

Antenatal Shared Care Guidelines for General Practitioners

FOURTH EDITION



Table of Contents	Page
INTRODUCTION	2
ANTENATAL SHARED CARE VISITS	4
PRECONCEPTION COUNSELLING, IRON AND FOLATE	6
DOCUMENTATION AND ROUTINE ASSESSMENTS	7
EARLY PREGNANCY ASSESSMENT SERVICE (EPAS)	8
EMERGENCY CENTRE	9
GUIDELINES FOR EXCLUSION FROM SHARED ANTENATAL CARE, TRANSFER OR DISCUSSION	10
INFECTIOUS DISEASES AND IMMUNISATION IN PREGNANCY	11
INVESTIGATIONS	12
GESTATIONAL DIABETES MELLITUS (GDM) SCREENING	14
FETAL ANOMALY SCREENING	16
FETAL MORPHOLOGY ULTRASOUND	18
RURAL PATIENTS	18
REFERRAL TO HOSPITAL	19
MATERNAL FETAL MEDICINE SERVICE	21
MATERNAL FETAL ASSESSMENT UNIT	21
GUIDELINE FOR INVESTIGATION OF PATIENTS AT RISK OF HAEMOGLOBINOPATHY	21
USE OF ANTI-D IN PREGNANCY	24
HOW TO OBTAIN ANTI-D	24
DEPARTMENT OF PSYCHOLOGICAL MEDICINE	26
APPENDIX 1 - EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)	27
APPENDIX 2 - CARE CHOICES PROVIDED AT KEMH	29
APPENDIX 3 - IMPORTANT TELEPHONE NUMBERS	32

Copies of this booklet can be obtained by contacting
the Obstetric and Gynaecology Clinical Care Unit on (08) 9340 1382.

Introduction

The aim of this booklet is to provide clear guidelines for general practitioners (GPs) involved in the shared care of low-risk antenatal patients with King Edward Memorial Hospital (KEMH) and other maternity care providers in Western Australia. The purpose of shared care is to improve the quality and convenience of care for these women.

In order to reduce the clinical load at King Edward Memorial Hospital (KEMH) and promote community based maternity care, we encourage you to refer low-risk antenatal patients to your local maternity unit.

Postcodes for the catchment area for each hospital are as follows:

HOSPITAL	POSTCODES (inclusive of all numbers within ranges given)
KEMH	6000, 6001, 6003-6016, 6051, 6053
Armadale Health Service	6108-6113, 6121-6126, 6147, 6148, 6155
Bentley Health Service	6100-6107, 6147, 6148, 6151, 6152, 6155
Joondalup Health Campus	6023-6038, 6064-6067
Kaleeya	6011, 6012, 6149, 6150, 6153, 6154, 6156-6164
Osborne Park	6014, 6016-6022, 6050, 6052, 6059-6062, 6064
Peel Health Campus	6207, 6208, 6210, 6211, 6213-6215
Rockingham General Hospital	6165, 6167-6176
Swan Health Service	6055-6058, 6062, 6063, 6066-6074, 6076, 6081-6085, 6090, 6500, 6555, 6556, 6558 plus Wheatbelt region

Secondary hospitals vary in their ability to provide medical care to patients with an increased Body Mass Index (BMI). As the BMI cut-off level is set by each hospital, please contact your local maternity unit for this information. Even if a patient's BMI exceeds the limit set by the hospital and she is required to deliver at KEMH, most women can still receive the majority of their antenatal care at their local maternity unit which is often much more convenient for these women.

Once the woman has had her pregnancy confirmed, a referral form should be sent to the hospital clearly showing the intention to share care. An antenatal appointment will then be made. For low-risk women who are referred to KEMH, this first visit is usually at 20 to 22 weeks gestation. All tests or ultrasounds required before this will need to be arranged by the GP, and the results sent to KEMH.

Requests for female practitioners

Patients at KEMH will be seen by medical practitioners on the basis of their clinical need, without reference to the medical practitioner's gender, age, religion, race or nationality. KEMH 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 KEMH.

Which general practitioners can provide shared care with KEMH?

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.

Obstetric medication information

The Pharmacy Department at KEMH provides an information service on the safety of medications taken during pregnancy. The Obstetric Drug Information Service can be contacted on (08) 9340 2723.

For queries

The Clinical Nurse Manager (Ambulatory Services), can be contacted on (08) 9340 2222, pager 3419 from 8.00am to 3.00pm Monday to Friday, or fax (08) 9340 1031, if you have any queries regarding these guidelines.

For urgent obstetric problems, contact the Obstetric Registrar on (08) 9340 2222.

Summary

These guidelines are available on the KEMH website at:

<http://www.kemh.health.wa.gov.au/development/manuals/guidelines/2577.pdf>

A one page summary on Antenatal Shared Care that you can keep on your desk can also be found at:

http://www.kemh.health.wa.gov.au/development/manuals/guidelines/A4_antenatal_shared_care.pdf

Appendix 2 details the three options for antenatal care at KEMH (see p29).

Antenatal shared care visits

Recommended practice for women with low-risk pregnancies undertaking shared care. **Please note the patient may not be seen by a doctor at KEMH Antenatal Clinic.** More frequent visits may be relevant depending on the clinical situation.

