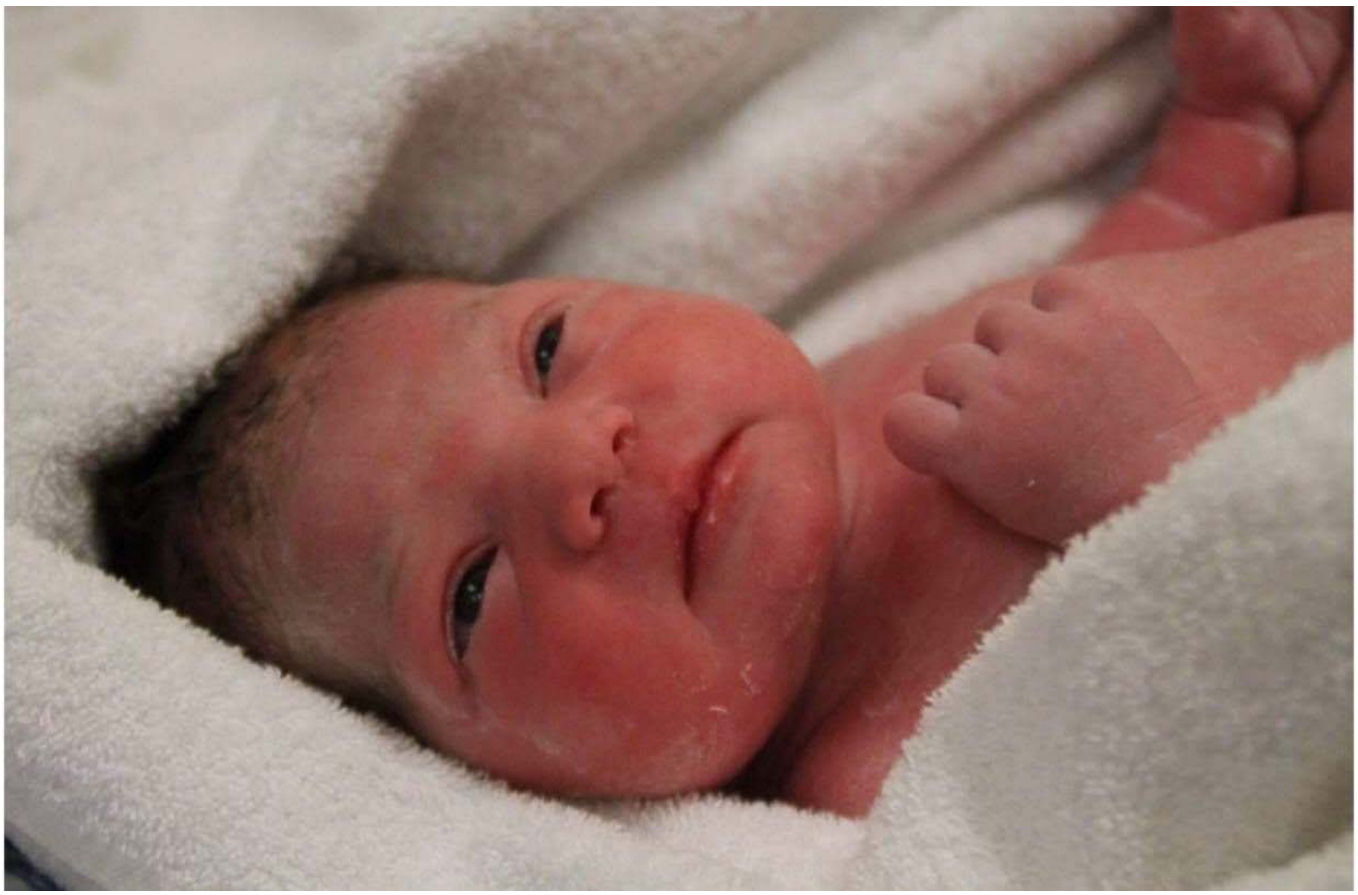
Government of Western Australia
South Metropolitan Health Service
Rockingham Peel Group

Antenatal Shared Care Guidelines

Information for General Practice Obstetricians, General Practitioners and Endorsed Midwives



Rockingham Peel Group (RkPG)

Developed by: Obstetric and Midwifery team RGH

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V1	08/02/2019	Developed	Obstetric and Midwifery team

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Introduction

The aim of this guideline is to provide clear guidelines for General Practice Obstetricians (GPO), General Practitioner's (GP) and Endorsed Midwives (EM) involved in the shared care of antenatal women within the Rockingham General Hospital (RGH) catchment area.

These guidelines are available on the RGH website www.rkpg.health.wa.gov.au under GPs within the "For Health Professionals" section.

Models of Care

Maternity Shared care

- The decision to enter into a shared care arrangement is a joint decision made by the woman, her GPO/EM or GP and the obstetric team at RGH, all of whom share responsibility.
- Shared care automatically implies that the responsibility for the health of the woman and her baby is shared

Public patients

- Public patient women can choose to access maternity services at RGH as a public patient through shared care arrangements with community GP's, GP Obstetricians and midwives.

Public patients

- Women can elect to be a private patient by activating their private health insurance during their stay at RGH, however there is no provision for patients to book for care at RGH under a private obstetrician.

National Woman held Pregnancy Record

- The aim of the NWHPR is to facilitate women's participation in their care and communication. It aims to promote early and appropriate use of antenatal services, particularly amongst disadvantaged groups.
- **The NWHPR must be used for all women receiving pregnancy care and referred to RGH for birthing**.
- The NWHPR is provided by RGH when the patient shares care with a GP only. In all other cases, the GPO or EM provides the NWHPR to the women at the 18 – 22 week visit.
- NWHPR are available, free of charge to general practices providing antenatal care to women in the community. The practice manager can contact the Maternity ward clerk on 9599 4740 to organise collection of these documents.
- Information is to be recorded in the NWHPR at every visit. Documentation must be sufficient to meet the care provider's duty of care in diagnostic and treatment decisions.
- **All pathology and ultrasound results that are collected in the community are to be attached or included in the NWHPR**
- All health professionals involved in a woman's care during pregnancy are to document in the National Woman Held Pregnancy Health Record (NWHPHR) at each appointment.
- Any screening investigations should have results copied to other health professionals involved in care provision i.e. – all tests requested during an appointment at RGH should have results copied to the GPO/GP practice and vice versa. A printed copy of the result placed in the NWHPHR.
- All internal and allied health referrals will be documented in the women's health record.
- All appointments and assessments are recorded in the NWHPR. Writing should be concise and legible. If using Medical Director or other software, please print out each visit and include this in the hand held records for our midwives.

The woman should be made aware that the NWHPR is the only complete medical record maintained for her antenatal care and becomes part of the obstetric hospital's health records.

The NWHPR is not to be destroyed under any circumstances.

Referring Antenatal Women to RGH

General Information

- All women must have a valid Medicare number to access maternity services at the Rockingham General Hospital
- Referrals are triaged daily (Monday – Friday) and appointments are allocated according to urgency and due date.
- A booking appointment with a midwife +/- a specialist obstetrician will be arranged as per the nationally recognised schedule of appointments available on pages 30 - 31 of the NWHPR unless a medical condition or obstetric history dictates an earlier appointment.
- **GPs/GPO's and EM's are to organise all patient's blood tests, first trimester screening, dating and anatomy scans**.
- The results of ultrasound reports and a copy of blood test results should be sent with the request for appointments or a copy of the results to be faxed or emailed to the RGH Antenatal Central receipting office on 9599 4659 or **RKPG.CentralReceiptingClerical@health.wa.gov.au**
- Referrals to RGH, using the 'Request for Maternity Booking Appointments' form **or** the 'Request for Specialist Obstetric Consultant Appointment' should be forwarded to the RGH Central Receipting Office (CRO) at the practitioners' earliest convenience (usually around 14 weeks gestation).

Calculation of due date

EDD is based on the LNMP if:

- Cycle is regular, woman is certain of the first day of last known menstrual period (LNMP), woman has not breastfed or taken oral contraceptive pills within the last three months, has not been on Depo-Provera within the last 9 months.
- If LNMP doesn't fulfil above criteria, use the EDD given at the first ultrasound (The best time to obtain an accurate dating scan is between 6-8 weeks).
- Crown-rump length is used for dating if CRL is >10 mm and < 84 mm.
- If more than one 1st trimester USS, use earliest USS with CRL = to at least 7 wks. (CRL 10 mm).
- If CRL > 84 mm (13.6 wks.) EDD is based on head circumference (HC).

NB: Menstrual cycles must be 'normal' to be considered for calculating the estimated date of birth.

Table 1. Calculation of due date

Gestation	Best method
Less than 14+0 weeks	Use LNMP* if within four days (less than four days) from the USS estimated due date.
14+0 to 22+6 weeks	Use the LNMP* if within seven days (less than seven days) from the USS estimated due date.
More than 23+0 weeks	Discuss with consultant if using LNMP* for dating and first scan performed at more than 23 weeks.

Maternity (antenatal) appointments

- Once a woman's pregnancy is confirmed, a Request for Maternity Appointments forms are available online at www.rkpg.health.wa.gov.au under GPs within the "For Health Professionals" section.
- This form must be completed and sent to our Central receipting office (CRO) ideally at 14 weeks of pregnancy by fax or email

The CRO can be contacted on;

- Phone: (08) 9599 4750
- Email: RKPG.CentralReceiptingClerical@health.wa.gov.au
- Fax: (08) 9599 4659

Key appointment dates

Women who choose to share antenatal care with RGH and a **GP ONLY**, will have their first booking appointment at Rockingham General Hospital with a midwife at approximately 18 – 22 weeks of pregnancy, followed by another appointment at 36 weeks.

All other appointments are done by the GP as per the recommended schedule of visits located on pages 30-31 of the National Woman-Held Pregnancy Record (NWHPR).

If the woman chooses the **GP Obstetrician/EM or the GP/EM shared care option**, then an appointment will be made at the hospital for approximately 30 weeks, with all other appointments with the GP/GPO or EM.

Specialist Obstetrician appointments

- For women with complex medical / obstetric needs, a referral to a Specialist Obstetrician is required for ongoing primary management and a documented plan of care.
- A Request for a Specialist Obstetric Consultant appointment for is available online at www.rkpg.health.wa.gov.au under GPs within the "For Health Professionals" section.
- This form must be completed and sent, with any relevant test results, to our Central receipting office (CRO) either by fax or email The CRO can be contacted on;
    - Phone: (08) 9599 4750
    - Email: RKPG.CentralReceiptingClerical@health.wa.gov.au
    - Fax: (08) 9599 4659
- Any **urgent referrals/reviews** (to be seen within seven days) can be discussed with the obstetric consultant on call via switch on 9599 4000.
- These referrals should then be marked "URGENT" and faxed directly to the Antenatal Clinic on (08) 9599 4623.

Criteria for referral to a Specialist Obstetrician

- All women booking for delivery at RGH with the following conditions or situations are to be referred to the Specialist Obstetrician by the GP, GPO or the Midwife assessing the patient.
- The patient's routine pregnancy investigations and other relevant investigations are to be initiated in the community.

First trimester

- Recurrent miscarriage (at least 3 miscarriages between the couple with no live children between them)
- Medical History - e.g. epilepsy, pre-gestational hypertension, cardiac, pulmonary, renal and other systemic conditions, thyroid disorders (except subclinical hypothyroidism detected for the first time in the present pregnancy) and Von Willebrands disease.
- Significant surgery to the reproductive tract e.g. cervical cerclage in a previous pregnancy, cold knife cone biopsy. (Note – unless there is a history of recurrent LLETZ these women do not need specialist obstetric referral).
- Significant pelvi-abdominal surgery e.g. laparotomy
- Previous fetal anomaly.
- Previous preterm labour < 34/40.
- Short cervix (< 20 mm) &/or funnelling noted at morphology ultrasound scan.
- Age < 16 or > 40 at expected date of delivery (EDD).
- BMI < 18 or > 40 at booking.
- Previous thrombo-embolism.
- Previous major obstetric complications e.g. eclampsia or severe pre-eclampsia with or without haemolysis, elevated liver enzymes and low platelets (HELLP) syndrome necessitating delivery earlier than 36 weeks.
- Maternal history of previous spinal / pelvic deformity or surgery
- Know history of connective tissue disorder
- Rhesus isoimmunisation or other significant blood group antibodies

Second and third trimesters

- Previous uterine surgery including caesarean section or myomectomy.
- Previous intra uterine growth restriction (IUGR), small for gestational age (SGA) weighing < 2.5kg
- Previous stillbirth at > 20 weeks gestation. Previous macrosomic baby (> 4kg if GDM or > 4.5kg if no GDM).
- Multiple pregnancies: ∗ Note: only Dichorionic Diamniotic (DCDA) and (Monochorionic Diamniotic (MCDA) twins are delivered at RGH. (Monochorionic Monoamniotic (MCMC) twins must be transferred for care at a tertiary centre).
- Haemoglobinopathies (thalassemia, sickle-cell disease).
- Known thrombophilia.
- Low PAPP-A (< 0.4 MoM) at combined first trimester screening even with a low risk status.
- Increased nuchal translucency (NT) result.
- Severe pre-existing mental health disorder requiring medication, previous puerperal psychosis.
- Grandmultiparity (Para 5+).
- Persistent low-lying placentas after repeat ultrasound scan at 34-week gestation (If the placenta remains < 2.5cm from the internal os, then a woman must be referred for specialist review.)
- Marginal cord insertion or circumvallate placentas noted at anomaly scan do not require specialist review. (Serial growth scans at 28, 32 and 36 week gestation must be organised and referral for specialist review will then be required if there are concerns regarding fetal growth.
- Known uterine anomaly; e.g. uterine fibroids measuring > 5cms, ovarian cysts measuring > 5cms.

