

Dear Doctor,

We welcome you for joining the Pradhan Mantri Surakshit Matritva Abhiyan, an initiative to that aims to ensure that every pregnant woman in the country receives comprehensive antenatal check up by a doctor. During the process high risk factor if any, in her pregnancy is to be detected and managed, indicated on her Mother and child protection card and her delivery is to be planned with her and her family.

The treatment guidelines for various high risk factors of pregnancy that have been prepared by the MoHFW in consultation with the technical experts are available on the NHM website. These guidelines aim to standardize and ensure quality of care across all health facilities in the country, within the framework of the National health mission.

Each of the following documents is a synopsis from these guidelines, prepared in order to facilitate easy understanding and guide you to diagnose and manage conditions that may pose risk to a pregnancy.

High risk factors of pregnancy and their management at an ANC clinic

Complications can occur during pregnancy and affect the health and survival of the mother and the fetus. As suggested by GoI every pregnant woman must receive at least 4 checkups during pregnancy (Registration and 1st check-up within 12 weeks, 14-26 weeks, 28-32 weeks and 36-40 weeks).

The health care provider should ensure that proper history is elicited and complete general physical, systemic and abdominal examinations are performed on the PW during each ANC visit. Though any case could develop complication during or after pregnancy or childbirth, but a pregnancy with a high risk factor poses higher than normal risk for the pregnant women and the fetus.

Some common **High Risk Conditions of pregnancy** that are not to be missed by the health care provider during an ANC checkup are as enumerated below;

- Severe Anaemia (Hb less than 7gm/dl)
- Pregnancy induced hypertension, pre-eclampsia, Pre-eclampsic toxemia
- Syphilis/ HIV Positive
- Gestational Diabetes Mellitus
- Hypothyroidism
- Young primi (less than 20 years) or Elderly gravida (more than 35 years)
- Twin / Multiple pregnancy
- Malpresentation
- Previous LSCS
- Low lying placenta, Placenta previa
- Positive Bad obstetric history (History of still birth, abortion, congenital malformation, obstructed labor, premature birth etc.)
- Rh negative
- Patient with History of any current systemic illness(es)/past history of illness

Warning signs to be explained to each pregnant woman using the safe motherhood booklet

Following warning signs require immediate visit to the doctor/ health facility:

- Fever $>38.5^{\circ}\text{C}$ /for more than 24 hours.
- Headache, blurring of vision.
- Generalized swelling of the body and puffiness of face.
- Palpitations, easy fatigability and breathlessness at rest.
- Pain in abdomen.
- Vaginal bleeding / watery discharge.
- Reduced fetal movements.

Hypertensive disorders of pregnancy

Hypertensive disorders complicate around 10% of pregnancies

Hypertension is defined as BP $\geq 140/90$ in two consecutive readings at any time of pregnancy.

Types of hypertensive disorders in pregnancy

- Chronic Hypertension- hypertension that antedates the pregnancy or present before 20 weeks of gestation. It can be complicated by pre-eclampsia when there is proteinuria as well.
- Pregnancy induced hypertension- hypertension after 20 weeks of pregnancy.
- Pre-eclampsia- May present with any symptoms of headache, blurring of vision, epigastric pain or oliguria and oedema. When the blood pressure is $\geq 140/90$ but $< 160/110$ recorded 4-6 hrs apart, associated with proteinuria > 3 gm/dl in a 24hrs specimen or with proteinuria trace, 1+ or 2+
- Severe pre-eclampsia- The blood pressure is $\geq 160/110$ with proteinuria 3+ or 4+
- Eclampsia-Eclampsia is the occurrence of generalized convulsion(s), usually associated with background of pre-eclampsia during pregnancy, labour or within seven days of delivery. However, it can occur even in normotensive women. **Convulsions with $\geq 140/90$ and proteinuria more than trace**

Likely complications

Maternal; HELLP Syndrome, ARDS, Renal failure, pulmonary edema, DIC

Fetal; IUGR, IUD, Fetal distress, prematurity.

Monitoring of PIH, Severe PE, Eclampsia during ANC

Focused ANC for rising BP and abnormal weight gain to be looked for at every visit

PE profile to include CBC with peripheral smear, coagulation profile, **serum uric acid**, serum creatinine, blood urea, Hepatic enzymes, Urine; albumin and C/S.

IUGR to be ruled out through clinical assessment and necessary investigations by 34 weeks.

