANC visit (1 week later)	
Creatinine ≤85 micromol/L	Continue ART as a FDC
Creatinine >85 micromol/L (TDF is contraindicated)	Stop FDC: TDF+FTC/3TC+EFV/DTG Replace TDF with ABC: • ABC, oral, 600 mg daily
Active psychiatric illness (EFV may be contraindicated; consult an HIV specialist and/or psychiatrist, if required) O98.7 + (Z21/B24 + 099.3 +F-ICD10 code)	Replace EFV with DTG <u>If DTG not suitable:</u> Replace EFV with LPV/r, oral, 400/100 mg 12 hourly

LoE:IIIb[xxiv]

Caesarean Delivery (CD):
Provide antibiotic prophylaxis to all pregnant women, including HIV-infected pregnant women prior to surgery (See chapter 11: Surgical antibiotic prophylaxis).

Women with the following risk factors may be at higher risk of infection post Caesarean delivery:
» Advanced immunosuppression.
» Prolonged rupture of membranes (>18 hours).
» Multiple vaginal examinations during labour (>5 PVs).
» Second stage CD.
Monitor carefully and treat infection appropriately.

HIV-infected pregnant women not on ART undergoing elective Caesarean delivery/or in labour:
- NVP, oral, 200 mg as a single dose.

WITH
- TDF, oral, 300 mg as a single dose.

AND
- 3TC, oral, 300 mg as a single dose.

AND
- DTG, oral, 50 mg as a single dose (as a FDC 4 hours before Caesarean delivery).

Followed by lifelong:
- TDF+3TC+DTG (provided as a FDC).

For management of the HIV-exposed infant, see PHC STG and EML, section 11.5.

For more information on HIV management, see section 10.1: Antiretroviral Therapy.

6.7 SYPHILIS
O98.1

DIAGNOSTIC CRITERIA
Most pregnant women infected with syphilis are asymptomatic.
See Primary Health Care STGs and EML, section 12.8: Syphilis serology and treatment.

GENERAL MEASURES
Inform contact(s).

MEDICINE TREATMENT
Mother (treat as either early or late latent/unknown stage of syphilis):

For late latent syphilis or syphilis of unknown duration
- Benzathine benzylpenicillin (depot formulation), IM, 2.4 million units diluted in 6 mL 1% lidocaine without adrenaline (epinephrine), weekly for 3 doses.

Note: If the mother has received <3 doses, treat the baby for congenital syphilis.

For early syphilis *LoE:IIIb*[xxv]

- Benzathine benzylpenicillin (depot formulation), IM, 2.4 million units diluted in 6 mL 1% lidocaine without adrenaline (epinephrine), immediately as a single dose.

Severe penicillin allergy (Z88.0)
For penicillin sensitive pregnant women: penicillin desensitisation.
(See page xxxi for detailed information).

A: Reconstitute phenoxymethylpenicillin 250mg/ 5mL		
Step	**Medicine mg/mL**	**Amount to administer (mL)**
Strictly every 15 minutes	**B**: To make 0.5 mg/mL solution Dilute 0.5 mL of reconstituted phenoxymethylpenicillin solution in 49.5 mL water.	
1	0.5 mg/mL solution (1000 units/mL)	0.1 mL
2		0.2 mL
3		0.4 mL
4		0.8 mL
5		1.6 mL
6		3.2 mL
7		6.4 mL
	C: To make 5 mg/mL solution Dilute 1 mL of reconstituted phenoxymethylpenicillin solution in 9 mL water.	
8	5 mg/mL solution (10000 units/mL)	1.2 mL
9		2.4 mL
10		4.8 mL
	D: Reconstituted phenoxymethylpenicillin 250 mg/5 mL = 50 mg/mL	
11	50 mg/mL (80000 units/mL)	1.0 mL
12		2.0 mL
13		4.0 mL
14		8.0 mL

After step 14, observe for 30 minutes, then 1.0 g IV; Interval between doses: 15 minutes.

