SABAH

OBSTETRIC

SHARED CARE GUIDELINES

FOURTH EDITION

JUNE 2020

JABATAN KESIHATAN NEGERI SABAH

Family Medicine Specialists' Association of Malaysia

HOSPITAL WANITA & KANAK-KANAK SABAH
Kota Kinabalu

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FOREWORD

Malaysia has come a long way in keeping the maternal mortality and morbidity rate as low as possible. The challenges faced in Sabah are unique. The nature of its geographical territory limits accessibility to healthcare services especially for rural communities. The high turnover of its healthcare staff also poses a challenge in maintaining a continuous high standard of quality medical care.

The Sabah Obstetrics Shared Care Guidelines (SOSCG) was first produced in Sabah in 2012 with the collaboration of the Obstetrics & Gynaecology (O&G) Department and the Family Medical Specialists (FMS) in Sabah. The guideline was designed to help doctors manage antenatal mothers while at the same time, to tailor clinical practice to local requirement and limitation. It also aims to strengthen the referral system between health clinics which are run by FMS and the medical officers in the Hospital Obstetrics team.

SOSCG serves as a tool to guide our doctors in an effort to synchronize and standardize antenatal care management within the Sabah context. As new knowledge becomes available and the latest medical advancement at our disposal, it is appropriate and timely to revise this guideline in order to update our doctors on the latest clinical evidence of antenatal management. We are often reminded that guidelines are meant to guide towards a course of action and to streamline processes. Thus, the onus is on our doctors to apply the recommendations in the guideline in addition to their clinical acumen, patients' dynamic and available resources.

I wish to record my sincere appreciation and congratulation to the O&G team and all the FMS in Sabah on their continuous and admirable efforts in revising the SOSCG.

Datuk Dr. Christina Rundi
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INTRODUCTION

Maternal morbidity and mortality have always been used as a benchmark to reflect a nation's progress in their health care system and overall health of a population.

Good antenatal care in return reflects a lower prevalence rate of maternal morbidity and mortality.
In Malaysia, leaps and bounds have been made in the area of maternal health especially with the introduction of colour coding system to identify risks in pregnancies supported by good referral systems between interdistrict peripheral hospitals and klinik kesihatan and home-based maternity cards and books kept by patients that may be presented at any antenatal care clinics/hospital both in the government and private centres.

In Sabah, achieving good antenatal care, especially among mothers who are deemed as having high risk pregnancies, has been a challenge. Sabah, with its uniqueness and natural beauty presents many challenges in the form of its demography, rough inaccessible terrains, poor public transportation and low economic status among its rural population.

Klinik Kesihatan (KK), Klinik Kesihatan Ibu dan Anak (KKIA), Klinik Desa and Klinik Bergerak are the primary care centres that are accessible to the mothers in Sabah. Many of these services are placed strategically in rural areas covering wide areas where the nearest tertiary centres with specialist maybe a few hundred kilometres away. Many of these clinics have Family Medicine Specialist (FMS) who are either placed there or are visited regularly by the FMSes.

In order to improve and provide good antenatal care, standardized shared care needs to be provided uniformly throughout Sabah. And hence Sabah Obstetrics Shared Care Guidelines (known affectionately as SOSCG guidelines) was introduced. The SOSCG covered various common topics pertaining to antenatal care and management up to the postpartum period and even pre-pregnancy care. The guideline was a collaboration between the O&G Dept and FMSes in Sabah.

The 1st edition was released in 2012, although the groundwork was initiated in 2008. Since then the guideline has become a reference tool to the medical officers managing pre-pregnancy and antenatal mothers throughout Sabah.

The SOSCG guideline has undergone several updates; the last update was in 2018 (3rd edition).
As medicine is a field of constant change and new developments, the O&G team and the FMSes from Sabah saw the need to further update the management of current topics and to introduce new topics that were deemed relevant. The current update saw the O&G team and FMSes throughout Sabah come together to discuss and contribute to the new updated guideline.

We hope the new updated guideline will continue to improve the care given for the mothers of Sabah and the care given will be of superior quality and standards and that it will reach all mothers in Sabah.

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Abbreviations and Acronyms

ACEi	Angiotensin inhibitor
ADHD	Attention deficit hyperactivity disorder
AED	Antiepileptic drug
ALP	Alkaline phosphatase
ANA	Antinuclear antibody
APH	Antepartum haemorrhage
APS	Antiphospholipid syndrome
ARB	Angiotensin receptor blocker
ART	Antiretroviral therapy
AST	Aspartate transaminase
ALT	Alanine transaminase
ATD	Antithyroid drug
AZA	Azathioprine
BP	Blood pressure
BFMP	Blood film for malaria parasite
BSP	Blood sugar profile
CAH	Congenital adrenal hyperplasia
CCP	Cyclic citrullinated peptide
CFU	Colony-forming units
CHF	Congestive heart failure
CKD	Chronic kidney disease
CMV	Cytomegalovirus
CPG	Clinical practice guidelines
CS	Caesarean section
C&S	Culture and sensitivity
CNS	Central nervous system
CRHD	Chronic rheumatic heart disease
CRL	Crown-rump length
CRP	C reactive protein
CVA	Cerebrovascular accident
CVD	Cardiovascular disease
CVS	Chorionic villus sampling
DBP	Diastolic blood pressure
DFMC chart	Daily fetal movement
DKA	Diabetic ketoacidosis
DM	Diabetes mellitus
dsDNA	Double stranded DNA
DIVC	Disseminated intravascular coagulopathy
DR	Detection rate
DR-TB	Drug resistant tuberculosis
D&C	Dilatation & curettage
DVP	Deepest vertical pool
EBL	Estimated blood loss
EBV	Epstein Barr Virus
ECV	External cephalic version
ECG	Electrocardiography
ECHO	Echocardiogram
EEG	Electroencephalogram
EF	Ejection fraction
EFW	Estimated fetal weight
eGFR	Estimated glomerular filtration rate
EP	Emergency physician

EPDS	Edinburgh postnatal depression scale
ESR	Erythrocyte sedimentation rate
ESRF	End stage renal failure
EULAR	European League Against Rheumatism
FASD	Fetal alcohol spectrum disorder
FAS	Fetal alcohol syndrome
FBC	Full blood count
FBS	Fasting blood sugar
FGR	Fetal growth restriction
FMS	Family medicine specialist
FNAC	Fine needle aspiration for cytology
FPR	False positive rate
GA	General anaesthesia
GBS	Group B streptococcus
GDM	Gestational diabetes mellitus
GGT	Gamma glutamyl transferase
GI	Gastrointestinal
GINA	Global initiative for asthma
GTT	Gestational transient thyrotoxicosis
Hb	Haemoglobin
HBGM	Home blood glucose monitoring
HBV	Hepatitis B virus
HCQ	Hydroxychloroquine
HCV	Hepatitis C virus
HELLP	Haemolysis, elevated liver enzymes, low platelets
HIV	Human immunodeficiency virus
HOD	Head of department
HPT	Hypertension
HPV	Human Papillomavirus
HVS	High vaginal swab
IAP	Intrapartum antibiotic prophylaxis
ICS	Inhaled corticosteroids
ICSI	Intracytoplasmic sperm injection
ICU	Intensive care unit
IDA	Iron deficiency anaemia
IM	Intramuscular
ITP	Immune thrombocytopenia purpura
IUCD	Intrauterine contraceptive device
IUS	Intrauterine system
IV	Intravascular
IVF	In vitro fertilization
JKM	Jabatan Kebajikan Masyarakat (Department of Social Welfare)
JVP	Jugular venous pressure
KUB	Kidney, ureter and bladder
LDH	Lactate dehydrogenase
LEF	Leflunomide
LFT	Liver function test
LGA	Large for gestational age
LMW	Low molecular weight
LSCS	Lower segment caesarean section

LVEF	Left ventricular ejection fraction
MCH	Mean cell haemoglobin
MCV	Mean cell volume
MEC	Medical eligibility criteria
MFM	Maternal fetal medicine
MMRC	Modified Medical Research Council
MOGTT	Modified oral glucose tolerance test
MOH	Ministry of Health
MOPD	Medical outpatient department
MSU	Midstream urine
MSW	Medical social worker
MTB	Mycobacterium tuberculosis
MTAC	Medical therapy adherence clinic
MTX	Methotrexate
NPH	Isophane insulin
NRT	Nicotine replacement therapy
NSAIDs	Non-steroidal anti-inflammatory drugs
NT	Nuchal translucency
NVP	Nausea and vomiting in pregnancy
NYHA	New York Heart Association
OAD	Oral antidiabetic drugs
OSA	Obstructive sleep apnoea
OSCC	One Stop Crisis Centre
PCP	Pneumocystis pneumonia
PDA	Patent ductus arteriosus
PO	per os (medication taken by mouth)
POA	Period of amenorrhea
PBF	Peripheral blood film
PCOS	Polycystic ovarian syndrome
PH	Pulmonary hypertension
PHC	Pre hospital care
POP	Progestogen only pills
PPCM	Peripartum cardiomyopathy
PPH	Postpartum haemorrhage
PPIUCD	Postpartum intrauterine contraceptive device
PPROM	Preterm prelabour rupture of membrane
PPT	Postpartum thyroiditis
PrEP	Pre-exposure prophylaxis
PTB	Pulmonary tuberculosis
PTSD	Post traumatic stress disorder
PTU	Propylthiouracil
RF	Rheumatoid factor
Rh	Rhesus
POA	Period of amenorrhea
RP	Renal profile
RPG	Random plasma glucose
RVD	Retroviral disease
SBP	Systolic blood pressure
SCAN	Suspected Child Abuse and Neglected Team
SGA	Small for gestational age
SIDS	Sudden infant death syndrome

SLE	Systemic lupus erythematosus
SMBG	Self-monitoring blood glucose
SOPD	Surgical outpatient department
SSZ	Sulfasalazine
STD	Sexually transmitted disease
SUA	Serum uric acid
TIA	Transient ischaemic attack
T1DM	Type 1 diabetes mellitus
T2DM	Type 2 diabetes mellitus
TDI	Total dose infusion
TNF	Tumour necrosis factor
TOP	Termination of pregnancy
TRAb	TSH receptor autoantibodies
TSH	Thyroid stimulating hormone
TTP	Thrombotic thrombocytopenia purpura
UFEME	Urine full examination and microscopic examination
USS	Ultrasound scan
UTI	Urinary tract infection
VBG	Venous blood gas
VDRL	Venereal disease of research laboratory
VVC	Verbal confidentiality contract
VMA	Vanillylmandelic acid
VTE	Venous thromboembolism
WHO	World Health Organisation

SECTION 1 CARDIAC DISEASES IN PREGNANCY

1.1 Overall Management of Cardiac Disease in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• All women in the reproductive age group and plan to conceive should be referred to the Pre-pregnancy Clinic upon diagnosis. • Women with condition in which pregnancy risk is WHO class IV should have family counselling sessions with strong advice for effective contraception. • Sterilization should be offered if family completed. • Women with valvular lesions requiring surgery should be advised to conceive after moderate to severe valvular lesions treated. • Women should put on long acting reversible contraception until the treatment completed. • Women on lifelong warfarin should be counselled on high risk of miscarriage and fetal demise. • Ensure compliance to follow-up in cardiac clinic.
2	Booking	• Investigations in health clinic: Refer for urgent ECHO/ O&G Clinic appointment within 1 to 2 weeks. • If patient is symptomatic or clinically unwell, refer for admission. • For women with pre pregnancy care plan - refer to Combined clinic • Urge husbands/partners to attend visits. • Preliminary investigation by health clinic: BP, FBS, RP, ECG.
3	Subsequent antenatal follow-up	• Shared care between FMS, cardiologist and Combined clinic team. • Detailed scan in MFM Clinic at 22-24 weeks for patients with congenital heart disease. • Further follow-up plan will be made on case-to case basis: ➢ WHO/NYHA I & II: at least 2 visits at week 22-28 & weekly visit from 36 weeks onwards.

		➢ WHO/NYHA III&IV: once in 2 weeks visit at week 22-28, followed by weekly visit afterwards & consider admission at 36 weeks (with anaesthetic review). • Anticoagulant as per guideline. • Antimicrobial prophylaxis as planned by cardiology team (daily oral penicillin V or monthly IM Benzathine Penicillin). • Correct anaemia if any. • Correct factors that may contribute to cardiac decompression, e.g. infection, arrhythmia, hypertension.
4	Delivery	• Outline by O&G department by 34 - 36 weeks. • Intrapartum antimicrobial prophylaxis as per type of cardiac lesion.
5	Postpartum	• Individualised care plan. • Postnatal in-patient monitoring usually 48 hours to 1 week, depending of type of cardiac disease. • Avoidance of aggravating factors. • VTE prophylaxis based on the severity of cardiac lesion. • Importance of contraception and planned pregnancy reinforced.
6	Upon discharge	• Notification of high-risk cases discharge as per guideline. • Review by medical officer at health clinic within 1 week. • Assessment of cardiac status to look for symptoms of heart failure. • FMS appointment within 1 month. • Cardiac clinic appointment before discharge. • Pre pregnancy clinic under O&G team 2 – 3 months.
7	Lactation	• Breastfeeding is generally encouraged.

REMARKS:

1. Cardiovascular disease affects approximately 0.2- 4% of pregnant women.
2. Pregnancy increases the cardiac workload by 30% with a further 20% increase intrapartum.
3. Risk of fetal congenital heart disease in an affected mother stands at 4%, well above the background severe general malformation rate of 2 – 3%.
4. Characteristics symptoms of heart failure:
    a. Shortness of breath (dyspnoea, orthopnoea, paroxysmal nocturnal dyspnoea)
    b. Reduced effort tolerance
    c. Ankle swelling (may be absent)
5. Signs of heart failure:
    a. Elevated jugular-venous pressure (JVP)
    b. Third heart sound
    c. Laterally displaced apical impulse in the presence of cardiac murmur
    d. Peripheral oedema
    e. Tachycardia
    f. Narrow pulse pressure

6. Therapeutics
    a. Anti-arrhythmic agents and anti-coagulation agents in pregnancy should be thoroughly discussed during consultations.
    b. Anti-failure medications such as digoxin and diuretics can be continued in pregnancy.
    c. ACE inhibitors are contraindicated in pregnancy but safe during breastfeeding.
    d. Statins are generally contraindicated.
    e. Beta blockers are the mainstay of fixed output lesions such as MS and AS and in coronary artery disease.

7. Modified WHO Classification of Maternal Cardiovascular Risk(s):

<u>Condition in which pregnancy risk is WHO I</u>

    a. Uncomplicated, small or mild
        - pulmonary stenosis
        - patent ductus arteriosus
        - mitral valve prolapsed
    b. Successfully repaired simple lesions (atrial or ventricular septal defect, patent

ductus arteriosus, anomalous pulmonary venous drainage)

c. Atrial or ventricular ectopic beats, isolated

Conditions in which pregnancy risk is WHO II or III

WHO II (if otherwise well and uncomplicated)

a. Unoperated atrial or ventricular septal defect
b. Repaired tetralogy of Fallot
c. Most arrythmias

WHO II-III (depending on individual)

a. Mild left ventricular impairment
b. Hypertrophic cardiomyopathy
c. Native or tissue valvular heart disease not considered WHO I or IV
d. Marfan syndrome without aortic dilatation
e. Aorta<45mm in aortic disease associated with bicuspid aortic valve
f. Repaired coarctation

WHO III

a. Mechanical valve
b. Systemic right ventricle
c. Fontan circulation
d. Cyanotic heart disease (unrepaired)
e. Other complex congenital heart disease
f. Aortic dilatation 40-45mm in Marfan syndrome
g. Aortic dilatation 45-50mm in aortic disease associated with bicuspid aortic valve

Condition in which pregnancy risk is WHO IV

(pregnancy is not recommended or contraindicated, termination of pregnancy should be discussed)

a. Pulmonary arterial hypertension of any cause
b. Severe systemic ventricular dysfunction (LVEF<30%, NYHA III–IV)
c. Previous peripartum cardiomyopathy with any residual impairment of left ventricular function
d. Severe mitral stenosis, severe symptomatic aortic stenosis
e. Systemic right ventricle with moderate or severely decreased ventricular function

f. Marfan syndrome with aorta dilated > 45mm
g. Aortic dilatation > 50mm in aortic disease associated with bicuspid aortic valve
h. Uncorrected severe coarctation
i. Vascular Ehlers-Danlos
j. Fontan with any complication

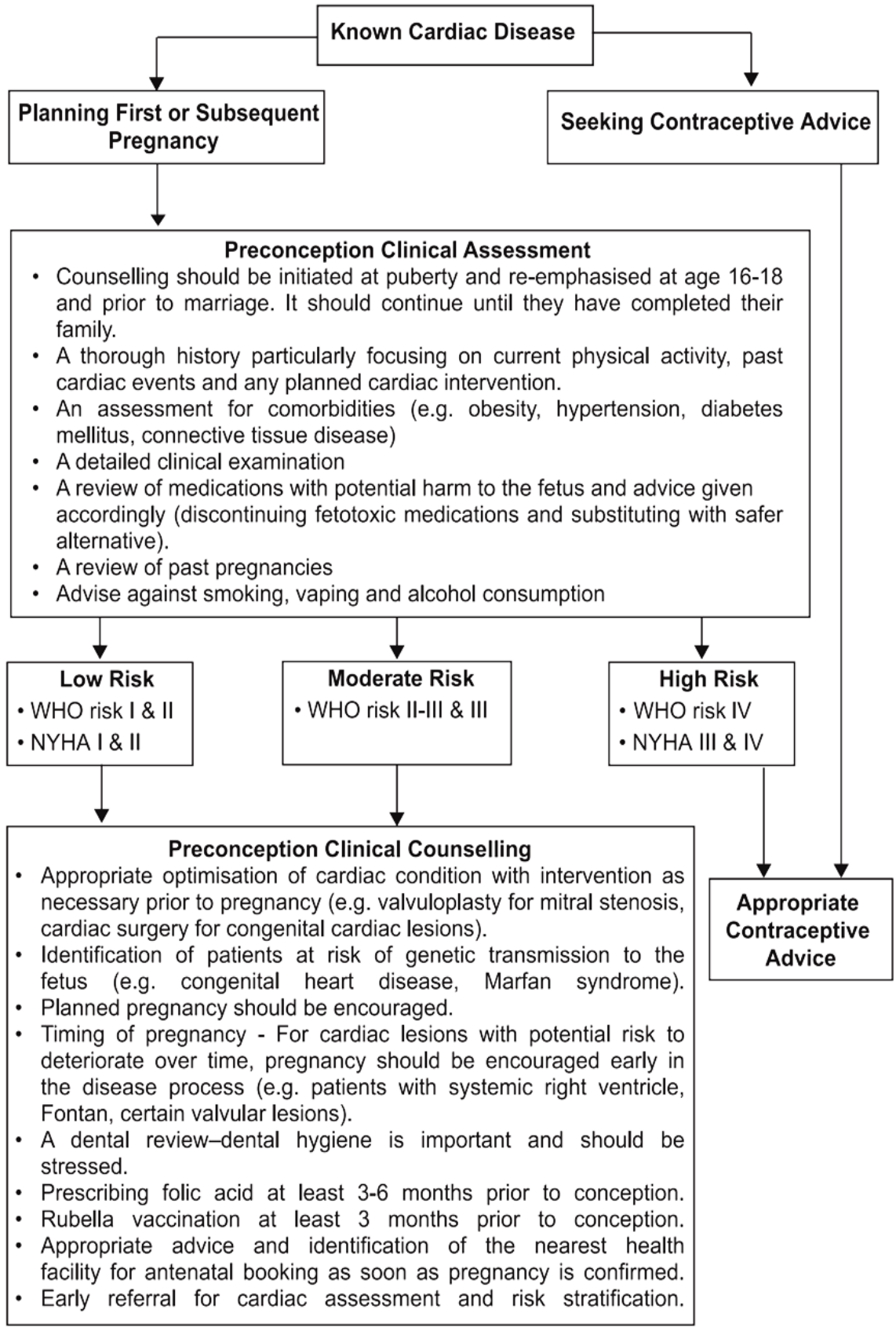
5. New York Heart Association (NYHA) Functional Classification

CLASS I	No limitation. Ordinary physical activity does not cause undue fatigue, dyspnea or palpitation.
CLASS II	Slight limitation of physical activity. Such patients are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea or angina.
CLASS III	Marked limitation of physical activity. Although patients are comfortable at rest, less than ordinary activity will lead to fatigue, palpitation, dyspnea or angina.
CLASS IV	Inability to carry on any physical activity without discomfort. Symptoms of congestive heart failure are present at rest. With any physical activity, increased discomfort is experienced.

Reference(s):

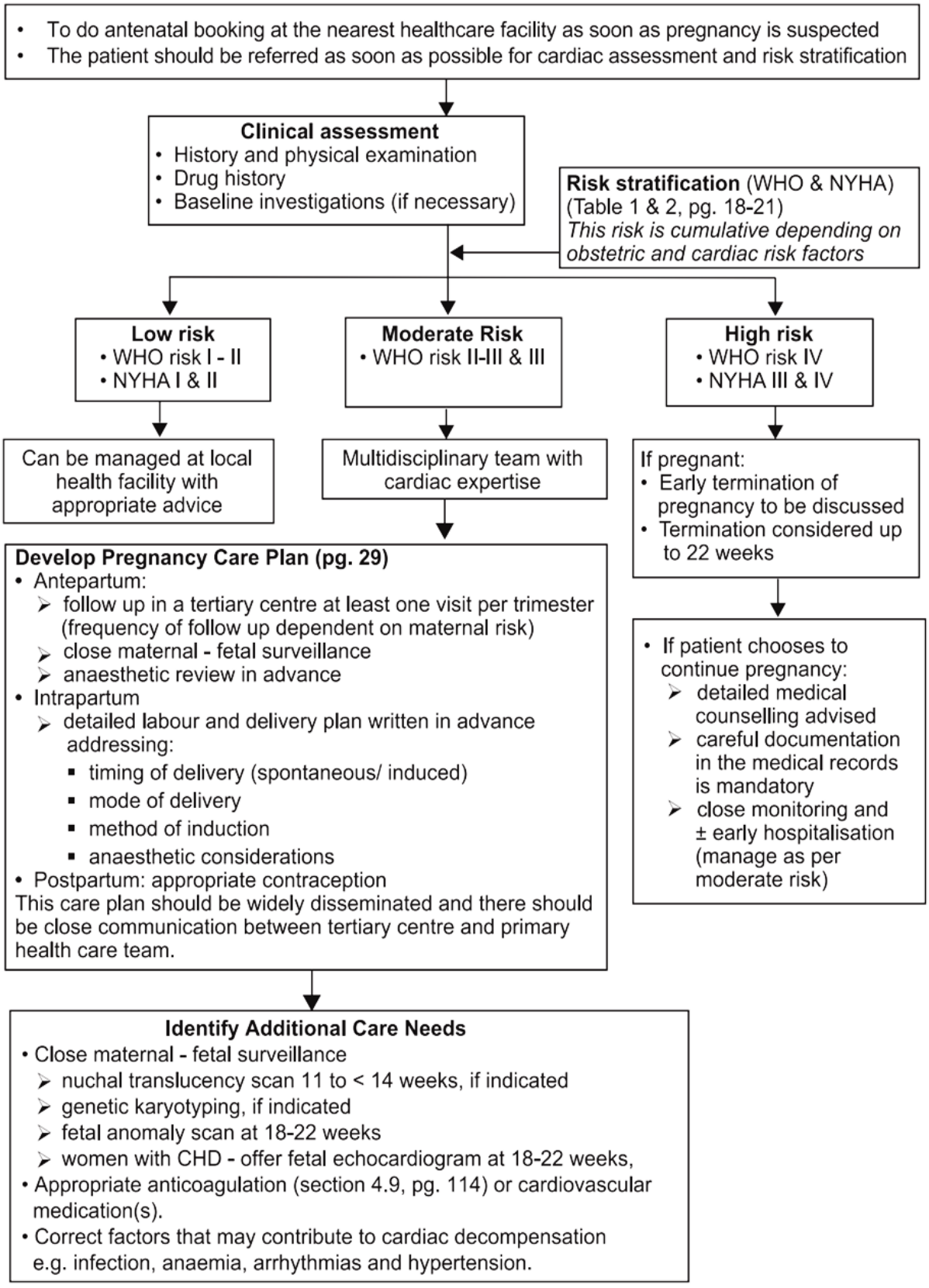
1. ESC Guidelines on the management of cardiovascular disease in pregnancy, 2018.
2. Clinical practice guideline: Heart Disease in Pregnancy, 2nd edition, 2016
3. Perinatal Care Manual 3rd Edition, Ministry of Health Malaysia, 2013.

FLOWCHART 1: PRECONCEPTION COUNSELLING AND CONTRACEPTIVE ADVICE



(Taken from Clinical practice guideline: Heart Disease in Pregnancy, 2nd edition, 2016)

FLOWCHART 2: ANTENATAL CARE PLAN FOR WOMEN WITH CARDIAC DISEASE
(no later than end of 1st trimester)



(Taken from Clinical practice guideline: Heart Disease in Pregnancy, 2nd edition, 2016)

1.2 Peripartum Cardiomyopathy (PPCM)

	Phase	Plan of Action
1	Pre-pregnancy	• All women in the reproductive age group with history of PPCM should have effective contraception until cardiac function improves. • Emphasize the importance of follow up under cardiologist.
2	Diagnosis and subsequent antenatal care	• Identify women at risk for PPCM and monitor presence signs and • symptoms of heart failure during pregnancy or postnatal period. • Women with previous history of PPCM or suspected cardiomyopathy need to be referred to cardiologist for cardiac assessment and revise cardiac medication if necessary. • Shared care among FMS, cardiologist and Combined clinic team. • If presence of symptoms and signs of heart failure, refer hospital immediately. • Anticoagulant therapy in all patients with PPCM as per cardiology plan. • Antenatal management at the level of tertiary hospital.
3	Delivery	• Delivery in hospital with specialist and ICU backup. • Timing and mode of delivery as outlined by O&G.
4	Upon discharge from hospital	• Notification of high-risk cases discharge as per guideline. • Contraception before discharge (preferably long acting contraception e.g. Implanon). • Patient to inform health clinic upon discharge and review by medical officer at 1 week after discharge. • Ensure contraception (e.g. Implanon) and thromboprophylaxis in place.
5	Postnatal care	• FMS appointment within 1 month. • Pre pregnancy clinic under O&G in 6 to 8 weeks. • Cardiologist/ECHO appointment as planned (if not given need to take appointment within 3 to 6 months).
6	Risk of subsequent pregnancy	• Refer Pre pregnancy Care Clinic in Specialist Clinic - hospital/ FMS • If LV function fully recovered: subsequent pregnancy not contraindicated. • If LV function not recovered: subsequent pregnancy is contraindicated.
7	Future pregnancy plan	• Require Cardiologist assessment prior next pregnancy.

		• To ensure patient follow up with cardiologist.
8	Lactation	• Breastfeeding is discouraged in NYHA III/ IV (to reduce high metabolic demand)

REMARKS:

1. Peripartum cardiomyopathy
   a. Heart failure develops in the last month of pregnancy or within 5 months of delivery with EF less than 45% and not attributed by other causes.
   b. Prevalence of PPCM in Malaysia is at 34 per 100,000 live births.
   c. Incidence is low (<0.1%) but high morbidity and mortality (5%-32%)
2. Risk factors: Multi-parity, obesity, family history, smoking, diabetes, hypertension, Pre-eclampsia, malnutrition, advanced age of mothers or teenage pregnancy.
3. Nursing care/postnatal visit:
   a. Assessment of important symptoms and signs of heart failure: Immediate referral if presence.
   b. Ensure compliance to medications.
   c. Non-pharmacological therapies (individualized) – low sodium diet (limit 2g sodium per day, fluid restriction and light daily activity (walking).
4. Prognosis:
   a. About 28-50% of patients recover baseline LV function within 6 months.
   b. Prognosis is positively related to recovery of LV function.
   c. LVEF is the strongest predictor of outcome.
   d. Failure of LV size to return to normal is associated with increased morbidity and mortality.
   e. The 5-year survival rate is 94% and mortality varies from 0.9%-15%.
   f. A subsequent pregnancy caries a recurrence risk of 30-50%.
5. The recurrence risk is higher in the 30% of women who have symptomatic residual disease. Women whose cardiac functions have returned to near normal have good prognosis. Their recurrence is at 2 – 5%

Reference(s):

1. American Heart Association: Peripartum Cardiomyopathy 2013
2. Peripartum Cardiomyopathy: Review and Clinical practice, American journal of critical care, March 2012
3. Clinical practice guideline: Heart Disease in Pregnancy, 2nd Edition ,2016.
4. ESC Guidelines on the management of cardiovascular disease in pregnancy, 2018.

SECTION 2 CONNECTIVE TISSUE DISEASES IN PREGNANCY

2.1 Rheumatoid Arthritis in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Refer to pre – pregnancy clinic (FMS/ O&G). • Avoid unplanned pregnancy. • Should defer pregnancy until disease is under good control and on medications compatible with pregnancy, whenever possible. • If planning to conceive ➢ Refer rheumatologist for assessment ➢ Folic acid 5mg daily • NSAIDS should be discontinued during a conception cycle and used sparingly during the first trimester. • Medications that can generally be used throughout pregnancy are hydroxychloroquine (HCQ), sulfasalazine (SSZ), azathioprine (AZA). • Prednisolone may be used in low dose during pregnancy • Pregnancy is contraindicated for patients on **Methotrexate (MTX), Leflunomide (LEF), JAK -2 inhibitors and biological agents (teratogenic)** • Note: ➢ MTX need to be withhold 3-6 months prior to conception ➢ Leflunomide need to be withhold 2 years prior to conception
2	Booking/ At diagnosis	• If clinical features suggestive of RA in pregnancy (EULAR Criteria 2010) – refer FMS, then refer medical /rheumatology AND Combined Clinic. • For RA patients already on medical/ rheumatology follow-up, to inform FMS and refer Combined Clinic early. • If patient on MTX/ LEF – refer to medical/ rheumatology team for early clinic appointment, may need to discontinue. • Investigations:

		➢ FBC, RP, LFT, ESR/CRP ➢ UFEME ➢ RF, anti-CCP (if suspecting RA) • Calcium supplementation continued during pregnancy. • MOGTT for patients on prednisolone. • Detailed scan at 22 – 24 weeks.
3	Subsequent antenatal follow-up	• Monitor for disease flares ➢ NSAIDs- use sparingly in 1st and 2nd trimester **but avoid** in 3rd trimester. ➢ Prednisolone may be used sparingly in low dose. • Refer Occupational therapist if indicated for splinting etc.
4	Delivery	• As per obstetric indications
5	Postpartum	• Monitor for flares. • Refer Rheumatologist for follow-up at Rheumatology Clinic.
6	Lactation	• Safe to continue: NSAIDs (but aspirin should be avoided), Corticosteroids, HCQ, SSZ, TNF inhibitors, AZA • Inadequate data: JAK inhibitors (tofacitinib) • Contraindicated: Methotrexate, Leflunomide, cyclosporine, cyclophosphamide, chlorambucil and other biologics

REMARKS:

1. Hydroxychloroquine (HCQ), Sulfasalazine (SSZ), Azathioprine (AZA) and Corticosteroids in doses up to 15 mg/day (prednisolone equivalent) are compatible with pregnancy.
2. Clinical evaluation based on 2010 ACR/EULAR classification criteria.
3. Majority will achieve disease control in pregnancy.
4. A flare is associated with functional disability, intense fatigue, more swelling, more pain, more stiffness, flu like symptoms.
5. SSZ: use with caution in setting of prematurity, hyperbilirubinaemia, G6PD deficiency.

Reference(s):

1. EULAR textbook on Rheumatic Diseases 2012.
2. Up to date: Patient information: Rheumatoid arthritis and pregnancy (Beyond the Basics).
3. CPG Management of Rheu Arthritis, MOH MaHTAS, 2019.

4. Aletaha D, Neogi T et al, ARTHRITIS & RHEUMATISM Vol. 62, No. 9, September 2010, pp 2569–2581 DOI 10.1002/art.27584.
5. Krause ML, Makol A; Management of rheumatoid arthritis during pregnancy: challenges and solutions, Open Access Rheumatology 23 Mar 2016: 23-36.
6. Wasserman AM; Diagnosis and Management of Rheumatoid Arthritis, American Family Physician Volume 84, Number 11 December 1, 2011:1245-1252.
7. Fernández-Ávila DG, Rincón-Rian˜ o DN, Gutiérrez JM. Onset of Rheumatoid Arthritis during pregnancy. Rev Colomb Reumatol. 2018; 25:141–145.

Target population: **Patients who (i) have at least one joint with clinical synovitis, and (ii) the synovitis not better explained by another disease**	**Score**
Add score of categories A-D, score of ≥ 6/10 needed to classify patient as having definite RA	
A. Joint involvement (tender/ swollen)	
1 large joint	0
1 – 10 large joints	1
1 – 3 small joints (with or without involvement of large joints)	2
1 – 10 small joints (with or without involvement of large joints)	3
>10 joints (at least 1 small joint)	5
B. Serology	
Negative RF/ ACPA	0
Low-positive RF/ low-positive ACPA	2
High positive RF/ high-positive ACPA	3
C. Acute phase reactants	
Normal CRP & ESR	0
Abnormal CRP/ ESR	1
D. Duration of symptooms	
< 6 weeks	0
≥ 6 weeks	1

2010 ACR/ EULAR Classification criteria for Rheumatoid Arthritis

2.2 Systemic Lupus Erythematosus in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Refer to pre – pregnancy clinic (FMS/O+G) for counselling and detailed risk discussion. • Avoid unplanned pregnancy ➢ Contraception ▪ Oestrogen based contraindicated ▪ Progestogen based seem safe ▪ Risk of thrombosis need to be considered • Should defer pregnancy until disease is under good control and on medications compatible with pregnancy, whenever possible. • If planning to conceive ➢ Refer rheumatologist for assessment and counselling ➢ Folic acid 5mg daily • Assess disease activity, major organ involvement, hypercoagulability and concurrent medical conditions. • Pregnancy is allowed if: ➢ Disease in remission for ≥ 6 months or stable low disease activity on treatment ➢ BP well-controlled ➢ eGFR > 60ml/min ➢ Proteinuria < 1g/day (proteinuria 2+) • Advise for contraception if early disease/currently active disease. • High risk of worsening complications if severe impairment of organ function +/- pre-existing organ damage.
2	Booking	• Woman who is **not** diagnosed with SLE but with signs and symptoms suggestive of SLE (use EULAR/ACR SLE Criteria) ➢ Assess severity – if severe manifestation, refer urgently to MOPD

		➢ If non severe – early referral to FMS / MOPD/ rheumatology clinic assessment with baseline investigations. • Woman who is known case of SLE ➢ Refer FMS ➢ Early referral to Combined Clinic appointment ➢ Assessment to detect disease flare • VTE risk scoring – weightage of 3 in active disease (thrombophilic state). • Refer CPG of Prevention and Treatment of VTE/ VTE Risk Assessment in Pregnancy and Puerperium (MOH 2017). • Investigations: ➢ ANA/ dsDNA (if not diagnosed SLE) ➢ FBC, RP, LFT, ESR/CRP, uric acid ➢ Red cell cast in urine (UFEME) ➢ Urine 24hr protein (if proteinuria present) • Complement levels (C3, C4)
3	Subsequent antenatal follow-up	• Calcium supplementation continued during pregnancy. • T. Aspirin 150mg or Cardiprin 100mg daily from 12 weeks until delivery. • Monitor for flare, anaemia, pre-eclampsia and fetal growth restriction. • Blood pressure - monitor closely as risk of pre-eclampsia. • FBC, RP, LFT, Uric acid, UFEME every trimester. • MOGTT at 16 weeks and/or 26-28 week. • Detailed scan at 22 – 24 weeks. • Serial fetal growth monitoring monthly – risk of FGR/ SGA.
4	Delivery	• As per obstetric indications- hospital delivery.
5	Postpartum	• Monitor for flares. • If antiphospholipid syndrome present, continue medical thromboprophylaxis for 6 weeks after delivery. • Ensure effective contraception (Refer MEC chart)

6	Lactation	• Generally safe

REMARKS:

1. Diagnosis of SLE: EULAR/ACR criteria
2. Drugs safe in pregnancy:
    a. Azathioprine
    b. Hydroxychloroquine
    c. Prednisolone
    d. Aspirin
    e. Paracetamol
3. Drugs contraindicated in pregnancy
    a. Methotrexate
    b. Cyclophosphamide
    c. NSAIDs
4. SLE Flare
    a. Symptoms: Fatigue, fever, weight loss, joint pain, rash
    b. Serositis
    c. Renal involvement
    d. Cardiac involvement
    e. Pulmonary involvement
    f. GI involvement

Reference(s):

1. EULAR textbook on Rheumatic Disease 2012.
2. Up to date: Pregnancy in women with systemic lupus erythematosus. Last updated 10/1/2018.
3. CPG Management of Hypertension Malaysia 2013.
4. CPG Prevention and Treatment of Venous Thromboembolism 2013.
5. Fanouriakis A, Kostopoulou M, Alunno A, et al. Ann Rheum Dis 2019;78:736–745.
6. Aringer M, Costenbader K, Daikh D, et al. Ann Rheum Dis 2019;78:1151–1159.
7. Gordon C, Amissah-Arthur M, et al. Rheumatology 2018;57: e1-e45doi:10.1093/ rheumatology/ kex286.
8. Knight C.L, Nelson-Piercy C. Management of systemic lupus erythematosus during pregnancy: challenges and solutions. Open Access Rheum Mar 2017;37-52.
9. Nguyet -C V L; Ghetu MV, MD; and Bieniek ML. Systemic Lupus Erythematosus: Primary Care Approach to Diagnosis and Management. American Family Physician August 15, 2016. Volume 94, Number 4: 284-294.

2019 European League Against Rheumatism/ American College of Rheumatology classification criteria for systemic lupus erythematosus

Entry criterion

Antinuclear antibodies (ANA) at a titer of ≥1:80 on Hep-2 cells or an equivalent positive test (ever)

↓

If absent, do not classify as SLE

If present, apply additive criteria

↓

Additive criteria

Do not count a criterion if there is a more likely explanation than SLE

Occurrence of a criterion on at least one occasion is sufficient.

SLE classification requires at least one clinical criterion and ≥10 points.

Criteria need not occur simultaneously.

Within each domain, only the highest weighted criterion is counted toward the total score.

Clinical domains and criteria	Weight	Immunology domains and criteria	Weight
Constitutional		Antiphospholipid antibodies	
Fever	2	Anti-cardiolipin antibodies OR Anti-ß2GP1 antibodies OR Lupus anticoagulant	2
Haematologic		Complement proteins	
Leukopenia	3	Low C3 OR low C4	3
Thrombocytopenia	4	Low C3 AND low C4	4
Autoimmune haemolysis	4	SLE-specific antibodies	
Neuropsychiatric		Anti-dsDNA antibody* OR Anti-Smith antibody	6
Delirium	2		
Psychosis	3		
Seizure	5		
Mucocutaneous			
Non-scarring alopecia	2		
Oral ulcers	2		
Subacute cutaneous OR discoid lupus	4		
Acute cutaneous lupus	6		
Serosal			
Pleural or pericardial effusion	5		
Acute pericarditis	6		
Musculoskeletal			
Joint involvement	6		
Renal			
Proteinuria > 0.5g/24h	4		
Renal biopsy Class II or V lupus nephritis	8		
Renal biopsy Class III or IV lupus nephritis	10		
Total score:			

↓

Classify as Systemic Lupus Erythematosus with a score of 10 or more if entry criterion fulfilled

SECTION 3 DIABETES IN PREGNANCY

3.1 Gestational Diabetes Mellitus

	Phase	Plan of Action
1	Booking	• Screen every pregnant woman for GDM according to risk factors[#]. • Screening and diagnosis diabetes in pregnancy – Refer Algorithm A. ➢ Women with history of GDM or presence of 2 or more risk factors to do MOGTT as soon as possible. ➢ Presence of 1 risk factor (except history of GDM), to do MOGTT at 12-14 weeks, if normal repeat at 24- 28 weeks. ▪ MOGTT **<u>should not</u>** be performed in women with hyperemesis gravidarum. ➢ Pregnant women ≥ 25 years old without other risk factors should have screening for GDM at 24- 28 weeks. • Subsequent management depends on MOGTT result[¥] • Once GDM diagnosed, do the following: ➢ Counsel patient regarding maternal and fetal complications. ➢ Advise dietary changes and exercise. ➢ Dietician appointment. ➢ Dating scan to date and confirm viability of pregnancy. ➢ Detailed scan is generally not necessary for GDM on diet control. ➢ Overt diabetes[€] in pregnancy should be managed as pre-existing diabetes (refer for detailed scan if HbA1c ≥ 8%). ➢ HbA1c (baseline). ➢ BSP.
2	Subsequent antenatal follow-up	• Blood sugar profile (BSP)* ➢ Generally, every 4 weeks, more frequently if not well controlled.

		➢ To start treatment (metformin and/or insulin) if BSP out of range after dietary advice (treatment can be started inpatient or outpatient depending on patient's preference). ➢ To consult FMS/ O&G for treatment initiation. ➢ Refer to district hospital or O&G team if admission is required. • Monthly growth scan from 28 weeks (to plot on growth chart) – refer O&G if indicated (LGA, polyhydramnios, fetal anomaly, etc.). • For uncomplicated and well-controlled GDM, continue management at health clinic.
3	Delivery	• To be seen by FMS or O&G specialist at 34- 36weeks gestation for plan of delivery: ➢ GDM on diet control – FMS (do not allow postdate). ➢ GDM on oral antidiabetic – refer O&G specialist at 36 weeks. ➢ GDM on insulin – review in O&G clinic at 34- 36 weeks. • Patients who develop maternal or fetal complications - Refer O&G. • Hospital delivery.
4	Postpartum	• Offer lifestyle advice (weight control, diet and exercise). • Discuss options of contraception with patient / couple[∞] • Respective health clinic will continue with follow up care. • Do MOGTT 6 weeks postpartum to detect diabetes and pre-diabetes. If normal, annual diabetic screening should be performed. • For newly diagnosed DM during postnatal test, to be followed up in health clinic/ medical and advice for pre-pregnancy clinic. • For those with normal postnatal test, to do MOGTT as soon as possible in next pregnancy.
5	Lactation	• Breastfeeding is encouraged.

6	Pre-pregnancy	• To enroll in pre- pregnancy clinic for patient who have risk (e.g. obesity, any medical illness).

REMARKS:

1. # Risk Factors for GDM

a. Age ≥ 25 years old
b. Glycosuria ≥ 2+ on two occasions
c. Booking BMI > 27kg/m^2
d. First degree relative with diabetes
e. Previous macrosomic baby (≥ 4kg)
f. Previous unexplained intrauterine death, recurrent miscarriages, congenital anomalies, previous history of shoulder dystocia
g. Previous history of Gestational Diabetes Mellitus
h. Current obstetric problems (suspicious macrosomia, polyhydramnios, essential hypertension, pregnancy- induced hypertension, current use of steroids)

2. Screening test

a. Initial screening of high-risk women (multiple risk factors/ previous GDM) should be done at booking using any of the following:
b. 75 gm MOGTT at 0-minute (fasting) and 120 minutes (2hrs post) plasma glucose measurement.

3. ¥ Definition of GDM using 75 gm MOGTT:

a. GDM is diagnosed in the presence of any one of these results:
   - FPG: ≥ 5.1 mmol/L
   - 2-hour postprandial (2-HPP): ≥ 7.8 mmol/L
b. It is important to complete the MOGTT test with fasting and 2HPP reading, so that overt DM is not missed.

4. € Definition of Overt DM

a. Overt DM is suspected in the presence of **at least one** of the following:
   - FPG ≥7.0 mmol/L
   - RPG ≥11.1 mmol/L with symptoms

b. However, the diagnosis of overt DM needs to be confirmed with a second test (FPG/ RPG/ MOGTT) if MOGTT is not done in the first test.
c. If MOGTT has performed as first test and result reveals overt DM, no need to repeat MOGTT or proceed with second test.
d. Offer immediate treatment with insulin with or without Metformin:
   - If FBS >7.0mmol/L at diagnosis OR
   - If FBS 6.0-6.9 mmol/L with complications such as macrosomia or polyhydramnios

5. *BSP targets (mmol/L):

a. The blood glucose targets should be as the following:
   - Fasting or pre-prandial / pre bed: ≤ 5.3 mmol/L
   - 1-hour postprandial: ≤ 7.8 mmol/L
   - 2-hours postprandial: ≤ 6.7 mmol/L

b. The frequency of SMBG in diabetes in pregnancy **should be individualised** based on glycaemic control.
c. Post-prandial glucose level monitoring should be encouraged, especially for patients practising Home Blood Glucose Monitoring (HBGM).

6. **Timing for BSP Monitoring**

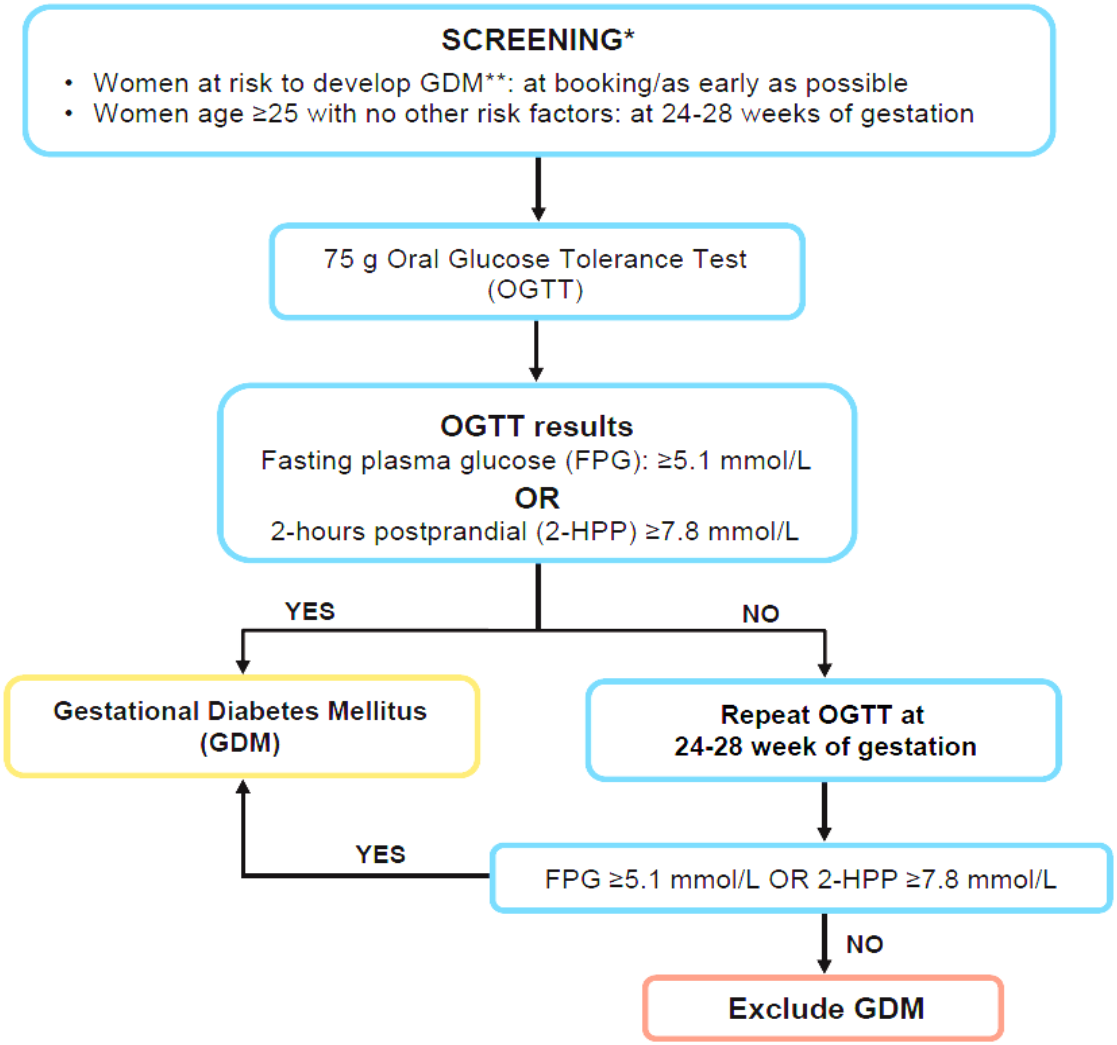
Timing of SMBG & mode of treatment	Breakfast		Lunch		Dinner	
	Pre	Post	Pre	Post	Pre	Post/Prebed
Diet only	✓	✓		✓		✓
OAD or single dose insulin	✓	✓		✓		✓
Multiple dose insulin	✓	✓	✓	✓	✓	

7. ∞Contraception based on “Medical Eligibility Criteria for Contraceptive Use – refer to MEC chart

Reference(s):

1. CPG on Management of Diabetes in Pregnancy 1st Edition, Ministry of Health Malaysia, 2017.
2. National Institute for Health and Care Excellence (NICE) guideline, Diabetes in Pregnancy: management from preconception to the postnatal period, 25 February 2015.
3. Malaysian Ministry of Health Clinical Practice Guidelines on Management of Type 2 Diabetes Mellitus (5th edition), December 2015.

