Homerton University Hospital NHS
NHS Foundation Trust

HOMERTON ANTENATAL CARE GUIDELINES2017

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Version	4
Version Date	January 2017
Implementation /approval Date	January 2017
Review Date	January 2020
Review Body	Maternity Risk Management Review Group
Policy Reference Number	182/swsh/mat/Antenatal Care/MP/KB/DT/AMD/EM/SL/CM/LJS/EHB

Version Control

Version	Date	Author(s)	Reason	Ratification
2.1	4.4.2012	**Dr Maryam Parisaei** Consultant Obstetrician **Dr Kirsten Brown** GP	To strength 2.0 actions to be taken if consultant obstetrician is away	**No**
2.2	10.4.2012	**Annette Anderson** Maternity Clinical Risk Manager	To include information about MCADD actions from implementing the NPSA alert	**Yes**

2.3	20.8.2014	**Dr Maryam Parisaei** Consultant Obstetrician **Dr Kirsten Brown** GP **Dr John Anderson** Endocrinology General Medicine Diabetic Consultant **Dr Adam Steingold** **Dr Debra Penny** **Catherine Meyers** Antenatal Clinic Midwifery Sister **Venetia Johnson** Midwife **Lana Jones-Sandy** Audit midwife **Specialist Midwives**	Reviewed	**Yes**
3	1.4.2014	**Lindsey Morgan** Clinical Project lead	Updated following actions from RCA and in line with national guidance	
4	20.01.2017	**Dr Maryam Parisaei** - Consultant Obstetrician **Dr Kirsten Brown** – GP **Dr D Tsitsikas** – Consultant Haematologist **Dr Anna McDougall** – Specialty Registrar **Dr Elena Mantovani**- Specialty Registrar **Sarah Latham** - Maternity Outpatients Matron **Catherine Meyers** - Antenatal Clinic Midwifery Sister **Lana Jones-Sandy** Audit midwife **Ella Hil Behari** – Lead CMS in Fetal Medicine		

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1.0 PHILOSOPHY

Our philosophy is one based on respect for pregnancy as a state of health and childbirth as a normal, healthy, physiological process.

The maternity care provided will respect the diversity of women's needs and the variety of personal and cultural values that women, families and communities bring to these events. Care will be continuous, personal and responsive to a woman's social and emotional needs.

The professionals involved will encourage decision-making as a shared responsibility between the woman, her family and her care-givers. The woman is recognised as the primary decision maker. To facilitate this, care provision must include evidence based information, education and counselling support to enable the woman to make informed choices.

We aim to provide a safe and supportive environment for pregnancy and childbirth. We strive to provide an accessible and excellent service to meet individual needs.

1.1 SUMMARY

This guideline gives an overview of the expected care and management for all pregnant women in the community and the hospital during the antenatal period
All staff working within the maternity services should be familiar with this guideline available on the intranet.

2.0 INTRODUCTION & AIMS OF THE GUIDELINE

This guideline is a practical manual written for doctors and midwives working in the area served by the Homerton. Since 1984, antenatal care has been largely based on community clinics supported by a central Antenatal clinic and Fetal Medicine department at the Homerton Hospital. These community clinics are 'shared care' clinics with the GP undertaking the 16 weeks appointment. This guideline is intended to help doctors and midwives throughout the district deliver a consistently high standard of care to pregnant women. Although we have identified specific risk factors and management strategies, it cannot be sufficiently emphasised that individualisation of care is paramount. Each community clinic has a named consultant obstetrician, who is happy to advise midwives and GPs directly when needed. A consultant midwife is also available for referral if the woman has additional midwifery needs. The Homerton midwives are grouped into zones. Each zone covers a specific geographical area of Hackney and Waltham Forest. Each woman is allocated to a team according to her postal address, and a member of that team will endeavour to see her at each "midwife" antenatal visit, whether that is in the community or the hospital antenatal clinic. Whenever possible a woman will be seen by her 'named midwife' in order to ensure continuity of care.
Specialist midwives are available for specific support in: Infant Feeding; HIV; Haemoglobinopathies; Fetal Welfare; Substance Abuse; Bereavement; Risk Management, Smoking Cessation, Mental Health, Antenatal Screening and Safeguarding.

2.1 SCOPE

This policy applies to all staff working within the Homerton University Hospital NHS Foundation Trust and the community setting of City & Hackney and Waltham Forest who provide maternity care during the antenatal period.

2.2 ROLES AND RESPONSIBILITIES

All staff will be responsible for ensuring that they are knowledgeable in the expected care and management of pregnant women during the antenatal period

2.3 CHILDREN'S CENTRES

Children's Centres are a government initiative which aims to improve the lives of children and families by targeting early health (including pregnancy), education and social support interventions for specific communities and vulnerable families. The emphasis is on collaborative work across health, social and educational agencies.

In Hackney there are numerous Children's Centre midwives with this important Public Health Profile. The targets for these midwives include: early pregnancy contact for all women in their area (an enhanced 'booking' encounter), support for pregnant teenagers, targeted antenatal work and drop in sessions, support for breast feeding initiatives and other postnatal support. The midwives aim to identify and support the most vulnerable women: teenage pregnancies, recent arrivals and asylum seekers, women with mental health issues, women with substance misuse history, and women known to social workers, (Saving Mother's Lives 2006-2008) and this feeds in to the vulnerable women's pathway. These midwives can be accessed via the community midwifery service and have a pigeon hole for referrals in the hospital ANC.

2.4 MIDWIFE LED CARE

Within the team structure there is a well-established system for midwifery led care for women at 'low risk' of complication in pregnancy and or birth. An antenatal risk check list is used for initial screening for care, but midwives make direct referral for obstetric opinion as necessary. An appropriate plan for care will follow. (See 7.0 for specific guidance).

3.0 PRECONCEPTION

GPs should provide preconceptual care to all women of child bearing age. Haemoglobinopathy screening should be routinely offered and recorded. Folic acid (low risk 400mcg, high risk such as diabetes, epilepsy, and obesity 5mg) and Vitamin D supplementation (10mcg) should be discussed. General advice on diet and optimal weight, smoking and alcohol should also be available. Women may access this advice directly through the Maternity Helpline. Women at particular risk should receive specific advice, especially those with Diabetes, Epilepsy, severe uncontrolled hypertension and significant mental health problems. Any diabetic woman contemplating pregnancy should be referred to the Obstetric & Endocrine Medicine Clinic at The Homerton on a Wednesday afternoon for pre-conceptual advice and help in optimising glycaemic control.
Any further advice with regards to chronic disease and pregnancy may be sought from obstetricquery@homerton.nhs.uk.

4.0 REFERRAL FOR BOOKING

The majority of women are referred by their GP. Women can also self refer either by direct contact with the Homerton antenatal clinic or via the Maternity Helpline. Some women, particularly those booking late, may be referred by other services. The woman's GP should be notified if she self refers, books directly with a midwife or books late as the GP may be aware of other health issues or child protection issues that the woman has not disclosed to the maternity service. All women who do not have a registered GP should be advised to register as soon as possible and information can be found on NHS Choice website. All efforts must be made for

booking to take place between 8 and 9+6 weeks (best practice standard) but before 12+6 weeks.

Referrals by GPs should be made as soon as pregnancy is confirmed. The electronic referral form should be used for all referrals regardless of risk or where the women will be seen. It is faxed or emailed to the Homerton referral office. If the form is not available electronically GPs should fill in and fax a manual copy of the same form. This form contains crucial information for the Maternity service and forms the basis of good communication. All GPs signed up to the Enhanced Service for Maternity Care are committed to improving this transfer of data. The form contains Past Medical history including mental health, past and current Obstetric history, information on family, social and cultural needs and what screening has already been done preconceptually or antenatally. The form also indicates if the combined test has been booked.

The majority of women booking through the Homerton will be seen by midwives in the community for most if not all of their all their appointments. Some women will be advised, due to increased risk, to have all/some of their care at Homerton ANC. The schedule outlined in 7.0 is for Low Risk Women. All women whose care deviates from this schedule should be offered as flexible and individualised care pathway as possible with explanation at every step why they are considered at higher risk and offered an increased schedule of care; the woman's GP must be involved in this discussions.

4.1 The Obstetric Medicine Clinics (for women with high risk conditions)

There are two Obstetric Medicine Clinics which takes place at the Homerton weekly. The joint endocrine/diabetic clinic includes obstetricians, endocrinologists, dieticians and specialist nurses. Women with HIV are supported also with HIV specialist physician and a specialist midwife. A consultant physician with special interest in hypertension and a consultant obstetric anaesthetist are also available.

All women with sickle cell disease, endocrine problems, severe hypertension, autoimmune disease, previous VTE or other significant medical problem such as epilepsy should be referred by either their GP or midwife to these clinics, at booking if possible.

5.0 WOMAN ORIENTATED ANTENATAL CARE

- Confirm pregnancy
- Confirm desire to continue pregnancy and discuss any immediate social and psychological needs
- Discuss lifestyle issues and antenatal care arrangements
- Provide and refer for stop smoking advice where appropriate
- Provide advice on diet and medication
- Confirm language and cultural issues
- Discuss and identify risk – social and obstetric – and refer appropriately
- Discuss screening and book combined test or plain ultrasound scan as appropriate
- Refer the woman for a booking appointment in a timely fashion to allow for booking between 8 and 9+6 weeks (best practice standard) but by no later than 12+6 weeks whenever possible.
- Ensure folic acid supplementation is taken at correct dose and offer healthy start vitamins or vitamin D.
- Ask about depression and anxiety at each appointment. If the woman answers **Yes** to Q1 in the Antenatal Notes uses the Patient Health

Questionnaire-9 (PHQ) and refer to the maternal emotional wellbeing referral pathway. If the patient answer **Yes** to Q2 and Q3 in the health care records use the Generalised Anxiety Scale-& (GAD7) and refer to the maternal emotional wellbeing referral pathway

5.2 BOOKING VISIT by the midwife

Comprehensive history should be taken and recorded on the electronic patient record (EPR) maternity booking summary

- For those women who do not have English as a first language interpreting services must be offered. It is not appropriate to use friends or family to interpret .
- Obstetric, medical, surgical, mental health, family & social
- Routine Enquiry for domestic abuse must be performed wherever possible, with all efforts made to see the woman on her own for a short time during the booking visit; where this is not possible this must be performed and documented at a subsequent visit
- Lifestyle factors-this should include dietary advice regarding Vitamin D and Healthy Start multivitamin supplementation where appropriate, food acquired infections, alcohol consumption and exercise
- Current pregnancy history including choices re: antenatal screening
- Review GP referral letter and previous maternity records on EPR or, if required previous obstetric records.
- Agree pregnancy care pathway e.g. community based midwifery led care, or hospital based antenatal care with midwives, obstetricians and additional specialist care.
- VTE risk assessment
- CO Monitoring

Investigations: if not already done by the GP

- Full Blood count
- ABO and Rh D group and Antibody Screen
- Random Blood Glucose
- Syphilis serology
- Hepatitis B serology
- HIV
- Haemoglobinopathy screen (if not done preconceptually)
- Mid Stream Urine for microbiology
- Low vaginal swab if there is an abnormal discharge
- HIV.
- Dating $\pm$ combined serum screening (11-14 weeks) if wanted and not already done.
- Serum screening if late booking (14+2 – 20+0) if wanted
- Arrange GTT if RBS $\geq$ 7.0 mmol/l

The booking midwife should review the booking blood results of all women he/she has booked within 5 days of the samples being taken and act on the results accordingly referring to the appropriate screening programme pathway.

Decline screening

- When women decline screening tests the midwife who offered the initial screen should inform them they will be contacted by a specialist midwife to discuss their choices

- Women should be contacted by the Screening Coordinator or Specialist Midwife as soon as possible and ideally before 20 weeks to – Discuss their decision to decline and ensure that they are fully apprised of the benefits of screening for infectious disease for them and their baby.
- Reoffer the screening test and arrange testing and follow up of results.
- The onus of the reoffer is to facilitate an informed choice and not to coerce women to accept.

Examination

- BMI
- Blood pressure
- Abdominal examination if late booker- >12 weeks.
- Maternal Heart auscultation. Traditionally, a doctor has auscultated the heart of each woman in early pregnancy. This is a good idea if a woman is new to the UK or has any relevant past medical history. Women booked under MW only care that have no risk factors but are born abroad should have cardiac auscultation by the GP at the 16-week appointment.

Information

An antenatal information pack should be given to all women at booking. The preparing for labour pack should be given at 34 weeks, and the postnatal pack within 2 days of delivery.

Booking details are entered onto the electronic patient record (EPR). The booking midwife must print the Booking Summary and file this into the woman's hand held notes.

Domestic Violence is recognised as a contributory factor in maternal death (Why Women Die 2002) and has important safeguarding implications for the mother and infant. All women should be asked whether they have experienced/ are experiencing DV, as per the DV maternity guideline and their responses documented accordingly and appropriate actions taken.

The recommended screening questions for mental health should be asked of all women at the booking and routine maternity care. Referrals should then be made to the appropriate service (refer to the Guideline for Antenatal and Postnatal Mental Health Guideline for release Jan 2017).

Vaccination against pertussis (whooping cough) should be offered to all pregnant women from 20 weeks of pregnancy or soon after the 20 weeks scan. At the 20 week scan all women will be offered the pertussis/seasonal flu vaccination if appropriate. Alternatively they can contact their GP.

5.3 FOLLOW-UP ANTENATAL VISITS (See schedule of AN visits below) **AT EACH VISIT**

- BP with appropriate sized cuff
- Weight – Each trimester
- Urine for protein.
- The fundal height **MUST** be measured in centimetres recorded in the notes from 26 weeks
- Fetal heart auscultation from 20 weeks.
- Fetal movements should be commented upon
- Fetal presentation should be commented upon from 34 weeks

- Ask about depression and anxiety at each appointment. If the woman answers **Yes** to Q1 in the Antenatal Notes uses the Patient Health Questionnaire-9 (PHQ) and refer to the maternal emotional wellbeing referral pathway. If the patient answer **Yes** to Q2 and Q3 in the health care records use the Generalised Anxiety Scale-& (GAD7) and refer to the maternal emotional wellbeing referral pathway
- The professional should indicate when the next visit should be and with whom; they should also sign and print their name

At each visit the woman and her partner should be encouraged to discuss the pregnancy and any particular anxieties noted.

20 weeks

- Ultrasound screening for fetal anomalies is offered to all women
- Maternity Certificate- MATB1 issued - Pertussis and seasonal flu vaccine must be offered from 20 weeks and documented in the woman's record.

