

Chapter 6: Obstetrics and gynaecology

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6.1 Bleeding in pregnancy

6.1.1 Miscarriage

O03

Description

Bleeding from the genital tract prior to 24 weeks gestation, as determined either from last menstrual period (LMP) or ultrasound, which may or may not be associated with lower abdominal pain (LAP), and is classified as follows:

- » Threatened miscarriage:
 - mild vaginal bleeding, usually no associated LAP
 - cervix closed on digital examination
- » Inevitable miscarriage:
 - moderate vaginal bleeding associated LAP
 - cervical dilatation may be present
- » Incomplete miscarriage:
 - vaginal bleeding with clots
 - passage of products of conception
- » Complete miscarriage:
 - complete passage of all products of conception
 - usually still requires referral for confirmation
- » Septic miscarriage:
 - any miscarriage with history of interference, pyrexia, tachycardia and/or offensive products of conception

(For perinatal mortality reporting, a stillbirth is considered a fetus > 1 000 g or > 28 weeks gestation.)

General measures

- » Monitor vital parameters, e.g. Hb, pulse, BP, temperature.
- » Treat for shock if indicated.
- » Counselling and support.

Drug treatment

- Oxytocin 20 units, IV, diluted in 1 000 mL sodium chloride 0.9% and infused at 125 mL/hour in all cases, **except where threatened miscarriage** is suspected.

If septic miscarriage is suspected, before referral

- Ceftriaxone, IV, 1 g

! CAUTION !

Do not administer calcium containing fluids, e.g. Ringer-lactate, within 48 hours of administering ceftriaxone.
Contra-indicated in neonatal jaundice.

and

- Metronidazole, oral, 400 mg

In Rh-negative, non sensitised, women

- Anti-D immunoglobulin, IM, 100 mcg preferably within 72 hours but may be given up to 7 days following management of miscarriage.

Referral**Urgent**

- » All patients

6.1.2 Antepartum Haemorrhage**O46.9****Description**

Vaginal bleeding in pregnancy after 24 weeks of gestation as determined either from LMP or ultrasound.

Important causes include the following:

- » abruptio placentae,
- » placenta praevia and
- » uterine rupture (particularly when misoprostol was used).

Drug treatment

- Sodium chloride 0.9%, IV
- » Treat for shock if necessary.
- » Avoid vaginal examination.

Referral**Urgent**

- » All patients

! CAUTION !

Avoid using prostaglandins, e.g. misoprostol together with oxytocin when the uterus is greater than 20 weeks size.

6.2 Antenatal care**6.2.1 Care of HIV positive pregnant woman****Description**

HIV is currently the commonest cause of maternal deaths in South Africa. Transmission of HIV from mother to infant may occur during pregnancy, delivery, and/or breast-feeding.

Without intervention, 25–40% of infants born to HIV positive women may become infected. With appropriate interventions, maternal mortality as well as perinatal transmission of HIV can be substantially reduced.

General measures**At first antenatal visit**

- » Offer counselling and voluntary HIV testing to all pregnant women, preferably at 1st visit.
 - If she is HIV positive, a CD4 count must be done at once.
 - The CD4 result must be obtained within 1 week.
- » Assist HIV positive pregnant women with access to TOP services, when requested, i.e. unplanned, unwanted pregnancy less than 20 weeks.
- » Identify HIV positive pregnant women who are eligible for life-long ART.
 - Refer to appropriate ARV unit.
- » HIV positive pregnant women not yet eligible for ART should be counselled about the benefits of PMTCT.

Drug treatment**Mother**

Refer all HIV positive pregnant women with indications for long term ART to ARV unit regardless of gestational age. These women should be fast tracked for access to ART.

HIV positive pregnant women without indication for ART

- Zidovudine, oral, 300 mg 12 hourly from 28 weeks of pregnancy until delivery.
 - Zidovudine is still of benefit even if started after 28 weeks of pregnancy.

plus

- Nevirapine, oral, 200 mg single dose as early as possible in labour, or 4 hours prior to elective Caesarean section.
- » Check baseline Hb prior to starting zidovudine therapy.
 - If below 8 g/dL do not commence zidovudine and refer patient.
- » Monitor Hb every 4 weeks while on therapy.
 - If Hb drops below 8 g/dL, refer patient.

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Newborn

- Nevirapine, oral, 2 mg/kg single dose within 48 hours of birth.
- plus**
- Zidovudine, oral, 4 mg/kg/dose 12 hourly for the first week of life.
 - If the mother received less than 4 weeks of zidovudine antenatally, give zidovudine to newborn for 4 weeks.

This regimen is applicable to all HIV-exposed newborns, regardless of which prophylaxis or treatment the mother received antenatally.

6.2.2 Hypertensive disorders of pregnancy

O13/O14

Description

Hypertension in pregnancy, pre-eclampsia and eclampsia may have very serious and fatal consequences for both the mother and the baby.

Hypertension at 20 weeks of gestation or more (gestational hypertension) characterised by:

- » BP equal or above 140/90 mmHg measured on two occasions 4 hours apart
- OR**
- » diastolic BP above 110 mmHg measured on one occasion

Hypertensive disorders of pregnancy can be classified as:

- » Chronic hypertension:
 - hypertension without proteinuria diagnosed before pregnancy or before 20 weeks of pregnancy.
- » Chronic kidney disease:
 - proteinuria with/without hypertension prior to 20 weeks
- » Gestational hypertension:
 - hypertension without proteinuria, detected after 20 weeks of pregnancy.
- » Pre-eclampsia:
 - Hypertension with proteinuria after 20 weeks of pregnancy.
- » Eclampsia:
 - generalised tonic-clonic seizures in women with pre-eclampsia.

LEVELS OF SEVERITY

Level of hypertension	BP Level mmHg			Proteinuria
	Systolic		Diastolic	
mild	140–159	or	90–109	+
severe	above 160	and	above 110	+++

PREVENTION

All antenatal patients to reduce the risk of pre-eclampsia:

- Calcium, oral, 1 g of elemental calcium daily

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MILD HYPERTENSION

General measures

- » May be managed without admission before 38 weeks of gestation.
- » Review the following on a weekly basis:
 - BP
 - weight
 - urine analysis
 - height of fundus
 - fetal heart rate and movements
- » Advise bed rest.
- » Educate on signs requiring follow-up.
- » Admit to hospital if proteinuria is present.
- » Admit at 38 weeks for delivery.

Drug treatment

- Methyldopa, oral, 250 mg 8 hourly.
 - Maximum dose: 750 mg 8 hourly.

PREGNANCY IN PATIENTS WITH HYPERTENSION

- » Stop ACE Inhibitors when pregnancy is planned or as soon as pregnancy is diagnosed.

Drug treatment

- Methyldopa, oral, 250mg 8 hourly.
 - Maximum dose: 750mg 8 hourly**or**
 - Nifedipine, slow release, oral, 30 mg daily.

SEVERE HYPERTENSION

Drug treatment

- » Aim to reduce diastolic BP to \pm 100 mmHg.
- Preload with:
- Sodium chloride 0.9%, IV, 300 mL unless in cardiac failure.
- plus**
- Nifedipine, oral, 10 mg (not sublingual) as a single dose.
 - May be repeated in 30 minutes if diastolic BP remains above 110 mmHg

ECLAMPSIA

General measures

- » Ensure safe airway.
- » Turn woman onto left lateral position.
- » Administer oxygen.
- » Stabilise prior to urgent referral.
- » Insert a Foley's catheter.

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Drug treatment

- Magnesium sulphate, IV, 4 g as a loading dose diluted with 200 mL sodium chloride 0.9% and infused over 20 minutes.

and

- Magnesium sulphate, IM, 10 g given as 5 g in each buttock
 - Then IM, 5 g every 4 hours in alternate buttocks

If infusion pump is available, administration of a continuous infusion is preferred:

- Magnesium sulphate, IV, at 1 g/hour as a continuous infusion.
 - 10 g in 200 mL sodium chloride at over 20 mL/hour

Stop magnesium sulphate if:

- urine output is less than 100 mL in 4 hours, or
- respiratory rate is less than 16 breaths per minute, or
- if patellar reflexes are absent

If magnesium toxicity suspected (decreased tendon reflexes)

- Calcium gluconate 10%, IV, 10 mL administered over 2–3 minutes as antidote.