Asymptomatic, well baby:
Mother has syphilis and has not been treated, or was only partially treated:

- Benzathine benzylpenicillin (depot formulation), IM, 50 000 units/kg as a single dose into the antero-lateral thigh.

Symptomatic baby

- Procaine penicillin, IM, 50 000 units/kg daily for 10 days. (Not for IV use).

OR

Benzylpenicillin (Penicillin G), IV, 50 000 units/kg, 12 hourly for 10 days.

6.8 HEPATITIS B IN PREGNANCY

O98.4

DESCRIPTION

Hepatitis B virus (HBV) is transmitted sexually or by percutaneous exposure to infectious body fluids, i.e., blood, saliva, vaginal fluid, and semen. Diagnosis

is confirmed serologically by a positive hepatitis B surface antigen (HBsAg).

Screening in pregnancy for HBsAg should ideally be performed in the first trimester. HBeAg positive pregnant women are more infectious than HBsAg positive women, as they have higher rates of HBV replication.

GENERAL MEASURES

Screen sexual contact(s); if they are sero-negative, give hepatitis B vaccination.
All infected patients should be counselled with regard to lifestyle modifications to reduce hepatotoxicity, including alcohol, substance abuse, and co-prescription of herbal and traditional medicines.

MEDICINE TREATMENT

Indications for medical therapy in HIV-uninfected pregnant women are the same as for non-pregnant adults.

» For management of chronic hepatitis B, **without** chronic HIV infection, see section 1.2.4.2 Hepatitis B, chronic (non-HIV coinfection).
» For management of chronic hepatitis B **with** chronic HIV infection, see chapter 10: HIV and AIDS. (ART should include ARV active against hepatitis B).

Note:

» Ensure normal renal function before starting treatment with tenofovir (serum creatinine <85 micromol/L or creatinine clearance >60 mL/minute).
» Monitor ALT and HBV DNA viral load at 6 months after commencing treatment.
» An adequate virological response is an HBV DNA VL<2000 IU/mL.

Prevention of perinatal transmission

» Caesarean delivery is reserved for obstetric indications only.
» Babies born to mothers with acute hepatitis B infection at the time of delivery or to mothers who are HBsAg-positive or HBeAg-positive, see Primary Health Care STGs and EML, section 6.6.5: Hepatitis B exposed infant.

REFERRAL

» Cirrhosis.
» Liver failure.
» Renal dysfunction (eGFR <60 mL/minute).
» Treatment failure.
» Refer all infected babies to a specialist paediatrician for further management.

6.9 JAUNDICE IN PREGNANCY

O26.6

DESCRIPTION

The most common causes of jaundice in pregnancy are not pregnancy-specific. They include viral hepatitis, and adverse drug reactions.
Pregnancy-specific causes include:

» intrahepatic cholestasis of pregnancy,
» acute fatty liver of pregnancy (acute yellow atrophy of the liver),
» severe pre-eclampsia or eclampsia, and
» hyperemesis gravidarum.

REFERRAL
All, as certain causes of jaundice in pregnancy have a high mortality.

6.10 HYPEREMESIS GRAVIDARUM
O21.0/1/9

DESCRIPTION
Recurrent vomiting leading to ketosis, generally in the first trimester.
Exclude:
» medical causes, e.g., thyrotoxicosis, and
» molar pregnancy.

GENERAL MEASURES
Counselling.
Frequent small, dry meals.
Avoid fatty and spicy foods.
Restrict oral intake for 24–48 hours, but ensure adequate intravenous hydration.

MEDICINE TREATMENT
Correct electrolyte imbalance with IV fluids.

- Pyridoxine, oral, 25 mg 8 hourly.

AND

- Vitamin B complex, IV, 10 mL.

AND

- Promethazine, oral/IM/IV 25 mg 8 hourly as needed.

LoE:IIIb[xxvi]

<u>If no/poor response:</u>

ADD

- Metoclopramide, oral/IV, 10–20 mg 6 hourly as needed.