- Previous post-partum haemorrhage (> 500 mL after vaginal birth and > 1000 mL after caesarean section).
- Previous 3 rd and 4th degree tears.
- Previous difficult /traumatic delivery.
- Gestational diabetes (with blood glucose record book).
- Jehovah's Witness women (who refuse blood transfusion).
- Concerns regarding fetal growth with ultrasound report. (Macrosomic fetus, IUGR / SGA in this pregnancy).
- Placenta praevia/antepartum haemorrhage.
- Abnormal lie/presentation after 36 completed weeks in a nulliparous woman.
- Gestational non-proteinuric hypertension/pre-eclampsia.
- Women who require specialist anaesthetic review; e.g. persistent anaemia, asthma

NB: In addition to the above conditions/situations any patient may be referred, at any time, to the Obstetric Specialist on call for advice. (via switch 9599 4000)

Requests for Female Practitioners

- Patients at RGH are seen by medical practitioners based on their clinical need, without reference to the medical practitioner's gender, age, religion, race or nationality.
- RGH doctors are well-qualified medical practitioners who conduct themselves professionally and the hospital does not discriminate between doctors on the basis of the above criteria.
- This information should be made clear to patients who book at RGH.

Which GPs can provide shared care with RGH?

- All GPs who undertake shared care must be registered medical practitioners in WA, have appropriate personal medical defence cover to undertake shared antenatal care, be of good character and have adequate antenatal experience or supervision.
- If a GP opts out of providing antenatal care for their patient, then the woman should be referred to the practitioner of her choice who is providing this service.

Antenatal Shared Care visits

General Information

- If the woman chooses shared care with her GP/GPO/EM and RGH, please see the scheduled visits located on page 30 – 31 of the NWHPR. More frequent visits may be relevant depending on the clinical situation.
- A guide to antenatal visits in outlined in Table 2 Page 10
- If you have any queries, please contact the Clinical Midwifery Specialist on **9599 4524** during business hours.
- Throughout the entire antenatal period, practitioners will remain vigilant to the signs and symptoms of any conditions which affect the wellbeing of the mother and unborn baby.
- Women's height and weight will be measured at the first antenatal visit and their body mass index (BMI) will be calculated. Women will be provided with advice about appropriate weight gain during pregnancy. Women are to be weighed at each appointment.
- Screening for gestational diabetes mellitus should be offered to all women who are not known to have Type 1 or Type 2 Diabetes

Shared care with GP only

- The first booking appointment at Rockingham General Hospital with a midwife is at approximately 18 – 22 weeks of pregnancy, followed by another appointment at 36 weeks.
- All other appointments are done by the GP as per the recommended schedule of visits located on pages 30-31 of the National Woman-Held Pregnancy Record (NWHPR).
- The antenatal visit at 40 weeks gestation with the GP should provide information and options for Management of Pregnancy beyond 41 weeks (more information located on page 10)

GP Obstetrician/EM or the GP/EM shared care option

- The booking visit will be done in the community with an endorsed midwife or GPO.
- An appointment will be made at the hospital for approximately 30 weeks gestation and
- All other appointments with the GP/GPO or EM as per the recommended schedule of visits located on pages 30-31 of the National Woman-Held Pregnancy Record (NWHPR).

Routine antenatal assessment

A routine antenatal assessment will be performed, at each appointment, and includes the following, as specified:

- Blood pressure (BP).
- Fetal growth measurement—fundus to symphysis pubis (from 24 weeks' gestation).
- Fetal movements.
- Fetal heart rate (from 16 weeks' gestation).
- Presentation/position from 36 weeks' gestation
- Maternal weight
- Urinalysis
- Reassess any risk factors.

Schedule of visits by gestation

Table 2 Schedule of visits by gestation

VISIT/ WEEKS	GPO/EM or GP/EM and RGH shared care option	GP/RGH shared care option
1st visit	GPO/GP	GP
14 weeks	GPO/GP	GP
18 - 22 weeks	EM	RGH Midwife
24 WEEKS	GPO/GP/EM	GP
28 weeks	GPO/GP/EM	GP
30 weeks	RGH Midwife	GP
32 weeks	GPO/GP/EM	GP
34 weeks	GPO/GP/EM	GP
36 weeks	GPO/GP/EM	RGH Midwife
38 weeks	GPO/GP/EM	GP
40 weeks	GPO/GP/EM	GP
41 WEEKS	GPO/GP/EM	RGH assessment
Postnatal check 6-8 weeks	GPO/GP/EM	GP

Management of pregnancy beyond 41 weeks

- Pregnancy beyond 41 weeks is managed in line with the KEMH clinical practice guideline which can be found here
- At the 40 week visit, the GP/GPO or EM will need to phone through to the Clinical Midwifery specialist between 0700 – 1700hrs Monday to Friday on **9599 4524** to discuss induction options and management of prolonged pregnancy.
- Increased surveillance is recommended after 41 completed weeks which includes CTG monitoring and +/- Ultrasound scans

Screening and Investigations - Prenatal

Prenatal screening and investigations - General information

- All results from investigations must be sent to the RGH CRO by email
    - Email: RKPG.CentralReceiptingClerical@health.wa.gov.au
    - Fax: (08) 9599 4659
- Please ensure the results of any investigations are forwarded to RGH with the request for Maternity or Specialist Obstetrician appointment forms.
- If these are unavailable at the time of referral, please request on the pathology/radiology form for a copy of the results to be faxed to Rockingham General Hospital – Antenatal Clinic on (08) 9599 4623 when completed.
- Obtain informed consent for each test

Fetal anomaly screening

- All women, regardless of age, should be counselled and offered the option of fetal anomaly screening.
- First trimester screening is the recommended screening test for fetal chromosomal abnormalities (mainly trisomy 21, 13 and 18).
- Women presenting too late to access this test should be offered maternal serum screening (performed in the second trimester at 15–17 weeks). There is no need to do both.
- If either screening test shows an increased risk of fetal abnormality the woman should be referred for counselling at KEMH through the Maternal Fetal Medicine Service of WA – (08) 9340 2705 / fax (08) 9340 1060, or Genetic Services of WA – (08) 9340 1525.
- Please indicate on the referral if you would like FSH or KEMH to take over management if an anomaly is found.
- In the case of an actual fetal abnormality, it is suggested the woman be referred directly to the Maternal Fetal Medicine Service for counselling and management

Table 3 Fetal anomaly screening and recommended timings

Screening Test	Appropriate timing—gestational age
First trimester biochemistry—Papp-A, β-	10+0 to 13+6 weeks
Nuchal translucency scan	11+0 to 13+6 weeks
Second trimester Triple test—β-HCG, AFP,	15 o 20 weeks (optimal time 16 weeks)

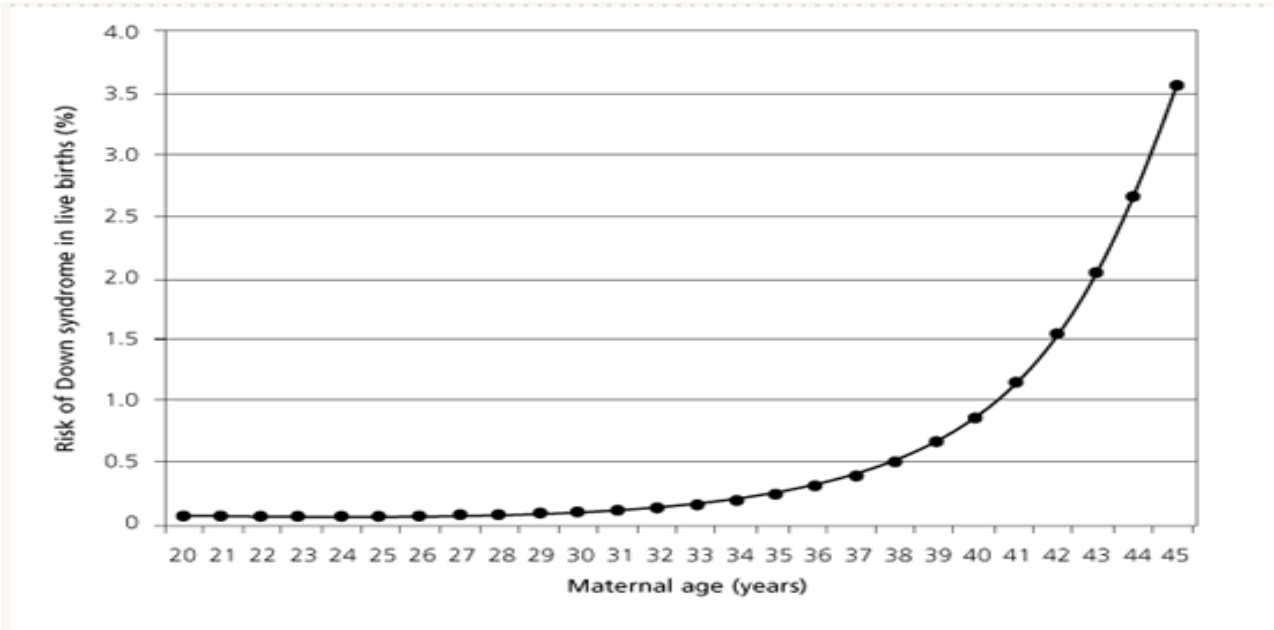
NB: When ordering the first trimester combined screen, the blood test should be performed before the nuchal translucency scan so that the result is available to be combined into a single adjusted risk on the day of the scan. The result should not be given with separate biochemistry and nuchal translucency risks but always as a ‘combined’ adjusted risk only.

Screening for Down Syndrome

First Trimester Screening (FTS)

- The first part of the test is a blood test to determine the levels of the hormones BHCG and PAPP-A. This is ideally done at 10 weeks (but can be done anytime from 9 to 13 weeks and 6 days).
- The blood test was previously routinely done on the day of the ultrasound. However the Fetal Medicine Foundation has found that earlier tests improve the sensitivity and specificity of the test.
- The second part of the test is an ultrasound that is performed between 11 weeks 4 days and 13 weeks 4 days (ideally 12 weeks). The ultrasound determines the thickness of the nuchal translucency – an area behind the neck and under the skin of the fetus that appears black on the ultrasound image.
- Based on the woman's age, the nuchal thickness and the hormone levels, a result is given in terms of the particular woman's risk of carrying a foetus with Down Syndrome, compared to her age related risk

Diagram 1. Prenatal risk of down syndrome and maternal age



Maternal Serum Screening (Triple Test)

This test involves a blood test which is performed between 15 and 17 weeks gestation. No pre-test ultrasound is required unless the EDD needs to be confirmed. The test gives two results:

- The risk of a chromosomal abnormality (Down Syndrome most commonly) *f*
- The risk of an open neural tube defect – based on the maternal serum alpha fetoprotein level (MSAFP)

Who should be offered MSAFP Testing?

- Women considered at high risk of having a foetus with an open neural tube defect. This includes women with an open neural tube defect themselves, women who had a previous pregnancy with an open neural tube defect, women taking anticonvulsant medication and women with diabetes mellitus who have poor peri-conceptual control (HbA1C >8.5%).
- Morbidly obese women, in whom fetal ultrasound imaging quality is compromised, should be offered MSAFP to potentially improve detection rates of severe structural fetal anomalies

Screening for Neural Tube Defects

- This can be done as part of the maternal serum screening test at 15 to 17 weeks or by testing MSAFP alone at 15 to 17 weeks.
- If the screening test shows the pregnancy to be at increased risk for an open neural tube defect (MSAFP >2.5MoM), referral for a targeted fetal ultrasound examination is indicated.
- This is a technically demanding ultrasound examination and should be conducted by practitioners with expertise in fetal ultrasound.

PAPP-A (Pregnancy associated plasma protein-A)

- Maternal serum pregnancy associated plasma protein-A (PAPP-A) is one of the blood tests taken at 9-14 weeks (ideally 10 weeks) as part of the First Trimester ScreenA low PAPP-A in the first trimester may indicate an increased risk of Trisomy 21.
- A low PAPP-A in the first trimester with normal chromosomes is associated with stillbirth, infant death, intrauterine growth restriction (IUGR), preterm birth and pre-eclampsia.
- All women should be counselled and offered first trimester screening.
- A low PAPP-A (< 0.4MoM) is associated with poor early placentation and increased frequency of adverse obstetric outcomes.