Referral

Urgent

- » Severe pre-eclampsia and eclampsia
 - stabilise the patient
 - initiate magnesium sulphate loading dose and infusion before referral
 - monitor vital signs while awaiting transport
- » Poor control in mild gestational hypertension
- » Hypertension with proteinuria

6.2.3 Anaemia in pregnancy

O99.0

Description

Anaemia in pregnancy is pallor plus a haemoglobin (Hb) of less than 11 g/dL, mostly due to either iron deficiency, folic acid deficiency or a combination of both. Women with iron deficiency often have 'pica', e.g. eating substances such as soil, charcoal, ice, etc.

General measures

- » Reduce intake of tea.
- » Do not drink tea within 2 hours of taking iron tablets.

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Drug treatment

Prevention:

All antenatal patients, routine iron and folic acid supplementation.

Single pregnancy:

- Ferrous sulphate compound BPC, oral, 170 mg once daily with food
- and**
- Folic acid, oral, 5 mg daily

Twin or multiple pregnancy:

- Ferrous sulphate compound BPC, oral, 170 mg 12 hourly with food.
- and**
- Folic acid, oral, 5 mg daily.

Established anaemia with Hb less than 10 g/dL:

- Ferrous sulphate compound BPC, oral, 170 mg 8 hourly with food.
 - Continue for three months after the Hb normalises in order to replenish body iron stores.

and

- Folic acid, oral, 5 mg daily.

Referral

- » Hb less than 7 g/dL at any stage
- » Hb less than 10 g/dL and patients over 34 weeks of gestation
- » Non-responding Hb
- » A rise in the Hb of less than 1.5 g/dL over 2 weeks in early pregnancy
- » Any low Hb with an obstetric complication
- » Signs or symptoms of acute or chronic blood loss
- » Pallor (anaemia) plus signs of chronic disease, e.g. suspicion of TB, or the presence of hepatosplenomegaly
- » Evidence of cardiac failure
- » Anaemia of sudden onset

6.2.4 Syphilis in pregnancy

O98.1

Description

A sexually transmitted infection with many manifestations that may be asymptomatic in pregnant women. It is caused by the spirochaete, *T pallidum*. Vertical transmission to the fetus occurs in up to 40% of cases in untreated mothers. Untreated maternal syphilis may lead to miscarriage, stillbirth, non-immune hydrops fetalis, or congenital syphilis in the newborn.

Diagnosis is made by positive serology (VDRL, RPR) confirmed with positive TPHA or FTA.

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All pregnant women should have a RPR test at the first visit.

General measures

- » Encourage partner notification and treatment.
- » Provide counselling and promote HIV testing.
- » Educate on treatment adherence.
- » Promote condom use.

Drug treatment

Pregnant woman

- Benzathine benzylpenicillin, IM, 2.4 MU weekly for 3 weeks
 - Follow up at 3 months after the last injection to confirm a fourfold (i.e. 2 dilution) reduction in VDRL/RPR titres

Penicillin allergy:

- Erythromycin, oral, 500 mg 6 hourly for 28 days.
- Mother, once she has stopped breast-feeding:
- Doxycycline, oral, 100 mg 12 hourly for 28 days.

Note:

Erythromycin does not reliably cure syphilis in the woman. The mother must be followed up with repeated RPR after 3 months to confirm a four fold reduction in VDRL/RPR titres.

Newborn baby

Asymptomatic, well baby

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

Symptomatic baby

- Procaine penicillin (depot formulation), IM, 50 000 units/kg daily for 10–14 days
 - **Not for IV use**
 - or**
 - Benzylpenicillin (Penicillin G), IV, 50 000 units/kg, 12 hourly for 10–14 days

! CAUTION !

Procaine penicillin and benzathine benzylpenicillin (depot formulation) should not be given intravenously.

6.3 Preterm labour (PTL) and preterm prelabour rupture of membranes (PPROM)

O60

6.3.1 Preterm labour (PTL)**Description**

Regular painful contractions, three per 10 minutes, occurring before 37 weeks of gestation. Labour prior to 34 weeks is of clinical importance due to adverse neonatal outcomes.

General measures**Less than 26 weeks:**

- » refer without drugs to inhibit uterine contractions (tocolysis).

26 – 33+ weeks of gestation:

- » refer with initial tocolysis and corticosteroids.

≥ 34 weeks gestation:

- » allow labour to continue.

Drug treatment**26 – 33+ weeks gestation**

- Betamethasone, IM, 12 mg two doses 24 hours apart.

Tocolysis:

Preload with:

- Sodium chloride 0.9%, IV, 300 mL

then

- Nifedipine, oral, 20 mg as a single dose
 - Follow with 10 mg after 30 minutes,
 - Then 10 mg every 4 hours until patient is transferred
 - Maximum duration: 24 hours

Referral

- » All cases prior to 34 weeks

6.3.2 Preterm prelabour rupture of membranes (PPROM)**Description**

Rupture of the membranes prior to 37 weeks of gestation. PPRM prior to 34

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weeks is of clinical importance due to adverse neonatal outcomes.

Confirmed with a sterile speculum examination demonstrating leakage of amniotic fluid. If there is clinical uncertainty, test for pH – liquor is alkaline.

Avoid digital vaginal examination.

Drug treatment

26 – 33+ weeks gestation

- Betamethasone, IM, 12 mg two doses 24 hours apart.

Referral

- » All cases

6.4 Intrapartum care

O80.9

For the comprehensive management of women in labour, refer to the National Maternity Care Guidelines.

Description

Labour is divided into 4 stages:

- » **First stage**
 - onset of regular uterine contractions at term to full dilatation of cervix
- » **Second stage**
 - full dilatation to delivery of the baby
- » **Third stage**
 - delivery of the baby to delivery of the placenta
- » **Fourth stage**
 - 1 hour post delivery

General measures

- » Encourage companion support.
- » Ensure that the mother is adequately hydrated.
- » Monitor progress of labour on partogram.

Drug treatment

First stage with cervical dilatation of less than 10 cm:

Analgesia:

- Pethidine, IM, 100 mg 4 hourly
or
Morphine, IM, 10–15 mg, 4 hourly (Doctor initiated)
or

Especially in advanced first stage of labour

Nitrous oxide 50% mixed with oxygen 50%, given by mask

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and

For nausea and sedation, if needed:

- Promethazine, IM, 25 mg 4 hourly

Second stage

If episiotomy is needed, local anaesthetic:

- Lignocaine 1%.
 - Do not exceed 20 mL

Fetal distress during labour:

- Salbutamol 1 mg/mL, IV, 100–250 mcg administered slowly over 2 minutes and refer.

Reconstitute the tocolytic as follows:

- Salbutamol 1 ml added to 200 mL sodium chloride 0.9% to make a 5 mcg/mL solution.
- Draw up 20 mL (100 mcg) in syringe. Monitor pulse.
- Inject 20 mL (100 mcg) over at least 1 minute. Monitor pulse.
- If pulse is not more than 120/minute, inject another 20 mL over at least 1 minute. Monitor pulse.
- Maximum dose 250 mcg (50 mL) over at least 2 minutes.
- Do not administer if mother has cardiac disease.

Place the mother in the left lateral position.

Inadequate or inco-ordinate uterine contractions:

Use only for primigravida and titrate to individual needs. Contraction frequency should never exceed 5 in 10 minutes.

- Oxytocin, IV, diluted with 1 000 mL sodium chloride 0.9%.
 - Infuse at a rate of 6 mL/hour (1 milliunit /minute)

Time after starting minutes	Oxytocin dose milliunits/minute	Dilute 10 units in 1 000 mL sodium chloride 0.9% (mL/hour)
0	1	6
30	2	12
60	4	24
90	6	36
120	8	48
150	10	60
180	12	72

Precautions

- » Use oxytocin for augmentation only, not for induction of labour.
- » Do not administer oxytocin when the action line on the partogram has been crossed – refer to hospital.