Visit	Encounter	Provider
1st visit	<p>Confirm pregnancy and expected date of delivery.</p> <p>History and examination, including cardiovascular, respiratory and breasts.</p> <p>Complete initial routine investigations - see page 12.</p> <p>Counsel and offer first trimester screening at 11 to 13 weeks - regardless of woman's age - see page 16.</p> <p>Complete Edinburgh Postnatal Depression Scale.</p> <p>Discuss alcohol, smoking, diet, exercise, back care, minor discomforts, illicit drug use.</p> <p>Check use of folate tablets.</p>	GP
14 weeks	<p>Routine assessment - ensure patient has result of first trimester genetic screening test performed at 11 to 13 weeks.</p> <p>Refer to KEMH or your local maternity unit (with copies of results). If you are ordering maternal serum screening or 19 week ultrasound indicate this on the referral letter.</p> <p>Counsel and offer maternal serum screening at 15 to 17 weeks if first trimester screening is not undertaken.</p> <p>Book 19 week ultrasound anatomy scan - see page 18.</p> <p>Discuss parent education classes (if rural or unable to attend KEMH class).</p>	GP

Visit	Encounter	Provider
20 to 22 weeks	<p>Antenatal visit at KEMH - assess suitability for shared-care, rebook for 36 weeks.</p> <p>Discuss breastfeeding, when to go to hospital, parent education classes (metro), allied health services.</p>	KEMH
24 weeks	<p>Routine assessment. Order 28 week investigations: FBC (all women), Blood group and Antibody screen if Rhesus negative, Diabetes screen (see page 15).</p>	GP
28 weeks	<p>Routine assessment. Administer prophylactic anti-D if Rhesus negative - see page 24.</p> <p>Review investigations.</p>	GP
30 weeks	Routine assessment.	GP
32 weeks	<p>Routine assessment.</p> <p>Edinburgh Postnatal Depression Score - see page 27.</p>	GP
34 weeks	Routine assessment.	GP
36 weeks on	<p>Follow up KEMH / GP obstetrician</p> <p>Organise investigations. Anti-D/group and antibody if required - see page 24. Administer anti-D if Rhesus negative.</p> <p>Discuss birth plan, pain relief, car seats and capsules, child health nurse, contraception, choices for feeding, community resources, support at home, six week postnatal assessment, six week infant assessment by GP.</p>	KEMH
40 weeks	Remainder of care at KEMH.	KEMH
Postnatal check 6-8 weeks	<p>Baby check: weight and head circumference, full examination, first immunisations (8 weeks)</p> <p>Mother check: discuss delivery, check blood loss/uterine size and perineum or LUSCS wound, breastfeeding, screen for PND, discuss contraception, Pap smear if due, update immunisations (whooping cough, rubella and varicella), OGTT if GDM (repeat 1-2 yearly)</p>	GP

Preconception counselling, iron and folate

Identify women who are thinking about pregnancy.

- For those at high risk of fetal abnormality, referral for genetic counselling may be appropriate.
- Women with diabetes, Type 1 or Type 2, are invited to attend the Diabetes Service at KEMH for counselling, phone (08) 9340 2163.
- Encourage folate supplements (see table below for doses).
- Pregnancy formulations should not contain Vitamin A.

Indications and recommended doses are listed below.

Supplement	Dose	Indication
Folate	0.5 mg per day	Preconception to 14 weeks gestation.
Folate	5 mg per day	Preconception to 14 weeks gestation for women considered at high risk for an open neural tube defect: <ul style="list-style-type: none"> - Personal history of an open neural tube defect - A previous pregnancy with an open neural tube defect - PMHx of diabetes mellitus - Women taking anticonvulsants
Iron e.g. Ferrogradumet-C	Ferrous Sulphate 250 - 325 mg per day	During pregnancy >20 weeks or earlier if iron deficient

If your patients would like to access further information about pregnancy and childbirth via the Internet, the following sites may be suggested:

www.australianbaby.info

www.kemh.health.wa.gov.au/having_a_baby_in_perth/information.htm

Documentation and routine assessments

At each visit ensure routine checks are recorded on the hand-held Pregnancy Health Record. Writing should be clear, concise and legible. If using Medical Director or other software, please print out each visit and include this in the hand-held record.

A routine check consists of:

- Blood pressure (<140/90)
- Weight
- Urinalysis (< + protein)
- Fundus should be measured from 24 weeks.
Should approximate gestational age (plus or minus 1-2cm)
- Fetal movements (from 24 weeks)
- Fetal heart rate from 20 weeks or earlier if doppler available.

Note: Some peripheral oedema is now usually regarded as normal in pregnancy.

More information about Pregnancy Health Record is available on the KEMH website:

www.kemh.health.wa.gov.au/services/mpowher/index.htm

Early Pregnancy Assessment Service (EPAS)

KEMH has a specialised service to review patients with problems in the first trimester of pregnancy including pain and bleeding which may represent suspected miscarriage or ectopic pregnancy. Patients need to be referred to the service and are given an appointment to attend.

Time: 8.30 to 12.30 Monday to Friday (excluding public holidays)

Venue: Emergency Centre, KEMH

Appointment: Booking an appointment at EPAS is possible 24 hours a day.

Phone: (08) 9340 1431 / (08) 9340 1302

Alternatively, call the KEMH switchboard on (08) 9340 2222 and ask for EPAS midwife (Pager: 1431).

Who may be referred?