ALGORITHM A: SCREENING AND DIAGNOSIS OF DIABETES IN PREGNANCY



***Overt DM is suspected in the presence of at least one of the following:**

- FPG ≥7.0 mmol/L
- Random plasma glucose (RPG) ≥11.1 mmol/L

• However, the diagnosis of overt DM should be confirmed with a second test (FPG/RPG/OGTT).

**** Presence of any risk factors:**

- Body mass index >27 kg/m^2
- Previous history of GDM
- First degree relative with diabetes mellitus
- History of macrosomia (birth weight >4 kg)
- Bad obstetric history
- Glycosuria ≥2+ on two occasions
- Current obstetric problems (essential hypertension, pregnancy-induced hypertension, polyhydramnios and current use of corticosteroids)

(taken from CPG on Management of Diabetes in Pregnancy)

3.2 Pre-existing Diabetes in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Refer to FMS/ O&G for preconception care (Pre-pregnancy clinic). • Assessment: ➢ Disease severity – Aim HbA1c < 6.5% ➢ Diabetes complications. ➢ Other co-morbidities. ➢ Glycaemic control & optimization. ➢ Review medications ▪ Women with T2DM who are planning a pregnancy should switch medication from oral antidiabetic drugs (OAD) to insulin for good glycaemic control. ▪ Acceptable antidiabetic medication: Metformin, Insulin (Human/ Analog). ▪ The following medications should be discontinued: angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers and statins. • Counselling to mother: ➢ Maternal and fetal complications. ➢ Symptoms and signs of hypoglycaemia. ➢ Importance of blood glucose optimization prior to pregnancy ➢ Planned pregnancy for contraception advice according to Medical Eligibility Criteria. ➢ Weight reduction if overweight or obese. • Folic acid 5 mg per day should be given at least three months prior to conception and continue until 12 weeks of gestation.
2	Booking	• Consult FMS (Outpatient)/ O&G Specialist (inpatient) for initiation/ adjustment of insulin. • Dating scan. • Get Combined Clinic appointment. • Detailed scan at 22-24 weeks.

		• Perform the following: ➢ RP ➢ HbA1c (baseline to determine risk of pregnancy, if not done in the last 3 months). ➢ Retinal assessment. ➢ Dietary counseling by dietician. ➢ Women with T1DM/ T2DM are at high risk of developing Pre-eclampsia/ eclampsia ▪ Baseline LFT and Serum Uric Acid ▪ To commence T. Calcium Carbonate 1g BD ▪ Start T. Aspirin 150mg ON or T. Cardiprin 100mg ON from 12 weeks (before 20 weeks) until delivery, unless contraindicated.
3	Subsequent antenatal follow-up	• Shared care among FMS, MFM, physician/ endocrinologist. • 2 weekly BSP, more frequently if not controlled. ^ ➢ Basal bolus insulin regime is preferred during pregnancy. • Monthly growth scan (to plot on growth chart) and AFI from 28 weeks. • Refer Diabetes Educator/ Medication Therapy Adherence Clinic (MTAC) for poorly controlled DM if available. • Retinal assessment ➢ Retinal assessment at booking and repeat at least once throughout the pregnancy. ➢ If retinopathy is present, refer ophthalmology. • Renal assessment ➢ RP ➢ Urine dipstick- if protein present to proceed with 24-hour urine protein or urinary albumin-to-creatinine ratio. ➢ If creatinine $\geq$ 125 mmol/l or 24-hour urine protein >0.5 g/day, to refer Medical/ Nephrologist. ➢ Consider thromboprophylaxis if 24-hour urine protein > 5 g/ day.
4	Delivery	• Outlined by O&G

		• In pregnant women with pre-existing diabetes: ➢ With no complications, delivery at 38 weeks. ➢ Who develop maternal or fetal complications - refer O&G, may require early delivery with coverage by antenatal corticosteroids. • Hospital delivery
5	Postpartum	• Pre-existing T1DM ➢ Lower insulin dosage • Pre-existing T2DM (for breastfeeding) ➢ Continue insulin at lower dosage or resume pre-pregnancy metformin. ➢ Avoid other types of oral antidiabetic drugs. • Discuss options of contraception with couple.
6	Lactation	• Encourage breastfeeding.
7	Upon discharge from hospital	• Notification of high-risk case discharge to Health clinic as per guideline. • Health clinic/ Medical to continue with follow up care: ➢ For pre-existing T1DM and T2DM, to refer back to their routine diabetes care arrangements (Health clinic/ Medical clinic) ➢ Newly diagnosed T2DM should be referred and be followed up in health clinic/ medical clinic • Pre-pregnancy clinic for pre-existing DM at 4- 8 weeks postpartum.

REMARKS:

1. ^ Antenatal target blood glucose control:

a. Blood Sugar Profile

- Pre-breakfast / fasting (following an 8-hour of overnight fast): ≤ 5.3 mmol/L
- Pre-prandial/pre-bed: ≤ 5.3 mmol/L
- 1-hour post-prandial: ≤ 7.8 mmol/L
- 2-hours post-prandial: ≤ 6.7mmol/L

b. HbA1c: may not accurate if patient has underlying anaemia.
c. Post-prandial glucose level monitoring is encouraged, especially for patients practising Home Blood Glucose Monitoring (HBGM).

2. Drug Treatment During Pregnancy:

a. The best insulin regime is multiple daily injections (basal-bolus regime) for better glycaemic control during pregnancy.
b. Women with diabetes may be advised to use metformin as an adjunct or alternative to insulin during pregnancy.
c. Women with diabetes who are on treatment with metformin and/ or insulin prior to conception are advised to continue the treatment during pregnancy.
d. All other oral blood-lowering agents should be discontinued when pregnancy is confirmed.
e. Use isophane insulin (also known as NPH insulin) as the first choice for long-acting insulin during pregnancy.
f. Long-acting insulin analogues may be used in cases of repeated nocturnal hypoglycaemia.

3. Effect of DM to mother and fetus:

Pregnancy related	Diabetes related	Fetal risk
• Miscarriage • Preterm birth • Induction of labour • Operative delivery	• Increase need for antidiabetic medication • Worsening of end organ damage if presence prior to pregnancy	• Neural tube defects: anencephaly, Arnold-Chiari malformation, spina bifida, ventriculomegaly • Cardiovascular malformation: AV septal defects, transposition of great vessels • Caudal regression syndrome • Macrosomia with resultant hypoglycaemia, hypomagnesaemia, hyperbilirubinaemia • Risk of IUD is up to 50% in untreated DM, even with

		control, the risk still remains higher at 3 – 5 fold.
4. ∞ Contraception based on “Medical Eligibility Criteria for Contraceptive Use”		

Initiating Insulin Therapy in Pregnancy

Glycaemic abnormality	Suggested Insulin Type and Dose
FPG >5.3 mmol/L	Start 0.2 units/kg of intermediate-acting insulin at bedtime, increase by 2 units every 3 days until targets are reached.
1-hour postprandial >7.8 mmol/L 2-hours postprandial >6.7 mmol/L	Start 6 units of short-acting insulin, increase by 2 units every 3 days until targets are reached. If preprandial short-acting insulin dose exceeds 16 units TDS, consider adding 6-10 units intermediate-acting insulin in the morning and titrate accordingly until targets are achieved.

Estimation of total daily insulin requirement by gestation/trimester

Pregnancy gestation	Total daily insulin requirement
1st trimester	0.7 units/kg/day
2nd trimester	0.8 units/kg/day
3rd trimester	0.9 units/kg/day

Reference(s):

1. CPG on Management of Diabetes in Pregnancy, Ministry of Health Malaysia 2017.
2. Malaysian Ministry of Health Clinical Practice Guidelines on Management of Type 2 Diabetes Mellitus (5th edition), December 2015.
3. National Institute for Health and Care Excellence (NICE) guideline, Diabetes in Pregnancy: management from preconception to the postnatal period, 25 February 2015.

SECTION 4 HAEMATOLOGICAL DISORDERS IN PREGNANCY

4.1 Anaemia in Pregnancy

	Phase	Plan of Action
1	Booking	• Asymptomatic anaemia ➢ Hb 8 - ≤ 11 g/dl, irrespective of gestational age ▪ Follow-up at health clinic ➢ Hb < 8 g/dl, POA < 36 weeks ▪ Continue follow-up at health clinic ➢ Hb < 8 g/dl, POA > 36 weeks ▪ Refer O&G team for management plan • Symptomatic anaemia, irrespective of gestational age & Hb level ➢ Refer to O&G for hospital admission ➢ Do relevant investigations: ▪ FBC ▪ Serum Ferritin ▪ Hb analysis (discuss with FMS) ▪ Hb DNA analysis (discuss with FMS) ▪ PBF ▪ BFMP ▪ Urine FEME ▪ Stool for ova & cyst ➢ Start therapeutic dose of oral haematinics ▪ Repeat Hb after 2 weeks ➢ Consider parenteral iron in confirmed iron deficiency anaemia if: ▪ Unable to tolerate oral iron therapy ▪ Poor response to oral iron therapy ▪ Rapid iron replenishment is required ➢ After completed parenteral iron, repeat Hb at 1-2 weeks and resume oral iron therapy after 1 week. ➢ To discuss with FMS for intravenous iron supplement if presence of logistic issue

2	Subsequent antenatal follow up	• Monitor Hb level at health clinic • Monthly fetal growth monitoring at health clinic
3	Delivery plan	• Keep Hb > 11.0 g/dl • May allow postdate, unless specified otherwise
4	Delivery	• Hospital delivery • PPH prophylaxis
5	Postpartum	• Discuss options of contraception with patient / couple • Continue haematinics for 3 months postpartum

REMARKS:

1. Definition of anaemia:
   a. Hb < 11.0 g/dl in the first and third trimester
   b. Hb < 10.5 g/dl in the second trimester

Classification	Hb level (g/dl)
Mild	9.0 – 11.0
Moderate	7.1 – 8.9
Severe	≤ 7.0

2. In confirmed thalassaemia carrier:
   a. To screen husband as well
   b. Refer “Thalassaemia Carrier in Pregnancy” chapter for management

3. Recommended prophylaxis oral iron dose:
   a. T. Ferrous Fumarate 200mg OD
   b. Elemental iron requirement: 30-60 mg daily

   Recommended therapeutic oral iron dose:
   a. T. Ferrous Fumarate 400 mg OD
   b. Elemental iron requirement: 100 – 200mg daily

4. Various iron combinations are widely available with various dosages:

Iron preparation	Dose per tablet	Elemental iron
Ferrous fumarate (Obimin)	90mg	30 mg
Ferrous fumarate (Zincofer)	350mg	115 mg
Ferrous sulphate (Iberet)	525 mg	105 mg
Ferrous gluconate (Sangobion)	250mg	30mg

Iron polymaltose (Maltofer)	370mg	100mg

5. Recommendation of diet while taking iron supplement

Improve iron absorption	Reduce iron absorption
• Taken with an empty stomach, 1 hour before meals with a source of vitamin C (ascorbic acid) such as orange juice to maximise absorption	• Take other medications at the same time • Antacids • Calcium supplement • Dairy products

6. Repeat Hb testing is required 2 weeks after commencing treatment to assess compliance, correct administration and response to treatment. Expected Hb rise is approximately 2 g/dl over 3-4 weeks.

7. Preparation of parenteral iron

Iron preparation	Dose per vial	Route
LWM iron dextran (Cosmofer®)	100mg/ 2ml	IV/ IM/ TDI
Iron sucrose (Venofer)	100mg/ 5ml	IV/ TDI

*IV – intravascular, IM – intramuscular, TDI – total dose infusion

a. Iron dextran has higher risk of hypersensitivity.
b. High molecular weight iron dextra (e.g. imferon) no longer available due to its related adverse effects.
c. Iron sucrose has fewer side effects.
d. All parenteral iron should be given in hospital or outpatient setting with emergency and resuscitation facilities by trained staff.
e. Expected Hb increment after parenteral iron: 1-2 g/dl in 2 weeks
f. Repeat Hb after reassessment in 2 weeks.

8. Contraindications for parenteral iron:
   a. Non-iron deficiency anaemia
   b. Thalassemia (relative contraindication)
   c. 1st trimester
   d. Known allergy to iron

Reference(s):

1. National Thalassaemia Screening Programme, Malaysian Ministry of Health, 2007.
2. Perinatal Care Manual (Third Edition) 2013.
3. WHO. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity. Vitamin and Mineral Nutrition Information System. Geneva, World Health Organization, 2011 (WHO/NMH/NHD/MNM/11.1).
4. UK guidelines on the management of iron deficiency in pregnancy. British Journal of Haematology, 2012, 156, 588–600. doi:10.1111/j.1365- 2141.2011.09012.
5. Blood Transfusion in Obstetrics: Green-top Guideline No. 47, May 2015.

Usage of Parenteral Iron for IDA in Pregnancy

Calculation of total iron dose (IM or IV)

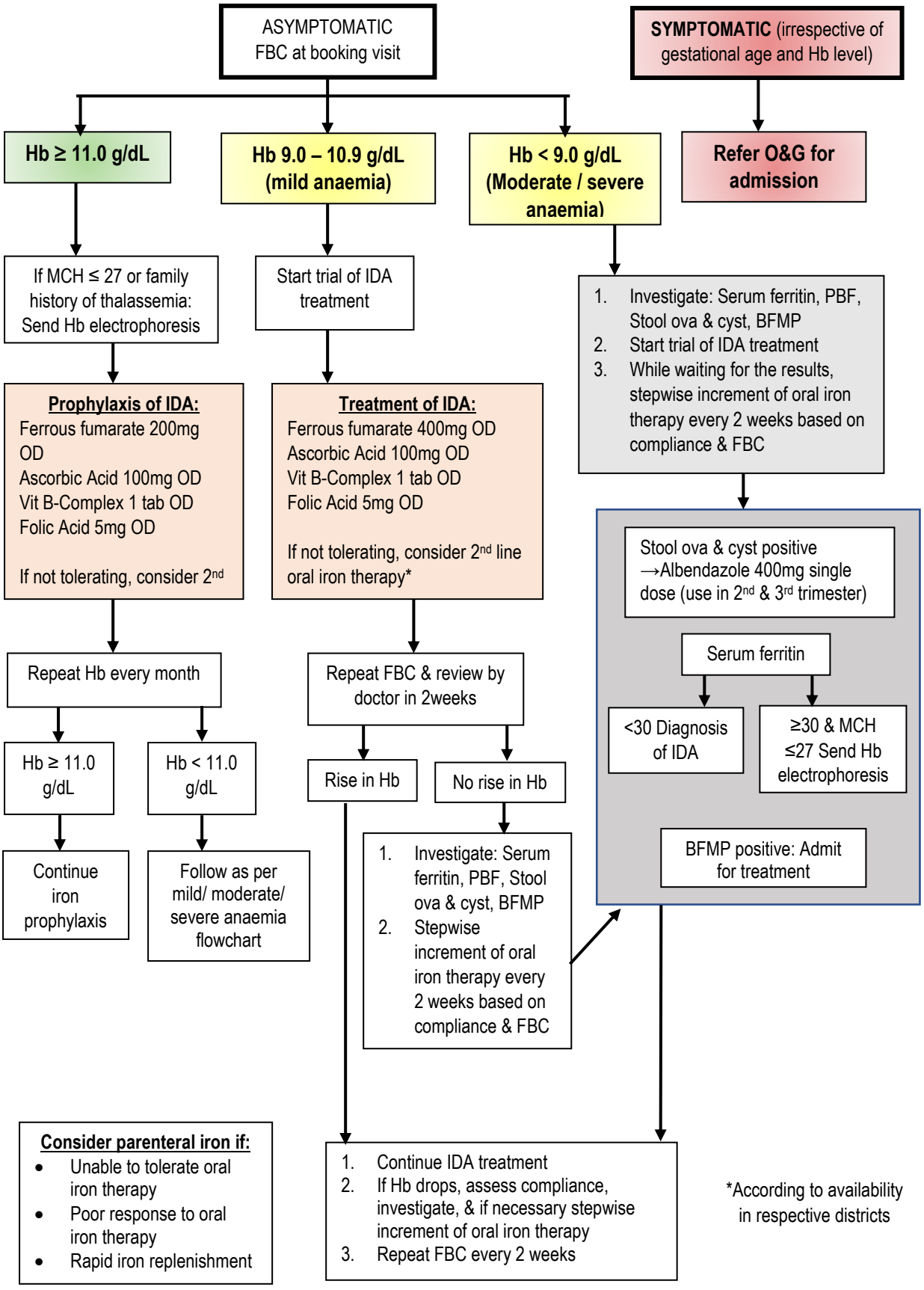
Total dose (mg): **Body weight during booking visit (kg) x (Target- Actual Hb) (g/dl) x 10 x 0.24) + 500mg (iron for iron stores for weight >35kg)**

***Target Hb level for treatment: 11.0 g/dl**

Number of 100mg Ampoules to be administered (mg)								
Weight (kg)	**Actual Haemoglobin (g/dL)**							
	6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**
35	10	9	9	8	8	8	7	7
40	10	10	9	9	8	8	7	7
45	11	10	10	9	9	8	8	7
50	12	11	10	10	9	9	8	7
55	12	12	11	10	10	9	8	8
60	13	12	11	11	10	9	9	8
65	14	13	12	11	10	10	9	8
70	14	13	13	12	11	10	9	8
75	15	14	13	12	11	10	10	9
80	16	15	14	13	12	11	10	9
85	16	15	14	13	12	11	10	9
90	17	16	15	14	13	11	10	9
95	18	16	15	14	13	12	10	9
100	18	17	16	15	13	12	11	10

IM Iron Dextran 100mg/ 2ml Maximum dose/ day: 1 ampoule (100mg) Intramuscular (Z-track technique): 1 ampoule (100mg) daily on alternate buttocks Test dose: 25mg (0.5ml) – Monitor patient for 1 hour for adverse reaction	IV Iron Sucrose 100mg/ 5ml Maximum dose/ day: 2 ampoules (200mg) Regime: 2 ampoules (200mg) 3 times/ week Intravenous infusion: • 2 ampoules in 200ml Normal Saline, infuse in at least 30 minutes, OR • 2 ampoules in 100ml NS, infuse at 12 drops/ min for first 15-30 mins, then 36 drops/ min until completed

FLOWCHART: MANAGEMENT OF ANAEMIA IN PREGNANCY



4.2 Asymptomatic Thrombocytopenia in Pregnancy

	Phase	Plan of Action
1	At booking/ diagnosis	• Screen for thrombocytopenia at booking by performing FBC. • Repeat FBC required. • Referral to medical / O&G if repeat FBC remain thrombocytopenic. • Look for bleeding tendencies, if present clinically immediate referral is required. • Tests to be done: ➢ PBF ➢ LFT ➢ RP ➢ Viral screening (HIV, HCV, HBV) ➢ ANA • Refer patient with asymptomatic thrombocytopenia in pregnancy with platelet <100 $x10^9$/L to O&G clinic. • Patient with mild asymptomatic thrombocytopenia (100-150 $x10^9$/L) can be monitored at health clinic. • Known thrombocytopenia in pregnancy need to be under specialist care.
2	Subsequent antenatal follow-up	• Follow plan laid out by O&G / Haematology clinic.
3	Delivery plan	• Hospital delivery. • PPH prophylaxis.
4	Postpartum	• Discuss options of contraception with patient / couple. (Medical Eligibility Criteria for Contraceptive)
5	Upon discharge from hospital	• Routine discharge procedure. • Repeat FBC at 6 weeks postpartum for gestational

		thrombocytopenia. • For other causes of thrombocytopenia, follow medical plan.

REMARKS:

1. Definition of thrombocytopenia in pregnancy: platelet <150 $x10^9$/L a. Mild: 100-150 $x10^9$/L b. Moderate: 50-100 $x10^9$/L c. Severe: <50 $x10^9$/L
2. Thrombocytopenia occurs in 7-8% of all pregnancy: a. 70-80% are gestational thrombocytopenia b. 15-20% are severe pre-eclampsia c. <1% are HELLP syndrome and APS
3. Differential diagnosis: a. Hereditary b. Autoimmune (SLE, APS) c. ITP/ TTP d. Pre-eclampsia e. HELLP f. DIVC g. Drug-induced h. Viral Infection (HIV, Dengue, HCV) i. Hypersplenism due to chronic liver disease j. Haematological malignancy k. Gestational thrombocytopenia l. Spurious-platelet clumping
4. Gestational thrombocytopenia should have platelet normalised by 6 weeks postpartum.

Reference(s):

1. Myers B. Thrombocytopenia in pregnancy, Royal College of Obstetrics and Gynaecology guidelines, 2009.
2. Malaysian CPG on Immune Thrombocytopenic Purpura, 2006:16-20.

4.3 Rhesus Isoimmunisation In Pregnancy

	Phase	Plan of Action
1	Booking	• Check blood group & Rh type in all antenatal cases at first visit. • Check husband's blood group & Rh type if woman is rhesus negative. • Indirect Coomb's test required to detect sensitization. ➢ at first antenatal visit for known case ➢ diagnosis of new cases
2	Subsequent antenatal follow-up	• If Coomb's test positive, refer to MFM or O&G. • If initial Coomb's test negative, repeat test is required at 24-26 weeks. • Refer O&G for Anti-D immunoglobulin (with negative indirect Coomb's test): ➢ For routine antenatal prophylaxis at 28 weeks. ➢ For potential antenatal sensitizing event.
3	Delivery plan	• As outlined by O&G.
4	Delivery	• Hospital delivery. • PPH prophylaxis.
5	Postpartum	• Administer IM anti-D immunoglobulin 500 IU within 72 hours if negative indirect Coomb's test. • Discuss options of contraception with patient couple.

REMARKS:

1. Anti-D antibodies may cause severe haemolytic disease of fetus and newborn as a result of feto-maternal haemorrhage in Rh negative women with Rh positive fetus.
2. Indirect Coomb's test detects anti-D antibodies.
3. Paternal antigen status. a. if father is Rh negative, the pregnancy is not at risk for severe fetal haemolytic disease b. if father is Rh positive, pregnancy is at risk
4. Potentially sensitizing events

Before 12 weeks of gestation:

a. Miscarriages requiring surgical intervention
b. Threatened miscarriage
c. Termination of pregnancy (TOP)
d. Chorionic villus sampling
e. Molar pregnancy
f. Ectopic pregnancy

Between 12 to 20 weeks of gestation:

a. Miscarriages requiring surgical intervention
b. Threatened miscarriage
c. Termination of pregnancy (TOP)
d. Chorionic villus sampling
e. Molar pregnancy
f. Intrauterine death, in-utero therapeutic intervention/ surgery (e.g. intrauterine transfusion, shunting)
g. Antepartum haemorrhage (APH)
h. Fall/ abdominal trauma

Reference(s):

1. Qureshi, H., et al. "BCSH guideline for the use of anti-D immunoglobulin for the prevention of haemolytic disease of the fetus and newborn." Transfusion Medicine 24.1 (2014). 8-20
2. The Management of Women with Red Cell Antibodies during Pregnancy, Green-top Guideline No.65, May 2014
3. The Use of Anti-D Immunoglobulin for Rhesus D Prophylaxis, Green-top Guideline No. 22, March 2011

4.4 Thalassaemia Carrier in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• If couple is thalassaemia carrier, refer to FMS/ O&G (Pre-pregnancy clinic) for counselling, including information regarding prenatal diagnosis. • Advice for contraception. • Advice for early booking before 12 weeks gestation.
2	Booking	• All antenatal women should be offered screening if they fall into these categories: ➢ Past history of unexplained anaemia. ➢ Family history of anaemia (unknown cause) or haemoglobinopathy. ➢ Belonging to an 'at risk' ethnic background for haemoglobinopathies. • Request for diagnosis confirmation (Hb analysis) if: ➢ Women who have no risk factors for haemoglobinopathies but blood results show MCV ≤ 80fL and MCH ≤ 27pg and a normal ferritin level (e.g. > 30ug/L). • Pregnancy confirmed ➢ For known case of thalassaemia carrier, verify diagnosis with previous document or formal report to avoid thalassaemia intermedia being treated as thalassaemia carrier. ➢ Arrange for dating scan. ➢ Screen partner for thalassaemia status (if not done yet). ➢ Refer to O&G / MFM Clinic immediately for couple requesting prenatal diagnosis or agreeable for prenatal diagnosis**

		▪ To be seen at 11 weeks gestation ▪ CVS preferably before 13 weeks 6 days gestation and amniocentesis at 15 weeks gestation ▪ If opting for termination of pregnancy, invasive test needs to be done before 20 weeks gestation. • Detailed scan appointment at 24 weeks POG if couple are α-thalassaemia carrier.
3	Subsequent antenatal follow-up	• Monitor Hb level. • Check serum ferritin before giving iron supplement ➢ Serum ferritin <30 ug/dL signify iron depletion ➢ Management of iron deficiency anaemia as in “Anaemia in Pregnancy” topic • Folic acid 5mg should be given throughout pregnancy. • Referral to medical/ O&G when Hb <7g/dL or symptomatic of anaemia*** • Enquire regarding history of transfusion reaction if ever receive blood transfusion or multiple blood transfusion.
4	Delivery	• Generally, may allow post-date, unless specified otherwise. • Hospital delivery • PPH prophylaxis
5	Postpartum	• Babies (at risk of being thalassaemia major or carrier) to be seen at 6 months in health clinic and decide on cascade screening. • Discuss contraception with woman/ couple. • Breastfeeding is safe and should be encouraged.
6	Upon discharge from hospital	• Routine discharge procedure. • Pre-Pregnancy Clinic appointment at 3/12 postnatal (if future

		pregnancy possible) if parents are thalassaemia carriers. • Register in Pre-Pregnancy Care at health clinic.

REMARKS:

1. Prenatal diagnosis for thalassaemia status is performed by DNA molecular analysis by CVS or amniocentesis.
2. Low ferritin & high TIBC suggests coexisting IDA
3. ** Special charges apply for prenatal diagnosis tests as the test is done in private lab.
4. Requirement before MFM clinic appointment for prenatal diagnosis tests in specialist hospital: a. Formal report of Hb analysis or Hb DNA analysis of the couple b. Advise to bring spouse during counselling for prenatal diagnosis c. Dated pregnancy and early referral to arrange appropriate timing for prenatal diagnosis
5. *** Routine blood transfusion for Hb < 7g/dL in thalassemia carrier is discouraged as risk of alloimmunization. Discussion with haematologist is required before transfusion.

Reference(s):

1. Management of Beta-thalassaemia in pregnancy, Green Top Guidelines No. 66, March 2014.
2. Ryan K, Bain BJ, Worthington D, James J, Plews D, Mason A, et al.; British Committee for Standards in Haemotology. Significant haemoglobinopathies: guidelines for screening and diagnosis. Br J Haematol 2010; 149:35–49.
3. Nice Institute for Health and Clinical Excellence. Screening for haematological problems. Antenatal Care: routine care of the healthy pregnant woman. London Royal College of Obstetrician and Gynaecologists; March 2008.
4. Clinical Practice Guidelines, Pregnancy Care, 2018 edition, Australian Government, Department of Health, Page 181-184.
5. Management of Transfusion Dependent Thalassaemia, Ministry of Health Malaysia, 2009.

SECTION 5 HYPERTENSIVE DISORDERS IN PREGNANCY

5.1 CHRONIC HYPERTENSION IN PREGNANCY

	Phase	Plan of Action
1	Pre-pregnancy	• Can be done in health clinic, however if required further evaluation refer to O&G clinic. • Safe medication in pregnancy include methyldopa, labetalol or nifedipine.
2	Booking/ Diagnosis	• Change ACEI, ARB, Thiazides to antihypertensive medication which are safe in pregnancy. • Dating Scan – to date and confirm viability / number of fetus. • Start Aspirin and Calcium (refer to Section 5.3) • Use only the following anti-HPT in pregnancy: ➢ Less than 20 weeks: T. Methyldopa preferred ➢ 20 weeks and above: Either T. Methyldopa or Labetalol. Nifedipine can be used if still not controlled. • Target BP control while started on antihypertensive agent: ➢ SBP 120 – 135 mmHg, DBP 80 – 85 mmHg • Do the following: ➢ BP, weight, urine protein ➢ Baseline PE profile (FBC, RP, SUA, LFT) ➢ Educate and advise mother to return immediately if symptoms of pre-eclampsia ➢ Refer to Combined Clinic for shared care if difficult to control HPT or secondary cause for HPT identified ▪ Refer O&G if exposure to ACEI, ARB or thiazides in first trimester for detailed scan at 22 - 24 weeks of gestation.
3	Subsequent antenatal follow-up	• Ask for symptoms of pre-eclampsia at every visit. • Maternal surveillance with BP, weight, urine protein (frequency depends on severity). • Refer O&G team if: ➢ Severe hypertension, SBP≥ 160 mmHg and/ or DBP ≥ 110 mmHg – for hospital admission.

		➢ Moderate HPT on 1st diagnosis, BP: 150-159 mmHg / 100-109 mmHg. • Reason for admission is to assess maternal & fetal complications: ➢ District health clinic case to be admitted at nearest district hospital ➢ Health clinics in Kota Kinabalu to refer O&G and if need admission, to be admitted at HWKKS, Tuaran or Papar Hospital. • Pre-eclampsia profile: ➢ Monitor FBC, RFT, SUA, LFT at every trimester. ➢ 24-hour urinary protein, urine albumin: creatinine ratio or urine protein: creatinine ratio if proteinuria. ➢ Refer O&G if abnormal value. • Fetal surveillance with SFH, FKC, fetal growth and amniotic fluid monitoring by serial ultrasound, starting at 24 weeks, at 4-weekly interval. • Educate and advise mother to return immediately if symptoms of pre-eclampsia. • Refer at 34-36 weeks gestation for plan of delivery. • If pre-eclampsia or fetal compromise is detected at any time: ➢ Refer to hospital
4	Delivery	• Outlined by O&G Specialist at 36 weeks. • Hospital delivery.
5	Postpartum	• Continue antenatal anti-HPT after delivery if necessary. • Aim for BP <140/90 mmHg. • Continue to monitor BP after delivery (frequency individualised). • Discuss options of contraception with patient/ couple. • Importance of contraception and planned pregnancy reinforced.

		• Breastfeeding is encouraged (refer to Remarks for suitable anti-HPT).
6	Upon discharge from hospital	• Notification of high - risk cases discharge as per guideline. • Respective health clinic will continue with follow-up care (unless specified otherwise on high risk discharge summary). • Pre-pregnancy clinic appointment at 3/12 postnatal (if future pregnancy possible).

REMARKS:

1. Essential hypertension itself is a predisposition for superimposed pre-eclampsia, the risk being 15 – 20%. This risk maybe higher in secondary hypertension especially renal hypertension.

2. Blood pressure in pregnancy will follow the normal pregnancy pattern unless pre-eclampsia intervenes mid-trimester. Blood pressure dips in pregnancy reaching a nadir at 20 – 24 weeks and then gradually rising to equal pre-pregnancy level 36 weeks onwards, to peak day 3 – 4 day postpartum.

3. Pre-pregnancy
   a. Be aware of anti-HPTs contraindicated in pregnancy e.g. ACEI, ARB, thiazides, certain β- blockers or direct renin inhibitors
   b. Ascertain the cause if not sought:
      - Serum creatinine
      - Nephritis screen (proteinuria/ haematuria): VDRL, HIV, Hep B & C, C3&4 and renal ultrasound
      - Low potassium
      - Adrenal imaging if suggestive
      - ECG indicated if long standing chronic hypertension or uncontrolled hypertension
      - ECHO if CVS findings suggestive or abnormal ECG
   c. Important secondary causes of chronic HPT in pregnancy:
      - CKD e.g. Glomerulonephritis, reflux nephropathy
      - Adult PCOS

- Renal artery stenosis
- Systemic disease with renal involvement e.g. DM, SLE
- Endocrine disorder e.g. Pheochromocytoma, Cushing's Syndrome
- Coarctation of aorta

It is not possible to investigate these disorders fully during pregnancy, may need to be deferred after delivery.

4. At booking or during antenatal follow up
   a. Minimise number of drugs
   b. Drug doses may need to be tapered mid-trimester, even ceased.
   c. Symptoms of pre-eclampsia:
      - severe headache
      - visual disturbance (blurring, flashing)
      - vomiting
      - severe epigastric pain
      - sudden swelling of face, hands or feet
   d. Fetal anomaly screening depending on availability of service: Women with chronic hypertension is at 20-30% increased risk for fetal congenital cardiac anomaly.

5. Refer Appendix "Medical Eligibility Criteria for Contraceptive Use

6. Drugs:
   a. Methyldopa is the safest and most tested drug in pregnancy.
   b. Prolonged beta blocker is associated with SGA.
   c. Diuretics are not recommended in pregnancy and breastfeeding as they reduce uteroplacental flow causing FGR and also increase maternal blood viscosity, further predisposing to VTEs.
   d. ACE inhibitors are contraindicated in pregnancy.
   e. Angiotensin receptor blockers (ARBs are contraindicated in breastfeeding and during breastfeeding.
   f. Anti-HPT acceptable in breastfeeding: Nifedipine, Labetalol, Captopril, Enalapril, Atenolol or Metoprolol (avoid diuretic or angiotensin receptor blockers).

7. Investigations for causes secondary hypertension that have little value in pregnancy include:
    a. Urinary/ serum cortisol estimates
    b. Urinary VMA

Reference(s):

1. Training Manual for Hypertensive Disorders in Pregnancy, 3rd edition 2018.
2. NICE guideline (NG133) “Hypertension in Pregnancy: Diagnosis & Management”, published 25 June 2019.
3. WHO Recommendations for Prevention and Treatment of Pre-eclampsia and Eclampsia, 2011.
4. Malaysian Clinical Practice Guideline on Management of Hypertension, 5th edition 2018.
5. 2017 ACC/ AHA/ AAPA/ ABC/ ACPM/ AGS/ APhA/ ASH/ ASPC/ NMA/ PCNA - Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology / American Heart Association Task Force on Clinical Practice Guidelines.
6. International Society for the Study of Hypertension in Pregnancy (ISSHP), 2018.
7. ACOG Practice Bulletin No. 203: Chronic Hypertension in Pregnancy. Obstet Gynecol. 2019;133(1): e26.

5.2 Gestational Hypertension & Pre-eclampsia

	Phase	Plan of Action
1	Pre-pregnancy	• Refer to O&G clinic if previous history of pre-eclampsia requiring delivery less than 34 weeks ➢ Consider screening for APS or secondary causes of hypertension if clinically suggestive. • Advise on effective contraception until the results available ➢ The COC may not be appropriate for women with hypertension especially with possibility of background APS unascertained.
2	Booking	• Identify patient at risk of pre-eclampsia • Offer women with high risk of pre-eclampsia for pre-eclampsia screening (Refer to Section 5.3) • Aspirin and Calcium supplementation if 1 major criterion and 2 minor criteria from the pre-eclampsia screening ➢ T. Aspirin 150mg or T. Cardiprin 100mg ON ➢ T. Calcium Carbonate 1g BD
3	At diagnosis for Gestational Hypertension	• Ensure correct BP measurement in pregnancy. • Baseline FBC, RFT, SUA, LFT, UFEME • Mild gestational hypertension - manage at health clinic • Moderate and severe gestational hypertension - refer for admission • Educate and advise mother to return immediately if symptoms of pre-eclampsia.
4	At diagnosis of pre-eclampsia	• Hypertension with new onset of proteinuria or significant growth discrepancy from serial growth scan. • Refer O&G for specialist clinic assessment or hospital admission.
5	At diagnosis of Severe Pre-eclampsia/ Eclampsia	• Stabilization ➢ Hospital admission after informing O&G Specialist on-call ➢ Give loading dose IM $MgSO_4$ before transfer (after

		discussing with O&G specialist on-call/ FMS, to document time and mode of administration in referral letter). ➢ Ensure CBD in situ after given loading dose $MgSO_4$ before transfer. ➢ Give IM Dexamethasone if instructed by O&G specialist on-call / FMS (to defer if BP still hypertensive crisis despite acute management) • Request for Obstetrics Emergency Retrieval Team (OERT) if not able to transfer patient promptly or resuscitate adequately.
6	Treatment	• When to start anti-HPT? ➢ To differentiate whether the women in crisis or not ▪ <u>HPT crisis (SBP ≥ 160 and/or DBP ≥ 110):</u> ○ Repeat BP in 15 minutes after resting, if persistent HPT crisis, consider treating. ○ Treatment choice: Nifedipine 10-20mg or Labetalol 200mg stat. Reassess after 30min, if BP still uncontrolled, to inform O&G again. ▪ <u>Not in crisis:</u> ○ Start treatment when SBP ≥ 140mmHg and / or DBP ≥ 90mmHg • Choice of anti-HPT: ➢ Less than 20 weeks: T. Methyldopa preferred. ➢ 20 weeks and above: Either T. Methyldopa, Labetalol, Nifedipine can be used^. • Treatment target: ➢ SBP 110 - 140mmHg, DBP 80 - 85mmHg • Discuss with FMS/O&G if SBP < 110 or DBP < 80 regarding the need to reduce medication. • Criteria of admission: ➢ Severe hypertension, SBP≥ 160mmHg and/or DBP ≥ 110mmHg.

		➢ Moderate HPT on 1st diagnosis, BP: 150-159mmHg / 100-109mmHg. ➢ Mild HPT in those with treatment and persistent BP >140/90mmHg with proteinuria. Reason for admission is to assess maternal & fetal complications. District health clinic case to be admitted at nearest district hospital after discussed with FMS/ O&G specialist. • Health clinics in Kota Kinabalu – If need admission after referred to O&G specialist, to be admitted at SWACH, Tuaran or Papar Hospital.
7	Subsequent antenatal follow-up	• Ask for symptoms of pre-eclampsia at every visit. • Maternal surveillance with BP, weight, urine protein (frequency depends on severity) • Pre-eclampsia profile ➢ Monitor FBC, RFT, SUA, LFT every trimester (To do clotting studies if PLT <100x10^3/mL) ➢ 24-hour urinary protein if proteinuria ➢ Spot urine protein such as urine protein: creatinine ratio (UPCR) or urine albumin: creatinine ratio (UACR) or if suspected PE. However, UPCR is preferred than UACR. ➢ Refer O&G if abnormal value* • BP monitoring: ➢ Mild: weekly ➢ Moderate: at least 2x/ week ➢ Severe or symptomatic: hospital admission • Fetal surveillance with SFH, FKC, fetal growth and amniotic fluid monitoring by serial ultrasound, starting at 28 weeks, at 4-weekly interval. • Educate and advise mother to return immediately if symptoms of pre-eclampsia. • Frequency of visits depends on severity.

		• Refer at 34-36 weeks gestation for plan of delivery. • If pre-eclampsia/ Eclampsia / fetal compromise is detected at any time, refer to hospital for further management.
8	Delivery plan	• Outlined by O&G Specialist at about 36 weeks. • Hospital delivery.
9	Postpartum	• Continue to monitor BP after delivery until 3 months postpartum (frequency of monitoring is individualized). • For those on treatment, dose of anti-HPT should be continued and tailed down gradually. • Consider reducing anti-HPT if BP < 120/80 mmHg, it should not be stopped abruptly. • If patient was on methyldopa, stop after delivery and change to an alternative treatment if necessary (e.g.: nifedipine, amlodipine, labetalol or atenolol). • For those without treatment, consider anti-HPT after delivery if BP ≥ 140/90mmHg. • Consider chronic HPT if BP ≥ 140/90 mmHg after 3 months postpartum. • Discuss options of contraception with patient/couple. • Breastfeeding is encouraged (refer to Remarks).
10	Upon discharge from hospital	• Notification of high-risk cases discharge as per guideline. • Respective health clinic will continue with follow-up care (unless specified otherwise on high risk discharge summary). • Home visit: EOD monitoring of BP, urine protein, signs & symptoms of pre-eclampsia. • At 2 weeks: review at health clinic or earlier if any problem by medical officer. • Pre-pregnancy clinic appointment at 3/12 postnatal if: ➢ Eclampsia ➢ Early onset severe pre-eclampsia (< 34 weeks)

REMARKS:

At diagnosis

1. BP measurement in pregnancy
   a. Ambulatory – sitting
      Blood pressure measured with the woman rested and seated at 45degree angle with the arm at the level of the heart. (If the mid-arm circumference is > 33 cm, use a large cuff).
   b. Hospitalization - woman rest on a coach or bed on her right side with 15-30° tilt and the right arm well supported at same level as the heart.
2. Measurement of blood pressure:
   a. Aneroid sphygmomanometer
   b. Automated: shown to be reliable in pregnancy.
   c. Mercury sphygmomanometer
   d. Correct cuff

   *BP fall in normal pregnancy & will rise again in 3rd trimester.

3. Definition
   a. Hypertension is defined as BP ≥ 140 and/or 90 mmHg after a period of rest on 2 occasions, 4-6 hours apart
   b. ↑ SBP ≥ 30 mmHg and/or ↑DBP ≥ 15 mmHg above pre-pregnancy or first trimester BP is no longer recognized as HPT in pregnancy but close observation is warranted.
4. HPT in pregnancy can be due to:
   a. Chronic HPT: HPT before pregnancy or diagnosed < 20 weeks gestation
   b. Gestational hypertension: HPT during pregnancy in a previously normotensive woman, usually occurs > 20 weeks gestation
5. Gestational hypertension:
   a. BP ≥140/90 mmHg
   b. No proteinuria
6. Grading for gestational hypertension:
   a. Mild: 140-149/90-99
   b. Mod: 150-159/100-109
   c. Severe: SBP≥ 160 and/or DBP ≥ 110
7. Pre-eclampsia:
   a. New onset of HPT ≥ 20 weeks gestation:

- SBP ≥ 140 mmHg
- DBP ≥ 90 mmHg

AND coexistence of 1 or more of the following new-onset conditions:

b. Proteinuria (24-hour urine protein ≥ 300mg/day or urine protein creatinine ratio 30mg/mmol or urine albumin creatinine ratio ≥ 8mg/mmol)

c. Urine dipstick testing:
   - 1+ = 0.3g/L
   - 2+ = 1g/L
   - 3+ = 3g/L
   - 4+ > 20g/L

   *if urine protein >1+ form dipstick, should proceed for 24-hour urine protein quantification or spot urine protein: creatinine ratio, depending on availability of service. Urine protein: creatinine ratio is preferred than urine albumin: creatinine ratio.

d. Other Maternal Organ Dysfunction:
   - Creatinine ≥ 90 micromol/litre
   - ALT/AST > 40 IU/litre (+/- Epigastric pain)
   - Neurological complications (e.g.: eclampsia, altered mental status, blindness, stroke, clonus, severe headaches or persistent visual scotomata)
   - Hematological complications (e.g.: PLT < 150, DIVC, hemolysis)
   - Uteroplacental dysfunction (e.g.: fetal growth restriction, abnormal umbilical artery doppler waveform analysis, or stillbirth)

8. Severe Pre-eclampsia:
   BP ≥ 160/110 with proteinuria ≥ 2+ or end-organ involvement
9. Eclampsia:
   HPT + seizure

Subsequent antenatal follow-up

1. Symptoms of pre-eclampsia:
   a. severe headache
   b. visual disturbance (blurring, flashing)
   c. vomiting
   d. severe epigastric pain
   e. sudden swelling of face, hands or feet.
2. PE profile:

a. Creatinine level: ≥ 90 (abnormal for pregnancy)
b. Uric acid level (according to gestational weeks)

Gestation (weeks)	24	32	36	38
Uric Acid (mmol/L)	280	320	340	380

c. To do clotting studies if PLT < 100
d. AST/ALT > 40 (abnormal)
e. 24-hour urinary protein ≥ 300mg / 24 hours (abnormal)
f. Spot urine protein: creatinine ratio ≥ 30mg/mmol (0.3mg/mg) (abnormal)

3. PE profile should be documented.
4. There is role of VTE prophylaxis in significant proteinuria (e.g. nephrotic range) from quantification of urine protein – to refer MFM or O&G specialist before commencement.

Postpartum

1. Anti-HPT acceptable in breastfeeding: Nifedipine, Labetalol, Captopril, Enalapril, Atenolol or Metoprolol (avoid diuretic or angiotensin receptor blockers)
2. Refer Appendix “Medical Eligibility Criteria for Contraceptive Use”.

Upon discharge from hospital

1. Refer Appendix “Notification of High-Risk Cases Discharge”.

Reference(s):

1. Training Manual for Hypertensive Disorders in Pregnancy, 3rd edition 2018.
2. NICE guideline (NG133) “Hypertension in Pregnancy: Diagnosis & Management”, published 25 June 2019.
3. WHO Recommendations for Prevention and Treatment of Pre-eclampsia and Eclampsia, 2011.
4. The SOMANZ Guideline for the Management of Hypertensive Disorders of Pregnancy, 2014.
5. International Society for the Study of Hypertension in Pregnancy (ISSHP), 2018.
6. Malaysian Clinical Practice Guideline on Management of Hypertension, 5th edition 2018.

5.3 Screening for Pre-eclampsia And Antihypertensive Medication

5.3.1 Pre-eclampsia Prophylaxis

<table>
<tr><th colspan="2">Pre-Eclampsia Prophylaxis
(Aspirin and Calcium supplementation)</th></tr>
<tr><td colspan="2">Risk Factors for developing Pre-Eclampsia[1]:

(Patient is categorized as HIGH RISK if she has ONE MAJOR or MORE THAN ONE MODERATE risk factors)</td></tr>
<tr><td>Major risk factor:

1. Hypertensive disease during a previous pregnancy
2. Chronic kidney disease
3. Auto-immune disease (SLE/APS)
4. T1DM, T2DM
5. Chronic HPT</td><td>Moderate risk factor:

1. Primiparity
2. Age ≥ 40 years old
3. Pregnancy interval > 10 years
4. BMI ≥ 35 kg/m^2 at booking
5. Family history of Pre-Eclampsia
6. Multi-fetal pregnancy</td></tr>
<tr><td colspan="2">• If patient is high risk for developing PE:

➢ Start Calcium Carbonate 1g BD at booking (start latest by 20 weeks) [2,3]
➢ Start Cardiprin 100mg ON if available or Aspirin 150mg ON between 12 weeks – 20 weeks and continue until delivery [2,4,5]
➢ If patient is > 20 weeks, to consult O&G specialist if patient requires aspirin initiation.</td></tr>
</table>

	Phase	Plan of Action
1	Pre-pregnancy	• Risk stratification to be performed at booking to identify patients at risk of developing pre-eclampsia (PE) • If patient is at high risk for developing PE: ➢ Start Aspirin and Calcium as prophylaxis (as stated above)
2	Subsequent antenatal follow-up	• **High risk patients** – shared care between O&G / FMS ➢ Follow up plan will be outlined by O&G after initial assessment (Generally, O&G follow up for patients with major risk factors, and FMS follow up for patients with moderate risk factors) ➢ Require increased surveillance (e.g. earlier and more frequent assessment of fetal growth and maternal

		clinical condition) ➢ O&G follow up if patient develops PE
3	Delivery	• Women taking Aspirin should be advised that once she is in labour, she should not take the next dose of Aspirin[6] • Where delivery is planned, Aspirin should be discontinued 24 hours before planned delivery • Delivery plan (mode, timing) as per obstetric indication

Reference(s):

1. NICE guideline (NG133) “Hypertension in Pregnancy: Diagnosis & Management”, published 25 June 2019.
2. Malaysian Clinical Practice Guideline on Management of Hypertension (5th edition), 2018.
3. WHO Recommendation Calcium Supplementation during Pregnancy for the Prevention of Pre-Eclampsia and its complications, 2018.
4. International Society for the study of Hypertension in Pregnancy (ISSHP), 2018.
5. WHO Recommendations for Prevention and Treatment of Pre-Eclampsia and Eclampsia. Geneva, World Health Organization; 2011.
6. Low-dose Aspirin and Calcium Supplementation for the Prevention of Pre-Eclampsia. The Obstetrician & Gynaecologist (TOG) 2014.