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Prevention of post-partum haemorrhage after delivery of the baby:

- » Check for twin
- Oxytocin, IM, 10 units

Post-partum haemorrhage:

- » Rub up the uterus to expel clots from vagina.
- » Empty the bladder.
- Oxytocin, IV, 20 units in 1 000 mL Ringers-Lactate infused rapidly

As fluid replacement:

- Sodium chloride 0.9%, IV

If no response:

- Ergometrine, IM, 0.5 mg. (Doctor initiated)
 - Avoid ergometrine in hypertensive women unless haemorrhage is life threatening.
 - Repeat after 10–15 minutes if no response to first dose, while arranging referral.

If referral is delayed and if no response within 10–15 minutes after second dose of ergometrine:

- Misoprostol, sublingual, 400 mcg as a single dose. (Doctor initiated)

Rh negative mother

Administer to Rh-negative mother if baby is Rh-positive or baby's Rh group is not known

- Anti-D immunoglobulin, IM, 100 mcg, preferably within 72 hours but can be given up to 7 days after delivery.

Baby

See section 6.5: Care of the neonate

Observe mother and neonate closely for 1–2 hours before transfer to the postnatal ward.

Note for HIV positive patients:

- » Do not rupture the membranes unless it is essential.
- » Provide PMTCT – **See section 6.2.1: Care of HIV positive pregnant woman**
- » Avoid unnecessary episiotomy and other invasive procedures, to reduce the mother to child transmission of HIV.

Referral

- » Prolonged labour according to charting on partogram
- » Post-partum haemorrhage
- » Incomplete delivery of the placenta

- » Other complications of mother or baby

6.5 Care of the neonate

Drug treatment

Neonatal conjunctivitis prophylaxis:

- Chloramphenicol ophthalmic ointment 1%, applied routinely to each eye after birth.

Bleeding prophylaxis:

To prevent hypoprothrombinaemia

- Vitamin K, IM, 1 mg immediately after birth routinely

Neonate not breathing well:

After mother received morphine/pethidine up to 4 hours before birth:

- Naloxone, IM, 0.1 mg/kg

Routine immunisation EPI:

- BCG vaccination, intradermal, once neonate is stable.
- Polio vaccine, oral, once neonate is stable

No baby must be sent home without immunisation.

6.5.1 Sick neonate and neonatal emergencies

Description

Newborn infants can become ill very rapidly and signs of disease are often not readily appreciated unless specifically looked for. All of these conditions in newborns should be referred urgently.

The most common serious conditions are:

- » septicaemia or infections
- » respiratory conditions
- » congenital abnormalities
- » late effects of asphyxia

Possible serious bacterial infection or other severe abnormalities must be suspected when any of the following are found:

- » convulsions
- » fast breathing (more than 60 breaths per minute)
- » severe chest indrawing
- » nasal flaring or grunting respiration
- » bulging fontanelle
- » umbilical redness extending to the skin and draining pus
- » low or high temperature

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- » many or severe skin pustules
- » swollen eyes with pus draining from eye
- » lethargic or unconscious or less than normal movements
- » shallow or slow breathing
- » poor feeding
- » diarrhoea (obvious)
- » vomiting everything or bile-stained vomitus
- » abdominal distension or passing blood per rectum
- » pallor
- » jaundice within the first 24 hours of life

General measures

Keep the neonate warm, the axillary temperature should be 36.5–37°C.

- » This is best done by “Kangaroo Care” where the neonate is kept naked against the mother’s skin between her breasts inside her clothing.
- » Alternatively, use an incubator or heated cloths. Monitor temperature of baby once the temperature is normal.

Drug treatment

If baby’s tongue and lips are blue:

- Oxygen, using nasal catheter at 2 L/minute

If infection is suspected and jaundice has been excluded:

- Ceftriaxone, IM, 50 mg/kg into the lateral thigh

! CAUTION !

Do not administer calcium containing fluids, e.g. Ringer-lactate, within 48 hours of administering ceftriaxone.

Contra-indicated in neonatal jaundice.

Annotate dose and route of administration in referral letter.

Monitor blood glucose and exclude hypoglycaemia. If less than 2.6 mmol/L and baby able to suckle or take orally:

- » Breastfeed

or

- Dextrose 10%, oral

If unable to take orally consider nasogastric tube feeding or IV infusion.

Referral

Urgent

- » All newborns with jaundice on the first day or life or with pallor or with poor feeding
- » All other newborns with increasing, deep or persistent (more than 10 days) jaundice should be referred as soon as possible
- » All cases

If possible, always send mother with the child as well as any clinical notes.

6.5.2 Neonatal resuscitation

Be prepared!
Be at the delivery!
Check the equipment and emergency medicines!

Ask 3 questions to evaluate the infant:

1. Is the baby breathing adequately and not just gasping?
 2. Is the baby's heart rate (HR) above 100 beats per minute?
 3. Is the baby centrally pink, i.e. no central cyanosis.
- » If the answer to all three questions is "yes", the baby does not need resuscitation.
- » If the answer to any of the questions is "no", the baby needs resuscitation.

Assess the infant using the above 3 questions every 30 seconds during resuscitation.

- » If the baby is improved, then the intervention e.g. ventilation can be stopped and the response observed.
- » If the baby is not responding or getting worse – check that each step is being applied effectively. If so, continue to apply the intervention, whilst also adding the next step/intervention (see algorithm).

If the newborn response to resuscitation is inadequate once the ventilation and circulation are adequately supported the following steps should be carried out:

If the mother is known or suspected to have had narcotic pain relief:

- Naloxone, IV, 0.1 mg/kg

Check the blood glucose of the child.

If hypoglycaemia is present:

- Dextrose 10%, IV, 2.5–5 mL/kg

If no adequate response has occurred by this stage a person skilled in neonatal resuscitation should be consulted and the child transferred with ongoing resuscitation to a higher level of care.

Newborns requiring minimal resuscitation with prompt and complete response may be watched with their mothers. Newborns who, after resuscitation, are not completely normal should be referred to a higher level for care using transport with necessary support, e.g. oxygen, temperature control.

Consider discontinuation of resuscitation if the unsatisfactory response to resuscitation persists for > 20 minutes and underlying treatable conditions e.g. hypoglycaemia, pneumothorax, have been excluded; **or** > 10 minutes of unresponsive cardiac arrest (asystole); **or** > 20 minutes of unsustainable respiration.