Women in the first trimester of pregnancy who have had a **positive pregnancy test** and one or more of the following:

- abdominal/pelvic pain
- vaginal bleeding
- previous ectopic
- previous tubal surgery
- two or more previous miscarriages
- IUCD in-situ

Please advise patients to fast from 7.00am (they may have water only) in case they need to go to theatre that day.

If the patient is haemodynamically unstable, has severe pain or heavy vaginal bleeding please call the Emergency Centre on (08) 9340 1431.

Emergency Centre

Women will be seen at anytime in the Emergency Centre if they have severe pain, heavy vaginal bleeding or an ectopic pregnancy is suspected.

Note: An ultrasound will not necessarily be performed, particularly out of hours or outside of EPAS hours.

If you are referring a patient, notification by phone is always appreciated by the staff in the Emergency Centre. Please advise patients to fast from 7.00am (they may have water only) in case they need to go to theatre that day.

For early pregnancy loss, the Emergency Centre offers management by:

- Expectant management
- Medical management using misoprostol
- Dilatation and curettage (D&C)

This will be discussed with patients on an individual basis and if a woman elects to have medical management, she will be followed up in the Emergency Centre.

If you require clinical advice, a registrar or consultant is available in-hours in the Emergency Centre. Please phone (08) 9340 1431 or (08) 9340 1433.

Alternatively, phone the KEMH switchboard (08) 9340 2222 and ask for the appropriate staff member depending on the time of day:

0800-2200	Gestation < 20 weeks	Gynaecology Registrar
	Gestation > 20 weeks	Obstetric Registrar
2200-0800	Any gestation	On-call registrar

When you refer a patient to the Emergency Centre, please send any reports with the patient, such as ultrasound, blood group or quantitative BhCG, but do not worry if these tests have not been done.

Anti-D

It is recommended that anti-D is given to all rhesus negative and antibody negative women if there is risk of fetal-maternal transfusion of blood, such as a miscarriage. Many women in early pregnancy are therefore referred to the Emergency Centre for administration of anti-D. KEMH prefers that anti-D is given by GPs if the woman does not require a medical review. This is usually more convenient for the woman who may otherwise have a considerable wait in the Emergency Centre.

For further information on how to obtain anti-D, see page 24.

Guidelines for exclusion from shared antenatal care, transfer or discussion

The following are guidelines to help identify areas where GPs should consider discussing the ongoing management of a woman with KEMH. These issues should initially be discussed with the Clinical Nurse Manager (Ambulatory Services) or KEMH obstetric registrar to develop a management plan.

General

No documented evidence of antenatal care prior to 24 weeks gestation.

Medical history

- Significant cardiac disease
- Essential hypertension
- Previous deep vein thrombosis or pulmonary embolus
- Renal disease
- Type 1 or Type 2 Diabetes Mellitus
- Unstable thyroid disease
- Chemical dependency -
Refer to Women and Newborn Drug and Alcohol Service (WANDAS)
- Epilepsy/seizures or use of anticonvulsant drugs
- Bleeding disorders
- HIV infection
- Known bony pelvic deformity
- Systemic lupus erythematosus
- Current malignant disease
- Asthma requiring hospitalisation or requiring oral or parenteral steroid therapy in the past five years
- Rubella titres indicating recent infection
- Significant anaemia (Hb <100 g/L)
- Maternal Phenylketonuria (PKU)
- Any significant condition for which the woman is being monitored by a physician or psychiatrist

Previous obstetric history

- Poor outcome of previous pregnancy, or a pregnancy requiring intensive fetal monitoring.
- Multiple pregnancy (perform 12 week ultrasound to determine chorionicity). If monochorionic, arrange 16 week scan to look for twin to twin transfusion.
- History of preterm delivery (prior to 34 weeks).
- One or more pregnancies with Intra Uterine Growth Restriction (IUGR)
- Gestational Diabetes Mellitus.

Factors to be assessed individually by an obstetrician or GP

- Previous severe pre-eclampsia.
- Previous uterine surgery including caesarean section, myomectomy and cone biopsy of cervix.
- Recurrent miscarriage including mid-trimester loss.
- Infertility requiring surgery or fertility drugs other than clomiphene.
- Previous infant with major congenital anomaly and/or inherited disorder (subject to consultation).
- Atypical red cell antibodies.
- Adolescent (if first pregnancy and due date before 18th Birthday) -
Refer to Adolescent Antenatal Clinic.
- Morbid obesity BMI > 40.

See page 19 Referral to hospital.

Infectious diseases and immunisation in pregnancy

- Women with infectious diseases in pregnancy often do not need referral to KEMH. Please phone KEMH (08) 9340 2222 first to discuss the patient.
- Gestation < 20 weeks: Gynaecology registrar
- Gestation > 20 weeks: Obstetric registrar
- 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 give during pregnancy and is recommended as pregnant women are at increased risk of influenza related infectious complications.

- For other clinical advice, please contact the on-call Microbiologist at KEMH through the KEMH switchboard (08) 9340 2222
- For routine advice on pregnancy, travel and vaccinations, please contact a specialised travel medicine clinic

Investigations

Investigations may be ordered privately or at KEMH. **Photocopies of all tests should be sent to KEMH.** Fax (08) 9340 1031.