Management

The definitive treatment is delivery but one has to wait until lung maturity and satisfactory gestational age is reached. The cornerstone would be controlling hypertension, assessing the severity, monitoring the maternal and fetal condition and preventing onset of eclampsia. Treatment with anti-hypertensive initiated at 90-100mmHg when treated through OPD. Proper rest, high protein diet and the following drugs are recommended

1. Tab Alpha methyl dopa 250 mg twice or thrice daily;
2. Nifedipine 10-20 mg orally bd/tds (the second line of treatment after alpha methyl dopa).
3. Labetalol 100 mg twice daily is equally effective.
4. In setting of preeclampsia, prophylactic $MgSO_4$ could be given IM.

1 gm /day of calcium in pregnancy after 1st trimester reduces risk of Pre-eclampsia by 50%.

The case may be referred to a FRU for further management.

Danger signs to be told to patient

Any imminent symptom of eclampsia like headache, blurring of vision, epigastric pain or oliguria and increasing edema, rising BP, bleeding PV or absent /decreased fetal movements.

Planning delivery

Delivery decisions to be taken on obstetric grounds and for a CEmOC center. Prolonged induction to be avoided.

Anaemia during pregnancy and in the postpartum period

Prevalence of Anaemia in pregnant women in India is 58.7%

Anaemia is defined as Hb level < 11g/dl in pregnancy or immediate post partum period.

Anemia is grouped as mild (10-10.9g/dl), moderate (7-9.9 g/dl), severe (< 7 g/dl).

Iron deficiency anemia is the commonest.

Complications due to anaemia in pregnancy;

Maternal; Cardiac failure, susceptibility to infections, preterm labour, PPH, sub-involution, failing lactation, DVT

Fetal; Prematurity, IUGR, Anemia of newborn.

Diagnosis

History of weakness, giddiness or breathlessness

Assess for pallor.

Investigations; Hb estimation using haemoglobinometer or by Standard Hb color scale.

Complete blood count and examination of a thin film for cell morphology, peripheral blood smears for malaria.

Urine for blood or pus cells and stool for occult blood/ova/cyst

Management

For **prophylaxis** give IFA tablet (with 100 mg elemental iron and 0.5 mg folic acid) once daily for 180 days (6 months) starting after the first trimester.

Mild to moderate anemia is first investigated for type of anemia and treated by iron and folic acid tablets (100 mg elemental iron + 0.5 mg folic acid) twice daily and to be continued during postpartum period. Hb level assessed monthly. Administer parenteral iron preparation if there is noncompliance / intolerance to oral iron.

Cases of moderate and severe anemia may receive anti helminthic drugs (Tab. Mebendazole 100 mg bd for 3 days or Tab. Albendazole 400 mg single dose) especially in hookworm endemic areas during 2nd/3rd trimesters of pregnancy.

Cases of **severe anemia** should be referred to FRU for further investigations and treatment as they might need a blood transfusion.

Women with Hb < 7 gm% at term should deliver at FRU.

Blood loss during delivery must be minimized by practicing AMTSL in all cases.

Indications and dose for parenteral iron therapy:• Intolerance to oral Iron, poor absorption, non compliance of treatment, moderate to severe anaemia in late pregnancy.

For Hb between 7-8 gm%, IM iron therapy in divided doses along with oral folic acid daily if women do not have any obstetric or systemic complication; repeat Hb after 8 weeks

Delivery of a PW with severe anaemia to be planned for a FRU with available blood transfusion services.

Twins/ Multiple pregnancy

Widespread practice of ART has resulted in increased incidence of multiple pregnancies.

Risk of Twins/ Multiple pregnancy

Fetal risk; prematurity, IUGR/IUD, congenital anomalies, malpresentations, PROM, cord prolapse, placenta previa, placental insufficiency, twin to twin transfusion, stuck or conjoint twin.

Maternal risk; Anemia, hyperemesis, early onset PET, Acute Hydromnious, Atonic PPH, Increased risk of operative delivery.

Diagnosis

When fundal height > POG, an USG to be done to confirm diagnosis (and assess viability, rule out congenital malformations, fetal growth, fetal position)

Management

Early diagnosis can improve maternal and fetal outcome.

Requires more frequent visits, increased calories, protein intake, iron supplementation and appropriate rest in lateral position

Refer to a FRU at 36 weeks for timely delivery.

Placenta Previa

The implantation of the placenta wholly or partly in the lower segment of the uterus. It is an important cause of perinatal mortality mainly due to prematurity. Incidence is 4-5 per 1000 pregnancies.

It is classified depending on the relation to the internal os and if it lies on the anterior or posterior wall.