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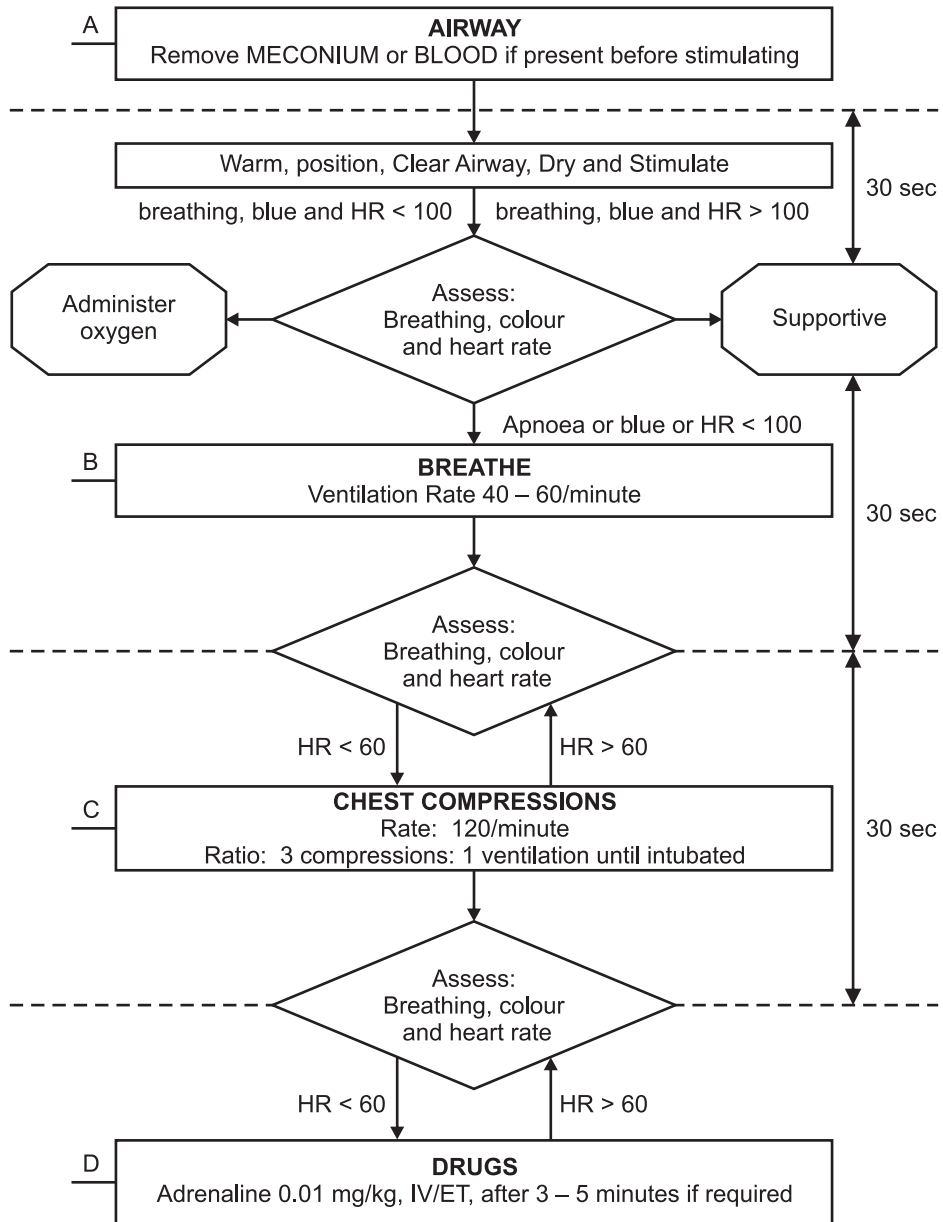
An unsatisfactory response to resuscitation includes:

- » a sustained slow heart rate, usually less than 60/minute or a progressive decrease in heart rate
- » episodes of cardiac arrest, with a progressively weaker response to chest compressions, positive pressure ventilation and medicines
- » a decreasing blood pressure, increasing acidosis, severe hypotonia with central cyanosis or intense pallor
- » apnoea or only abnormal and, irregular respiratory efforts (brain stem gasping)

Drugs used during Neonatal Resuscitation

Drug and dose	Indications	Effect
<ul style="list-style-type: none">• Adrenaline<ul style="list-style-type: none">○ IV, 0.01 mg/kg/dose (0.1 mL/kg of a 1:10 000 dilution)○ *ET, 0.03 mg/kg/dose (0.3 mL/kg of a 1:10 000 dilution)	<ul style="list-style-type: none">» asystole» heart rate <60/minute	<ul style="list-style-type: none">» ↑Heart rate» ↑Myocardial contractility» ↑Arterial pressure
<ul style="list-style-type: none">• Naloxone<ul style="list-style-type: none">○ ET*/IV/SC/IM, 0.1 mg/kg	<ul style="list-style-type: none">» maternal administration of opiates with apnoeic infant	<ul style="list-style-type: none">» Corrects apnoea and/or hypoventilation
<ul style="list-style-type: none">• Dextrose<ul style="list-style-type: none">○ IV, 2 mL/kg of 10% dextrose water (10% solution: draw up 4 ml of 50% dextrose water into a 20 ml syringe then draw up 16 mL water for injection – mix by agitating the syringe)	<ul style="list-style-type: none">» hypoglycaemia	<ul style="list-style-type: none">» Corrects hypoglycaemia

*ET = Endotracheal tube



6.6 Post partum care

Z39.2

6.6.1 Feeding options for HIV positive mother**Feeding during the first 6 months:**

- » Feeding choices need to be individualised based on patients' circumstances.
- » The feeding options for the first 6-months of life are exclusive breastfeeding or exclusive formula feeding. Breast feeding should be continued (ideally until 2 years of age) in infants who are known to be HIV infected (positive PCR test).
- » HIV may be transmitted via breast milk of HIV infected mothers.
- » For each mother, the Acceptability, Feasibility, Affordability, Safety and Sustainability criteria (AFASS) should be assessed and discussed, and the mother should be assisted to make the feeding choice that would be most appropriate for her individual situation.

Mixed feeding carries the highest risk of HIV transmission and should be discouraged.

6.6.2 Cracked nipples during breastfeeding

O92.1

Description

The areola and nipple are protected by the secretion of a lubricant from Montgomery's glands. Cracked nipples may lead to infection and mastitis.

Causes of cracked nipples include:

- » poor attachment
- » removing the baby from the breast before suction is broken

The four signs of good attachment are:

- » chin touching breast (or very close)
- » mouth wide open
- » lower lip turned outward
- » more areola visible above than below the mouth

General measures

- » Apply expressed breast milk to the nipples between feeds.
- » If too painful, express the milk and nurse the baby on the other breast until improvement.
- » Keep areola clean.

Referral

- » No improvement after 3 days

Gynaecology**6.7 Pregnancy, ectopic**

O00.9

Description

Pregnancy outside the uterus, usually presenting with the combination of:

- » missed menstruation
- » sudden lower abdominal pain
- » dizziness
- » shock
- » anaemia
- » urine pregnancy test usually positive
- » shoulder tip pain

Note:

Consider ectopic pregnancy in any young woman who complains of lower abdominal pain.

Referral

- » All suspected cases of ectopic pregnancy
- » Treat shock if indicated

6.8 Bleeding, vaginal

N93.9

Note:

Women should receive regular screening for cervical cancer after the age of 30 years.

6.8.1 Abnormal vaginal bleeding during fertile years

N92.0/N92.1

Description

Increased vaginal blood flow either in volume, duration and/or frequency, including menorrhagia or dysfunctional uterine bleeding.

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General measures

- » Assess current contraceptives used.
- » Exclude pregnancy complication or organic disease e.g. fibroids.

Drug treatment

- Combined oral contraceptive pill (levonorgestrel and ethinyl oestradiol) for 3–6 months
- Ibuprofen, oral, 200–400 mg 8 hourly with or after food as needed for 2–3 days
Ibuprofen may reduce blood loss in menorrhagia associated with:
 - intrauterine contraceptive device (IUCD)
 - chronic salpingitis (See chapter 12: Sexually transmitted infections)

If blood loss has been severe or there are signs of anaemia:

- Ferrous sulphate compound BPC, oral, 170 mg three times daily after food.
 - Continue ferrous sulphate for 3 months until haemoglobin has normalised.

Referral

- » No improvement
- » Girls less than 12 years with vaginal bleeding before the development of their secondary sexual characteristics
- » For investigation of other causes such as:
 - sexual abuse
 - foreign bodies
 - tumours of the genital tract
- » Severe anaemia

6.8.2 Bleeding, post-menopausal

N95.0

Description

Vaginal bleeding following the cessation of menstruation for 1 year.

Note:

If bleeding profuse stabilise before referral.

Referral

- » All cases, to exclude underlying malignancy and other pathology

6.9 Dysmenorrhoea

N94.6

Description

Pain associated with menstrual cycles. In primary dysmenorrhoea there is no known cause. Secondary dysmenorrhoea has an organic cause.

General measures

- » Advise and reassure women with primary dysmenorrhoea about the nature of the condition.
- » Encourage patient to carry on with normal everyday activities.

Drug treatment

- Ibuprofen, oral, 400 mg 8 hourly with or after food as needed for 2–3 days

Treat for pelvic infection when present.

Referral

- » Poor response to treatment
- » If an organic cause is suspected, e.g. fibroids

6.10 Hormone replacement therapy**Indications:**

- » Menopausal symptoms, e.g. hot flushes
- » Urogenital atrophy
- » Osteoporosis prevention and treatment
- » Oophorectomy in pre-menopausal woman

For menopausal women, treatment should not be longer than 5 years.

A risk benefit assessment should be individualised in all patients.