LoE:IIIb[xxvii]

<u>In refractory cases:</u>

Administer daily until hyperemesis is controlled:

- Dexamethasone, IM/IV, 4–8 mg daily.

AND

- Ondansetron, IV, 4–8 mg over 5 minutes, daily.
  - **Note:** There is uncertainty regarding the safety of ondansetron in the first trimester. Use with caution and only when necessary. *LoE:IIIb*[xxviii]

6.11 PRETERM LABOUR

6.11.1 PRETERM LABOUR (PTL) AND PRETERM PRELABOUR RUPTURE OF MEMBRANES (PPROM)

O60.0/O42.0-2/O42.9

DESCRIPTION

Preterm: <37 weeks' gestation.
Most problems occur at <34 weeks' gestation.
Confirm ruptured membranes by sterile vaginal speculum.
Preterm labour confirmed by regular uterine contractions with progressive cervical changes.

GENERAL MEASURES

Assess fetal wellbeing.
Estimate fetal weight.
Deliver if chorio-amnionitis suspected.

MEDICINE TREATMENT

If gestation <34 weeks:

Pre-hydrate before administration of nifedipine:

- Sodium chloride 0.9%, IV, 200 mL.

AND

- Nifedipine, oral, 20 mg.
  - If contractions persist, follow with 10 mg after 30 minutes then 10 mg 4 hourly for up to 48 hours.

If gestation <32 weeks and where nifedipine contra-indicated:

- Indomethacin, oral, 50 mg immediately then 25 mg 4 hourly for up to 48 hours.
  Note: Indomethacin may cause oligohydramnios, and its use is associated with a risk of premature closure of the ductus arteriosus. Use only if there is intolerance to nifedipine. *LoE:Ia*[xxix]

To improve fetal lung maturity at 26–34 weeks: (Z29.2)

- Betamethasone, IM, 12 mg, 2 doses 24 hours apart. *LoE:Ia*[xxx]

If betamethasone is not available:

- Dexamethasone, IM, 8 mg, 3 doses 8 hours apart. *LoE:Ia*[xxxi]

Note: Corticosteroids are maximally effective about 24 hours after administration of the first dose. Therefore, give as soon as possible following diagnosis of PTL or PPROM.

Antibiotic therapy (Z29.2)

- Ampicillin, IV, 1 g 6 hourly for 48 hours.

Follow with:

- Amoxicillin, oral, 500 mg 8 hourly for a further 5 days.

AND

- Azithromycin 1g orally as a single dose. *LoE:IIIa*[xxxii]

Severe penicillin allergy: (Z88.0)
- Clindamycin, IV, 600 mg 8 hourly for 48 hours.

Follow with:
- Clindamycin, oral, 450 mg 8 hourly for a further 5 days.

AND
- Azithromycin 1g orally as a single dose. *LoE:IIIa*[xxxiii]

Prepare for appropriate care of preterm infant.

REFERRAL
» Fetus that may require neonatal intensive care, e.g. estimated weight <1.5 kg or gestation <32 weeks.
» Fetus requiring specialised treatment after birth, e.g. surgery.
» Severely ill mother.

6.11.2 PREVENTION OF PRETERM LABOUR (SINGLETON PREGNANCIES ONLY)
Z35.2

DESCRIPTION
Women with a previous spontaneous preterm delivery are at higher risk for preterm delivery in the next pregnancy. In certain high-risk cases, pregnancy may be prolonged by the careful consideration of either cervical cerclage or vaginal progesterone therapy.

The following high-risk women should undergo cervical screening and offered a choice of cerclage or progesterone:
» A history of 2nd trimester miscarriage (between 16 and 26 weeks) suggestive of cervical incompetence: (Painless dilatation with a quick labour, and birth of a live baby or fresh stillbirth) after excluding other causes of mid-trimester losses, e.g. intra-uterine death that required induction, abruptio placentae, fetal abnormalities, polyhydramnios, and medical terminations.
» Previous history of spontaneous preterm birth between 27 and 34 weeks (exclude non-spontaneous causes e.g. iatrogenic delivery for pre-eclampsia, or syphilis). No need to refer previous late preterm deliveries (34-37 weeks).