26 weeks

- FBC
- RBS
- ABO and RhD Group & antibody screen
- Ensure Rhesus Negative women have been referred to the Rhesus antenatal clinic for the option of prophylactic Anti-D

34 weeks

- FBC and RBS

36- 38 weeks

- **CO Monitoring**

5.4 RHESUS NEGATIVE WOMEN

When a woman is identified as Rhesus Negative at booking, the results are sent to the ANC. Appointments are sent out to the women for an injection of Anti-D at 28 weeks. Women should be given the leaflet about Anti-D, further information for the patient is available on the RCOG website. It is the booking midwife's responsibility to check the rhesus status and make the anti-D appointment.

6.0 THE MATERNITY NOTES

All women carry their own maternity antenatal notes. Some information therefore may need to be recorded in a sensitive manner; relevant information should always also be recorded in the hospital pink notes and electronic system (EPR). Women should be given their notes at booking, and results filed the next time that they are seen.

Well kept up to date notes that are easily accessible to the pregnant woman is of the utmost importance for all health professionals involved. Communication between professionals is equally paramount. GPs, Health Visitors (HVs) community midwives and the hospital staff are responsible for ensuring they have current channels of communication with their colleagues. Appropriate filing of all investigations and encounters is vital.

At the booking appointment

- The woman is provided with her blue antenatal notes which include a summary of her appointments.
- If the woman is seen in a hospital clinic, she will also be seen with her full patient record (pink notes) if necessary. If the woman is seen in a community clinic, the midwife can access previous obstetric and medical history via remote access to EPR (which will have information on any care provided by Homerton Hospital, since 2004). All relevant information on the current pregnancy should be found in the progress notes in the Maternal Booking Assessment form on EPR.
- The midwife will ensure that the patient's Electronic Patient Record is updated within five days of appointment and the Electronic Booking Summary is completed.

For follow up appointments

- All patients in the obstetric medicine clinics, will be seen with their full patient record (pink notes) as well as hand held antenatal notes.
- We will be moving towards documenting on EPR during 2017.
- If the clinician requires pink notes for women seen in the hospital antenatal clinics, they request these from the receptionist who will retrieve them immediately or as soon as possible if they are in off-site-storage.
- If notes are required from another hospital this should be discussed with the antenatal clinic team leader.
- If a woman declines any aspect of antenatal care the rationale for care and any discussions should be clearly documented on EPR and the handheld notes .

Transfer of care in antenatal period

If a woman decides to transfer her care to another provider in the antenatal period the following process must be implemented for ALL women;

- Inform woman of the importance for ensuring on going antenatal care
- Ask woman which unit she intends on transferring to and to confirm when she has booked with the new provider – document this information on EPR – antenatal booking progress notes
- Book further follow up appointments and advise the woman to attend appointments until she has commenced care with a new provider
- For women with complex social or medical history, or for women who have expressed a desire to free birth, a midwife to midwife handover of care must be undertaken. For socially complex cases this can be facilitated via the Named Midwife for Safeguarding network, contact details for London units available on Safeguarding Children intranet pages, if outside London call unit to identify contact person.
- If the woman DNA's the follow up appointments that have been made the midwife should follow up as per the DNA appointment guideline.
- At the woman's final appointment with HUHT print off antenatal EPR documentation and place in the blue handheld notes
- Inform woman that the blue handhelds notes must be returned to HUH once booked with new provider
- Document all action taken on progress notes on the antenatal booking form

7.0 SCHEDULE OF ANTENATAL VISITS FOR LOW RISK WOMEN

(Based on NICE 2011)

Weeks of Pregnancy	Purpose of Visit	Possible tests or procedures	Place of visit	Which professional
5weeks onwards	Confirm pregnancy, initial advice for healthy pregnancy, offer choice of provider, information on referral process and service to expect.	Blood tests MSU	GP	GP or direct contact with Midwife
6–12 weeks, ideally by 10 weeks (or date of first visit if after 12 weeks)	**Initial interview** (booking) – full discussion of health, pregnancy (and previous pregnancies), tests available, options for care, hopes and fears. Notification of pregnancy sent electronically to GP and health visitor antenatally – CO monitoring	Blood tests MSU, if not already done	Community clinic (CC), GP, Children's Centre or Hospital ANC (HANC)	Midwife
11-13+6 weeks	Combined Test if requested		Obstetric ultrasound 2nd floor HUH	Fetal Medicine Fellow & phlebotomist
16 weeks	Review results of initial blood tests and Combined test, document all results in notes Discuss anomaly scan		CC/GP/HANC	GP (For city & Hackney)
20 weeks	Review results of anomaly scan Antenatal check. Mat B1 - Pertussis and Seasonal flu vaccine to be offered	US scan Obstetric ultrasound 2nd floor HUH		Midwife & Ultrasonographer
26 weeks	Antenatal check Information on antenatal classes Ensure Rhesus Negative women have been given an Anti-D appointment	Blood tests RBS, FBC and Blood Group/Antibodies	CC/GP/HANC/home	Midwife
28-38 weeks	Recommended vaccination against pertussis in each pregnancy	Vaccination	GP or hospital ANC	Primary care or Midwife
30 weeks	Antenatal check Discuss antenatal classes		CC/HANC/GP/home	Midwife
34 weeks	Antenatal check; discuss infant feeding and labour/ Confirm place of birth	Blood tests- FBC, RBS	CC/GP/HANC/home	Midwife
36 weeks ***(first babies only****)*	Antenatal check Results of blood tests *CO Monitoring*		*CC/HANC/GP/home*	Midwife
38 weeks	Antenatal check Discuss onset of labour Discuss Sweep		CC/HANC/GP/home	Midwife
40 weeks ***(first babies only)***	Antenatal Check Discuss plans for labour if overdue Offer Sweep		*CC/HANC/GP*	Midwife
41 weeks	Antenatal Check			

	Offer sweep Arrange out-patient IOL for 41+		CC/HANC/GP	Midwife

8.0 RISK FACTORS & SUGGESTED MANAGEMENT PROTOCOLS

The following tables of risk factors and suggested protocols of management were arrived at by consensus of local Obstetricians, Midwives, General Practitioners, Paediatricians, Community Physicians and Pathologists and are based on national and local guidance and best practice. They are not "set in stone", and have gradually evolved. Factors below indicate that urgent referral to the consultant is required.
Every woman is different and care must be individualised; these are guidelines only. The consultant should always be involved when there are significant problems. Risk assessments are undertaken at booking and documented on EPR and then throughout the pregnancy, when deviations from the normal are identified these are then documented in the notes. The woman must be referred to the appropriate practitioner e.g consultant obstetrician and continuity with that consultant maintained where possible.

When risk factors have been identified an individual management plan must be documented in the notes.

The obstetrician who sees the women must also make a plan in the notes for when midwifery led care is appropriate. The appropriate place of birth is discussed at booking, due to risk factors in the pregnancy any changes to the place of birth must be documented in the notes. For further information re: recommended criteria for a homebirth or birth in the birth centre refer to the relevant guidelines.
Advice from an obstetrician is also available via obstetricquery@homerton.nhs.uk.

If in the unlikely event that an antenatal emergency occurs in the community setting for example, haemorrhage or significant fetal heart rate abnormality such as prolonged bradycardia the client must be transferred immediately to the delivery suite. The delivery suite coordinator must be notified by telephone or by bleep 136.

8.1 Maternal Factors

FACTOR	POTENTIAL ADVERSE EFFECTS	SUGGESTED PROGRAMME
Age<16	• ↑risk of PET • ↑risk of preterm labour • ↑risk of small baby if smoking • Reluctance to access services	• Referral to Social Worker • ↑visit frequency • Offer referral to Public Health MW & Family Nurse Partnership MW & Cons MW for Public Health
Grandmultip (Para 6) (NICE 2008)	• ↑risk of anaemia • ↑risk of unstable lie	• Consider checking ferritin • Refer to consultant team if unstable lie>37 weeks • Discuss sterilisation if CS necessary
IUCD in situ	• ↑risk ectopic/miscarriage • ↑risk prem labour	• GP to remove IUCD if easy and <12 weeks, or scan & consultant referral ASAP

Substance /Alcohol Misuse	• Cocaine associated with abruption, IUD, prematurity • Opiates-associated with IUGR and Neonatal Abstinence Syndrome (NAS) • Alcohol associated with Fetal alcohol syndrome, fetal alcohol spectrum disorder, NAS • Benzodiazepines associated with low birth weight, premature delivery, NAS • Social problems • Poor general health/nutrition and low BMI	• Counsel, refer to spec MW • Asked about the partner's drug use for safeguarding reasons • Early planning meeting • ?serial scans for those who continue to use opiates, cocaine, crack cocaine, mod-heavy alcohol, benzodiazepines • Urine for toxicology with consent - one at booking and one randomly in third trimester unless more are indicated • Consider Hep C testing and referral to TB team

Infertility>2yrs Natural/assisted conception Ovum Donation	• ↑parental anxiety • ↑risk of PET with ovum donation & PPH	• Discuss strategies to reduce parental anxiety • Consultant led care for those with ovum donation/assisted conception: women to see consultant by 20/40 • UA Dopplers 22/40 and USS 28+34 weeks • Offer delivery by 40 weeks
Large Fibroids (>8cm or features of obstruction) /ovarian cyst at booking	• Pain • Malpresentation • Obstructed/preterm labour • Cancer risk •	• Discuss with Obstetric Consultant and refer as appropriate
Domestic Violence	• significant ↑risk during pregnancy • ↑risk preterm delivery and low birth weight	• Consider children's services (social work) referral/Public Health MW/inform Cons/MW– see Professional Policy for Domestic Abuse
Smoking>5/day, tobacco/cannabis	• ↑risk IUGR • ↑risk prematurity • ↑risk abruption	• Counsel • Strongly recommend smoking cessation programme and offer referral to smoking cessation services • Consider serial scans • If cannabis, send urine for toxicology and notify specialist MW
Age <u>> 40</u>	• ↑risk chromosomal problem • ↑risk late stillbirth • ↑Risk of GDM/PET/C-section	• Consultant Review at 20 weeks • Review mode, timing of delivery. Recommended review at 38 weeks to offer IOL by 40 weeks

Female Genital Mutilation	• Possible difficulty with VEs & birth if she has not already had a vaginal birth • Risk to her children • PTSD or other psychological effects that may affect experience of labour/delivery. Risk of tocophobia.	• Document under "chronic problem" FGM • Complete FGM risk assessment to inform whether a referral to social care is needed or not (available on intranet in FGM guideline) • Refer to consultant preferably by 20 weeks if she has not already had a vaginal birth • Give information/referral to Dhalia Project (psychological support service)
Not fluent in English	• Inability to utilise services • Particular cultural problems	• Refer to health advocate if available or use language line
Women who **decline blood and blood products**	• The death rate from haemorrhage in this group is increased approximately 100 times	• Refer to consultant obstetrician by 20 wks • Patient to bring two copies of the advance directives- one copy to be placed in the handheld notes and one in the pink folder • Avoid Anaemia
Anaesthetic History	• Previous failed intubation • Previous Adverse events in anaesthesia • Any airway abnormality • Any spinal abnormality • Any congenital abnormality	• Refer to consultant anaesthetist's clinic on EPR
Group B Streptococcus infection (previous/this pregnancy)	• Risk of transmission to neonate • ↑risk if PROM	• Offer screening at 35-37 weeks to women with previous GBS infection/those requesting screening this pregnancy • Offer intrapartum antibiotics to all women with known GBS in this pregnancy/previous pregnancy/previous affected baby • GBS guideline

8.2 Relevant Medical Condition

FACTOR	POTENTIAL ADVERSE EFFECTS	SUGGESTED PROGRAMME
Epilepsy	• Anti-epileptics • Dose dependant birth defects (increase by 2-3 folds) • Cleft lip and palate • NTD • Cardiac	• 5mg Folic Acid throughout pregnancy • Refer to Consultant Obstetrician in the obstetric medicine clinic. • If known recurrent seizures/uncontrolled epilepsy must be booked as URGENT and referred to consultant in obstetric medicine clinic.
Hypertension	• Superimposed PET • IUGR • Abruption • Teratogenicity of some drugs	• If on ACE inhibitor change to labetalol asap • Booking baseline U&E, • Regular urinalysis • Consider referral to OMC if poorly controlled or proteinuric at booking • Serial scans- 28 & 34 weeks. • See appendix A and full hypertension guidelines for more detailed guidance.
Diabetes	• Poor pregnancy outcome • Macrosomia/IUGR • Poor diabetic control	• Refer to Obstetric Endocrine Clinic within 2 weeks and book for care urgently • Request fructosamine with booking bloods
Heart disease	• ↑cardiovascular demands • Discuss the need for warfarin/heparin	• Urgently refer to Consultant Obstetrician Medicine clinic and Consultant Cardiologist if symptomatic, valvular disease, or previous cardiac surgery • Anaesthetic opinion
Sickle Cell Disease	• ↑risk sickle crises • IUGR • IUD • ?need for prenatal diagnosis	• Specialist MW/nurse referral • Joint care Haematology/Obs consultants • Screen partner • UA Doppler & USS @28/34wks
Anaemia	• ↑risk haemorrhage • Tiredness	• See under “Responses to Investigations”, Page 9 • Ferritin, B12 and folate if Hb<8 • Consider IM iron if no response to oral iron
Previous thrombosis/ Thrombophilia	• Further thrombotic event	• Urgent consultant referral within 2 weeks

Treated Hypothyroidism **Untreated /Poorly treated Hypothyroidism** **Thyrotoxicosis** **Past history of Thyroid surgery Radio iodine**	• There is an association (which may or may not be causal) between raised TSH levels and impaired intellect in the child • Stunting of fetal intellect is a recognised problem. • Poor Fetal growth / impaired Fetal development • A subset of these patients will have had Thyroid cancer and other serious diseases which will require specialist review	• Measure Thyroid function test as early in pregnancy as posssible. • If TSH is less than 2 mU/l monitoring in primary care is all that is needed. If TSH is above 2mU/l and GP is happy to increase the thyroxine dose then no referral to obstetric medical clinic is needed. Increase thyroxine dose and re-measure in a month. (2-3 wks if TSH > 10mU/l). If GP unwilling to increase thyroxine dose then refer to the Obstetric Medical Clinic. • Patients often need 25 mcg more thyroxine in pregnancy , than they do in the non –pregnant state • Untreated hypothyroidism in pregnancy requires an urgent telephone referral to an endocrinologist. • Check thyroid function test at booking & Refer to the Obstetric Medical Clinic • Refer to Obstetric Medical Clinic
Severe asthma	• May deteriorate in pregnancy	• Consider referral to chest physician particularly if sleep disturbed.
Cone biopsy /2+loops	• Cervical incompetence	• Refer to consultant by 12 weeks if possible for consideration of cervical cerclage.
Hepatitis B Positive	• Child may be infected • Long term implications	• Refer to Screening Specialist MW and Gastroenterologist • Vaccinations for baby arranged appropriately
Hepatitis C Positive	• Child may be infected • Long term implications	• Refer to gastroenterologist • Refer baby to paediatrician
HIV positive	• Child may be infected • Specific problems, e.g. PCP • Long term implications	• Refer to Specialist Team including Specialist Midwife