1. Initial routine investigations for each pregnancy at first antenatal visit (obtain informed consent for each test):
 - Full blood picture
 - Blood group and atypical antibody screen
 - Syphilis serology
 - Rubella titre
 - Hepatitis B surface antigen
 - Hepatitis C antibodies
 - HIV antibodies
 - Random blood glucose (if mod/high risk of diabetes, see page 14-15)
 - Midstream Urine
 - Chlamydia screening
2. All women should be counselled and offered fetal anomaly screening (see page 16).
3. Investigations to be considered depending on the woman's clinical circumstances:
 - Early dating ultrasound if dates uncertain
 - Vitamin D screening if at risk for Vitamin D deficiency e.g., women who have reduced sun exposure, veiled women and dark skinned women
 - Pap smear (if not done within two years)
 - Diabetes screening as indicated (see page 14)
 - Haemoglobinopathy Screening if in high-risk group e.g. high risk ethnic background, FHx of haemoglobinopathy (see page 21)

4. 19 weeks gestation:
 - Fetal anatomy ultrasound (GP to organise)
5. 28 Weeks (arrange prior to 28 week visit e.g. at 24 week visit)
 - Full blood picture
 - Blood group and atypical antibody screen (for rhesus negative women)
 - Diabetes screen and/or glucose tolerance test if indicated (see page 14-15)
6. 36 weeks (KEMH will organise)
 - Full blood picture
 - Blood group and atypical antibody screen if rhesus negative (only if the woman missed her 28 week anti-D)
 - Low vaginal swab and rectal/perianal swab for group B streptococcus screening. Patients with a positive result will receive intravenous antibiotics during labour.

Group B streptococcus (GBS) infection

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 Group B streptococcus
- Group B streptococcus identified in the urine in pregnancy (GBS urinary tract infection or bacteriuria), regardless of GBS swabs at 36 weeks
- positive vaginal/rectal/perianal swabs at 36 weeks.

Please send in all urine and swab results to KEMH.

Chlamydia screening

- For all women at booking - self obtained lower vaginal swab (SOLVS) and first void urine PCR (FVU)
- Women living in STI endemic areas (Kimberley, Pilbara and 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 repeat chlamydia and gonorrhoea screening

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 to 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 with the Maternal Fetal Medicine Service phone (08) 9340 2705 or fax (08) 9340 1060 or Genetic Services of Western Australia phone (08) 9340 1525. Please indicate on the referral if you would like 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.

Screening for Down syndrome

1. First trimester screening (FTS)

- The first part of this test is a blood test to determine the levels of the hormones free BHCG and PAPP-A. This is ideally done at 10 weeks (but can be done anytime from 9 weeks to 13 weeks 6 days). The blood test was previously routinely done on the day of the ultrasound, however the Fetal Medicine Foundation has found that an earlier test improves 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 a 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 fetus with Down syndrome, compared to her age-related risk.

Table of maternal age vs Down syndrome risk

Maternal Age	Chance of having a live-born baby with Down syndrome
20 to 24	1:1500
25	1:1350
30	1:900
35	1:400
40	1:110
45	1:30

2. 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)
- the risk of an open neural tube defect - based on the maternal serum alpha fetoprotein level (MSAFP).

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 > 2.5 MoM), 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.

Who should be offered MSAFP testing?

1. Women considered at high risk for having a fetus with an open neural tube defect. This includes women with an open neural tube defect themselves, women who have 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%).
2. Morbidly obese women, in whom fetal ultrasound imaging quality is compromised, should also be offered MSAFP to potentially improve detection rates of severe structural fetal anomalies.

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).

As the KEMH booking visit for low risk patients is done at 20 weeks gestation, general practitioners are requested to arrange this ultrasound externally prior to the booking visit and women should bring their ultrasound with them to this appointment.

If ultrasounds are booked at KEMH, this needs to be arranged 2-3 weeks in advance. Please telephone the Ultrasound Department on (08) 9340 2700. Women are required to bring an ultrasound request form from their GP. A DVD of the ultrasound can be purchased by women (cost at time of publication \$22.00). Any queries should be directed to the Maternal Fetal Medicine Service on phone (08) 9340 2705.

Rural patients: KEMH is willing to coordinate an ultrasound with a woman's antenatal clinic appointment if this is pre-arranged.

High-risk pregnancies: if there is a history of a previous fetal anomaly, recurrent pregnancy loss or abnormal screening results, ultrasounds for these women may be booked at KEMH.

Rural patients

Ultrasounds for rural women may be performed at KEMH either the day before the Antenatal Clinic appointment or early in the morning on the day of the appointment but this must be pre-arranged.

Rural doctors requiring assistance with arrangements for their rural patients can liaise with the Clinical Nurse Manager via (08) 9340 2222, pager 3419 between 8.00am and 3.00pm Monday to Friday, or fax (08) 9340 1031. The Antenatal Clinic Manager can assist with coordinating appointments, arranging ultrasounds, accommodation needs and if a patient requires referral to another service, such as a social worker.

If rural doctors require medical advice including patient management and need for transfer/admission, they can contact the obstetric consultant or senior registrar via the 24 hour free-call number 1800 428 615.

Referral to hospital

This is not an exclusive list of conditions that would require referral of the woman to KEMH. These and any other problems should be discussed with the Obstetric Senior Registrar on (08) 9340 2222.