NB: If a woman returns a low PAPP-A result, a specialist referral should be made by 20 weeks gestation for assessment regarding the need for closer maternal and fetal surveillance. This will include Growth scans with Doppler assessment at 24, 28, 32 and 36 weeks

Fetal morphology ultrasound

- Fetal anatomy ultrasounds are the recommended screening test for fetal structural anomalies and placental localisation. It is offered to all women between 18 and 20 weeks gestation (ideally 19 weeks).
- New evidence has found many cases of preterm birth may now be preventable. The antenatal care of all pregnant women needs to include an assessment of risk of preterm birth.
- Ultrasound measurement of the length of the cervix should be a routine component of the “anatomy’ scan performed between 18 and 20 weeks gestation. Please ensure “cervical length” is written on the anatomy scan request.
- General Practitioners are requested to arrange for this ultrasound prior to the booking visit
- Please request for copies of the results to be faxed to the RGH antenatal clinic on (08) 9599 4623

NB High risk: If there is a history of a previous fetal anomaly, recurrent pregnancy loss or abnormal screening results, ultrasounds for these women may be able to be booked at KEMH. For more information about the latest research on preterm birth, visit the WA Preterm Birth Prevention Initiative website - www.thewholeninemonths.com.au

Non-Invasive Prenatal Testing (NIPT)

- NIPT refers to testing of the fetal genome (DNA) through a sample of the mother's blood, hence it is 'non-invasive' and poses no risk to the pregnancy. The major benefit for NIPT is a significant reduction in the need to perform invasive testing e.g. chorionic villous sampling (CVS) or amniocentesis which carries a risk of fetal loss of up to 1%.

Screening for rural patients

- Ultrasounds for rural women need to be performed a minimum of one day before the Antenatal Clinic appointment. You are advised to prearrange this early to avoid disappointment.
- If rural doctors require medical advice including patient management and need for transfer/ admission, they should RGH switchboard on (08) 9599 4000 and ask to be connected to the duty medical officer for Obstetrics on call

Gestational Diabetes Mellitus (GDM) screening

Key recommendations

- As of January 1, 2015, the diagnosis of GDM is to be based on an oral glucose tolerance test (75 g carbohydrate load) or first trimester Hb A1C.
- There has also been a change to the threshold for diagnosis of GDM. This is in line with recommendations from the International Association Diabetes in Pregnancy Study Group (IADSPG) and the World Health Organisation (WHO) and is endorsed by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG).
- Rockingham General Hospital guidelines no longer recommend the use of the Glucose Challenge Test (GCT) as a screen for Gestational Diabetes Mellitus.

Oral glucose tolerance test

- Diagnosis of gestational diabetes is based on:
  - Fasting glucose > 5.1 mmol/L and /or
  - 1 hour glucose > 10.0 mmol/L and /or
  - 2 hour glucose > 8.5 mmol/L.
  - Or HbA1c > 5.9 % (first trimester only). HbA1c is the preferred test in the first trimester as the fasting glucose has not yet fallen to pregnancy levels and the 5.1 mm threshold has proven too low for diagnosis of GDM In the first trimester a fasting glucose >= 5.5 mm (as for outside pregnancy) is evidence of impaired fasting glucose.1 2
- The diagnosis of gestational diabetes requires immediate referral to the Specialist Obstetrician at RGH to plan follow up management

Moderate risk factors for GDM

- Ethnicity - Asian, Indian sub-continent, Aboriginal , Torres Straight Islanders, Maori, Middle Eastern, Non- white African, BMI 25-35 kg/m^2

High Risk factors for GDM

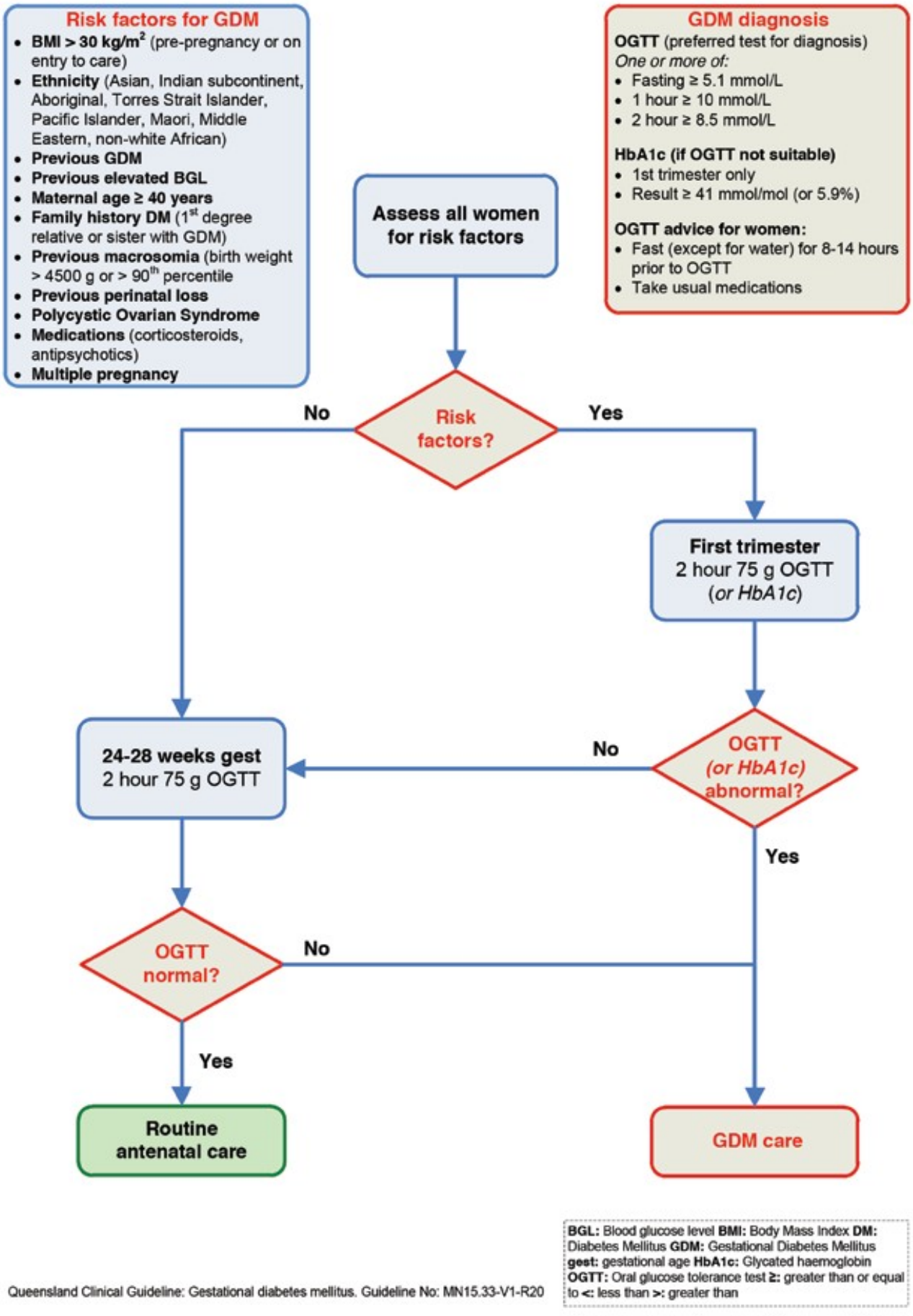
- Maternal age >30 years
- Women with family Hx of diabetes
- Maternal obesity (BMI >30)
- Hypertension prior to 20 weeks

- Previous Macrosomic baby (>4000gms)
- Polycystic Ovary Syndrome
- Hx of unexplained stillbirth.
- Previous baby with congenital anomalies.
- Previous GDM
- Ethnicity – Aboriginal, Asian, Indian and middle Eastern groups

Table 4 GDM diagnostic testing recommendations

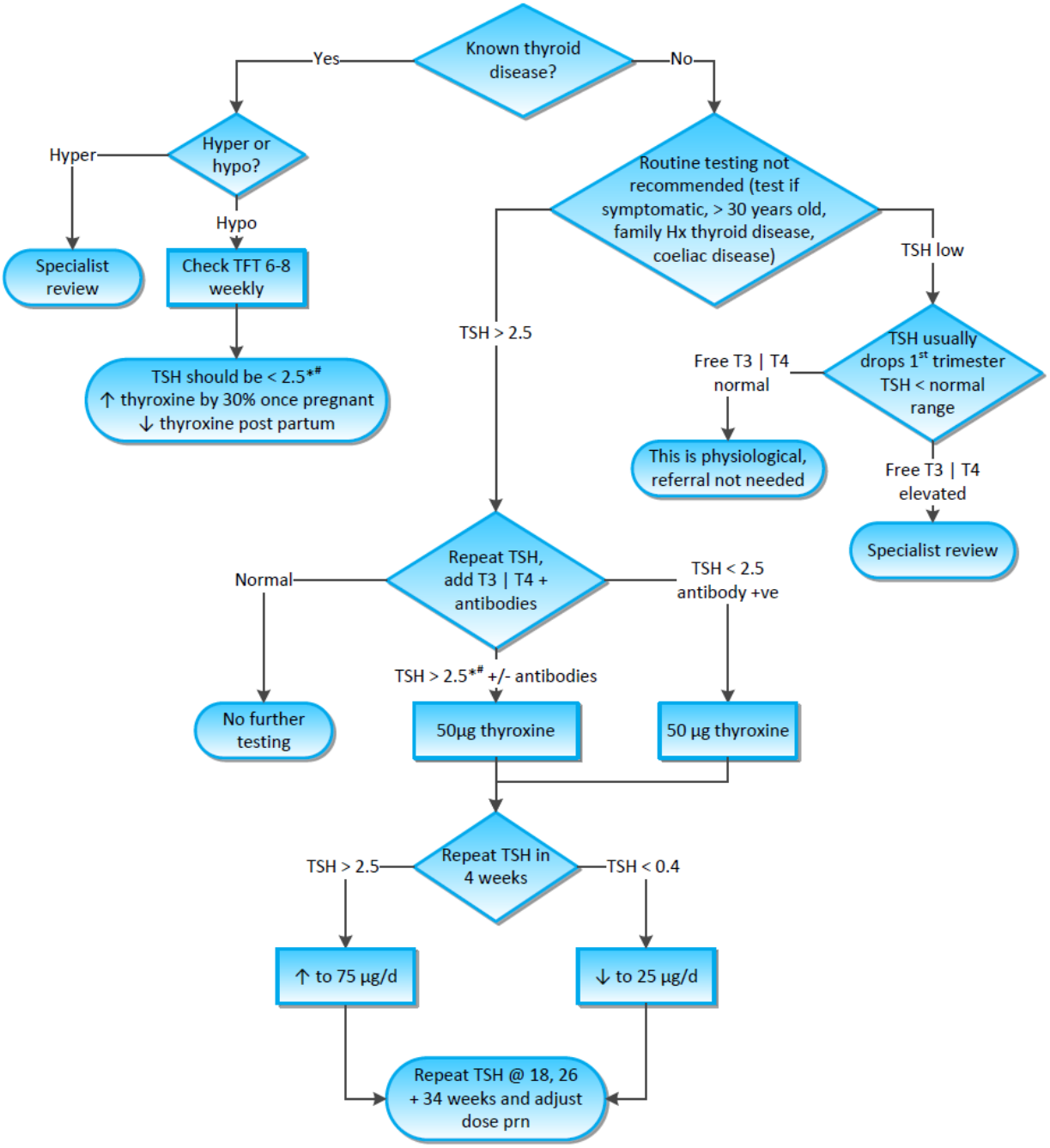
Aspect	Recommendation
Diagnostic testing	Diagnosis of GDM is based solely upon an oral glucose tolerance test (75 g carbohydrate load) or first trimester Hb A1c.
	The two step Glucose Challenge Test GCT will not be available for GDM diagnosis (do not order this test)
All women	Require a two hour OGTT (after overnight fasting)
	Should maintain a normal diet until 10 hours before the OGTT and then FAST
	During fasting, advise the woman to drink water to prevent dehydration and to continue any usual medications
High risk women	Request early OGTT/HbA1c (first trimester only) for women at high risk of diabetes
	If normal, repeat at 26-28 weeks
Women having maternal steroids	Do not perform an OGTT within one week of maternal steroids (betamethasone/dexamethasone).
	Monitor blood glucose levels if the woman is receiving steroids
Diagnostic threshold for GDM	Diagnosis of GDM is based on: • Fasting glucose of greater than or equal to 5.1 mmol/L and/or • 1-hour glucose greater than or equal to 10.0 mmol/L and/or • 2-hour glucose greater than or equal to 8.5 mmol/L Or HbA1c > 5.9% (first trimester only)
	If a fasting glucose test has been performed for other reasons and shows an elevated value, this may be accepted as diagnostic of GDM
Diabetes in pregnancy	Women with first trimester Hb A1c of > 6.4 % or markedly elevated OGTT values may be classified as having Diabetes in Pregnancy • Fasting glucose greater than or equal to 7.0 mmol/L and/or • 2-hour glucose greater than or equal to 11.1 mmol/L
	Women with diabetes in pregnancy: • Require urgent care • May have undiagnosed “overt” diabetes and associated complications such as retinopathy and nephropathy • Are at higher risk of pregnancy complications • Manage in a centre/clinic with experience in the management of pre-existing diabetes in pregnancy • May require confirmation of diagnosis in the postpartum period