Mental illness	• ↑Risk recurrence particularly with bipolar disorders and previous postpartum psychosis • SSRI's↑ risk for postpartum haemorrhage • Antipsychotic medication ↑ risk metabolic disorder • Child protection issues	• Refer appropriate clients to the Perinatal Mental Health Team (PMHT) – see guidelines for up to date referral pathway for all levels of mental health difficulty • Management of 3rd stage of labour. • Refer to Obstetrician, consider ECG, recommend for RBS @ every follow up appointment • Refer and Liaise with PMHT/social worker & MDT as appropriate
History of medium chain acyl dehydrogenase deficiency MCADD	• If parents already have a child who is affected there is a 1:4 chance they could have another baby with the condition. • However, any history of MCADD in the extended family of either parent should be investigated. It is advisable that in this situation , parents should be referred to a genetics service for advice	• Refer to consultant obstetrician • Refer to clinical genetics via fetal medicine department • Document history in Neonatal handheld notes.
Genetic disorder such as cystic fibrosis, muscular dystrophy, Gaucher's disease	• Parents may have affected child and require counselling regarding the pregnancy. It is advisable that in this situation parents should be referred to a genetic service for advice	• Refer to consultant obstetrician • Refer to fetal medicine department for genetic counselling • Document history in the hand held notes
Abnormal blood antibodies such as anti HPA 1a	• Risk of fetal anaemia • Risk of intrauterine death	• Refer to fetal medicine department • Document history in the hand held notes**.**

8.3 Previous Obstetric History

FACTOR	POTENTIAL ADVERSE EFFECTS	SUGGESTED PROGRAMME
Stillbirth/NND	• Possible recurring factor • Parental anxiety	• If SB/NND refer to Consultant Obstetrician at booking • If previous NND/SB inform bereavement team
Congenital abnormality	• Possible recurring factor • Possible maternal diabetes • Parental anxiety	• Consultant in fetal medicine /FMU referral
Baby<2.5kgs @ term	• ↑risk this pregnancy	• Consider dopplers and serial scans
Baby>4.5 kgs	• ↑risk this pregnancy	• Random glucose each visit

(>4.0 if Asian)	• ↑risk gestational diabetes • shoulder dystocia	• Consider GTT
↑BP previous pregnancy	• ↑risk this pregnancy	• Monitor carefully • Refer to consultant if elevated • Consider aspirin 75 mg daily if severe PIH/PET last pregnancy • UA dopplers if <37/40 • See appendix A and full hypertension guidelines for more detailed guidance.
APH/PPH	• ↑risk this pregnancy	• Reduce risk factors e.g. smoking • Careful 3rd stage Mx for PPH • Consider consultant opinion
12-24 wk loss/ previous cervical suture	• ?cervical incompetence • ?infective association • Parental anxiety	• Consider cervical suture • Consultant referral by 12 weeks if possible
Shoulder dystocia/difficult vaginal delivery	• ↑risk recurrence	• Request previous delivery notes at booking • Consultant review re mode of delivery by 34 weeks
Caesarean or other uterine scar example myomectomy	• Risk of uterine rupture	• Refer for Consultant review if previous myomectomy / or VBAC Clinic (see Vaginal Birth After Caesarean guideline)
Manual removal of placenta	• Risk of recurrence	• Active management of 3rd stage- Hospital delivery
3rd degree tear	• Risk of worsening any residual symptoms • Parental anxiety	• Request previous delivery notes and correspondence from perineal clinic • Consultant review by 3weeks

8.4 Booking Examination

FACTOR	POTENTIAL ADVERSE EFFECTS	SUGGESTED PROGRAMME
BMI >30	• IUGR • Difficulty assessing growth • Diabetes if obese	• See Obesity Guideline • Consider serial scans • Consider dietician
BP≥150/95	• ?essential hypertension • ?superimposed PET if more than 20 weeks	• Refer to OMC • If on ACE inhibitor change to labetolol asap
Proteinuria	• ?UTI • ?underlying renal disease • ↑risk adverse obstetric outcome	• MSU • Urine for Random Protein creatinine ratio. • Renal function • Regular urinalysis, consider referral to renal physician (renal.homerton@nhs.net) • UA dopplers

9.0 RESPONSES TO INVESTIGATIONS When a woman has her booking blood tests taken (including HIV) she should be informed that all results will be given at the next antenatal visit. The only exception to this is when difficulties arise with the tests, in which case she will be contacted directly, or if repeat testing may be required. This possibility should be made clear to the woman.

9.1 Haemoglobin:

Hb, in the absence of a haemoglobinopathy, should be above 100g/dl. Hb is commonly 1-2 grams lower in β thalassaemia, but iron deficiency may be present. If Hb is less than 10 and the MCH<27 or the MCV<80, this may be due to iron deficiency, alpha thalassaemia trait or beta thalassaemia trait. Beta thalassaemia trait will have been diagnosed on the booking haemoglobinopathy screen but there is no specific test for alpha thalassaemia trait, which is a common condition (25% of Afro-Caribbeans).

9.2 MANAGEMENT OF ANAEMIA

Cut offs to define anaemia in pregnancy are:

I trimester: Hb< 110 g/L
II trimester: Hb< 105 g/L
III trimester: Hb<110 g/L
Post-natal: Hb<100 g/L

Iron deficient anaemia (IDA) is the most common cause of anemia globally, affecting 24.8% or 1.62 billion people worldwide and contributing to global maternal mortality in about 20% of deaths.

Even in developed countries where there is access to a good diet, women in the second and third trimester are more susceptible to IDA.

A storage of 500 mg of iron at the beginning of the pregnancy would be needed to fulfil pregnancy requirements but this is achieved only by 20% of reproductive aged women therefore iron supplementation is often necessary.

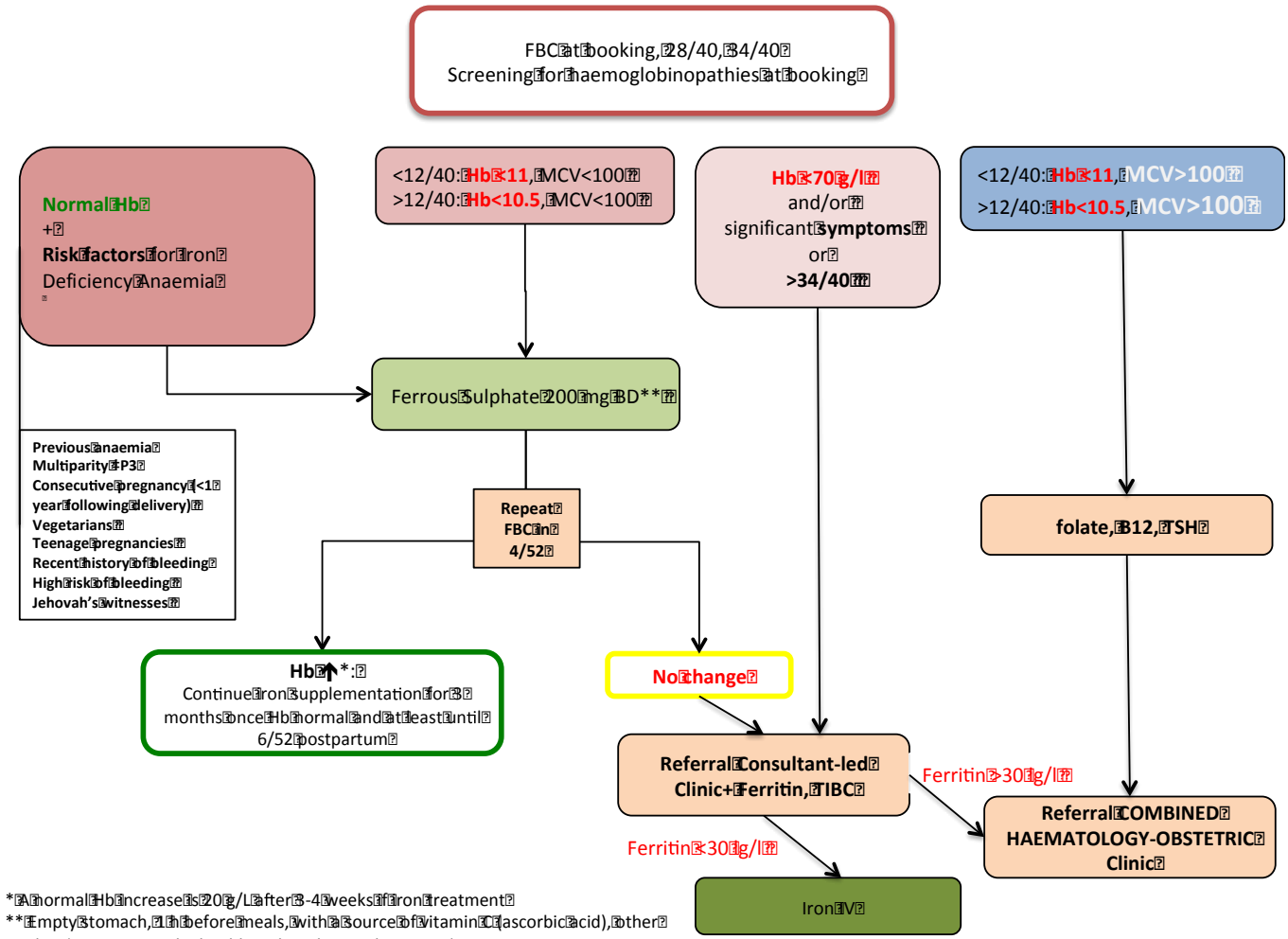
Dose and elemental iron content per tablet of oral iron preparations

In providing an oral treatment with iron, the amount of elemental iron content must be known (see table).

The expected rise in Hb level is 20 g/L in 3-4 weeks of treatment.

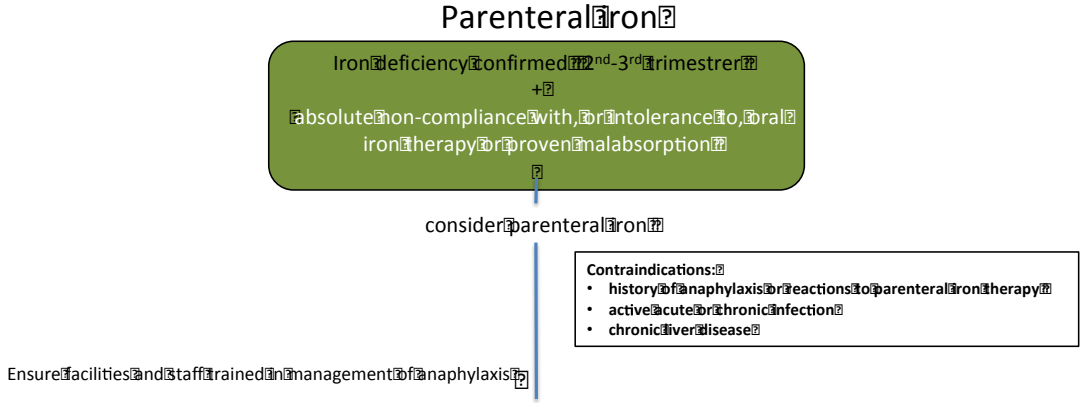
Iron Salt	Dose per tablet	Elemental iron
Ferrous Fumarate	200mg	65mg
Ferrous Gluconate	300mg	35mg
Ferrous Sulphate (dried)	200mg	65mg
Ferrous Sulphate	300mg	60mg
Ferrous Feredetate	190mg / 5ml elixir	27.5 mg / 5ml

Algorithm for the management on anaemia in antenatal clinic



*An normal Hb increase is 20g/L after 3-4 weeks of iron treatment
**Empty stomach, 1 hr before meals, with a source of vitamin C (ascorbic acid), other medications or antacids should not be taken at the same time

Algorithm for the treatment of anaemia with parenteral iron



Steps for parenteral iron prescription for anaemic patients seen in ANC with the above conditions

1. Request new FBC and Ferritin in clinic if not recent (<7days) – Iron deficiency must be documented

USE THE EXCEL SHEET PROVIDED (LINKED) TO CALCULATE THE DOSES FOR STEPS 2-5

2. Calculate iron requirement

[(target Hb (g/L) - actual Hb (g/L)) x (0.24 x body weight (Kg))] + mg iron for body stores

- 110 g/L
- booking weight
- 500mg if patient weight >35Kg; 0mg if <35Kg

3. **round up/down to the nearest 50mg. Give max 20mg/Kg of the dose required**

4. Calculate **how many mls of Cosmofer** (iron (III) hydroxide dextran complex) are needed to give the max dose

max dose required (mg)/50mg = mls of Cosmofer

5. Calculate **test dose** (the first 25mg iron must be always given in 15 minutes as a test dose monitoring HR, BP, RR, shortness of breath, rash (signs of anaphylaxis)

25mg/max dose required (mg) x (volume in bag: 500mls + total mls of Cosmofer) = mls of Cosmofer for test dose

Test dose (mls) x 4 = infusion rate ml/h for the first 15 minutes

6. Prescribe Cosmofer - iron (III) hydroxide dextran complex – on EPR

Drug : Cosmofer (50 mg/ml)
Dose: calculated max dose mg (calculated dose mls)

Infusion fluid: 0.9% saline 500 ml
Instructions (to be written):
"1° hour : run at XXX **(infusion rate ml/h for the first 15 minutes)** ml/h for 15 minutes, then stop for 1 hour (monitoring obs) ,
2° hour and subsequent: run at 100 ml/hr"

7. Contact Turpin to book an admission day and time for the patient to be admitted for the infusion

Name, hospital number, DOB, contact number and indication for admission to be written on Induction book

When the patient is admitted the prescription needs to be finalized.

Particular cases:

If unable to infuse the total iron dose because the dose required is higher than the maximum dose

- Initially give the maximum dose possible as calculated
- The remaining dose should be given after an interval of 1wk for each 600mg originally given

i.e. for an initial dose of 1200mg --+ remaining dose given 2 weeks later, 1800mg —> remaining dose given 3 weeks later etc.