5.3.2 Anti-Hypertensive Drugs for Treatment in Pregnancy

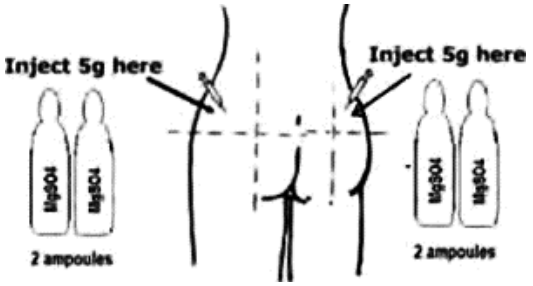
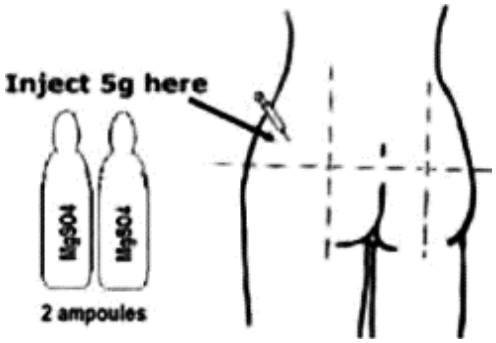
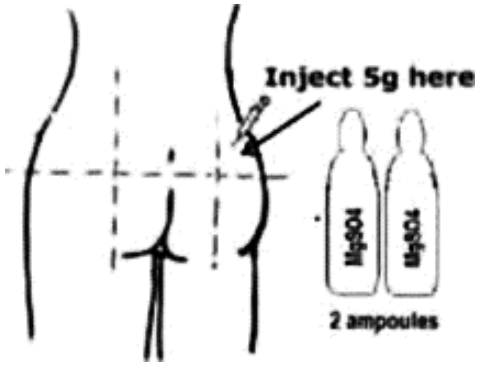
Drugs	Action	Contraindication	Adverse effect
PO Methyldopa 250mg - 1g TDS	Central	Pheochromocytoma Hepatitis Liver cirrhosis History of depression Depression Current use of monoamide oxidase inhibitors	Hepatic necrosis Haemolytic anaemia Increase risk of postnatal depression
PO Labetalol Initial: 100mg BD Maintenance: 200 - 400mg TDS	Beta adrenergic blocker with mild alpha vasodilation effect	Obstructive airway disease Bronchial asthma Heart block Severe bradycardia	Hepatic injury Bronchospasm Bradycardia Tingling of scalp (resolve within 24 hours)
PO Nifedipine 10 – 20mg TDS	Peak blood level occurs in approximately 30 mins	Cardiogenic shock Unstable angina Myocardial infarction event in past 1 month	Peripheral oedema Mood changes Increase risk of heart failure in patient with aortic stenosis

5.3.3 Acute Blood Pressure Lowering Agents in Primary Care

Drugs	Contraindication	Adverse Effect
Inj. Labetalol 5mg/ml (TRANDATE 5mI ampoule) Route: IV Dose: 10mg over 1 min, repeat at 5 min interval (total maximum dose: 200mg) Action: Maximum effect occurs within 5 minutes, duration of action about 6 hours, may last up to 18 hours	Obstructive airway disease Bronchial asthma Heart block Severe bradycardia	Hepatic injury Bronchospasm Bradycardia Urination difficulty Tingling of scalp (resolve within 24 hour)
Inj. Hydralazine Hydrochloride Route: IV Dose: 1. 1mI of Inj. Hydralazine 20mg/ml reconstitute with 1 ml of Water for Injection 2. 5-10mg slow IV within 1 minute, repeat 5-10mg slow IV in intervals of 20-30 minutes as indicated Hydralazine should be given in slow IV injection, to avoid critical reduction in cerebral or uteroplacental perfusion)	Severe tachycardia Idiopathic systemic lupus erythematous Heart failure with high cardiac output Dissecting aortic aneurysm Myocardial insufficiency due to mechanical obstruction	Angina Tachycardia Palpitation Systemic lupus erythematous like symptoms
T. Nifedipine 10mg Route: PO Dose: 10mg stat, repeat with 10 mg in 30 minutes interval if indicated (total maximum dose: 60mg per day) Action: Peak blood level occurs in approximately 30 mins	Cardiogenic shock Unstable angina Myocardial infarction event in past 1 month	Peripheral oedema Mood changes Increase risk of heart failure in patient with aortic stenosis

5.3.4 Administration of Magnesium Sulphate Injection (Malay Version)

Panduan Pemberian Suntikan $MgSO_4$

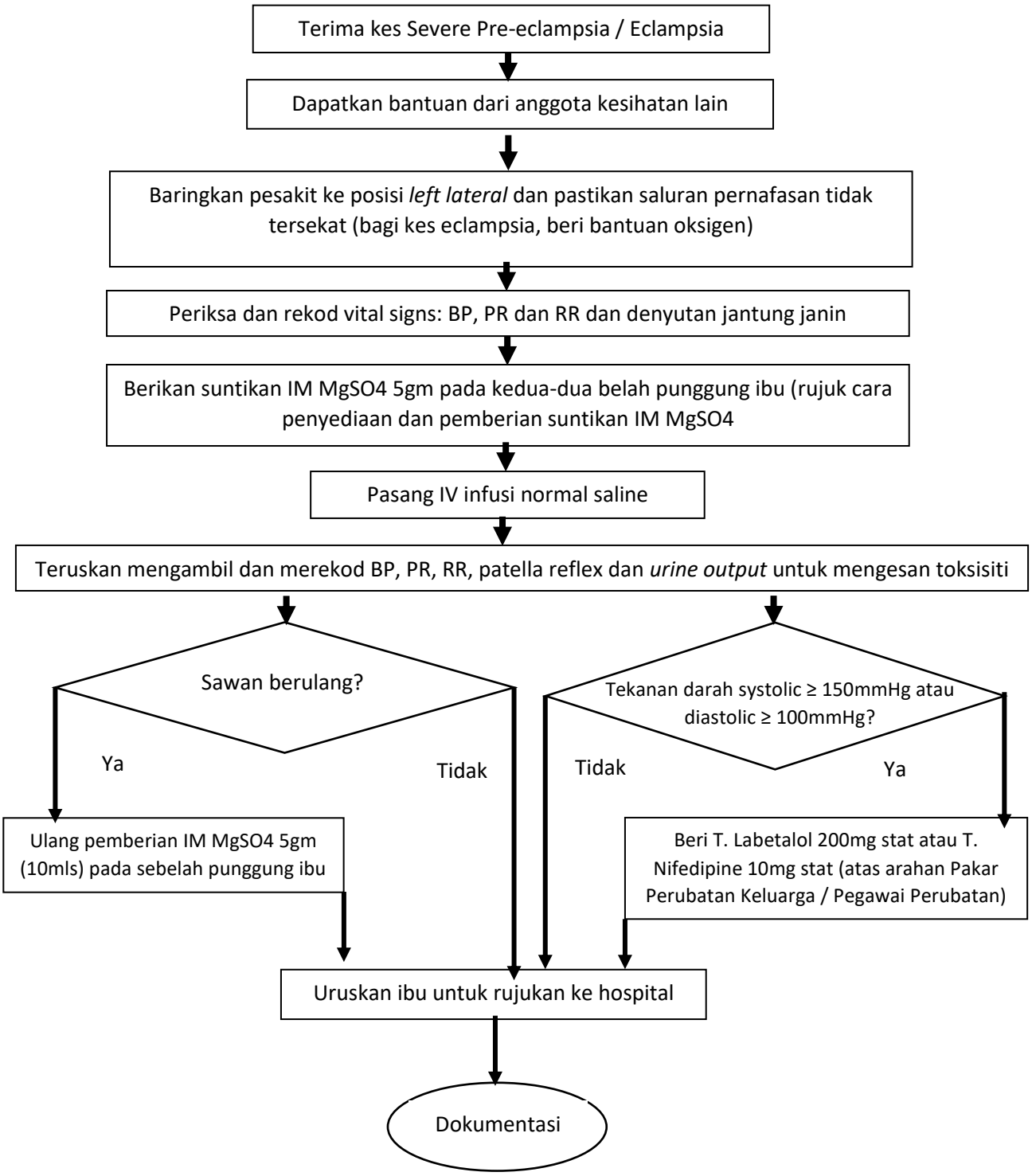
CARA PEMBERIANMgSO4	INTRAMUSKULAR
LOADING DOSE 5gm MgS04+ 1ml 2% Lignocaine untuk sebelah *buttock* - sediakan untuk 2 belah *buttock* (dengan Lignocaine)	
MAINTENANCE 5gm MgSO4, setiap 4 jam (*alternate buttocks)* (tanpa Lignocaine)	
RECURRENT SEIZURE (bagi ibu yang mengalami sawan selepas 1jam pemberian loading atau *maintenance dos*) 5gm MgSO4 (tanpa Lignocaine)	

*** Sekiranya ibu mengalami 'cardiorespiratory collapse' selepas pemberian MgSO4:**

- **Beri suntikan IV Calcium Gluconate 10%, 10mls.**
- **Suntikan ini mesti diberi dengan perlahan dalam masa 10 minit sebagai antidote.**
- **Suntikan ini diberi oleh Pegawai Perubatan.**

5.3.5 Management Flowchart of Severe Pre-eclampsia/ Eclampsia at Primary Care (Malay Version)

CARTA ALIR PEMBERIAN IM MgSO4 BAGI PENGENDALIAN KES SEVERE PRE-ECLAMPSIA / ECLAMPSIA DI PERINGKAT PENJAGAAN KESIHATAN PRIMER



5.3.6 Eclampsia Kit (Malay Version)

Senarai Peralatan Di Dalam 'Eclampsia Kit'

Bil.	Peralatan	Jumlah
1.	Injection Magnesium Sulphate 2.47gm in 5 mls	4 - 8 ampul
2.	Injection Calcium gluconate 10%, 10gm, 10mIs	1 ampul
3.	Injection Liqnocaine 2%	1 vial / ampul
4.	Tab. Nifedipine 10 mg	4 biji
5.	Tab. Labetolol 100 mg	4 biji
6.	IVD Normal saline	2 botol
7.	IVD set	2 set
8.	Venofix branula: Saiz 16G Saiz 18G	 2 unit 2 unit
9.	Needle: Saiz 21G	 5 unit
10.	Syrinqe: 5 ml 10 ml	 4 unit 4 unit
11.	Swab Alcohol	10 pcs
12.	Swab kering	5 pcs
13.	Plaster	1 roll

PERALATAN LAIN

Bil.	Peralatan	Jumlah
1.	Foley's Catheter: Saiz 16F Saiz 18F	 1 unit 1 unit
2.	Urine Bag	1 unit
3.	Guedel Airway Saiz 3 *Small adult*, 80mm Hijau Saiz 4 *Medium adult*, 90mm Kuning Saiz 5 *Large adult*, 100mm Merah	 1 unit 1 unit 1 unit

SECTION 6 INFECTIOUS DISEASES IN PREGNANCY

6.1 Retroviral Disease in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Refer HIV positive woman to pre-pregnancy clinic for counselling. • Advise to get pregnant only when the viral load is suppressed. • Harm reduction counselling.
2	Booking (known case)	• Ensure mother's compliance to ART. • Check baseline investigation FBC, LFT, RP, RBS, UFEME, screen for co-infections (Hep B, Hep C, RPR). • Check CD4 and viral load if no recent result past 1 year. • Refer ID physician if suspect virological failure. • Shared care management between FMS and O&G team or Combined Clinic. • Screen spouse/partner. • Harm reduction counselling.
		• For newly diagnosed RVD, refer to FMS immediately for ART commencement ➢ Notify new case ➢ Screen spouse/partner ➢ Harm reduction counselling ➢ Look for opportunistic infections • If mother is diagnosed after 28 weeks, to discuss with ID physician for choice of ART regimen • Ensure compliance to ART
3	Subsequent antenatal follow-up	• Monitor FBC, RP and LFT during each specialist clinic. • To do baseline viral load 2-4 weeks after ART commencement if diagnosed during pregnancy and repeat 32 weeks • MOGTT at 24-28 weeks if ART regime contains protease inhibitor • Trace viral load taken at 32 weeks around 36 weeks gestation in ID Combined Clinic or FMS clinic to decide mode of delivery. • Time of delivery as per obstetric indication.
4	Delivery	• Delivery in the hospital with specialist. • Refer to O&G for mode of delivery depends on viral load result • Refer infant to paediatric team

5	Postpartum	• Discuss options of contraception with patient/ couple (refer to MEC) • Suggest BTL if patient/couple agreeable • Advise patient on importance of early booking in next pregnancy • To supply contraception and dual protection with condom • Arrange FMS / ID Clinic appointment to continue ART • ART in pregnant women should be continued life-long after delivery
6	Lactation	• Breastfeeding is contraindicated • Suppression of lactation (Cabergoline 1mg stat dose) • Refer Lactation Unit staff for counselling and preparation of infant formula milk. • Arrange for supply of formula milk up to 2 years

REMARKS:

1. Risk of vertical transmission is 25 - 35% without any intervention.
2. ART can reduce vertical transmission to 2% whole management bundle.
3. Preferred choice of ART is Tenofovir + Emtricitabine + Efavirenz
4. If late diagnosis of HIV (> 28 weeks) or viral load not suppressed, should consult ID Physician as patient must be commenced on ART without delay and regimen may include Raltegravir or Dolutegravir to achieve more rapid viral load suppression
5. Strict adherence to ART must be stressed throughout the pregnancy.
6. PCP prophylaxis can be initiated regardless of stage of pregnancy and continue throughout the pregnancy
7. Refer to breastfeeding guideline in Mother with HIV
8. Contraception choice - refer to MEC in view of interaction with ART

Reference(s):

1. Management of HIV Infection in pregnant women, February 2008
2. Malaysian Consensus Guidelines on Antiretroviral Therapy 2017
3. Circular on breastfeeding 2017 (by KKM)
4. British HIV Association guidelines for the management of HIV in pregnancy and postpartum 2018

6.2 HIV in Serodiscordant Couple (HIV - positive Male, HIV -negative Female)

	Phase	Plan of Action
1	Pre-pregnancy	• Pre-conception counselling. • Pregnancy must be well planned. • Couples should go for STD screening prior planning for conception *(refer Remarks).* • HIV-positive partner is strongly recommended to be on ART and is virologically suppressed before attempting conception • Stress on compliance to ART and condom use (if not virologically suppressed). • Recommend PrEP for HIV-negative female if: ➢ Husband not on treatment/non-compliance/VL not known ➢ Husband's VL not suppressed • If husband VL suppressed, ➢ PrEP is not required but mother must be well counseled and closely monitored • Plan for timed unprotected intercourse during fertile period [sexual intercourse limited to the 2-3 days before and the day of ovulation (peak fertility)] ➢ If conception does not occur within 6 months, workup for infertility.
2	Booking	• To be reviewed by FMS. • Early booking if UPT positive. • Emphasize on safe sex or abstinence. ➢ Condom use should be encouraged in pregnancy because of increased risk of HIV acquisition during pregnancy.
3	Subsequent antenatal follow-up	• Mother must be closely monitored – to repeat HIV screening each trimester. • Antenatal follow up under FMS. • Advise permanent sterilization if completed family.

4	Delivery	• Vaginal delivery unless otherwise indicated.
5	Postpartum	• Referral to pre-pregnancy care clinic. • To be advised on dual protection contraception. • PrEP to be continued for the duration of breastfeeding if husband not on treatment/non-compliance/VL not known/VL not suppressed.
6	Lactation	• No contraindication in breastfeeding.

REMARKS:

1. 'Virologically suppressed' - undetectable viral load in 2 consecutive viral load readings at least 3 months apart.
2. STD screening is important because genital tract inflammation is associated with increase genital tract shedding of HIV.

Reference(s):

1. Malaysian Consensus Guidelines on Antiretroviral Therapy, 2017.
2. Preconception Counselling and Care for Women of Childbearing Age Living with HIV, CDC 2019

6.3 Syphilis in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Woman with multiple partners or high - risk behaviour need to do STD screening. • Woman with history of previous infection, need to treat if there is increase in titre. ➢ Refer O&G clinic if previous child complicated by congenital syphilis.
2	Booking	• Routine screening of RPR/TPPA for all mothers at booking. • For known cases trace previous RPR titre. • Screen partner and to treat empirically if mother given treatment. • Screen for other STIs (i.e. Hep B, Hep C) if there is risk. • Notification for new cases. • Advice for harm reduction. Indications for treatment: • Newly diagnosed syphilis at any stage. • Unclear history of syphilis treated prior to this pregnancy. • Titre during current pregnancy is ≥ 1:8. • Serological cure (a four-fold drop in RPR titre, e.g. from 16 to 4) did not occur • Increased titre from titre before pregnancy.
3	Subsequent antenatal follow-up	• Referral to FMS for assessment and counselling • Look up for signs of fetal infection i.e. polyhydramnios, hydrops, IUGR, hepatosplenomegaly • At a minimum, serologic titres should be repeated at 28-32 weeks gestation and at delivery • To repeat serological titres one month after completion of treatment • To repeat treatment if there is an increase of titre/ new infection

		• To consult GUM/Dermatology specialist if resistance suspected (no fourfold RPR reduction) • Refer O&G at 34-36 weeks gestation for further assessment
4	Delivery	• Time of delivery as per obstetric indication • Advise hospital delivery • Refer baby to Paediatrics team
5	Postpartum	• Contraception (refer to MEC) • Advise patient on importance of early booking in next pregnancy • Refer mother and partner to continue follow up titre as outpatient in health clinic • Refer to pre-pregnancy clinic
6	Lactation	• No contraindication for breastfeeding

REMARKS:

1. Threshold to start treatment based on titre (with or without previous history of treatment for syphilis):
2. Treatment with IM Benzathine Penicillin 2.4 MU weekly x3 doses
3. Doxycycline and Tetracycline are contraindicated in pregnancy
4. Erythromycin should not be used as first line unless patient is allergic to penicillin
5. Need to do test dose for penicillin allergy
6. Look for Jarisch-Herxheimer reaction within 24 hours after penicillin especially in 2nd half of pregnancy
7. Refer Appendix: Medical Eligibility Criteria for Contraceptive Use

Reference(s):

1. Malaysian Guidelines in the treatment of Sexually Transmitted Infection Fourth Edition 2015
2. UK National Guidelines on the Management of Syphilis 2015, December 31, 2015
3. WHO Guideline on syphilis screening and treatment for pregnant women, 2020

6.4 Tuberculosis in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• All women of child bearing age suspected of TB should be asked about current or planned pregnancy. • Women with TB on treatment should be advised for contraception until completed treatment
2	Booking	• To screen all pregnant mothers according to checklist • Patient suspected for tuberculosis based on history and physical examination, do investigations such as: ➢ Sputum AFB direct smear X 3 (Induced sputum if unable to produce sputum) ➢ CXR with abdominal shield ➢ Biopsy if indicated (extrapulmonary tuberculosis) • If diagnosed tuberculosis: ➢ Refer Pusat Rawatan 1 (PR 1) and FMS once diagnosed for follow up ➢ Notify and contact tracing ➢ Baseline investigations (FBC, RBS, BUSE, creatinine, LFT, sputum MTB C&S, HIV rapid test) ➢ Refer O&G specialist if presence of any maternal or fetal complication. ➢ VTE risk scoring (refer to topic VTE) for active TB • For relapsed PTB: ➢ Need GenXpert test (discuss with respective team according to local policy) • Treatment regime: ➢ For pulmonary tuberculosis - 2 EHRZ / 4HR (Pyridoxine 30 mg OD to be given with Isoniazid to prevent fetal neurotoxicity) ➢ For extrapulmonary tuberculosis – refer to ID team (may need to refer to respective sub to get the tissue diagnosis) ➢ For Pulmonary DR-TB – refer to respiratory physician

		➢ For extra Pulmonary DR-TB – refer to ID team
3	Subsequent antenatal follow-up	• Check on DOTS • Consider inpatient if poor compliance • Continue anti-TB treatment • Monitor patient as per guidelines • Closely monitor FBC, RP and LFT • Ultrasound monthly after 28 weeks to look for FGR
4	Delivery	• Hospital delivery
5	Postpartum	• Refer baby to Paediatric team to initiate isoniazid prophylaxis if indicated • Defer giving BCG if mother is diagnosed < 2 months before delivery, mother is sputum positive just before delivery or the newborn baby is symptomatic • Defer BCG in newborns at risk of perinatal TB until INH prophylaxis is completed • Inform health clinic upon discharge to ensure continuity of TB treatment
6	Lactation	• Breastfeeding is not contraindicated

REMARKS:

1. TB in pregnancy has been associated with increased risk of maternal and perinatal morbidity namely premature delivery, SGA and LBW.
2. Clinical diagnosis of tuberculosis in pregnant women can be difficult due to non-specific symptoms related to the physiological response to pregnancy.
3. Mantoux test is considered safe and valid for use in pregnancy.
4. Pregnant women are more likely to postpone having chest x ray. Chest X-ray must not be delayed in diagnosis of PTB even before 12 weeks because the risk of ionizing radiation is so low for one with an abdominal shield.
5. First-line anti-TB drugs are safe in pregnancy and breastfeeding.
6. Streptomycin cause fetal ototoxicity and should not be used during pregnancy.
7. Breastfeeding should be continued – used 3 ply surgical mask if the mother is still infectious.

8. Infant-mother separation is considered if the mother has MDR-TB or is non- compliant to treatment.
9. Children below 5 years may need Isoniazid prophylaxis.

10. Screening questions for tuberculosis in pregnancy:

Criteria	**Yes**	**No**	**Remark**
Chronic cough?			
If Yes, duration of chronic cough Less than 2 weeks More than 2 weeks			
Haemotypsis			
Prolonged fever			
Loss of appetite			
Loss of weight			
Night sweat			
Co morbid (DM, ESRF, RVD, COPD)			
TB contact			
Stay in TB hot spot area			

Reference(s):

1. Malaysia CPG Management of Tuberculosis 2012
2. South Australia Guideline 2014
3. Obstetrics, Gynaecology and Reproductive Medicine Journal
4. CPG Management of Drug Resistant Tuberculosis, Malaysia 2017
5. Centres for Disease Control and Prevention
6. KKM, Garis panduan Kawalan Tb di kalangan kanak-kanak, Malaysia 2017
7. JKNS, Garis panduan pengujudan triaging untuk saringan TB di klinik, 2014.

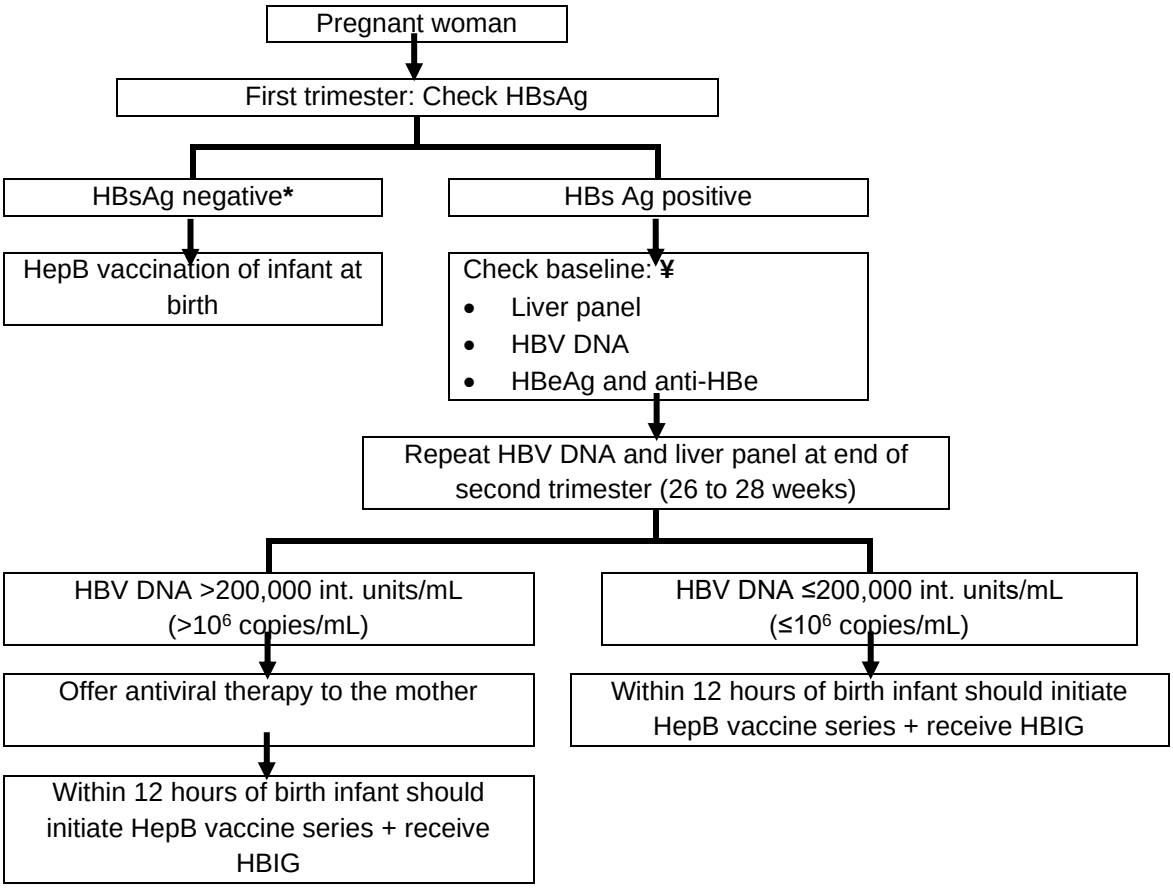
6.5 Viral Hepatitis in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Screen for Hep C co-infections if not done previously. • Screen husband and family. • Counsel on risk-taking behaviours.
2	Booking	• To do HBe antigen, HBe antibody, LFT, RP. • To do viral load (HBV DNA load) with local arrangement for specimen transfer after discuss with Medical/ Gastroenterologist from tertiary hospital. • Review 2 weeks - 1 month to review result.
3	Subsequent antenatal follow-up	• Trace result LFT, HBe Antigen and HBe antibody. • Refer to FMS for Hepatitis B in pregnancy. • Referral to Gastroenterology clinic urgently to initiate treatment if HBe antigen reactive or deranged liver enzymes (as chart below). • For Combined clinic care with O&G specialist/ MFM if HBe antigen reactive or deranged LFT. • To do LFT monitoring (every trimester) at health clinic and monitor closely for hepatic flares/deranged liver enzyme.
4	Delivery	• Timing & mode of delivery as per obstetric indication. • Hospital delivery. • Standard precaution. • Refer infant to Paediatric team: ➢ Hep B vaccine given as per national policy ➢ Hep B immunoglobulin given at birth within 12 hours post-delivery
5	Postpartum	• Offer contraception (refer MEC) • Refer mother with HBe antigen reactive to follow up in Gastroenterology clinic • Advice patient on importance of early booking in next pregnancy • Pre-pregnancy care at FMS clinic appointment within 3/12 with LFT
6	Lactation	• Allow breastfeeding

REMARKS:

1. HBV DNA viral load is only done in QEH. Fresh specimen needs to arrive to the lab within 24 hours collected. There is designated form to fill up for the test and need to refer to Gastroenterologist before sending to prevent rejection of sample.

Algorithm for hepatitis B virus during pregnancy



Anti-HBc: hepatitis B core antibody; anti-HBe: hepatitis B e antibody; anti-HBs: hepatitis B surface antibody; HBeAg: hepatitis B e antigen; HBIC: hepatitis B immune globulin; HBsAg: hepatitis B surface antigen; HBV: hepatitis B virus.

***** Check anti-HBs and anti-HBc if mother is at high risk for HBV infection (e.g. injection drug user, sexual partner or household contact has chronic HBV). Mothers with no evidence of prior HBV infection (ie, negative for HBsAg, anti-HBs, and anti-HBc) should be vaccinated. In addition, such women should have HBsAg repeated late in pregnancy (approximately 28 weeks).

¥ Women who have a high HBV DNA (>200,000 int. units/mL), elevated aminotransferase levels, and/or a positive HBeAg should be referred to a hepatologist to see if early initiation of antiviral medications is needed.

Source: UpToDate 2020 - hepatitis B and pregnancy

Reference(s):

1. UpToDate 2020 - hepatitis B and pregnancy, last update May 28, 2019.
2. Asian-Pacific clinical practice guidelines on the management of hepatitis B: a 2015 update.
3. Management of Hepatitis B in Pregnancy: The Royal Australian and New Zealand College of Obstetricians and Gynaecologists July 2016.
4. South Australian Perinatal Practice Guidelines: Hepatitis B in pregnancy.
5. Chronic Hepatitis B in Pregnancy A Workshop Consensus Statement on Screening, Evaluation, and Management.
6. Sabah Obstetric Shared Care Guideline 2012.

SECTION 7 MALIGNANCIES IN PREGNANCY

7.1 Breast Cancer in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Contraception ➢ Current breast cancer: Copper IUCD, as hormonal contraception is contraindicated. Pregnancy should be deferred till 2 years after completion of treatment. ➢ Family history of breast cancer: Any contraception methods ➢ Decision to conceive based on MDT discussion
2	Booking	• History: ➢ If known case, stage of cancer and therapy ▪ Tamoxifen is contraindicated in pregnancy ➢ If past history: symptoms of recurrence breast cancer • Physical examination: Breast inspection and palpation for painless lump, axillary lymph nodes • Investigation: Breast ultrasound, bilateral mammography, core biopsy • Detailed scan for fetal anomaly • Refer to O&G/ MFM team if newly diagnosed breast cancer for multidisciplinary discussion with breast endocrine surgeon, oncologist, neonatologist and MFM team
3	Subsequent antenatal follow-up	• Shared care with FMS, obstetrician/MFM, oncologist, breast endocrine surgeon • Consider surgical treatment during pregnancy as planned by breast endocrine surgeon • For patient who are undergoing chemotherapy: ➢ Monitor for fetal wellbeing, development and IUGR ➢ Monitor for preterm contraction ➢ Baseline echocardiography for woman who receive chemotherapy • Radiotherapy is contraindicated (most cases)

		• VTE risk scoring
4	Delivery	• Mode of delivery as per obstetric indication • Timing of delivery – as near term as possible, at least 3 weeks after last cycle of chemotherapy • Examine placenta for metastatic disease
5	Postpartum	• Medical thromboprophylaxis • Oncological treatment may begin immediately after vaginal delivery, or a week after uncomplicated caesarean section. • Ensure effective long-term reversible contraception until completion of treatment. • Ensure compliance to follow up until completion of treatment.
6	Lactation	• Breastfeeding is contraindicated if receive chemotherapy

Reference(s):

1. Breast cancer in pregnancy, Lancet 2012. doi: 10.1016/S0140-6736(11)61092-1.
2. WHO Medical Eligibility Criteria 2018

7.2 Cervical Cancer in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Woman who is known pre-malignant lesion before pregnancy should practise effective contraception until completion of management. • Woman at reproductive age who is newly diagnosed high grade pre-malignant lesion or cervical malignancy should be referred immediately for further counselling by gynaeoncologist including feasibility of fertility sparing treatment. • Women who have not completed treatment for cervical malignant should have effective contraception, intrauterine device is contraindicated.
2	Booking	• History: ➢ If newly diagnosed or known case incomplete treatment– refer to O&G specialist immediately ➢ If past history: assess for symptoms of recurrence • Physical examination: Abdominal, pelvic examination and speculum examination. • Investigation to be decided by gynaeoncologist: Colposcopy with biopsy if presence of cervical lesion, MRI scan for staging if newly diagnosed cervical cancer. • Multidisciplinary discussion between gynaeoncologist, oncologist, maternal fetal medicine specialist and neonatologist are mandatory for newly diagnosed cervical cancer in pregnancy.
3	Subsequent antenatal follow-up	• Shared care between FMS, MFM/ O&G specialist and Gynae-oncologist. • Ensure compliance under specialist clinic review • VTE risk score – for thromboprophylaxis if active disease (to discuss with O&G specialist/ MFM) • If chemotherapy is required during pregnancy:

		➢ To commence after first trimester ➢ Monitor fetal growth ➢ Fetal anomaly scan ➢ Risk of premature delivery
4	Delivery	• Outlined by Gynaeoncologist and MFM team. • High possibility of iatrogenic premature delivery.
5	Postpartum	• Medical thromboprophylaxis. • Clinic review under O&G specialist. • Ensure compliance to gynaeoncologist follow up.
6	Lactation	• Breastfeeding is contraindicated if on chemotherapy

Reference(s):

1. FIGO Cancer Report 2018: Cancer in Pregnancy, DOI: 10.1002/ijgo.12621
2. WHO Medical Eligibility Criteria 2018

7.3 Ovarian Cancer in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Contraception – any contraception allowed
2	Booking	• History: Abdominal, pelvic pain or back pain, constipation, abdominal distension, and urinary symptoms. • Physical examination: acute abdomen, adnexal mass • Investigation: Abdominal or transvaginal ultrasound, consider non contrast MRI if feature of ovarian mass suggestive of malignancy (to discuss with O&G team). • CA-125, beta HCG and alpha fetoprotein are not useful in pregnancy, making the diagnosis during pregnancy is challenging. • If known case of ovarian malignancy pre pregnancy, to refer O&G team immediately for multidisciplinary discussion with gynaeoncologist, MFM/O&G specialist and neonatologist.
3	Subsequent antenatal follow-up	• Shared care with FMS, gynaeoncologist, MFM/ O&G specialist • VTE risk scoring • To commence chemotherapy after first trimester if indicated • Surgery can be performed after 16 weeks. • Fetal anomaly scan • Fetal growth assessment
4	Delivery	• Time and mode of delivery is outlined by O&G team • Delivery when fetal maturity acceptable.
5	Postpartum	• Contraception • Ensure compliance to gynaeoncology clinic
6	Lactation	• Breastfeeding is contraindicated if receive chemotherapy

Reference(s):

1. FIGO Cancer Report 2018, DOI:10.1002/ijgo.12621

7.4 Thyroid Cancer in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Contraception ➢ Any methods can be used, long term reversible contraception is preferred untill completion of treatment for thyroid cancer. ➢ Efffective contraception to delay pregnancy at least 6 months after radio-iodine therapy • Aim for normal TSH level • Ensure compliance to thyroid hormone replacement
2	Booking	• History: symptoms of hyperthyroidism or hypothyroidism • Physical examination: inspection and palpation of thyroid, retrosternal percussion, lymph nodes • Investigation: ➢ Neck ultrasound ▪ FNAC if size of the solitary nodule siza >1 cm, solid and hypoechoic, or TIRADS ≥4
3	Subsequent antenatal follow-up	• Shared care with FMS, Obstetrician and Endocrine Surgeon • Thyroid ultrasound each trimester • Monitor Thyroid Function Test every trimester • Thyroid hormone supressive therapy aiming TSH 0.3 to 2 mU/L. • Thyroidectomy in second trimester for patients with larger, more aggressive or rapidly growing cancers, or in the presence of extensive nodal or distant metastasis. • Ensure compliance to follow up
4	Delivery	• Time and mode of delivery as per obstetric indication.
5	Postpartum	• Refer back to primary team for surgical intervention if not done during pregnancy and continuation of follow up until completion of the treatment.

		• Effective contraception until completion of therapy, at least 12 months after completion of radioactive iodine (RAI) therapy.
6	Lactation	• Breastfeeding is contraindicated if receive RAI. • Breastfeeding must be stopped 6 weeks prior to the RAI.

REMARKS:

1. Thyroid image reporting and data system

TIRADS 1	Normal thyroid gland
TIRADS 2	Benign lesions
TIRADS 3	Probably benign lesions
TIRADS 4	Suspicious lesions (4a, 4b and 4c with increasing risk of malignancy)
TIRADS 5	Probably malignant lesions (>80% risk of malignancy)
TIRADS 6	Biopsy proven malignancy

Reference(s):

1. American thyroid association guidelines.

7.4 Haematological Cancer in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Contraception ➢ Active disease: POP, Implanon, IUCD ➢ Avoid pregnancy unless in remission for 2-3 years
2	Booking	• History: fatigue, shortness of breath, fever, night sweats, or weight loss exceeding 10 percent of body weight • Physical examination: lymph nodes, hepatosplenomegaly • Refer to physician if suspected haematological cancer • Investigation: ➢ FBC (unexplained anemia, thrombosis, thrombocytopenia) ➢ Baseline renal and liver function ➢ Following investigation should discussed with haematologist: ▪ CXR with pelvic shield ▪ Lymph node biopsy ▪ Bone marrow biopsy ▪ Staging by imaging study
3	Subsequent antenatal follow-up	• Shared care with FMS, obstetrician/ MFM and Clinical Hematologist • Chemotherapy is contraindicated in the first trimester, classic cytotoxic drugs and anti-metabolites are teratogenic • If maternal's condition require immediate therapy, termination of pregnancy is recommended • Anti-emetics: metoclopromide, ondansentron • Monitor fetal growth as risk of FGR • VTE risk scoring for active disease
4	Delivery	• Decided by multidisciplinary team and patient
5	Postpartum	• As per primary team management • Ensure compliance to follow up • Medical thromboprophylaxis if indicated
6	Lactation	• Breastfeeding is contraindicated when treatment with chemotherapy or staging with PET scan

Reference(s):

1. Haematological cancers in pregnancy Lancet 2012; 379: 580–87 Guideline.

SECTION 8 MENTAL DISORDERS IN PREGNANCY

8.1 Antenatal and Postnatal Mental Health Screening

	Phase	Plan of Action
1	Booking	• Screen for depression/ anxiety/stress using DASS-21 questions at booking: ➢ If abnormal score for **depression**, to proceed with Edinburgh Postnatal Depression Scale (EPDS). ➢ If EPDS score ≥ 12, refer to MO/ FMS for further assessment. ➢ Use DSM V/ ICD-10 criteria to diagnose depression and categorize to mild, moderate or severe. ➢ Refer to FMS or psychiatrist for treatment and follow up. ➢ If severe depression i.e. suicidality or psychosis to refer to psychiatry team urgently. ➢ If abnormal score for **anxiety**, to proceed with GAD-7 scale. ➢ Refer psychiatrist for all anxiety cases. ➢ If abnormal score for **stress**, refer MO for further assessment. ➢ Refer FMS/ counsellor for further management if needed. • Ask all pregnant mothers any history of severe mental illness e.g. severe and incapacitating depression, psychosis, schizophrenia, bipolar disorder, schizoaffective disorder, postpartum psychosis and severe perinatal mental illness in a first-degree relative ➢ If present refer to MO for further assessment
2	Subsequent antenatal follow-up	• Repeat screening at least once in 3rd trimester of pregnancy or at any time in pregnancy if clinically indicated. • Refer for psychiatrist assessment if new onset of mental disorder.

3	Delivery	• Delivery as per obstetric indication.
4	Postpartum	Screen for mental illness at 6-12 weeks postnatal: • Repeat at least once in the first postnatal year or at any time in the first postnatal year if clinically indicated. • Sudden onset of symptoms suggesting postpartum psychosis needs **urgent referral** for immediate assessment within 4 hours of referral.

REMARKS:

List of hospitals with in-house psychiatrist and psychiatry ward for admission

a. **HMBP** *(Hospital Pitas/ Tuaran/Kudat/ Kota Belud)
b. **HQE1** *(Hospital Ranau/ Sipitang/ Beaufort/ Kuala Penyu/ Papar/ Kota Marudu/ HQE2/ HWKKS)
c. **Hospital Keningau** *(Hospital Tambunan/ Tenom)
d. **Hospital Tawau** *(Hospital Kunak/ Semporna/ Lahad Datu)
e. **Hospital Sandakan** *(Hospital Kinabatangan/ Beluran)

* list of hospitals covered by the psychiatrist in-charge in respective hospital

** any problem/ consultation can be made with the psychiatrist in-charge in each locality

*** Admission to HQE 1 is reserved for patient requiring ECT

Reference(s):

1. Antenatal and postnatal mental health: clinical management and service guideline. NICE guidelines [CG 192]. Published date: December 2014 Last updated: February 2020.
2. Malaysia CPG on Management of Major Depressive Disorder (2nd edition) 2019.
3. Sidik SM, Arroll B, Goodyear-Smith F. Validation of the GAD-7 (Malay version) among women attending primary care clinic in Malaysia. J Prim Heath Care. 2012 Mar 1;4(1):5-11, A1.
4. Ramli M, Roszaman R, Kartini A, Rosnani S. Concurrent Validity of The Depression and Anxiety Components in The Bahasa Malaysia Version Of The Depression Anxiety And Stress Scales (DASS). ASEAN Journal of Psychiatry, Vol. 12 (1) Jan–June 2011.

A. DASS-21 Score *(Soal Selidik DASS)*

SOAL SELIDIK DASS

Langkah 1: Sila baca dan jawab soal selidik DASS.
Langkah 2: Masukkan skala markah jawapan ke dalam ruangan kosong di bahagian 2, mengikut soalan (S) bagi setiap kategori (Stres, Anzieti dan kemurungan).
Langkah 3: Jumlahkan skala markah bagi setiap kategori bagi mengetahui tahap status kesihatan mental ada.
Langkah 4: Sila isikan keputusan dalam Bahagian 3 dan isikan dalam keratan di muka hadapan.

BAHAGIAN 1

Sila baca setiap kenyataan di bawah dan **bulatkan** jawapan anda pada kertas jawapan berdasrkan jawapan **0, 1, 2 atau 3** bagi menggambarkan keadaan anda sepanjang minggu yang lalu. Tiada jawapan yang betul atau salah. Jangan mengambil masa yang terlalu lama untuk menjawab mana-mana kenyataan.

*Please read each statement and **circle** number **0,1,2 or 3** which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement*

0 = **Tidak langsung** menggambarkan keadaan saya
Did not apply to me at all

1 = **Sedikit atau jarang-jarang** menggambarkan keadaan saya
Applied to me to a considerable degree, or a good part of time

2 = **Banyak atau kerapkali** menggambarkan keadaan saya
Applied to me to some degree, or some of the time

3 = **Sangat banyak atau sangat kerap** menggambarkan keadaan saya
Applied to me very much, or most of the time

1.	Saya dapati diri saya sukar ditenteramkan *I found it hard to wind down*	0	1	2	3
2.	Saya sedar mulut saya terasa kering *I was aware of dryness of my mouth*	0	1	2	3
3.	Saya tidak dapat mengalami perasaan positif sama sekali *I couldn't seem to experience any positive feeling at all*	0	1	2	3
4.	Saya mengalami kesukaran bernafas (contohnya pernafasan yang laju, tercungap-cungap walaupun tidak melakukan senaman fizikal) *I experienced breathing difficulty (eg. Excessively rapid breathing, breathlessness in the absence of physical exertion)*	0	1	2	3
5.	Saya sukar untuk mendapatkansemangat bagi melakukan sesuatu perkara *I found it difficult to work up the initiative to do things*	0	1	2	3
6.	Saya cenderung untuk bertindak keterlaluan dalam sesuatu keadaan *I tended to over-react to situations*	0	1	2	3
7.	Saya rasa menggeletar (contohnya pada tangan) *I experienced trembling (eg. In the hands)*	0	1	2	3
8.	Saya rasa saya menggunakan banyak tenaga dalam keadaan cemas *I felt that I was using a lot of nervous energy*	0	1	2	3
9.	Saya bimbang keadaan di mana saya mungkin menjadi panik dan melakukan perkara yang membodohkan diri sendiri *I was worried about situations in which I might panic and make a fool of myself*	0	1	2	3
10.	Saya rasa saya tidak mempunyai apa-apa untuk diharapkan *I felt that I had nothing to look forward to*	0	1	2	3
11.	Saya dapati diri saya semakin gelisah *I found myself getting agitated*	0	1	2	3
12.	Saya rasa sukar untuk relaks *I found it difficult to relax*	0	1	2	3
13.	Saya rasa sedih dan murung *I felt down-hearted and blue*	0	1	2	3
14.	Saya tidak dapat menahan sabardengan perkara yang menghalang saya meneruskan apa yang saya lakukan *I was intolerant of anything that kept me from getting on with what I was doing*	0	1	2	3
15.	Saya rasa hampir-hampir menjadi panik/ cemas *I felt I was close to panic*	0	1	2	3
16.	Saya tidak bersemangat dengan apa jua yang saya lakukan *I was unable to become enthusiastic about anything*	0	1	2	3
17.	Saya rasa tidak begitu berharga sebagai seorang individu *I felt I wasn't worth much as a person*	0	1	2	3
18.	Saya rasa mudah tersentuh *I felt I was rather touchy*	0	1	2	3
19.	Saya sedar tindakbalas jantungsaya walaupun tidak melakukan aktiviti fizikal (contohnya kadar denyutan jantung bertambah, atau denyutan jantung berkurangan) *I was aware of the action of my heart in the absence of physical exertion (eg sense of heart rate increase, heart missing a beat)*	0	1	2	3
20.	Saya berasa takut tanpa sebab yang munasabah *I felt scared without any good reason*	0	1	2	3
21.	Saya rasa hidup ini tidak bermakna *I felt that life was meaningless*	0	1	2	3

BAHAGIAN 2

Panduan Mengira Skor:

Masukkan skala markah jawapan bagi soalan (S) bagi setiap kategori.

STRES								
Soalan	S1	S6	S8	S11	S12	S14	S18	Jumlah
Markah								

ANZIETI								
Soalan	S2	S4	S7	S9	S15	S19	S20	Jumlah
Markah								

KEMURUNGAN (DEPRESSION)								
Soalan	S3	S5	S10	S13	S16	S17	S21	Jumlah
Markah								

Selepas dijumlahkan, sila rujuk kepada petak skor saringan dan terjemahkan jumlah skor untuk mengetahui tahap status kesihatan mental anda

SKOR SARINGAN			
	Kemurungan	**Anzieti**	**Stres**
Normal	0-5	0-4	0-7
Ringan	6-7	5-6	8-9
Sederhana	8-10	7-8	10-13
Teruk	11-14	9-10	14-17
Sangat teruk	15+	11+	18+

BAHAGIAN 3

Isikan keputusan **(normal, ringan, sederhana, teruk atau sangat teruk)** dalam jadual di bawah.