Diagram 2 GDM screening flowchart for pregnant women



Screening for Thyroid disorders

Diagram 3 Thyroid screening and management in pregnancy



** If TSH >10 and/or Free T4 below the pregnancy reference range, arrange urgent referral to specialist in addition to commencing/ increasing thyroxine*
 # TSH levels are laboratory and gestational age specific, the recommendation < 2.5 is for use in the first trimester

The NHMRC recommends that all women who are pregnant, breastfeeding or considering pregnancy, take an iodine supplement of 150 micrograms each day (available in most pregnancy multivitamins or in combination with folate)

(Mater Mothers Hospital Alignment)

Screening for Anaemia in pregnancy

Diagram 4 Anaemia screening and management in pregnancy

* Note: It is recognised that during second trimester haemoglobin concentrations diminish approximately 5 g/L.[12]

Guidelines for investigation of patients at risk of a Haemoglobinopathy

- Haemoglobinopathies are autosomal recessive disorders, which imply that they must be inherited through both parents who may have the disorder themselves, or be carriers. Normal haemoglobin contains a haem molecule that combines with four globin chains; two are classified as alpha and two as beta chains.
- Thalassaemia results from decreased synthesis of the globin chains in adult haemoglobin. It is classified as alpha (α)-thalassaemia when there is absent or decreased α-chain synthesis, or beta (β)-thalassaemia when there is absent or decreased β-chain synthesis.
- Sickle cell disease occurs when the structure of the beta globin chain is abnormal. Defective genes produce abnormal haemoglobin beta chains resulting in Haemoglobin S (HbS). Sickle cell disease (HbSS) occurs when abnormal genes are inherited from both parents. A sickle cell trait is when a person inherits only one sickle cell gene and does not have disease.

Table 5 Haemoglobinopathies and gene inheritance

Haemoglobinopathy	**Gene Inheritance**	**Effect**
Alpha thalassaemia minor or α-thalassaemia trait	One or two defective α genes	• Asymptomatic normally. • May have mild anaemia
Beta thalassaemia minor or β-thalassaemia trait.	One defective β gene	• Asymptomatic normally. • May have mild anaemia.
HbH Disease	Three defective β genes	• Ranges from asymptomatic to • requiring regular blood transfusion
Alpha thalassaemia major	Four defective α genes	• Bart's disease / Hydrops fetalis
Beta thalassaemia major	Two defective β genes	• Severe anaemia. • Require frequent blood transfusions. • May result in death in early childhood.
Sickle Cell trait	One defective β gene	• Asymptomatic.
Sickle Cell Disease	Two defective β genes	• Spontaneous abortion. • Pre-term birth, intra-uterine growth restriction, perinatal death.

Ethnic groups with a clinically significant prevalence of haemoglobin disorders

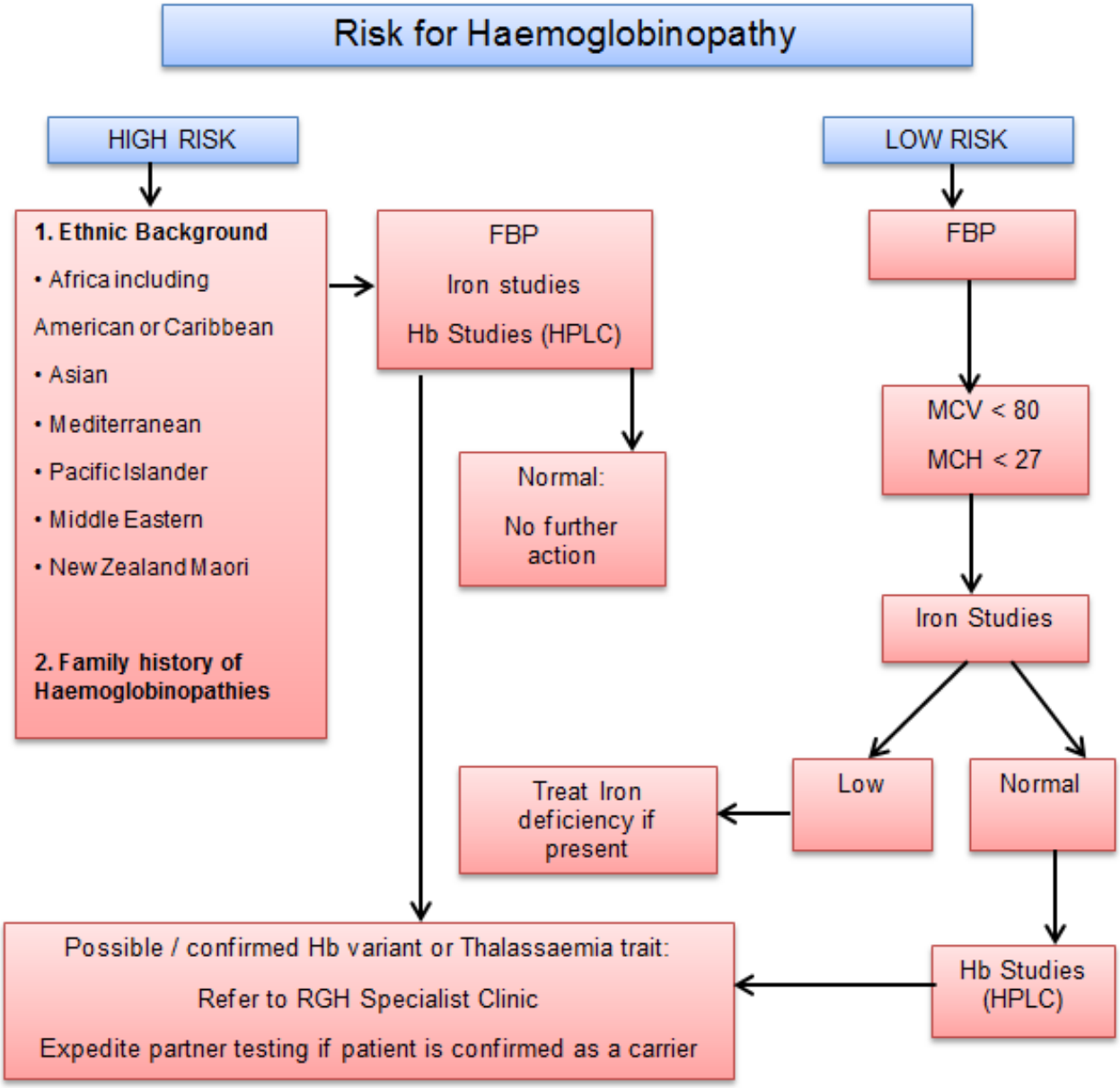
Table 6 Ethnic groups and prevalence of haemoglobin disorders

Beta Thalassaemia	All ethnic groups other than Northern European
Alpha0 Thalassaemia (-)□ /	Chinese, South East Asian, Mediterranean
Haemoglobin E	South East Asian
Haemoglobin S	African (including African-American and African-Caribbean), Greek, Southern Italian, Turkish, Arab, Indian.

Screening

- The aim of screening (or carrier testing) is to identify carriers of haemoglobin disorders in order to assess the risk of a couple having a severely affected child and to provide information on the options available to manage their risk.
- Ideally, high-risk individuals are offered pre-conception testing.
- In the antenatal setting, time is important. Early (first trimester) screening is recommended since it can be difficult to achieve antenatal screening and fetal diagnosis within a suitable timeline if the couple is unaware of the risk.
- Diagnosis of the haemoglobin disorders requires combined assessment of the FBP, iron status and Haemoglobin HPLC (High-performance liquid chromatography). See algorithm below.
- Where a woman is pregnant and a carrier, organise partner testing and refer to the RGH Specialist Clinic.
- Genetic counselling is available from Genetic Services of Western Australia (08) 6458 1525 for couples if both partners are carriers.

Diagram 5 Risks for Haemoglobinopathies



Chlamydia screening

For all women at booking

- Self-obtained lower vaginal swab (SOLVS) and first void urine PCR (FVU) *ƒ*
- Women living in STI endemic areas (Kimberley, Pilbara, Goldfields) should be offered additional screening:
  - At booking include testing for gonorrhoea with Chlamydia specimens
  - Between 28 and 36 weeks gestation repeat HIV and syphilis serology
  - At 36 weeks gestation Chlamydia and Gonorrhoea screening.

Group B streptococcus (GBS) screening

All patients with the following risk factors will need to receive intravenous antibiotics during labour to reduce the risk of infant infection:

- Previously infected infant with GBS
- GBS identified in the urine in pregnancy (GBS urinary tract infection or bacteriuria), regardless of GBS swabs at 36 weeks

NB: Any positive vaginal/rectal/peri anal swabs at 36 weeks. Please fax all results to RGH Antenatal Clinic on (08)9599 4623.

Edinburgh Postnatal Depression Score (EPDS)

The EPDS assessment tool and scoring guide are located on pages 25/26 of this document

- The Edinburgh Postnatal Depression Score (EPDS) is recommended as a very valuable screening test for possible depression, both in pregnancy and in the post-natal period.
- It is recommended that the scoring is undertaken at least once in early pregnancy and again at around 32 weeks of gestation. However, the scale can be used at any stage of the pregnancy and/or the post-natal period. When repeating the EPDS for the woman in her pregnancy, a new form should be used.
- Ask the women to mark the response that most accurately reflects how she has felt in the last 7 days for each of the question. It is preferred that the woman uses the EPDS form without numbers next to the questions, this is gold standard practice.
- The scoring is from 0 to 3
- Add all of the scores together when completed. A sample of the EPDS form and scoring scale are available on page26 of this booklet.
- If the woman scores higher than 12 or above, she should be assessed clinically for depressive illness.
- If the score is between 9 and 11, she is at increased risk for mood disorder and should be monitored closely.
- If a woman answers 1, 2 or 3 to Q.10 (self-harm), a risk assessment must be undertaken to ascertain the woman's safety.
- Rockingham General Hospital has a Psychiatric Liaison Nurse for our maternity patients and we also work closely with Social Workers to identify women at increased risk and provide support in the antenatal/postnatal period.
- It is the GPO/EM or GP's responsibility to arrange appropriate referrals if needed, document in the NWHPHR to notify RGH if concerns are identified or medication commenced.

Rockingham Kwinana Mental Health Service (Adults aged between 18-64 years)
Corner of Clifton and Ameer Street, Rockingham
Telephone: 9528 0600
Fax: 9529 1266
This service is open Monday-Friday (excluding public holidays) between 0830hrs-1600hrs

- Patient referral form: https://www.rkpg.health.wa.gov.au/~/media/Files/Hospitals/RkPG/PDFs/Rockingham-Kwinana-Adult-MHS-referral-form.pdf

Adolescents can be seen by the psychological medicine team at KEMH

Tel: (08) 6458 1521
Fax: (08) 6458 1111

- Patient referral form https://www.kemh.health.wa.gov.au/~/media/Files/Hospitals/WNHS/For%20health%20professionals/57a%20REFERRAL%20FORM%20PSYCH%20MED.pdf

More information can be found here

- **http://perinatology.com/calculators/Edinburgh%20Depression%20Scale.htm**

Diagram. 6 Edinburgh Postnatal Depression scale assessment tool

Edinburgh Postnatal Depression Scale[1] (EPDS)

Name: _____ Address: _____

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

Here is an example, already completed.

I have felt happy:

- ☐ Yes, all the time
- ☒ Yes, most of the time — This would mean: "I have felt happy most of the time" during the past week.
- ☐ No, not very often — Please complete the other questions in the same way.
- ☐ No, not at all

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   - ☐ As much as I always could
   - ☐ Not quite so much now
   - ☐ Definitely not so much now
   - ☐ Not at all

2. I have looked forward with enjoyment to things
   - ☐ As much as I ever did
   - ☐ Rather less than I used to
   - ☐ Definitely less than I used to
   - ☐ Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   - ☐ Yes, most of the time
   - ☐ Yes, some of the time
   - ☐ Not very often
   - ☐ No, never

4. I have been anxious or worried for no good reason
   - ☐ No, not at all
   - ☐ Hardly ever
   - ☐ Yes, sometimes
   - ☐ Yes, very often

*5 I have felt scared or panicky for no very good reason
   - ☐ Yes, quite a lot
   - ☐ Yes, sometimes
   - ☐ No, not much
   - ☐ No, not at all

*6. Things have been getting on top of me
   - ☐ Yes, most of the time I haven't been able to cope at all
   - ☐ Yes, sometimes I haven't been coping as well as usual
   - ☐ No, most of the time I have coped quite well
   - ☐ No, I have been coping as well as ever

*7 I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

*8 I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Not very often
   - ☐ No, not at all

*9 I have been so unhappy that I have been crying
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Only occasionally
   - ☐ No, never

*10 The thought of harming myself has occurred to me
   - ☐ Yes, quite often
   - ☐ Sometimes
   - ☐ Hardly ever
   - ☐ Never

Administered/Reviewed by _____ Date _____

[1]Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786 .