Other causes of anaemia

Other common causes of anemia in reproductive-age are pernicious anemia **(MCV>100)** and anemia secondary to infection such as malaria therefore if anaemia is not due to iron deficiency or it does not improve the patient must be **referred to COMBINED HAEMATHOLOGY OBSTETRIC CLINIC.**
(DeMaeyer and Adiels-Tegman, 1985).

IRON STUDIES

Haemoglobin:
Hb concentration is a measure of anaemia (specific ranges in pregnancy), however Hemoglobin is thought to be the last iron indicator to fall below cutoff when iron deficiency is present

Mean cell volume (MCV)
MCV indicates whether RBCs are smaller than usual (microcytic), common sign of iron deficiency anaemia, or larger than normal (macrocytic), a common sign of anaemia resulting from a deficiency of vitamin B12 or folate.

Serum ferritin (SF)
the amount of iron in body stores.
A concentration ≥15 µg/l means that iron stores are present; higher concentrations reflect the size of the iron store.
Serum ferritin is increased in inflammatory conditions therefore it is less reliable in these situations.
Please refer to Appendix B. Steps for the prescription of Cosmofer

9.2 a Thrombocytopenia in Pregnancy

The normal serum level of platelets in pregnancy is 150–400 × 10^9/l. The platelet count tends to fall progressively throughout pregnancy but should remain within normal limits. This is due to a combination of dilutional effects and increased destruction as platelets cross the placenta.

Thrombocytopenia is defined as platelet count <100 x 10^9/l.

The reduction of serum platelet counts is described as

- Mild if platelets >100
- Moderate at 50–100
- Severe at <50

Action is not needed unless:

- **The platelet count is <100 x10^9/L OR**
- **Platelet count is falling rapidly OR**
- **It is clearly related to a specific clinical condition eg PET.**

In most cases women with otherwise uncomplicated pregnancies and a platelet count of >100 x10^9/l can choose to deliver in the Birth Centre.

Causes of thrombocytopenia:

1. Gestational thrombocytopenia

The most common cause in pregnancy (75%).

Diagnosis

It is a diagnosis of exclusion and usually found incidentally in the second half of pregnancy. Counts are typically >70 and usually >100.

Risks

There is **no** bleeding risk to mother or fetus even when the platelet count is < 100 x 10^9/l. However due to difficulty ruling out ITP (see below) in certain circumstances, additional precautions are taken in labour when counts < 80 x10^9/l.

Management- Antenatal

- For the vast majority of cases the pregnancy and delivery should be treated as normal.
- Platelet count to be monitored:
  - Every 4 weeks until 28 weeks
  - Every 2 weeks from 28-36 weeks
  - Every week from 36 weeks onwards
- A trial of steroids should be considered when the count is 50–70 x10^9/l. After review/discussion with haematology team.
- Oral prednisolone 20 mg escalating to 60 mg daily if no response after one week then wean to dose maintaining count >50 x10^9/l.

Management- In labour

- FBC on admission
- If platelet count < 80 x10^9/l.
  - Avoid fetal scalp electrode/ fetal blood sampling
  - Avoid high/mid cavity operative delivery
  - Caesarean section for obstetric indications only
  - Cord sample at delivery to ensure baby's platelet count normal

Post partum
It resolves spontaneously after pregnancy and may recur in subsequent pregnancy.

2. Immune Thrombocytopenic Purpura (ITP)

This is a rare (incidence 1-2 per 10,000 pregnancies) and chronic condition accounting for 3% of thrombocytopenias in pregnancy.

Pathophysiology
It is caused by the production of autoantibodies to platelet surface receptors. These antibodies bind to platelets in the maternal circulation causing immune-mediated platelet destruction by the reticulo-endothelial system. These antibodies can cross the placenta and cause fetal thrombocytopenia.

Risks

- Bleeding with ITP is unusual, even with very low counts.
- IgG antibodies can cross the placenta causing thrombocytopenia in the fetus and neonate and may result in the extremely rare but devastating consequence of **intracranial haemorrhage**
- **Maternal treatments with steroids/IVIg do not affect the fetal count and there is no correlation between the severity of maternal thrombocytopenia and the fetal count.**
- Approximately 5% of babies will have counts <20 and a further 10% will have counts of 20–50.

Diagnosis

- Isolated low platelets without any associated haematological abnormality.
- It is a diagnosis of exclusion and should only be made once other causes of thrombocytopenia have been excluded eg. PET.
- The main difficulty is differentiating from gestational thrombocytopenia – it is a chronic disease and therefore it is less likely to present for the first time late in pregnancy.
- The bone marrow may be normal/megakaryocytic but a bone marrow test is not indicated unless there are unusual features or the platelet count is <30.

Management
The aim of management is to maintain an adequate platelet count that will minimise the risk of bleeding during pregnancy, delivery and postpartum. The majority of women will not require treatment in the antenatal period; and any treatment is often required to increase the count close to delivery.
A general guide for interventional levels in non-haemorrhagic cases:

Intervention	
Antenatal no invasive procedures planned	>20
Vaginal delivery	>40
Instrumental delivery	>50
Epidural anaesthesia	>80

Antenatal Monitoring and Management

- Platelet count to be monitored:
  - Every 4 weeks until 28 weeks

- Every 2 weeks from 28-36 weeks
- Every week from 36 weeks onwards

- First line: Oral prednisolone 20 mg escalating to 60 mg daily if no response after one week then wean to dose maintaining count >50 $x10^9$/l..
- Second line for resistant cases: Intravenous immunoglobulins (IVIg). Admit to antenatal ward and discuss with pharmacy. Response is more rapid (24-48 hours) than steroids and lasts 2-3 weeks. Recheck platelet count after 2-7 days.

Management in labour- on admission

- FBC on admission
- Platelets >50 $x10^9$/l generally safe for vaginal delivery
- Inform consultant haematologist
- Platelets to be ordered on standby via haematology after discussion with haematology consultant (note- not kept on site therefore careful planning is required)
- Alert neonatologists

Management in labour

- **Regardless of platelet count:**
  - Avoid fetal scalp electrode/ fetal blood sampling
  - Avoid high/mid cavity operative delivery
  - Caesarean section for obstetric indications only (no evidence that it reduces the incidence of intracranial haemorrhage).
  - Cord sample at delivery to ensure baby's platelet count normal

Management- at delivery

- Neonatologists informed
- Cord sample should be taken to assess the neonatal platelet count
  - if low confirm with a capillary sample and further samples on days 1 and 4
  - If normal monitor for further 2-5 days (liaise with neonatologists).
- **Intramuscular vitamin K should be avoided until the count is known.**
- Babies with severe thrombocytopenia should be treated with intravenous immunoglobulin and a cranial Doppler ultrasound can be helpful. Platelets should be administered in addition to intravenous immunoglobulin if there is life-threatening haemorrhage.

3. Hypertensive disorders of pregnancy;

Pre-eclampsia

- In general, women with pre-eclampsia have lower platelet counts than normal: approximately 15% within the thrombocytopenic range.
- The condition resolves quickly after delivery, therefore conservative management is appropriate for mild or moderate pre-eclampsia.
- Severe thrombocytopenia occurs among <5% of women with pre-eclampsia, but it can be associated with disseminated intravascular coagulation (life-threatening widespread clotting dysfunction). This requires aggressive management and correction of the coagulopathy with fresh frozen plasma, cryoprecipitate and platelet transfusions.

HELLP syndrome
This is a combination of:

1. **H**aemolysis
2. **E**levated **Li**ver enzyme levels
3. **L**ow **P**latelet counts

- It can complicate severe pre-eclampsia in about 10% of cases.
- It occurs most frequently in the third trimester, but it can get worse initially postpartum or, occasionally, present at this time.
- It can occur without hypertension or proteinuria.
- The presenting symptoms include: nausea, malaise and epigastric or right upper quadrant pain.

Diagnosis

- FBC: Anaemia and thrombocytopenia
- Blood film: RBC fragments (microangiopathic haemolytic anaemia).
- Liver function tests:
  - Raised LDH (lactate dehydrogenase)
  - Increased bilirubin
  - Abnormal liver enzymes.

Complications

- Disseminated intravascular coagulation may be present in approximately 20% of cases.
- Placental abruption occurs in approximately 16%.

Management

- Delivery is the mainstay of treatment for the mother.
- Supportive care with fresh frozen plasma with or without cryoprecipitate if disseminated intravascular coagulation is present.
- The platelet count should be maintained at >50.
- The condition usually improves quite quickly after delivery, although it may worsen during the first 24–48 hours postpartum.

4. Microangiopathies

i. Thrombotic thrombocytopenic purpura

This is a rare, life-threatening disorder. It occurs in about 1 in 25 000 pregnancies.
The features include: (note not all of these have to be present)

- Microangiopathic haemolytic anaemia
- Thrombocytopenia,
- Neurological symptoms (varying from headache to coma)
- Renal dysfunction
- Fever.
- The time of onset in pregnancy is variable, ranging from the first trimester to several weeks postpartum.

Despite the difficulties of diagnostic certainty, plasma exchange needs to be commenced urgently and good clinical judgement is required. **Platelet transfusions are contraindicated because they are known to precipitate or exacerbate central nervous symptoms**.

ii. Haemolytic uraemic syndrome
This is a similar syndrome, with microangiopathic haemolytic anaemia and thrombocytopenia but with **predominant renal involvement**. In adulthood and in pregnancy there is a poor response to plasma exchange.

Microangiopathies and neonatal issues
The prognosis for the baby in all the microangiopathies described is poor because of extensive placental ischaemia. DIC can complicate the picture or exist secondary to another cause and is usually associated with bleeding.

There can be major difficulties in the differential diagnosis of TTP, haemolytic uraemic syndrome, HELLP and severe pre-eclampsia. Table below may be helpful

Characteristic	TTP	HUS	HELLP syndrome	Pre-eclampsia
Onset	Any time[a]	Postpartum	Third trimester	Third trimester
Hypertension	No	No	+/−	+++
MAHA	+++	++	++	+/−
Thrombocytopenia	+++	++	++	+
DIC	No	+/−	++	+/−
Liver disease	+/−	+/−	+++	+/−
Renal disease	+/−	+++	+	+
CNS disease	+++	+/−	+/−	+/−
Management	Plasma exchange	Supportive	Deliver fetus, blood products	Deliver fetus

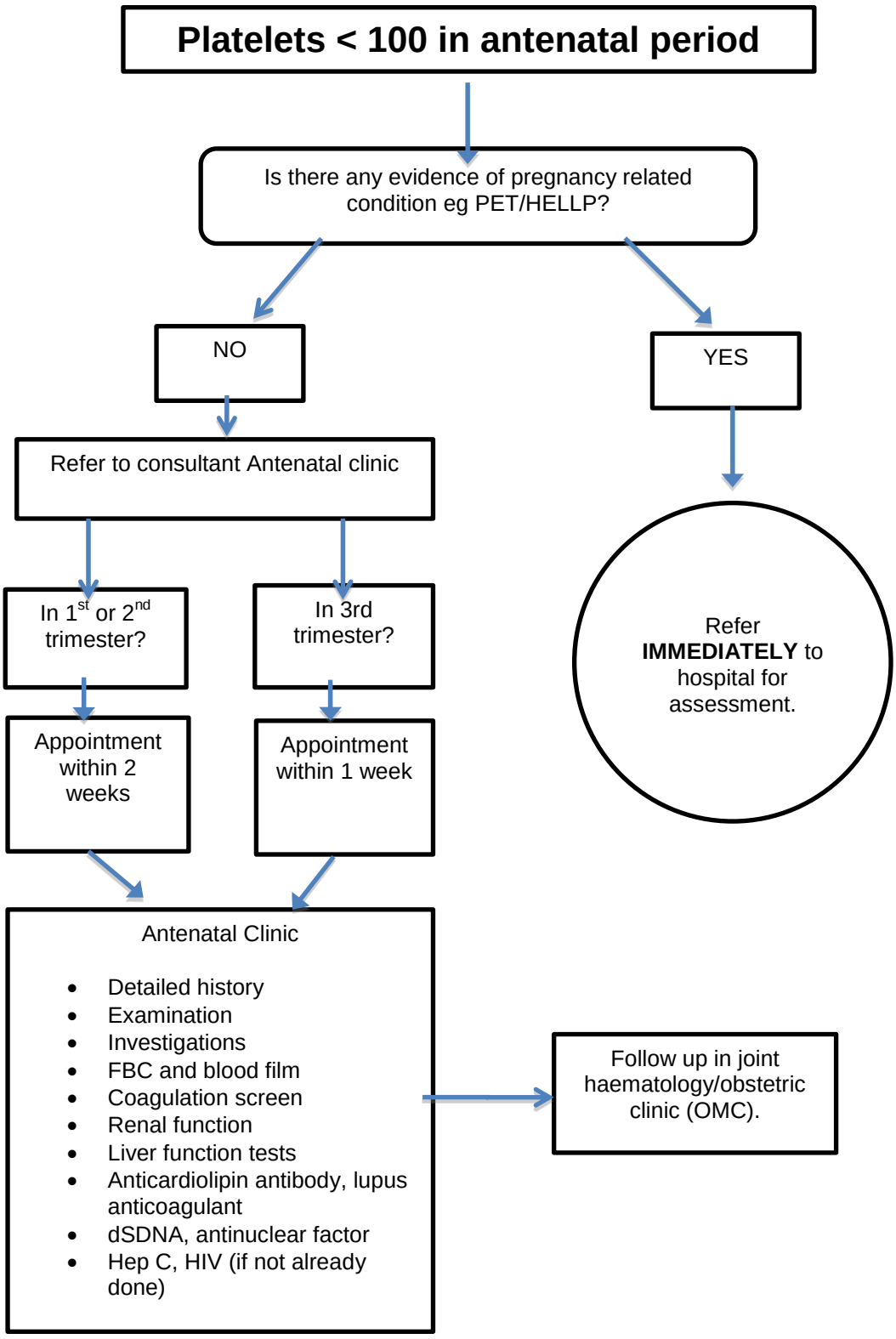
CNS = central nervous system; DIC = disseminated intravascular coagulation; HELLP = haemolysis, elevated liver enzymes and low platelet count syndrome; HUS = haemolytic uraemic syndrome; MAHA = microangiopathic haemolytic anaemia; TTP = thrombotic thrombocytopenic purpura
[a]Including postpartum