Do not screen low-risk women routinely, as it is not cost-effective.

GENERAL MEASURES
Cervical length must be measured by a skilled operator using transvaginal ultrasound.
Cervical measurement can be done between 16 and 24 weeks.
A cervical length of ≤25 mm indicates a higher risk for recurrent preterm labour.
Discuss the risks and benefits of both options with the patient to make an informed shared decision of the most appropriate treatment.

MEDICINE TREATMENT

Women should be counselled that 20 cerclage procedures will prevent one preterm delivery (NNT 17 to 20) and that progesterone is successful in 1 out of every 8 cases (NNT 6 to 8), to assist them in making an informed decision. *LoE:IIb*[xxxiv]

Consider prophylactic vaginal progesterone ***or*** cervical cerclage (MacDonald suture) for women with:

» history of spontaneous preterm birth (27-34 weeks) or mid-trimester loss (16-24 weeks), ***and***
» cervical length ≤ 25 mm confirmed on ultrasound (16-24 weeks).

- Progesterone, PV, 200 mg daily. *LoE:IIb*[xxxv]
  - Stop treatment at 34 weeks and refer to antenatal services at primary level of care for further management.

(**Note**: Vaginal progesterone may be considered for high-risk women with a normal cervix length on ultrasound).

Consider prophylactic cervical cerclage (MacDonald suture) ***only*** for women with:

» cervical length ≤ 25 mm confirmed on ultrasound (16-24 weeks),

AND

» history of preterm prelabour rupture of membranes (PPROM), ***or***
» history of cervical trauma.

Rescue cerclage:

» If the cervix is already open and the membranes exposed, but unruptured, consider a rescue cervical cerclage (16-27 weeks).
» Do not insert a rescue cerclage if there are contractions, active vaginal bleeding or signs of infection.

Cerclage should be removed at 36 weeks, and thereafter the patient can be referred to antenatal services at primary level of care. *LoE:IIb*[xxxvi]

REFERRAL

Women with recurrent losses and previous cerclage that tore out (severe cervical trauma), as they may require an abdominal cerclage.

6.12 SUPPRESSION OF LABOUR FOR FETAL DISTRESS

O68.0-3/8-9 + (Z51.2)

DESCRIPTION

Tocolysis is useful to treat fetal distress in labour and to suppress labour in women needing transfer or awaiting Caesarean delivery. Also used prior to external cephalic version.

MEDICINE TREATMENT

- Salbutamol bolus, 250 mcg IV, slowly over 2 minutes.

- Reconstitute the solution as follows:
  - Add 1 mL (i.e., 0.5 mg/mL) salbutamol to 9 mL sodium chloride 0.9% to make a solution of 50 mcg/mL. Administer 5 mL (250 mcg) of this solution.
  - Monitor pulse. Do not administer if mother has cardiac disease.
  - Place the mother in the left lateral position.
  - If pulse increases >120 bpm, discontinue salbutamol.

LoE:IIb[xxxvii]

6.13 LABOUR INDUCTION

Z35.9/Z51.2

If induction of labour is indicated, for medical reasons, for example pre-eclampsia, diabetes, or post-term pregnancy.

GENERAL MEASURES

Counsel the woman about the risks: failed induction or uterine hyperstimulation syndrome, which may require emergency Caesarean delivery.

Cervix favourable and confirmed HIV-uninfected mother
Artificial rupture of the membranes.

Cervix unfavourable (Bishop score <7)
Extra-amniotic Foley catheter with/without saline infusion:
Pass a Foley catheter with 30 mL bulb through cervix with sterile technique.
Inflate bulb with 50 mL water or sodium chloride 0.9%.
Tape catheter to thigh with light traction.
Alternatively, attach sodium chloride 0.9% 1 L with giving set to catheter, and infuse sodium chloride 0.9% at 50 mL/hour. Remove after 24 hours.