Contra-indications:

- | | |
|---------------------------------|--------------------------------|
| » endometrial cancer | » undiagnosed vaginal bleeding |
| » breast cancer | » recent myocardial infarction |
| » previous deep vein thrombosis | » liver disease |
| » porphyria | » uncontrolled hypertension |

Drug treatment (Doctor initiated)**Women with intact uterus per cycle:**

- Oestradiol, oral, 0.5–1 mg daily.
or
Conjugated oestrogens, oral, 0.3 mg–0.625 mg daily.

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Obstetrics and gynaecology

and

- Medroxyprogesterone, oral 5 mg

Women with no uterus (post-hysterectomy):

- Oestradiol, oral, 0.5–1 mg daily
- or
- Conjugated oestrogens, oral, 0.3 mg–0.625 mg daily

Referral

- » Annually, for re-evaluation

6.11 Ulcers, vaginal

(See Chapter 12: Sexually transmitted infections)

6.12 Vaginal discharge/lower abdominal pain in women

(See Chapter 12: Sexually transmitted infections)

A54.9

Chapter 7: Family planning

- 7.1 Contraception, hormonal**
 - 7.1.1 Contraceptives, injectable**
 - 7.1.2 Contraceptive, oral**
- 7.2 Contraception, intrauterine device (IUCD)**
- 7.3 Contraception, barrier methods**
- 7.4 Contraception and HIV and AIDS**
- 7.5 Contraception, missed pills**
- 7.6 Contraception, emergency**

The appropriate choice of family planning method should be decided on by the woman in consultation with the health care professional taking into consideration safety, efficacy, acceptability and access. A complete medical and sexual history must be obtained and an appropriate physical examination performed to identify potential risks to the individual's health.

Exclude pregnancy before commencing contraception.

7.1 Contraception, hormonal

! CAUTION !

Hormonal contraception does not prevent sexually transmitted infections, including HIV. Additional use of condoms is recommended if there is a risk of exposure to infection.

7.1.1 Contraceptives, injectable

Z30.8

Injectable contraceptives are recommended:

- » for women who prefer injectable contraception, or
- » in whom oestrogen containing contraceptives are contraindicated or adherence is likely to be a problem, e.g.:
 - mental retardation
 - cardiac or renal disease
 - women with epilepsy, on anti-TB drugs

Injectable contraceptives are not suitable if pregnancy planned within a year.

- Medroxyprogesterone acetate (long-acting), IM, 150 mg, 12 weekly
or
Norethisterone enanthate, IM, 200 mg, 8 weekly

Note:

It is not necessary to shorten the dosage interval for women taking concomitant enzyme-inducing drugs, e.g. rifampicin, antiretrovirals and anticonvulsants.

7.1.2 Contraceptives, oral

Z30.8

Oral contraceptives are recommended for highly motivated, women where good, reliable adherence is more likely.

Monophasic: progestogen only tablets

Indicated for breastfeeding patients not willing to use injectable contraceptives.

- Levonorgestrel, oral, 0.03 mg daily

Contraindications include:

- » abnormal uterine bleeding of unknown cause
- » myocardial infarction or stroke
- » liver disease
- » cancer of the breast or genital tract
- » known or suspected pregnancy

Monophasic: combination of progestogen and oestrogen in each tablet

Formula 1:

- Levonorgestrel/ethinyl oestradiol 0.15/0.03 mg, oral

Formula 2:

- Norgestrel/ethinyl oestradiol 0.5/0.05 mg, oral

Triphasic preparations: combination of progestogen and oestrogen

- Levonorgestrel/ethinyl oestradiol, oral
 - 6 tablets levonorgestrel 0.05 mg and ethinyl oestradiol 0.03 mg
 - 5 tablets levonorgestrel 0.075 mg and ethinyl oestradiol 0.04 mg
 - 10 tablets levonorgestrel 0.125 mg and ethinyl oestradiol 0.03 mg
 - 7 tablets placebo

Combination preparations are contraindicated in certain conditions. Consult the package insert or pharmacist in this regard. Examples of contraindications include:

- » heart disease
- » liver disease
- » thromboembolism
- » certain cancers

7.2 Contraception, intrauterine device (IUCD)

Z30.1

A medical examination must be done prior to insertion of an IUCD to exclude a contraindication.

HIV infection is not a contraindication to the use of an IUCD and may be indicated in patients on ARVs.

- 380 mm² copper – standard type

Use according to manufacturers instructions.

!CAUTION!

IUCDs do not prevent sexually transmitted infections, including HIV. Additional use of condoms is recommended if at risk of exposure to infection.

7.3 Contraception, barrier methods

Z30.9

Barrier methods are the optimum means to prevent STI and HIV transmission. Barrier methods are recommended in all individuals not in a long term monogamous relationship or where either of the partners are known to have a STI, including HIV.

- Condoms, male and female

7.4 Contraception and HIV and AIDS

The selection of contraception should always be done in consultation with the HIV practitioner as there may be drug interactions leading to reduced efficacy and other risks.

7.5 Contraception, missed pills

Missing active pills and extending hormone free interval leads to decreased contraceptive efficacy.

Scenario	Action
One active pill forgotten	Take pill as soon as remembered and take next one at usual time
Two active pills forgotten	Take last missed pill as soon as remembered and next one at usual time. Use condoms or abstinence for the following 7 days.
Two or more pills forgotten in the last 7 active pills of the pack	Omit the inactive tablets and immediately start the first active pill of the next pack.
Two or more pills forgotten during the first 7 active pills of the pack and sexual intercourse has occurred	Give emergency contraception, restart active pills 12 hrs later and advise additional precautions for the following 7 days

7.6 Contraception, emergency

Z30.9

! CAUTION !

Tablets must be taken as soon as possible, preferably within 72 hours of unprotected intercourse and not more than 5 days later.

Chapter 7**Family planning**

- Levonorgestrel 0.75 mg, oral, 2 tablets as a single dose as soon as possible after unprotected intercourse.

Or if unavailable:

- Norgestrel/ethinyl oestradiol 0.5/0.05 mg, oral, 2 tablets as soon as possible after unprotected intercourse, followed by 2 tablets 12 hours later.

Chapter 8: Kidney and urological disorders

Kidney section

- 8.1 Chronic kidney disease (CKD)**
- 8.2 Acute renal failure (ARF)**
- 8.3 Glomerular disease (GN)**
 - 8.3.1 Glomerular disease – Nephritic syndrome**
 - 8.3.2 Glomerular disease – Nephrotic syndrome**
- 8.4 Urinary tract infection**
- 8.5 Prostatitis**

Urology section

- 8.6 Haematuria**
- 8.7 Benign prostatic hyperplasia**
- 8.8 Prostate cancer**
- 8.9 Enuresis**
- 8.10 Impotence**
- 8.11 Renal calculi**

8.1 Chronic kidney disease (CKD)

N18.9

Description

Structural or functional kidney damage present for > 3 months, with or without a decreased glomerular filtration rate (GFR).

Markers of kidney damage include:

- » abnormalities in urine e.g. proteinuria or haematuria,
- » abnormalities in blood e.g. uraemia,
- » abnormalities in imaging tests e.g. small kidneys on ultrasound,
- » abnormalities on pathological specimens e.g. glomerular disease on renal biopsy.

The creatinine clearance (CrCl) approximates GFR and may be estimated by the following formula:

AdultsMales:

$$\text{eGFR (mL/minute)} = \frac{(140 - \text{age}) \times \text{weight (kg)}}{\text{serum Cr (micromol/L)}}$$

Females:

Multiply estimated CrCl by 0.85

Children

$$\text{eGFR (mL/minute)} = \frac{K^* \times \text{height (cm)}}{\text{serum Cr (micromol/L)}}$$

Where *K is:

infants 0–18 months =	40
girls 2–16 years =	49
boys 2–13 years =	49
boys 13–16 years =	60

Common causes of chronic kidney disease include:

- » hypertension
- » diabetes mellitus
- » glomerular diseases

Chronic kidney disease can be entirely asymptomatic BUT early detection and management can improve the outcome of this condition.