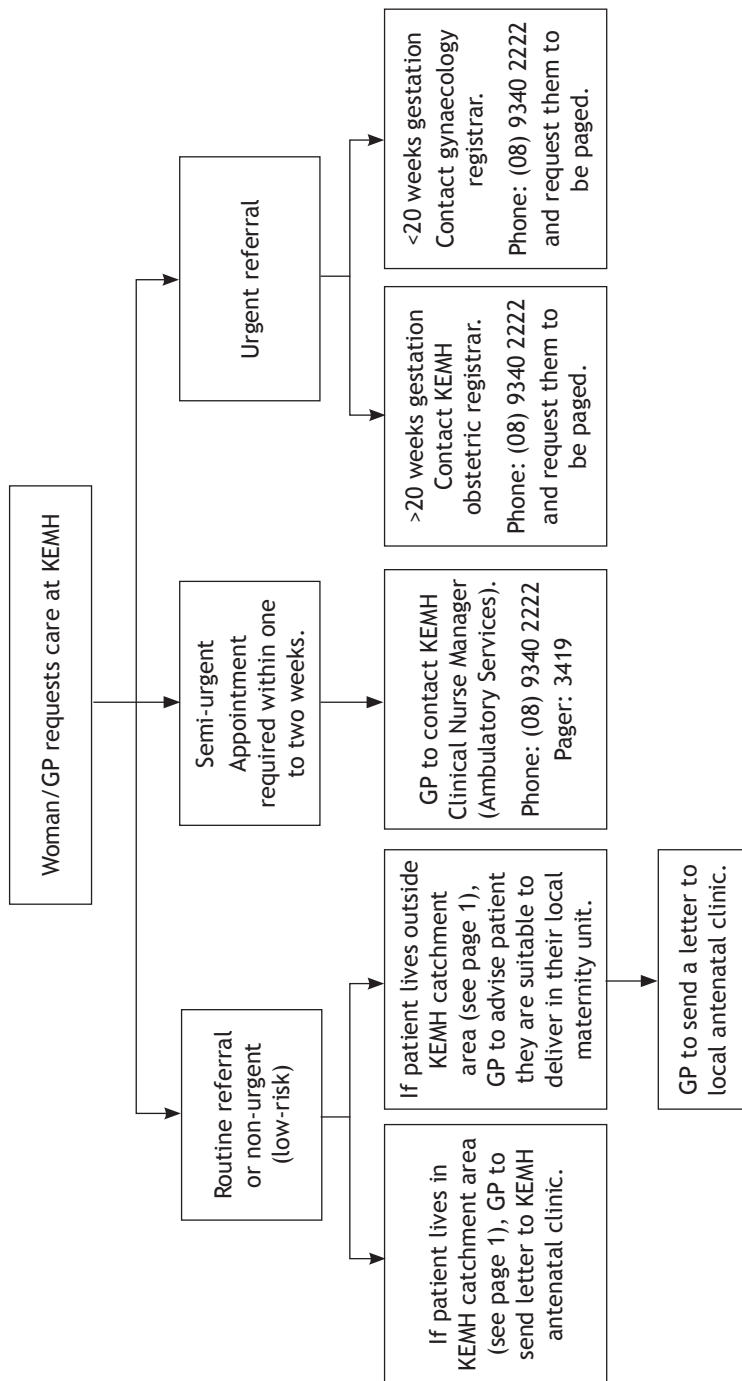
See page 10 for guidelines for exclusion from shared antenatal care, transfer or discussion.

Pregnancy complications

- Threatened miscarriage
- Antepartum haemorrhage
- Hypertension (>140/90)
- Threatened preterm labour
- Premature rupture of membranes
- Abnormal fetal anatomy ultrasound scan
- Reduction in fetal movements
- High presenting part and unstable lie in late pregnancy
- Polyhydramnios
- Intrauterine growth restriction (IUGR)
- Multiple pregnancy
- Abnormal test for Diabetes
- Abnormal fetal presentation after 36 weeks eg. breech
- Rhesus antibodies
- Proteinuria greater than one plus (>1+)

The following information is required on all referrals to the hospital:

- Woman's current contact details
- LMP
- Gravida and parity
- Weight, height and BMI
- GP's intention to share care
- Any relevant medical and obstetric history
- If interpreter services are required



Maternal Fetal Medicine Service

The Maternal Fetal Medicine (MFM) Service provides tertiary level ultrasound assessment and diagnosis of pregnancy complications and ongoing pregnancy management by a multidisciplinary team.

The service provides maternal fetal medicine diagnosis and treatment, in particular for conditions such as congenital abnormalities, rhesus disease, intrauterine growth restriction and twin to twin transfusion syndrome.

The specialists and midwives of the MFM Service at KEMH can provide counselling and/or management for women who have an increased risk of fetal abnormality on their screening test. They also monitor and manage women who have a high-risk pregnancy.

Phone: (08) 9340 2705

The Maternal Fetal Assessment Unit

The staff in the Maternal Fetal Assessment Unit (MFAU) 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, antepartum haemorrhage and urinary tract infections.

The Unit is open 24 hours a day and is located on the first floor of B block.

Phone: (08) 9340 2199

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.