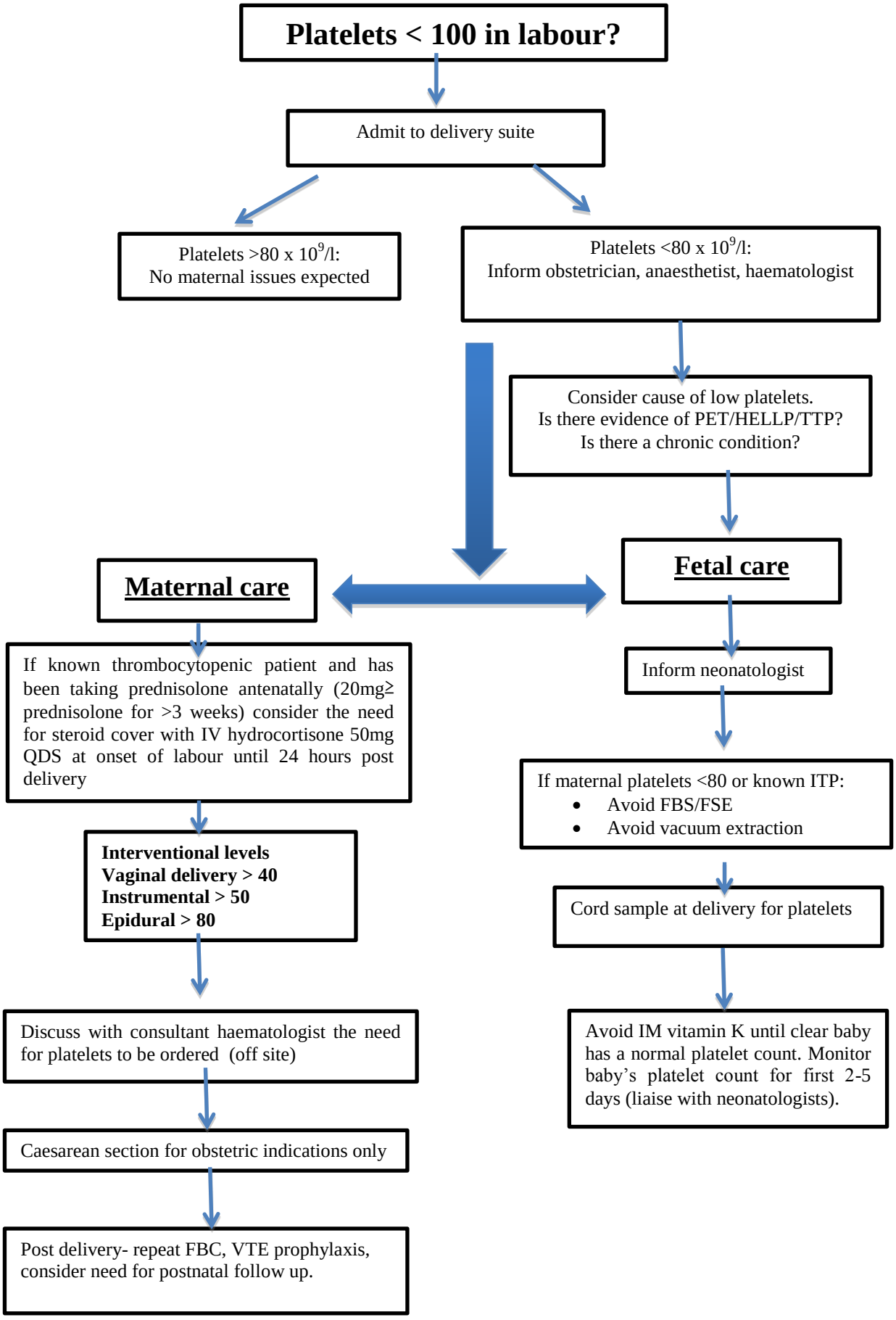
5. Other causes of maternal thrombocytopenia

i. Antiphospholipid syndrome
- Thrombocytopenia can be associated with antiphospholipid syndrome but this is rarely severe.
- In primary antiphospholipid syndrome and systemic lupus erythematosus with antiphospholipid antibodies, women need aspirin and Clexane® during pregnancy

ii. Viral infection
- Almost any virus can cause a reduction in platelet count.
- Usually very transient, but there may be a more prolonged reduction for a number of weeks.
- HIV and cytomegalovirus infections are particularly associated with thrombocytopenia.

iii. Medication
- Medication is an important cause of thrombocytopenia
- it is a frequent adverse effect of commonly used drugs such as heparin


Platelets < 100 in antenatal period
Is there any evidence of pregnancy related condition eg PET/HELLP?
NO
YES
Refer to consultant Antenatal clinic
In 1st or 2nd trimester?
In 3rd trimester?
Refer IMMEDIATELY to hospital for assessment.
Appointment within 2 weeks
Appointment within 1 week
Antenatal Clinic
Detailed history
Examination
Investigations
FBC and blood film
Coagulation screen
Renal function
Liver function tests
Anticardiolipin antibody, lupus anticoagulant
dSDNA, antinuclear factor
Hep C, HIV (if not already done)
Follow up in joint haematology/obstetric clinic (OMC).


Platelets < 100 in labour?
Admit to delivery suite
Platelets >80 x 10^9/l:
No maternal issues expected
Platelets <80 x 10^9/l:
Inform obstetrician, anaesthetist, haematologist
Consider cause of low platelets.
Is there evidence of PET/HELLP/TTP?
Is there a chronic condition?
Maternal care
Fetal care
If known thrombocytopenic patient and has been taking prednisolone antenatally (20mg≥ prednisolone for >3 weeks) consider the need for steroid cover with IV hydrocortisone 50mg QDS at onset of labour until 24 hours post delivery
Interventional levels
Vaginal delivery > 40
Instrumental > 50
Epidural > 80
Discuss with consultant haematologist the need for platelets to be ordered (off site)
Caesarean section for obstetric indications only
Post delivery- repeat FBC, VTE prophylaxis, consider need for postnatal follow up.
Inform neonatologist
If maternal platelets <80 or known ITP:
Avoid FBS/FSE
Avoid vacuum extraction
Cord sample at delivery for platelets
Avoid IM vitamin K until clear baby has a normal platelet count. Monitor baby's platelet count for first 2-5 days (liaise with neonatologists).

9.3 Blood Group & Antibody screen

All women should have an ABO & RhD group and antibody screen done at booking & 26 weeks. RhD Negative women should be offered prophylactic Anti-D after CVS, amniocentesis, external cephalic version, after any possible trauma even without evidence of bleeding (e.g. a road traffic accident, falling down) or if there is any bleeding. Anti-D is offered to all Rhesus Negative women at 28 weeks; the booking midwife is responsible for sending this appointment. (Use of Anti-D Immunoglobulin for Rh Prophylaxis RCOG "Green Top" 1999 guideline; NICE 2002, NICE 2008)

9.4 Rubella Titre

The offer of antenatal screening for Rubella should stop for all women booking on or after 1 April 2016, for women booked prior to this date -
If non-immune (levels below 10iu), ensure 2 doses of the MMR vaccination (NSC 2010)are given in the postnatal period, one dose prior to discharge from hospital , the second by the GP after 4 weeks If there is a rubella contact, and the mother is non-immune, send two blood samples 10 days apart. If the mother was rubella immune at booking and she comes into contact with rubella subsequently in pregnancy, there is no evidence that repeat infections cause fetal damage**.**

9.5 Syphilis Serology

All women with a positive result, despite past history of treatment should be referred to the Department of Sexual Health within 10 days of the report date (NSC 2011). A copy of the referral form should be sent to the screening coordinator. Actions should be completed on the AD Hoc Syphilis form on EPR.

9.6 Hepatitis B Serology

All women with a Hepatitis B Surface antigen (HbsAg) detected result should be referred to the gastroenterology team via the antenatal screening team, and should be seen by the Gastroenterology team within 6 weeks of the report date (NSC 2011). Women already known to be Hepatitis B positive should have bloods taken for LFT's, ALT and HBV DNA alongside their booking bloods to ensure results are available for the gastroenterology review appointment
Vaccination for baby can be found in Delivery Suite fridge for babies and should be prescribed following delivery by the neonatal team.

Colindale Laboratories dispense immunoglobulin for the expected baby on a named basis and send this c/o Dr Zoe Smith at Homerton NNU.

The "named" immunoglobulin is stored in readiness in the small refrigerator in NNU.

Full guidelines on clinical care for Hepatitis B, Syphilis and Rubella are all on the intranet.

9.7 Haemoglobinopathy screen

If the woman is found to have a haemoglobinopathy trait she should be referred to the Specialist Midwife/Nurse for genetic counselling and partner testing if this has not already been done in a previous pregnancy except when it is a new partner. The Specialist Nurse/Midwife is available to assist with the counselling of carriers. First trimester diagnosis is available by chorionic biopsy at 11 weeks. It is therefore important that women are screened as early as possible during pregnancy. If they are found to be carriers, the baby's father should be screened as soon as possible so that the results of both their tests are available in time to allow first trimester termination should that be requested. If a couple are both carriers and decide to continue with a pregnancy without testing, it is important to mark the notes clearly indicating that they are at risk of having an affected baby, parents also have the

choice of screening the baby at birth from a venous sample while in hospital or through the new born screening.

9.8 Raised Random Blood Glucose

If ≥ than 7.0mM, please arrange a glucose tolerance test. If over ≥ than 11.1mM then also refer directly to endocrine obstetric medicine clinic.

9.9 MSU

If a woman has a urinary tract infection (UTI) at any time during her pregnancy, the urine should be checked at least once more after treatment. If a woman has 3 or more documented UTIs in pregnancy, consider prophylactic antibiotics and 4 weekly MSU checks.

9.10 Cervical Smear

If the smear shows candida or trichomonas, treat woman and partner appropriately. If colposcopy is recommended, please refer immediately to the Colposcopy Service.

9.11 Group B Streptococcus

The carriage rate in East London is high – approximately 20-25% of pregnant women are colonised; 40-70% of their babies will be colonised, and of these babies, 0.1 - 1% will have a severe potentially fatal disease. We therefore recommend offering treatment during labour with intravenous antibiotics to any woman with GBS found at any stage of the pregnancy either in her urine or on a vaginal swab. Women are informed of the result by letter, and an information leaflet is enclosed. This is not a contra-indication to using the Birth Centre. If the woman is symptomatic antenatally, she may be treated, but she should still be treated in labour.

10.0 PROBLEMS ARISING IN PREGNANCY

10.1 Mental Illness in Pregnancy

Note updated guideline for antenatal and postnatal mental health to be published January 2017.

The EPR booking summary provides structured questions for professionals to use to detail a maternal history of mental illness within the Antenatal Notes. If the answer is yes to any of these and there is an emergency concern, Homerton Psychological Medicine services may be contacted via bleep 270, 470 or telephone 020 85108980, 24 hours 7 days a week. Non-emergency cases should be referred to the Perinatal Mental Health Service by completing the referral form available on the trust internet. Whenever possible, discuss with the woman's GP if there are concerns, as they may have important information regarding a woman's mental health.

Women with minor/moderate mental health problems should be cared for in primary care by their GP. Refer to maternity mental health guideline on the intranet

10.2 Chicken Pox in Pregnancy

Approximately 90% of UK born adults are immune. However, when it occurs in adults and especially pregnant women, it carries a risk of fulminating varicella pneumonia which can be extremely serious. If a pregnant woman has a significant chicken pox contact, and has no **definite** history of chickenpox, she should be tested for Varicella Zoster antibodies (approximately 2/3 of women have antibody despite a negative history of chickenpox). Significant contact is defined as contact in the same room for 15 minutes or more, face-to-face contact and contact in the setting of a large open

ward. The UK Advisory Group on Chickenpox considers any close contact during the period of infectiousness to be significant.

Saved serum is usually available from booking bloods in the laboratories if necessary to differentiate from past infection. If the woman is antibody negative, Varicella Zoster Immunoglobulin should be given if available as soon as possible and within 10 days. This does not prevent infection, but may attenuate the disease in pregnant women. It does not prevent congenital varicella syndrome (limb hypoplasia, microcephaly, etc. occurring in <1% of infected pregnant women, commoner if infected in the first 5 months). When supplies of VZIG are short it may not be possible to issue it for pregnant contacts. The incubation period is 7 days from the first contact to 21 days from the last contact, or 28 days if given VZIG**. Please ensure that no woman who might have chicken pox is sent to the ANC as she could be putting other pregnant women at risk.**

10.3 Itching In Pregnancy

Itching in pregnancy is a common symptom, and usually has no clinical significance. However, it can be associated with obstetric intrahepatic cholestasis, which has important problems associated with it such as fetal distress in labour, meconium staining in labour, PPH and stillbirth.Obstetric cholestasis is diagnosed when otherwise unexplained pruritus occurs in pregnancy with abnormal liver function tests (LFTs) and/or raised bile acids.

If a woman complains of itching in pregnancy in the absence of any obvious underlying cause such as a simple pregnancy rash (pruritic purpura of pregnancy), her LFTs and bile acids should be checked. If these are normal, they should be repeated every 2 weeks as long as the itching persists.

Women with obstetric cholestasis should be booked in for consultant-led care, and give birth in the consultant led delivery suite (RCOG 2011). Ursodeoxycholic acid 500mg bd (UDCA) improves pruritus and liver function in women with obstetric cholestasis. Women should be informed of the lack of robust data concerning protection against stillbirth and safety to the fetus or neonate. Women should be advised that where the prothrombin time is prolonged, the use of water-soluble vitamin K (menadiol sodium phosphate) in doses of 5–10 mg daily is indicated. The baby should be considered for Vitamin K (Mazzella et al 2001). Women should be informed of the inability to predict stillbirth if the pregnancy continues beyond 37 weeks. We would advise delivery at 37-38 weeks.

Women should be offered follow-up with the GP at 10 days to ensure LFTs are coming down.
If LFTs have not returned to normal after 6 weeks, referral to a Hepatologist should be considered.Please refer to the **Obstetric Cholestasis guideline** on the intranet.

10.4 Breech Presentation

Most babies presenting by the breech in early pregnancy will spontaneously convert to a cephalic presentation. If the baby is a persistent breech > 36 weeks, the mother should be referred to the ECV clinic (Wednesday PM) in the fetal medicine unit for a discussion with regards to an external cephalic version (ECV) and mode of delivery. Approximately 50% of babies can be successfully turned. If appointments are not available, the mother should be referred to their consultant's antenatal clinic.