Chapter 8 Kidney and urological disorders

Treatment and prevention strategies according to stages

Estimation of the degree of kidney damage and staging is important to guide management and further prevent adverse outcomes of chronic kidney disease.

Note:

Adults with early CKD i.e. stages 0–3 can all be managed at primary care level **once** the cause and plan for care has been established.

All children should be referred for investigation and initial management.

Staging of kidney disease is essential for adequate management of CKD

CKD Stage. Glomerular filtration rate (mL/minute/1.73m ²)	Description	Action Includes actions from preceding stages
Stage 0 or GFR > 90	At increased risk for CKD, e.g.: » diabetes mellitus » hypertension » glomerular disease » and HIV	» Screening for advanced CKD and CVD disease » CKD risk reduction i.e. treat hypertension, diabetes and HIV
Stage 1 or GFR > 90	Kidney damage with normal GFR	» Diagnose and treat comorbid conditions See for Stage 0
Stage 2 or GFR 60–89	Kidney damage with mild ↓ GFR	» Refer to determine cause and develop care plan. » While on the care plan, monitor the GFR in these patients and make sure kidney function is not worsening rapidly and watch for stage 3
Stage 3 or GFR 30–59	Moderate ↓ GFR	Refer
Stage 4 or GFR 15–29	Severe ↓ GFR	Refer
Stage 5 or GFR < 15	Kidney failure requiring renal replacement therapy End stage renal disease	Refer

GFR should be done yearly in all patients at increased risk.

Chapter 8

Kidney and urological disorders

General measures

- » Reduce salt intake.
- » Low protein diet is indicated in the presence of CKD stage 4 and 5.
- » Reduce cardiovascular disease risk factors – See section 4.1: Prevention of ischaemic heart disease and atherosclerosis.

Drug treatment

- » Treat underlying conditions.
- » Decrease significant proteinuria, if present.
 - Significant proteinuria = spot urine protein creatinine ratio of > 0.1 g/mmol or ACR (albumin-creatinine ratio) > 100 g/mol, confirm as positive if raised on at least 2 of 3 occasions, in the absence of infection, cardiac failure and menstruation.

See section 9.7.2: Diabetic nephropathy

Proteinuria

- » In established chronic kidney disease, decrease proteinuria, irrespective of presence or absence of systemic hypertension.
- » Monitor renal function and potassium especially with impaired renal function.
- » If volume depleted, first rehydrate before commencing ACE-inhibitor.
- » ACE-inhibitor are contraindicated in:
 - hyperkalaemia
 - known allergy to ACE-inhibitor
- » Begin with low dosage of ACE-inhibitor and titrate up ensuring blood pressure remains in normal range and no side effects are present, up to the maximum dose or until the proteinuria disappears – whichever comes first.

Adults

- ACE inhibitor, e.g. enalapril, oral, 10–20 mg 12 hourly.

If ACE inhibitor cannot be used, refer.

Hyperlipidaemia

If hyperlipidaemia is a co-existent risk factor manage according to section 4.1: Prevention of ischaemic heart disease and atherosclerosis

Diabetes mellitus

- » In diabetics, optimise control according to section 9.6: Diabetes mellitus type 2, in adults
- » Avoid oral hypoglycaemics if GFR is < 60 because of the risk of lactic acidosis with metformin and prolonged hypoglycaemia with long acting sulphonylureas.

Hypertension

Treat if present.

See Section 4.7: Hypertension

Chapter 8 Kidney and urological disorders

Fluid overload

Treat fluid overload if present and refer.

Adults

- Furosemide, slow IV or oral, 12 hourly.
 - Adults: 40–80 mg
 - If poor response, repeat after 1 hour.
 - Do not give IV fluids – use heparin lock or similar IV access.

Children

- Furosemide, IV, 1 mg/kg immediately.
 - Do not put up a drip or run in any IV fluids

Weight kg	Dose mg	Injection 10 mg/mL	Age Months/years
≥ 3.5–5 kg	4 mg	0.4 mL	≥1–3 months
≥ 5–7 kg	6 mg	0.6 mL	≥ 3–6 months
≥ 7–9 kg	8 mg	0.8 mL	≥ 6–12 months
≥ 9– 11 kg	10 mg	1 mL	≥12–18 months
≥ 11–14 kg	12 mg	1.2 mL	≥18 months–3 years
≥ 14–17.5 kg	15 mg	1.5 mL	≥ 3–5 years
≥ 17.5–25 kg	20 mg	2 mL	≥ 5–7 years
≥ 25–35 kg	30 mg	3 mL	≥ 7–11 years
≥ 35 kg and above	40 mg	4 mL	≥ 11 years and adults

Note:

Exclude heart failure in patients with persistent pedal oedema.

Referral

- » All cases of suspected chronic kidney disease stages 3–5 for assessment and planning
- » All children
- » All cases of CKD with:
 - haematuria,
 - proteinuria
 - raised blood urea or creatinine initially for assessment and planning
- » Uncontrolled hypertension/fluid overload
- » CKD associated with hyperlipidaemia
- » No resolution of proteinuria with ACE-I therapy

Patients who might qualify for dialysis and transplantation or who have complications should be referred early to ensure improved outcome and survival on dialysis, i.e. as soon as GFR drops below 30 mL/min/1.73 m², or as soon as diagnosis is made/suspected.

8.2 Acute renal failure (ARF)

N17.9

Description

This is (usually) reversible kidney failure, most commonly as a result of:

- » dehydration and fluid loss
- » drugs/toxins,
- » urinary tract obstruction, and
- » acute glomerulonephritis in older children

It is often recognised by:

- » fluid overload
- » decreased or no urine output
- » blood result abnormalities of urea, creatinine or electrolytes.
- » convulsions in children

General measures

- » Give oxygen, and nurse in semi-Fowlers' position if patient has respiratory distress.
Early referral is essential.
- » If fluid overloaded:
 - stop all fluids oral and give no IV fluids
 - stop intake of all salt and potassium containing foods and fluids
- » If not overloaded, dehydrated nor shocked:
 - no IV fluids
 - restrict oral fluid intake to 10 mL/kg/day daily plus visible fluid losses
 - arrange referral in the meantime
- » If dehydrated or shocked:
 - treat immediately as in shock section.

Drug treatment**Children**

Under 6 years of age: > 120 mmHg systolic BP or 90 mmHg diastolic BP
6–15 years: > 130 mmHg systolic BP or 95 mmHg diastolic BP

- Nifedipine, oral, 0.25–0.5 mg/kg squirted into mouth.
 - Withdraw contents of 5 mg capsule with a 1 mL syringe:
 - 10 to 25 kg: 2.5 mg
 - 25 to 50 kg 5 mg
 - over 50 kg: 10 mg

Chapter 8 **Kidney and urological disorders**

If there is respiratory distress (rapid respiration, chest indrawing):

- Furosemide, IV, 1 mg/kg immediately.
 - Do not put up a drip or run in any IV fluids

Weight kg	Dose mg	Injection 10 mg/mL	Age Months/years
≥ 3.5–5 kg	4 mg	0.4 mL	≥1–3 months
≥ 5–7 kg	6 mg	0.6 mL	≥ 3–6 months
≥ 7–9 kg	8 mg	0.8 mL	≥ 6–12 months
≥ 9–11 kg	10 mg	1 mL	≥12–18 months
≥ 11–14 kg	12 mg	1.2 mL	≥18 months–3 years
≥ 14–17.5 kg	15 mg	1.5 mL	≥ 3–5 years
≥ 17.5–25 kg	20 mg	2 mL	≥ 5–7 years
≥ 25–35 kg	30 mg	3 mL	≥ 7–11 years
≥ 35 kg and above	40 mg	4 mL	≥ 11 years and adults

Adults

If diastolic blood pressure is greater than 100 mmHg or systolic blood pressure is above 150 mmHg:

- Amlodipine, oral, 5 mg as a single dose.

If there is respiratory distress (rapid respiration, orthopnoea):

- Furosemide, as an IV bolus, 80 mg.
 - Do not put up a drip **and do not** give a fluid infusion.