LoE:IVb

MEDICINE TREATMENT

Cervix unfavourable (Bishop score <7)
Extra-amniotic Foley catheter (as above) **PLUS** one of the options below:

LoE:IIb[xxxviii]

Prostaglandins, e.g.:

- Dinoprostone gel, intravaginally, 1 mg.
  - Repeat after 6 hours.
  - Do not exceed 4 mg.

OR

- Dinoprostone tablets, intravaginally, 1 mg.
  - Repeat after 6 hours.
  - Do not exceed 4 mg.

LoE:IIIb[xxxix]

OR

- Misoprostol, oral, 20 mcg 2 hourly until in labour, or up to 24 hours.
  - Oral misoprostol may be given as freshly made-up solution of one 200 mcg tablet in 200 mL water, i.e., 1 mcg/mL solution. Give 20 mL of this solution 2 hourly.
  - Stop misoprostol administration when in established labour.

- Maximum 24 hours.
- Never use oxytocin and misoprostol simultaneously.
- Misoprostol and other prostaglandins are contraindicated in women with previous Caesarean sections and in grand multiparous women.

LoE:IIIb[xl]

Note:

» Misoprostol in larger doses than indicated here for labour induction at term, may cause uterine rupture.

» Only to be prescribed by a doctor experienced in Maternal Health.

Non-stress test and cardiotocography:

Note: Perform a non-stress test (NST), before starting the induction, and cardiotocography (CTG) within an hour of each dinoprostone insertion, to evaluate the fetal condition during labour induction.

When using oral misoprostol, do a baseline NST before commencing IOL, followed by CTG 4-hourly (prior to every alternate dose).

Repeat CTG once contractions have started, or more frequently only if clinically indicated.

LoE:IVb

Cervix favourable (Bishop score ≥7)

Amniotomy followed 2 hours later by:

- Oxytocin, IV, 2 units in 200 mL sodium chloride 0.9%.

LoE:IIIb[xli]

  - Start at an infusion rate of 12 mL/hour (i.e. 2 milliunits/minute). If absent or inadequate contractions, increase infusion rate according to the table below:

Time after starting (minutes)	Oxytocin dose (milliunits/minute)	Dilution: 2 units in 200 mL sodium chloride 0.9% (mL/hour)
0	2	12
30	4	24
60	6	36
90	8	48
120	10	60
150	12	72
180	14	84
210	16	96
240	18	108
270	20	120

Note:

» It is safe to perform amniotomy in pregnant women with HIV on ART who have an undetectable plasma VL at delivery.

LoE:IIIb[xlii]

» Avoid oxytocin in women with previous Caesarean section or parity ≥5.

» Continuous electronic fetal heart rate monitoring is essential.

» Aim for adequate uterine contractions (3–5 contractions in 10 minutes). Once adequate contractions achieved, do **not** increase rate further.

» Most women will experience adequate contractions at a dose of 12

milliunits/minute.

» If tachysystole develops (>5 contractions in 10 minutes), reduce or stop the oxytocin infusion to achieve 3-5 contractions in 10 minutes. If there are fetal heart rate abnormalities which persist despite stopping the oxytocin, administer salbutamol as above.

6.14 LABOUR PAIN, SEVERE

O62.9 +(Z51.2)

GENERAL MEASURES

Antenatal counselling.
Psychological support from family member, friend or volunteer 'doula'.
The need for analgesics may be reduced by keeping the woman informed about the progress of labour, providing reassurance and carefully explaining the procedures performed.
Anticipate the need for analgesia rather than waiting for severe distress.

MEDICINE TREATMENT

- Morphine, IM, 0.1 mg/kg 4 hourly as needed, to a maximum of 10 mg.