Effect of Haemoglobinopathies:

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:

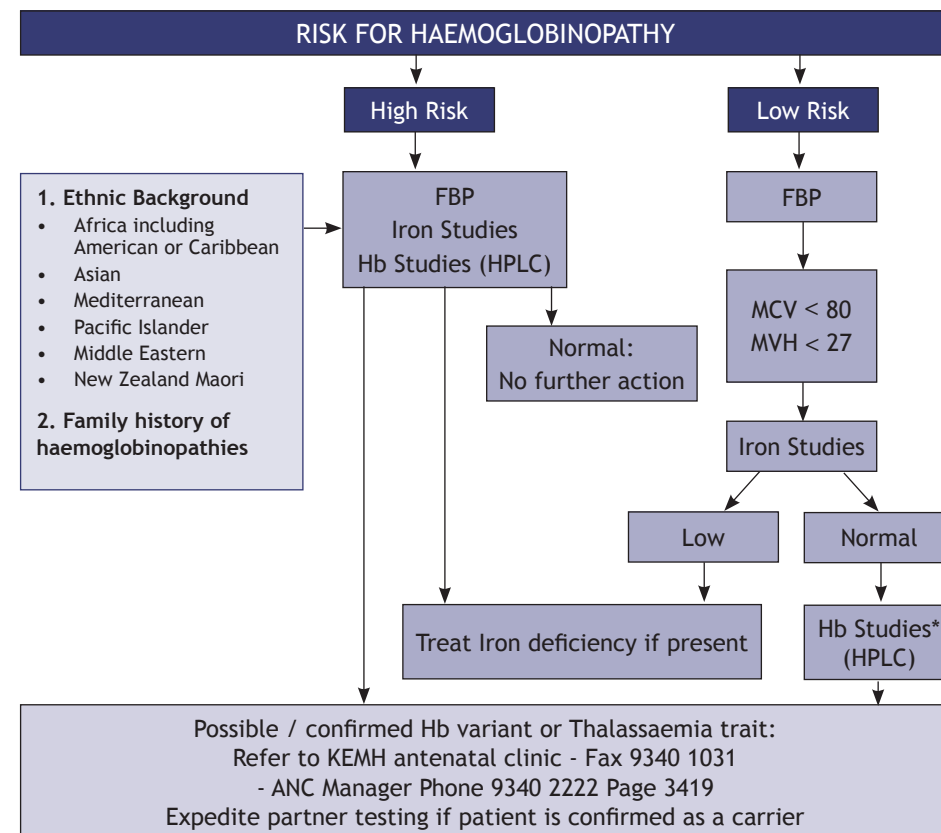
Beta Thalassaemia	All ethnic groups other than Northern European
Alpha ⁰ Thalassaemia ($\alpha\alpha$ --)	Chinese, South East Asian, Mediterranean
Haemoglobin E	South East Asian
Haemoglobin S	African (including African-American and African-Caribbean), Greek, Southern Italian, Turkish, Arab, Indian.

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 KEMH Antenatal Clinic.
- Genetic counselling is available from Genetic Services of Western Australia (08) 9340 1525 for couples if both partners are carriers.

Investigations of patients for Haemoglobinopathy



* Hb studies can be requested as an add-on to the FBP

Use of anti-D in pregnancy

It is recommended that anti-D (625 IU) be given to all rhesus negative, antibody negative women at 28 and 36 weeks gestation. These women will therefore need to be seen at 28 weeks and 36 weeks. Anti-D is also given to these women at KEMH after the birth of their baby if the baby is rhesus positive. A blood test for blood group and antibodies needs to be performed prior to administering the 28 week dose of anti-D.

It is recommended that anti-D be given to all rhesus negative, antibody negative women if there is risk of fetal-maternal transfusion of blood. Anti-D should be given within 96 hours of the onset of bleeding (the earlier the better). The dose is as follows:

First trimester - 250 IU (*minidose vial*).

Indications are threatened or inevitable miscarriage, termination of pregnancy, chorionic villus sampling and ectopic pregnancy.

Note: For a multiple pregnancy give 625 IU.

Second and third trimester, postnatally - 625 IU (*full dose vial*).

Indications are at 28 weeks, 36 weeks, postnatally (if baby is rhesus positive) and episodes when a fetal-maternal haemorrhage may occur such as amniocentesis, external cephalic version, antepartum haemorrhage or abdominal trauma.

Note: For second and third trimester, a Kleihauer test should be performed (1-24 hours after the bleeding or sensitising event) so additional anti-D may be given if required.

How to obtain anti-D

Due to short supply, anti-D cannot be stocked in GP surgeries. Country regional hospitals usually keep a small stock. In the metropolitan area, KEMH prefers women who have a minor antepartum haemorrhage and do not need a tertiary assessment to see their GP for anti-D. This is usually more convenient as women who are referred to the Emergency Centre at

KEMH for anti-D may have to wait a few hours during business hours whilst paperwork is completed, and blood group and antibody testing is performed (even if grouping has already been performed by a private laboratory). Blood grouping is not required for women who bring a Red Cross Donor Card). After business hours, women may experience a longer delay.

Metropolitan GPs may obtain anti-D from the Red Cross by phoning (08) 9325 3333 anytime with patient details. Delivery (e.g. by taxi) is at the patients expense. Patients or relatives may pick up GP orders from the Red Cross. Anti-D itself is free of charge.

Certain private pathology laboratories are able to provide anti-D for patients in addition to performing antibody screening. Some laboratories will courier the anti-D to your GP surgery or may even be able to administer the anti-D to the patient. The following laboratories are able to provide anti-D:

- **St John of God Pathology**
Hollywood ph: (08) 9346 7102
Murdoch ph: (08) 9366 1750
Subiaco ph: (08) 9382 6690
- **Western Diagnostics Pathology Myaree:** (08) 9317 0863
- **Clinipath West Perth:** (08) 9476 5222

A phone call to your laboratory will ascertain whether they stock Anti-D and/or administer it.