Etiology;

Maternal age, multiparity, uterine scar, multiple pregnancy, previous abortion

Diagnosis;

- Painless bleeding P/V, Uterine height corresponds to period of gestation, soft non-tender uterus and fetal parts palpable, abnormal presentation, presenting part high floating,
- Placental location to be confirmed during USG.
- Warning bleeding to be taken seriously

Management

- No PV to be done
- PW to be admitted and to check Hb and blood transfusion if needed
- Routine ANC to continue till 37 weeks
- If patient goes into labour or heavy bleeding then pregnancy to be terminated

Syphilis

Government of India has taken a policy decision for universal screening of pregnant women .

Pregnant women considered to be at high risk for acquiring STIs, including Syphilis If:

- Women with current or past history of STI
- Women with more than one sexual partner
- Sex workers
- Injecting drug users

Signs and symptoms may vary depending on which of the four stages of syphilis the woman presents with.

Risk of Syphilis in pregnancy

Fetal; LBW, perinatal deaths and congenital syphilis

Maternal; Still birth, spontaneous abortions, presence of co morbid condition like HIV

Diagnosis

All pregnant women should be tested for Syphilis in the first ANC visit itself using POC test. If facility has testing for RPR available then testing using RPR may be done. Those with high risk of syphilis or with history of adverse outcome in previous pregnancy to be screened again in the third trimester. Testing of spouse in syphilis positive woman is important.

Treatment of maternal syphilis

Although severe allergy to penicillin is rare, the provider should rule out history of allergy before administering penicillin. The emergency drugs for managing anaphylaxis should be kept ready prior to administering penicillin

Stage of syphilis	Treatment Recommended
In the early stage (primary and secondary syphilis of <2 years' duration; RPR titer< 1:8 approximately),	A single intramuscular injection of 2.4 million IU benzathine benzyl penicillin
In the late stage (tertiary > 2 years or unknown duration, RPR titer>1:8 approximately)	Total of three intramuscular injections of 2.4 million IU benzathine benzyl penicillin once a week for 3 weeks.
<u>For Penicillin–allergic women</u>	
Early stage syphilis;	Erythromycin, 500mg orally 4 times daily for 15 days
Late stage syphilis	Erythromycin, 500mg orally 4 times daily for 30 days
Or	
Primary Syphilis	Azithromycin, 2g orally as a single dose

Delivery;

A FRU/EmOC center to be selected for conducting delivery of a syphilis positive pregnant woman.

Hypothyroidism

Prevalence of Hypothyroidism in pregnancy in the Indian population is 4.8-12%

Risk of Hypothyroidism in pregnancy includes;

Maternal; recurrent pregnancy loss, miscarriage, stillbirth, incidence of pre-eclampsia, incidence of Abruption placentae.

Fetal; IUGR, preterm delivery.

Screening for hypothyroidism is recommended in PW with following high risk factors;

- Residing in area of known moderate to severe iodine insufficiency
- Obesity
- History of prior thyroid dysfunction, goiter
- History of mental retardation in family/prev birth
- History of recurrent miscarriage/still birth/preterm delivery/IUD/Abruption placentae
- History of infertility

Diagnostic criteria in pregnancy

TSH levels during pregnancy are lower as compared to TSH levels in a non-pregnant state.

Pregnancy-specific and trimester-specific reference levels for TSH are as follows:

- **1st trimester** - 0.1-2.5mIU/l; **2nd trimester** - 0.2-3mIU/l; **3rd trimester** - 0.3-3mIU/l.
- In pregnancy, **SCH**(sub clinical hypothyroidism) is defined as a serum TSH between 2.5 and 10mIU/L with normal FT4 concentration
And **OH**(overt hypothyroidism) is defined as serum TSH>2.5-3mIU/l with low FT4 levels.
TSH>10mIU/l irrespective of FT4 is OH.

Management of Hypothyroidism in pregnancy

Levothyroxine Sodium is the drug of choice to be taken empty stomach in the morning.

TSH level is <2.5 in first trimester and <3 in second and third trimester,	No further management is required and pregnant woman will continue routine pregnancy care
If TSH is between 2.5/3 to 10	To be started on 25 µg of levothyroxine per day
TSH is >10	To be started on 50 µg of levothyroxine per day

Once treatment started, TSH levels to

be repeated after 6 weeks of starting date of treatment.

Delivery

Uncomplicated cases may be delivered at PHC/CHC by a MO. Cases with associated complication to be delivered under supervision of an Obstetrician.