Titrate dose and dose frequency according to pain. *LoE:IVb*[xliii]
Supplement with premixed nitrous oxide 50%/ oxygen 50% in late first stage.

Epidural anaesthesia
Offer this service only at hospitals with anaesthetic expertise, monitoring, capacity and equipment for epidural. (See chapter 12: Anaesthesiology, pain and intensive care).

Perineal analgesia: R10.2

- Lidocaine, 1 or 2%, infiltration, locally or by a pudendal block.

Postpartum and post-episiotomy pain O90.9 + (R10.2 + Z51.2)

- Paracetamol, oral, 1 g 4–6 hourly when required.
  - Maximum dose: 15 mg/kg/dose.
  - Maximum daily dose: 4 g in 24 hours.

OR

- NSAID, e.g.:
- Ibuprofen, oral, 400 mg 8 hourly with meals.

OR

- Morphine, IM, 0.1 mg/kg 4 hourly as needed, to a maximum of 10 mg.

LoE:IVb[xliv]

6.15 DEHYDRATION/KETOSIS IN LABOUR

O99.2 + (E86)

DESCRIPTION

Subclinical dehydration is often missed in labour.

GENERAL MEASURES
Encourage adequate oral fluid intake.

MEDICINE TREATMENT
Mild dehydration
Give oral fluids.

Moderate/severe dehydration
Administer intravenous fluids, e.g.:
- Sodium chloride 0.9%, IV, 250 mL/hour.

Re-evaluate hydration hourly.

6.16 POSTPARTUM FEVER
O85/O86.0-4/O86.8

DESCRIPTION
During delivery the woman's protective barrier against infections is temporarily reduced and this may lead to infections.
The cause of fever may be a serious complication.
Consider excessive use of misoprostol for PPH (doses >600 mcg) as a possible non-infectious cause of postpartum fever.

GENERAL MEASURES
Prevent deep vein thrombosis.
Complete evacuation of uterine contents.
Hysterectomy may be indicated in severe uterine sepsis.
Attention to breast engorgement.

MEDICINE TREATMENT
Antibiotic treatment, where appropriate, should be guided by the presumed source of infection.

Empiric antibiotic therapy
- Amoxicillin/clavulanic acid, IV, 1.2 g 8 hourly, until patient apyrexial for 24 hours.

Follow with: *LoE:IVb*
- Amoxicillin/clavulanic acid, oral, 875/125 mg 12 hourly.

REFERRAL
» No clinical response to 48 hours of antibiotic treatment.
» Septic shock.

6.17 POSTPARTUM HAEMORRHAGE

O72.1-3 + (Z51.2)

DESCRIPTION

Blood loss >500 mL after birth of the baby or any blood loss which results in haemodynamic instability (tachycardia and/or hypotension).

GENERAL MEASURES

Bimanual compression of the uterus.
Ensure delivery of placenta is complete.
Check for local causes of bleeding.
Balloon tamponade of the uterine cavity should be considered if the patient is to be transferred to another facility.

MEDICINE TREATMENT

Prevention Z29.2

Active management of the 3rd stage of labour:

- Oxytocin, IM, 10 units.

Note:

» Delay cord clamping and cutting (after 1 minute)
» Deliver the placenta by controlled cord traction.

Treatment

Resuscitate.
Put up two IV lines of crystalloid, one of which should contain oxytocin 20 IU.
Cross match and hold blood for transfusion.
Monitor BP and pulse, and response to uterotonics every 15 minutes.

- Oxytocin, IV, 20 units in 1 L sodium chloride 0.9% at 250 mL/hour.

If uterus remains atonic (palpable above the umbilicus) after the oxytocin infusion has started:

- Ergometrine, IM, 0.5 mg.
  or
  a combination of oxytocin, IM, 5 units and ergometrine, IM, 0.5 mg.
  - Avoid ergometrine in women with hypertension or cardiac disease, except in severe cases where the benefit is considered to outweigh the risk (discuss with a specialist).
  - Repeat ergometrine 0.5 mg IM after 15 minutes if no response.