KEPUTUSAN UJIAN DASS

Ujian	Tahap
Stress	
Anzieti	
Kemurungan	

SKOR DASS	

A. Edinburgh Postnatal depression scale (EPDS)

Sila tandakan jawapan yang paling hampir bagi menggambarkan apa yang telah anda rasa anda rasakan **DALAM MASA TUJUH HARI** yang lalu dan bukan sekadar hari ini sahaja.
*Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today*

No	Soalan/ Questions	Skor
1.	Saya dapat ketawa dan melihat kelucuan pada sesuatu perkara *I have been able to laugh and see the funny sides of things*	□ Sebanyak mana biasa/*As much as I always could* □ Kurang daripada biasa/*Not quite so much now* □ Sangat kurang daripada biasa/*Definitely not so much now* □ Tiada langsung/*Not at all*
2.	Saya menanti dengan penuh harapan bagi mendapat kenikmatan apabila melakukan sesuatu perkara *I have look forward with enjoyments to things*	□ Sebanyak mana biasa/*As much as I ever did* □ Kurang daripada biasa/*Rather less than what I used to do* □ Sangat kurang daripada biasa/*Definitely less than I used to do* □ Tiada langsung/*Hardly at all*
3.*	Saya menyalahkan diri sendiri secara tidak sepatutnya apabila sesuatu yang tidak kena terjadi *I have blamed myself unnecessarily when things went wrong*	□ Ya, sepanjang masa/Yes, most of the time □ Ya, kadangkala/Yes, some of the time □ Jarang sekali/Not very often □ Tiada pernah/No, never
4.	Saya berasa risau atau bimbang tanpa sebab *I have been anxious or worried for no good reason*	□ Tidak langsung/*No, no at all* □ Amat jarang sekali/*Hardly ever* □ Ya, kadangkala/*Yes, sometimes* □ Ya, sangat kerap/*Yes, very often*
5.*	Saya berasa takut atau panik tanpa sebab *I have felt scared or panicky for no good reason*	□ Ya, sangat kerap/*Yes, quite a lot* □ Ya, kadangkala/*Yes, sometimes* □ Jarang sekali/*No, not so much* □ Tidak pernah/*No, not at all*
6.*	Saya dibebani oleh terlalu banyak masalah *Things have been getting on top of me*	□ Ya, kebanyakan masa saya tidak berupaya menanganinya langsung/ *Yes, most of the time I haven't been able to cope at all* □ Ya, kadangkala saya tidak berupaya menanganinya seperti biasa/ *Yes, somestimes I haven't been coping as well as usual* □ Tidak, kebanyakan masa saya berupaya menanganinya dengan baik/*No, most of the time I have coped quite well* □ Tiada, saya berupaya menangani semua masalah dengan baik pada setiap masa/*No, I have been coping as well as ever*
7.*	Saya berasa sungguh sedih sehingga saya mengalami kesukaran untuk tidur *I have been so unhappy that I have had difficulty sleeping*	□ Kebanyakan masa/ *Yes, most of the time* □ Kadang-kadang/ *Yes, sometimes* □ Jarang-jarang sekali/ *Not very often* □ Tidak pernah/ *No, not at all*
8.*	Saya berasa sedih atau serabut *I have felt sad or miserable*	□ Ya, kebanyakan masa/ *Yes, most of the time* □ Ya, agak kerap/ *Yes, quite often* □ Jarang-jarang sekali/*Not very often* □ Tidak pernah/ *No, never*
9.*	Saya berasa sangat sedih sehingga saya menangis *I have been so unhappy that I have been crying*	□ Ya, kebanyakan masa/ *Yes, most of the time* □ Ya, agak kerap/ *Yes, quite often* □ Hanya sekali sekala/ *Only occasionally* □ Tidak pernah/ *No, never*
10.*	Pernah terlintas di fikiran saya keinginan untuk mencederakan diri sendiri *The thought of harming myself has occured to me*	□ Ya, kebanyakan masa/ *Yes, quite often* □ Ya, agak kerap/ *Sometimes* □ Amat jarang sekali/ *Hardly ever* □ Tidak pernah/ *Never*

PEMARKAHAN
SCORING

SOALAN 1, 2 & 4 (tanpa *) diberi skor 0, 1, 2 atau 3 di mana kotak paling atas adalah 0 dan kotak paling bawah adalah 3.
QUESTIONS 1, 2, & 4 (without an *) Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

SOALAN 3, 5-10 (dengan *) diberi skor terbalik di mana kotak paling atas adalah 3 dan kotak paling bawah adalah 0. QUESTIONS 3, 5-10 (marked with an *) Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Markah tertinggi: 30
Maximum score: 30

Cut-off EPDS versi Bahasa Melayu: ≥ 12
Cut-off for Malay version of EPDS: ≥ 12

Sila buat penilaian risiko bunuh diri jika soalan 10 > 0
Please assess suicidal risks if question 10 > 0

B. GAD-7 Scale Scoring

GENERALISED ANXIETY DISORDER (GAD) -7 (Malay version)

Dalam tempoh 2 minggu lepas, berapa kerapkali anda terganggu oleh masalah berikut? /
*Over the **last 2 weeks**, how often have you been bothered by any of the following problems?*

No.	Questions	Coding
Q1	Berasa resah, gelisah atau tegang. *Feeling nervous, anxious or on edge.*	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly every day* **3**
Q2	Tidak dapat menghentikan atau mengawal kebimbangan. *Not being able to stop or control worrying.*	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly every day* **3**
Q3	Terlalu bimbang mengenai pelbagai perkara yang berlainan. *Worrying too much about different things.*	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly everyday* **3**
Q4	Mempunyai masalh untuk tenang. Having trouble relaxing.	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly everyday* **3**
Q5	Terlalu resah sehingga susah untuk berdiam diri. *Being so restless it is hard to sit still.*	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly everyday* **3**
Q6	Mudah menjadi rimas dan menjengkelkan. *Being easily annoyed or irritable.*	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly everyday* **3**
Q7	Berasa takaut bahawa sesuatu yang buruk akan terjadi. *Feeling afraid as if something awful might happen.*	Tidak pernah sama sekali/ *Not at all* **0** Beberapa hari/ *Several days* **1** Lebih dari seminggu/ *More than half the days* **2** Hampir setiap hari/ *Nearly everyday* **3**

Scoring: GAD-7 positive ≥ 8 GAD-7 negative < 8

8.2 Management of Mental Health Disorders in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Refer FMS /psychiatrist for assessment. • Effective contraception if women are taking FDA category C and D medication.
2	Booking	• Refer psychiatrist for assessment. • Assess: ➢ Symptoms related to mental disorder, duration and severity of symptoms. ➢ Current or past treatment of mental disorder and response to treatment/ previous hospitalisations. ➢ Adherence to treatment. ➢ Assessment of family and social support (family, housing, employment, economic). ➢ Preparedness towards the pregnancy and acceptance of pregnancy (planned / unplanned pregnancy). ➢ Mental disorder during previous pregnancy. ➢ Risk of self-harm and suicide. ➢ Possibility of domestic violence and sexual abuse. • Screen for substance abuse, e.g. alcohol, smoking, drugs.
3	Subsequent antenatal follow-up	• Shared care between FMS / psychiatrist / O&G. • Detailed scan at 24 weeks depends on type of medication taken. • MOGTT for patient on antipsychotic medication. • Monitor regularly for symptoms of relapse throughout pregnancy.
4	Delivery	• Generally, may allow postdate unless specified otherwise. • Hospital delivery. • Routine discharge procedure.
5	Postpartum	• Look for symptoms of postpartum psychosis / depression – EPDS during home visit. • Assess risk of infanticide and mother-infant interaction.

		• Contraception counselling for patient (refer to MEC). • Review family support. • Follow up in psychiatry clinic. • Pre-pregnancy clinic appointment at 3/12.
6	Lactation	• Encourage breast feeding. • Advise to take psychotropic medication just after breastfeeding. • Monitor the baby for adverse effects such as drowsiness, hypotonia, rigidity, tremor and withdrawal symptoms

REMARKS:

1. Pre-pregnancy Discuss with all women of childbearing potential who have a new, existing or past mental disorder: The use of contraception and any plans for a pregnancy a. How pregnancy and childbirth might affect a mental health problem, including the risk of relapse. b. How a mental health problem and its treatment might affect the woman, the fetus and baby. c. How a mental health problem and its treatment might affect parenting.
2. Advice on treatment for women with mental disorder in pregnancy: a. benefits and potential risks of treatment to mother and fetus/ breastfed baby in both short- and long-term. b. possible consequences of no treatment or if treatment is changed or stopped abruptly. c. uncertainty of benefits and risks of treatments in perinatal period.
3. High risk group: a. Those with physical health problem causing disability. b. Past history of mental disorder. c. Family History of depression/mental disorder. d. Substance abuse.
4. Risk factors for perinatal depression: a. Socioeconomic disadvantage b. Unintended pregnancy

c. Younger age
d. Unmarried
e. Lack of intimate partner empathy and support
f. Hostile in-laws
g. Intimate partner violence
h. Insufficient emotional and practical support
i. History of mental health problems

5. Use of depot preparation e.g. fluphenazine decanoate during pregnancy should be avoided in order to limit the duration of any possible toxic effect to the fetus.

6. Do not offer valproate/ carbamazepine/lithium for acute or long-term treatment of a mental health problem in women of childbearing potential.

7. FDA category of drug used for mental health disorder in pregnancy:

Group	Drugs	Category	Side effects
Antipsychotic	Haloperidol Chlorpromazine Olanzepine Clozapine Risperidone Quetiapine Aripiprazole Amisulpride Asenapine	C C C B C C C C C	A very low association non-structural teratogenicity has been associated with haloperidol. No report on major teratogenic potential with other drugs.
Anxiolytics (Benzodiazepines)	Diazepam Alprazolam Clonazepam Lorazepam	D D C D	Some studies suggest oral cleft palate defects.
Antiepileptics and mood stabilizers	Valproic acid Lamotrigine Lithium Carbamazepine	D C D D	Lithium usage in 1st trimester has been associated with increased risk of cardiovascular malformation,

			specifically Ebstein anomaly. Valproic acid & Carbamazepine usage in 1st trimester 10-fold increase in neural tube defects. Oral clefts have also been reported.
SSRI	Escitalopram Sertraline Fluoxetine Fluvoxamine	C C C C	No serious side effects of SSRIS have been reported.
Tricyclic antidepressants	Amitriptyline Clomipramine	C C	No report of teratogenicity Some cardiac disorders and persistent pulmonary artery hypertension have been reported.
Other antidepressants	Agomelatine Mirtazapine Duloxetine Venlafaxine	B C C C	Agomelatine were reported to cause elevated liver enzymes. No confirmed risk of birth defects.

Reference(s):

1. Antenatal and postnatal mental health: clinical management and service guidance. NICE guidelines [CG192]. Published date: 17 December 2014. Last updated Feb 2020.
2. Malaysia CPG on Management of schizophrenia in adults, May 2009.
3. Malaysia CPG on Management of major depressive disorder.2nd edition, 2019.
4. Review Article: Psychiatric Disorders During Pregnancy and Postpartum, Sharma et al, Journal of Pregnancy and Child Health 2017, 4:2.

SECTION 9 NEUROLOGICAL DISORDER IN PREGNANCY

9.1 Epilepsy in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• All women with epilepsy in the reproductive age should be referred to the pre-pregnancy clinic. • Review medication by neuromedical team if plan to conceive. • Advise to take folic acid 5mg daily. • Aim for seizure control at least 1 year before conception. • Use the lowest effective dose of a single anticonvulsant whenever possible.
2	Booking	• Do not stop antiepileptic drug. • Refer to neuromedical team if women previously under neuromedical team follow up, to review medication. • Combined Clinic appointment. • Folic acid 5mg daily till delivery. • Maintain the pre-existing therapy if seizure is well controlled.
3	Subsequent antenatal follow-up	• Shared care between FMS and Combined Clinic. • Detailed scan at 24 weeks. • Perform serial growth scans monthly from 28 weeks of gestation. • Watch for sign of depression, anxiety and neuropsychiatric symptoms in mothers on AED. • Advise compliance to AED. • Advise to avoid triggering factor such as sleep deprivation and stress. • Routine monitoring of serum AED level is not recommended during pregnancy.
4	Delivery	• Generally, may allow postdate unless specified otherwise. • Hospital delivery.
5	Postpartum	• Reinforce the importance of contraception and planned pregnancy (refer MEC) • AED dose adjustment (if required) need further discussion

		with physician/ neurologist • Monitor neonates for side effects of AEDs e.g. drowsiness, jitteriness and hypotonia. • Screen mothers for depression. • Advise on safety issues and strategies to prevent accidental injury with involvement of family members. • Neurology/ medical clinic appointment. • FMS pre-pregnancy clinic appointment at 3/12 postnatal (if future pregnancy is possible).
6	Lactation	• Encourage breastfeeding.

REMARKS:

1. Seizure frequency in pregnancy: 60% no change, 30% increase, 10% decrease.
2. Risk of seizures greatest during delivery period (due to pain, emotional stress and hyperventilation).
3. Give woman a clear understanding of the risks of uncontrolled seizures and the possible teratogenicity of AED. Where possible, avoid Sodium valproate and AED poly-therapy. Phenytoin, Carbamazepine, Sodium Valproate, Lamotrigine and Levetiracetam cross the placenta.
4. In utero exposure to carbamazepine, lamotrigine, levetiracetam and phenytoin does not appear to adversely affect neurodevelopment of the child.
5. Effects of AED on pregnancy:
   a. Mother – increased risk of pre-eclampsia, premature delivery, hemorrhage, caesarean delivery, IUGR, stillbirth
   b. Fetus - Major congenital malformation (50% increased risk with sodium valproate, carbamazepine, phenytoin)

AEDs	**FDA category**	**Side effects**
Phenytoin	D	Cleft lip and palate, cardiac defects, craniofacial defects, digital hypoplasia
Sodium Valproate	X	Neural tube defects, cardiac defects, urogenital malformations
Carbamazepine	D	Neural tube defects

Ethosuximide	C	Cleft palate
Vigabatrin	C	Cleft palate
Lamotrigine	C	Oro-facial cleft
Topiramate	D	Cleft lip and palate, hyposoadias
Levetiracetam	C	No increased risk

6. Safety strategies:
   i. Nurse the baby on the floor
   ii. Use very shallow baby baths and do not bathe the baby unaccompanied
   iii. Lay the baby down if there is a warning aura
   iv. No co-sleeping with baby in parent's bed
   v. Avoid sleep deprivation and alcohol

Reference(s):

1. Green-top Guideline No.68, June 2016
2. SIGN- Scottish Intercollegiate Guidelines Network, May 2015
3. Consensus guidelines on the management of epilepsy 2010 (Malaysia Guideline)
4. Women and epilepsy. Edmonton Epilepsy Association, 2011
5. Clinical Guideline Epilepsy and pregnancy management, SA Maternal and neonatal clinical network 19 December 2014

SECTION 10 OBSTETRIC PROBLEMS

10.1 Abnormal Fetal Growth

10.1.1 Small for Gestational Age (SGA) or Fetal Growth Restriction (FGR)

	Phase	Plan of Action
1	Pre-pregnancy	• Identify women with risk factors** • Optimize modifiable preconception risk factors: ➢ Aim for good control of hypertension, DM. ➢ Stop smoking/ substance abuse.
2	Booking	• Dating scan in first trimester via CRL. • Assess for risk factors for SGA** • Consider aspirin and calcium prophylaxis (refer to Section 5.3).
3	Subsequent antenatal follow-up	• Optimize pre-existing medical co- morbid (HPT, DM, anaemia). • Refer O&G if growth fetal growth parameters < 10 centiles or suspected FGR before 24 weeks. • Measure SFH at each antenatal clinic visit from 24 weeks onwards and plot on customized chart. • For 2-3 weekly fetal growth scan from 28 weeks onwards.
4	Delivery	• Hospital delivery. • Delivery as near term as possible. • Timing and mode of delivery to be outlined by O&G team.
5	Postpartum	• Refer newborn to Paediatric team if indicated. • Contraception. • Advise early booking for next pregnancy.
6	Lactation	Encourage breastfeeding

REMARKS:

1. Definition:
   a. SGA is defined as fetal abdominal circumference (AC) or estimated fetal weight (EFW) <10th centile.
   b. FGR is defined as pathological restriction of the genetic growth potential.

2. **Risk factors for SGA or FGR during booking assessment in first trimester:

Minor risk factors	Major risk factors
a. Maternal age ≥35 years b. IVF singleton pregnancy c. Nulliparity d. BMI<20 e. BMI 25-34.9 f. Smoker 1-10 cigarettes/day g. Low fruit intake pre-pregnancy h. Previous pre-eclampsia i. Pregnancy interval <6 months j. Pregnancy interval ≥ 60 months	a. Maternal age >40 b. Smoker >11 cigarettes/day c. Paternal SGA d. Cocaine e. Daily vigorous exercise f. Previous SGA baby g. Previous stillbirth h. Maternal SGA i. Chronic hypertension j. Diabetes with vascular disease k. Renal impairment l. Antiphospholipid syndrome m. Heavy bleeding similar to menses n. PAPP-A <0.4 MoM

Reference(s):

1. Sabah Obstetrics Shared Care Guideline (3rd edition) (2018)
2. RCOG, Green-top Guidelines No. 31 (2014)

10.1.2 Large for Gestational Age or Macrosomia

	Phase	Plan of Action
1	Pre-pregnancy	• Identify women with risk factors: ➢ Pre-existing DM ➢ Dyslipidaemia ➢ Previous history of macrosomic baby ➢ Obesity ➢ Constitutional factors (familial predisposition) • Optimize modifiable preconception medical conditions: ➢ Aim for good control of DM, dyslipidaemia ➢ Advise for weight loss • Discuss regarding possible pregnancy outcome with LGA / Macrosomia: ➢ Preterm delivery ➢ Prolonged labor / obstructed labor ➢ Shoulder dystocia in vaginal delivery ➢ Caesarean section
2	Booking	• Assess at booking for risk factors for LGA. • MOGTT if previous history of macrosomic baby.
3	Subsequent antenatal follow-up	• Monthly fetal growth scan from 24 weeks. • If growth parameters >90th centile or suspected macrosomia (EFW>4kg). ➢ For MOGTT (Omit if already perform at 26-28 weeks). ➢ Refer O&G by 34-36 weeks for assessment and plan of delivery. • If pre-existing DM/GDM, to optimize blood sugar control to reduce risk of macrosomia. • Advise for exercise suitable for pregnancy (aerobic and strength conditioning exercises).
4	Delivery	• Hospital delivery. • Timing and mode of delivery to be outlined by O&G team.
5	Postpartum	• Refer newborn to Paediatric team if birth weight >4kg

		• MOGTT at 6 weeks postpartum • Contraception
6	Lactation	• Encourage breastfeeding

REMARKS:

1. Decision on mode of delivery for suspected macrosomia / at risk for shoulder dystocia in index pregnancy would be made after assessment at 34-36 weeks, including:
    a. Previous shoulder dystocia
    b. Previous pregnancy outcome
    c. Presence / absence of DM/GDM in index pregnancy
    d. Clinical estimation of estimated birth weight
    e. Ultrasound parameters (AC, EFW)

Reference(s):

1. Sabah Obstetrics Shared Care Guideline (3rd edition) (2018)
2. RCOG, Green-top Guidelines No. 42 (2012)
3. ACOG, Practice Bulletin No. 216 – Macrosomia (2020)

10.2 Bad Obstetric History

10.2.1 History of Stillbirth/ Abnormal Fetus/ Neonatal Death

	Phase	Plan of Action
1	Pre-pregnancy	• Refer FMS or O&G for assessment & counselling. • Assess mental health. • Obtain a thorough history of abnormal fetus/ ENND, and/ or assess for predisposing factors** • Optimize pre-existing medical conditions and change to a pregnancy-safe medication regime. • Perform screening tests: ➢ OGTT, TSH, HBs Ag, VDRL, HIV screening • Advice on immunization^ • Prescribe Folic acid 5mg daily at least 3 months before. conception until 12 weeks of gestation (for those at high risk of neural tube defects). • Advise for smoking cessation and weight loss if applicable. • Refer to O&G clinic if had history of syndromic baby or congenital abnormality for genetic counselling if service available. • Best to conceive when mentally and physically ready with contraception plan in place.
2	Booking	• First trimester dating scan. • To remind patient to bring record of previous pregnancy or record about syndromic child if still follow up under paediatric team. • Refer FMS for shared care – counselling should include offering prenatal screening test, if indicated. • Refer O&G/ MFM if patient agree for prenatal screening test (refer to Section 18). • MOGTT/ Infectious screening[#] / Optimize pre-existing medical condition.

		• If patient appears to have symptoms of psychological stress or PTSD from previous abnormal fetus/ ENND, refer to Section 10.2.2 and manage accordingly.
3	Subsequent antenatal follow-up	• Refer O&G/ MFM for detail scan (once confirmed viability and gestation). • Monthly fetal growth scan from 24 weeks of gestation to look for abnormal fetal growth.
4	Delivery	• Hospital delivery. • Timing and mode of delivery as per obstetric indications.
5	Postpartum	• Refer newborn to Paediatric team if indicated. • Contraception.
6	Lactation	Encourage breastfeeding

REMARKS:

1. Definition
   a. Stillbirth – intrauterine death ≥ 22 weeks gestation or birth weight ≥ 500g if uncertain of gestation
   b. Early Neonatal Death (ENND) - death of a newborn between 0 – 6 days of life.
   c. Late Neonatal Death – death of a newborn between 7 – 27 days of life

   More than 80% of ENND are caused by premature birth, complications during labor and delivery, and infections.
2. **Predisposing factors to stillbirth, abnormal fetus or neonatal death
   a. Past history of abnormal fetus / ENND/ perinatal death
   b. Pre-existing medical conditions – DM, HPT, obesity, underweight, thyroid, chronic renal disease, DM, thrombophilia, SLE
   c. Sexually-transmitted infections – Chlamydia, Gonorrhoea, Syphillis, HIV
   d. Urogenital infections – Group B Strep, Urinary tract infections
   e. Advanced maternal age
   f. Fetal aneuploidy – Trisomy 21, 18 and 13
3. #Recommended Preconception Infectious Disease Screening:
   a. Syphillis
   b. HIV
   c. HBs Ag

d. TORCHES – to be taken in O&G clinic if indicated
4. ^Recommended Preconception Immunization: a. Hepatitis B b. Influenza c. MMR – avoid pregnancy for three months after vaccination d. DTaP – Diphtheria, Tetanus, Pertussis e. Varicella – avoid pregnancy for one month after vaccination

Reference(s):

1. Malaysian Health at A Glance 2018. Ministry of Health Malaysia, 2019.
2. Farahi N, Zolotor A. Recommendations for preconception counselling and care. *Am Fam Physician.* 2013;88(8):499-506

10.2.2 Traumatic Delivery

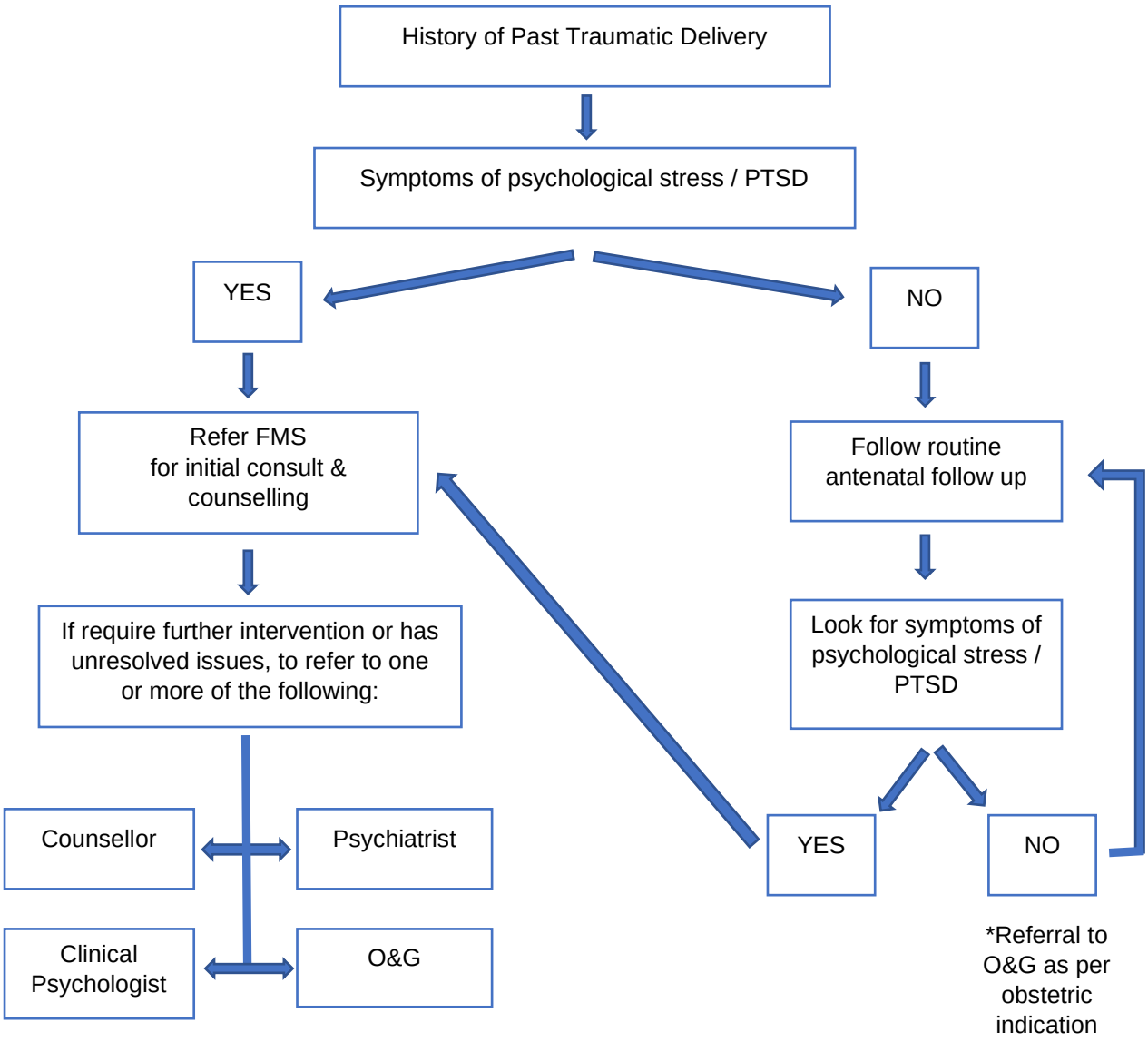
	Phase	Plan of Action
1	Pre-pregnancy	• Identify women with consequences of a past traumatic delivery such as anxiety, stress and avoidance of future pregnancy: • Assess for symptoms of psychological stress and post-traumatic stress disorder (PTSD) *(refer to REMARKS)* • Refer FMS for risk stratification and to decide on referral pathway. ➢ Refer Counsellor / Psychologist / Psychiatrist for counselling as needed. ➢ Refer O&G if past obstetric-related trauma needs to be rectified. • Best to conceive when mentally and physically ready with contraception plan in place.
2	Booking	• Obtain a thorough history of past traumatic delivery, and/or look for predisposing factors to trauma *(refer to REMARKS)* • Assess for symptoms of psychological stress and PTSD. • Refer FMS for risk stratification and to decide on referral pathway as needed *(refer to REMARKS)*
3	Subsequent antenatal follow-up	• Interval assessment for symptoms of psychological stress / PTSD as they may escalate during 3rd trimester • For those with symptoms related to past traumatic delivery, O&G to: ➢ Revisit previous labour and delivery to explore issues and feelings concerning disappointment or fear ➢ Discuss mode of delivery*, pain relief and maternal request for this delivery ➢ Encourage patient to join antenatal classes • For those with traumatic caesarean delivery – refer to O&G team for assessment for the suitability of trial of vaginal delivery.

4	Delivery	• Hospital with specialist
5	Lactation	• Encourage breastfeeding to promote mother-infant bonding (if not medically contraindicated)

REMARKS:

1. Past traumatic delivery may involve but not limited to the following:
   a. Fear of maternal or fetal death
   b. Long and difficult labour
   c. Unrelieved pain during labour and/or childbirth
   d. Medical interventions (Pitocin, forceps, vacuum extraction, caesarean delivery)
   e. Perceived loss of control during delivery experience
   f. Unexpected bad outcome of delivery: ill infant or intrauterine death
   g. Labour complications (e.g., severe perineal injuries, massive postpartum haemorrhage, severe surgical site infection, etc)
2. Other predisposing factors to trauma:
   a. Childhood sexual abuse
   b. Lack of social support
   c. Lack of information
   d. Poor coping strategies
   e. Perception of hostile or uncaring staff
3. Symptoms of psychological stress:
   a. Anxiety symptoms
   b. Withdrawn
   c. Agitated
   d. Appearing dazed
   e. Disorientated
   f. Depressed
   g. Amnesia
4. Symptoms of post-traumatic stress disorder (PTSD):
   a. Flashbacks
   b. Nightmares
   c. Emotionally numbed

d. Depression
e. Anxiety
f. Bonding difficulties
g. Fear of sexual intimacies
h. Avoidance of normal vaginal delivery or future pregnancy
i. Avoidance of baby



REFERRAL PATHWAY FOR PAST TRAUMATIC DELIVERY

10.3 Breech and Malpresentation

	Phase	Plan of Action
1	Subsequent antenatal follow-up	• Refer O&G if malpresentation/ breech at ≥36 weeks. • Rule out placenta praevia, fetal anomalies, oligohydramnios / polyhydramnios, pelvic tumour and other possible factors causing malpresentation. • Breech with successful ECV: ➢ To be seen in Health Clinic within one week to assess presentation. ➢ Refer back to O&G if recurrent malpresentation. ➢ If cephalic, continue routine antenatal follow up with timing and mode of delivery as per obstetric indication.
2	Delivery	• Hospital delivery. • Outlined by O&G team if indicated.
3	Postpartum	• Contraception. • Advise early booking for next pregnancy.
4	Lactation	• Encourage breastfeeding

REMARKS:

• Breech presentation ○ If patient has underlying previous scar, refer O&G to get date for elective caesarean section. ○ If no previous scar, refer for admission to Daycare Unit at 37-38 weeks for O&G to assess suitability for external cephalic version (ECV).
• Malpresentation (other than breech) ○ If patient has underlying previous scar, to admit ward for assessment and given date for elective caesarean section. ○ If no previous scar, refer for assessment and delivery plan.
• External Cephalic Version (ECV) Counseling a. Manipulation of the fetus through the maternal abdomen to a cephalic presentation. b. Offered from 36 weeks in nulliparous, 37 weeks in multiparous.

c. Procedure can be uncomfortable.
d. Success rate 30-80%, trained operator 50%.
e. 0.5 % of cases need immediate caesarean section & no excess perinatal morbidity and perinatal mortality.
f. Spontaneous reversion to breech presentation after successful ECV <5%.
g. Had very low complication rate.
h. Risk of complications:
    - Placental abruption
    - Uterine rupture
    - Feto-maternal haemorrhage
i. Contraindication:
    - SGA fetus with abnormal doppler parameters
    - Hypertensive disorder in pregnancy
    - Oligohydramnios
    - Major fetal abnormalities
    - Scarred uterus
    - Unstable lie
    - Where caesarean delivery is required
    - APH within 7 days
    - Abnormal CTG
    - Major uterine anomaly
    - Ruptured membranes
    - Multiple pregnancy (except delivery of second twin)

Reference(s):

1. Sabah Obstetrics Shared Care Guideline (3rd edition) (2018)
2. Royal College of Obstetricians & Gynaecologists (Green Top Guideline No 20b), March 2017
3. External cephalic version and reducing the incidence of breech presentation. RCOG guideline No.20a, Dec 2006, review 2010

10.4 Chickenpox in Pregnancy

	Phase	Plan of Action
1	Booking	• Pregnancy with symptoms**:** ➢ Refer to O&G and Medical team if ▪ Developed complications. ▪ Women with underlying risk factors or co-morbidities. ➢ Outpatient management if no severe presentation ➢ Treatment: ▪ Isolation ▪ Oral Acyclovir 800mg 5 times daily for 7 days (if onset <72 hours and >20 weeks gestations) ▪ if <20 weeks POG need to discuss risk & benefit of Acyclovir ➢ Education: ▪ To prevent spread of disease until the lesions have crusted (usually about 5 days after the onset of rash) ▪ Hygiene care to prevent secondary bacterial infection of the lesions
2	Subsequent antenatal follow-up	• Refer O&G for detail scan if infection occurred ≤20 weeks of gestation
3	Delivery	• Preferably to delay delivery 7 days after onset
4	Postpartum	• Encourage breast feeding • Refer baby to Paediatrician after delivery, irrespective of the gestation when maternal varicella zoster infection developed • Refer baby to paediatrician if born to mothers with chickenpox within 7 days before to 7 days after delivery - receive prophylaxis VZIG (Varicella Zoster Immunoglobulin) with or without acyclovir
5	Lactation	• Encourage breastfeeding

REMARKS:

1. Causative agent: Varicella zoster virus.
2. Mode of transmission: Direct contact with vesicle fluid & respiratory droplet (Two days before appearance of rash up to the healing of active rash)
3. Maternal complication*
   a. 5-20% pneumonia (40% risk of death)
   b. Hepatitis
   c. Encephalitis
4. Fetal complications*
   a. Congenital Varicella Syndrome (0.4 to 2%) early 2nd trimester (< 20 week)
      - Skin scarring in dermatomal distribution
      - Eye defects (microphthalmia, chorioretinitis, cataracts)
      - Limb hypoplasia
      - Neurological abnormalities (microcephaly, cerebral cortical atrophy, mental retardation or dysfunction of bowel and bladder sphincters)
5. Neonatal complication*
   a. Neonatal varicella (within 10 DOL) – if mother developed rash 5 days before or 2 days after delivery
      - If maternal infection occurs 1-4 weeks before delivery, up to 50% of infants are infected and up to 23% develop clinical varicella
      - Severe chicken pox may occur if infants are born within 7 days of onset of mother's rash or if mother develops rash up to 7 days after delivery
      - Risk of death - 30%
6. Severe presentation needs immediate referral^{+}
   a. Dense rash
   b. Immunosuppression use
   c. Respiratory symptoms
   d. Neurological symptoms
   e. Haemorrhagic rashes
7. Risk factor & comorbid^
   a. Smoker
   b. Chronic lung disease
   c. Corticosteroids use in the preceding 3 months

d. In the second half of pregnancy
2. Aim of treatment - to reduce maternal complication. Significant varicella infection such as pneumonitis should be treated.

Reference(s):

1. Royal College of Obstetricians & Gynaecologists (Green Top Guideline No 13), January 2015.
2. Society of Obstetricians & Gynaecologists of Canada, Clinical Practice Guideline, March 2012
3. Public Health England. Varicella: the green book, chapter 34. London: Public Health England; 2012[ht tps ://www.gov.uk/government/publ icat ions /varicella-the-green-book-chapter-34].

10.5 Fetal Movement Assessment

	Phase	Plan of Action
1	At diagnosis	• If reduced fetal movement perceived < 28 weeks, if fetal heart rate present, normal ultrasound assessment and without underlying risk factors – reassurance. • If reduced fetal movement perceived ≥ 28 weeks, refer O&G for; ➢ Detailed clinical assessment. ➢ May require hospital admission.
2	Subsequent antenatal follow-up	• Monitoring and follow-up plan as per routine • To refer O&G if history of repeated reduced FM for time of delivery
3	Delivery	• Time of delivery as per obstetric indication • Hospital delivery
4	Postpartum	• Contraception

REMARKS:

1. Perceived fetal movements are defined as the maternal sensation of any discrete kick, flutter, swish or roll.
2. Most women are aware of fetal movements by18-20 weeks of gestation (Quickening)
   a. Multiparity: as early as 16 weeks
   b. Primiparity: around 20 weeks
3. Fetal heart assessment using Daptone after 28 weeks gestation (over 1 minute):
   a. Normal (FHR 110-160 bpm)
   b. Absent
   c. Abnormal:
      - Bradycardia (FHR <110 bpm)
      - Tachycardia (FHR >160 bpm)
      - Irregular
4. Consider reduce fetal movement:
   a. <10 movements in a day

b. Progressively longer in a day to reach 10 kicks c. No movement in 2 hours d. Any **subjective** feeling of reduced fetal movement (including strength and frequency of fetal movement)
5. It is important to educate women to record fetal movement in Daily Fetal Movement Chart (DFMC). Women are advised to lie on left side and focus on the counting of fetal movement for 2 hours. If they do not feel 10 or more discrete movement should seek for consultation.

Reference(s):

1. Martin L Gimovsky MD, Gene Freylikhman MD and Kenneth A Kappy MD. Fetal Heart Rate Monitoring Casebook: Decreased Fetal Movement. Journal of Perinatology (2002) 22, 333.
2. Predicting poor perinatal outcome in women who present with decreased fetal movements. O'Sullivan O, Stephen G, Martindale E, Heazell AE. Obstet Gynaecol. 2009 Nov;29(8):705-10
3. Reducing stillbirths: screening and monitoring during pregnancy and labour. Haws RA, Yakoob MY, Soomro T, Menezes EV, Darmstadt GL, Bhutta ZA. . BMC Pregnancy Childbirth. 2009 May 7;9 Suppl 1: S5.
4. Methods of fetal movement counting and the detection of fetal compromise. Heazell AE, Frøen JF. J Obstet Gynaecol. 2008 Feb;28(2):147-54
5. Stillbirth: Preventable tragedy or a lethal “act of nature”? Robert L. Barbieri, MD Editor in Chief. OBG Management | February 2010 | Vol. 22 No. 2
6. Review: Reduced Fetal Movements. Julia Unterscheider/Richard Horgan/ Keelin O’Donoghue/Richard Greene. The Obstetrician & Gynaecologist 2009:11: 245 -251.
7. Royal College of Obstetricians & Gynaecologists (Green Top Guideline No 57), February 2011.

10.6 Group B Streptococcus Carrier in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• No role for GBS screening
2	At booking	• Routine screening for antenatal GBS carrier in not recommended. • Refer to O&G if previous history of newborn GBS infection.
3	At diagnosis	• For GBS positive vaginal swab: ➢ It is not beneficial to give antibiotics during pregnancy before labour starts if asymptomatic ➢ Treat with antibiotic if symptomatic ➢ Intrapartum antibiotic prophylaxis is **recommended** • For GBS bacteriuria: ➢ Treat with antibiotics during pregnancy ➢ Intrapartum antibiotic prophylaxis is **recommended**
4	Subsequent antenatal follow-up	• Routine antenatal follow up. • Symptoms of UTI should be assessed. • Intrapartum antibiotic prophylaxis (IAP) should be given to pregnant women with: ➢ Previous infant with neonatal GBS disease ➢ GBS bacteriuria in current pregnancy ➢ GBS positive vaginal swab in current pregnancy ➢ Intrapartum pyrexia (≥38°C) ➢ Amniotic membrane rupture ≥18 hours ➢ Previous colonization with GBS
5	Delivery	• Hospital delivery • For women who required GBS prophylaxis in labour, infants should be referred to Paediatrics team for assessment

Reference(s):

1. Liz Horsley. CDC Updates Guidelines for the Prevention of Perinatal GBS Disease. Am Fam Physician. 2011 May 1:83(9):1106-1110

10.7 Low Lying Placenta

	Phase	Plan of Action
1	Pre pregnancy	• Identification of Risk Factor & Counselling: ➢ Past history of uterine surgery (e.g. LSCS, myomectomy, cornual pregnancy) ➢ Increasing maternal age ➢ Use of assisted reproductive technology ➢ Maternal Smoking ➢ Uterine structural anomaly
2	At diagnosis	• Risk Factor identification (as above). • Ultrasound assessment: dating & placenta localization after 16 weeks. If placental position covers or is less than 2cm from the internal os, to repeat transabdominal ultrasound at 28 weeks (by MO or FMS). • Baseline Hb.
3	Subsequent antenatal follow-up	• Refer O&G if anterior low-lying placenta with previous history of uterine scar at 28 weeks. • Refer O&G at 32 weeks if placental edge persistently less than 2cm from internal os at 28w • Refer O&G at 28 weeks, if placenta covering os • Discuss with patient potentially need of hospitalisation, consider these factors: ➢ Distance between home & hospital ➢ Availability of transportation ➢ Previous episodes of per vaginal bleed ➢ Hb result <11 lower threshold to start parenteral iron in IDA patient • Counselling: ➢ Risk of preterm delivery ➢ Risk of antepartum haemorrhage ➢ Safety precaution: availability of someone if emergency happened at home & access to hospital

4	Delivery	• Hospital delivery with specialist
5	Postpartum	• Contraception
6	Lactation	• Encourage breast feeding

REMARKS:

1. For pregnancies of more than 16 weeks of gestation, the term low lying placenta should be used when the placental edge is less than 20mm from the internal os on transabdominal or transvaginal scanning.
2. Low lying placenta: placenta edge is less than 20mm from the internal os or previa (covering the os).
3. Placenta previa: when the placenta lies directly over the internal os.

Reference(s):

1. Guideline on management of placenta previa. RCOG. 2018
2. Perinatal care manual 3rd edition
3. Placenta previa: Management. Charles J Lockwood, Karen Russo-Stieglitz. 28th Jan 2020

10.8 Multiple Pregnancy

	Phase	Plan of Action
1	Booking / diagnosis	• First trimester ultrasound is recommended (best at 14 weeks) - difficult to determine chorionicity after 14 weeks. • Refer O&G within 1 week to determine chorionicity, counselling and outline of antenatal follow-up plan • Urgent referral if: ➢ Monoamniocity ➢ Suspected Twin-twin Transfusion Syndrome (TTTS) ➢ Fetal structural abnormality ➢ Suspected discordance in weight >18% ➢ Higher order pregnancy (≥3) ➢ Single fetal demise
2	Subsequent antenatal follow-up	• If Monochorionic (MC) twins or higher order pregnancy (≥3): to follow up O&G Clinic of hospital (high risk pregnancy) • If Dichorionic (DC) twins without growth discrepancy, patient will be followed-up both at health clinic and hospital (general O&G clinic) • All multiple pregnancies require 2- 4weekly growth scan depends on chorionicity • Higher order pregnancy (≥3) will require inpatient surveillance after 26 – 28 weeks till delivery.
3	Delivery	• Outlined by O&G: ➢ Higher order: soon after diagnosis is confirmed ➢ Uncomplicated MCMA: deliver by 32 – 34 weeks. ➢ Uncomplicated MCDA: deliver by 36 -37 weeks • Uncomplicated DCDA – deliver by 37- 38 weeks
4	Postpartum	• Delivery in hospital with specialist
5	Lactation	• Discuss option of contraception with patient/ couple • Contraception • Breastfeeding

REMARKS:

1. Multiple pregnancy is one of the moderate risk factors for pre-eclampsia.
2. Calculation of growth discrepancies between twin: **EFW (larger fetus) - EFW (smaller fetus) / EFW larger fetus x 100%**
3. Estimated gestational age from the largest fetus based on the earliest scan.
4. Document the position fetus position according to relationship to maternal position, e.g. maternal left/ right/ upper/ lower
5. Determine chorionicity and amnionicity at the earliest ultrasound scan: a. The number of placental masses b. The presence of separating amniotic membrane c. The lambda or T-sign d. Discordant fetal sex in dichorionic diamniotic pregnancy
6. Refer to O&G clinic for assessment if abnormal amniotic fluid volume: a. The amniotic sac of one baby has DVP less than 2cm b. The amniotic sac of one baby has DVP more than 8cm
7. Vaginal delivery can be offered if: a. Uncomplicated pregnancy and has progressed beyond 32 weeks b. No obstetric contraindication to vaginal delivery c. Leading twin is cephalic presentation d. No significant size discordance between the twins

Reference(s):

1. SOSCG 2018
2. NICE guideline: Twin & Triplet Pregnancy, Sept 2019.

10.9 Previous Uterine Scar(s)

	Phase	Plan of Action
1	Pre pregnancy	• Adequate spacing from previous delivery.
2	At booking	• Review patient medical record to determine the causes of previous LSCS / myomectomy. ➢ To look for contraindication for VBAC from previous uterine surgery.
3	Subsequent antenatal follow-up	• Scan for placental site is essential. • To distribute VBAC brochures by 24 weeks. • Refer to O&G team: ➢ Low lying placenta ➢ Inter-pregnancy < 18 months • 1 previous scar: ➢ VBAC counselling 32 - 34 weeks by MO/ FMS at health clinic (refer to VBAC counselling form in appendix) ▪ To give option regarding mode of delivery. ▪ If opt for repeat CS, to call O&G team at 36 weeks to get elective CS date. ▪ If opt for vaginal delivery, to go to hospital if in labour. • Untested scar without operative record - refer O&G clinic after 28 weeks. • 2 previous scars, refer O&G team at 32 – 34 weeks. • Delivery at tertiary hospital for any previous history of scar. • VBAC is contraindicated in women with previous uterine rupture or classical scar and in women who have absolute contraindication to vaginal delivery such as placenta praevia.
4	Delivery	• Timing and mode of delivery as per obstetric indication. • Hospital delivery with specialist.

5	Postpartum	• Ensure compliance to thromboprophylaxis treatment if underwent caesarean section. • Discuss options of contraception with patient / couple if not completed family. • Encourage breast feeding.

REMARKS:

1. VBAC is appropriate for and may be offered to the majority women with singleton pregnancy of cephalic presentation at 37 weeks or beyond who had single previous caesarean with or without previous vaginal delivery.
2. Success rate of VBAC is 72-75%.
3. Absolute contraindication for trial of vaginal delivery after caesarean: a. Previous uterine rupture b. Previous upper segment uterine incision (hysterotomy, classical uterine incision) c. Previous cornual pregnancy d. Previous complex myomectomy

Reference(s):

1. SOSCG, 3rd Edition, 2018.

CONSENT FORM FOR VAGINAL BIRTH AFTER CAESEREAN SECTION

(MALAY VERSION)

BORANG PERSETUJUAN:

1. Saya telah diberi penerangan tentang pilihan saya untuk bersalin kali ini dan saya memahami semua risiko dan kebaikan bagi pilihan-pilihan saya. Saya telah diberi peluang bertanya dan semua soalan saya telah dijawab.
2. Saya telah menerima, membaca dan memahami isi kandungan risalah tentang VBAC dan pembedahan ulangan untuk bersalin.
3. Saya memilih
    a. VBAC (bersalin biasa/normal selepas pembedahan caeserean)
    b. Pembedahan ulangan untuk bersalin kali ini
4. Saya fahami sekiranya saya mempunyai tanda-tanda bersalin sebelum tarikh yang diberi, saya harus pergi ke hospital dengan segera.
5. Saya fahami sekiranya saya memilih pembedahan ulangan dan saya memasuki proses bersalin sebelum tarikh pembedahan, saya akan diberi kaunseling sekali lagi dan jika saya masih mahukan pembedahan, saya akan melalui pembedahan kecemasan yang berisiko lebih tinggi.
6. Saya fahami sekiranya saya memilih VBAC dan perlu dipaksa bersalin awal untuk sebab-sebab tertentu, saya menghadapi risiko parut atas rahim terbuka/koyak 2-3 kali ganda lebih tinggi daripada VBAC biasa, dan juga risiko pmbedahan kecemasan 1.5 kali ganda lebih tinggi daripada VBAC biasa.
7. Tarikh untuk masuk wad adalah pada _____.

Nama Doktor: Tarikh:	Nama Ibu: No IC/ Pasport: Tarikh:

BERSALIN NORMAL SELEPAS BERSALIN SECARA PEMBEDAHAN (VAGINAL BIRTH AFTER CAESAREAN- VBAC)

Puan dijemput untuk menghadiri sesi kaunseling untuk menentukan kaedah berslain bagi kehamilan ini

Puan diberi temujanji ini kerana puan melalui pembedahan untuk melahirkan anak sebelum ini

APAKAH PILIHAN PUAN?

1. VBAC- bersalin secara normal
2. Pembedahan semula untuk melahirkan bagi kali ini

APAKAH ITU VBAC?

VBAC adalah cara bersalin seperti biasa/normal melalui laluan peranakan selepas pembedahan caeserean untuk melahirkan anak sebelum ini

APAKAH RISIKO VBAC?

1. Parut atas rahim terbuka/koyak. Tetapi ini jarang berlaku. Risiko yang dijangka adalah <0.5% iaitu 2-6 daripada 1000 ibu mencuba VBAC
2. Risiko ini akan meningkat kepada 0.6-2.4% sekiranya melibatkan proses pencetusan kelahiran
3. Risiko bayi lemas atau kerosakan otak adalah sangat rendah 0.2%

MENGAPA VBAC DISARANKAN?

Biasanya 75% ibu yang mencuba VBAC akan berjaya dan 80-90% akan berjaya jika ibu tersebut pernah bersalin biasa selepas pembedahan dahulu.

KEBAIKAN BERSALIN NORMAL

1. Lebih cepat sembuh
2. Dapat balik rumah lebih cepat
3. Kurang sakit selepas bersalin
4. Lebih tinggi peluang untuk bersalin biasa selepas ini
5. Tidak melalui pembedahan
6. Tiada risiko bius

APAKAH RISIKO JIKA MEMILIH ULANGAN PEMBEDAHAN UNTUK BERSALIN?

1. Pembedahan mungkin lebih rumit dan mengambil masa lebih lama
2. Risiko untuk mendapat darah beku di kaki dan paru-paru lebih tinggi
3. Mengambil masa lebih lama untuk sembuh dan akan berada di wad untuk tempoh masa yang lebih lama
4. Kecederaan pada organ berdekatan, seperti pundi kencing dan usus
5. Risiko bahawa bayi puan akan menghadapi kesusahan untuk mula bernafas
6. Puan akan memerlukan pembedahan untuk kandungan yang selanjutnya jikalau puan memilih kelahiran secara pembedahan kali ini
7. Menghadapi risiko bius

8. Bilangan anak yang di rancang adalah terhad disebabkan bilangan ulangan pembedahan caesarean adalah terhad (dinasihatkan tidak melebihi 3 kali). Untuk itu puan akan dinasihatkan agar menjalani proses pemandulan pada pembedahan selanjutnya.

JIKA PUAN SETUJU UNTUK VBAC, APAKAH PROSES YANG AKAN DILALUI?

- Puan mesti bersalin di hospital yang mempunyai pakar dan dewan pembedahan.
- Puan akan diberi tarikh untuk masuk ke dalam wad (bergantung kepada risiko lain dalam kandungan kali ini).
- Jika puan masuk bersalin sebelum tarikh jangkaan, puan harus datang ke hospital segera.
- Sepanjang proses kelahiran, jantung bayi akan dipantau rapi dan juga tanda - tanda parut lemah akan diperhatikan dengan rapi.
- Sekiranya terdapat indikasi - indikasi yang memerlukan pembedahan, prosedur akan dijalankan seperti kes-kes Caesarean yang lain.

INFORMASI PENTING:

DOKTOR ANDA AKAN MEMBINCANGKAN KESESUAIAN ANDA UNTUK BERSALIN SECARA NORMAL KERANA TERDAPAT FAKTOR-FAKTOR YANG TIDAK MEMBENARKAN KELAHIRAN NORMAL SELEPAS PEMBEDAHAN CAESAREAN

10.10 Recurrent Miscarriages

	Phase	Plan of Action
1	Pre pregnancy	• Screening (to be assessed in O&G clinic): ➢ Pelvic ultrasound assessment ➢ APS antibodies, if indicated ➢ Thrombophilia screening, if indicated ➢ Thyroid Function Test(s) if indicated ➢ Karyotyping (if clinically indicated) • Diabetic screening. • Advised for folic acid.
2	At booking	• Screening as per pre-pregnancy, except APS, thrombophilia screening and karyotyping. • Consider low dose T. Aspirin 75mg OD and T. Dydrogesterone (Duphaston) 10-20mg OD until 20 weeks if indicated after discussed with FMS or O&G specialists. ➢ Refer O&G team for cervical length assessment (if recurrent second trimester miscarriage or preterm birth).
3	Subsequent antenatal follow-up	• Appointment for detailed scan 22 – 24 weeks. • Routine antenatal, follow up at health clinic unless specific causes identified, e.g. previous second trimester loss, APS – to refer O&G. • Refer O&G at 34 weeks for delivery plan.
4	Delivery	• Outlined by O&G team. • Timing and mode of delivery as per obstetric indication. • Hospital delivery.
5	Postpartum	• Discuss options for contraception with patient. • Encourage breastfeeding.