11.0 ULTRASOUND, COMBINED TEST, AMNIOCENTESIS and CVS

The parents should be informed that ultrasound scans are recommended to detect fetal abnormalities, as well as to confirm the gestation, placental localisation and growth. In line with BMUS and NICE guidelines, we plan to make it policy to date all women purely on crown rump length (CRL) - provided that this is <84mm or approximately 14 weeks. When a scan has been done <14 weeks there is very clear evidence that the CRL is a better guide to gestational age than even the most certain menstrual dates. With dating later in pregnancy, the recommendation is that we use head circumference as the most reliable parameter.. Head circumference (HC) will be used to date pregnancies in the 2nd trimester, as this method is the most reliable parameter.

Full guidelines regarding fetal anomaly screening and fetal medicines are on the intranet.

Booking or dating scan

This is best performed at 11-14 weeks. Fetal viability, size, the number of babies (chorionicity) and any obvious abnormalities will be commented upon.

The Combined Test

The screening policy is to offer screening to assess the risk of the baby being born with Down's, Edwards' or Patau's syndromes. A nuchal scan between 11 weeks and 2 days and 14 weeks and 1 days (a CRL of 45-84 mm) is performed on the same day as a blood test hence the name Combined Test; from these a risk for Down's, Edwards and Patau's syndrome is calculated. If the result is screen positive (risk ≤ 1:150) the woman will be contacted by phone directly by FMU within 3 working days if screen negative (risk ≥ 1:150) the woman will get a letter confirming this within 10 working of the sample date. Women should understand that a "screen negative" results does not guarantee a normal baby. Appointments for the Combined Test can be booked by any health or admin staff via the fetal obstetric ultrasound department.

Low PAPP-A

Maternal plasma pregnancy associated plasma protein A is one of the biochemical markers used in combined screening at 11-14 weeks. It is a large glycoprotein produced by the placenta and decidua involved in normal placentation. Low levels (< 0.415MoM) are associated with placental dysfunction and as a consequence associated with growth restriction (SGA and IUGR), hypertensive disorders of pregnancy and pre-term delivery.

Note that the risk of aneuploidy or miscarriage / still birth increases with decreasing PAPP-A MoMs

Women who have a PAPP-A level below 0.4 MoM should therefore have preventative measures and monitoring for evidence of placental dysfunction such as:

- Low dose Aspirin 75mg PO OD **as early as possible** until 32-36 weeks.
- Arrange booking in Consultant clinic to plan/ confirm appropriate care.

First trimester management

- Please note that first trimester screening carried out by the fetal medicine unit includes; Uterine artery doppler studies, PAPP-A and PLGF.

- It is currently part of our PET screening programme and can provide early evidence of placental dysfunction thus superseding the 22-23 week scan. (secondary placental invasion occurs at 16 weeks)
- If patient was screened low risk for pre-eclampsia at 1st trimester scan then there is no need for further follow up.
- Offer follow up scan at 32 weeks in FMU MW clinic to check fetal growth.

Second trimester management

- If patient did not have 1st trimester pre-eclampsia screening then inform the woman of the low PAPP-A result; ensure she understands the results and its implications.
- If high risk/did not have 1st trimester PET screening - uterine artery Doppler at 22weeks (to determine if there is significant placenta dysfunction) and consider serial growth scans.
- Advise her to commence and continue Aspirin 75mgs aspirin daily until 32-36 weeks.
- Send information leaflet in the post to patient to further reinforce information

- **IOL by 40 weeks.**

Anomaly Scan
This is usually offered at 20-22 weeks. If parents wish to know the gender of the baby, the ultrasonographer may try to see – correct diagnosis of the gender cannot be guaranteed, and the parents should be aware of this. If any abnormality is noted the woman will be referred to Fetal Medicine Unit. If the placenta is low (as occurs in approximately 10% of women) a repeat scan will be arranged at 34 weeks.

Growth or Late Scan
This is only arranged to check fetal growth if clinically indicated or if the placenta was thought to be low lying on the anomaly scan at 20 weeks.

Amniocentesis & Chorionic Villous Sampling (CVS)
These are used to detect chromosomal abnormality such as Downs syndrome and some other genetic disorders, such as thalassaemia. They may be offered to women with a "screen positive" screening test or in whom fetal abnormalities have been noted on ultrasound and women with a previous history of a chromosomal abnormality if her screening risk is high. Amniocentesis can be performed usually from 15weeks and CVS from 11 weeks. Please note that the procedure-related miscarriage rate **is the same** for both procedures (1%) in East London. The FMU Specialist Midwife is available to discuss the various options of screening and diagnosis with any woman who is concerned about chromosomal abnormality.

12.0 THE "BARTS" or "QUADRUPLE" TEST

This is a maternal blood test performed between 14 and 20 weeks of pregnancy by ultrasound dates. A yellow Quadruple test form should be filled in by the referrer and the blood sample should be taken by the phlebotomists at the Homerton antenatal clinic. From the concentration of four hormones and the maternal age, a risk for Down's syndrome is calculated. The result is called "screen positive" if the risk is greater than 1:150. If a woman's result is "Screen positive", she will be contacted by the Fetal Medicine Unit Midwife to arrange for counselling and follow up. If the result is "screen negative", the woman is not routinely contacted, results will be sent via the post within 10 working days. Women should not be offered the combined test *and*

the quadruple test. **Women who opt for this test should understand that a "screen negative" results does not guarantee a normal baby.**

13.0 HIV

It is obligatory on those providing care to offer and recommend HIV testing to all women as an integral part of antenatal care (BHIVA).

If a woman is found to be HIV positive, she will be contacted in writing or by phone and recall to see the HIV specialist midwife in ANC. The specialist midwife will then arrange further care with the HIV/ANC team. Positive results should not be given by telephone.
If a woman wishes to receive the result of an HIV test earlier than her next appointment, she should be able to request an earlier appointment for this purpose. HIV negative results can be given by the midwives or doctors. Ideally the same person who conducted the pre-test discussion should give these results. This session will include health promotion and how to stay negative. The window period should also be discussed again.

The maintenance of confidentiality is essential. This must be strictly upheld both during the pre-test discussion and in imparting the results. It is necessary to document HIV testing (i.e. whether accepted or declined) in the hand held and on EPR.

Women who choose not to test early in a pregnancy should be re-offered the test at 16 or 20 weeks. They can be re-offered the test anytime in pregnancy, especially if there are considered risk factors. Women who decline the HIV Specialist Midwife for further counselling and support around testing if they agree. The decision of a woman not to have the test must be respected and they should not be discriminated against in any way.

No HIV positive result should be written in the hand held notes unless previously agreed by the woman. The booking summary will note they are under the care of specialist midwife for HIV. On the Electronic Patient Record further details can be found in the confidential part section that does not get printed into hand held notes and HIV will be recorded as a chronic problem- to aid appropriate healthcare. For further information see HIV in Pregnancy guideline.

14.0 SICKLE CELL DISEASE

These women should receive joint care from the Consultant Obstetrician & Haematologist and the Haemoglobinopathy Specialist Midwife. All women should receive folate supplements and be given advice about simple prophylactic measures such as good hydration, rest and keeping warm. Special attention should be given to detecting and treating infection, which may provoke a sickle cell crisis, and intrauterine growth retardation. An initial growth scan should be done at 26 weeks, and then 4 weekly after. Uterine artery Doppler assessment may be recommended. These women are at a higher risk of pre eclampsia and delivering growth restricted pregnancy. A sickle cell crisis presenting in pregnancy should be managed in the same way as outside of pregnancy; individualised protocols are kept on the Delivery Suite. Consultant haematologist, obstetrician and Specialist midwife should be informed of admissions.
For more information regarding the management of sickle cell disease in pregnancy see the guidelines on the intranet

IT IS VITAL THAT RELEVANT INFORMATION IS RECORDED ON THE LABOUR PAGE and IN THE NEONATAL NOTES.

15.0 GLUCOSE TOLERANCE IN PREGNANCY

Women with pre-existing diabetes should be referred immediately to the Obstetric Medicine Clinic. They should be commenced if not already on 5mgs folic acid daily.

Gestational diabetes (GD) was re-defined by the World Health Organisation in 2000 to incorporate what used to be called both gestational diabetes mellitus (GDM), and impaired glucose tolerance in pregnancy (IGT). This recognises that IGT may progress to frank GDM as the pregnancy advances. East London has one of the highest rates of GDM in the country. Women may change from having a normal glucose tolerance test (GTT) to having frank gestational diabetes within a period of weeks. Screening for GDM is therefore undertaken by performing random blood glucose (RBS) at booking, 26 and 34 weeks. 50% of women will have glycosuria at some stage of their pregnancy due to increased glomerular filtration, and therefore urine testing for glucose is not recommended; if glycosuria is noted, it may safely be ignored in the absence of other factors. For some women with risk factors a RBS should be done at every visit.

Risk factors for GDM (requiring RBS at each visit):

- Previous IGT/GDM
- 1st degree relative with diabetes
- Previous unexplained stillbirth or unexplained neonatal death
- Polyhydramnios
- IVF
- Age >40
- Previous baby >4.5kgs (4.0kgs in Asian women)
- BMI >30
- If currently prescribed and administering antipsychotic medication (specifically Olanzipine, Risperidone, Quetiapine or Clozapine)
- Family origin with a high prevalence of diabetes:
- South Asian (specifically women whose country of family origin is India, Pakistan or Bangladesh)
- Black Caribbean
- Middle Eastern (specifically women whose country of family origin is Saudi Arabia, United Arab Emirates, Iraq, Jordan, Syria, Oman, Qatar, Kuwait, Lebanon or Egypt).

Glucose Tolerance Tests (GTT)

GTTs are time consuming and unpleasant for the mother. They should therefore be targeted to the time when a RBS becomes abnormal (>7.0mmol/l). The test should not be performed simply because a woman has a single risk factor (see above); they can have an entirely normal GTT one week and be frankly diabetic a fortnight later. A poorly targeted GTT can be both falsely reassuring and a waste of resources.

A GTT should be considered, without prior RBS measurement, if a woman develops polyhydraminos.

Women with a fasting plasma glucose level of 5.6mmol/litre or above or a 2-hour plasma glucose level of 7.8mmol/litre or above have gestational diabetes and need referral to the Wednesday afternoon Obstetric Medicine Clinic **regardless of gestation.**

Action for an abnormal GTT

- All women with GDM should be referred to the Obstetric Medicine Clinic. They will meet a consultant obstetrician, a diabetologist, diabetic nurse specialists and a diabetes specialist dietician.
- Regular ultrasound scans are performed for abdominal circumference measurement and liquor assessment. The frequency is individualised but is usually every 4 weeks from 26 weeks for women requiring insulin.
- Women are given equipment for home blood glucose monitoring and encouraged to test and record their results regularly, aiming for values of 4-7 mmol/L
- Corrected Fructosamine is measured approximately 4-6 weekly (fructosamine is preferred at the Homerton over HBA1C in pregnancy, as there is a high number of women with haemoglobin variants, and it is thought to reflect more recent glycaemic control)
- Early induction of labour is considered.

The management of women with gestational diabetes in labour is in the Delivery Suite Protocol. All women with GDM should have a GTT performed 3 months postnatally and arrangements should be made for this prior to discharge by the diabetic team.

16.0 HYPERTENSION AND PRE-ECLAMPSIA

Please see appendix A for guidance on managing women with moderate/high risk of pre-eclampsia, chronic hypertension and gestational hypertension.

For full guidance please refer to Pathway for chronic hypertension and gestational hypertension without proteinuria (available on Homerton intranet).

The risk factors for pre-eclampsia include the following:

- Age $\geq$ 40 yrs
- Nulliparity
- Pregnancy interval of more than 10 years
- Family history of pre-eclampsia
- Previous history of severe pre-eclampsia
- BMI $\geq$ 30kg/m^2
- Pre-existing hypertension/renal disease
- Multiple pregnancy
- Ovum donation pregnancy

BP measurement and urinalysis for protein should be carried out at each antenatal visit to screen for pre-eclampsia. More frequent BP measurements should be considered for pregnant women who have any of the above risk factors.

All pregnant women should be made aware of the need to seek immediate advice from a healthcare professional if they experience symptoms of pre-eclampsia. Symptoms include:

- Severe headache
- Problems with vision such as blurring or flashing before the eyes
- Severe pain just below the ribs
- Vomiting
- Sudden swelling of the face, hands or feet

17.0 TESTS FOR FETO-PLACENTAL WELL BEING Clinical Assessment

Measurement of the symphysis-fundal height (SFH) from 26 weeks onwards with a tape measure, and recording the finding in centimetres, is a fairly accurate method of clinically assessing uterine growth, particularly if done by the same carer serially. Between 26 and 36 weeks, if the SFH differs by more than 2 cms from the gestation in weeks, consider referral for ultrasound assessment.
Maternal weight gain in pregnancy is a poor predictor of fetal growth.

Fetal movement appreciation by the mother is one of the most important predictors of the health of the baby, and women should be asked about movements at each visit from 20 weeks. Kick count charts have not been shown to be useful in a low risk population and women with concerns regarding reduced fetal movement should contact the delivery suite or emergency obstetric unit

Ultrasound

Routine ultrasound scans for fetal growth in “low risk” women has a poor pick up rate of problem pregnancies. However, if there is a history of a small baby, or if there is a clinical suspicion, an ultrasound assessment may be useful. A reduced liquor volume implies poor utero-placental function, ruptured membranes, or fetal renal problems. An obstetric review should be arranged.

18.0 BMI GUIDELINE

It is well documented that maternal weight gain in pregnancy is a poor predictor of fetal growth. However, BMI calculation is important since low BMI (< 19) can predispose to intra uterine growth retardation and high BMI (>30) can predispose to medical/obstetric complications e.g. diabetes and hypertension. BMI should be calculated at the initial booking appointment.
If BMI<19, serial growth scans should be considered.

Obesity guidelines

Full Obesity in Pregnancy guidelines available on Homerton intranet and ELIC website

If BMI between 30 and 35

Can be managed in community if no other risk factors exist.

Recommendations:

- 5mg Folic acid from 1 month before conception until 14 weeks gestation.
- 10mcg Vit D during pregnancy and breastfeeding
- Random blood glucose every visit. If this is ≥7, a GTT is required
- Weigh in the third trimester if they are keen for delivery on the Birth Centre. This is to ensure there has been no excessive weight gain

The increased risks of gestational diabetes, pre eclampsia, DVT and PE, unsuccessful VBAC (increased risk of uterine rupture and neonatal morbidity), anaesthetic and operative complications during caesarean, postpartum haemorrhage should be discussed and documented.