[2]Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

Diagram. 7 Edinburgh Postnatal Depression scale scoring

Edinburgh Postnatal Depression Scale[1] (EPDS)

Postpartum depression is the most common complication of childbearing.[2] The 10-question Edinburgh Postnatal Depression Scale (EPDS) is a valuable and efficient way of identifying patients at risk for "perinatal" depression. The EPDS is easy to administer and has proven to be an effective screening tool.

Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity. The EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt *during the previous week*. In doubtful cases it may be useful to repeat the tool after 2 weeks. The scale will not detect mothers with anxiety neuroses, phobias or personality disorders.

Women with postpartum depression need not feel alone. They may find useful information on the web sites of the National Women's Health Information Center <www.4women.gov> and from groups such as Postpartum Support International <www.chss.iup.edu/postpartum> and Depression after Delivery <www.depressionafterdelivery.com>.

SCORING

QUESTIONS 1, 2, & 4 (without an *)
Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

QUESTIONS 3, 5-10 (marked with an *)
Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Maximum score: 30
Possible Depression: 10 or greater
Always look at item 10 (suicidal thoughts)

Instructions for using the Edinburgh Postnatal Depression Scale:

1. The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.
2. All the items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

[1]Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786.

[2]Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

Investigations recommended at each gestation

First antenatal visit

Routine investigations required

- Full Blood Picture
- Blood Group and atypical antibody screen
- Syphilis serology
- Rubella titre
- Hepatitis B surface antigen
- Hepatitis C surface antibodies
- HIV antibodies
- Random blood glucose (if high risk of diabetes)
- Mid-Stream Urine (Urine testing for proteinuria by dipstick urinalysis and asymptomatic bacteriuria MSU for microscopy, culture and sensitivity (MC&S) are recommended at the first antenatal visit regardless of stage of pregnancy
- Chlamydia screening
- Vitamin D level
- Varicella
- Early dating ultrasound

Note: All women should be counselled and offered fetal anomaly screening (see page 11)

The following investigations to be considered depending on the woman's clinical circumstances:

- PAP smear if not done within two years
- Early diabetes screen (if risk factors present)
- TSH
- Vitamin B12
- Folate level
- Haemoglobinopathy screening if in high risk group e.g. high risk ethnic background,
- Family history of Haemoglobinopathy.

19 to 20 weeks gestation

- Fetal anatomy my ultrasound and cervical length measurement (GP/GPO to organise).
- For more information about cervical length measurement, visit the WA Preterm Birth Prevention Initiative website - www.thewholeninemonths.com.au

28 weeks (arrange prior to the 28 week visit e.g. at 24 week visit)

- Full blood picture
- Blood group and atypical antibody screen for Rh negative women
- Diabetes screen and/or glucose tolerance test if indicated.

36 weeks gestation

- Full blood picture
- Blood group and atypical antibody screen if Rh negative (only if the woman missed her 28 week Anti-D)
- Low vaginal swab and rectal swab for Group B streptococcus screening. Patients with a positive result will receive intravenous antibiotics during labour

40 weeks gestation

- Confirm Gestational age is correct
- initiate discussion regarding management options of "Management of Prolonged Pregnancy"
- Offer and book induction of labour (IOL) and document discussion.

How to manage abnormal results of investigations or assessments

- Any investigations requested by a GPO/EM or GP for any pregnant woman under their care must be followed up by the GPO/EM or GP concerned.
- It is the GPO/EM or GPs responsibility to follow up all abnormal results irrespective of whether a copy has been sent to the hospital.

NB: Notifying the on call Specialist Obstetrician can be done by calling RGH switch on 9599 4000.

Nuchal translucency scan or triple test
Notify the Specialist Obstetrician on call of abnormal results as soon as possible so a management plan can be discussed.

Morphology ultrasound
Notify the Specialist Obstetrician on call of abnormal results as soon as possible so a management plan can be discussed.

Full Blood Count

- Consider iron studies if the haemoglobin is 105 g/L or less and the MCV is low or red blood cells are microcytic. Check B12/folate levels if the red blood cells are macrocytic.
- Testing for thalassaemia (haemoglobin electrophoresis) should also be considered where appropriate. Low white cell or platelet counts should prompt discussion with obstetric specialist on call.

Blood group and antibody screen

- Any positive test for antibody levels should prompt an immediate referral to the Specialist Obstetrician at RGH.
- Rubella titre
- A “non-immune” level should be discussed with the woman and a note made to discuss immunisation with the woman postnatally. Under no circumstances should rubella immunisation be given in pregnancy. Contact with rubella should be avoided.

Syphilis serology
Refer to the Australian STI Management Guidelines and provide treatment as required.
http://www.sti.guidelines.org.au/

Hepatitis B and C, and HIV tests
A positive result should prompt immediate referral to the Specialist Obstetrician at RGH.

Oral glucose test

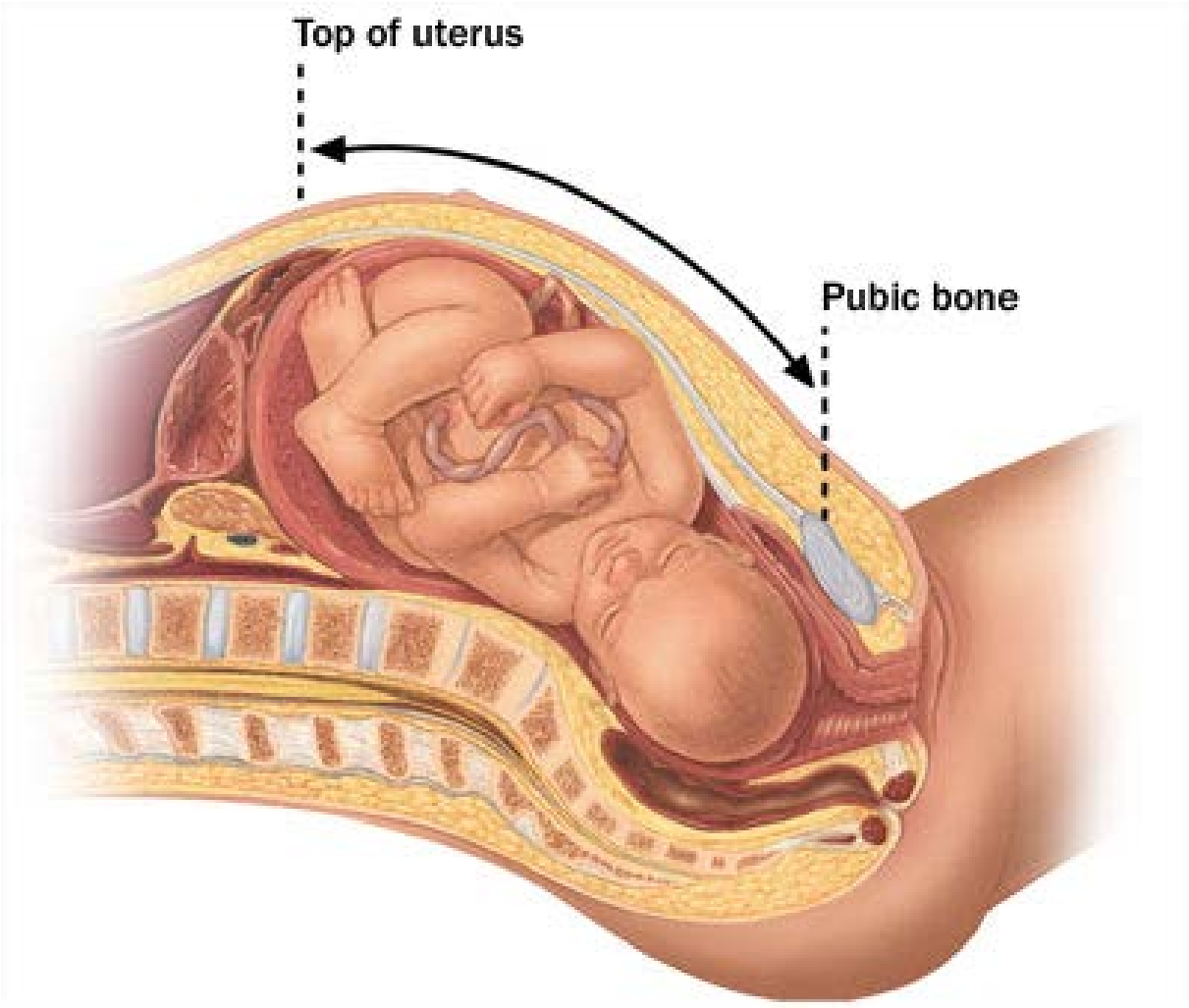
The diagnosis of gestational diabetes requires immediate referral to the Specialist Obstetrician at RGH to plan follow up management. This can be done by faxing a copy of the “request for Obstetric Specialist appointment form” to the CRO on 9599 4659

Suspected growth restriction (IUGR and SGA)

Measure Symphaseal-fundal height (SFH):

- Ensure mother is comfortable in a semi-recumbent position, with empty bladder.
- Use the unmarked side of a non-elastic tape measure.
- Measure from fundus (top of uterus) to top of symphysis pubis or pubic bone.
- Measure longitudinal axis of the uterus, do not correct to midline.
- Record the measurement in centimetres and document in the NWHPHR
- On a growth chart, the emphasis is on the slope of serial measurements.

Diagram 6 measuring the Symphaseal-fundal height



- Other considerations which may influence SFH include transverse lie, multiple pregnancies and obesity.
- If the fundal height is > 3 cm under the expected measurement refer the woman for an ultrasound and request:
    - Fetal size/growth compared with previous ultrasound (BPD, abdominal circumference)
    - Doppler of umbilical artery flow

    - Amniotic fluid volume – deepest vertical pocket.
- If any parameters are abnormal contact the Duty Medical Officer (Obstetrics) or Specialist Obstetrician via switch on 08 95994000 to discuss management.

Decreased or changes in fetal movements

- If fetal movements are decreased or changed, check fundal height and fetal heart rate and refer to RGH for assessment of fetal wellbeing.
- Maternal concern of decreased fetal movements or changes in movement patterns overrides any definition of decreased fetal movements based on number of movements. If fetal movements are decreased or changed, refer the women to the assessment unit at RGH for an assessment of fetal well-being. Please call the unit to inform the midwives that the woman will be attending.

Hypertension

- Definition: systolic blood pressure greater than or equal to 140 mmHg and/or diastolic blood pressure greater than or equal to 90 mmHg (Korotkoff V).
- Essential hypertension is diagnosed prior to pregnancy or before 20 weeks. Gestational hypertension is diagnosed after 20 weeks (without pre-existing hypertension).

Pre-eclampsia

Pre- eclampsia is a multi-system disorder unique to human pregnancy characterised by hypertension and involvement of one or more other organ systems and/or the fetus. Raised blood pressure is commonly but not always the first manifestation. Proteinuria is the most commonly recognised additional feature after hypertension but should not be considered mandatory to make the clinical diagnosis. (A relative rise in systolic ≥30 mmHg and diastolic ≥15 mm Hg may be significant in some women but is not included in the definition. Assess for clinical and laboratory features of preeclampsia).

NB: Women with signs and symptoms of pre-eclampsia, a BP reading of ≥ 140/90, abnormal pathology or signs of fetal growth restriction should be referred immediately for assessment at RGH

- Please call the midwives on 9599 4509 prior to the woman attending for assessment.
- Advice or consultation by the Duty Medical Officer (Obstetrics) or Specialist Obstetrician can be obtained via RGH switch on 08 95994000.
- If the woman is asymptomatic without proteinuria, confirm non-severe hypertension by repeat BP measurement. For non-urgent advice or consultation call the Duty Medical Officer (Obstetrics) or Specialist Obstetrician via switch on 08 95994000.

A diagnosis of pre-eclampsia can be made when hypertension arises after 20 weeks' gestation and is accompanied by one or more of the following:

- Renal involvement:
    - Significant proteinuria—dipstick proteinuria confirmed by urine protein/creatinine ratio ≥ 30 mg/mmol.
    - Serum or plasma creatinine > 90 micromol/L
    - Oliguria
- Haematological involvement
    - Thrombocytopenia
    - Haemolysis
    - Disseminated intravascular coagulation
- Liver involvement
    - Raised serum transaminases

- Severe epigastric or right upper quadrant pain.
- Neurological involvement
- Severe headache
- Persistent visual disturbances (photophobia, scotomata, cortical blindness, retinal vasospasm)
- Hyperreflexia with sustained clonus
- Convulsions (eclampsia)
- Stroke (this is a medical emergency and should be treated as such)
- Pulmonary oedema
- Fetal growth restriction
- Placental abruption

Recommended pre-eclampsia investigations

- Maternal: urine protein/creatinine ratio, full blood count, liver function test.
- Fetal: USS for fetal growth, umbilical artery flow, amniotic fluid volume (deepest vertical pocket) and CTG (>24 weeks).