REMARKS:

1. Definition
   a. Miscarriage:
      Spontaneous loss of pregnancy before fetus reaches viability. Includes all pregnancy losses from the time of conception until 24 weeks of gestation or 500g.
   b. Recurrent Miscarriage:
      The loss of three or more consecutive pregnancies

2. Causes of miscarriages according to phase:

Phase	Causes
1st trimester miscarriage	Genetic: parental chromosomal rearrangements, embryonic chromosomal abnormalities Infection, APS, inherited thrombophilia defects Endocrine: DM, thyroid disease Epidemiological: e.g. advanced maternal age, h/o previous miscarriage(s)
2nd trimester miscarriage	Epidemiological: e.g. advanced maternal age, h/o previous miscarriage(s) Anatomical: e.g. congenital uterine malformation, cervical weakness

Reference(s):

1. RCOG, Greentop Guidelines No.17 (2011)
2. SOSCG, third edition 2018

10.11 Recurrent Preterm Deliveries

	Phase	Plan of Action
1	Pre pregnancy	• Identified the risk factors for preterm birth. ➢ Infective causes ➢ Structural causes ➢ Previous obstetric history ➢ Fetal causes ➢ Maternal causes
2	At booking	• Refer O&G team at booking or before 14 weeks. • Required to send (depends on clinical indication); ➢ Urine C&S ➢ HVS gram stain and C&S ➢ Diabetic screening - MOGTT ➢ Thyroid function test (if needed) - TSH • Treat underlying abnormal investigation results. • Refer Dental clinic for oral hygiene assessment. • Refer Quit Smoking Clinic (if needed). • Consider progesterone supplement between 16 – 24 weeks, after discuss with O&G team.
3	Subsequent antenatal follow-up	• Review all C&S result. All infections found should be treat accordingly • O&G team to decide on management If patient having cervical incompetence • Follow guideline on management of DM, HPT, thyroid in pregnancy if diagnosed

		• Antenatal corticosteroids as per outlined by O&G as outpatient in KKIA if feasible. (IM dexamethasone 12mg BD for one day)
4	Delivery	• Timing and mode of delivery as per obstetric indication • Hospital delivery
5	Postpartum	• Emphasize on the importance of contraception and pre pregnancy care • Encourage breast feeding

REMARKS:

1. Recurrent preterm birth is frequently defined as two or more deliveries before 37 completed weeks of gestation.
2. Preterm birth is a concern because babies who are born too early may not be fully developed. They may be born with serious health problems.
3. Some health problems, like cerebral palsy, can last a lifetime. Other problems, such as learning disabilities, may appear later in childhood or even in adulthood.
4. Consider vaginal swab for wet mount microscopic examination for bacterial vaginosis if clinically suspicious:
    a. Homogenous, thin, white discharge that smoothly coats the vaginal wall
    b. A fishy odour of vaginal discharge
    c. pH of vaginal fluid > 4.5 if available kit to test
5. Identified the risk factors for preterm birth.

A	Infective causes	i. Bacterial vaginosis ii. Periodontal disease (poor oral hygiene) iii. Sexually transmitted infections (i.e., chlamydia, gonorrhoea, and trichomoniasis) iv. Chorioamnionitis

		v. Infections of the urinary and genital tracts (UTI, PID)
B	Structural causes	i. Shortened cervix (< 25 mm before 28 weeks' gestation) ii. History of cervical surgery or intervention (e.g. con biopsy or a loop electrosurgical excision procedure of the cervical transformation zone) iii. Uterine anomalies
C	Maternal causes	i. Low pre pregnancy body mass index (≤ 19.8 kg per m2) ii. Medical disorders such as thyroid disease, diabetes mellitus, or hypertension iii. Mother's work is physically strenuous iv. Tobacco use v. Cocaine or heroin use
D	Fetal causes	i. Multiple gestation pregnancy ii. Polyhydramnios or oligohydramnios
E	Previous obstetric history	i. Vaginal bleeding caused by placental abruption or placenta previa ii. Short pregnancy interval (< 18 months between pregnancies) iii. History of preterm delivery

Reference(s):

1. Kristen R, Bethany P. Preterm Labour: Prevention and Management. Am Fam Physician. 2017 Mar 15;95(6):366 – 372.

SECTION 11 PRE-PREGNANCY & ANTENATAL CARE

11.1 Alcohol Use Disorder in Pregnancy

<table>
<tr><th></th><th>Phase</th><th>Plan of Action</th></tr>
<tr><td>1</td><td>Pre-pregnancy</td><td>

Pregnant women / women planning a pregnancy should be advised to avoid alcohol in the first 3 months in pregnancy
If the woman chooses to drink alcohol during pregnancy, they should be advised to drink no more than 2 units per intake and not more than twice per week (after 3 months of gestation)
Assess for other substance (ASSIST), other associated infections, psychosocial issues and support
Explore high risk behavior and screen accordingly

</td></tr>
<tr><td>2</td><td>Booking/ Diagnosis</td><td>

SCREENING - Need to ask all women for alcohol use
Diagnosis using DSM 5 criteria.
If positive, need to screen with ‘AUDIT-10’ questionnaire (by interview) and stratify according to zones
<table>
<tr><th>Score</th><th>Risk</th><th>Zone</th></tr>
<tr><td>0-7</td><td>Low risk</td><td>1</td></tr>
<tr><td>8-15</td><td>Hazardous drinker</td><td>2</td></tr>
<tr><td>16-19</td><td>Harmful & dependency</td><td>3</td></tr>
<tr><td>20-40</td><td>High risk for alcohol related harm</td><td>4</td></tr>
</table>

ASSESSMENT during first contact

History should include alcohol pattern, complication, comorbid, MSE & social support
Physical examination including general, sign of chronic alcohol, GI/ abdomen & CNS.
Investigation including; FBC-Hb, MCV, LFT (GGT, AST, ALT), (Ultrasound hepatobiliary system, OGDS, x-ray & EEG if indicated)

COUNSELLING for those screened positive women regarding risks of alcohol use.

Advise maternal cessation of alcohol intake to reduce complications to mother and fetus.

</td></tr>
</table>

<table>
<tr><td></td><td></td><td>➢ Intervention involving MULTIDISCIPLINARY TEAM approach depending on zone.<table><tr><td>Zone</td><td>Intervention</td></tr><tr><td>1</td><td>Health education</td></tr><tr><td>2</td><td>Simple advice</td></tr><tr><td>3</td><td>Extended intervention (MO/FMS)</td></tr><tr><td>4</td><td>Refer specialist in addiction (Psychiatrist or FMS with subspecialty in addiction</td></tr></table></td></tr>
<tr><td>3</td><td>Subsequent antenatal follow-up</td><td>• Frequent antenatal follow up to monitor maternal and fetal status (maternal alcohol consumption habits and complications such as withdrawals, fetal surveillance for pregnancy complications).
• Emphasize on maternal cessation of alcohol intake.
• Serial growth scan under FMS/O&G for Zone 3 and Zone 4.</td></tr>
<tr><td>4</td><td>Delivery plan</td><td>• Similar to normal pregnancy</td></tr>
<tr><td>5</td><td>Delivery</td><td>• Hospital delivery</td></tr>
<tr><td>6</td><td>Postpartum</td><td>• Refer baby of women with (zone 3 and zone 4) to paediatrician (possibility of neonatal withdrawal).
• Refer psychiatric follow-up and social welfare if needed.
• Edinburgh Postnatal Depression Scale (EPDS) screening for depression.</td></tr>
</table>

REMARKS:

1. <u>Quantification of alcohol according to local policy (SABAH)</u>
   a. Alcohol - Contains ethanol (depressant drug)
      i. 1 unit = 10 ml @ 10 gm ethanol (Malaysia)
      ii. DSM V classification of alcohol use disorder (Appendix 2)
   b. 1 unit of alcohol = 1 standard drink (MINUMAN ALKOHOL)
   c. Formula for standard drink
      i. Standard drink = Alcoholic beverage (litres) x % alcohol content x 0.789 * (density of ethanol at room temperature)
   d. Examples of standard drink in Malaysia

i. Beer: 1 tin of 440 ml, (3.6% alcohol), 1 tin of 320 ml (5% alcohol) ii. Wine: 1 glass of 140 ml (12% alcohol) iii. Todi/bahar: 1 cup of 150 ml (8.5% alcohol) iv. Tuak beras: 1 glass of 100 ml (13.5% alcohol) v. Montoku: 1 cup of 80 ml (17% alcohol) Prevalence: 13.5% age 13 years and above ever consumed alcoholic beverages in year 2014 in Malaysia (NHMS 2015).
2. There is **NO safe level of alcohol consumption during pregnancy**. It is best to abstain from alcohol during pregnancy & breastfeeding. a. There is also no exact dose relationship between amount of alcohol consumed during prenatal period and extent of damage caused by alcohol in infant. b. Avoid binge drinking (>6 unit per occasion)
3. Complications of alcohol to the mother & baby: a. Spontaneous miscarriage b. Stillbirth c. FGR d. Low birth weight e. Fetal alcohol spectrum disorder (FASD), which includes fetal alcohol syndrome (FAS), partial fetal alcohol syndrome, alcohol-related neurodevelopmental disorder, alcohol-related birth defects ** *Risk is progressively increased with greater alcohol consumption*

Reference(s):

1. Royal College of Obstetricians & Gynaecologist- health & care information (February 2015)
2. NICE Antenatal care- routine care for the healthy pregnant woman (March 2008)
3. Nykjaer.C, et al. J. Epidemiol Community Health 2014;0:1-8, doi:10.1136/jech-2013- 202934
4. Garis Panduan: Penilaian risiko dan intervensi primer kemudaratan alkohol, NCD, KKM 2010
5. Maklumat kesihatan- intervensi, pencegahan dan pengurangan kemudaratan alkohol, Unit alkohol & substans, NCD, KKM (2013)
6. Alcohol Use Disorder: A Comparison Between DSM–IV and DSM–5, National Institute on Alcohol Abuse and Alcoholism, www.niaaa.nih.gov • 301.443.3860
7. SOSCG Alcohol Use and Pregnancy Consensus Clinical Guidelines 2010

A. AUDIT FORM-10

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying “Now I am going to ask you some questions about your use of alcoholic beverages during this past year”. Explain what is meant by “alcoholic beverages” by using local examples of beer, wine, vodka etc. Code answers in terms of “standard drinks”. Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol? (0) Never (Skip to questions 9-10) (1) Monthly or less (2) 2 to 4 times a month (3) 2 to 3 times a week (4) 4 or more times a week ☐	6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy session? (0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily ☐
2. How many drinks containing alcohol do you have on a typical day when you are drinking? (0) 1 or 2 (1) 3 or 4 (2) 5 or 6 (3) 7, 8 or 9 (4) 10 or more ☐	7. How often during the last year have you had a feeling of guilt or remorse after drinking? (0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily ☐
3. How often do you have six or more drinks on one occasion? (0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily ☐ *Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0.*	8. How often during the last year have you been unable to remember what happened the night before because you had been drinking? (0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily ☐
4. How often during the last year have you found that you were not able to stop drinking once you had started (0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily ☐	9. Have you or someone else been injured as a result of your drinking? (0) No (2) Yes, but not in the last year (4) Yes, during the last year ☐
5. How often during the last year have you failed to do what was normally expected from you because of drinking? (0) Never (1) Less than monthly (2) Monthly (3) Weekly (4) Daily or almost daily ☐	10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down? (0) No (2) Yes, but not in the last year (4) Yes, during the last year ☐
	Record total specific items here ☐

B. DSM-5 criteria for Alcohol Use Disorder

In the past year, have you	
1. Had times when you ended up drinking more, or longer than you intended?	The presence of at least 2 of these symptoms indicates an **Alcohol Use disorder (AUD)** The severity of the AUD is defined as: **Mild:** The presence of 2-3 symptoms **Moderate:** The presence of 4-5 symptoms **Severe:** The presence of 6 or more symptoms
2. More than once wanted to cut down or stop drinking, or tried to, but couldn't?	
3. Spent a lot of time drinking? Or being sick or getting over other aftereffects?	
4. Wanted a drink so badly you couldn't think of anything else?	
5. Found that drinking – or being sick from drinking – often interfered with taking care of your home or family? Or caused job troubles? Or school problems?	
6. Continued to drink even though it was causing trouble with your family or friends?	
7. Given up or cut back on activities that were important or interesting to you, or gave you pleasure, in order to drink?	
8. More than once gotten into situations while or after drinking that increased your chances of getting hurt (such as driving, swimming, using machinery, walking in dangerous area, or having unsafe sex)?	
9. Continued to drink even though it was making you feel depressed or anxious or adding to another health problem? Or after having had a memory blackout?	
10. Had to drink much more than you once did to get the effect you want? Or found that your usual number of drinks had much less effect than before?	
11. Found that when the effects of alcohol were wearing off, you had withdrawal symptoms, such as trouble sleeping, shakiness, restlessness, nausea, sweating, a racing heart, or a seizure? Or sensed things that were not there	

11.2 Advanced Maternal Age (more than 35 years old)

	Phase	Plan of Action
1	Pre-pregnancy	• Counsel regarding risk of pregnancy in advanced maternal age: ➢ Generally good pregnancy outcome. ➢ Obstetrics risk: ▪ Miscarriage ▪ Pre-eclampsia ▪ Gestational Diabetes Mellitus ▪ Increased risk of chromosomal and genetic abnormality e.g. trisomy 21 (especially more than 40 years old) ▪ Increased risk caesarean section from dysfunctional labour • Assessment of pre-existing medical condition and manage accordingly.
2	Booking	• Early booking. • Screening for GDM. • If more than 40 years old - appointment to O&G/MFM clinic for screening of Nuchal Thickness around 11 weeks to 13 weeks 6 days to women who are keen (availability of service may differ from different specialist hospitals) • Offer prenatal screening to women who are keen (refer to *prenatal screening test in primary care* section). • Refer O&G for detailed scan if more than 40 years old according availability of service in specialist hospitals)
3	Subsequent antenatal follow- up	• According to normal antenatal follow up.
4	Delivery	• Hospital delivery.

		• Time and mode of delivery as per obstetric indication.
5	Postpartum	• Advise for permanent sterilization if completed family. • Contraception according to MEC eligibility. • Continuation of underlying medical illness at health clinic.
6	Lactation	• Encourage breastfeeding.

REMARKS:

1. At booking, prenatal genetic screening test should be offered to a. Women with advanced maternal age (≥ 35 years) b. Ultrasound findings of fetal anomaly c. IVF/ICSI conception d. Woman or her partner with history of fetus or child with chromosomal abnormality or is a carrier of a chromosome rearrangement
2. Refer FMS for initial counselling for prenatal screening, then refer MFM if women keen for screening test.
3. Special charges apply for the screening test, to inform women who keen for screening test. Encourage women to attend MFM clinic with spouse for counselling.

Reference(s):

1. NICE Antenatal care 2008 (CG62). Chapter 9.2 Screening for Down Syndrome Author.
2. SOGC- CCMG Clinical Practice Guideline - Prenatal screening for fetal aneuploidy in single pregnancies 2011

11.3 Counselling of Prenatal Screening Test in Primary Care

	Phase	Plan of Action
1	Pre-pregnancy	• Identify high risk group* • Counsel about availability of prenatal genetic screening. • Advice early booking once pregnancy confirmed.
2	Booking	• Identify high risk group. • Confirm gestational age on USS. • Counsel about prenatal genetic screening. • After counselling, refer early to MFM/O&G if keen for screening or diagnostic test. Attach HIV, Hepatitis B and Rhesus results. • Preferably come with partner/spouse.
3	Subsequent antenatal follow-up	• Outlined by MFM/ O&G team.

REMARKS:

1. Who to offer to?
   a. All pregnant women
   b. High risk group*
      i. Advanced maternal age (>40 years old)
      ii. Previous pregnancy with aneuploidy
      iii. USS finding of soft markers (choroid plexus cyst, echogenic foci etc.)
2. Key points for counselling:
   a. Most commonly occurring fetal aneuploidies are trisomy 21 (Down syndrome), 18 (Edward syndrome), and 13 (Patau syndrome).
   b. Miscarriage or stillbirth occurs in 80% of trisomy 18 or 13; 40% of trisomy 21.
   c. Down syndrome
      i. Is the most common form of inherited intellectual disability
      ii. Clinical spectrum is variable, e.g. congenital heart defects, intestinal atresia, seizures, childhood leukaemia, early-onset Alzheimer disease

d. ALL women have some risk of having an affected fetus. The risk increases with age. However, most fetuses with Down syndrome occur in younger mothers because most pregnancies occur in them.

Age (years)	Risk of trisomy 21	Risk of any Chromosome Abnormality
25	1:1340	1:475
30	1:940	1:384
35	1:353	1:178
40	1:85	1:62
45	1:35	1:18

e. Mid-trimester USS will show normal findings in 50% of fetuses with trisomy 21.

f. Screening tests are available in early pregnancy to assess her ***individualised*** risk of having a fetus with aneuploidy.

g. Cost of test is self-paid, ranging from RM200 to RM1000.

h. Screening tests are NOT diagnostic:

   i. Screen positive (high-risk): a confirmation test (CVS, amniocentesis) is indicated.

   ii. Screen negative: no further test is indicated; but this does not guarantee a healthy baby. Can still have aneuploidy (false negative) or other conditions not detected through screening.

i. Aim is to make an informed choice. If tests confirm fetal aneuploidy, mother has the option of continuing or terminating the pregnancy.

j. TOP in MOH hospitals is only done up to 22 weeks gestation.

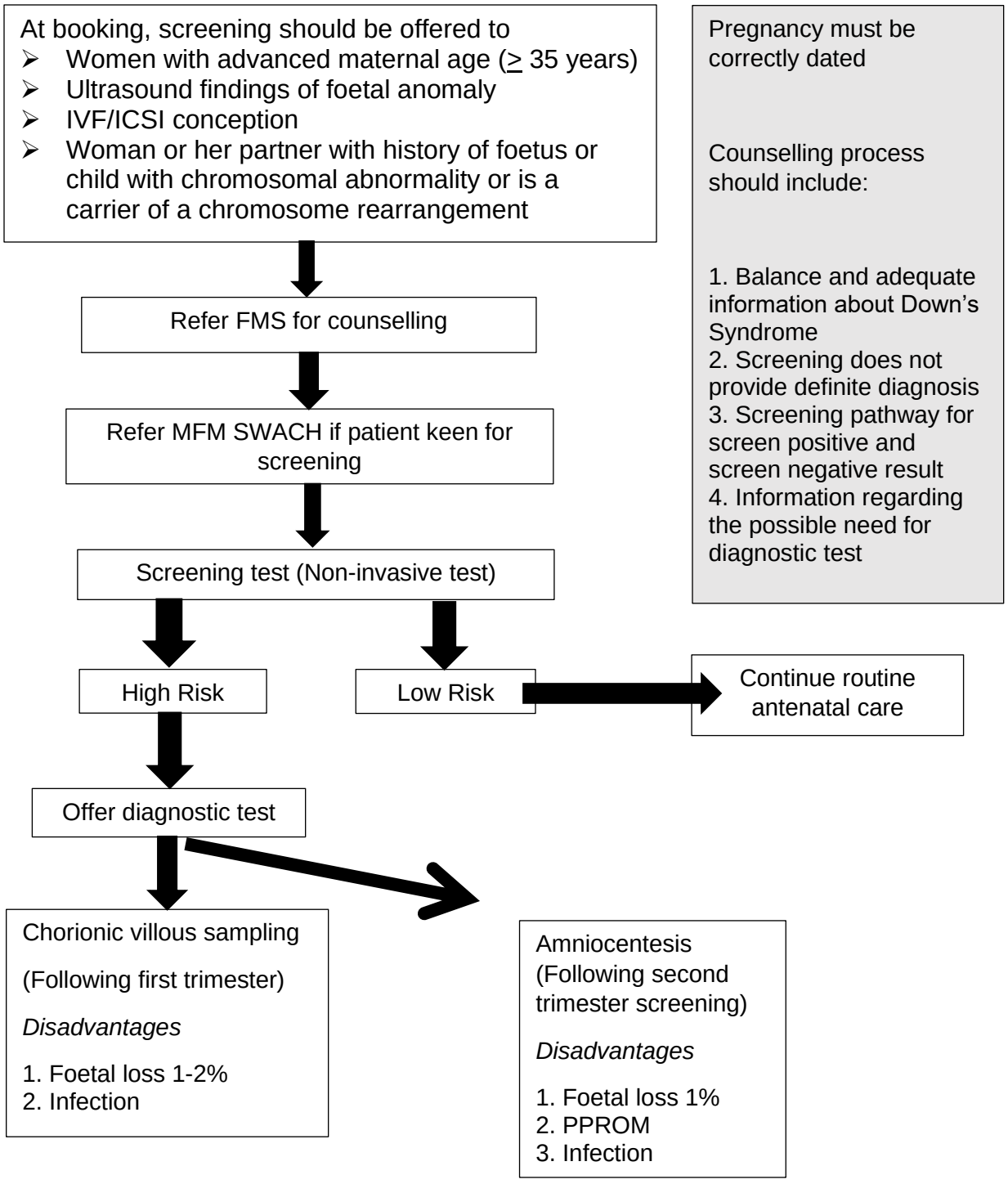
3. What screening tests are available?

Test name	Gestational age to do?	Procedure	Accuracy
First trimester screening	11^{+0} to 13^{+6} weeks CRL 42-84mm	Blood test USS	DR 85% FPR 5.0%
Quadruple screen	15 to 22 weeks	Blood test	DR 81% FPR 5.2%
Non-invasive prenatal screening (NIPT)	≥ 10 weeks	Blood test	DR >99% FPR 5.0%

CRL: crown-rump length; USS: ultrasound scan

DR: Detection rate; FPR: False positive rate

Workflow to refer pregnant women for prenatal test from primary care



Reference(s):

1. Counselling Considerations for Prenatal Genetic Screening. SOGC Committee Opinion. J Obstet Gynaecol Can 2012; 34 (5): 489-493.
2. Screening for Fetal Aneuploidy. ACOG, SMFM Practice Bulletin. Number 163, May 2016.

11.4 History of Postpartum Haemorrhage

	Phase	Plan of Action
1	Pre-pregnancy	• Pre-pregnancy advice: ➢ Healthy balanced diet ➢ Adherence to haematinics ➢ Effective family planning to allow iron stores to replenish ➢ Recurrence risk (refer to remarks) ➢ Early first trimester booking • Pre- Pregnancy plan: ➢ Patients with clotting disorders should have multidisciplinary input and a detailed peripartum plan outlined ➢ Folate ➢ Cause specific intervention ➢ Persistent anaemia should be investigated
2	Booking	• Determine the cause of PPH: atony, trauma, retained POC, clotting disorders ➢ History and careful review of past notes • Counselling to patient regarding risks of PPH • HCV screening if history of multiple blood transfusion • Refer to O&G for assessment if history of suspected transfusion reaction or known antibody detected towards blood products
3	Subsequent antenatal follow- up	Refer to Chapter Anaemia in Pregnancy
4	Delivery	• Hospital delivery ➢ Peripartum care plan: hospital delivery, active 3rd stage management and PPH prophylaxis measures.

REMARKS:

1. Counselling during booking:
   a. PPH from atony / retained placenta has recurrence risk: 5% after one episode, 15% after 2 episodes and 40% after 3 episodes.
   b. Women with history of blood transfusion have a remote chance of HIV and Hepatitis infection.
2. Women with blood transfusions may have developed antibody towards blood products.
3. Other risk factors for PPH may present antenatally or intrapartum; care plans must be modified as and when risk factors arise:
   a. Multiple pregnancy
   b. Pre-eclampsia
   c. Fetal macrosomia
   d. Failure to progress in second stage
   e. Prolonged third stage of labour
   f. Retained placenta
   g. Low lying placenta or placenta praevia
   h. Episiotomy
   i. Perineal laceration
   j. General anaesthesia

Reference(s):

1. Prevention and Management of Postpartum Haemorrhage, RCOG December 2016.

11.5 Smoking in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• All women who are smokers – should be counselled to quit before pregnant to avoid complications. • Those who have quit smoking – regular follow up to prevent relapse.
2	Booking	• Smoking history should be elicited in all pregnant women. • If smoking, need to assess: ➢ Willingness to quit ▪ Pre-contemplation ▪ Contemplation ▪ Action ▪ Maintain ▪ Relapse ➢ Level of addiction using 'Fagerstrom' score (Table 1) ➢ Analyse level of CO in blood by breath test ▪ Level >3 ppm (suspect smoking), (usually smoker >7ppm) *ppm- part per million ▪ Available at Quit Smoking Clinic
3	Subsequent antenatal follow-up	• No safe smoking level in pregnancy • Stopping smoking at any time during pregnancy is beneficial to mother and baby • Advise all pregnant women to avoid smoky environment during pregnancy. • Refer O&G if complications develop ➢ For serial growth scan • Refer quit smoking program (need support to cope with withdrawal and craving) • Treatment:

		➢ Non-pharmacological ▪ Quit plan (set date for quit smoking) ▪ Counselling ▪ Motivation - 5R ♦ Relevance ♦ Risks ♦ Rewards ♦ Roadblock ♦ Repetition ➢ Pharmacological (Refer FMS for pharmacological therapy) ▪ NRT - Safer than smoking (no tar and CO) ▪ NRT helps to manage craving ▪ Need to discuss risks & benefits ▪ Indicated when non-pharmacological treatment failed ▪ Only prescribe NRT once quit date is set ♦ Prescribe NRT for 2 weeks then reassess ♦ Continue NRT if they have quit smoking ♦ Be cautious of NRT use in CVD • Bupropion and Varenicline should not be offered to pregnant or breastfeeding women. • Electronic cigarettes are not recommended in pregnancy because long term risk to baby is unknown.
4	Delivery plan	• Similar as normal pregnancy.
5	Delivery	• Hospital delivery
6	Postpartum lactation	• Stop smoking - better quality of breast milk

REMARKS:

1. Prevalence of smoking in pregnancy - 25% Malaysian smoker.
2. Male partners of smoking women who are also smokers should be included in treatment plan because:
   a. Strong association with smoking behaviour and relapse among the women in regards with their male partner's smoking behaviour
   b. To avoid environmental tobacco exposure to the women.
   c. Preconception period – excellent interval before pregnant to give pharmacotherapy that are contraindicated in pregnancy.
3. Complications of active smoking
   a. Miscarriage
   b. Ectopic pregnancy
   c. Stillbirth (1/3 caused by smoking)
   d. Congenital abnormalities (face - cleft lips & palate)
   e. FGR
   f. Abruptio placenta
   g. Premature birth
   h. Risk of SIDS
   i. Asthma, chest infection & ear infection
   j. Risk of ADHD
   k. Toddler – poor performance at school

2. Complications of passive smoking
   a. Stillbirth
   b. Premature birth
   c. IUGR

A. Fagerstrom' score

PLEASE TICK (√) ONE BOX FOR EACH QUESTION		
How soon after waking do you smoke your first cigarette	Within 5 minutes 5-30 minutes 31-60 minutes	☐ 3 ☐ 2 ☐ 1
Do you find it difficult to refrain from smoking in places where it is forbidden? E.g. Church, Library, etc.	Yes No	☐ 1 ☐ 0
Which cigarette would you hate to give up?	This first in the morning Any other	☐ 1 ☐ 0
How many cigarettes a day do you smoke?	10 or less 11 – 20 21 – 30 31 or more	☐ 0 ☐ 1 ☐ 2 ☐ 3
Do you smoke more frequently in the morning?	Yes No	☐ 1 ☐ 0
Do you smoke even if you are sick in bed most of the day?	Yes No	☐ 1 ☐ 0
	Total score	
SCORE	1 – 2 = low dependence 3 – 4 = low to mod dependence	5 – 7 = moderate dependence 8+ = high dependence

Reference(s):

1. MIMS Stop smoking cessation guidelines 2014
2. Smoking: Stopping in pregnancy and after childbirth, National Institute for Health and Care Excellence (PH 26) June 2010
3. Royal College of Obstetricians & Gynaecologists - health & care information, December 2015
4. Rosenthal et al, Treatment of Tobacco Use in Preconception Care, Matern Child Health J. 2006 Sep; 10(Suppl 1): 147–148

11.6 Substance Abuse in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Assessment: ➢ Types of substance abuse ➢ Duration of substance abuse ➢ Status-withdrawal, intoxication ➢ Psychosocial support ➢ Associated infectious diseases ➢ High risk behaviour • Inform Cure and Care. • Psychiatric referral for management. • Defer pregnancy until remission with optimal contraception.
2	At booking / diagnosis	• Assessment ➢ Status of Substance use disorder ➢ Screening for STIs • If patient on medication assisted therapy, continuation of therapy is advised. • Combined care with psychiatrist, FMS and O&G team.
3	Subsequent antenatal follow-up	• Discuss with O&G or MFM the need for detailed scan based on the type of substance abuse. • Monthly growth scan after 28 weeks. • Admission is required for following cases: ➢ Develop withdrawal symptoms during pregnancy ➢ Psychological implication
4	Delivery plan	• May consider to taper down opioid agonist. • Pain management during intrapartum.
5	Delivery	• Hospital delivery
6	Postpartum	• Neonatal assessment by paediatric team for Neonatal Abstinence Syndrome. ➢ Breastfeeding is not contraindicated

		➢ Psychiatric assessment before discharge ➢ Edinburgh Postnatal Depression Scale (EPDS) screening for depression
7	Upon discharge from hospital	• High risk discharge to health clinic

REMARKS:

1. History taking:
   a. Patterns of substance use (The ASSIST [Alcohol, Smoking and Substance Involvement Screening Test]) helps identify current or potential problems resulting from substance use and motivate those at risk to change their substance use behaviour)
   b. Medical or psychiatric co-morbidity
   c. Blood borne and other infectious diseases
   d. Psychosocial problems such as relationship with partner/other people living in the same household, homelessness, poverty and violence
2. Physical examination
   Include general, signs of chronic substance use (difficulty caring for self, poor dentition, parasitic skin infections such as lice or scabies, malnutrition), injection marks, GI/abdomen &CNS
3. Investigations
   a. Urine for drug screen: whenever intoxication, withdrawal, or overdose is suspected.
   b. HIV, hepatitis B and C screening if the person has been injecting drugs
   c. Testing for sexually transmitted infections, including HIV, syphilis, chlamydia, gonorrhea, and human papilloma virus (HPV) if available
   d. Obtain a tuberculosis test, sputum sample, and a chest X-ray if tuberculosis is suspected.

Reference(s):

1. Guidelines for the identification and management of substance use and substance use disorders in pregnancy (WHO 2014)
2. Mental Health Gap Action Programme Intervention Guide Version 2.0 (WHO 2016)
3. Guidelines for the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence (WHO 2009)
4. The ASSIST Project-Alcohol, Smoking and Substance Involvement Screening Test (World Health Organization 2009).

A. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)

Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) Questionnaire

1. In your life, which of the following substances have you ever tried (non-medical use only)

• Tobacco products	Yes ☐	No ☐		• Inhalants	Yes ☐	No ☐	
• Alcoholic beverages	Yes ☐	No ☐		• Sedatives/ sleeping pills	Yes ☐	No ☐	
• Cannabis	Yes ☐	No ☐		• Hallucinogens	Yes ☐	No ☐	
• Cocaine	Yes ☐	No ☐		• Opioids	Yes ☐	No ☐	
• Amphetamine type stimulants	Yes ☐	No ☐		• Others	Yes ☐	No ☐	

2. During the past 3 months, how often have you used the substances you mentioned (first drug, second drug etc.

Never (0) ☐ Once/Twice (2) ☐ Monthly (3) ☐ Weekly (4) ☐ Daily/Almost Daily (6) ☐

3. During the past 3 months, how often have you had a strong desire or urge to use (first drug, second drug, etc)?

Never (0) ☐ Once/Twice (3) ☐ Monthly (4) ☐ Weekly (5) ☐ Daily/Almost Daily (6) ☐

4. During the past 3 months, how often has your use of (first drug, second drug etc) led to health, social, legal or financial problems

Never (0) ☐ Once/Twice (4) ☐ Monthly (5) ☐ Weekly (6) ☐ Daily/Almost Daily (7) ☐

5. During the past 3 months, how often have you failed to do what was normally expected of you because of your use of (first drug, second drug etc)?

Never (0) ☐ Once/Twice (5) ☐ Monthly (6) ☐ Weekly (7) ☐ Daily/Almost Daily (8) ☐

6. Has a friend or relative or anyone else ever expressed concern about your use of (first drug, second drug etc)?

Never (0) ☐ Yes, in the past 3 months (6) ☐ Yes, but not in the past 3 months (3) ☐

7. Have you ever tried and failed to control, cut down or stop using of (first drug, second drug etc)?

Never (0) ☐ Yes, in the past 3 months (6) ☐ Yes, but not in the past 3 months (3) ☐

8. Have you ever used any drug by injection (non-medical use only)

Never (0) ☐ Yes, in the past 3 months (6) ☐ Yes, but not in the past 3 months (3) ☐

B. Interpretation of ASSIST risk score and intervention

ASSIST risk score and associated risk level and intervention			
Alcohol	**All other substances**	**Risk level**	**Intervention**
0-10	0-3	Lower risk	• General health advice
11-26	4-26	Moderate risk	• Brief intervention • Take home booklet and intervention
27+	27+	High risk	• Brief intervention • Take home booklet and information • Referral to specialist assessment and treatment
Injected drugs in last 3 months		Moderate and High risk	• Risk of injecting card • Brief intervention • Take home booklet and information • Referral to specialist assessment and treatment.

11.7 Weight Gain in Pregnancy

11.7.1 Obesity or Morbid Obesity

	Phase	Plan of Action
1	Pre-pregnancy	• Refer pre-pregnancy care clinic for assessment and counselling in healthcare clinic • Advise on weight loss and lifestyle modification. • Counsel regarding complications of obesity in pregnancy. • Advise Tablet folic acid 5mg daily (at least 3 months prior to conception and continue during the first trimester of pregnancy.) • Identify and screen for any co-morbidities • Contraception until ready for conception • Effective family planning for those morbid obesity women plan for bariatric surgery (at least 2 years)
2	Booking	• Clinical assessment ➢ Ideally BMI should be calculated using pre-pregnancy weight ➢ BP check using an appropriately sized cuff ➢ VTE assessment and thromboprophylaxis according to risk ➢ To do STOP-Bang scoring (Table 3) • Refer O&G clinic if: ➢ STOP- Bang score ≥3 and/ or BMI ≥40 • Arrange for early MOGTT. • Refer dietician. • Inform regarding weight gain recommendation during pregnancy. • Start PE prophylaxis in women with BMI>35 with one additional moderate risk factor (e.g. primigravida). • Offer detail scan if indicated.
3	Subsequent antenatal follow-up	• Monitor maternal weight gain throughout pregnancy. • Screen for GDM. • Continue exercises and diet control (under dietician review). • Reassess VTE risk throughout pregnancy. • Monitor fetal growth scan.
4	Delivery	• Hospital delivery, based on standard obstetric indications. • Refer O&G team for plan of delivery.
5	Postpartum	• Contraception as per MEC.

		• Advise and support breast feeding • Thromboembolism prophylaxis
6	Lactation	• Encourage to breastfeed • Continue lifestyle and dietary modification

REMARKS:

1. Obesity during pregnancy defined as BMI > 30kg/m2 measured at 1st antenatal visit.
2. Pre- pregnancy care:
   a. Discuss with women who are obese/ morbidly obese about weight reduction, which may include information about diet, exercise, and weight loss programs, if needed referral to dietitian for diet advices
3. Subsequent antenatal follow-up:
   a. Monitor weight accordingly - If weight gain between antenatal visits is excessive, evaluate the woman's eating habits and other potential etiologies of excessive weight gain (e.g., preeclampsia, increased maternal adiposity)
4. Complications of obesity

Antenatal	Intrapartum	Anaesthetic risk
• Miscarriage • Gestational Diabetes • Fetal anomaly • Stillbirth • Pre-eclampsia • Thromboembolism • Abnormalities fetal growth • Obstructive sleep apnoea • Preterm birth • Maternal death	• IOL/prolong labour/ failure to progress • Instrumental delivery • Failure of instrumental delivery • Shoulder dystocia • Caesarean section • Difficult fetal heart monitoring • Postpartum haemorrhage Peripartum death	• Difficulty with labour analgesia • Use of GA • Failed intubation • Increase risk ICU care post-op
Post-partum	**Neonates**	
• Delayed wound healing • Thromboembolic disease • Need support for breastfeeding initiation and continuation • Postnatal depression	• Macrocosmic baby • Neonatal obesity and metabolic syndrome	

5. Weight gain in pregnancy (from Manual Perkhidmatan Kesihatan Ibu & Anak 2016)**

Classification	**BMI (kg/m^2)**	**Total weight gain range (kg)**	**Rates of Weight Gain in 2nd and 3rd Trimester [Mean (Range), kg/wk]**
Underweight	<18.5	12.5 – 18.0	0.51 (0.44-0.58)
Normal	18.5 – 24.9	11.5 – 16.0	0.42 (0.35-0.50)
Overweight	25.0-29.9	7.0 – 11.5	0.28 (0.23-0.33)
Obese	(≥30)	5.0 – 9.0	0.22 (0.17-0.27)

6. STOP Bang Questionnaires

1.	**S**	**S**noring (Do you snore loudly, louder than talking or loud enough to be heard through closed doors?)	Yes/No
2.	**T**	**T**ired (Do you often feel tired, fatigue, or sleepy during daytime?)	Yes/No
3.	**O**	**O**bserve apnoea (Has anyone observed you stop breathing during your sleep?)	Yes/No
4.	**P**	Blood **P**ressure (Do you have or are you treated for high blood pressure?)	Yes/No
5.	**B**	**B**MI more than 35kg/m2?	Yes/No
6.	**A**	**A**ge (Age more than 50 years old?)	Yes/No
7.	**N**	**N**eck circumference (Greater than 40cm?)	Yes/No
8.	**G**	**G**ender (Male?)	Yes/No

High risk of Obstructive Sleep Apnoea (OSA): answering yes to 3 or more items
Low risk of OSA: answering yes to fewer than 3 items

Reference(s):

1. Weight gain during pregnancy, ACOG, 2013
2. Weight management before, during and after pregnancy, NICE, 2010
3. Care of Women with Obesity in Pregnancy, RCOG, November 2018
4. Manual Perkhidmatan Kesihatan Ibu & Anak (2016)
5. Management of obesity in pregnancy, RANZCOG (Sept 2013)-reviewed 2017

11.7.2 Underweight

	Phase	Plan of Action
1	Pre-pregnancy	• All women in the reproductive age group and plan to conceive should be referred to the pre-pregnancy care clinic for assessment and counselling • Encourage them to reach a normal BMI before pregnancy. • Advise on healthy and balanced diet, consider refer to nutritionist • Screen for TB with CXR
2	Booking	• Clinical assessment: ➢ Ideally BMI should be calculated using pre-pregnancy weight. ➢ Assess regarding nutrition, physical activity, hyperemesis. symptoms. • Inform regarding weight gain recommendation during pregnancy**. • Refer dietitian for diet advices.
3	Subsequent antenatal follow-up	• Monitor maternal weight gain throughout pregnancy • Advise on healthy diet • Monitor fetal growth scan.
5	Delivery	• Based on standard obstetric indications
6	Postpartum	• Advise for healthy and balanced diet • Contraception as per “Medical Eligibility Criteria for Contraceptive Use”
7	Lactation	• Encourage to breastfeed

REMARKS:

1. Pre- pregnancy care a. Discuss with underweight women regarding: Risk of spontaneous preterm birth and small for gestational age infants associated with little weight gain during pregnancy b. Assess regarding nutrition, excessive physical activity, history of weight loss, smoking status.
5. Subsequent antenatal follow- up a. Monitor weight accordingly b. If weight gain between antenatal visits is inadequate, evaluate the woman's eating habits and other potential aetiologies of deficient weight gain and to assess fetal growth.

Reference(s):

1. Weight gain during pregnancy, ACOG, 2013.
2. Manual Perkhidmatan Kesihatan Ibu & Anak (2016).
3. Gestational weight gain, Am J Obstetric Gynecology. 2017; 64-651.

SECTION 12 RESPIRATORY DISEASES IN PREGNANCY

12.1 Bronchial Asthma in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Assess level of asthma control as per GINA guideline. • Control of asthma should be optimized before conception. • Women with asthma should be specifically advised not to stop or decrease their asthma medication when they find they are pregnant. • Those with poorly controlled asthma to advise defer pregnancy and use appropriate contraception method until optimum control achieved.

2	Booking	• Adjust asthma treatment in a continuous cycle: assess, adjust treatment and review response.
		• Check diagnosis, inhaler technique and adherence before considering any step-up in treatment.
		• If asthma is **controlled:**
		  ○ follow-up by MO at health clinic
		• If asthma is **partly controlled or uncontrolled:**
		  ○ step up treatment as per GINA guideline and reassess after 2 weeks
		• Continue treatment once asthma is controlled after stepping up treatment.
		• Refer FMS/ visiting physician at nearest district hospital (for non-FMS areas) if asthma remains partly controlled or uncontrolled.
		• Any patient partly controlled on Step 3 treatment **MUST** be referred to Combined Clinic for reassessment and management.
		• Acute exacerbations require acute management and admission*

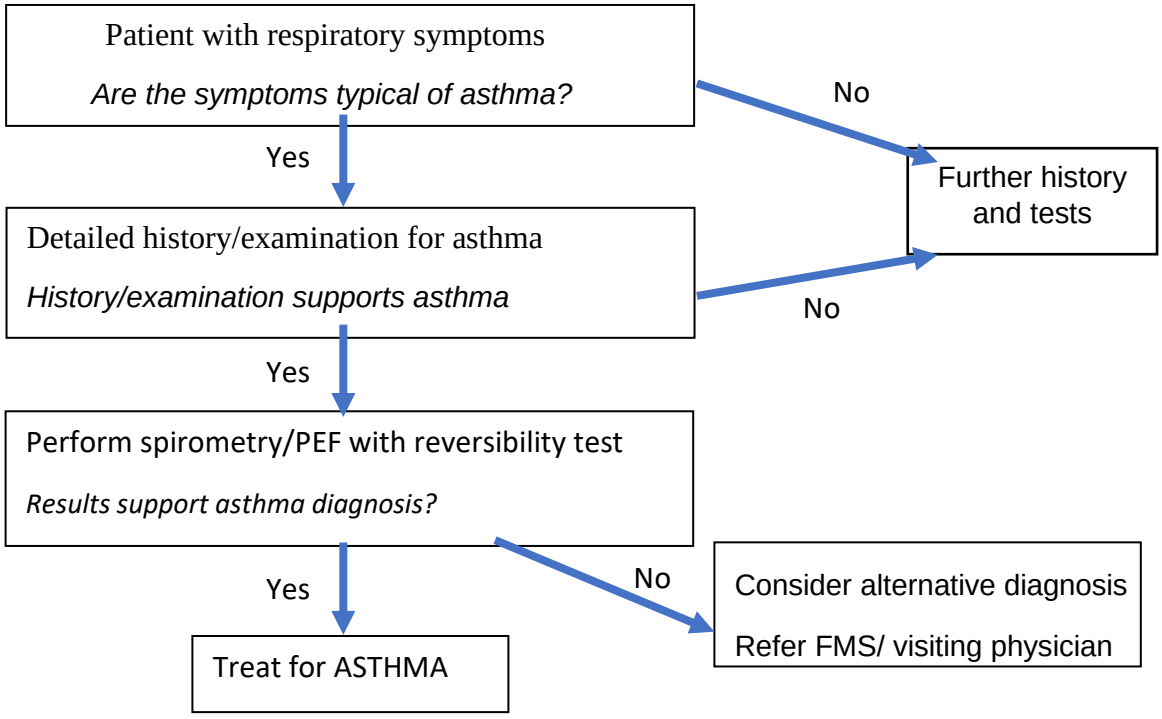
3	Subsequent antenatal follow-up	• Assess level of asthma control and manage accordingly. • Monitor PEFR every visit. • 4-6 weekly review depending on the level of asthma control. • Women who are smoking to be referred to Quit Smoking Clinic. • Advice to avoid known trigger factors. • Encourage personalised self-management, use of asthma diary and written asthma action plan. • Serial growth scans starting at 28 weeks in women with severe asthma.
4	Delivery plan	• As per obstetric indication.
5	Delivery	• Hospital delivery
6	Postpartum	• Continue asthma medications until review in own clinic. • Discuss options of contraception with patient / couple. • Step-down treatment to pre-pregnancy doses or using stepwise approach if asthma is well controlled
7	Lactation	• Encourage breastfeeding. Medicines used to treat asthma can be used normally during breastfeeding.
8	Upon discharge from Hospital	• Notification of high-risk cases discharge as per guideline for uncontrolled asthma.

REMARKS:

1. Definition: Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation.
2. Incidence:
   e. It affects 1–18% of the population in different countries. Asthma control often changes during pregnancy:
      i. one-third of women asthma symptoms worsen
      ii. one-third of women improve
      iii. one-third remain unchanged

f. Exacerbations are common in pregnancy, particularly in the second trimester. Exacerbations and poor asthma control during pregnancy may be due to:
   i. mechanical changes or
   ii. hormonal changes, or
   iii. cessation or reduction of asthma medications due to concerns by the mother and/or the health care provider

Diagnosis of bronchial asthma in pregnancy (flow chart) in clinical practice



3. Diagnostic criteria for bronchial asthma in adult
   a. History of variable respiratory symptoms (increased probability of asthma diagnosis)
      i. Wheeze, shortness of breath, chest tightness and cough (generally more than one respiratory symptoms)
      ii. Symptoms occur variably over time and vary in intensity; often worse at night or on waking
      iii. Symptoms are often triggered by exercise, laughter, allergens and cold air; worsen with viral infections
   b. Confirmed presence of airflow limitation or variable expiratory airflow limitation:
      i. Reduced FEV1/FVC
      ii. Excessive variability (> 10%) in twice daily PEF over 2 weeks
      iii. Positive bronchodilator reversibility test- increase in FEV1 of > 12% and 200ml from baseline

4. GINA assessment of asthma control in adult

GINA ASSESSMENT OF ASTHMA CONTROL

A. Symptom control	**Level of asthma symptom control**		
In the past 4 weeks, has the patient had:	**Well-controlled**	**Partly controlled**	**Uncontrolled**
• Daytime asthma symptoms more than twice a week Yes □ No □	None of these	1-2 of these	3-4 of these
• Any night waking due to asthma? Yes □ No □			
• Reliever needed for symptoms more than twice a week? Yes □ No □			
• Any activity limitation due to asthma? Yes □ No □			

B. Risk factors for poor asthma outcomes

- Assess risk factors at diagnosis and periodically
- Measure FEV1 at start of treatment, after 3- 6 months of controller treatment to record the patient's personal best, then periodically for ongoing risk assessment

ASSESS PATIENT'S RISKS FOR:

- Exacerbations
- Fixed airflow limitation
- Medication side-effects

5. Risk factors for poor asthma outcomes. Having one or more of these risk factors increases the risk of exacerbations even if symptoms are well controlled:
   a. Uncontrolled asthma symptoms
   b. High SABA use (> 1 canister 200 doses/month)
   c. Inadequate ICS, not prescribed ICS, poor adherence, incorrect inhaler technique
   d. Low FEV_1 especially if <60% predicted
   e. Major psychological or socioeconomic problems
   f. Exposures: smoking, allergen exposure if sensitized
   g. Comorbidities: obesity, rhinosinusitis, confirmed food allergy
   h. Pregnancy

6. Severity of asthma is assessed retrospectively from the level of treatment required to control symptoms and exacerbations.
   a. Mild asthma: controlled with Step 1 or 2
   b. Severe asthma: required Step 3, 4 or 5

7. Preparation of inhaled corticosteroid

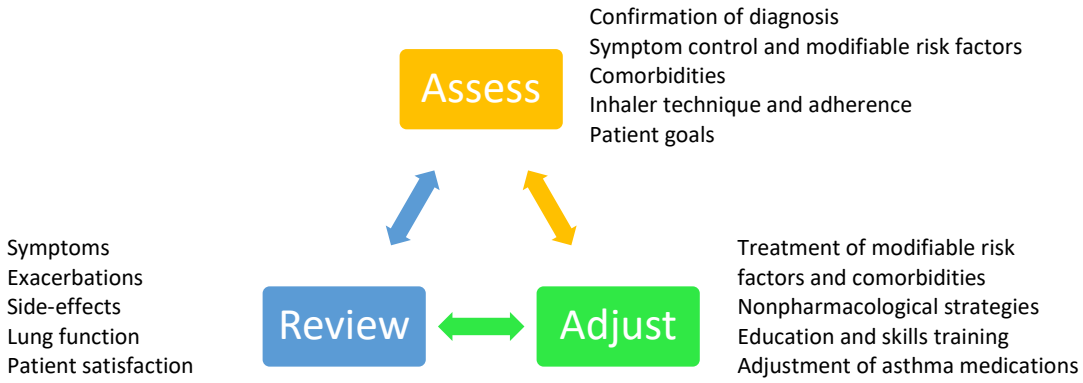
Inhaled corticosteroids / total daily dose (mcg)	**Low**	**Moderate**	**High**
Beclomethasone dipropionate	100-200	>200-400	>400
Budesonide	200-400	>400-800	>800
Fluticasone propionate	100-250	>250-500	>500

Reference(s):

1. Global Strategy for Asthma Management and Prevention (2019 update) by Global Initiative for Asthma (GINA)
2. Clinical Practice Guidelines Management of Asthma in Adults Academy of Medicine of Malaysia (2017)

A. The control base asthma management cycle with stepwise approach in management

Personalised asthma management



Asthma medication options:
Adjust treatment up and down for individual patient needs

	Step 1	Step 2	Step 3	Step 4	Step 5
PREFERREDD CONTROLLER To prevent exacerbations and control symptoms	As-needed low-dose ICS-formoterol	Daily low-dose ICS or as-needed low-dose ICS-formoterol	Low-dose ICS/LABA	Medium-dose ICS/LABA	High-dose ICS/LABA Refer for phenotypic assessment ±add on therapy, e.g. tiotropium, anti-IgE, anti-IL-5/5R, anti-IL-4R
Other controller options	Low-dose ICS taken whenever SABA is taken	LTRA or low-dose ICS taken whenever SABA taken	Medium-dose ICS or low-dose ICS+LTRA	High-dose ICS, add-on tiotropium or add-on LTRA	Add low-dose OCS, but consider side-effects
PREFERRED RELIEVER	As-needed low dose ICS-formoterol		As-needed low dose ICS-formoterol for patients prescribed maintenance and reliever therapy		
Other reliever option	As-needed short-acting β_2-agonist (SABA)				

ICS – Inhaled corticosteroid
LTRA – Leukotriene receptor antagonist
OCS – Oral corticosteroids
SABA – Short acting β_2-agonist

(Adapted from GINA Pocket Guide for Asthma Management and Prevention)

12.2 Chronic Lung Disease in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Detail history taking, vital signs and physical examination. • Assess degree of functional disability due to dyspnoea (MMRC dyspnoea scale). • Review pulmonary function test and peak flow meters. • Pregnancy is contraindicated in the presence of pulmonary hypertension • To refer to respiratory team for joint management. • Encourage patient to get Pneumococcal and Influenza vaccine.
2	Booking	• Detail history taking, vital signs and physical examination. • As clinically indicated, to do investigations such as FBC, ECG, CXR, sputum AFB, sputum C&S and Echocardiography. • To do pulmonary function test and peak flow meters. • Assess MMRC dyspnoea scale. ➢ MMRC score 0: follow up by MO at health clinic. ➢ MMRC score 1-4: follow up by FMS and Combined Clinic for multidisciplinary team management. ▪ Review use of medications and step up accordingly.
3	Subsequent antenatal follow-up	• Strongly encourage smoking cessation and avoidance of triggering factors. • Refer for chest physiotherapy if needed. • Review monthly by FMS/ Combined Clinic depending on severity. • Monthly fetal growth scan starting at 28 weeks. • Consider inactivated influenza vaccination if not given within past 1 year.
4	Delivery	• Delivery plan as per obstetric indication. • Consider early referral to Anaesthesiologist if poor pulmonary function. • May require early delivery if worsening symptom or deteriorate pulmonary function. • Consider stress dose steroids during intrapartum if patient is on long term steroid therapy.
5	Postpartum	• Hospital with specialist.