AND *LoE:Ia*[xlv]

- Tranexamic acid 1 g, IV, slowly over 10 minutes.
  - Repeat after 30 minutes if there is ongoing vaginal bleeding.

In settings where oxytocin had NOT been administered as prophylaxis at birth:

- Misoprostol, sublingual, or rectal, 600 mcg as a single dose.

LoE:IIb[xlvi]

6.18 THE RHESUS NEGATIVE WOMAN

O36.0 + (Z29.1)

GENERAL MEASURES

Maternal serum antibodies absent

Prevention

Test for maternal serum antibodies at 'booking', 28 and 34 weeks' gestation. During pregnancy, give prophylactic anti-D immunoglobulin to the mother within 72 hours of a potentially sensitising event.

MEDICINE TREATMENT

After a termination of pregnancy (TOP), miscarriage, ectopic pregnancy or amniocentesis <20 weeks:

- Anti-D immunoglobulin, IM, 50 mcg. *LoE:IIIb*[xlvii]

After external cephalic version or potentially sensitizing event ≥20 weeks:

- Anti-D immunoglobulin, IM, 100 mcg.

At birth, determine the Rh status of the cord blood and request a Coomb's test:
Cord blood Rh negative - no treatment.
Cord blood Rh positive, Coomb's negative:

- Anti-D immunoglobulin, IM, 100 mcg.

If a large feto-maternal haemorrhage is suspected:

- Anti-D immunoglobulin, IM, 300 mcg for every 30 mL haemorrhage.
  - Maximum dose: 1 200 mcg.

AND

Do a maternal blood Kleihauer test (consult a specialist).

Rh positive, Coomb's positive:
In these cases, the mother will also have antibodies.
Do not administer anti-D immunoglobulin.

Maternal serum antibodies present.

Consult a specialist.

6.19 URINARY TRACT INFECTION (UTI) IN PREGNANCY

6.19.1 CYSTITIS

O23.1

DESCRIPTION

This condition usually presents with lower abdominal pain, frequency of micturition, and/or dysuria. There are no features of sepsis, e.g., fever. Urine dipstick testing usually shows nitrites, with/without leukocytes; and/or blood.

GENERAL MEASURES

Encourage oral fluid intake.
Midstream urine for microscopy, culture and sensitivity.

MEDICINE TREATMENT

Empiric treatment (symptoms present with nitrites positive **AND** leukocytes positive on dipstick):

- Fosfomycin, oral, 3 g as a single dose — *LoE:IIIb*[xlviii]

OR

- Nitrofurantoin, oral, 100 mg, 6 hourly for 5 days. — *LoE:Ib*[xlix]

LoE:IIb[l]

REFFERAL/CONSULTATION

No response to treatment, or resistant organism on culture.

6.19.2 PYELONEPHRITIS, ACUTE

O23.0

DESCRIPTION

This condition is more serious than cystitis and may result in preterm labour.
Features of pyelonephritis include:

» temperature ≥ 38ºC
» renal angle tenderness (often bilateral)
» other features of sepsis, i.e., vomiting, tachypnoea, tachycardia, confusion and hypotension

GENERAL MEASURES

Admit to hospital.
Ensure adequate hydration with intravenous fluids, up to 3 L of sodium chloride 0.9% over 24 hours.
Midstream urine for microscopy, culture and sensitivity.

MEDICINE TREATMENT

Empiric therapy:

- Ceftriaxone, IV, 1 g, daily for 48 hours, or until fever subsides.

OR

- Gentamicin, IV, 6 mg/kg, daily (ensure normal renal function).

Switch to oral therapy as soon as the patient is able to take oral fluids:

- Amoxicillin/clavulanic acid, oral, 875/125 mg 12 hourly for 7 days.

Change antibiotics according to culture and sensitivity results. After treatment, ensure that two urine specimens are negative to confirm eradication.

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