Gestational Diabetes Mellitus (GDM)

Rates of GDM in India are estimated to be 10-14.3%.

Risk of GDM in Pregnancy

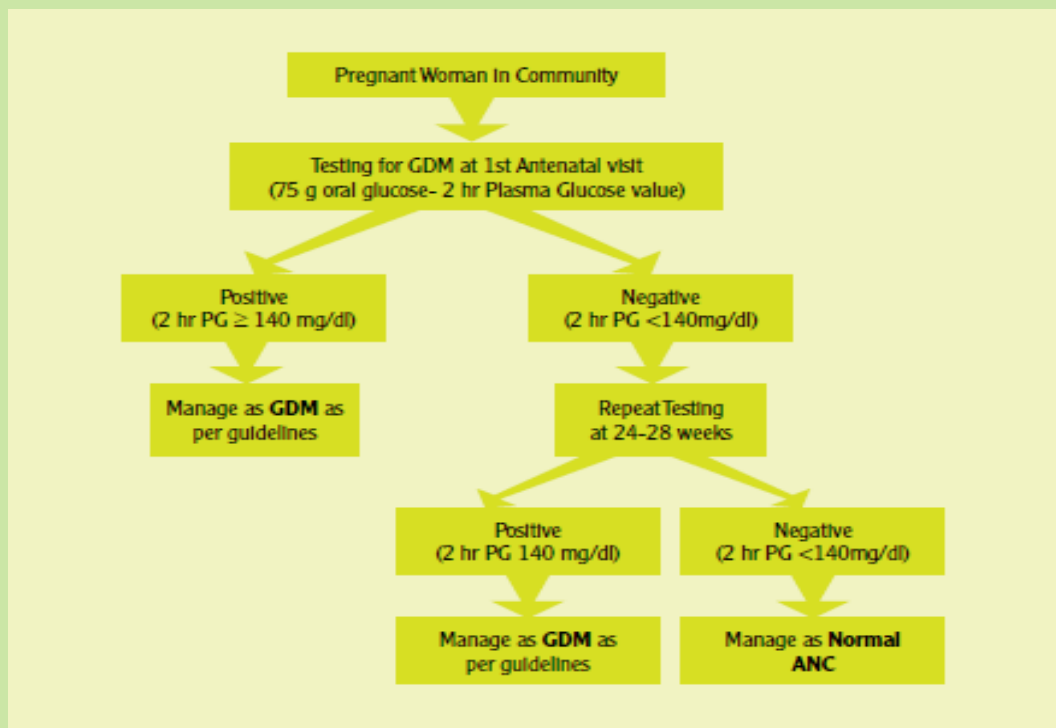
Maternal; Polyhydramnios, Pre-eclampsia, Prolonged labour, Obstructed labour, Caesarean section, uterine atony, PPH, infection

Fetal; Spontaneous abortion, IUD, Stillbirth, Congenital malformations, birth injuries, neonatal hypoglycaemia, IRDS.