Vaginal bleeding (> 20 weeks)

- Perform a physical assessment of the woman and record a fetal heart rate.
- Ascertain a history of events around the bleeding.
- Determine amount, colour, consistency and location of bleeding.
- Review ultrasound reports for placental location.
- Refer for USS if the woman's condition is stable and there is no previous USS.
- Speculum examination can be performed with (including women with placenta praevia) ***but avoid digital exam***.
- Perform a speculum to view cervix and perform a PAP smear if no normal PAP result in last two years.
- Consider Anti D. First perform a Kleihauer if the woman is rhesus negative to ascertain amount of Anti D required.
- If the bleeding is minimal spotting, has ceased and the speculum exam is normal, reassure and encourage observation at home providing advice to call the assessment unit if the bleeding increases or anything other than light spotting occurs.
- Advice and consultation is available by the Duty Medical Officer (Obstetrics) or Specialist Obstetrician via switch on 08 95994000
- If there is a heavy blood loss and/or patient appears clinically compromised, insert IV access (if able) and arrange urgent transfer to RGH and contact the Duty Medical Officer (Obstetrics) or Specialist Obstetrician via switch on 08 95994000.

Abnormal fetal presentation

If abnormal presentation is suspected after the 36 week hospital appointment refer to the Duty Medical Officer (Obstetrics) or Specialist Obstetrician via switch on 08 95994000 for assessment as soon as possible.

Infectious diseases and immunisation in pregnancy

- Live attenuated vaccines are not recommended during pregnancy (e.g. MMR, varicella, rotavirus, BCG, oral typhoid vaccine). If given inadvertently, specialist consultation is advised.
- Inactivated influenza vaccine is safe to be given during pregnancy and is recommended as pregnant women are at increased risk of influenza related infectious complications.
- Pertussis vaccine is recommended in the third trimester

- Hepatitis B – chronic carriers
    - Chronic carriers of Hepatitis B have core Antigen positive and e Antibody negative.
    - Check viral load and refer to Hepatology Service at Royal Perth Hospital advising that the woman is pregnant.
    - Antiviral therapy in pregnancy may reduce vertical transmission to the fetus.
    - Lifelong antiviral therapy may reduce cirrhosis and hepatocellular carcinoma.
- For routine advice on pregnancy, travel and vaccinations, please contact a specialised travel medicine clinic
- For other clinical advice, please contact the on-call microbiologist at KEMH through the switchboard on (08) 9340 2222.

Maternal and fetal wellbeing assessment

Assessment Unit

- RGH Maternal and Fetal Assessment Unit is open 24 Hours, 7 days a week. It is available for:
    - Self referral
    - GPO/EM or GP referral
    - Women from 20 weeks of pregnancy with conditions requiring immediate assessment
- Please call prior to referral or presentation

Contact details

- For maternal fetal assessments and presentations to labour ward, the triage midwife is available 24hours a day, 7 days a week on **9599 4509.**
- For medical consultation or advice contact the duty medical officer via switch on: 9599 4000 (pager 301).

Assessment Unit (>20 weeks gestation)

- Women greater than 20 weeks gestation can be assessed at any time in the Maternity Assessment Unit which is located on the second floor of B Block inside the Labour ward
- Women can call 9599 4509 for advice or concerns that arise regarding their pregnancy. It is advised that the women call the assessment unit before presenting for further instructions.
- The assessment unit staff will assess women who develop complications after 20 weeks of gestation including (but not limited to):
    - Hypertension
    - Possible premature rupture of membranes
    - Reduced fetal movements
    - Threatened premature labour
    - Ante partum haemorrhage
    - Urinary tract infections.

- The unit also attends to:
    - External Cephalic Version (ECV)
    - Induction of labour
    - Maternal/fetal wellbeing assessments
    - CTG's for GDM, IUGR, Pre-Eclampsia, Cholestasis, previous fetal demise and other obstetric complications.
    - CTG's for fetal surveillance can be conducted in the community by appropriately credentialed practitioners

Emergency Department (<20 weeks gestation)

- Women can be seen at any time in the Emergency Department (ED) when <20 weeks if they have severe pain, heavy vaginal bleeding or an ectopic pregnancy is expected.
- If you are referring a patient to the ED, please phone the duty medical officer for Obstetrics and Gynaecology via switch (08) 9599 4000
- For early pregnancy loss, the Emergency Department offers management under the Obstetrics and Gynaecology team by:
  - Expectant management
  - Medical management using misoprostol
  - Medical management using methotrexate (ectopic)
  - Dilatation and curettage (D&C).

Pregnancy medication information

- For information about medications in pregnancy or breastfeeding, KEMH pharmacy provide an excellent service and can be contacted on 6458 2723
- The Pregnancy and Breastfeeding Medicines Hub also provides a range of resources that can be freely accessed for information regarding the use of medications during pregnancy and breastfeeding.

Preconception counselling, iron, folate and vitamin D

- Identify women who are thinking about pregnancy.
- A referral for genetic counselling may be appropriate for women with a high risk of fetal abnormality e.g. women with Type 1 or Type 2 diabetes.
- Women should also be encouraged to take vitamin D and folate supplements (see Table below for recommended doses).
  - Maternal Vitamin D deficiency is associated with hypocalcaemia in the newborn, which can lead to convulsions, muscle cramps or weakness.
  - Severe deficiency of vitamin D can disrupt skeletal mineralisation and lead to rickets and defective tooth enamel. It may also be associated with other long term health problems for the infant.
  - The prevalence of Vitamin D deficiency in Australian neonates is up to 40-57%, with severe deficiency in 11-19% (rates vary according to season and location).
  - General population screening of pregnant women is not currently recommended. Instead, a risk based screening approach is adopted.
  - Those considered at high risk of Vitamin D deficiency should have levels performed with initial antenatal screening bloods and treatment initiated as necessary.
  - High risk groups include:
    - Dark skinned women
    - Lack of sunlight exposure: religious covering (veiled women), chronic illness or hospitalisation.
    - Obesity (pre-pregnancy BMI ≥ 40)

NB: Pregnancy formulations should not contain Vitamin A.
NB: Babies born to Vitamin D deficient women will require Vitamin D supplementation

Table 7. Indications and recommended doses - folate and vitamin D

Supplement	Dose	Indication
Folate	0.5mg per day	Preconception to 14 weeks gestation.
Folate	5mg per day	Preconception to 14 weeks gestation for women considered at high risk for an open neural tube defect: • Personal history of an open neural tube defect • A previous pregnancy with an open neural tube defect • Past medical history of diabetes mellitus • Women taking anticonvulsants
Vitamin D	5000units Vitamin D3 per day plus calcium (RDA) orally. Maintenance dose of 1000IU recommended at least until the cessation of lactation	*<50 OHD*

Supplements

Vitamin and mineral supplements

RANZCOG has a statement regarding vitamin and mineral supplements in pregnancy. The link can be found here.

Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) College Statement C-Obs 25: Vitamin and Mineral Supplementation and Pregnancy

Iodine

As iodine requirements increase during pregnancy, dietary supplementation of 150 mcg iodine daily, prior to or as soon as possible after diagnosis of pregnancy and continuing through pregnancy and lactation.

Folate

Folic acid supplementation of 0.5 mg daily is recommended for at least one month preconception until 12 weeks' gestation, to reduce the risk of neural tube defects. 5 mg daily is recommended if the woman has pre-existing diabetes, obesity, is on anticonvulsant medication, a previous child with, or family history of neural tube defects.

Vitamin D

Vitamin D screening is recommended if women are at risk of Vitamin D deficiency (dark skinned women, women with lack of sunlight exposure including women with religious covering, obese women and women with fat malabsorption):

- Vitamin D = 50nmol/L is considered normal
- If Vitamin D deficiency is identified (mild if Vitamin D 30-49 nmol/L, severe if <30 nmol/L), supplementation is recommended until cessation of breastfeeding

Vitamin B12

Consideration may be given to supplement vegetarians and vegans with Vitamin B12, with a recommended daily intake of 2.6mcg/day.

Iron

- Routine iron supplementation is not recommended during pregnancy due to the associated side effects, which may include nausea and constipation.
- There is a greater requirement for iron during pregnancy and the recommended daily intake of iron during pregnancy is 27mg/day.
- Screening with a haemoglobin at initial antenatal bloods and at 28 weeks is routine.
- If anaemia is detected then further investigation and treatment is necessary.
- Iron deficiency is common during pregnancy and there is additional risk if women are vegetarians or have a multiple pregnancy.
- Preparations with high elemental iron content (>100mg/unit) are recommended to reverse anaemia.
- Iron absorption is impaired if women take their iron supplement at the same time as supplements containing calcium. Vitamin D/Calcium supplements should therefore be taken at a different time to iron supplements.

Brands of iron:

- High dose elemental iron (>100mg/unit): Ferrograd C, Ferrogradumet, Ferro-f-tab, Ferro-tab
- Medium dose elemental iron (30-99mg/unit): Fefol, Elevit
- Low dose elemental iron (<30mg/unit): Iron Maxx, Pure Innovation, Spatone, Fab Iron, Swisse Multi, Metagenics Veggie Caps, Floradix (liquid iron), some Pregnancy multivitamins

Calcium

- The recommended daily intake for Calcium is 1300mg (14-18years old) and 1000mg (19-50 years old) during pregnancy and lactation. If oral intake of calcium rich food (dairy, soy products) is inadequate, than oral
- Supplementation with 1000mcg Calcium is recommended. There is also evidence of a benefit of calcium supplementation in reducing the risk of complications of hypertensive disease and pre-eclampsia in those at high risk, particularly in people with low calcium intake in their diet.
- The World Health Organisation (WHO) recommends 1.5-2g of Calcium supplementation in pregnant women with low dietary calcium intake.

Guidelines - Exclusion Shared Antenatal Care, transfer or discussion

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) has developed the following guideline to assist those involved in the provision of maternity care to deliver best-practice evidence-based maternity care across multiple models of care.

College Statement C-Obs 30 – "Maternal suitability for models of care, and indications for referral within and between models of care" and the RANZCOG National Midwifery Guidelines for Consultation and Referral are available via the RANZCOG website www.ranzcog.edu.au

If the woman falls outside of the GP/ GPO or EM's scope of practice as determined by the RANZCOG guidelines, please refer to the Rockingham General Hospital Obstetric Specialist Clinic (refer to page 7 of this document) or if necessary, directly to Fiona Stanley (FSH) or King Edward Memorial Hospital (KEMH)

Maternal Fetal Medicine Service at FSH/ KEMH

- The Maternal Fetal Medicine (MFM) Service at KEMH provides tertiary level ultrasound assessment and diagnosis of pregnancy complications and ongoing management by a multidisciplinary team.
- The service provides maternal fetal medicine diagnosis and treatment, in particular for conditions such as congenital abnormalities, rhesus disease, severe intrauterine growth restriction and twin to twin transfusion syndrome.
- The specialists and midwives of the MFM services at FSH/KEMH can provide counselling and/or management for women who have an increased risk of fetal abnormality on their screening.
- They also monitor and manage women who have a high risk pregnancy. To contact these services, call:
  - FSH Maternal and Fetal Assessment Unit (MFAU) urgently on 6152 4301 if they have significant concerns for the wellbeing of the woman.
  - KEMH on (08) 9340 2705.

Criteria for referral to a tertiary level centre

For information on what women require referral to a tertiary centre and how to refer them, please visit the website for KEMH and FSH.

KEMH
https://www.kemh.health.wa.gov.au/For-health-professionals/GP-referrals

FSH
https://fionastanley.health.wa.gov.au/For-health-professionals/GP-referral/Obstetric-referrals

Management of women who are Rh (D) negative

- Pregnant women who are Rh (D) negative fall into two categories: those with and those without Anti-D antibodies.
- The following information therefore relates only to **women who are Rh (D) negative and have no preformed antibodies**.

Testing for Anti-D antibodies

- All women should be tested for blood group antibodies at the first antenatal visit.
- Women who are Rh negative and had no Rh (D) antibodies in early pregnancy should be tested again for the presence of antibodies before administration of Anti-D at 28 weeks.

Ideally testing should precede administration of Anti-D. However, if both are done at the same clinic appointment, the sequence in which they occur does not matter. It takes some time (2–4 hours) before the Anti-D that has been injected can be detected in the circulation.

- Further testing later in pregnancy (after administration of Anti-D) is superfluous because the test cannot distinguish between endogenous and administered Anti-D.