6	Lactation	• To continue Pre-pregnancy clinic follow-up. • Continue medications until review in clinic. • Discuss options of contraception with patient / couple.
7	Upon discharge from hospital	• Allow breastfeeding if there is no contraindication.

REMARKS:

1. Some women will have pre-existing chronic lung diseases such as chronic bronchitis, bronchiectasis, cystic fibrosis, and less commonly restrictive lung diseases such as kyphoscoliosis, myasthenia gravis, sarcoidosis and diffuse interstitial lung disease.
2. Pulmonary hypertension (PH) is defined as a resting mean pulmonary artery pressure greater than 25 mmHg.
3. Irrespective of aetiology, pulmonary hypertension carries a grave prognosis during pregnancy (50% mortality). The increase in blood volume and cardiac output during pregnancy is poorly tolerated and precipitates right heart failure with severely decreased cardiac output and sudden death.
4. Termination of pregnancy is advised in women with even mild pulmonary hypertension of any aetiologies who do get pregnant.
5. Use of anticoagulants and bed rest with multidisciplinary team management by obstetricians, cardiologists, and anaesthesiologists are recommended if the patient chooses to continue with the pregnancy.
6. The Modified Medical Research Council (MMRC) Dyspnoea Scale

Grade of dyspnoea	Description
0	Not troubled by breathlessness except on strenuous exercise
1	Shortness of breath when hurrying on the level *or* walking up a slight hill
2	Walks slower than people of the same age on the level because of breathlessness *or* has to stop for breath when walking at own pace on the level
3	Stops for breath after walking about 100 m *or* after a few minutes on the level
4	Too breathless to leave the house *or* breathless when dressing or undressing

Reference(s):

1. Catherine Nelson Piercy Handbook of Obstetric Medicine, edition 2007.
2. Bhatia P, Bhatia K. Pregnancy and the lungs. Postgraduate Medical Journal 2000;76: 683-689.

SECTION 13 RENAL DISEASES IN PREGNANCY

13.1 Chronic Kidney Disease in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• All female patients of reproductive at any stage of CKD should receive pre-pregnancy care counselling by FMS. • Pregnancy may be considered in women with: ➢ mild renal impairment (serum creatinine <124µmol/L), ➢ well controlled blood pressure, and ➢ without significant proteinuria (<1g/day) • Pregnancy should be avoided in women with either: ➢ moderate to severe renal impairment (refer remarks) ➢ poorly controlled hypertension ➢ heavy proteinuria ➢ active systemic disease • Rule out relative contraindication to pregnancy: ➢ ESRF ➢ Haemodialysis ➢ Recent transplant < 1-2 years ➢ Renal transplant with recent rejection • Pre-pregnancy optimisation: ➢ Stop medications not compatible with pregnancy (e.g. statins, ACEi, ARB) ➢ Optimisation of pre-existing disease (e.g.: lupus inactivity for 6 months) ➢ Ensure disease stability for 3 months on pregnancy-safe immunosuppression (if applicable) ➢ Intensive hypertension control with pregnancy-safe antihypertensive agents (target <140/90 mm Hg) ➢ Weight reduction if necessary and encourage active lifestyle • Baseline pre-pregnancy investigations: FBC, Renal profile, serum albumin, urine protein.

2	Antenatal	• All pregnant women with CKD should be co-managed by a multi-disciplinary team (early referral for combined specialist care). • First trimester dating scan. • For aspirin 100-150 mg taken at bedtime starting from 12 weeks up to 16 weeks of gestation until delivery. • Calcium Carbonate 1 gm bd commenced at booking (before 20 weeks gestation). • At every visit, women should be screened for complications, hypertension, proteinuria and pre-eclampsia. • Levels of renal profile, uric acid, liver enzymes, platelet count and urine protein should be documented to use as a baseline in the case that superimposed pre-eclampsia is suspected later in pregnancy. • UTI screening for asymptomatic bacteriuria (refer section 13.3) • Renal function checked at each trimester or more frequent if needed. • Anomaly scan at 24 weeks (Indication: types of drug exposure in pregnancy). • Ultrasound for fetal growth every 4 weeks starting from 24 weeks POA till delivery.
3	Delivery	• Delivery as near term as possible. • Hospital delivery. • Vaginal delivery is the preferred mode of delivery if there are no obstetric contraindications.
4	Postpartum	• Encourage breastfeeding. • Contraception: ➢ Avoid estrogen-containing preparations (if possible) in women with hypertension, vascular disease, or significant proteinuria or who are smokers ➢ Intra-uterine devices (IUCD/IUS) are not contraindicated in women on immuno-suppression. ➢ DM Nephropathy (Refer MEC for Contraceptive Use) • Pre-pregnancy clinic in O&G for future pregnancy.
5	Lactation	• Breastfeeding is not contraindicated.

REMARKS:

1. Severity grading in chronic kidney disease:

Severity	Serum Creatinine Level (µmol/l)	eGFR (ml/min)
Mild	90-123	>70
Moderate	124-220	40-70
Severe	>220	<40

2. Pregnancy in women with moderate to severe renal impairment (serum creatinine >124µmol/L) results in increased risk of adverse maternal and fetal outcomes.
3. Complication related to CKD in pregnancy
   a. Maternal complications - accelerated decline in renal function, hypertension, proteinuria and pre-eclampsia
   b. Fetal complications - spontaneous abortion/ neonatal death, prematurity, low birth weight/ SGA baby
4. Commonly used drugs in pregnant women with CKD (please refer table below)

Drug	Teratogenicity	Safe in pregnancy	Safe in breastfeeding	FDA
Antihypertensive				
Methyldopa	X	Often used first line.	Safe	B
Beta-Blockers	X	Safe. *Fetal growth restriction in some studies. Fetal bradycardia with Atenolol in first trimester.	Excreted into breastmilk, but widely used without reports of neonatal side effects.	C
Ca-Channel Blocker (e.g. Nifedipine, Amlodipine)	X	Usually used second line in conjunction with methyldopa or labetalol.	Excreted into breastmilk but widely used without reports of neonatal side effects.	C
Hydrochlorothiazide	X	Theoretically, may cause intra-vascular volume contraction and reduce placental perfusion, but can be used with caution for fluid overload or difficult-to-control hypertension.	Excessive thirst in breastfeeding women; large doses may suppress lactation.	C

	Hydralazine	X	Usually used in combination with sympatholytic agent to prevent reflex tachycardia.	Excreted in breast milk, but no adverse effects reported.	C	
	ACEi/ ARB	Oligo-hydramnios, neonatal anuria and renal failure, limb contractures, cranio-facial abnormalities, pulmonary hypoplasia, and patent ductus arteriosus (PDA)	X Stop at conception. Prolonged exposure can result in fetal renal insufficiency and impairment in the urine-concentrating ability, likely due to papillary atrophy and disturbed formation of the medullary concentration gradient	Enalapril and Captopril are excreted in small amounts with no adverse effects reported	D	
	Immuno-suppressants					
	Prednisolone	Possible increase in oral cleft palate	Maternal side effects: bone loss and possible osteo-necrosis, gestational diabetes, hypertension, cataract, adrenal insufficiency. Fetal effects: rare- except at large doses (cataract, infection and adrenal insufficiency)	Safe (breastfeeding is not encouraged if dose >60mg daily)	C	
	Azathioprine	Possible sporadic congenital abnormalities	Safe Fetal/ neonatal effects: Transient immune alterations in neonates	Safe	D	
	Tacrolimus and Cyclosporine	X	Safe Usually increased doses required to achieve pre-pregnancy target levels. Hyperkalemia, worsening	Excreted into breast milk, but 0.23%- 0.5% of maternal weight-adjusted dose	C	

		hypertension and nephrotoxicity are possible. Fetal/ neonatal effects: Hyperkalemia and renal impairment.		
Mycophenolate Mofetil (MMF)	Congenital abnormalities in 22.9%: cleft lip and palate, absent auditory canal, hypertelorism, microtia, brachydactyly of the fifth finger, limb abnormalities, and hypoplastic toenails	X Stop at conception	X	D
Cyclophosphamide	Teratogenic	X Fetal/ neonatal effects: Chromosomal abnormalities and cytopenia	X	D

Reference(s):

1. Clinical Practice Guidelines on Management of Chronic Kidney Disease in Adults (Second Edition), 2018, page 22-23
2. Penggunaan Calcium Carbonate Dalam Pencegahan “Pre-Eclampsia” Bagi Pesakit Hamil Yang Berisiko, (38) JKN(SB)(P)/100-1/6 Bertarikh 12 November 2019
3. Pregnancy across the Spectrum of Chronic Kidney Disease, www.kidney-international.org,Michelle A. Hladunewich, published online 24 March 2016, page 995-1007
4. Risk of Adverse Pregnancy Outcomes in Women with CKD, Giorgina Barbara Piccoli, Journal of American Society of Nephrology, October 2014, page 2011-2015
5. Pregnancy in Chronic Kidney Disease and Kidney Transplantation, Philip Webster, Kidney International, published online February 2017, page 1047-1056
6. Pregnancy in Women with Non-dialysis Chronic Kidney Disease, UpToDate
7. CPG Management of Hypertension (5th edition) 2018, page 85-86

13.2 Hypokalemia in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Patient should be investigated for causes of hypokalemia. • Classification ➢ mild 3.0 – 3.5 mmol/L ➢ moderate 2.5 -3.0 mmol/L ➢ severe <2.5 mmol/L • Keep serum K+ >3.0 mmol/L. ➢ If suspected/diagnosed RTA, to refer MOPD for further management.
2	Booking	• Identify patient at risk/ established diagnosis if not known. • Keep serum K+ >3.0 mmol/L. • Discuss with FMS on frequency of serum K+ monitoring. • Refer Combined Clinic if moderate to severe hypokalemia. • Admit if symptomatic. ➢ Treat underlying cause first (e.g. Nausea & vomiting in pregnancy)
3	Subsequent antenatal follow-up	• Keep serum K+ >3.0 mmol/L. ➢ Refer Combined Clinic if moderate to severe hypokalemia • Assess compliance to potassium supplement. • Admit if symptomatic*
4	Delivery	Deliver at hospital with specialist.
5	Postpartum	• Keep serum K+ >3.0 mmol/L ➢ Refer medical team if not investigated earlier.

REMARKS:

1. Causes of hypokalaemia

Inadequate potassium intake	• Eating disorders: Anorexia, bulimia, starvation, pica, and alcoholism • Poverty: Inadequate quantity or quality of food • Hospitalization: Potassium-poor TPN • Dental problems: Impaired ability to chew or swallow
Increased potassium excretion	• Renal tubular acidosis type 1 or 2 • Diuretics: Thiazide, Loop diuretics, Mannitol • ↑ gastrointestinal losses: vomiting, diarrhea, fistula • ↑ from skin loss: burns, excessive sweating • ↑ Aldosterone excretion: primary and secondary hyperaldosteronism (Liver failure, heart failure, renal artery stenosis, salt losing nephropathy) • Non-aldosterone mineralocorticoid excess (endogenous or exogenous): CAH, Cushing syndrome • Renal tubular damage: Acute leukaemia, post-obstructive uropathy, nephrotoxic drugs (Amphotericin B, aminoglycosides, etc.) • Genetic disorders; Bartter's syndrome, Gitelman's syndrome, Liddle's syndrome, Hypokalemic periodic paralysis • Hypomagnesaemia: Alcoholism
Redistribution into cells	• Insulin treatment: DKA • Exogenous glucose • Alkalosis

2. Symptomatic hypokalemia
   a. Weakness and fatigue (most common)
   b. Muscle cramps and pain (severe cases)

c. Worsening diabetes control or polyuria d. Palpitations e. Psychological symptoms (e.g. psychosis, delirium, hallucinations, depression)
3. Baseline investigations can be done at primary care: a. FBC b. Renal profile c. Serum magnesium d. LFT e. TSH f. UFEME g. ECG h. VBG (if service available)
4. Medication options for hypokalemia treatment: a. Potassium Chloride SR Tablet (Slow K 600mg/tablet) 1.2-1.8 g/day b. Potassium Chloride Mixture (Mist KCL 1g/15ml) 15ml daily/ twice daily
2. 4. Common side effects of Potassium chloride SR tablet: a. Stomachache/ stomach upset / bloatedness b. Nausea c. Vomiting d. Diarrhea e. Skin rash f. Lethargy g. Tingling, prickling, burning, tight, or pulling sensation of arms, hands, legs, or feet

Reference(s):

1. The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum, Green-top Guideline No.69, June 2016
2. Medscape, Hypokalaemia, December 2018.

13.3 Urinary Tract Infection in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Advise prevention steps such as: ➢ Avoid delayed voiding habit Empty bladder at least 4-hourly during the day ➢ Avoid douching ➢ Avoid tight clothing. Use cotton underwear ➢ Increase fluid intake ➢ Empty bladder after sexual intercourse Double voiding to ensure no residual urine ➢ Always wipe from front to back after using toilet ➢ Take shower & avoid prolonged long-bath
2	Booking	**Asymptomatic Bacteriuria:** • Screening in early pregnancy or at booking with urinalysis. • If routine dipstick shows proteinuria or glycosuria – proceed with multi-reagent dipstick. • Perform MSU C&S if multi-reagent dipstick is positive for nitrite or leucocyte. • Positive detection of nitrite +/- leucocyte is strongly suggestive of significant bacteriuria and enough for commencement of empirical antimicrobial treatment. • Positive urine culture should be treated with antibiotic for 5-7 days. • Repeat urinalysis or urine C&S 1 week after completion of antibiotic. **Acute Cystitis:** • Symptoms include dysuria, frequency and urgency. • Perform urine analysis and MSU C&S if patient is symptomatic. • Treat empirically with 5-7 days antibiotics.

- Simple analgesics can be considered for symptom relief.
- Choice of antibiotics

Antibiotics	**Dose**
Nitrofurantoin Cephalexin	50-100mg QID (macrocrystals) **OR** 100mg BD (monohydrate/ macrocrystals) 500mg BD
<u>Alternative</u> Cefuroxime Augmentin Unasyn	 250mg BD **OR** 625mg TDS **OR** 375-750 mg BD

  - Avoid nitrofurantoin at 3rd trimester due to small risk of haemolytic anaemia in newborn.
- Trace urine C&S and manage accordingly
- Repeat MSU C&S 1-2 weeks after completion of antibiotics to ensure eradication.
- Treat with antibiotic for 7 days if recurrent.
- Judicious use of alkalinising products (e.g. Ural, potassium citrate) in pregnancy (FDA category: C).

Recurrent UTI

- Perform USS KUB and renal profile
- Advise on prevention steps as above
- For those who have had no improvement after behavioural and personal hygiene measures, consider continuous antibiotic prophylaxis.

Antibiotic	**Dose**
Nitrofurantoin Cephalexin	50-100mg ON **OR** 250mg ON

		Acute Pyelonephritis • Suspect if patient presented with fever, flank pain, nausea, vomiting and/or costovertebral angle tenderness. • Symptoms of cystitis are not always present. • Perform urinalysis and MSU C&S. • If suspected acute pyelonephritis, admit for further management. • Assess patient for ➢ Dehydration ➢ Maternal & fetal complications • USS KUB may be required for further assessment.
3	Delivery	• Timing & mode of delivery as per obstetric indication. • Hospital delivery.
4	Postpartum	• To discuss options of contraception with patient/ couple. • Pre-pregnancy clinic appointment.
5	Lactation	• Exclusive breastfeeding for 6 months.

REMARKS:

1. Prevalence on UTI
2. Asymptomatic bacteriuria occurs in 2-10% of pregnant women.
3. Without treatment 20-35% will develop symptomatic UTI including pyelonephritis during pregnancy.
4. Acute cystitis occurs in approximately 1-2% of pregnant women.
5. Acute pyelonephritis incidence is 0.5-2%. Most occurs in second or third trimesters.

6. Diagnosis:
   a. Asymptomatic bacteriuria

      Two consecutive voided urine specimens with isolation of the same bacterial strain in quantitative counts of $\geq 10^5$ colony-forming units (cfu)/mL or a single catheterized urine specimen with one bacterial species isolated in a

quantitative count of ≥10^2 cfu/mL). Treatment started after confirmed by urine culture.

b. Recurrent UTI

Recurrent UTI defined as two UTIs within the previous six months, or 3 or more episodes in a year. At least one symptomatic episode should be verified by urine culture.

c. Risk for recurrent UTI
   i. Sexual intercourse 3 or more / week
   ii. Spermicide use
   iii. New or multiple sex partner
   iv. Having UTI before 15 years of age

7. Untreated bacteriuria associated with:

Mother:	Fetal
a. Pyelonephritis	h. Prematurity
b. Preterm birth	i. Low birth weight
c. Anaemia	j. Perinatal mortality
d. Sepsis	
e. Respiratory distress	
f. Chorioamnionitis	
g. Hypertension/ pre-eclampsia	

8. Urinalysis:
   a. Presence of nitrites is highly predictive of a positive urine culture (Positive predictive Value = 75% to 95%);
   b. Absence of leukocyte esterase has high negative predictive of positive urine culture
      (Negative predictive value = 82% to 91%)
   c. Presence of both (nitrites and leucocyte) is almost conclusive
      (Positive Predictive Value = 98%)

9. Organisms that cause UTIs during pregnancy are the same as those found in non-pregnant women:
    a. *Escherichia coli (80 – 90%)*
    b. *Proteus mirabilis*
    c. *Klebsiella pneumonia*
    d. *Group B streptococcus*
    e. *Staphylococcus saprophyticus*
    f. *Enterococci*
    g. *Gardnerella vaginalis*
    h. *Ureaplasma ureolyticum*

Reference(s):

1. Review Urinary tract infection in pregnancy (2008)
2. John L Brusch. Medscape: Prevention of Urinary Tract Infection (UTI) in Women. Oct 10, 2017.
3. Hooton MT, Gupta K. Up To Date: urinary tract infections and asymptomatic bacteriuria in pregnancy. last updated Dec 19, 2019
4. Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: Update by the Infectious Diseases Society of America, 2019
5. NICE guideline (2018): Urinary tract infection (recurrent): antimicrobial prescribing guidance
6. AAFP. Common questions about recurrent urinary tract infections in women, 2016
7. National Antibiotic Guideline, 2019
8. WHO recommendation on antibiotic prophylaxis to prevent recurrent urinary tract infections. 9 March 2018.
9. WHO recommendation on the method for diagnosing asymptomatic bacteriuria in pregnancy. 8 March 2019.
10. AAFP. Dysuria: Evaluation and differential diagnosis in adults, 2015

SECTION 14 SOCIAL PROBLEMS IN PREGNANCY

14.1 Domestic Violence

	Phase	Plan of Action
1	Pre-pregnancy	• Refer FMS for assessment.
2	Booking	• Woman-centered care: Be non-judgmental, maintain confidentiality when possible, privacy and not pressure woman to leave the relationship. • Offer first line support: ➢ ask about her history of violence, listen carefully, but not pressuring her to talk (care should be taken when discussing sensitive topics when interpreters are involved). ➢ help her access information about resources, including legal and other services that she might think helpful. ➢ assist her to increase safety for herself and her children, where needed. ➢ provide or mobilize social support. • Assessment for the safety to the mother and her other children. • Safety plan as the patient is at risk of serious harm or death (Refer to remarks). • Explain about sources of support: ➢ Establish if they have any friends/family that know or could support them ➢ Counselling/support and helplines (Refer to remarks) ➢ Shelter is available if they cannot go home • Assist in referrals (and explain how they can help) ➢ Police ➢ OSCC ➢ Counselling/support services ➢ Social services (JKM) • Consent is needed if the victim is an adult with capacity (unless an underage teenager or vulnerable adults).
3	Subsequent antenatal follow-up	• Screen for mental illness (Refer to chapter antenatal mental health screening) • Urgent referral to psychiatrist if suicidal ideation or attempt • Involve O&G if any obstetric concern
4	Delivery	• Hospital delivery.

5	Postpartum	• Home visit to evaluate the social and family support • Mental health screening • Contraception
6	Lactation	• Encourage breast feeding

REMARKS:

1. NGO services available in Sabah:
    a. SAWO (Sabah Daya Tindakan Wanita Sabah) – 088-269291
    b. AWAM (All Women's Action Society Malaysia) – 03-78770224
    c. WAO (Women Aid Organisation) – 03- 79563488 or Whatsapp/ SMS 018-9888058
    d. AGAPE- 088-254515
    e. Talian Kasih – 15999
    f. Befrienders – 088-255788

2. Safety plan:
    a. Preparing an emergency kit with important documents, keys, money, and other essential items, to be stored outside the home in case they need to escape urgently
    b. A place to go (friends, family, shelter)
    c. A signal to alert children or neighbors to call 999
    d. During times of escalating conflict, avoiding rooms with potential weapons (kitchen) or risk for increased injury (hard bathroom surfaces)

3. "Universal screening" or "routine enquiry" (i.e. asking women in all health-care encounters) should not be implemented.

Reference(s):

1. OSCC: One Stop Crisis Center: Policy and Guidelines for Hospitals, Ministry of Health, Malaysia 2015
2. Responding to intimate partner violence and sexual violence against women. WHO clinical and policy guidelines. 2013.
3. Amy Weil (2018). Intimate partner violence: Intervention and patient management. In Elmore, J.G. (Ed.), UpToDate.

14.2 Teenage Pregnancy or Single Parent

	Phase	Plan of Action
1	Pre-pregnancy	• Refer FMS for assessment
2	Booking	• **Single adult mother (≥18 years)** ➢ Referral to MSW ➢ If any element of sexual assault or physical violence – advise that police report should be made (by patient) and refer OSCC if safety is an issue • **Teenage mother (16-18 years)** ➢ Referral to MSW and report to *Pelindung JKM* (Borang 9 to be filled up by first-contact doctor) ➢ If any element of sexual assault or physical violence – police report should be made (by doctor) and refer OSCC ➢ If safety of the patient is an issue – refer OSCC ➢ To get parental/ husband consent for treatment and referral (to refer *Pelindung* if not available) • **Teenage mother (<16 years old)** ➢ Doctor's legal responsibility to ensure that police report is made (statutory rape) ➢ Referral to MSW and report to *Pelindung JKM* (Borang 9 to be filled up by first-contact doctor) ➢ Refer OSCC in hospital- multidisciplinary care (O&G, psychologist, SCAN team) ➢ To get parental/ husband consent for treatment and referral (to refer *Pelindung* if not available) • Implementation of HEADSS framework during interview of teenage mother: **H**ome **E**ducation/Employment

		Activity – hobbies, leisure, peers **D**rugs/Diet **S**exual **S**uicide/safety • Future plan: parenthood/ abortion/ adoption
3	Subsequent antenatal follow-up	• **Antenatal care as in perinatal care manual** ➢ Complete history on psychosocial support ➢ To be seen by FMS at least once throughout pregnancy • **Maternal assessment** ➢ Anaemia ➢ Pre-eclampsia ➢ Mental health assessment (please refer chapter mental health screening) ➢ Psychosocial support - referral to MSW if not done during booking ➢ Repeat HIV screening test /RPR in 3rd trimester (see remarks- high risk group) • **Fetal assessment** ➢ Monthly growth assessment
4	Delivery	• Hospital delivery • Inform MSW before discharge if needed
5	Postpartum	• Discuss and emphasize importance of contraception and good pregnancy spacing • Counsel on importance of safe sex • HIV/ STI education
6	Lactation	• Encourage breast feeding on demand

REMARKS:

1. All pregnant women will be registered for antenatal care regardless of their marital status.
2. Medical social worker (Pegawai Kesihatan Sosial Perubatan) in Hospital or Health Clinic
3. Pegawai Pelindung (Pegawai Kebajikan Masyarakat) in Pejabat Kebajikan of every district.
4. Definition
   a. Child refers to a person under the age of 18 years
   b. Teenage pregnancy is defined as pregnancy below 19 years old
   c. Single mother is defined as pregnant women who are unmarried or unable to prove their marital status
5. Legal age for marriage for Malaysian women is 16 years old
6. Marital status confirmation is by producing valid official document by Jabatan Pendaftaran Negara or Mahkamah Anak Negeri
7. Verbal confidentiality contract (VCC):
   Inform the teenager/single mother about the confidentiality and privacy except in 3 situations where the confidentiality will be breached when:
   a. Risk of harm to self
   b. Risk of harm from others
   c. Risk of harm to others
   *Be non-judgmental
8. Teenage pregnancy <18 year old/ mentally incompetence:
   a. Unmarried: consent from parents/guardian.
   b. Married: consent from husband if ≥18 year old. If husband <18 year old – consent from parents/ guardian.
9. Teenage mothers are at higher risk of:
   a. Pre-eclampsia
   b. Anaemia
   c. Fetal growth restriction

d. Prematurity e. Puerperal endometritis/ systemic infection f. Infant death g. Low birth weight babies h. Postpartum depression
10. High risk group mother a. RPR reactive upon booking b. Teenage pregnancy c. Single mother d. Indigenous mother e. Immigrant mother f. History of more >1 sexual partner g. History of stillbirth/ miscarriage h. History of unbooked/ unscreened i. History of alcohol/ drug use

Reference(s):

1. Garis Panduan Pengendalian Masalah Kesihatan Seksual dan Reproduktif Remaja di Klinik Kesihatan, Bah. Pembangunan Kesihatan Keluarga, Kementerian Kesihatan Malaysia, 2012
2. Kanun Keseksaan (Akta 574) Seksyen 375 – Rogol
3. Akta Kanak-kanak (Pindaan) 2016 (Akta 1511)
4. Akta Kesalahan-Kesalahan Jenayah Seksual Terhadap Kanak-Kanak 2017 (Akta 792)
5. Akta Umur Dewasa 1971 (Akta 21)
6. Kerahsiaan – Majlis Perubatan Malysia, Julai 2008

SECTION 15 THYROID DISORDERS IN PREGNANCY

15.1 Hyperthyroidism in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Refer for counselling by FMS / O&G (Pre-pregnancy clinic)/ MO (health clinic without FMS). • Thyrotoxic women should be rendered euthyroid before attempting pregnancy. • Defer pregnancy at least 6 months after Radioiodine (131^{I}) and biochemically euthyroid. • Effective contraception if woman is planned for RAI. • Consider switching to PTU if on carbimazole. For benefit of any existing doubt, women in reproductive age group should be commenced on PTU. • In patient with thyroid nodule(s): ➢ Perform thyroid sonography and survey of cervical lymph nodes ➢ Refer for FNAC (SOPD) if ultrasound features reveal complex thyroid nodule ➢ Thyroid nodule diagnostic FNAC is not required if nodule(s) is purely cystic or no sonographic suspicion
2	Booking	• Refer to FMS for assessment and commencement of antithyroid drug (ATD). • Refer Combined Clinic for shared care. • Treatment of hyperthyroidism in pregnancy: ➢ PTU is preferred during 1st trimester and can continue up to 16 weeks' gestation (For patients diagnosed hyperthyroidism in pregnancy) ➢ Patients who have already on Carbimazole pre-pregnancy, can continue with current regime without switching to PTU.

		➢ After first trimester, Carbimazole is recommended. ➢ FT4 and TSH level: ▪ to be done monthly after initiation of therapy ▪ 4-6 weekly after achieving the target value ➢ Aim to maintain the FT4 levels at, or just above upper limit of normal. ➢ Propanolol (shortest possible duration if indicated) for symptomatic control. ➢ Check FBC, LFT and TFT 4 weeks after commencement of ATD. ➢ In patients with past or present history of Grave's disease, to measure serum TRAb during second trimester (will be decided by Combined Clinic team or endocrinologist). • In gestational transient hyperthyroidism: ➢ Supportive treatment for hyperemesis gravidarum is indicated (including treatment of dehydration). ➢ ATD is not indicated, since serum T4 returns to normal by 14-18 weeks. • In subclinical hyperthyroidism: ➢ ATD is not recommended as it is usually transient in first trimester & gradually improves in later gestation.
3	Subsequent antenatal follow-up	• Shared care between FMS and Combined Clinic team. • Detailed scan by O&G/ MFM team at 24 weeks if indicated. • Monthly serial growth velocity scans with vigilance for high output cardiac failure: tachycardia, effusions or fetal goitre • Maintain the FT4 levels at, or just above upper limit of normal. • Monitor TFT once per trimester if controlled. • Urgent consultation with endocrinologist if hyperthyroidism

		difficult to control.
4	Delivery	• May allow postdate, unless specified otherwise. • Hospital delivery.
5	Postpartum	• Arrange FMS appointment within one month. • Pre-pregnancy Clinic appointment at 3 months postnatal (if future pregnancy possible). • Carbimazole in doses up to 20-30mg/d is safe for lactating mothers and infants. • 2nd line: PTU at 300mg/d (concerns of hepatotoxicity). • To administer ATDs following a feeding, in divided doses. • Refer all babies born to mothers with hyperthyroidism to Paediatric team. • Type 1 DM, Grave's disease in remission and chronic viral hepatitis: ➢ at risk of developing post-partum thyroiditis ➢ To measure TSH level at 6-12 weeks gestation and 6 months postpartum • Women known to be thyroid antibody positive: ➢ To measure TSH level at 6-12 weeks gestation and 6 months postpartum, or as clinically indicated. • Contraception advice as per MEC. • To continue follow up for hyperthyroidism under local clinic or specialist clinic as per pre pregnant.
6	Lactation	• Encourage breastfeeding.

REMARKS:

1. Important to distinguish Grave's disease from gestational transient thyrotoxicosis (GTT)
   a. GTT Defined as transient hyperthyroidism, limited to the first half of pregnancy, characterized by elevated serum Free T4 and suppressed or undetectable serum TSH, in the absence of thyroid autoimmunity.
   b. The usual presentation is hyperemesis gravidarum (due to high levels of HCG).

c. The presence of autoimmunity, goitre, ophthalmopathy, family history, would suggest Graves, therefore recommended to treat with ATD.

2. Management of GTT
   Supportive, treat dehydration, ATDs not recommended, low-dose short-term beta-blockers may be considered.

3. Uncontrolled hyperthyroidism can cause:

Mother	**Fetal/ Neonatal**
• Miscarriage • Pre-eclampsia • Preterm delivery • Congestive Heart Failure (CHF) • Thyroid storm • Placental abruption	• Prematurity • Small size for gestational age • Intrauterine fetal death • Goitre • Thyrotoxicosis • Transient Hyperthyroidism (neonates) • Hydrops

4. TRAb: helps assess fetal risk
   a. TRAb negative: no antithyroid drugs needed as very low risk of fetal/ neonatal thyrotoxicosis
   b. TRAb positive: Follow up pregnancy by fetal US, monitor TFTs
   c. 1-5% of neonates born to women with Graves' disease have fetal hyperthyroidism/ thyrotoxicosis due to trans-placental transfer of TRAb.

5. Adverse effects drugs used in hyperthyroidism:

Propylthiouracil (PTU)	**Carbimazole**	**Propanol**
Initial: 150 – 400mg TDS	Initial: 14 – 40mg OD	20 - 40mg OD
Maintenance: 3. 50 – 150mg TDS	Maintenance: 4. 5 – 15mg OD	
Side effects: Rash, fever, agranulocytosis, risk of liver toxicity	Side effects: Rash, fever, agranulocytosis, aplasia cutis, methimazole embryopathy	Side effects: Bronchospasm, Intrauterine growth restriction, neonatal hypoglycemia

5.

6. If patient is allergic to Carbimazole, to change to PTU.

7. Maintaining Free T4 levels in the upper normal of non-pregnant reference range usually protects the fetus from hypothyroidism.

8. Subtotal thyroidectomy may be indicated if:
   a. Patient has severe reaction to ATD
   b. Persistent high doses of ATD are required (Carbimazole> 30mg or PTU >

450mg/day) c. Non-adherence or uncontrolled hyperthyroidism. d. The optimal timing of surgery is in the second trimester
9. Women with history of Post-partum Thyroiditis (PPT) have a markedly increased risk of developing permanent primary hypothyroidism in the 5 to 10 years period after the episode of PPT.
10. An annual TSH level should be performed in these women in local clinic.
11. If TSH <0.1 mIU/L in the first trimester, to proceed with FT4. a. Clinical hyperthyroidism is confirmed in the presence of a suppressed or undetectable TSH and an elevated FT4.

Reference(s):

1. Stagnaro-Green, A., Abalovich, M., Alexander, E., Azizi, F., Mestman, J. Wiersinga, W.The American Thyroid Association Taskforce on Thyroid Disease During Pregnancy and Postpartum, (2011). Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and Postpartum. Thyroid, 21(10), 1081–1125. http://doi.org/10.1089/thy.2011.0087
2. Erik K. Alexander, Elizabeth N. Pearce, Gregory A. Brent, Rosalind S. Brown, Herbert Chen, Chrysoula Dosiou, William A. Grobman, Peter Laurberg,John H. Lazarus, Susan J. Mandel, Robin P. Peeters,11 and Scott Sullivan.2017 Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and the Postpartum.
3. THYROID, Volume 27, Number 3, 2017 ª American Thyroid Association ª Mary Ann Liebert, Inc. DOI: 10.1089/thy.2016.0457
4. Erik K. Alexander, Keith C. Bible, et al 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer. Bryan R. Haugen. The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer.

15.2 Hypothyroidism in Pregnancy

	Phase	Plan of Action
1	Pre-pregnancy	• Counselling by FMS/ O&G (Pre-pregnancy Clinic)/ MO (clinic without FMS). • Thyroid sonography and survey of cervical lymph nodes should be performed in all patients with thyroid nodule(s). • Women with thyroid nodule(s) should be referred for FNAC (SOPD) if ultrasound features reveal complex thyroid nodule. • Thyroid nodule diagnostic FNAC is not required if nodule(s) is purely cystic or no sonographic suspicion. • Maintain TSH < 2.5 mIU/L for known case of hypothyroidism under treatment.
2	Booking	• Overt hypothyroidism (OH) should be treated. • Consult O&G if subclinical hypothyroxinemia or isolated hypothyroidism. • In woman with hypothyroidism, the dose of L-Thyroxine should be increased by 30 to 50% once UPT is positive. • Serum TSH should be obtained early in women with risk factor (refer remarks). • Refer to FMS/ Combined Clinic. • Rapid normalizing of TSH level is advised.
3	Subsequent antenatal follow-up	• Shared care between FMS and Combined Clinic team. • Detail scan in MFM Clinic at 18-22 weeks in maternal autoimmune thyroid disease. • Combined Clinic follow-up once per trimester. • L-Thyroxine should be given and titrated up to the optimal TSH level (according to trimester):

		➢ 1st trimester: 0.1-2.5 mIU/L ➢ 2nd trimester: 0.2-3.0 mIU/L ➢ 3rd trimester: 0.3-3.0 mIU/L • Monitor TSH at every 4 to 6 weeks. • During each visit, to check on compliance and correct ingestion of levothyroxine (to take with empty stomach).
4	Delivery	• Generally, may allow postdates, unless specified otherwise • Hospital delivery.
5	Postpartum	• After delivery, most hypothyroid women may need to decrease the L- Thyroxine dose to the pre-pregnancy levels. • Serum TSH should be done at 4 to 6 weeks post-partum. • Refer all babies born to mother with hypothyroidism to the Paediatric team. • FMS/ MO appointment to review TSH result at 2 months • Endocrinology appointment, if indicated. • Pre-pregnancy Clinic appointment at 3/12 postpartum (if future pregnancy possible). • Refer MEC for contraception.
6	Lactation	• L-thyroxine should be continued in lactating women

REMARKS:

1. Prepregnancy counselling should include: a. Counsel on importance to achieve euthyroidism before conception (risk of reduce fertility and miscarriage) b. Counsel on importance of early booking for immediate monitoring of TSH level.
2. Serum TSH should be obtained early in women with risk factor below: a. History of thyroid dysfunction or thyroid surgery b. Symptoms of thyroid dysfunction or presence of goiter c. Current thyroid therapy d. History of head or neck radiation

e. Use of amiodarone or lithium, or recent administration of iodinated radiologic contrast.
f. Family history of autoimmune thyroid disease
g. Previous delivery of infant with thyroid disease
h. History of autoimmune disorder
i. History of T1DM

3. There is an association between maternal hypothyroidism and child's developmental delay.

4. Isolated hypothyrosinemia - Defined as low FT4 (in lower 2.5th to 5th percentile of population) with Normal TSH

5. Overt Hypothyroid:
   a. An elevated TSH (>2.5 mIU/L) in conjunction with a decreased FT4 concentration or
   b. Women with TSH level ≥10 mIU/L, irrespective with their FT4 level

6. Subclinical Hypothyroid (in pregnancy):
   Defined as serum TSH above the upper limit of the trimester-specific reference range with a normal Free T4.

7. The thyroxine dose usually needs to be increased by 4-6 weeks of gestation and may require 30-50% increase in dosage.

8. Complications of hypothyroidism during pregnancy:

Mother	**Child**
• Pre-eclampsia • Need for Caesarean • Gestational diabetes • Placental abruptions • Infertility • Miscarriage • Anaemia • Postpartum haemorrhage • Goitre	• **Neurocognitive defects** • Malformations • Respiratory problems • Anaemia • Sepsis • Need for ICU treatment • Large or small for gestational age • Pre-term delivery

• Postpartum maternal thyroid dysfunction	

9. TRab crosses the placenta and can cause fetal hyperthyroidism.
10. Women with thyroid autoimmunity who are euthyroid in early pregnancy are at risk of hypothyroidism.
11. Dose adjustment of L-thyroxine based on TSH level:

Thyroid-stimulating hormone level (mIU per L)	**Levothyroixine dosage increase (mcg per day)**
5 to <10	25 to 50
10 to 20	50 to 75
>20	75 to 100

Reference(s):

1. Lazarus J, Brown R, S, Daumerie C, Hubalewska-Dydejczyk A, Negro R, Vaidya B, 2014 European Thyroid Association Guidelines for the Management of Subclinical Hypothyroidism in Pregnancy and in Children. Eur Thyroid J 2014; 3:76-94.
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3. Carney LA, Quinlan JD, West JM. Thyroid disease in pregnancy. Am Fam Physician. 2014;89(4):273-8.
4. Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, et al. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer: The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer. Thyroid : official journal of the American Thyroid Association. 2016;26(1):1-133.

SECTION 16 VENOUS THROMBOEMBOLISM IN PREGNANCY

	Phase	Plan of Action
1	Pre-pregnancy	• Refer **early** to pre-pregnancy clinic for patients who are contemplating pregnancy and have a significant risk of developing VTE during pregnancy. This should include patients with: ➢ Previous VTE ➢ Thrombophilia ➢ Mechanical valve in heart disease ➢ Antiphospholipid syndrome • Other risk factors – obesity (≥ 30 kg/m^2), malignancies, cardiac failure, active SLE, IVDU/TB, nephrotic syndrome, DM with nephropathy, thalassemia major or intermedia post splenectomy. • These patients should be seen by dedicated pre-pregnancy care team. • Refer **Very high-risk** patients or who are already **on warfarin** to O&G for assessment and counselling prior to conception – aim to convert warfarin to therapeutic dose of LMWH to reduce fetal risk.
2	Booking	• **ALL** women should have their VTE risk assessment done using a VTE checklist* during **pre-pregnancy, booking, inter-current illness** and **immediate postnatal period**. • Document the VTE risk assessment in numerical score and to commence thromboprophylaxis accordingly (refer flowchart) • **Low risk (score ≤ 2)** ➢ Continue non-pharmacological thromboprophylaxis measures (anti-embolic stockings/avoid dehydration/early mobilization) - follow up in Health Clinic

		• **Moderate risk (score 3)** ➢ The initial assessment at booking, can be performed by nurses. If the score is ≥ 3, referred to the medical officer immediate if possible or within 72 hours to confirm the risks ➢ Refer FMS for counselling ≤ 26 weeks ➢ Refer O&G Specialist at 28 weeks for VTE prophylaxis • **High risk (score ≥4) or Very high risk (previous VTE, antithrombin deficiency, APS with previous VTE)** ➢ Refer O&G Specialist/FMS on the same day and start VTE prophylaxis as soon as possible ➢ High risk patients on warfarin: ▪ If present **in the first trimester** – refer O&G for conversion of warfarin to LMWH, assessment and counselling, arrange for detail scan at 22-24 weeks of gestation ▪ If present **after first trimester** – refer O&G for assessment and counselling, arrange for detail scan at 22-24 weeks of gestation
3	Subsequent antenatal follow-up	• Shared care between Health Clinic and O&G clinic. • Look for symptoms and signs of VTE at every antenatal visit for moderate, high risk and very high-risk patients. If present, refer Hospital immediately. • Further details on follow-up regime will be outlined on case-to-case basis. • Risk stratification should be repeated at every hospital admission for **ALL** patients* and commence thromboprophylaxis accordingly.

4	Delivery	• Will be outlined by multidisciplinary team (physician, anaesthetist and MFM), addressing timing, mode and place of delivery. • Patients should be advised to omit their LMWH dose if they have. • signs or symptoms of labour or bleeding and to seek medical attention immediately. • Anti-coagulant must be stop 24 hours for the therapeutic dose and 12 hours for prophylactic dose **BEFORE** planned delivery). • Hospital delivery.
5	Postpartum	• ALL mothers who delivered in the hospital, alternative birthing centre, health clinics, home delivery or birth before arrival should have a documented VTE risk assessment* and commence thromboprophylaxis accordingly. • Inform high risk discharge to Health clinic. • For patient who indicate for thromboprophylaxis, the treatment can be initiated post-delivery between 4-6 hours following delivery. • Referral to O&G specialist for high risk patients (VTE, APS or Thrombophilia) who need longer thromboprophylaxis regarding the options of conversion to warfarin. • Patients on UFH will require platelet monitoring weekly until heparin is stopped or unless abnormal result. • Contraception – to discuss options of contraception with patient / couple, according to MEC recommendation. • Future pregnancy – Advise for Pre-pregnancy clinic visit and early booking in next pregnancy
6	Lactation	• Encourage breastfeeding – there is no contraindication to warfarin or LMWH.

REMARKS:

1. LMWHs are the agents of choice for antenatal and postnatal thromboprophylaxis.
2. Below are the anti-coagulants that available in KKM setting.

Weight [a]	Enoxaparin	Unfractionated Heparin
< 50 kg	20 mg OD	5000 units BD
50-90 kg	40 mg OD	7500 units BD
91-130 kg	60 mg OD	Insufficient evidence of efficacy (discuss with heamatologist)
131-170 kg	80 mg OD	
> 170 kg	0.6 mg/kg/day	

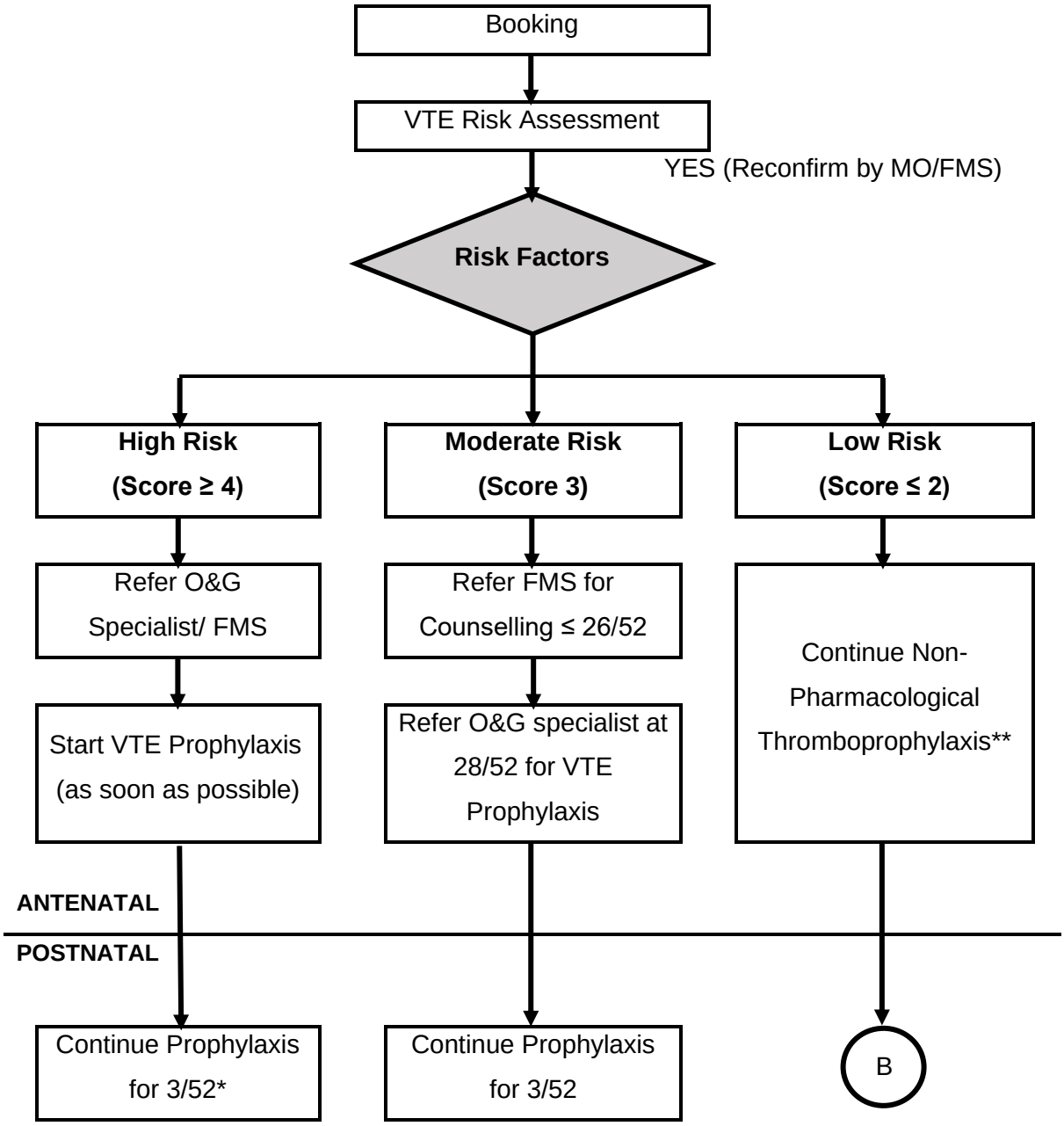
   a. Based on booking weight unless high risk
   b. Women with anti-thrombin III deficiency and anti-phospholipid syndrome require higher prophylactic dose
   c. Anti-dote:
      i. Protamine sulphate (10mg/ml) for unfractionated Heparin with dose of 5 ml slow IV injection over 10 minutes.
      ii. No antidote available for LMWH (Enoxaparin)
3. If a woman develops a haemorrhagic problem while on LMWH or UFH, the treatment should be stopped, and expert haematological advice sought
4. VTE risk factors:
   a. Previous VTE (except those with a single previous VTE related to major surgery and no other risk factors)
      i. If no documentation is available, the previous diagnosis of VTE can be assumed in cases where the woman gives a good history and received prolonged (greater than 6 weeks) therapeutic anticoagulation.
   b. Thrombophilia-associated VTE
      i. Heritable thrombophilia
         - Women with previous VTE associated with antithrombin deficiency- offered thromboprophylaxis with higher dose LMWH
         - Other heritable thrombophilic defects are lower risk- managed with standard doses of thromboprophylaxis
      ii. Acquired thrombophilia
         - Women with VTE associated with the antiphospholipid syndrome (APS) -offered thromboprophylaxis with higher dose LMWH (either 50%, 75% or full treatment dose)
         - Pregnant women with APS and prior VTE or arterial thrombosis - refer Combined Clinic with a haematologist and/or rheumatologist
   c. Type 1 Diabetes Mellitus with nephropathy
   d. Tuberculosis in acute (within 2 months intensive treatment) and/or severe infection (disseminated TB) – transient risk factor
   e. Cardiac failure - decompensated and symptomatic

A. PREGNANCY AND PUERPERIAL VTE CHECKLIST (KKM 2017) *

VTE risk factors	VTE score	Tick		
		Pre-pregnancy/ Booking	Admission/ New Illness	Post delivery
Date				
Pre-existing risk factors				
Previous VTE	**4**			
High risk thrombophilia	**3**			
Medical comorbidities (malignancies, cardiac failure, active SLE, IVDU/TB, nephrotic syndrome, DM with nephropathy, thalassemia major or intermedia post splenectomy)	**3**			
BMI ≥ 40kg/m2 BMI 30-39 kg/m2	**2** **1**			
Family history of VTE	**1**			
Low risk thrombophilia	**1**			
Current smoker (≥10 per day)	**1**			
Obstetric risk factors				
Caesarean section (emergency & elective)	**2**			
Pre-eclampsia	**1**			
Mid-cavity rotation instrumental delivery	**1**			
Prolonged labour (> 24hours)	**1**			
Postpartum haemorrhage (> 1000mls or requiring blood transfusion	**1**			
Stillbirth(current)	**1**			
IVF (first trimester only)	**1**			
Transient risk factors*				
Surgical procedures (except episiotomy repair, repair of 1st and 2nd degree perineal tear, evacuation of products of conception)	**4**			
Hyperemesis gravidarum/OHSS	**4**			
Admission beyond 3 days	**1**			
Systemic infection/infection requiring IV antibiotics	**1**			
Long distance travel (> 4 hours)	**1**			
Immobility/ dehydration	**1**			

Note: Thromboprophylaxis is recommended during the transient period. Consider stopping once the transient risks are deemed no longer significant.