If BMI over 35 - as above and including

Monitoring for pre-eclampsia (BP and urine) is required at a minimum of 3 weekly intervals between 24 and 32 weeks gestation, and 2 weekly intervals from 32 weeks to delivery, if they have no other risk factors for pre-eclampsia. Extra visits for these observations should be done in the community.

Should deliver on the consultant led delivery suite

f BMI over 40 - as above and including

Give Patient Information Leaflet. This can be downloaded from the Obesity guideline.

Risk Assessment Form (including management plan) to be completed by booking midwife and inserted into hand held notes.

Document and offer an appointment for "Wednesday Club Clinic" to be seen by a Consultant Obstetrician, a Consultant Obstetric Anaesthetist and a midwife.

These women are at high risk of thromboembolism and recommended to have one week of prophylactic Clexane postnatally regardless of mode of delivery.

19.0 MULTIPLE PREGNANCIES

Mothers with multiple pregnancies should be referred to their consultant at diagnosis. Monochorionic twins are usually scanned every 3 weeks. These women require an extra scan at 16 weeks in Fetal Medicine Unit. Dichorionic twins will be scanned every 4 weeks. Twin pregnancies are at increased risk of maternal and fetal morbidity and should be under consultant led care.

20.0 MANAGEMENT OF REDUCED FETAL MOVEMENTS

Maternal perception of fetal movement is a dependable way of monitoring fetal activity; the mother is accustomed to her baby's pattern of movement; she is the best judge of what is normal for her baby (Dipietro et al, 2001) In the third trimester there are less limb movements and more trunk movements; however a dramatic reduction or complete cessation of fetal movement is not normal (Harrington et al, 1998).

If the pregnancy is less than 26 weeks, the fetal heart should be auscultated; if no abnormalities are found the mother should be reassured.

CTG monitoring may be performed from 26 weeks. If a general examination of the mother has been performed including a fundal height measurment and no abnormalities have been identified and the CTG is reassuring, the woman is discharged. Any further episodes of reduced fetal movements require obstetric review via the fetal welfare unit (09:00-16:30 tel: 0208 5107291/7807). After 38 weeks reduced fetal movements should prompt obstetric review and consideration for induction of labour.

21.0 POST-DATES PREGNANCY

Consider induction of labour from 41-42 weeks. Offer a sweep at 40 weeks for primips, and at 41 weeks for multips .The exact timing of IOL should take into account the woman's preferences and local circumstances. (NICE 2008). Low risk women should be offered "out-patient" IOL, with the first Prostin being given in the ANCIOL clinic. If a woman declines induction, she should be referred to a consultant obstetrician. Women over the age of 40, and those with assisted conception, have an increased risk of late stillbirth; induction may be offered from 38 weeks. See induction of labour guidelines for management of women declining induction.

22.0 THE POSTNATAL VISIT

This is usually with the GP. If there was an emergency Caesarean section, a major post-partum haemorrhage, or other serious problem, the postnatal visit should be with the consultant. Women who have had severe early onset pre eclampsia (≤ 34 weeks) should be referred to OMC in 6 weeks.

Women who have had a third degree tear will be seen in the Perineal Clinic at 6 weeks; this should be arranged before they leave hospital. This visit should be to

ensure that she understands her care, gives her the opportunity to discuss her experience and highlight any problems. With increasing evidence of the wide-spread nature of postnatal depression, and its possible long term effects on the children, every effort should be made to identify women at risk.

It is important to check that women who had gestational diabetes have a GTT at 3 months. Women who have had hypertension and/or proteinuria should have this checked; if there is persistent proteinuria, the woman should be referred to a renal physician (renal.homerton@nhs.net).

It is vital that the GP receives information about the labour which may affect future pregnancies, and that women understand what went on. If there is any doubt that a woman may be unclear about the circumstances surrounding her delivery, an appointment should be made for her to see the consultant. An electronic discharge summary is sent to the GP.

23.0 DNA POLICY

If a woman does not attend her booking appointment, check she has not miscarried and then contact the GP. If a woman does not attend a follow-up appointment after checking she has not delivered, she is sent 2 further appointments. If there are 3 consecutive DNAs or self-cancelled appointments, we attempt to contact the woman by telephone, contact the GP, or ask the local midwife to visit.

24.0 TRAINING AND AWARENESS

This guideline will be made available to all staff in maternity on the intranet

25.0 REVIEW

This policy will be reviewed in 3 years' time. Earlier review may be required in response to exceptional circumstance, organisational change in legislation or guidance.

26.0 AUDIT/MONITORING

Measurable Policy Objective	Monitoring/Audit	Frequency of monitoring	Responsibility for performing the monitoring	Monitoring reported to which groups/committees, inc responsibility for reviewing action plans
Appropriate timing of risk assessments and referral when there is a deviation from the norm. (See table 8.1 -8.4)	Review of notes and EPR system.	6 monthly	Nominated maternity lead	Multidisciplinary audit meetings Maternity Risk Management meeting
Documentation of a management plan in the notes.	Review of notes and EPR system.	6 monthly	Nominated maternity lead	Multidisciplinary audit meetings Maternity Risk Management meeting
Documentation in the notes of when midwifery led care is appropriate,	Review of notes and EPR system.	6 monthly	Nominated maternity lead	Multidisciplinary audit meetings Maternity Risk Management meeting

27.0 REFERENCES

British HIV Association (BHIVA) guidelines for the management of HIV infection in pregnant women 2012. *HIV Medicine* (2012), **13** (suppl.2), 87-157

Cedergren MI 2004 Maternal morbid obesity and the risk of adverse pregnancy outcome Obstetrics & Gynecology 103:219-24

Centre for Maternal and Child Enquiries (CMACE). Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer: 2006–08. The Eighth Report on Confidential Enquiries into Maternal Deaths in the United Kingdom. BJOG 2011;118(Suppl. 1):1–203.

Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. The Evidence Report

CNST Guidance for Trusts, NHS Litigation Authority, July 2012

CESDI 2001 Confidential Enquiry into Stillbirths & Deaths in Infancy. 8th Annual Report, London.

CEMACH 2004 Why Mothers Die 2000-2002

Cunnington AJ 2001 What's so bad about teenage pregnancy?
J Family Planning Repro Health Care:27;36-41

Dawes, MG. ET AL (1992) Routine Weighing in Pregnancy
British Medical Journal:304:487-9

Department of Health 2005 Responding to Domestic Abuse : A handbook for healthcare professionals

Department of Health 2010 Sexual Health and HIV Strategy

Department of Health: Antenatal Screening Guidelines UKNSC 2004 AN screening: working standards www.nelh.nhs.uk/screening

Department of Health & Department for Education & Skills 2004 National Service Framework for Children, Young People & Maternity Services: Maternity Standard (Standard 11)

Dipietro JA, Irizarry R & Hawkins M. Cross correlation of fetal cardiac and somatic activity as an indicator of antenatal neural developments.
Am J Obs Gyn; 2001:185;1421-8

Enkins, Keirse and Chambers (1989) Effective Care in Pregnancy and Childbirth Oxford University Press

European Collaborative Study 1998. Therapeutic and other interventions to reduce the risk of mother to child transmission of HIV 1 in Europe. British Journal of Obstetrics and Gynaecology 10 :704-709

European Collaborative Study 1992. Vertical transmission of HIV 1: maternal immune status and obstetric factors. AIDS 10 (14) : 1675-1681

Gardose J & Francis A 1999. Controlled trial of fundal height measurement plotted on customised antenatal growth charts BJOG :106:309-17

Harrington K, Thompson O & Jordan L. Obstetric outcomes in women who present with a reduction in fetal movement in the third trimester of pregnancy.
J Perinatal Med 1998;26:77-82

Hrazdilova O, Unzeitig V et al (2001) Relationship of age and the body mass index to selected hypertensive complications in pregnancy
International Journal of Gynaecology and Obstetrics 75(2)165-169.

Kennedy J. 2003: HIV in pregnancy and childbirth: 1998. Books for Midwives.

Kenyon AF, Nelson-Piercy C, Girling J et al (2002)
Obstetric cholestasis, outcome with active management; a series of 70 cases.
Br J Obstet Gynaecol;109:282-8

Lavery MJ, Benson CB (1991) *Transvaginal versus transabdominal ultrasound*. In Timor-Tritsch IE, Rottern S eds
Transvaginal sonography. 2nd edn New York: Elsevier 1991 77-107.

Manning FA. Dynamic ultrasound based fetal assessment; the fetal biophysical profile,
Obstet & Gynaecol 1995;38:26-44

Mazzxella G, Nicol R, Francesco A et al (2001)Ursodeoxycholic acid administration in patients with cholestasis of pregnancy; effects on primary bile acids in babies and mothers.
Hepatology;33(3):504-509

Mercey D. et al. A Guide to HIV and Childbearing. Avert 2nd Edition July 1997.

National Service Framework; Child, young person & Maternity 2004, Maternity Standard 11

Neilson, JP (2001) Symphysis-fundal height measurement in pregnancy
The Cochrane Library.

NICE (2015), Diabetes in pregnancy: management from preconception to the postnatal period. (nice.org.uk/guidance/ng3)

NICE Guidelines CG70 2001-2008 Induction of Labour Clinical guideline

NICE Guideline August 2008 Use of Anti-D Immunoglobulin for Rhesus prophylaxis

NICE Guideline 2008 CG62 Antenatal care for uncomplicated Pregnancies

NICE 2010: Hypertension in Pregnancy

NICE 2011: Antenatal Care, Routine care for the healthy pregnant woman

Nursing and Midwifery Council 2012: Midwives Rules and Standards.

Royal College of Nursing (2006) *Female Genital Mutilation- An RCN educational Resource for Nursing and Midwifery Staff*. Available online:

http://www.rcn.org.uk/__data/assets/pdf_file/0012/78699/003037.pdf

Royal College of Obstetricians and Gynaecologists (2009) *Green-top Guideline No. 53- Female Genital Mutilation and its Management.* Available online: http://www.rcog.org.uk/womens-health/clinical-guidance/female-genital-mutilation

RCOG/CMACE: Management of women with obesity in pregnancy (CMACE/RCOG 2010)

RCOG: Obstetric Cholestasis (RCOG 2011)

"Saving Mothers' Lives". Centre of Maternal and Child Enquiries. 2011-03-01

Teenage pregnancy unit, Royal College of Midwives, Department of Health 2004 Teenage parents: who cares? A guide to commissioning & delivering maternity services for young parents.

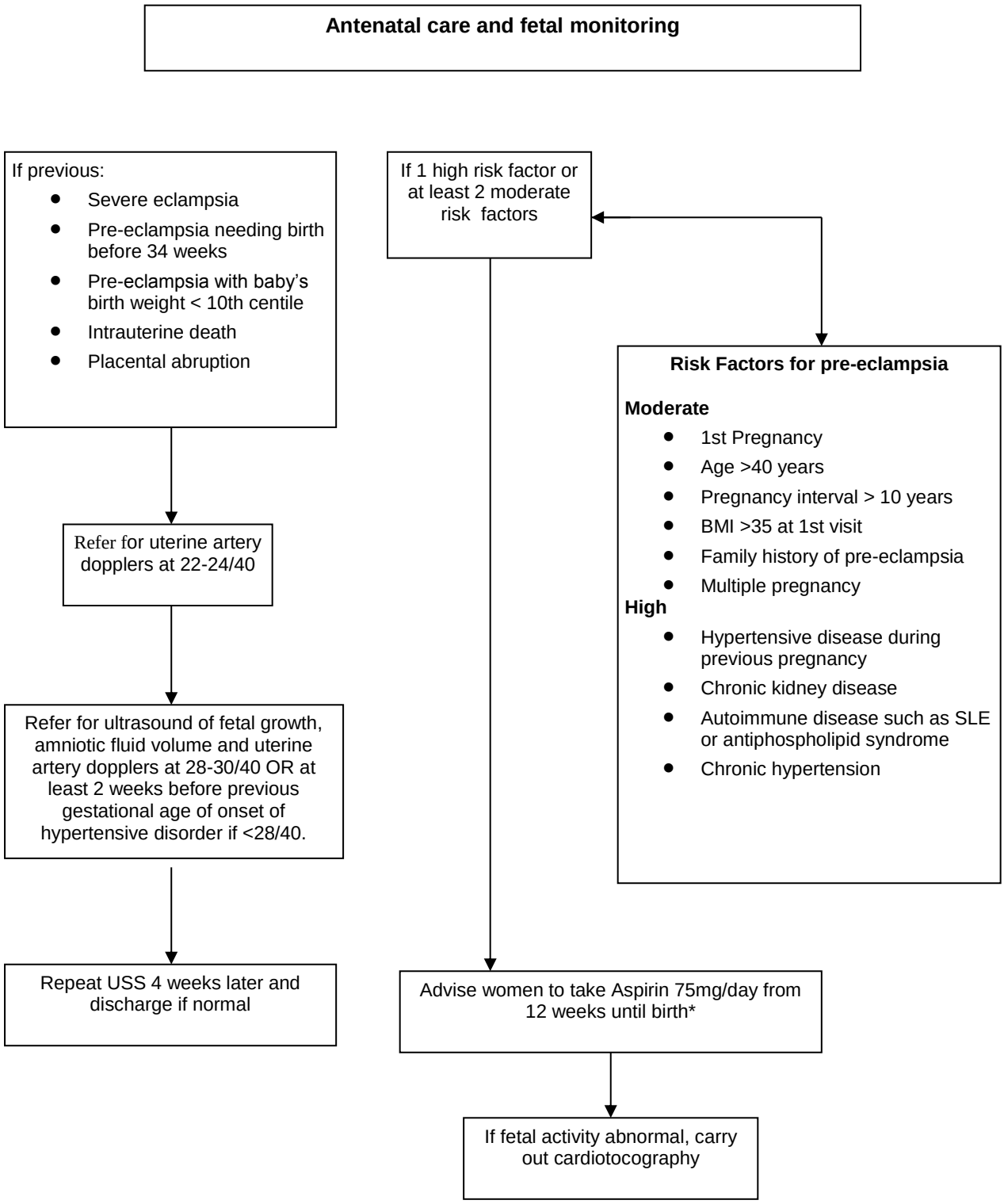
World Health Organisation. Guidelines on HIV and Infant Feeding 2010. Principles and recommendations for infant feeding in the context of HIV and a summary of evidence. WHO. Geneva, 2010. Available at www.who.int/child_adolescent_health/documents/9789241599535/en/index.html

APPENDIX A

MANAGEMENT OF CHRONIC HYPERTENSION AND GESTATIONAL HYPERTENSION WITHOUT PROTEINURIA

Please see full guidelines for further information (available on Homerton Intranet)

1. Moderate and high risk of pre-eclampsia pathway



* Unlicensed indication — obtain and document informed consent

2. Chronic hypertension pathway

Pre-pregnancy advice

Antihypertensive treatment
Tell women who are taking ACE inhibitors, ARBs or chlorothiazide:

- There is an increased risk of congenital abnormalities if ACE inhibitors or ARBs are taken during pregnancy
- There may be an increased risk of congenital abnormalities and neonatal complications if chlorothiazide is taken during pregnancy
- Limited evidence shows no increased risk of congenital abnormalities with other antihypertensive treatments
- To discuss other antihypertensive treatments with the healthcare professional responsible for managing their hypertension, if they are planning pregnancy

Dietary sodium

- Encourage the woman to lower dietary sodium intake or use sodium substitute.