Anticipating prophylactic Anti-D administration in pregnancy

- All women who are Rh (D) negative and have no preformed Anti-D antibodies should be informed about the need to prevent Rh D sensitisation. This includes:
    - Anti-D administration if a sensitising event occurs in pregnancy. Potentially sensitising events are defined as any situation in which there is an increased likelihood of fetal red blood cells entering the maternal circulation.(see page 30 for examples).
    - Routine prophylaxis at 28 and 34 weeks gestation
    - Further prophylaxis after birth if the baby is Rh D positive.
- Recurrent vaginal bleeding requires discussion with/or referral to RGH duty medical officer (obstetrics) before administering doses of Anti-D.
- Informed consent for prophylaxis should be obtained early in pregnancy (as soon as the Rh D status has been determined). This is to cover any and all occasions on which Anti-D may become indicated during pregnancy.
- The woman's consent for prophylaxis must be documented in her NWHPHR

Obtaining informed consent for Anti D

- Ensure that the woman understands what Rh D sensitisation means and the consequences it may have, if not necessarily for this pregnancy, at least for any future pregnancies.1
- Provide the woman with written information in her usual language when able.
- Antenatal administration of Anti-D to all Rh-negative women is recommended by the NHMRC. Administration of Anti-D to all Rh-negative women who give birth to a Rh positive baby has been practiced for many years in Australia.
- Anti-D is a blood product. As it is made from human blood, there is a theoretical risk of transmission of blood borne diseases. However, the risk of transmission is extremely small because of the careful selection of blood donors and because of the way in which Anti-D is produced from the blood.
- More than 1.5 million doses of Anti-D have been given in Australia without a single viral transmission thus far.
- The risk of HIV transmission, for example, is currently estimated to be less than one in five million Anti-D ampoules administered. Thus far, HIV has never been transmitted through Anti-D injections.

- One case has been reported of transmission of Hepatitis C attributed to Anti-D administration. This did not occur in Australia.

Anti-D prophylaxis for potentially sensitising events

- RhD immunoglobulin must be given within 72 hours of the sensitising event. Potentially sensitising events are defined as any situation in which there is an increased likelihood of fetal red blood cells entering the maternal circulation. These include:
    - Any uterine bleeding in pregnancy ranging from (threatened) miscarriage to antepartum haemorrhage. However, there is insufficient evidence to suggest that a threatened miscarriage before 12 weeks gestation necessitates anti-d.
    - Any abdominal trauma in pregnancy.
    - Any uterine or intra-uterine intervention (such as external cephalic version, amniocentesis, etc.). However, the responsibility for prophylaxis rests with the hospital at which these interventions are performed.
- If a sensitising event occurs:
    - Before 12 weeks gestation, the recommended prophylaxis consists of 250 IU (international units) CSL Rh D immunoglobulin.
    - At or after 12 weeks gestation, the recommended prophylaxis consists of 625 IU (international units) CSL Rh D immunoglobulin.
    - After routine prophylaxis at 28 weeks, she should have a dose of Anti-D regardless of when the prophylactic dose was administered.

Routine prophylaxis at 28 and 34 weeks (with or without previous sensitising events)

- Rh D negative women without preformed Anti-D antibodies should receive 625 IU CSL Rh D immunoglobulin at 28 weeks (after or simultaneously testing for preformed Rh D antibodies) and again at 34 weeks.
- Anti-D can be administered before the result of the test for endogenous Anti-D at 28 weeks becomes available provided that the woman had no Anti-D antibodies at the beginning of pregnancy.
- Basic principles about the timing of the routine prophylaxis are:
    1. The Anti-D administration will provide cover for a minimum of six weeks.
    2. The risk of sensitisation increases as pregnancy progress.
- Thus, if someone has received Anti-D slightly before 28 weeks, the 34 weeks injection should still be given as planned at 34 weeks.
- If someone has missed out on receiving Anti-D at 28 weeks, Anti-D should be given at the next antenatal visit (better late than never). In that case, the second injection should be planned six weeks later, provided that the woman is still pregnant then.
- If a woman has received Anti-D for a potentially sensitising event, e.g. antepartum haemorrhage or trauma, before 28 weeks, she should still receive Anti-D at 28 and 34 weeks, as scheduled, unless the Anti-D for the sensitising event was administered less than one week before the prophylactic dose being due.

Administration of Anti-D

- Rh D immunoglobulin should be given slowly by deep intramuscular injection.
- Administration of Anti-D must be documented in the woman's NWHPHR
- If your practice has an immunisation fridge, you may be able to order and keep a small supply.

Recordkeeping

- Anti-D is a blood product and must be traceable.

- Anti-D is available from the Red Cross (9325 3030), Western Diagnostics (9317 0863), St John of God Pathology (9382 6690) or Clinipath West Perth (9476 5222).
- GP/GPO's must keep a register of patients who are given Anti-D and the batch number they receive.
- This register must be kept at a central location, not in the individual patient notes.
- An Anti-D register template is available online via the SA Health – www.sahealth.sa.gov.au (search "Blood product and fridge registers").

Table 7 Dosing recommendations for Rh D negative women—Australian Red Cross Blood Service

Dose of CSL Rh (D) immunoglobulin	
First trimester sensitising events (< 12 weeks)	250IU
First trimester sensitising events (multiple pregnancies < 12weeks)	625IU
Second and third trimester sensitising events	625IU
All Rh (D) negative women without preformed Anti-D—at 28 and 34	625IU
Postnatal prophylaxis	625IU

Pregnancy Management Plan BMI > 35

Table 8 BMI management

	BMI 35–39	BMI 40–44	BMI ≥ 45
Preconception	Encourage weight loss		
	Consider referral to a dietitian		
	Recommend screening for glucose intolerance		
	Inform women of the health risks of obesity in pregnancy		
	5 mg Folate daily		
History and booking at 14 weeks	Dietician referral and weight tracker		
	Routine booking bloods plus LFTs ,HBA1c (first trimester) or OGTT, urine protein/creatinine ratio		
	Commence customised growth centiles chart (when available)		
	Obstetric / Anaesthetic referral		
	Routine model of care with shared GP/GPO or midwifery model	Referral for Specialist Obstetric review	Transfer of care to Fiona Stanley Hospital
Second trimester	Consider low does aspirin if additional risk factors for pre-eclampsia		
	Consider LMWH if additional risk factors for DVT		
	Repeat 75 g OGTT if previous testing negative		
Third trimester	Additional scan for growth in third trimester if unable to assess clinically	Scan growth at 28 and 34 weeks	
Intra-partum	Notify anaesthetic and obstetric medical staff of patient's admission		
Post-partum	Consider LMWH if operative birth or mobility compromised by BMI and TEDS		
	Dietician referral		
	OGTT 6 weeks postpartum if GDM		

Pathology Request Forms

When requesting blood tests for blood group and antibody screen, the request form should include the following information:

- Current gestation
- Number and gestation of previous pregnancies
- History of blood transfusions any previous antibodies detected
- Dates of Anti-D prophylaxis.

If possible please have copies sent by fax to the Antenatal Clinic on (08) 9391 4623.

Inpatient and Postnatal Care

Please note that there is no accommodation at the hospital for partners or family. Overnight stays will only be permitted in exceptional circumstances. Bedding can be provided at the patient's bed space when required and will be at the discretion of the midwife in charge.

- The care of the woman during labour and birth will be the responsibility of the Obstetric and Midwifery team at RGH.
- At discharge, a summary of the pregnancy and birth outcome will be sent to the GPO/EM or GP.
- RGH Midwives provide postnatal home visits up to 5 days following birth (date of birth is considered Day 1).
- Any follow up required outside of this will be referred back to the GPO/EM or GP.
- A child health referral is also sent at this time to the woman's local child health centre.

Breastfeeding

- Breastfeeding is the normal method of feeding infants and positively influences both their immediate and long-term health.
- GPO/EMs and GPs have a very important role in encouraging and supporting women to breastfeed.
- The initial antenatal interview between a woman and her doctor or midwife should include a careful assessment of the woman's (and her partner's) attitudes, beliefs, expectations, knowledge and experience in relation to infant feeding.
- Women are more likely to breastfeed if: they are committed to breastfeeding prior to birth, their husband/ partner and mother supports breastfeeding, they attend antenatal classes, and if they have access to support in the postnatal period.

Recommendations for breastfeeding

- Exclusive breastfeeding for the first six months. The infant receives only breast milk by mouth, no other liquid or solids, with the exception of medication for the first six months of life.
- Continued breastfeeding until 12 months of age, with introduction of solids around 6 months of age.
- Breastfeeding continued beyond 12 months as desired by mother and child.

Table 10 Benefits of breastfeeding

Mother	Baby
• Protection against premenopausal breast cancer, and ovarian cancer. • Promotes a loving bond between mother and baby. • Convenient and inexpensive. • Prolonged period of postpartum infertility.	• Increased protection against bacteraemia, meningitis, urinary tract infection, otitis-media, and SIDS. • Possible reduced risk of developing obesity, coronary vascular disease, cancer, type two diabetes, asthma and delayed onset of coeliac disease. • Reduced incidence and duration of diarrhoeal illnesses. • Improved cognitive development. • Reduced malocclusion due to better jaw shape and development.

GPO/EMs and GPs have a very important role in supporting women to overcome any breastfeeding problems.

- Some women cease breastfeeding too early because they encounter problems, do not have support, or mistakenly feel they do not have an adequate supply of breast milk.
- Timely support and management is the key to overcoming these problems to ensure continued breastfeeding.
- Refer to services providing breastfeeding support (see end of section).

Common problems with breastfeeding and where to go for help

- Is my baby getting enough milk?
- Is my baby feeding enough? Too frequently?
- Breastfeeding is painful—sore or cracked nipples.
- Engorgement or mastitis.
- Oral infant pathology i.e. tongue tie.
- Flat or inverted nipples.
- My baby is unsettled, particularly in the early evening. Does my baby have colic?
- Australian Breastfeeding Association: 1800 686 2686

Postnatal follow up

Table 11 Postnatal GPO/EM or GP appointments at 6-10 days

Mother	Baby
Early contact to assess wellbeing, social risk factors, and level of support. Apply Edinburgh Postnatal Depression Scale if indicated. Review: • BP • lochia • perineum • abdominal wound if LUSCS • feeding • Contraception. Referral (prn): • Child Health Centre • lactation consultant • Australian Breastfeeding Association • Social worker.	Review by GPO or GP between five and ten days if baby discharged from hospital < 72 hours of age Review: • age, weight, head circumference • feeding • examination: signs of jaundice; fontanelle/sutures; eyes and red reflexes; face/palate/ears; limbs; spine; genitalia; anus; meconium within 24 hours; urine output, abdomen and umbilicus; respiratory; cardiac (auscultation and femoral pulses); hips; neurological/ reflexes • Health promotion, safe sleeping, SIDS prevention, benefits of breastfeeding, vaccinations, role of child health nurse. Referral • child health clinic • Paediatrician.

Table 12 Postnatal GPO/EM or GP appointments at 6-8 weeks

Mother	Baby
Assess wellbeing, social risk factors, and level of support. Apply Edinburgh Postnatal Depression Scale. Examination: • BP • breasts, nipples • abdomen—palpate uterus unless LUSCS, check wound if LUSCS, refer to physio if abdominal diastasis • Examine perineum if tear or episiotomy. • Pap smear if due • ask re urinary or faecal incontinence • Family planning /intercourse. Follow-up for mother e.g. gestational diabetes, hypertension. Discuss: bowel habits, vaccinations, SIDS awareness	As for initial visit and including the following: Examination: • weight, length, head circumference—plot on growth charts • vision profile—eyes tracking (red light reflex) • facial symmetry—smiling • hearing profile • cardiovascular • femoral pulses • hip testing • Genitalia—testes fully descended? • Development.

Allied Health Services

Parent Education Classes & Hospital Tours

- Experienced and dedicated midwives at RGH provide Parent Education Classes free of charge for all women booked to deliver at RGH and their support partners.
- Classes are held on a 2 consecutive Monday evenings or a full day Saturday.
- To book a class or to find out available dates, please contact RGH Antenatal Clinic on 9599 4699.
- Tours of the RGH Maternity Unit are held every Saturday, departing from Elanora's Café (main foyer of the hospital) at 1400hrs. No bookings required.

Mental Health

- Perinatal mental illness is a significant cause of morbidity and mortality, affecting maternal and neonatal outcomes, the health of families and of the community. The recognition of depression in the antenatal period is important, as it may require treatment during the pregnancy and is a strong predictor for postpartum depression.
- The Edinburgh Postnatal Depression Scale (EPDS) is a screening tool for postnatal depression that is also useful in identifying symptoms of depression and anxiety in the antenatal period. It is completed at the hospital booking appointment and should be repeated by the GP at 34 weeks and at 6 weeks postpartum or if there are any ongoing concerns. It is the GPO/EM or GP's responsibility to arrange appropriate referrals if needed, document in the NWHPHR to notify RGH if concerns are identified or medication commenced.