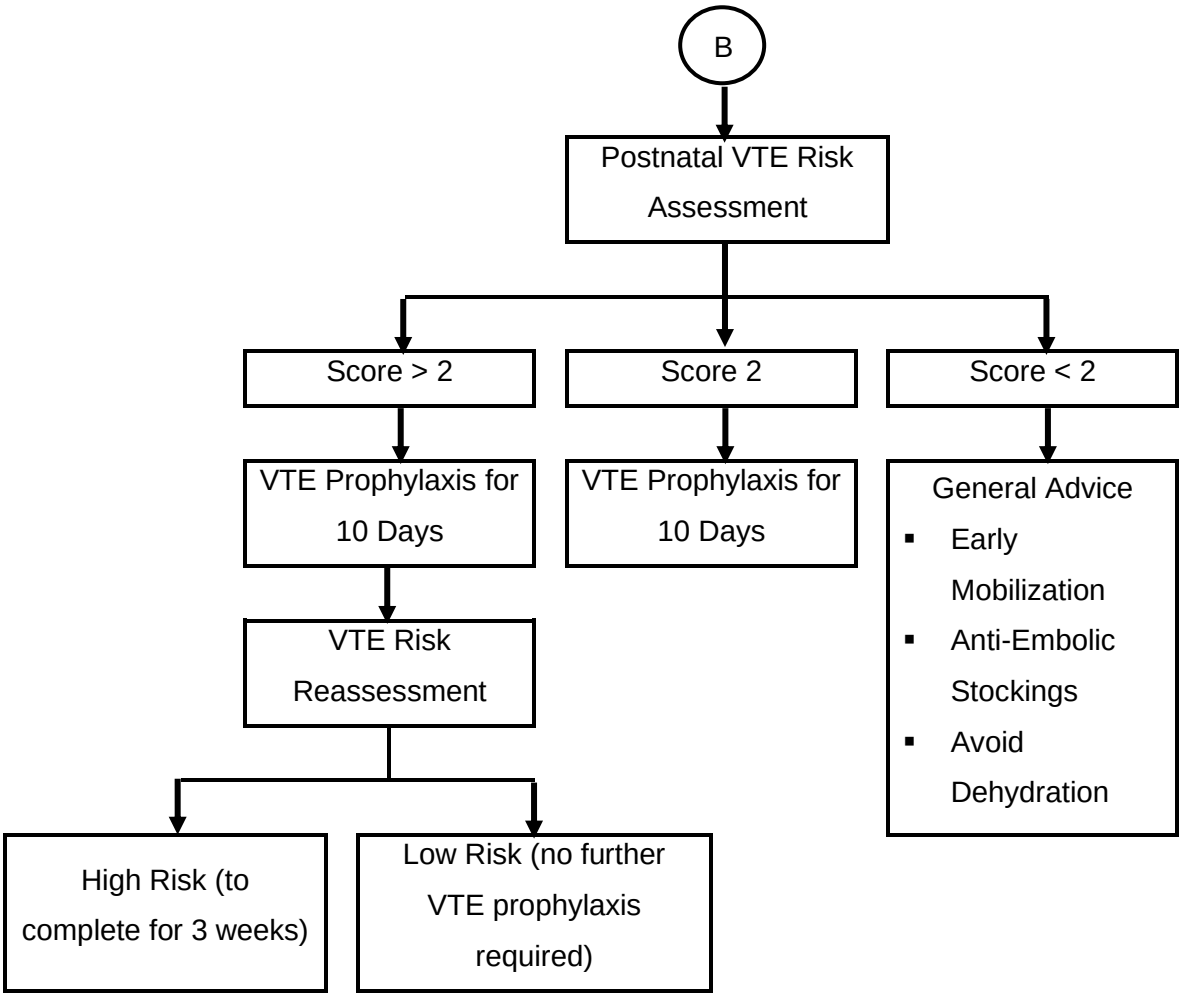
B. FLOWCHART VTE Risk Assessment in Primary Health Care



** Consider additional 3 weeks prophylaxis in certain high-risk patients (at the discretion of O&G specialist)*

*** Non-pharmacological thromboprophylaxis measures e.g. anti-embolic stockings, avoid dehydration, early mobilization*

(Taken from Training Manual: Prevention and Treatment of Thromboembolism in Pregnancy and Puerperium, 2018)



RESPONSIBILITY

- O&G Specialist
- Family medicine specialist/ Medical officer
- Nurses

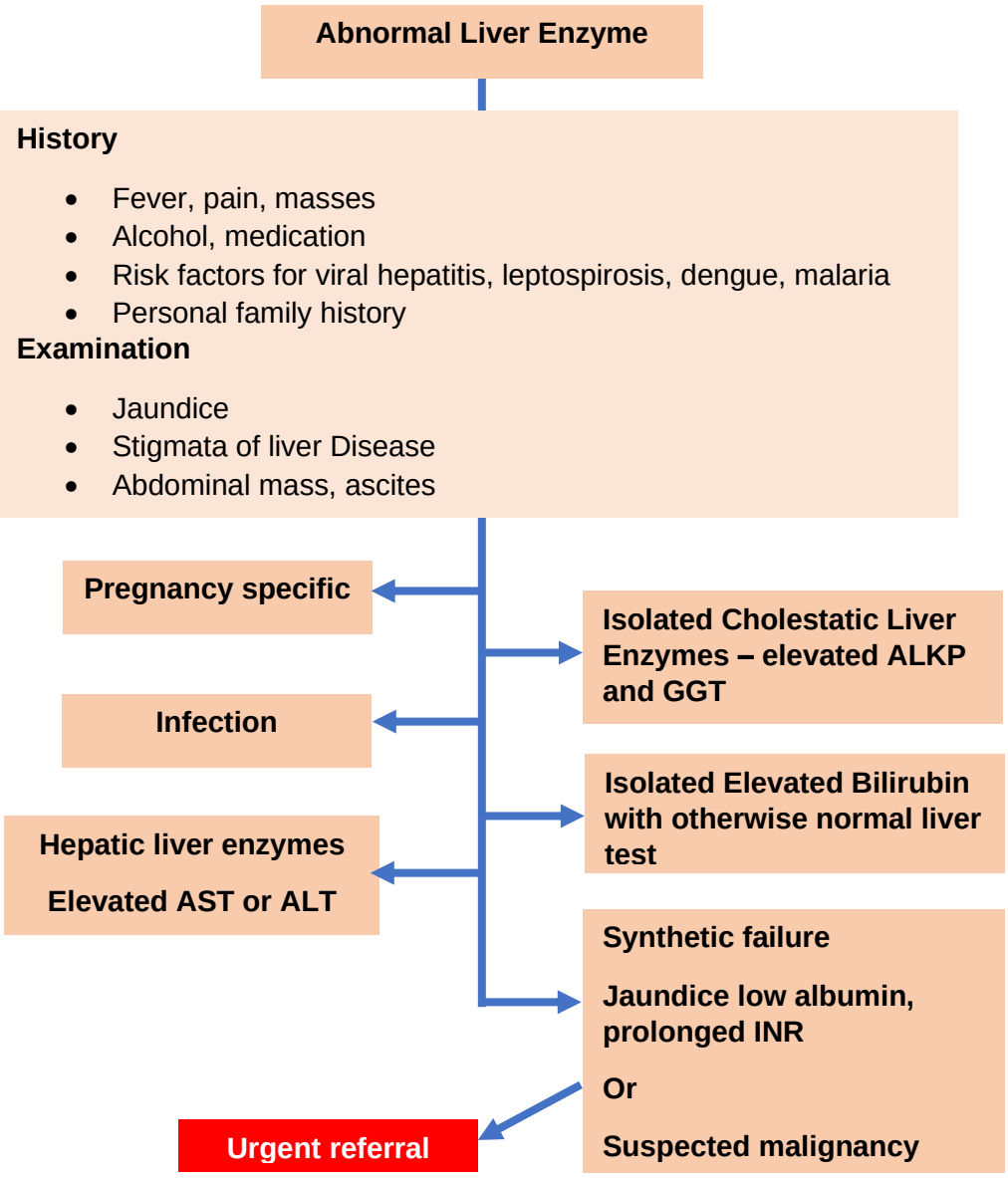
(Taken from Training Manual: Prevention and Treatment of Thromboembolism in Pregnancy and Puerperium, 2018)

Reference(s):

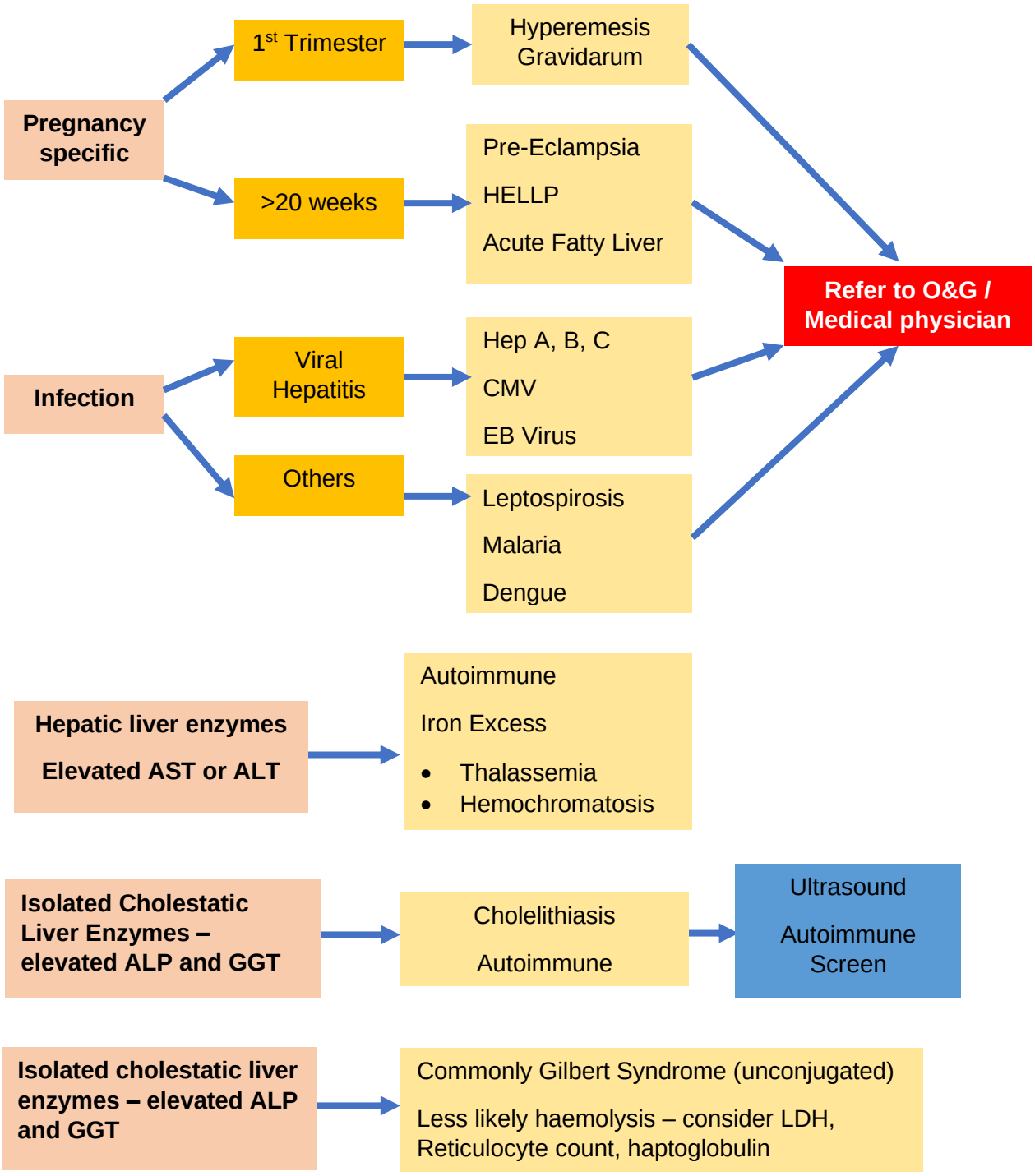
1. Training Manual Prevention and Treatment of Thromboembolism in Pregnancy and Puerperium, second edition (2018)
2. RCOG Green-Top Guideline No. 37a, Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium 2015

SECTION 17 APPROACH TO COMMON PRESENTATIONS IN PREGNANCY

17.1 Elevated Liver Enzymes in Pregnancy



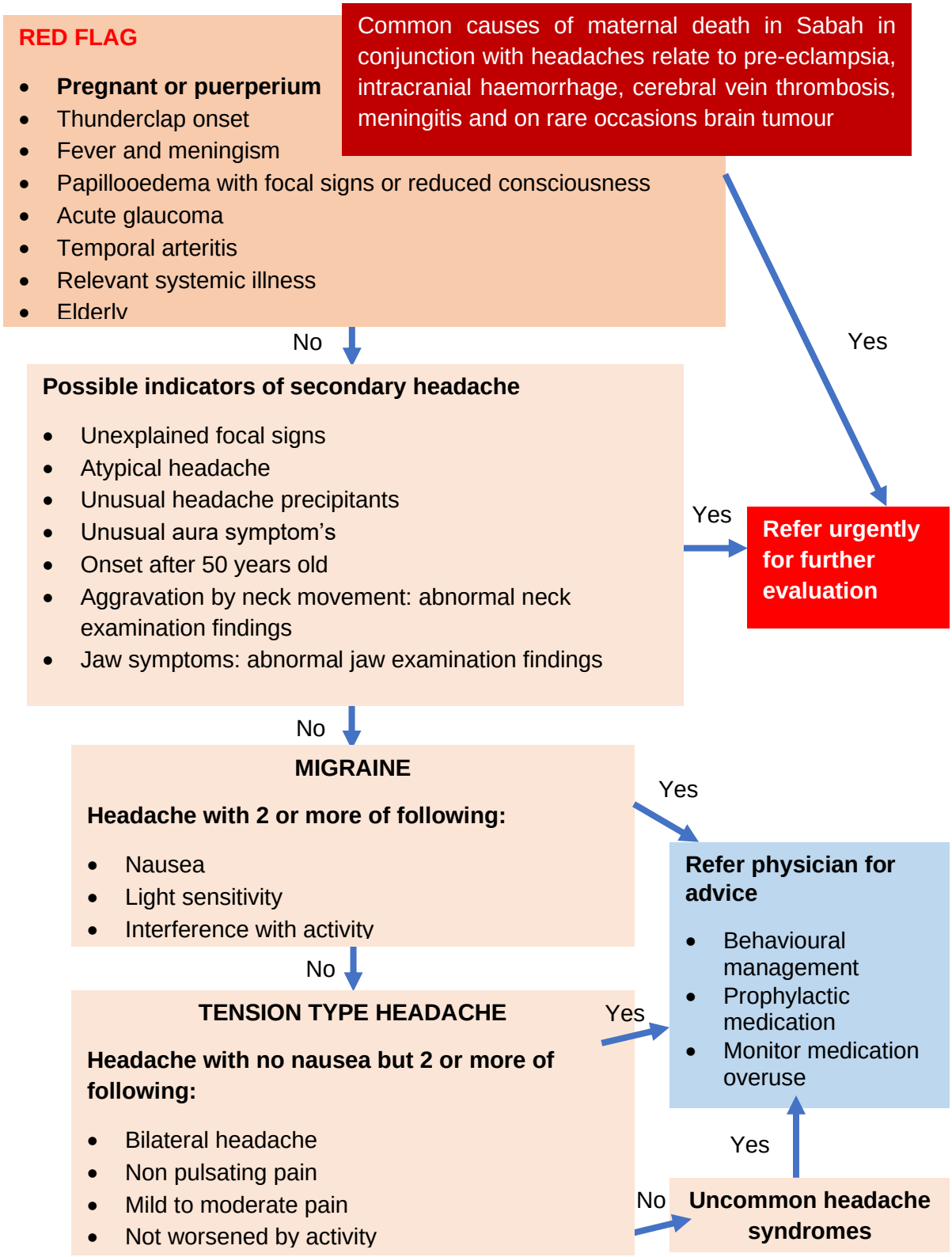
Whilst outside of pregnancy, it would be acceptable to perform serial repeats of liver function test at predefined intervals to see improvement before further testing is done. However, due to the short interval of pregnancy to delivery time, it becomes important that a diagnosis is made sooner than later and to allow adequate time for treatment, optimisation of disease and planning of delivery in a multi-disciplinary manner so as to avoid or minimise complications. Early referral to relevant speciality is advised. Where in doubt, always discuss with FMS, O&G specialist or physician.



Reference:

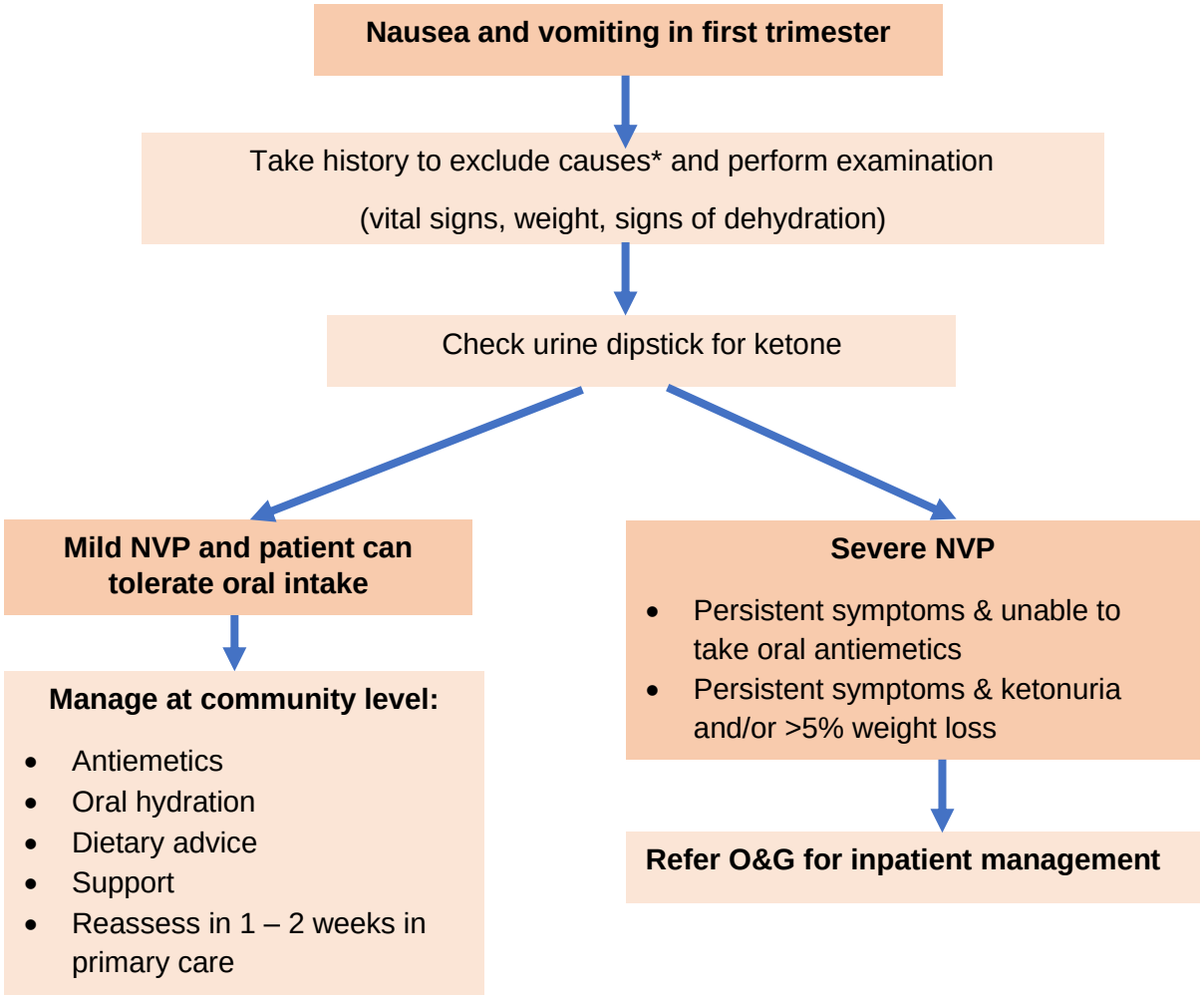
Newsome P, Cramb R, Davison S et al. Guidelines on the management of abnormal liver blood test. Gut 2018; 67(1):6 - 19

17.2 Headache in Pregnancy



Reference: Werner JB, Ted F, Carmen M, et al. Guideline for primary care management of headache in adult. Canadian Family Physician Aug 2015, 61(8):670-679

17.3 Nausea and Vomiting in Pregnancy



Remarks:

1. Hyperemesis gravidarum is diagnosed based on triad of >5% pre-pregnancy weight loss, dehydration and electrolyte imbalance.
2. First line antiemetics:
   a. PO Cyclizine 50mg 8 hourly (e.g. veloxine)
   b. PO Prochlorperazine 5-10mg 6-8 hourly
   c. PO Promethazine 12.5-25mg 4-8 hourly
   d. PO Chlorpromazine 10-25mg 4-6 hourly
   e. PO metochlopramide 5-10mg 8 hourly
3. Withhold iron tablet
4. VTE scoring if inpatient (transient risk factor)
5. If women presented with recurrent episodes of NVP, further workup is required.

Differential Diagnosis for Nausea and Vomiting in Pregnancy*

Gastrointestinal disorders

- Gastroenteritis
- Biliary tract disease
- Hepatitis
- Intestinal obstruction
- Gastroesophageal reflux disease
- Pancreatitis
- Appendicitis
- Acute fatty liver of pregnancy

Genitourinary tract disorders

- Pyelonephritis
- Uraemia
- Degenerating uterine leiomyoma
- Torsion
- Renal stones
- Molar Pregnancy

Drug toxicity or intolerance

- Iron supplement

Metabolic disorders

- Diabetic ketoacidosis
- Renal tubular acidosis
- Addison's disease
- Hyperthyroidism

Neurologic disorders

- Pseudotumor cerebri
- Vestibular lesions
- Migraine headaches
- Central nervous system tumours

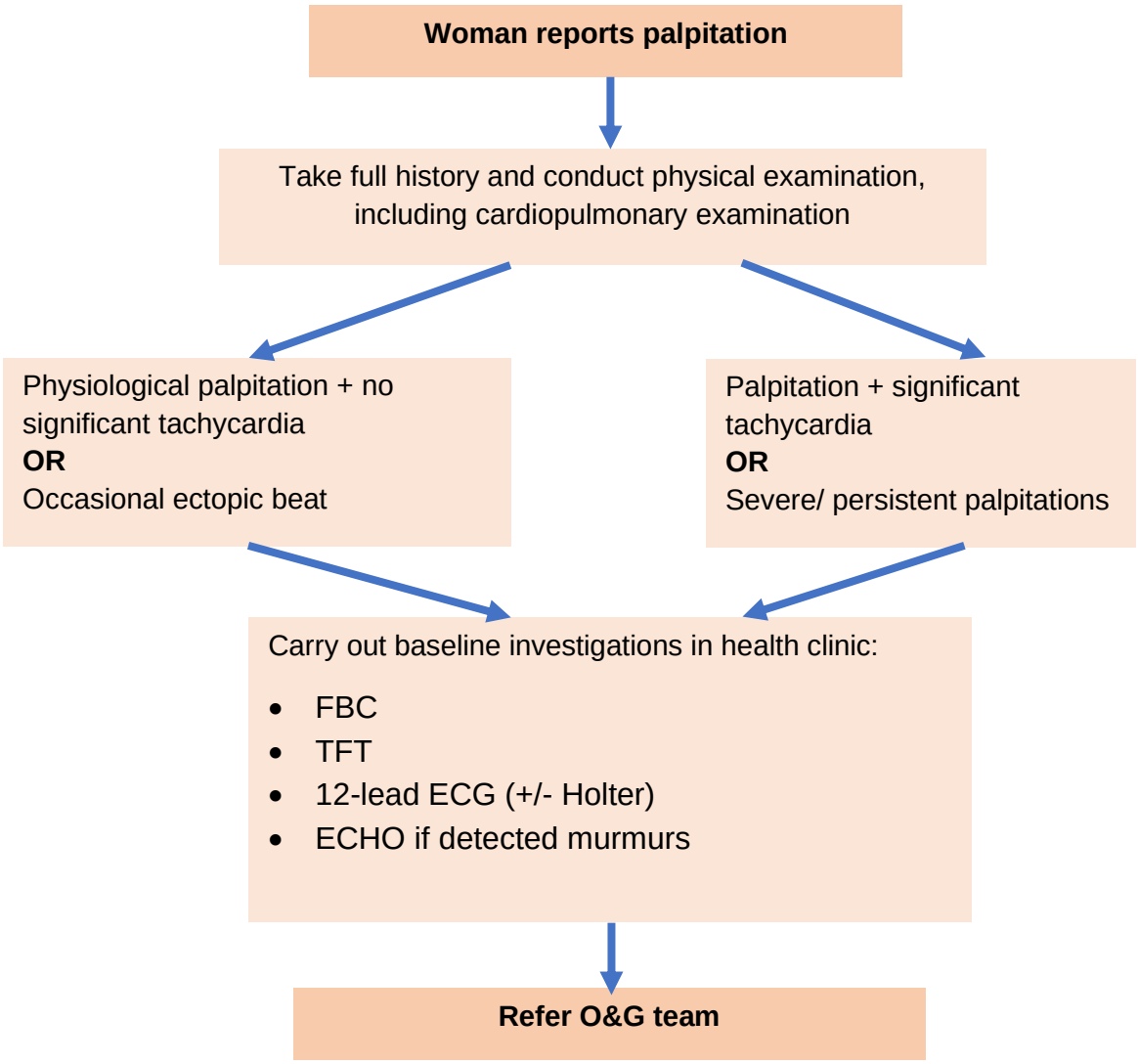
Others

- Ovarian hyperstimulation syndrome
- Hypercalcemia
- Dehydration
- Psychological disorder

Reference:

1. The Management of Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum. Green-top Guideline No. 69, June 2016. Royal College of Obstetricians and Gynaecologists.
2. Sumona S, Catherine W, Niharika M, et al. Approach to Hyperemesis Gravidarum. De Swiet's Medical Disorder in Obstetric Practice 5th Edition.

17.4 Palpitation in Pregnancy



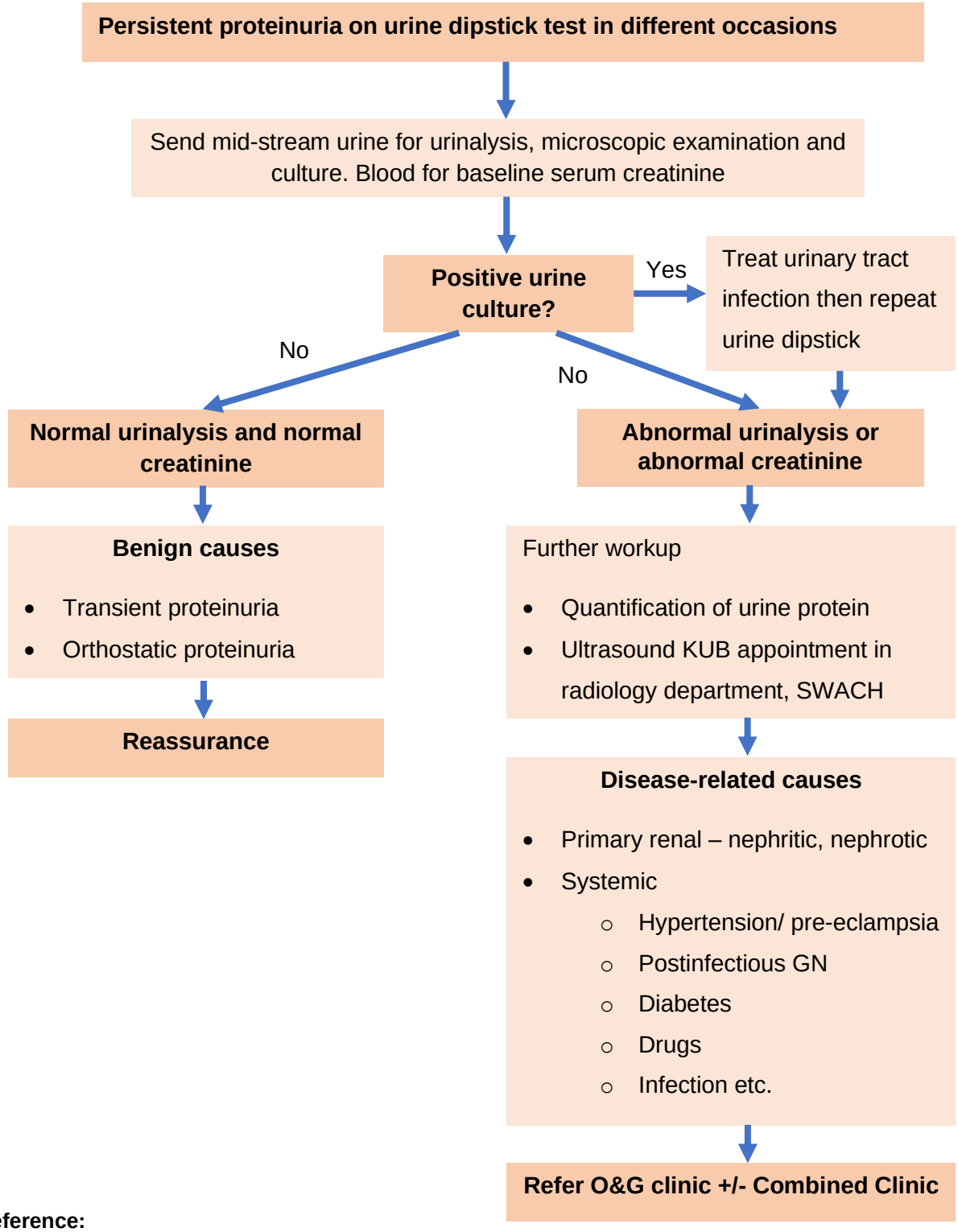
Remarks:
Features requiring further attention:

a. Fast and irregular heart beat
b. Palpitations waking from sleep or palpitations at work
c. Dizziness following onset of palpitations
d. Breathlessness, chest pain, syncope
e. Associated headache, sweating or abdominal pain and/or hypertension
f. Personal history of pre-existing cardiac disease
g. Family history of cardiac disease

Reference:

1. Roberts A, Mechery J, Mechery A, Clarke B, Vause S. Management of Palpitations and Cardiac Arrhythmias in Pregnancy. The Obstetrician & Gynaecologist 2019; 21:263-70.

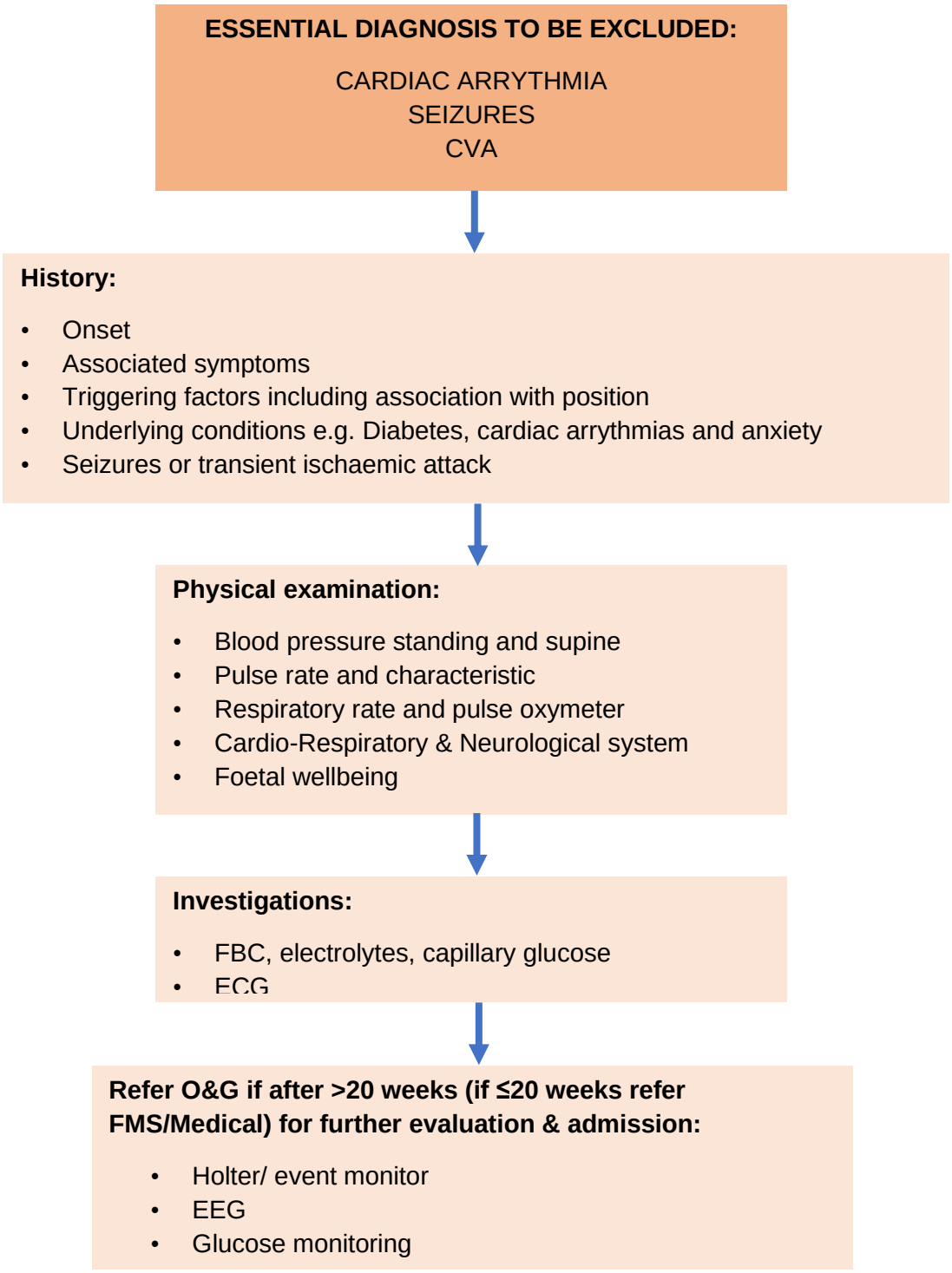
17.5 Persistent Proteinuria in Pregnancy



Reference:

1. Margaret A. Miller. Approach to proteinuria identified remote from term. De Swiet's Medical Disorder in Obstetric Practice 5th Edition

17.6 Pre-syncopal or Syncopal Attack in Pregnancy



Differential Diagnosis of Syncopal Attack:

Causes	Characteristic
Cardiac	
a. Vasovagal Investigation: • History • Clinical examination • ECG	• Gradual onset. • Associated with nausea, hot flushes, sweating, visual graying, mild palpitation. • Onset while lying flat in late pregnancy, and recovers with assumption of lateral recumbent position • Absent of post-event confusion.
b. Arrythmias Investigation: • 12-leads ECG • 48hours Holter	• Associated with palpitations, may precipitate presyncope or syncope. • Tachycardia with syncope is a particular risk in women with pre-existing conduction abnormalities such as Wolff- Parkinson's – White syndrome or Long QT syndrome. • Bradycardia with syncope in pregnancy is rare, usually associated with beta- blockers or calcium- channel blockers e.g. Diltiazem or Verapamil.
c. Structural Investigation: • History • CVS examination • ECHO	• Cardiac syncope is more likely to be sudden onset. • Clinical findings might be apparent in long standing diseases such as clubbing, cyanosis, oedema and murmurs.
Endocrine	
a. Hypoglycaemia Investigation: • DXT • BSP	• Type 1 DM patients are particularly at risk of hypoglycaemia. • Clinical findings of profuse sweating, lethargy might lead to syncope, seizure and coma if unrecognized or untreated.
Neurological/ Psychosomatic	

a. Seizures Investigation: • History • EEG	• A collateral history of convulsive activity with a history of epilepsy would support a diagnosis of seizure as the cause of syncope. • Supported by transient confusion following a tongue biting or incontinence. • Pregnant women with epilepsy are at higher risk of breakthrough seizures due to noncompliance or changes is pharmacokinetics leading to subtherapeutic level of medications.
b. TIA/CVA (rare) Investigation: • History • CVS examination • CT brain/MRI	• TIA/CVA is rare in pregnancy. • Often associated with neurological deficits. • In young women, need to rule out aneurysm and connective tissue diseases.
c. Hyperventilation Investigation: • History • ABG	• Usually there will be no physical abnormality • Commonly associated with emotional stress
d. Generalized anxiety disorders Investigation: • History	• Atypical or inconsistent symptoms, a psychiatric aetiology should be considered.

References:

1. Handbook of Obstetrics Emergencies; Rajan G., Ganeshan M, Tang BN et al; 1998. Obstetrical and Gynaecological Society of Malaysia.
2. Approach to adult patient with Syncope; McDermott D, Quinn J. 2019. Uptodate: topic 293 version 33.0.

17.7 Shortness of Breath in Pregnancy

ESSENTIAL DIAGNOSIS TO BE EXCLUDED:

PULMONARY EMBOLISM

CARDIAC FAILURE

ACUTE PULMONARY OEDEMA

SEPSIS

History:

- Sudden onset or progressively worsening symptoms.
- Associated symptoms related to cardiovascular or respiratory systems.
- Occurs at rest or exertion.

Physical examination:

- Blood pressure, pulse rate, respiratory rate & temperature
- Pulse oxymeter
- Cardiovascular & Respiratory examination
- Foetal wellbeing

Investigations:

- ECG
- FBC
- CXR with abdominal shield if indicated
- Peak flow if history of asthma

Refer O&G if >20 weeks, if ≤20 weeks refer to medical, for further evaluation & admission:

- ECHO
- CTPA or V/Q SCAN
- Cardiac enzymes and Troponin T

DIFFERENTIAL DIAGNOSIS FOR SHORTNESS OF BREATH IN PREGNANCY

Causes	Characteristics
Respiratory	
a. Asthma	• Known asthma with triggering factors
b. Pneumonia	• History of fever with respiratory symptoms • History of travelling & contact with sick patients should be obtained • Acute PTB should be considered
c. Acute pulmonary oedema	• underlying hypertensive disorders e.g. preeclampsia or cardiac disease
Cardiac	
a. Congenital cardiac diseases b. Acute on CRHD/ myocarditis c. Arrythmia d. Peripartum cardiomyopathy	• Corrected or non-corrected diseases • Latest ECHO or cardiologist input • Accompanying cardiac symptoms & signs: palpitation, oedema, elevated JVP, murmurs • Abnormal ECG
Endocrine/ Metabolic	
a. Metabolic acidosis	• E.g. Sepsis, DKA, severe dehydration, poisoning • Further history & investigations need to be carried out to look for the cause of metabolic acidosis
Haematological	
a. Symptomatic anaemia	• Anaemia work-out should be obtained
Physiological	
a. Breathlessness in pregnancy	• Diagnosis of exclusion

SECTION 18 SUMMARY CHART OF WHO MEDICAL ELIGIBILITY CRITERIA FOR CONTRACEPTIVE USE

Condition	Sub-Condition	Cu-IUD		LNG-IUD		Implant		DMPA		POP		CHC	
		I	C	I	C	I	C	I	C	I	C	I	C
Cardiac disease													
Valvular heart disease	a) Uncomplicated	1		1		1		1		1		2	
	b) Complicated	1		1		1		1		1		4	
Peripartum cardiomyopathy	a) Normal or mildly impaired cardiac function												
	i) < 6 months	2		2		1		1		1		4	
	ii) ≥ 6 months	2		2		1		1		1		3	
	b) Moderately or severely impaired cardiac function	2		2		2		2		2		4	
Connective tissue disease													
Rheumatoid arthritis	a) On immunosuppressive therapy	2	1	2	1	1		2/3*		1		2	
	b) Not on immunosuppressive therapy	1		1		1		2		1		2	
Systemic lupus erythematosus	a) Positive (unknown) antiphospholipid antibodies	1*	1*	3*		3*		3*	3*	3*		4*	
	b) Severe thrombocytopenia	3*	2*	2*		2*		3*	2*	2*		2*	
	c) Immunosuppressive therapy	2*	1*	2*		2*		2*	2*	2*		2*	
	d) None of the above	1*	1*	2*		2*		2*	2*	2*		2*	
Other medical disorders													
Diabetes	a) History of gestational disease	1		1		1		1		1		1	
	b) Nonvascular disease												
	i) Non-insulin dependent	1		2		2		2		2		2	
	ii) Insulin dependent	1		2		2		2		2		2	
	c) Nephropathy/retinopathy/neuropathy*	1		2		2		3		2		3/4*	
	d) Other vascular disease or diabetes of >20 years duration*	1		2		2		3		2		3/4*	
Anemias	a) Thalassemia	2		1		1		1		1		1	
	b) Sickle cell disease	2		1		1		1		1		2	
	c) Iron-deficiency anemia	2		1		1		1		1		1	
History of high blood pressure during pregnancy		1		1		1		1		1		2	
Hypertension	a) Adequately controlled hypertension	1*		1*		1*		2*		1*		3*	

	b) Elevated blood pressure levels *(properly taken measurements)*						
	i) Systolic 140-159 or diastolic 90-99	1*	1*	1*	2*	1*	3*
	ii) Systolic ≥ 160 or diastolic ≥ 100	1*	2*	2*	3*	2*	4*
	c) Vascular disease	1*	2*	2*	3*	2*	4*
Thyroid disorder	Simple goiter/hyperthyroid/hypothyroid	1	1	1	1	1	1
Epilepsy	*(see also Drug Interactions)*	1	1	1*	1*	1*	1*
Infectious disease							
HIV	a) High risk for HIV	1*	1*	1	1	1	1
	b) HIV infection			1*	1*	1*	1*
	i) Clinically well receiving ARV therapy	1	1	If on treatment, see Drug Interactions			
	ii) Not clinically well or not receiving ARV therapy	2 / 1	2 / 1	If on treatment, see Drug Interactions			
Tuberculosis *(see also Drug Interactions)*	a) Non-pelvic	1 / 1	1 / 1	1*	1*	1*	1*
	b) Pelvic	4 / 3	4 / 3	1*	1*	1*	1*
Viral hepatitis	a) Acute or flare	1	1	1	1	1	3/4* / 2
	b) Carrier/Chronic	1	1	1	1	1	1 / 1
Malignancy							
Breast disease	a) Undiagnosed mass	1	2*	2*	2*	2*	2*
	b) Benign breast disease	1	1	1	1	1	1
	c) Family history of cancer	1	1	1	1	1	1
	d) Breast cancer						
	i) Current	1	4	4	4	4	4
	ii) Past and no evidence of current dese for 5 years	1	3	3	3	3	3
Cervical cancer	Awaiting treatment	4 / 2	4 / 2	2	2	1	2
Cervical intra-epithelial neoplasia		1	2	2	2	1	2
Ovarian cancer		1	1	1	1	1	1
Endometrial cancer		4 / 2	4 / 2	1	1	1	1
Endometrial hyperplasia		1	1	1	1	1	1
Mental disorder							
Depressive disorders		1*	1*	1*	1*	1*	1*
Venous thromboembolism							
Deep venous thrombosis (DVT) / Pulmonary embolism (PE)	a) History of DVT/PE, not receiving anticoagulant therapy						
	i) Higher risk for recurrent DVT/PE	1	2	2	2	2	4

	ii) Lower risk for recurrent DVT/PE	**1**	**2**	**2**	**2**	**2**	**3**
	b) Acute DVT/PE	**2**	**2**	**2**	**2**	**2**	**4**
	c) DVT/PE and established anticoagulant therapy for at least 3 months						
	i) Higher risk for recurrent DVT/PE	**2**	**2**	**2**	**2**	**2**	**4***
	ii) Lower risk for recurrent DVT/PE	**2**	**2**	**2**	**2**	**2**	**3***
	d) Family history (first-degree relatives)	**1**	**1**	**1**	**1**	**1**	**2**
	e) Major surgery						
	i) With prolonged immobilization	**1**	**2**	**2**	**2**	**2**	**4**
	ii) Without prolonged immobilization	**1**	**1**	**1**	**1**	**1**	**2**
	f) Minor surgery without immobilization	**1**	**1**	**1**	**1**	**1**	**1**
Other factors							
Age		Menarche to <20 y:**2** ≥20 y:**1**	Menarche to <20 y:**2** ≥20 y:**1**	Menarche to <18 yrs:**1** 18-45 y:**1** > 45 y: **1**	Menarche to <18 y:**2** 18-45 y:**1** > 45 y: **2**	Menarche to <18 y:**1** 18-45 y:**1** 45 y: **1**	Menarche to <40 y:**1** > 40 y: **2**
Parity	a) Nulliparous	**2**	**2**	**1**	**1**	**1**	**1**
Smoking	a) Age <35	**1**	**1**	**1**	**1**	**1**	**1**
	b) Age ≥35, < 15 cigarettes/day	**1**	**1**	**1**	**1**	**1**	**3**
	c) Age ≥35, > 15 cigarettes/day	**1**	**1**	**1**	**1**	**1**	**4**
Obesity	a) Body mass index (BMI) ≥ 30 kg/m^2	**1**	**1**	**1**	**1**	**1**	**2**
	b) Menarche to <18 years and BMI ≥ 30 kg/m^2	**1**	**1**	**1**	**2**	**1**	**2**
Post-abortion	a) First trimester	**1***	**1***	**1***	**1***	**1***	**1***
	b) Second trimester	**2***	**2***	**1***	**1***	**1***	**1***
	c) Immediate post- septic abortion	**4**	**4**	**1***	**1***	**1***	**1***
Postpartum *(non-breastfeeding women)*	a) <21 days			**1**	**1**	**1**	**4**
	b) 21 days to 42 days						
	i) With other risk factors for VTE			**1**	**1**	**1**	**3***
	ii) Without other risk factors for VTE			**1**	**1**	**1**	**2**
	c) >42 days			**1**	**1**	**1**	**1**
Postpartum *(in breastfeeding or non-breastfeeding women, including caesarean delivery)*	a) < 10 minutes after delivery of the placenta						
	i) Breastfeeding	**1***	**2***				
	ii) Non-breastfeeding	**1***	**1***				
	b) 10 minutes after delivery of the placenta 10 <4 weeks	**2***	**2***				

	c) ≥ 4 weeks	**1***	**1***				
	d) Postpartum sepsis	**4**	**4**				

Adapted from: Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use (Updated in 2020)

Categories of medical eligibility for contraceptive use

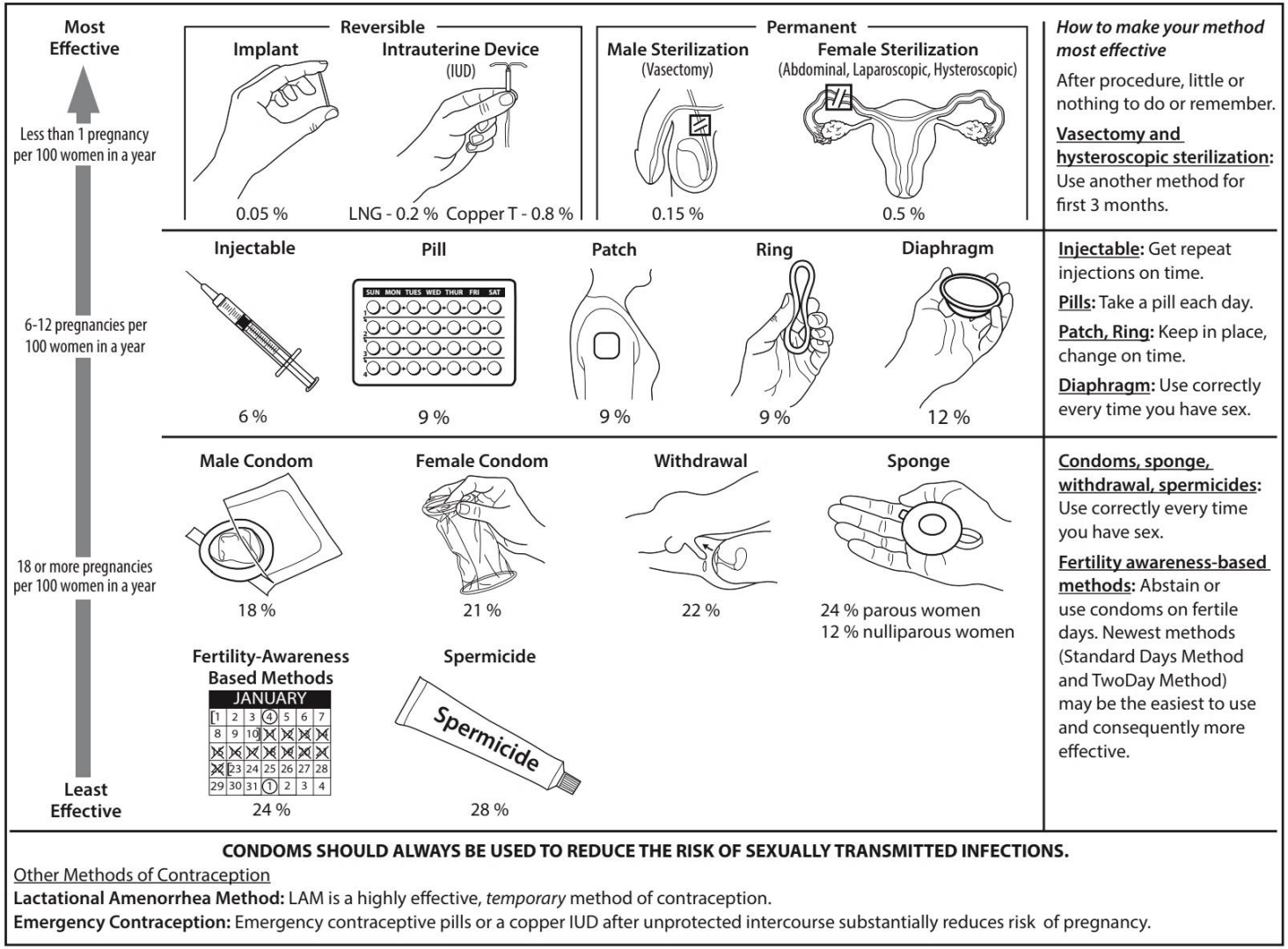
1	A condition for which there is no restriction for the use of the contraceptive method.
2	A condition for which the advantages of using the method generally outweigh the theoretical or proven risks.
3	A condition for which the theoretical or proven risks usually outweigh the advantages of using the method.
4	A condition that represents an unacceptable health risk if the contraceptive method is used.