Record Keeping

Anti-D is a blood product and must be traceable. GPs must keep a register of patients who are given Anti-D and the batch number they receive. This register must be kept in a central location, not in the individual patient notes. GPs may download an Anti-D register from the following website: <http://www.health.sa.gov.au/bloodsafe/Default.aspx?tabid=54>

Pathology request forms

When requesting blood testing for blood group and antibody screening, the request form should include the following information: current gestation, number and gestation of previous pregnancies, history of blood transfusions, any previous antibodies detected and dates of anti-D prophylaxis.

Department of Psychological Medicine

The Department of Psychological Medicine at KEMH provides services for women at risk of psychological problems during pregnancy. The department can be contacted on (08) 9340 1521. Dr Jon Rampono, psychiatrist and Head of Department, is happy to be contacted by GPs who require clinical advice and the liaison nurse can assist with procedural issues and making appointments.

The Edinburgh Postnatal Depression Score (see page 27) is recognised as a very valuable screening test for possible depression, both in pregnancy and the postnatal period.

It is recommended that scoring is undertaken at least once in early pregnancy and again at around 32 weeks. However, the scale can be used at any stage of the pregnancy and/or the postnatal period.

Ask the woman to mark the response that most accurately reflects how she has felt in the last seven days for each of the questions. The scoring is from zero to three except in the questions marked with an * where the scoring is reversed, i.e. three to zero. Add all of the scores together.

If the woman scores higher than zero in the last question or has a total score of 12 or above assess her clinically for depressive illness. If the score is 9, 10 or 11, she is at increased risk for mood disorder and should be monitored closely.

More information can be found on the KEMH website at <http://kemh.health.wa.gov.au/development/> and clicking on the link to [WA Perinatal Mental Health Unit](#)

Other services available at KEMH

- Genetic counselling
- Social work
- Aboriginal liaison
- Physiotherapy
- Pharmacy
- Breastfeeding centre WA

Appendix 1 - Edinburgh Postnatal Depression Scale (EPDS)

Ask the woman to mark the response that most accurately reflects how she has felt in the last seven days for each of the questions.

IN THE PAST 7 DAYS	First Visit	32 wks
I have been able to laugh and see the funny side of things (0) As much as I could (1) Not quite so much now (2) Definitely not so much now (3) Not at all		
I have looked forward with enjoyment to things (0) As much as I always did (1) Rather less than I used to (2) Definitely less than I used to (3) Hardly at all		
I have blamed myself unnecessarily when things go wrong* (3) Yes, most of the time (2) Yes, some of the time (1) Not very often (0) No, never		
I have been anxious or worried for no good reason (0) No, not at all (1) Hardly ever (2) Yes, sometimes (3) Yes, very often		
I have felt scared or panicky for no good reason* (3) Yes, quite a lot (2) Yes, sometimes (1) No, not much (0) No, not at all		
SUBTOTAL		

The scoring is from 0-3 except in the questions marked with an * where the scoring is reversed, i.e. 3-0. Add all of the scores together.

IN THE PAST 7 DAYS	First Visit	32 wks
Things have been getting on top of me* (3) Yes, most of the time I haven't been able to cope at all (2) Yes, sometimes I haven't been coping as well as usual (1) No, most of the time I have coped well (0) No, I have been coping as well as ever		
I have been so unhappy that I have had difficulty sleeping* (3) Yes, most of the time (2) Yes, sometimes (1) Not very often (0) No, not at all		
I have felt sad or miserable* (3) Yes, most of the time (2) Yes, quite often (1) Not very often (0) No, not at all		
I have been so unhappy that I have been crying* (3) Yes, most of the time (2) Yes, quite often (1) Only occasionally (0) No, not at all		
The thought of harming myself has occurred to me* (3) Yes, quite often (2) Sometimes (1) Hardly ever (0) Never		
TOTAL		

JL Cox, JM Holden, R Sagovsky (1987)

Appendix 2 - Care choices provided at KEMH

The obstetric team includes obstetrician, obstetric senior registrar, registrar and resident

	1 FAMILY BIRTH CENTRE (FBC)
Description	Care for healthy women with uncomplicated pregnancies during pregnancy, labour, childbirth, postnatally, and after transfer home. Care is provided by midwives in the FBC.
Pregnancy care	FBC midwife. Option for shared care with GP. If home visits required FBC midwife will visit.
Planned place of birth	FBC - access located off Railway Parade.
Care provider during labour and birth	FBC midwife.
Care provider following the birth	FBC midwife.
Possible referrals of care	To Antenatal Clinic (ANC) for pregnancy complications. To Labour and Birth Suite (L+BS) for birth complications. To postnatal wards for complications such as infection, feeding problems.
Transfer home	Within 24 hours.
Midwifery care at home	FBC midwife visits daily until day five.
Contact number	FBC - (08) 9340 1800.