Rockingham Kwinana Mental Health Service (Adults aged between 18-64 years)
Corner of Clifton and Ameer Street, Rockingham
Telephone: 9528 0600
Fax: 9529 1266
This service is open Monday-Friday (excluding public holidays) between 0830hrs-1600hrs

- Patient referral form: https://www.rkpg.health.wa.gov.au/~/media/Files/Hospitals/RkPG/PDFs/Rockingham-Kwinana-Adult-MHS-referral-form.pdf

Adolescents can be seen by the psychological medicine team at KEMH
Tel: (08) 6458 1521
Fax: (08) 6458 1111

- Patient referral form https://www.kemh.health.wa.gov.au/~/media/Files/Hospitals/WNHS/For%20health%20professionals/57a%20REFERRAL%20FORM%20PSYCH%20MED.pdf

Social Work

- The Maternity and Neonatal Units at RGH have a dedicated Social Worker available; Monday-Friday between 0800hrs and 1600hrs.
- Social Work can be contacted via RGH switchboard (9599 4000).

Visiting Midwifery Service

- Midwives from RGH maternity unit will visit women and their newborns in their home up to day 5 following birth. They will visit beyond Day 5 if there is a clinical reason such as; staple removal, pico dressing removal or newborn concerns.
- The visiting midwives will refer women and newborns onto community services after this time.

Anaesthetist

- A dedicated Anaesthetic Consultant is on-call 24 hours a day, 7 days per week at RGH for admitted to the unit.
- They are also on call for women who require a consult (pain management), for women who require epidural analgesia during labour or for women who require an elective or non-elective caesarean section.
- Some women may require a Specialist Anaesthetic Referral during pregnancy. These women may have had a previous caesarean section, are booked for an elective caesarean section, gestational diabetes, blood disorders or an increased BMI.
- Referrals are done by the Obstetric consultant or hospital staff during points of care.

Paediatric services

- A Consultant Paediatrician is on-call 24 hours a day, 7 days per week at RGH.
- They provide care for neonates admitted to the Neonatal Unit (Level 4 neonatal nursery) and attend births when required.
- If a Paediatric consultation is required, please ask to speak to the on-call Paediatrician via RGH switch board (9599 4000).

Radiology

- Medical Imaging (ultrasound) is located on the ground floor of RGH, B-Block and operates Monday-Friday (except public holidays) between 0830hrs and 1700hrs.

Telephone: 9599 4690
Fax: 9592 2992

- All women require a referral to access this service
- Women who require a tertiary obstetric ultrasound need to be referred to FSH/KEMH
- The RGH imaging department do not perform First trimester screening or anatomy scans.

Diabetic Education

- A team consisting of Diabetic Nurse Educators, Endocrinologists and Dieticians provide a comprehensive service for women who have diabetes or have been diagnosed with Gestational Diabetes.
- A medical referral is required for women to access this service.
- The Diabetes Centre is located across from RGH ED and is open Monday-Friday 0830hrs to 1600hrs.

Telephone: 9599 4697
Fax: 9599 4737
Email: rghdps@health.wa.gov.au

Physiotherapy

- The Physiotherapy Department at RGH provides an inpatient and outpatient service Monday-Friday (excluding public holidays) between 0800hrs and 1630hrs.
- As inpatients, all postnatal women will receive individualised education sessions prior to discharge home. If a woman has birthed and discharged on a weekend or prior to seeing a Physiotherapist, she will be followed up by a Physiotherapist the following business day.
- RGH Physiotherapy Department: Day Therapy Unit

Phone: 9599 4762
Fax: 9599 4700

- Outpatient services require a referral by a GP or GPO

Pathology

- PathWest Collection Centre is located on the ground floor of RGH (past Elanora's Café).
- It is open Monday-Friday 0730hrs- 1645hrs; Saturday 0830hrs-1100hrs.
- Some investigations, such as a GTT's may require booking.
- Request forms are required at time of blood collection.
- Telephone: 9528 4355

Pharmacy

- The Pharmacy Department at RGH provides inpatient medications and discharge medications as well as outpatient dispensing for those attending outpatient clinic appointments.
- Women who have had a caesarean section or who require ongoing analgesia at discharge (third/fourth degree tear) will be given a discharge script/medication by the Duty Medical Officer.
- The Pharmacy department operates Monday-Friday between 0800hrs-1600hrs

Further information for GPO's, GP's or EM's

Infections

Pregnancy may be complicated by any of the common infections. There are however infections which can impact adversely on fetal wellbeing. Discussion with a consultant obstetrician is required where these infections are suspected or there is a history of exposure.

- Coxsackie virus (hand, foot and mouth disease)
    - In adults, most diseases caused by coxsackie B viruses are mild. However, coxsackie B viruses may cause an inflammation in the fetal heart or lungs and increase the chance of spontaneous miscarriage, infection in the fetus or stillbirth. Referral for discussion of confirmed infection during pregnancy is appropriate.
- Cytomegalovirus
    - Primary infection and reactivation in pregnancy can both result in congenital CMV. Up to 20% of infants born to mothers who have primary infection in pregnancy will be symptomatic with mortality in this group of 9% and severe neurological sequelae in 80%.
- Epstein-Barr virus (Glandular Fever)—Primary EBV infection during pregnancy is rare. Only 3–3.4% of pregnant women are susceptible (Arvin and Maldonado 2001)
    - Only 50% of pregnant women infected will develop clinical infectious mononucleosis.
    - The low frequency of maternal EBV in pregnancy makes it difficult to assess the risk to the fetus.
    - Early studies have reported that infants occasionally suffer damage due to maternal primary EBV infection just before conception or during pregnancy.
    - In other studies, EBV infection was not transmitted to the fetus and there were no adverse effects.
    - The risk of intrauterine transmission of EBV infection is considered to be low, even when the mother is symptomatic clinically (Fleisher and Bolognese 1984; Sumaya 1998; Arvin and Maldonado 2001).
- Genital herpes simplex (HSV)
    - 50% risk of transmission if primary infection with active lesions at time of vaginal birth. 3% risk of transmission if recurrent infection with active lesions at time of vaginal birth

    - If primary infection in second half third trimester refer for advice about delivery. Prophylactic valacyclovir offered to reduce incidence of recurrence to facilitate decisions around vaginal delivery.
- Hepatitis B
    - Infection rate 90% and infection occurs typically at time of birth.
    - Neonatal vaccination protects 95% of at risk newborns. HBIG and HB vaccine for the baby at birth.
    - Presence of HBeAg confers high risk fetal transmission.

- Hepatitis C
    - Obstetrician will refer to specialist clinic.
    - Order hepatitis C RNA, LFTs, and screen for STIs
    - Avoid invasive tests (has implications for discussion around Nuchal Screening).
    - Vaginal birth and breastfeeding are not discouraged.
    - Baby is screened at 18 months for HCV antibody.
- HIV/Aids
    - Risk of transmission during pregnancy and postnatal period 25%. This can be reduced to close to 1% with antiretrovirals and elective caesarean section for birth. More recent data suggests, for women with a nondetectable viral load, a vaginal birth may not confer any increased risk.
    - Screening for other STIs is recommended.
    - Avoid invasive tests (has implications for discussion around Nuchal Screening).
    - Refer to specialist obstetrician who will refer to the Infectious Diseases consultant.
    - Breastfeeding is high risk of transmission and is not advised in Australia.
- Parvovirus (slapped cheek syndrome)
    - Up to 50% pregnant women have pre-existing IgG and therefore are not considered at risk of infection.
    - B19 infection in pregnancy is associated with fetal loss and hydrops fetalis.
    - Fetal hydrops is amenable to treatment with intrauterine transfusion after 20 weeks.
    - Check for maternal IGM and IGG. If IgG positive and IgM negative reassure and referral not required.
    - If IgG negative or IgM positive refer to consultant obstetrician.
- Rubella infection
    - German measles outbreaks are rare secondary to effective immunisation campaign in Australia.
    - Heterogenous spread fetal infection rates are 80% first trimester, 25% second trimester, 35% early third trimester and 100% of fetuses exposed after 36 weeks.
    - Risk of congenital rubella is limited to the first 16 weeks of pregnancy. May result in sensorineural deafness, ophthalmic abnormalities, cardiac malformation and neurological sequelae.
    - Infection later in pregnancy is associated with intrauterine growth restriction.
    - Diagnosis is by four-fold rise in IgG or the presence of IgM or positive rubella culture.
- Syphilis (Treponema Pallidum)
    - Refer to the Australian STI Management Guidelines.
    - Perinatal transmission rate is 50%in primary or secondary syphilis. Reduced risk if latent or tertiary disease.
    - Risk of fetal anomaly, growth restriction, congenital infection, prematurity, stillbirth, neonatal death.

    - Adequate treatment of mother in pregnancy can reduce fetal infection rate from 70 to 100% down to 1%.
    - High risk women should be rescreened at 26 – 28 weeks, 34 weeks and post birth.
- Toxoplasmosis
    - Mononucleosis like illness.
    - Infection confirmed if demonstrate seroconversion IgG or IgM negative to positive.
    - Avidity testing helps interpret results as IgM can remain positive for up to 13 months.
    - Risk of fetal transmission increases with increasing gestational age (15% first trimester, 44% second trimester, 71% third trimester).
    - Amniocentesis with PCR for T. gondii is undertaken to diagnose fetal infection and enable optimal medical treatment or discussion about pregnancy continuance.
- Varicella-zoster (chicken pox)
    - Risk of maternal compromise e.g. pneumonia. Give Acyclovir if seen within 24 hours of symptoms.
    - Risk for the fetus is before 20 weeks (2% risk of Varicella Zoster syndrome) and five or less days before birth as baby can develop infection without maternal antibodies.
    - Refer any woman with varicella in pregnancy, but liaise by phone to reduce risk to other pregnant women.

For more information refer to Australasian Society for Infectious Diseases: Management of Perinatal Infections.

Smoking during pregnancy and Lactation

- Effective smoking cessation intervention should be offered to pregnant smokers at the first antenatal visit and throughout pregnancy and postpartum.
- Extended psychosocial interventions that exceed minimal advice to quit should be made available for pregnant women.
- Consider lowest dose intermittent nicotine replacement therapy after the first trimester using a risk/benefit approach.
- Cigarette smoking by pregnant women causes adverse fetal outcomes including stillbirth, spontaneous abortion, reduced fetal growth, premature rupture of membranes, preterm birth, low birth weight, placental abruption, sudden infant death, cleft palate, cleft lip and childhood cancers.
- Maternal smoking increases the risk of poor health outcomes in infants and children including sudden infant death syndrome, respiratory infections, asthma, and middle ear disease.
- Although abstinence early in pregnancy will produce the greatest benefits to the mother and fetus, smoking cessation at any point during the pregnancy will be beneficial.
- The health benefits of breastfeeding whilst smoking outweigh the risk of formula feeding in a smoking household. Mothers who smoke whilst breastfeeding should be encouraged and supported to stop smoking; and concurrently educated about the benefits of continuing to breastfeed their babies.
- Smoke Free Pregnancy Project
- Call the Quitline on 13 78 48 for help

Contact us

Consultation or advice about referrals, inductions or general queries, contact the Clinical Midwifery Specialist Mon-Fri 0700-1700hrs
Phone 08 9599 4524

Consultation or advice about abnormal screening results, contact the on call duty medical officer for Obstetrics via switch.
Phone 08 9599 4000, pager 301

Consultation or advice from a Specialist Obstetrician and Gynaecologist, contact the Obs and Gynae consultant on Call via switch
Phone 08 9599 4000

Advice from a Midwife is available 24 hours a day, 7 days a week through our assessment unit.
Phone 9599 4509

Antenatal clinic and parent education classes
Phone 9599 4699

All referrals to the midwifery or Obstetric team are to be sent via the RGH central receipting office and can be contacted on;

- Phone: (08) 9599 4750
- Email: RKPG.CentralReceiptingClerical@health.wa.gov.au
- Fax: (08) 9599 4659

Links

1. https://www.safetyandquality.gov.au/our-work/assessment-to-the-nsqhs-standards/
2. Reference : http://www.adips.org/downloads/adipsconsensusguidelinesgdm-03.05.13versionacceptedfinal.pdf
3. *https://www.aafp.org/afp/2000/0815/p825.html*
4. *https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Vitamin-and-mineral-supplementation-in-pregnancy-(C-Obs-25)-Review-Nov-2014,-Amended-May-2015_1.pdf?ext=.pdf*
5. http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/new45_statement.pdf http://www.ranzcog.edu.au/womens-health/news-and-alerts/612-iodine-supplementation-in-pregnancy.html
6. Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) College Statement C-Obs 25: Vitamin and Mineral Supplementation and Pregnancy

Acknowledgments

These guidelines have been adapted for Rockingham General Hospital from the *"King Edward Memorial Hospital (KEMH) Antenatal Shared Care Guidelines for General Practitioners"* 5th Edition – March 2014 and also "*Armadale Health Service Shared Care Guidelines for General Practitioners*" - 2015.

Information contained within this booklet has also been sourced from The Department of Health and Ageing Clinical Practice Guidelines 2012 – Antenatal Care Module 1 and the RANZCOG Guidelines.

Information is up to date at the time of printing.

National Standards

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