* Consult the appendix for this contraceptive method for a clarification to this classification.

NOTE:

- This summary sheet only contains a subset of the recommendations from the U.S. MEC
- For complete guidance, see https://www.cdc.gov/reproductivehealth/contraception/contraception_guidance.htm
- Most contraceptive methods do not protect against sexually transmitted diseases (STDs). Consistent and correct use of the male latex condom reduces the risk of STDs and HIV

FIGURE. Effectiveness of family planning methods*



CONDOMS SHOULD ALWAYS BE USED TO REDUCE THE RISK OF SEXUALLY TRANSMITTED INFECTIONS.

Other Methods of Contraception

Lactational Amenorrhea Method: LAM is a highly effective, *temporary* method of contraception.

Emergency Contraception: Emergency contraceptive pills or a copper IUD after unprotected intercourse substantially reduces risk of pregnancy.

Sources: Adapted from World Health Organization (WHO) Department of Reproductive Health and Research, Johns Hopkins Bloomberg School of Public Health/ Center for Communication Programs (CCP). Knowledge for health project. Family planning: a global handbook for providers (2011 update). Baltimore, MD; Geneva, Switzerland: CCP and WHO; 2011; and Trussell J. Contraceptive failure in the United States. Contraception 2011;83:397–404.

* The percentages indicate the number out of every 100 women who experienced an unintended pregnancy within the first year of typical use of each contraceptive method.

SECTION 19 POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICE

	Phase	Plan of Action
1	Counselling	• All women should be ideally counselled regarding contraception. • A note should be made in the antenatal card regarding patient's contraceptive choice. • A specific PPIUCD counselling should be given in potential users. • Timing of counselling: ➢ Antenatal visits ➢ During admission in early labour ➢ During admission for elective caesarean delivery ➢ In postnatal period less than 48 hours after vaginal delivery (Refer Remarks)
2	Eligibility criteria	• Inclusion: ➢ Any age ➢ Desiring copper IUD or Mirena-IUS ➢ Anticipated vaginal delivery (including vaginal birth after caesarean section) or elective caesarean delivery ➢ Any language for which adequate translation can be obtained • Exclusion: ➢ History of sexually transmitted infection during the index pregnancy ➢ Recent (within 3 months) or active intrauterine infection ➢ Standard absolute contraindication (Wilson's disease, uterine anomaly) • Exclusion criteria arise during labour: ➢ Intrapartum fever ➢ Postpartum haemorrhage (EBL more than 500mls via SVD, or more than 1000mls vis LSCS) ➢ Prolonged ruptures of membrane of more than 18 hours

		➢ Retained placenta requiring manual removal of placenta or Dilatation & Curettage ➢ Withdrawal of consent
3	Consent	• Antenatal PPIUCD consent should be taken and attached in the antenatal book for keen potential user • A copy of consent shall be kept in case note after IUCD has been inserted (Refer Remarks)
4	PPIUCD insertion protocol	• Health providers should receive training before inserting the PPIUCD • All PPIUCD users should be given post-insertion counselling and follow-up date before discharge from hospital
5	Follow – up	• The patient should be arranged for follow up call in 4-8 weeks post insertion • "Missing strings" is the more common following postpartum insertion than interval IUD insertion. • During follow-up, ask the patient: ➢ Any complaint ➢ If she feels any spontaneous expulsion ➢ Clinical assessment of anaemia if she complaint of prolonged or heavy per vaginal bleeding • Perform speculum examination to see whether the IUCD strings has descended. IUCD strings might be visible at the introitus after several weeks and it can be shortened during the visit to reduce risk of ascending infection. • If any clinical evidence of STD infection, consider removal of IUCD followed by treatment. • If the patient has no complaint or concern, she need not any further follow up solely related to IUCD. (Refer Remarks)

Remarks:

A. PPIUCD COUNSELLING CHECKLIST
(TO BE REFERRED BY THE HEALTH CARE PROVIDERS)

Name: _____ ID/RN: _____

STEP/ TASK	ASSESSMENT	COMMENTS
Determine reproductive goals and use of other contraception		
Ask about any previous experiences with contraception: any problems and reasons for discontinuing; her knowledge about the return of fertility and the benefits of spacing pregnancies Assess partner's/ family attitude about family planning Ask about reproductive goals Ask if patient is interested in a particular family planning method		
Provide the patient with information about the postpartum family planning method		
Educate patient about benefits of spacing pregnancies. • Advice that this is to ensure her health and health of the family that she should wait at least 2 years before trying to get pregnant again • Advice about the return of fertility postpartum and the risk of pregnancy Educate regarding birth spacing methods • Briefly explain and show available methods i.e LAM, condoms, DMPA etc. To correct any misconceptions about contraception.		
Help the patient to choose a method. Do not decide for her. For potential PPIUD users, determine if patient can safely use the method and explain how to use the method.		

Evaluate patient's health and determine if she can safely use the method. (UKMEC criteria). Discuss key information about PPIUD • should know insertion will involve a pelvic examination and a minor procedure to insert the IUCD into her uterus • Effectiveness 97-99% • How does IUD prevents pregnancy: causes a chemical change that damages sperm before it meets the egg. • How long can it be used? In our setting depending on type 3-5 years. • The IUD can be removed at any time by trained personnel if the women wants and fertility will return immediately.		
Discuss advantage of PPIUD • Immediate and simple placement after delivery • No further action by patient • Immediate return to fertility on removal; • Does not affect breast feeding • Long acting and reversible: can be used to prevent pregnancy for a short time or as long as 5 years		
Discuss limitations of PPIUD • Heavier and more painful periods especially the first few cycles. May not be noticed after PPIUD insertion. • Does not protect against STI and HIV • Risk of expulsion 3% when inserted postpartum		
Discuss warning signs and explains that she should return to the health facility as soon as possible if she has any of the following:		

• Foul smelling vaginal discharge different from the usual lochia • Lower abdominal pain, especially if accompanied by feeling unwell, fever or chills, especially during the first 3 weeks following insertion. • Has doubt that she might be pregnant • Has doubts that IUCD has fallen out		
Discuss regarding return visit • Inform that she has to come for routine check-up in 6 weeks • Tell them that they will also have a pelvic examination to check for infection and expulsion in the first follow-up visit		
Makes a note in her ANC card about her postpartum contraceptive choice or which method interests her. # If patient cannot arrive at a conclusion on this visit, ask her to discuss with her family and discuss again during her next visit.		

B. PPIUCD consent – Malay

JABATAN OBSTETRIK & GINEKOLOGI
HOSPITAL WANITA DAN KANAK-KANAK SABAH
KOTA KINABALU, SABAH

BORANG PERSETUJUAN POSTPARTUM INTRAUTERINE DEVICE (PPIUD)

NAMA PESAKIT:	NO KAD PENGENALAN: NO PENDAFTARAN:

Sila baca borang ini dengan teliti. Sila juga baca risalah informasi pesakit yang menghuraikan segala kebaikan serta risiko menjalani rawatan yang telah dicadangkan. Sekiranya anda ada apa-apa soalan, sila kemukakan kepada kami. Kami di sini untuk membantu anda. Anda berhak menukar fikiran pada bila-bila masa termasuklah setelah menandatangani borang keizinan ini.

KENYATAAN PESAKIT

1. Saya mengesahkan bahawa maklumat yang saya beri adalah benar.
2. Saya telah membaca risalah maklumat mengenai alat dalam rahim selepas bersalin (PPIUD).
3. Butiran mengenai PPIUD, risiko, faedah dan kesan sampingan prosedur telah dijelaskan kepada saya oleh Dr._____
4. Saya memahami bahawa risiko yang boleh berlaku selepas pemasangan IUD termasuklah jangkitan, perdarahan, alahan, tebukan kecil pada rahim atau alat IUD terkeluar dengan sendirinya.
5. Saya mungkin mengalami kekejangan perut dan perdarahan yang tidak teratur pada 3 bulan pertama selepas pemasangan IUD. Simptom ini dapat dikurangkan dengan ubat penahan sakit atau kompresi hangat.
6. Saya paham bahawa IUD tidak melindungi saya dari penyakit kelamin (STDs). Saya perlu menggunakan kondom untuk tujuan ini.
7. Alternatif kaedah perancangan keluarga yang lain telah dijelaskan kepada saya.
8. Saya perlu menghadiri temujanji klinik pada 4-6 minggu selepas bersalin untuk pemeriksaan IUD.
9. **Saya setuju untuk menggunakan IUD sejurus selepas bersalin sebagai kaedah perancang keluarga.**

Tandatangan pesakit:

_____

Nama:

_____

Tarikh: _____

Tandatangan Pegawai Perubatan:

_____

Nama:

_____

Tarikh: _____

C. PPIUCD consent – English

OBSTETRICS & GYNAECOLOGY DEPARTMENT
SABAH WOMEN'S AND CHILDREN'S HOSPITAL
KOTA KINABALU, SABAH

POSTPARTUM INTRAUTERINE DEVICE (PPIUD) CONSENT FORM

PATIENT NAME:	ID NUMBER: MRN:

Please read this form carefully. You must also read the information sheet carefully which describes the benefits and risks of the proposed treatment. If you have any further questions, please ask. We are here to help you. You have the right to change your mind at any time, including after you have signed this form.

STATEMENT OF PATIENT

1. I confirm that the information given by me is correct.
2. I have read the information leaflet on postpartum intrauterine device (PPIUD).
3. Details about the PPIUD, risks, benefits and side effects of the procedure and the device have been explained to me by Dr._____
4. I understand the possible risks of the intra uterine device placement include infection, bleeding, allergic reaction, perforation of (poking a hole in) the womb, and expulsion (falling out) of the intrauterine device.
5. I may have irregular bleeding and cramping for the first 3 months after the IUD is inserted. I understand that simple pain killers or a hot pack may help with these symptoms.
6. I understand the IUD does not protect against STDs. I have to use condoms for this purpose.
7. Other alternatives of family planning methods have also been explained to me.
8. I understand that I need to reviewed at the clinic at 4-6 weeks after delivery to check on the postpartum intrauterine device.
9. **I agree that postpartum intra uterine device be inserted for me.**

Patient's signature:	**Doctor's signature:**
_____	_____
Name:	**Name:**
_____	_____
Date: _____	**Date:** _____

D. PPIUD Follow -up checklist

POSTPARTUM IUCD FOLLOW-UP CHECKLIST HOSPITAL WANITA & KANAK-KANAK SABAH

Name : _____

IC : _____

Parity : _____

Postpartum period : _____ day/weeks/months Date: _____

No	Step/Ask	Assessment	Yes	No	
1.	PPIUCD data	a) Type of IUCD: b) Date of insertion: c) Effective until: d) Type of insertion:			
2.	Patient's well-being	a) Complain: • Frequent cramping/pelvic discomfort • PV discharge: • PV bleeding/spotting • Concern of dislodge • Concern of dyspareunia • Concern of elongated string • Concern generally feeling unwell • History of seek medical help for the above concerns from discharge till today? b) Satisfaction: • Happy to continue • Request for removal • Reason for removal			
3.	Pelvic examination	a) Per speculum findings: • PV discharge			*HVS

		• String present b) Pap smear:			* trim
4.	Ultrasound (TAS with full bladder, or TVS)	a) IUCD in situ: • Fundal/ near fundal • Lower end of uterus/cervix b) IUCD not in situ (not seen)			*AXR
5.	Management of concerning issues	a) Analgesia b) Antibiotics c) Hysteroscopy d) Admission for further management: • Non-operative mx • Operative mx			
6.	Further follow- up	a) PRN b) TCA:			

Filled – up by:

_____

Stamp:

SECTION 20 APPENDIX

20.1 Caesarean Section Summary

HL/WA/OG/83

Jabatan Obstetrik & Ginekologi, Hospital Likas, Kota Kinabalu, Sabah

CAESAREAN SECTION SUMMARY

Name: _____ IC: _____RN: _____

Date: _____ Elective ☐ Emergency ☐

Indication: _____

Type of Incision: LSCS ☐ Classical ☐

Others ☐ specify: _____

Associated Medical Complication(s):

Pre-eclampsia ☐ GDM ☐ Heart Disease ☐

Others ☐ specify_____

Surgical/ Intra-operative Complication(s):

Yes ☐ No ☐

Specify _____

Blood loss: _____

Postoperative Complication:

Yes ☐ No ☐

Specify _____

Condition of baby: Alive ☐ Apgar Scores: ____/1min____/5min

Intrauterine death ☐ Fresh Stillbirth ☐

Macerated stillbirth ☐

Plan for future pregnancy/ delivery: Allow trial of scar ☐

Elective Caesarean Section ☐

Others ☐

Specify _____

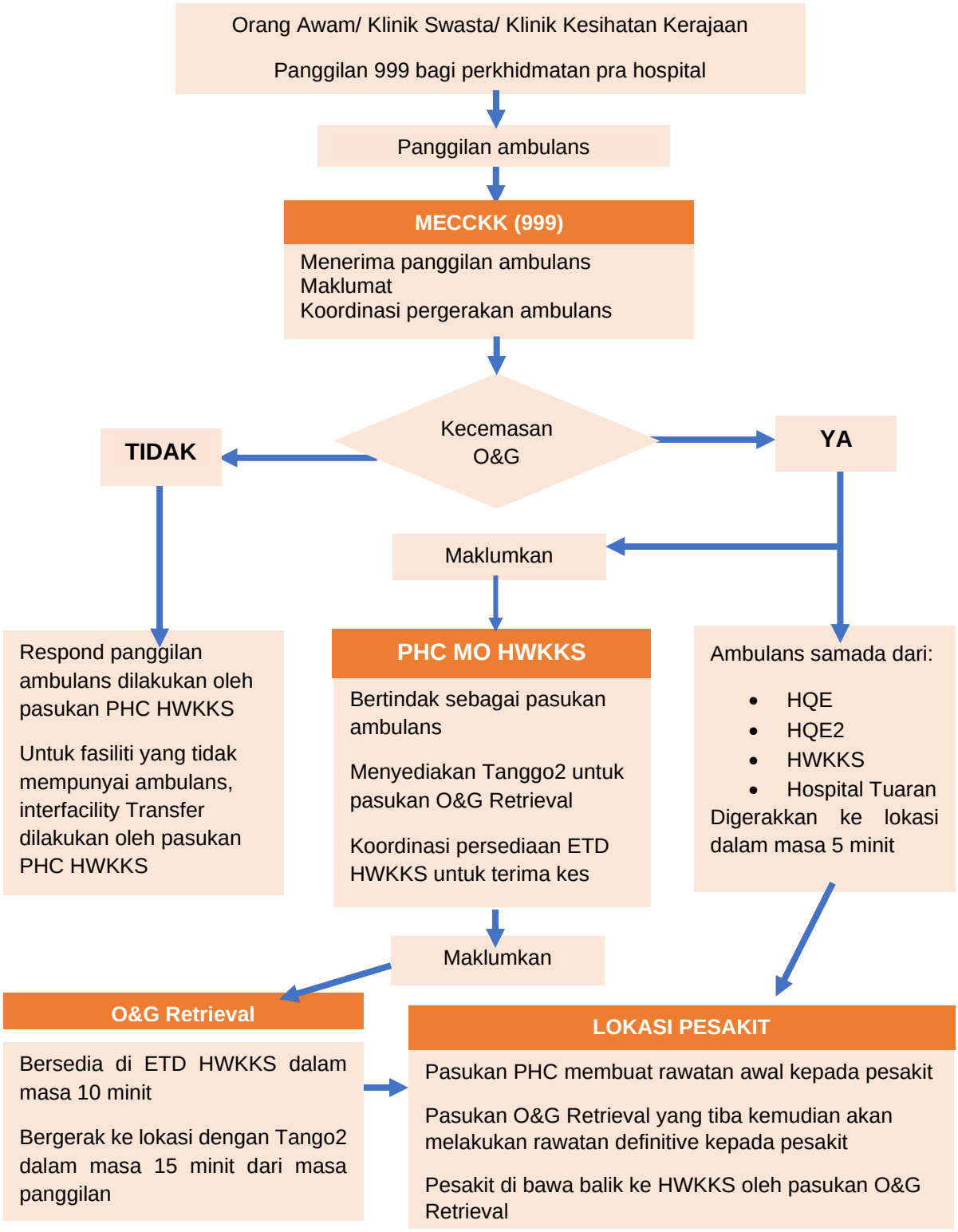
Additional remark:

Surgeon: _____

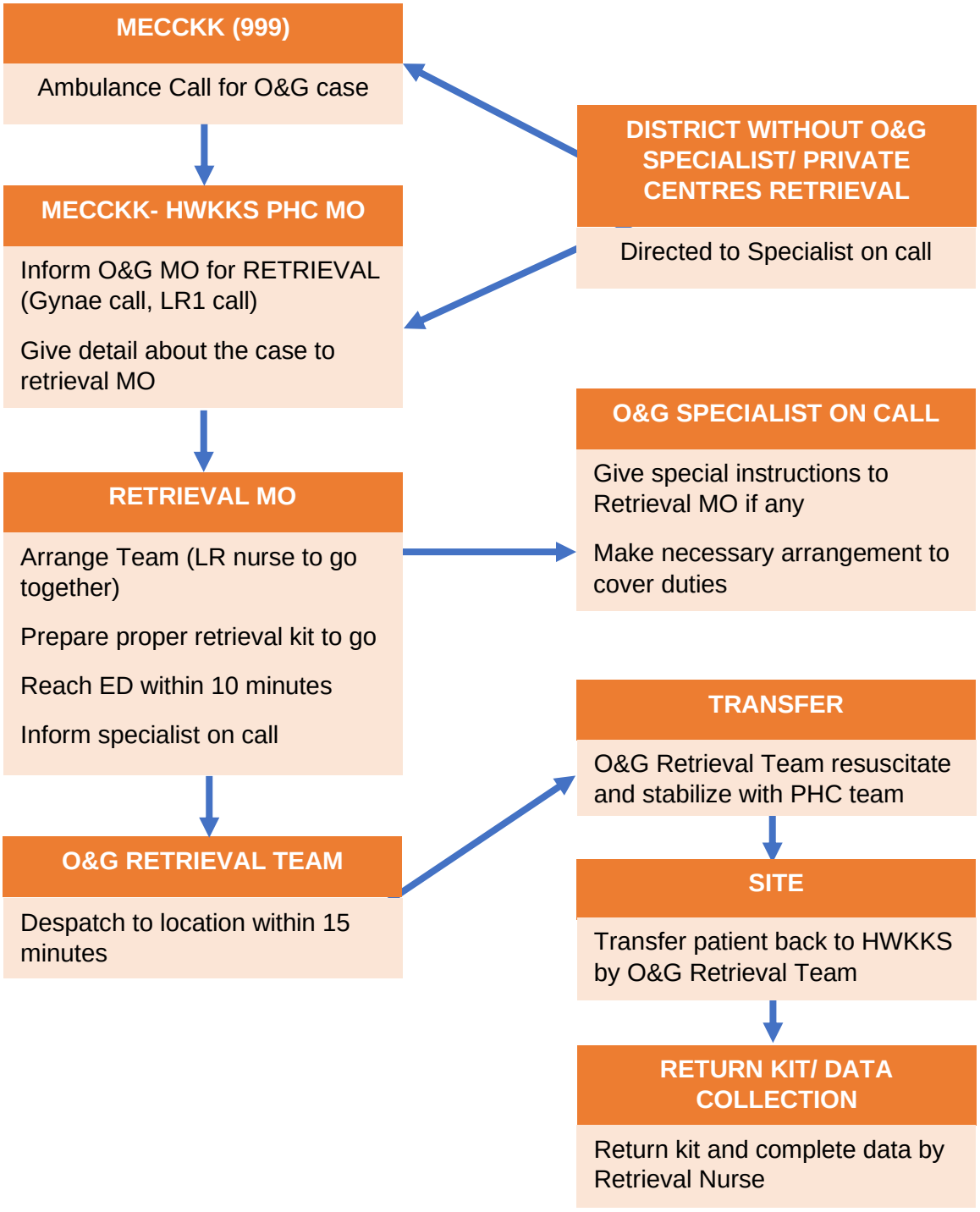
CarolLim/HL/Aug 2005

20.2 Emergency Obstetric Retrieval

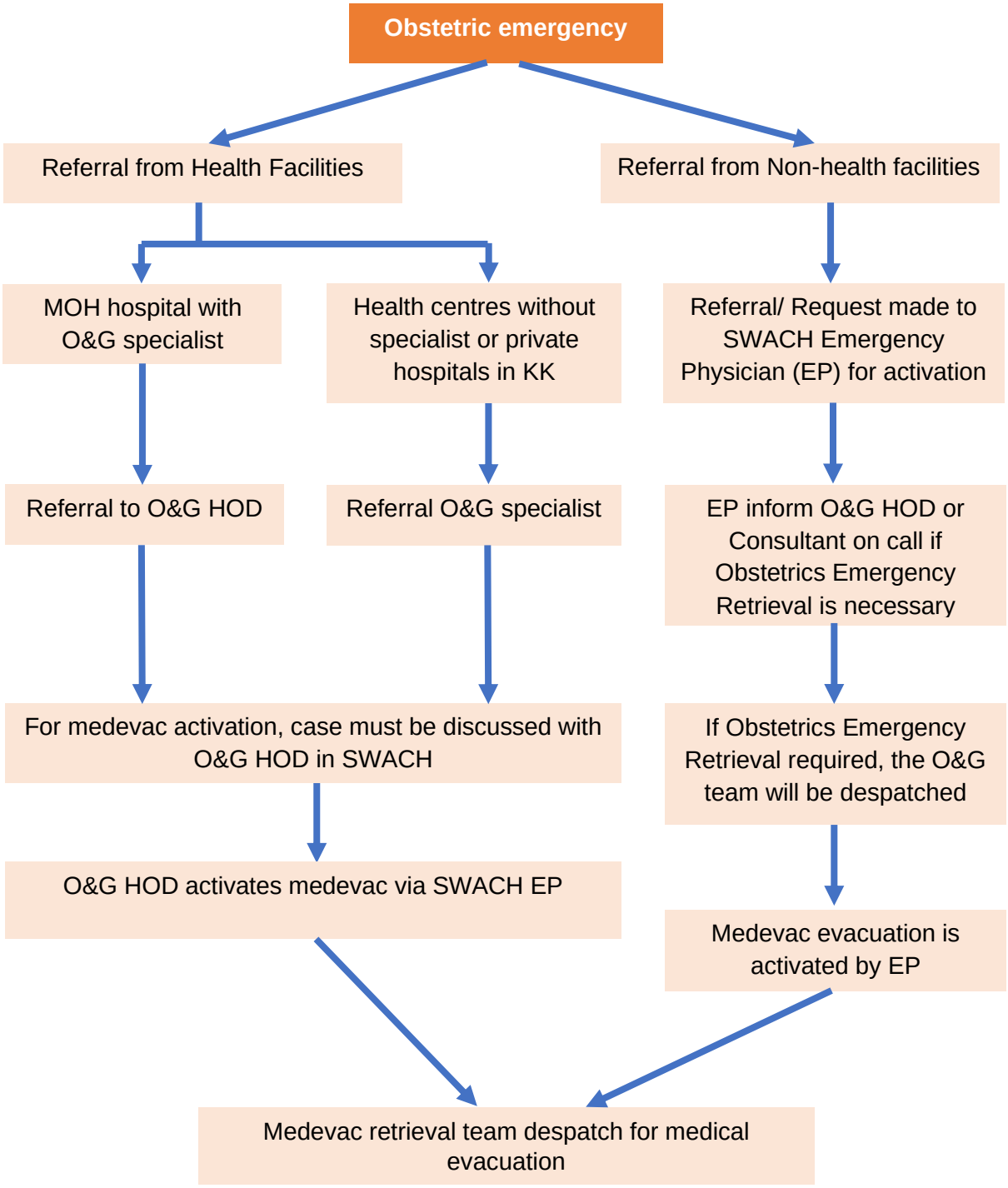
20.2.1 O&G Retrieval in Kota Kinabalu From Public/ Primary Health Care (Malay Version)



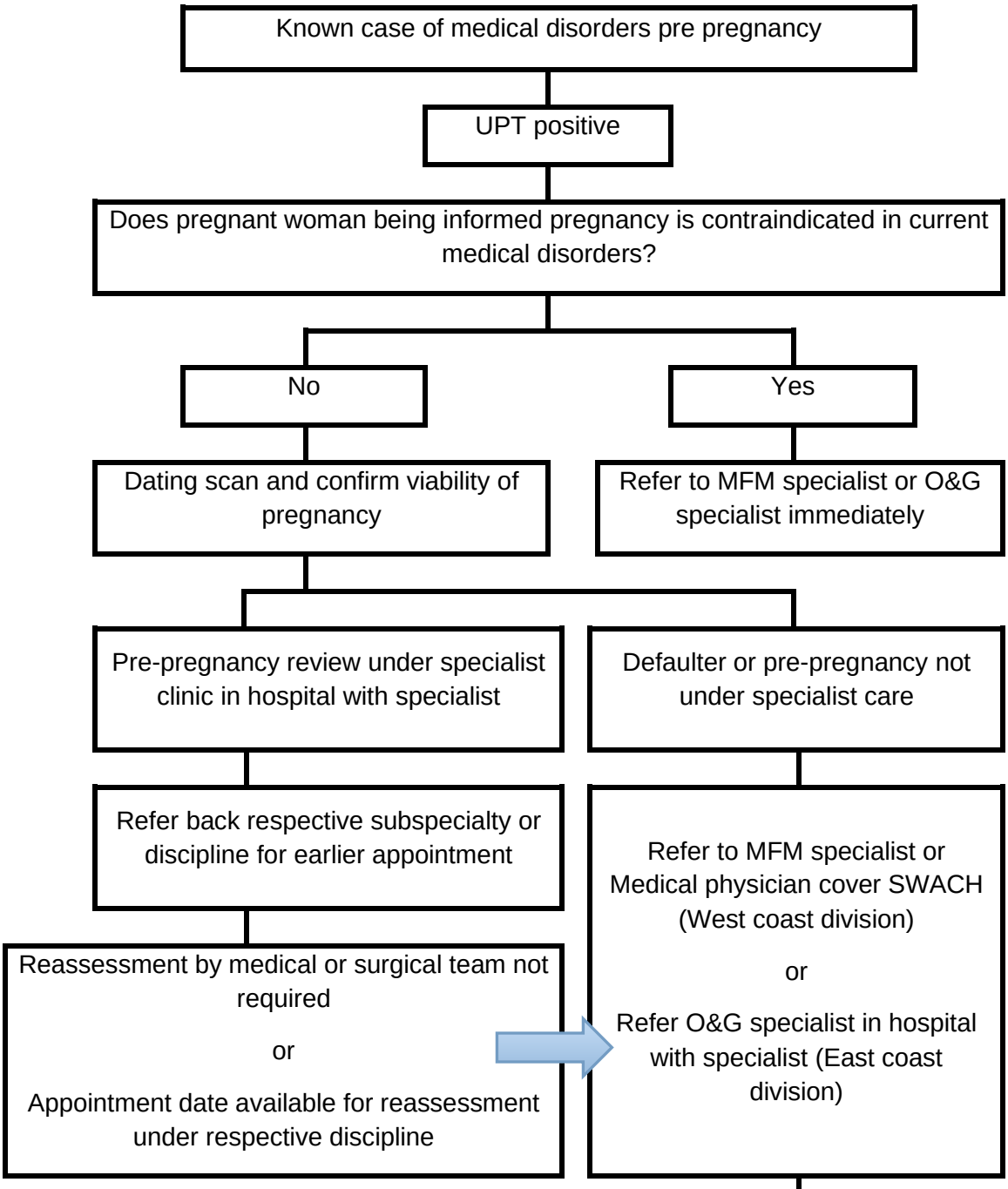
20.2.2 O&G Retrieval in Kota Kinabalu From District/ Private Hospital (Within KK area)



20.2.3 SWACH O&G Medevac Retrieval Flow Chart

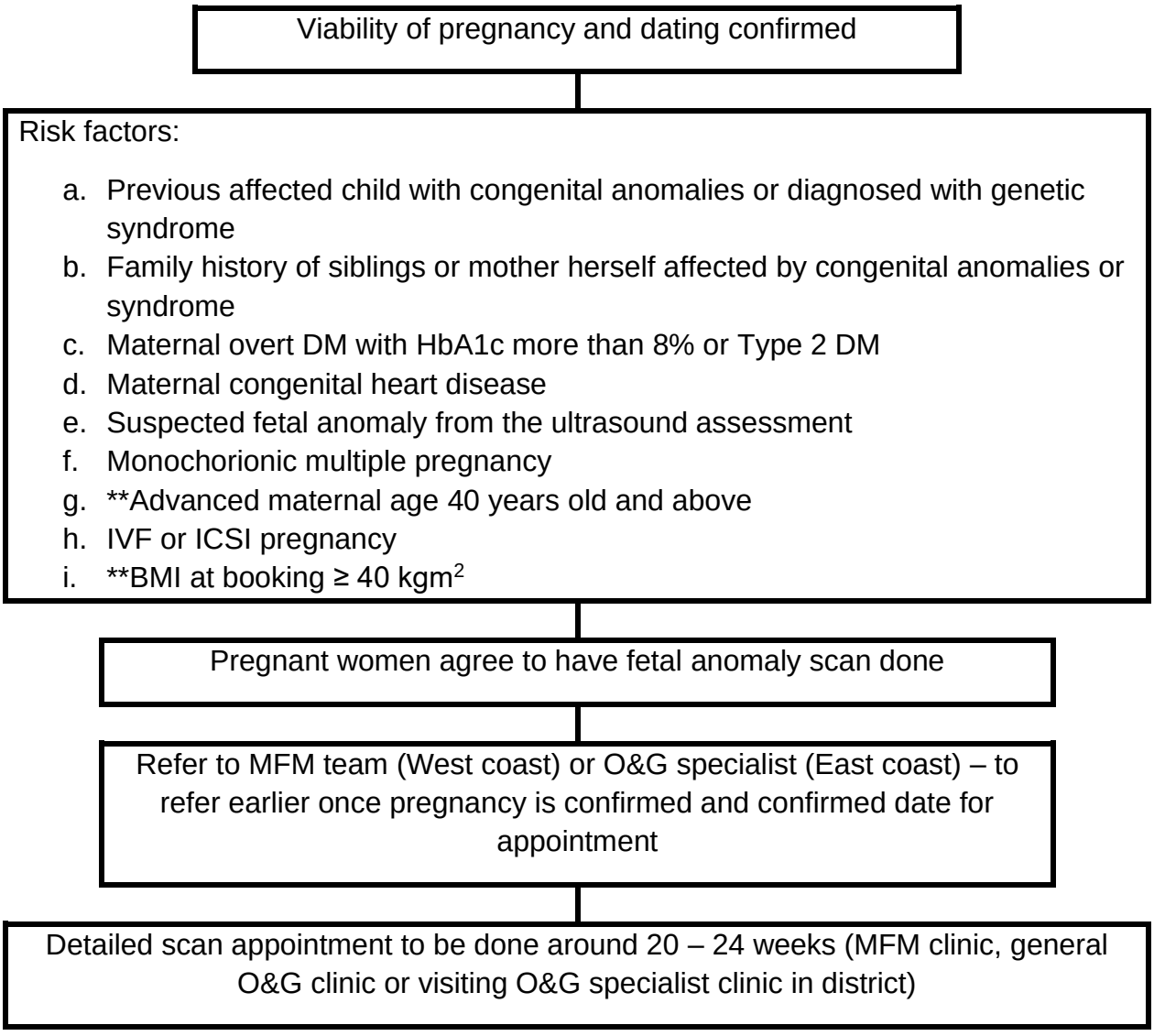


20.3 Obstetric Combined Clinic Referral Flow Chart



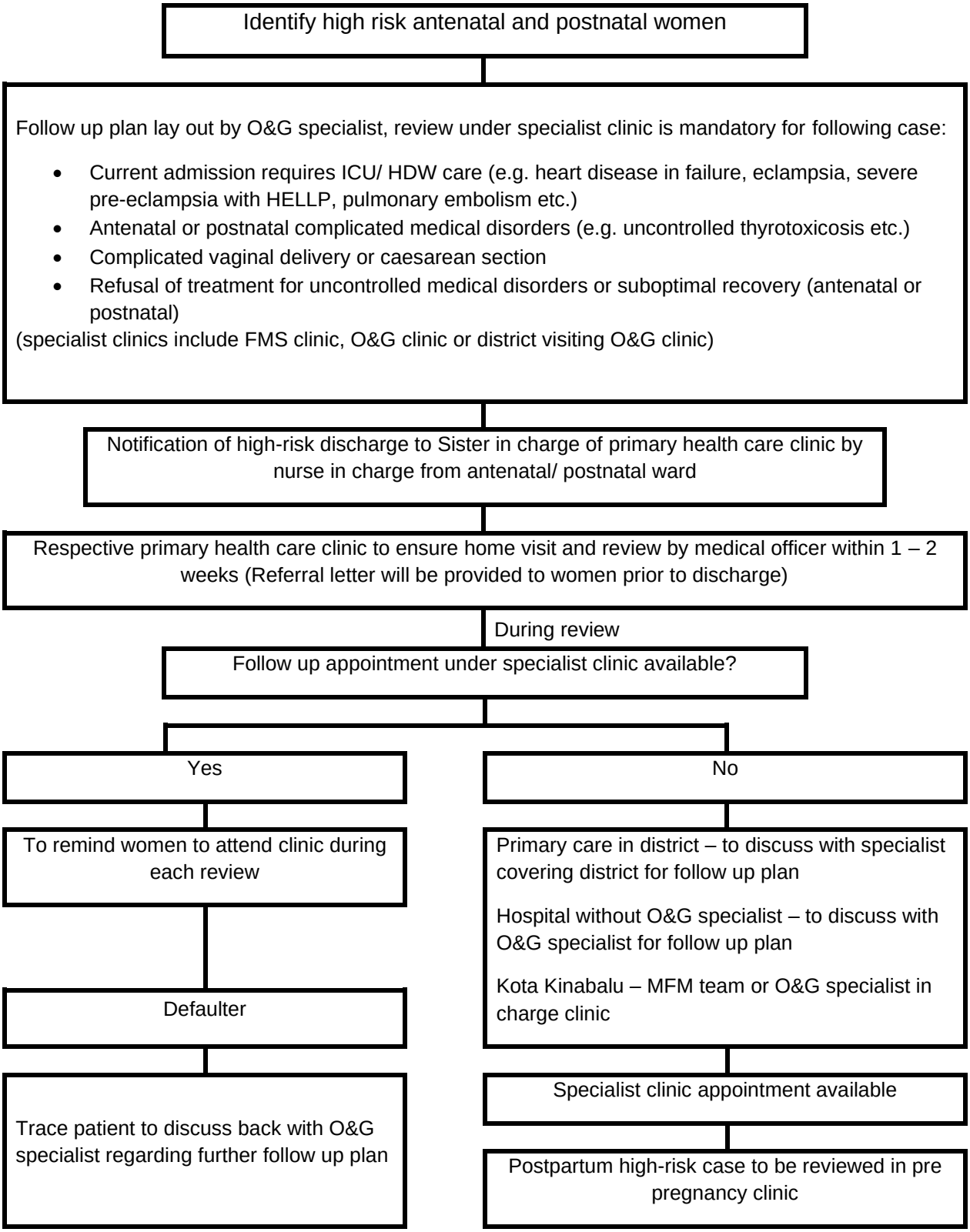
- Some uncomplicated medical illness in pregnancy will be reviewed in general/ visiting O&G clinic or FMS in primary health care (to discuss with MFM team/ O&G specialist)

20.4 Detailed Scan Referral Flow Chart

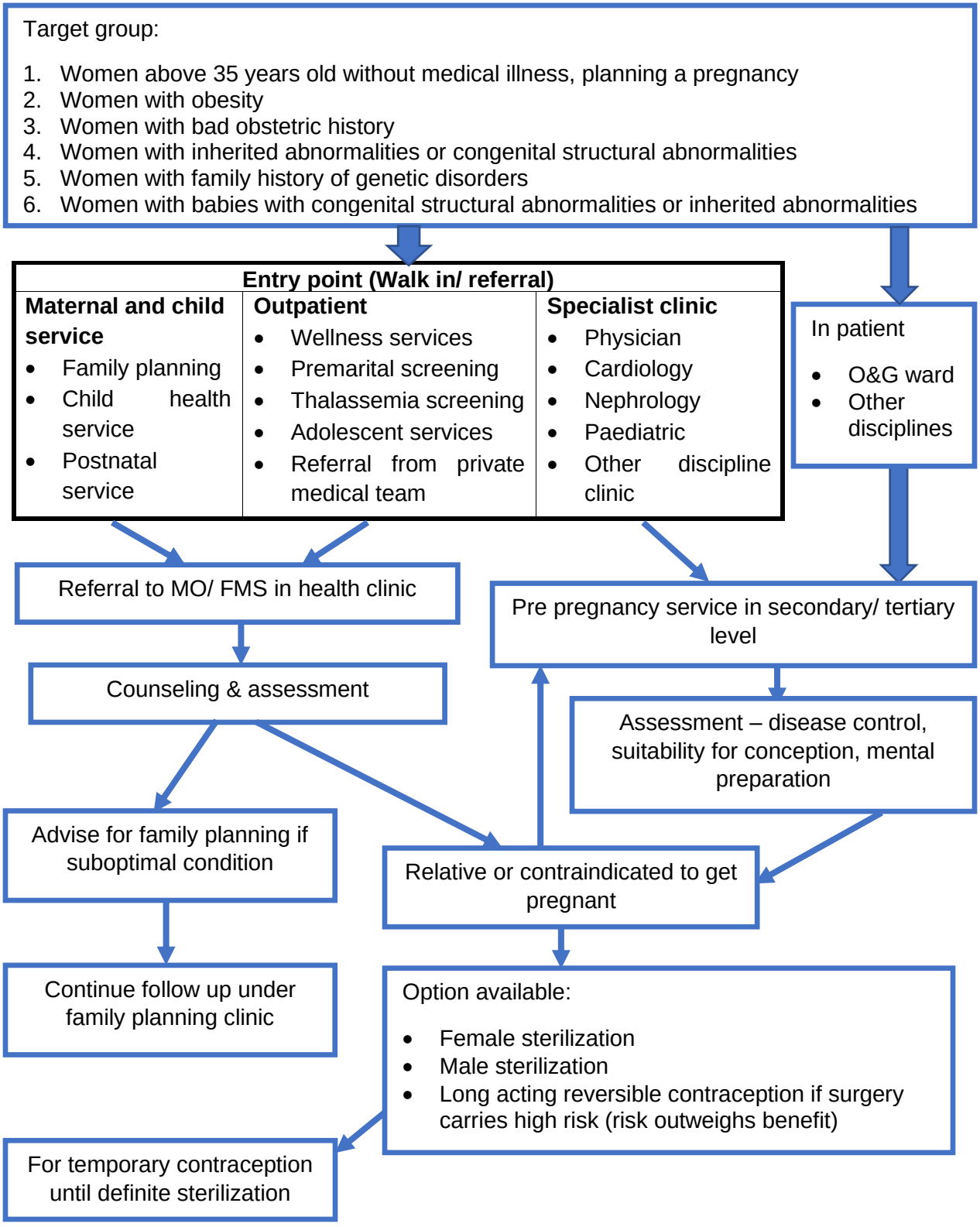


**Detailed scan will be performed by O&G specialist in O&G clinic, district visiting clinic or MFM clinic. Availability of the service may vary between O&G specialists from different specialist hospitals.

20.5 Notification for High Risk Discharge (Antenatal or Postnatal Case)



20.6 Pre-pregnancy Clinic Referral Flow Chart



Reference: Perinatal Care Manual Malaysia (2013)

20.7 Pre-pregnancy Clinic Feedback Form

	**PRE-PREGNANCY CLINIC** **MATERNAL FETO MEDICINE UNIT** **DEPARTMENT OF OBSTETRICS & GYNAECOLOGY** **SABAH WOMEN'S AND CHILDREN'S HOSPITAL** **TEL: 088-522600** **FAX: 088-438512**

PATIENT IDENTIFICATION

Name :
IC/ :
Passport :
Contact :
Address

PRE-PREGNANCY PROBLEM

Diagnosis :

Status : ☐ Stable Pregnancy allowed ☐ Need Further Stabilization

Medication :

INVESTIGATION

Biochemical :

Radiological :

Histological :

NEED FURTHER STABILIZATION

Medical referral : YES/ NO

Contraception choice :

Next pre pregnancy review :

PRE-PREGNANCY ADVICE

- Folate
- Weight reduction/ Exercise
- Smoking/ Alcohol caesation
- Medications Adjustments:

PRE-PREGNANCY CARE

1) Report to MFM/ O&G specialist clinic once UPT positive
2) Antenatal booking
3) MFM clinic appointment at 18 weeks
4) Biochemical screening at 13 weeks
5) Combined Clinic care
6) Detailed scan at 22 weeks

Date:	Prepared by:

20.8 Refusal of Treatment Form (English & Malay Version)

HOSPITAL _____

TESTIMONIAL LETTER OF REFUSAL OF TREATMENT/PROCEDURE PER/REFUSE/2016

I, _____ IC/ID No. _____,
*patient/parent/spouse/son/daughter/guardian/relative of the patient _____
IC/ID No. _____ refuse the treatment/procedure of _____ ___
for *me/the patient. I have been given detailed explanation of the treatment/procedure including the purpose and benefit(s).

I have also been explained and understand the possible risk(s) if the treatment/procedure is not performed.

I confess that this decision was made on my own free will. I shall be fully responsible for any possible consequence(s) arising from this action.

I affirm that I will not take any legal action upon the hospital or any other relevant parties should there be any unfortunate outcome resulting from this decision.

Signature : _____
(*Patient/Parent/Spouse/Son/Daughter/Guardian/Relative, state relationship : _____)
Address : _____
_____
Tel. No. : _____
Date : _____

Signature of translator: _____
(if any)
Name of translator: _____
IC/ID No. : _____
Date : _____
Language used : _____

Signature of Doctor : _____ _
Name of Doctor: _____
MMC/MDC No.: _____
Date : _____
Stamp :

Signature of witness: _____
Name of witness: _____
IC/ID No. : _____
Designation : _____
Date : _____

*Delete as appropriate

HOSPITAL _____

SURAT AKUAN TIDAK SETUJU RAWATAN/PROSEDUR

PER/REFUSE/2016

Saya, _____ No. KP/ID _____,
adalah *pesakit sendiri/ibu/bapa/suami/isteri/anak/penjaga/saudara kepada pesakit,
_____ No. KP/ID _____,
tidak bersetuju menerima rawatan/prosedur _____
ke atas *saya/pesakit. Saya mengakui bahawa saya telah dimaklumkan dengan terperinci mengenai rawatan/prosedur tersebut termasuklah keperluan dan kebaikannya.

Saya juga telah dimaklumkan dan memahami risiko-risiko yang boleh dihadapi jika rawatan/ prosedur ini tidak dilakukan.

Saya mengaku bahawa keputusan ini adalah di atas kerelaan diri saya sendiri. Saya akan bertanggungjawab sepenuhnya ke atas sebarang kemungkinan akibat tindakan saya ini.

Saya mengakujanji tidak akan mengambil sebarang tindakan undang-undang terhadap pihak hospital atau mana-mana pihak lain yang berkenaan sekiranya berlaku sebarang perkara yang tidak diingini akibat daripada keputusan saya ini.

Tandatangan : _____
(**Pesakit/ibu/bapa/suami/isteri/anak/penjaga/saudara, nyatakan hubungan*: _____)
Alamat : _____
_____
No. Telefon : _____
Tarikh : _____

Tandatangan penterjemah: _____
(jika ada)
Nama Penterjemah: _____
No. KP/ID : _____
Tarikh : _____
Bahasa yang digunakan: _____ _____

Tandatangan Doktor : _____
Nama Doktor : _____
No. MPM : _____
Tarikh : _____
Cap Jawatan :

Tandatangan saksi : _____
Nama saksi : _____
No. KP/ID : _____
Jawatan : _____
Tarikh : _____

*Potong yang tidak berkenaan

m/s 1/1