Antenatal care

Consultations
Schedule additional appointments based on individual needs

Timing of birth
If BP <160/110mmHg with or without antihypertensive treatment:

- Do not offer birth before 37 weeks
- After 37 weeks, timing of and maternal and fetal indications for birth should be agreed between woman and senior obstetrician
- If refractory severe chronic hypertension, offer birth after course of corticosteroids (if required) has been completed

Antihypertensive treatment

- Stop ACE inhibitors and ARBs within 2 days of notification of pregnancy and offer alternatives e.g labetalol 200mg t.d.s
- Offer antihypertensive treatment based on pre-existing treatment, side-effect profile and teratogenicity
- Aim for BP < 150/100mgHg
- If target organ damage, aim for BP < 140/90mmHg
- Do not offer treatment to lower DBP to < 80mmHg
- If secondary chronic hypertension, offer referral to obstetric medicine clinic

Fetal Monitoring

At 28-30 and 30-34 weeks carry out:

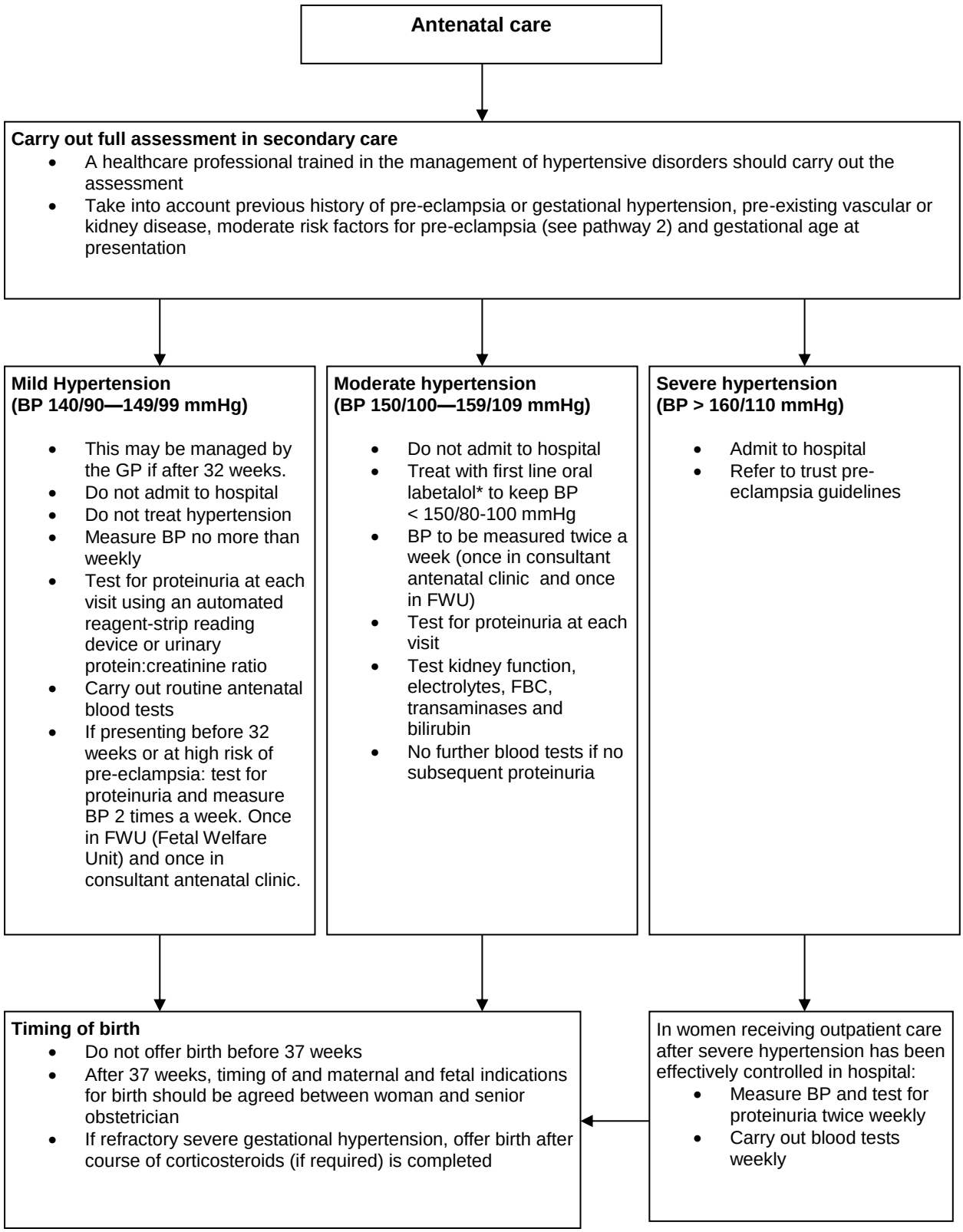
- Ultrasound fetal growth and amniotic fluid volume assessment
- Umbilical artery doppler velocity

If results normal do not repeat after 34 weeks unless clinical indicated

If fetal activity abnormal carry out:

- Cardiotocography
- Arrange consultant obstetrician review

3. Gestational hypertension pathway (antenatal)



* Offer treatment other than Labetalol only after considering side-effect profile for the woman, fetus and newborn baby. Alternatives include methyldopa and nifedipine

APPENDIX B - Steps for the prescription of Cosmofer

Calculate patient's iron requirement (fill the yellow boxes)						HOW THIS WAS CALCULATED (see full guidelines for details)
target Hb (g/L)	110	actual Hb (g/L)		booking weight(Kg)		**[(target Hb (g/L)- actual Hb (g/L)) x (0.24 x body weight (Kg)] + mg iron for body stores**
					Iron dose needed (mg)	
					If weight >35Kg: 500	**500 mg are added for weight >35 Kg**
					If weight <35Kg: 0	
Max dose that can be given						
					Max dose in one administration (mg): 0	**20 mg*kg**
Is the total dose required > than the max dose?						
					YES -give: 0	
					NO-give: 500 **if >35 Kg**; 0 **if <35 Kg**	

Round up/down this dose to the nearest 50 mg and WRITE IT IN THE BLUE BOX		
	mg	
Mls of Cosmofer - iron (III) hydroxide dextran complex	0 ml	**max dose required (mg)/50 mg= mls of Cosmofer**
		(the first 25 mg iron must be always given in 15 minutes as a test dose monitoring HR, BP, RR, shortness of breath, rash (signs of anaphylaxis)
Infusion rate for the first 15 minutes	#DIV/0! ml/hr	**25 mg/max dose required (mg) x (volume in bag: 500 mls + total mls of Cosmofer) = mls of Cosmofer for test dose** **Test dose (mls) x 4 = infusion rate ml/h for the first 15 minutes**
You will need this red numbers for your prescription on EPR		

APPENDIX 1

First and second consultation

Clinical Risk Management Lead

Delivery Suite Modern Matron

Maternity Clinical Risk Manager

Consultant Neonatologists

obstetricians

Midwives

Lead consultant Gynaecologist

User Representative &/or PALS Representative

Team Leader for Delivery Suite

Relevant specialist midwife

Consultant Obstetricians

Consultant Anaesthetists

Consultant Gynaecologists

Practice Development Midwife

Consultant Midwife

Supervisor of Midwives

Labour Ward Midwife

Final Consultation

Supervisors of Midwives

Head of midwifery

Obstetric Consultants

Audit Midwife

Risk management Team

Delivery Suite Matron

APPENDIX 2 EQUALITIES IMPACT ASSESSMENT

This checklist should be completed for all new Corporate Policies and procedures to understand their potential impact on equalities and assure equality in service delivery and employment.

Policy/Service Name:	Antenatal Care Guideline
Authors and Roles:	Dr Maryam Parisaei - Consultant Obstetrician Dr Kirsten Brown – GP Dr D Tsitsikas – Consultant Haematologist Dr Anna McDougall – Specialty Registrar Dr Elena Mantovani- Specialty Registrar Sarah Latham - Maternity Outpatients Matron Catherine Meyers - Antenatal Clinic Midwifery Sister Lana Jones- Sandy Audit midwife Ella Hil Behari – Lead CMS in Fetal Medicine
Directorate:	SWSH
Date	January 2017

Equalities Impact Assessment Question	**Yes**	**No**	**Comment**
1. How does the attached policy/service fit into the trusts overall aims?			
2. How will the policy/service be implemented?			
3. What outcomes are intended by implementing the policy/delivering the service?			
4. How will the above outcomes be measured?			
5. Who are they key stakeholders in respect of this policy/service and how have they been involved?			
6. Does this policy/service impact on other policies or services and is that impact understood?		No	
7. Does this policy/service impact on other agencies and is that impact understood?		No	
8. Is there any data on the policy or service that will help inform the EqIA?		No	

9. Are there are information gaps, and how will they be addressed/what additional information is required?		No	
Equalities Impact Assessment Question			
10. Does the policy or service development have an adverse impact on any particular group?		No	
11. Could the way the policy is carried out have an adverse impact on equality of opportunity or good relations between different groups?		No	
12. Where an adverse impact has been identified can changes be made to minimise it?		No	
13. Is the policy directly or indirectly discriminatory, and can the latter be justified?		No	
14. Is the policy intended to increase equality of opportunity by permitting Positive Action or Reasonable Adjustment? If so is this lawful?		No	

EQUALITIES IMPACT ASSESSMENT
FOR POLICIES AND PROCEDURES

1. If any of the questions are answered 'yes', then the proposed policy is likely to be relevant to the Trust's responsibilities under the equalities duties. Please provide the ratifying committee with information on why 'yes' answers were given and whether or not this is justifiable for clinical reasons. The author should consult with the Director of HR & Environment to develop a more detailed assessment of the Policy's impact and, where appropriate, design monitoring and reporting systems if there is any uncertainty.

2. A copy of the completed form should be submitted to the ratifying committee when submitting the document for ratification. The Committee will inform you if they perceive the Impact to be sufficient that a more detailed assessment is required. In this instance, the result of this impact assessment and any further work should be summarised in the body of the Policy and support will be given to ensure that the policy promotes equality.

APPENDIX 3 - Document Control Summary

Document Control Summary	
Document Title	Antenatal Care Guideline
Author (s) and Grade (s)	Dr Maryam Parisaei - Consultant Obstetrician Dr Kirsten Brown – GP Dr D Tsitsikas – Consultant Haematologist Dr Anna McDougall – Specialty Registrar Dr Elena Mantovani- Specialty Registrar Sarah Latham - Maternity Outpatients Matron Catherine Meyers - Antenatal Clinic Midwifery Sister Lana Jones- Sandy Audit midwife Ella Hil Behari – Lead CMS in Fetal Medicine
Department	SWSH
Date of Production	January 2017
Planned implementation date:	January 2017
Purpose/Aim of Document	To ensure maternity staff adhere to the antenatal care guideline
Circulated to NB: The CNST group will not accept any CPG without circulation list	See appendix 1
Status	
Update Frequency	Every 3 years or earlier
Next Review Date	January 2020
Approved By **NB: The CNST group will not accept any CPG without minutes verifying local/expert approval**	Maternity Risk Management Team
Archive of earlier versions of the guideline	Yes

Document Checklist to be filled in by Ratifying Committee	
Is the Document using the correct Template?	Yes
Is the Circulation List Representative?	Yes
Is there an Evidence Base (where required)?	Yes
Is it signed off at the appropriate level?	Yes
Does it have an Equalities Impact Assessment that is satisfactory?	Yes
Does it need to go to other committees for ratification?	No

APPENDIX 4 Policy Submission Form

To be completed and attached to any policy or procedure submitted to the Trust Policy Group

1	**Details of policy**	
1.1	Title of Policy:	Antenatal Care Guideline
1.2	Lead Executive Director	Miss K Erskine
1.3	Author/Title	Dr Maryam Parisaei - Consultant Obstetrician Dr Kirsten Brown – GP Dr D Tsitsikas – Consultant Haematologist Dr Anna McDougall – Specialty Registrar Dr Elena Mantovani- Specialty Registrar Sarah Latham - Maternity Outpatients Matron Catherine Meyers - Antenatal Clinic Midwifery Sister Lana Jones- Sandy Audit midwife Ella Hil Behari – Lead CMS in Fetal Medicine
1.4	Lead Sub Committee	
1.5	Reason for Policy	To ensure maternity staff adhere to the antenatal care guideline
1.6	Who does policy affect?	All staff involved in the care and management of pregnant women
1.7	Are national guidelines/codes of practice incorporated?	Yes
1.8	Has an Equality Impact Assessment been carried out?	Yes
2	**Information Collation**	
2.1	Where was Policy information obtained from?	NICE, RCOG
3	**Policy Management**	
3.1	Is there a requirement for a new or revised management structure if the policy is implemented?	No
3.2	If YES attach a copy to this form	
3.3	If NO explain why	Already in place
4	**Consultation Process**	
4.1	Was there internal/external consultation?	Yes
4.2	List groups/Persons involved	See appendix 1

4.3	Have internal/external comments been duly considered?	Yes
4.4	Date approved by relevant Sub-committee	
4.5	Signature of sub-committee chair	
5	**Implementation**	
5.1	How and to whom will the policy be distributed?	The policy will be made available on the intranet and via email to the CCG for circulation to general practitioners
5.2	If there are implementation requirements such as training please detail?	No implementation required
5.3	What is the cost of implementation and how will this be funded?	None
6	**Monitoring**	
6.1	List the key performance indicators e.g. core standards	
6.2	How will this be monitored and/or audited?	See Page 33
6.3	Frequency of monitoring/audit	Annually

Date policy approved by Trust Policy Group:

……

Signature of Trust Board Group chair:

…….

Antenatal Care Guideline
Signature Page

CHAIR'S ACTION WAS TAKEN FOR THIS GUIDLINE

Signed: _____ Date: 30.1.2017

Signed by Consultant of Obstetrics and Gynaecology