Referral

- » All cases

Where adequate laboratory and clinical resources exists, management according to the hospital level guidelines may be instituted

8.3 Glomerular Diseases (GN)

N00–N08

Description

Glomerular disease may be a result of a primary condition of the kidney, or may be secondary to a systemic disorder. Can present with any, or a combination of the following:

- » proteinuria
- » reduced GFR (and its effects)
- » haematuria
- » hypertension and oedema.

Approach to care is outlined under the syndromes which follow.

Referral

- » Unexplained haematuria on two to three consecutive visits
- » Proteinuria > 1 g/24 hours or PCR > 0.1 g/mmol or ACR > 100 g/mol
- » Nephritic syndrome
- » Nephrotic syndrome
- » Chronic Kidney Disease

Note:

Where facilities are available investigation should be done e.g. urine and electrolytes calculate the GFR or PCR

8.3.1 Glomerular disease - Nephritic syndrome

N01/N03

Description

Presents with a varied combination of:

- » painless macroscopic turbid, bloody or brownish urine
- » peripheral and facial oedema
- » pulmonary oedema (circulatory overload)
- » hypertension or hypertensive encephalopathy with impaired level of consciousness or convulsions
- » little or no urine excretion

In children this is most commonly due to acute post streptococcal glomerulonephritis, but not exclusively so.

General measures

- » Give oxygen, and nurse in semi-Fowlers position if patient has respiratory distress.
- » Early referral essential especially if patient has had a hypertensive episode or fluid overload.
- » If fluid overloaded:
 - stop all fluids oral and give no IV fluids
 - stop intake of all salt and potassium containing foods and fluids
- » If not overloaded, dehydrated nor shocked:
 - no IV fluids
 - restrict oral fluid intake to 10 mL/kg/day daily plus visible fluid losses
 - arrange referral in the meantime
- » If dehydrated or shocked:
 - treat immediately as in shock section.

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Drug treatment

Children

Fluid overload (rapid respiration, chest indrawing)

- Furosemide, IV, 1 mg/kg immediately.
 - Do not put up a drip or run in any IV fluids

Weight kg	Dose mg	Injection 10 mg/mL	Age Months/years
≥ 3.5–5 kg	4 mg	0.4 mL	≥1–3 months
≥ 5–7 kg	6 mg	0.6 mL	≥ 3–6 months
≥ 7–9 kg	8 mg	0.8 mL	≥ 6–12 months
≥ 9–11 kg	10 mg	1 mL	≥12–18 months
≥ 11–14 kg	12 mg	1.2 mL	≥18 months–3 years
≥ 14–17.5 kg	15 mg	1.5 mL	≥ 3–5 years
≥ 17.5–25 kg	20 mg	2 mL	≥ 5–7 years
≥ 25–35 kg	30 mg	3 mL	≥ 7–11 years
≥ 35 kg and above	40 mg	4 mL	≥ 11 years and adults

If hypertension

Under 6 years of age: > 120 mmHg systolic BP or 90 mmHg diastolic BP
6–15 years: > 130 mmHg systolic BP or 95 mmHg diastolic BP

- Nifedipine, oral, 0.25–0.5 mg/kg squirted into mouth.
 - Withdraw contents of 5 mg capsule with a 1 mL syringe:
 - 10 to 25 kg: 2.5 mg
 - 25 to 50 kg: 5 mg
 - over 50 kg: 10 mg

Adults

Fluid overload

- Furosemide, as an IV bolus, 80 mg.
 - Do not put up a drip **and do not** give a fluid infusion

If hypertension

If diastolic blood pressure is greater than 100 mmHg or systolic blood pressure is above 150 mmHg:

- Amlodipine, oral, 5 mg as a single dose

Referral

- » All cases

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The definitive treatment of nephritis depends on the cause – an assumption of acute post streptococcal nephritis or any other disease cannot be made without specific investigation which may include renal biopsy.

8.3.2 Glomerular disease - Nephrotic syndrome

N04

Description

Glomerular disease characterised by:

- » severe proteinuria defined as:
 - children: ≥ 3 + proteinuria on dipstick test, or urine protein: creatinine ratio (PCR) ≥ 0.2 g/mmol on spot urine sample
 - adults: 2.5 g/day, or greater as determined by a spot urine protein measurement, i.e. protein creatinine ratio (PCR)
- » and resultant 'classical' clinical picture (not always present) which includes:
 - oedema and
 - hypoalbuminaemia and
 - hyperlipidaemia.

Accurate diagnosis requires a renal biopsy.

Drug treatment

The management of glomerular disease depends on the type/cause of the disease and is individualised guided by a specialist according to the biopsy result.

Referral

- » All cases

8.4 Urinary tract infection (UTI)

N39.0

Description

Urinary tract infections may involve the upper or lower urinary tract. Infections may be complicated or uncomplicated.

Uncomplicated cystitis is a lower UTI in a non-pregnant woman of reproductive age and who has a normal urinary tract.

All other UTIs should be regarded as complicated.

Differentiation of upper from lower urinary tract infection in young children is not possible on clinical grounds.

Upper UTI is a more serious condition and requires longer and sometimes intravenous treatment. Features of upper UTI (pyelonephritis) that may be

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detected in adults and adolescents include:

- » flank pain/tenderness
- » temperature 38°C or higher
- » other features of sepsis, i.e.:
 - tachypnoea,
 - tachycardia
 - confusion, and
 - hypotension
- » vomiting

In complicated, recurrent or upper UTIs, urine should be sent for microscopy, culture and sensitivity.

Features of urinary tract infections in children

Signs and symptoms are related to the age of the child and are often non-specific.

Uncomplicated urinary tract infections may cause very few signs and symptoms.

Complicated infections may present with a wide range of signs and symptoms.

Neonates may present with:

- | | |
|---------------------|----------------------|
| » fever | » hypothermia |
| » poor feeding | » sepsis |
| » vomiting | » prolonged jaundice |
| » failure to thrive | » renal failure |

Infants and children may present with:

- | | |
|---------------------------|-----------------------|
| » failure to thrive fever | » frequency |
| » persisting fever | » dysuria |
| » abdominal pain | » enuresis or urgency |
| » diarrhoea | |

In any child with fever of unknown origin, the urine must be examined.

In children the diagnosis must be confirmed.

If a bag specimen reveals the following, a urine specimen must be collected aseptically for culture and sensitivity:

- » positive leukocytes or nitrites on dipsticks in freshly passed urine
- » motile bacilli and increased leukocytes or leukocyte casts on urine microscopy

Urine dipstick should be performed on a fresh urine specimen.

- » If leucocytes and nitrites are not present, a urinary tract infection is highly unlikely.
- » If leucocytes are present on a second specimen, a urinary tract infection must be suspected.

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General measures

- » Women with recurrent UTIs, should be advised to:
 - void bladder after intercourse and before retiring at night
 - not postpone voiding when urge to micturate occurs
 - change from use of diaphragm to an alternative type of contraception

Drug treatment

Empirical treatment is indicated only if:

- » positive leucocytes and nitrites on freshly passed urine, or
- » leucocytes or nitrites with symptoms of UTI, or
- » systemic signs and symptoms.

Alkalinising agents are not advised.

Uncomplicated cystitis

Adults:

- Ciprofloxacin, oral, 500 mg as single dose

Complicated cystitis

Adults:

- Ciprofloxacin, oral, 500 mg 12 hourly for 7 days

For pregnant women and adolescents:

- Amoxicillin/clavulanic acid 250/125 mg, oral, 1 tablet 8 hourly for 7 days

Children who do not meet criteria for urgent referral:

- Amoxicillin/clavulanic acid, oral, 12.5–20 mg/kg of amoxicillin component, 8 hourly for 5 days

Weight kg	Dose mg	Use one of the following:			Age Months/ years
		Syrup 125/ 31.25 mg per 5 mL	Syrup 250/ 62.5 mg per 5 mL	Tablet 500/125 mg	
≥ 3.5–5 kg	75/18.75 mg	3 mL	1.5 mL	–	≥ 1–3 months
≥ 5–7 kg	100/25 mg	4 mL	2 mL	–	≥ 3–6 months
≥ 7–9 kg	125/31.25 mg	5 mL	2.5 mL	–	≥ 6–12 months
≥ 9–11 kg	150/37.5 mg	6 mL	3 mL	–	≥ 12–18 months
≥ 11–14 kg	187.5/46.9	7.5 mL	4 mL	–	≥ 8 months–3 years
≥ 14–25 kg	250/62.5 mg	10 mL	5 mL	–	≥ 3–7 years
≥ 25 kg and above	250/125 mg	–	–	1 tablet	≥ 7 years and adults

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Acute pyelonephritis

Outpatient therapy is only indicated for women of reproductive age, who do not have any of the danger signs – see referral criteria. All other patients should be referred.