Care choices provided at KEMH continued

2 TEAM MIDWIFERY	3 MIDWIVES CLINICS (ANC)
A team of midwives provides continuity of care and information to women in pregnancy, labour, childbirth and postnatally within the KEMH Clinics, Labour and Birth Suite (L+BS) and obstetric wards.	Midwives provide care for uncomplicated women in the Antenatal Clinic. These clinics are available during normal clinic hours, Wednesday evenings and Saturdays.
Team midwife for pregnancy care. No option for shared care with GP. Obstetric consultant sees woman at 36 weeks and otherwise as required. If home visits required VMS (Visiting Midwifery Service) midwife will visit.	Midwife can provide antenatal care and will refer to medical team if required. Option for shared care with GPs. If home visits required VMS midwife will visit.
KEMH Labour and Birth Suite	KEMH Labour and Birth Suite (L+BS)
Team midwife L+BS Medical team	L+BS midwife L+BS Medical team
Team midwife Medical team	Postnatal ward midwife Medical team
Most complications in pregnancy cared for within the team. Some exceptions - Diabetes, illicit substance use.	Nil referrals required.
Vaginal births within 24 - 48 hr. Caesarean births within four days.	Vaginal births within 24 - 48 hours. Caesarean births within four days.
VMS midwife visits daily until day five.	VMS midwife visits daily until day five.
Midwife (08) 9340 1809	Clinic liaison midwife (08) 9340 2222

Care choices provided at KEMH continued

	4 ANTENATAL CLINICS (ANC)
Description	The ANC has a team of doctors, midwives and other health professionals who care for women who may have pregnancies with a high-risk of complication. <ul style="list-style-type: none"> • Maternal Fetal Medicine - pregnant women with complications in pregnancy eg. hypertension, heart disease, kidney disease, twin to twin transfusion, congenital anomaly. • Diabetes Service - women with pregnancies complicated by Diabetes. • Chemical Dependency - women with pregnancies complicated by illicit substance use. • Adolescent Clinic - women who will give birth to their first baby before the age of 18.
Pregnancy care	Medical team at ANC. After seeing the consultant, antenatal care can be provided by the midwife, if the woman requests. Option for shared care with GPs for some appointments. If home visits required VMS midwife will visit.
Planned place of birth	KEMH Labour and Birth Suite (L+BS)
Care provider during labour and birth	L+BS midwife L+BS medical team
Care provider following the birth	Postnatal ward midwife Medical team
Possible referrals of care	Nil referrals required
Transfer home	Vaginal births within 24 - 48 hours. Caesarean births within four days.
Midwifery care at home	VMS midwife visits daily until day five.
Contact number	Clinic liaison midwife (08) 9340 2222

Appendix 3 - Important telephone numbers

Free-call for GPs anywhere in WA to obtain medical advice from a senior staff member 1800 428 615.

Antenatal Clinic	(08) 9340 1377
Clinical Nurse Manager (Ambulatory Services)	(08) 9340 2222 (Page 3419)
Antenatal Clinic Fax	(08) 9340 1031
Women and Newborn Drug and Alcohol Service (WANDAS)	(08) 9340 1377 (Page 3425)
Maternal Fetal Assessment Unit (24 hours)	(08) 9340 2199
Department of Obstetrics	(08) 9340 1382
Department of Psychological Medicine	(08) 9340 1521
Diabetes Educator	(08) 9340 2163
Early Pregnancy Assessment Service	(08) 9340 1431
Emergency Centre KEMH (24 hours)	(08) 9340 1431 or 1433
Family Birth Centre	(08) 9340 1800
Genetics Services of WA	(08) 9340 1525
KEMH Switchboard (24 hours)	(08) 9340 2222
Maternal Fetal Medicine Service	(08) 9340 2705
Obstetric Drug Information Service (7 days)	(08) 9340 2723
Obstetric Senior Registrar (switchboard to page)	(08) 9340 2222
Parent Education	(08) 9340 1368
Pathology	(08) 9340 2767
Pharmacy	(08) 9340 2727
Physiotherapy	(08) 9340 2790
Social Work	(08) 9340 2777
Stationery	(08) 9340 1418
Ultrasound Department	(08) 9340 2700
Visiting Midwifery Service	(08) 9340 1530

Disclaimer: The advice and information contained herein is provided in good faith as a public service. However the accuracy of any statements made is not guaranteed and it is the responsibility of readers to make their own enquiries as to the accuracy, currency and appropriateness of any information or advice provided. Liability for any act or omission occurring in reliance on this document or for any loss, damage or injury occurring as a consequence of such act or omission is expressly disclaimed.

The first edition of this booklet was produced in 2003 by the Shared Care Coordinating Group, consisting of representatives from KEMH and the Perth Central Coastal Division of General Practice. The booklet forms part of the “Shared Care Program at KEMH” initiated in 2003 to meet the requirements of the “Policy Statement of the Joint Consultative Committee on Obstetrics” of 4 February 2002. Metropolitan and rural divisions of General Practice have been consulted on the implementation of this policy.

This booklet has been revised by KEMH with GP input and is up-to-date at the time of publishing. These guidelines are also available on the Internet Website: <http://wnhs.health.wa.gov.au> Health Professionals Manuals and Directories

Produced by: Obstetrics and Gynaecology CCU and KEMH Liaison GP

Website: <http://wnhs.health.wa.gov.au>

© January 2003 WNHS 0062 Rev 3

Revised May 2010

This information is available in
alternative formats upon request

WOMEN AND NEWBORN HEALTH SERVICE

King Edward Memorial Hospital

374 Bagot Road Subiaco WA 6008

Telephone: (08) 9340 2222



Government of **Western Australia**
Department of **Health**



Delivering a Healthy WA