- Ciprofloxacin, oral, 500 mg 12 hourly for 7–10 days

It is essential to give at least a 7-day course of therapy.

Referral

Urgent

- » Acute pyelonephritis with:
 - vomiting
 - sepsis
 - diabetes mellitus
- » Acute pyelonephritis in:
 - pregnant women
 - women beyond reproductive age
 - men
- » Children over 3 months who appear ill.
- » Children less than 3 months of age with any UTI.

Ill patients awaiting transfer

- » Ensure adequate hydration with intravenous fluids
- Ceftriaxone, **IM**, 50–80 mg/kg/dose immediately as a single dose

Weight kg	Dose mg	Use one of the following injections mixed with water for injection (WFI):			Age Months/ years
		250 mg WFI 2 mL	500 mg WFI 2 mL	1 000 mg WFI 3.5 mL	
≥ 2–2.5 kg	125 mg	1 mL	0.5 mL	–	
≥ 2.5–3.5 kg	200 mg	1.6 mL	0.8 mL	–	Birth–1 month
≥ 3.5–5.5 kg	250 mg	2 mL	1 mL	–	≥ 1–3 months
≥ 5–7 kg	375 mg	3 mL	1.5 mL	–	≥ 3–6 months
≥ 7–9 kg	500 mg	4 mL	2 mL	–	≥ 6–12 months
≥ 9–11 kg	625 mg	5 mL	2.5 mL	–	≥ 12–18 months
≥ 11–14 kg	750 mg	6 mL	3 mL	–	≥ 18 months–3 years
≥ 14–17.5 kg	1 000 mg	–	4 mL	3.5 mL	≥ 3–5 years
≥ 17.5 kg and above	1 000 mg	–	4 mL	3.5 mL	≥ 5 years and adult

! CAUTION !

Do not administer calcium containing fluids, e.g. Ringer-lactate, within 48 hours of administering ceftriaxone.

Contra-indicated in neonatal jaundice.

Annotate dose and route of administration in referral letter.

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Non-urgent

- » All children for urinary tract investigations after completion of treatment
- » No response to treatment.
- » UTI more than 3 times within a one-year period in women, and more than 1 time for men
- » Recurrent UTI in children for assessment and consideration of prophylaxis

8.5 Prostatitis

N41.0

Description

Infection of the prostate caused by urinary or STI pathogens.

Clinical features include:

- » perineal, sacral or suprapubic pain
- » dysuria and frequency
- » varying degrees of obstructive symptoms which may lead to urinary retention
- » sometimes fever
- » acutely tender prostate on rectal examination

The condition may be chronic, bacterial or non-bacterial, the latter usually being assessed when there is failure to respond to antibiotics.

Drug treatment

Acute bacterial prostatitis

In men < 35 years or if there are features of associated urethritis (STI regimen):

- Cefixime, oral, 400mg as a single dose

Followed by:

- Doxycycline, oral, 100 mg 12 hourly for 7 days

In men > 35 years or if there is associated cystitis:

- Ciprofloxacin, oral, 500 mg 12 hourly for 14 days

Referral

- » No response to treatment
- » Urinary retention
- » High fever
- » Chronic/relapsing prostatitis

8.6 Haematuria

R31

Description

Bleeding from the urinary tract, which can be from the kidneys, collecting system, bladder, prostate and urethra.

Glomerular disease is suggested if proteinuria is present as well as casts on routine microscopy.

Schistosomiasis (bilharzia) is a common cause of haematuria. **Exclude schistosomiasis.**

When haematuria is accompanied by colicky pain a kidney stone should be excluded.

Note:

The presence of blood on urine test strips does not indicate infection and should be investigated as above.

Drug Treatment

If evidence of Schistosomiasis – treat as in Section 10.13: Schistosomiasis

If symptoms of UTI and leucocytes and nitrite positive in urine – treat as UTI

If Haematuria does not resolve rapidly after treatment referral for formal investigation will be required, i.e. next 48 hours.

Referral

- » All cases not associated with schistosomiasis or UTI
- » All cases not responding to specific drug treatment

8.7 Benign prostatic hyperplasia

N40

Description

Benign prostatic hyperplasia is a noncancerous (benign) growth of the prostate gland.

May be associated with both obstructive (weak, intermittent stream and urinary hesitancy) and irritative (frequency, nocturia and urgency) voiding symptoms.

Digital rectal examination reveals a uniform enlargement of the prostate.

Urinary retention with a distended bladder may be present in the absence of severe symptoms, therefore it is important to palpate for an enlarged bladder during examination.

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Kidney and urological disorders

General measures

Annual follow-up with digital rectal examination (DRE).

For patients presenting with urinary retention, insert a urethral catheter as a temporary measure while patient is transferred to hospital

Remove drugs that prevent urinary outflow e.g. tricyclics and neuroleptics.

Referral

- » All patients with suspected BPH

8.8 Prostate cancer

D29.1

Description

Usually occurs in men over 50 years and is most often asymptomatic.

Systemic symptoms, i.e. weight loss, bone pain, etc. occurs in 20% of patients.

Obstructive voiding symptoms and urinary retention are uncommon.

The prostate gland is hard and may be nodular on digital rectal examination.

As the axial skeleton is the most common site of metastases, patients may present with back pain or pathological fractures.

Lymph node metastases can lead to lower limb lymphoedema.

Serum prostate specific antigen (PSA) is generally elevated and may be markedly so in metastatic disease.

Referral

- » All patients with suspected cancer

8.9 Enuresis

R32

Description

Enuresis is bedwetting after the age of 5 years.

It is a benign condition which mostly resolves spontaneously.

It is important, however, to differentiate between nocturnal enuresis and enuresis during daytime with associated bladder dysfunction.

Secondary causes of enuresis include:

- » diabetes mellitus
- » urinary tract infection
- » physical or emotional trauma

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Note:

Clinical evaluation should attempt to exclude the above conditions.
Urine examination should be done on all patients.

General measures

- » Motivate, counsel and reassure child and parents.
- » Advise against punishment and scolding.
- » Spread fluid intake throughout the day.
- » Nappies should never be used as this will lower the child's self esteem.

Referral

- » Suspected underlying systemic illness or chronic kidney disease.
- » Persistent enuresis in a child 8 years or older.
- » Diurnal enuresis

8.10 Impotence

N48.4/F52.2

Description

The inability to attain and maintain an erect penis with sufficient rigidity for vaginal penetration. Organic causes include neurogenic, vasculogenic, endocrinological as well as many systemic diseases and medications.

General measures

- » Thorough medical and psychosexual history
- » Physical examination should rule out gynaecomastia, testicular atrophy or penile abnormalities.
- » Consider the removal of drugs that may be associated with the problem.
- » A change in lifestyle or medications may resolve the problem, e.g. advise cessation of smoking and alcohol abuse.

Drug treatment

- » Treat the underlying condition.

8.11 Renal calculi

N20.2

Description

This is a kidney stone or calculus which has formed in the renal tract i.e. pelvis, ureters or bladder as a result of urine which is supersaturated with respect to a stone-forming salt.

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Clinical features of obstructing urinary stones may include:

- » sudden onset of acute colic, localized to the flank, causing the patient to move constantly.
- » nausea and vomiting
- » referred pain to the scrotum or labium on the same side as the stone moves down the ureter

Urinalysis usually reveals microscopic or macroscopic haematuria.

General measures

- » Ensure adequate hydration.

Drug treatment

Adults:

Analgesia for pain, if needed:

- Morphine, 10–15 mg, IM/slow IV as a single dose and refer.

Referral

- » All patients