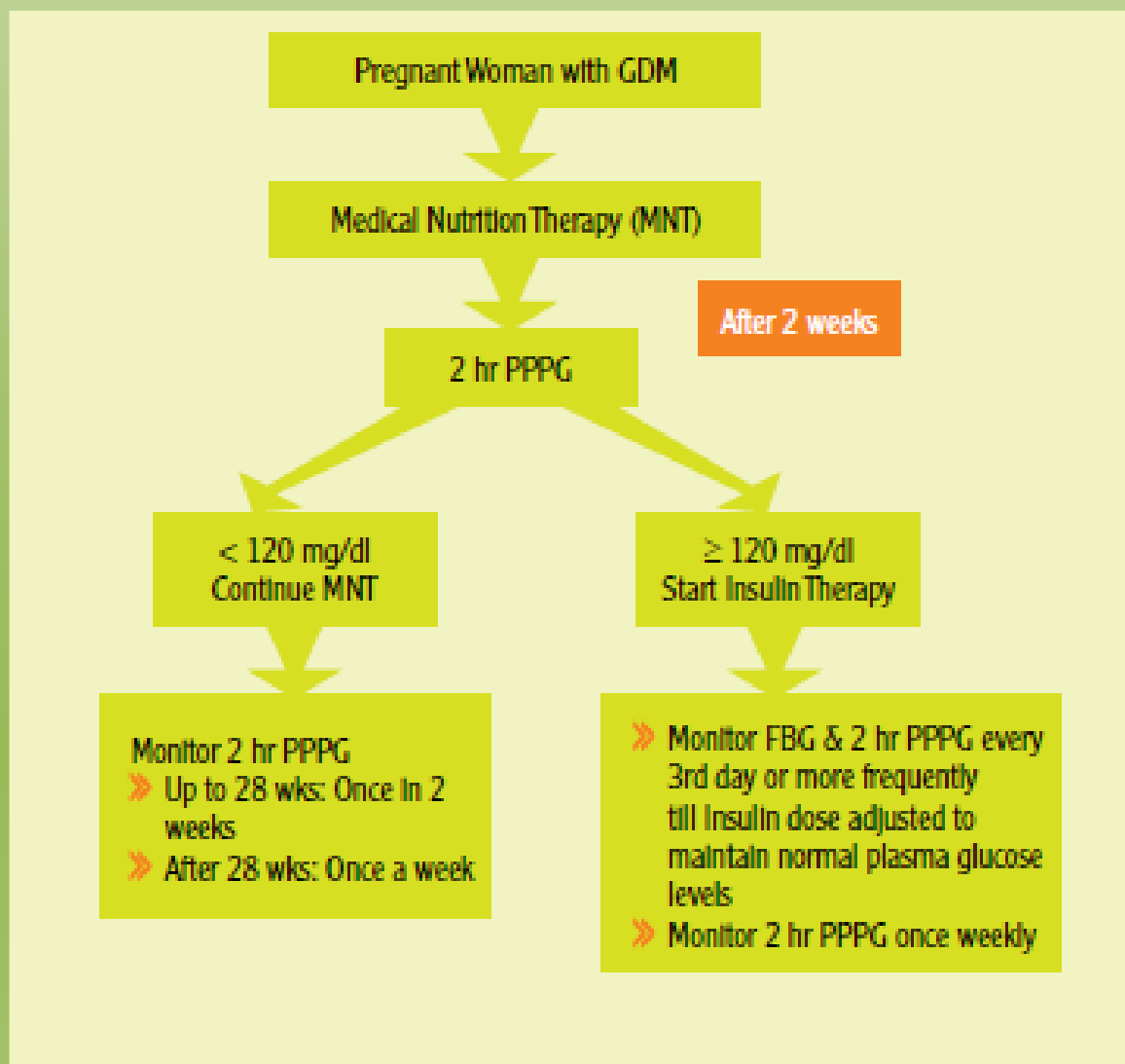
Protocol for investigation

- Testing for GDM is recommended twice during ANC. The first testing should be done during first antenatal contact as early as possible in pregnancy. The second testing should be done during 24-28 weeks of pregnancy if the first test is negative.
- There should be at least 4 weeks gap between the two tests. The test is to **be conducted for all PW** even if she comes late in pregnancy for ANC at the time of first contact. If she presents beyond 28 weeks of pregnancy, only one test is to be done at the first point of contact.

Test for diagnosis



Management of GDM



Special Obstetric care for PW with GDM

- Antenatal care of a PW with GDM should be provided by gynecologist if available.
- In cases diagnosed before 20 weeks of pregnancy, a fetal anatomical survey by USG should be performed at 18-20 weeks.
- For all pregnancies with GDM, a fetal growth scan should be performed at 28-30 weeks gestation & repeated at 34-36 weeks gestation. There should be at least 3 weeks gap between the two ultrasounds and it should include fetal biometry & amniotic fluid estimation. PW with GDM in whom blood glucose level is well controlled & there are no complications, should go for routine antenatal care as per GoI guidelines.
- In PW with GDM having uncontrolled blood glucose level or any other complication of pregnancy, the frequency of antenatal visits should be increased to every 2 weeks in second trimester & every week in third.
- Monitor for abnormal fetal growth (macrosomia/growth restriction) and polyhydramnios at each ANC visit
- PW with GDM to be diligently monitored for hypertension in pregnancy, proteinuria and other obstetric complications
- In PW with GDM between 24-34 weeks of gestation and requiring early delivery, antenatal steroids should be given as per GoI guidelines i.e. Inj. Dexamethasone 6 mg IM 12 hourly for 2 days. More vigilant monitoring of blood glucose levels should be done for next 72 hours following injection. In case of raised blood glucose levels during this period, adjustment of insulin dose should be made accordingly.

Fetal surveillance in PW with GDM:

- PW with GDM are at an increased risk for fetal death in utero and this risk is increased in PW requiring medical management. Hence vigilant fetal surveillance is required.
- Fetal heart should be monitored by auscultation on each antenatal visit.
- PW should be explained about Daily Fetal Activity Assessment. One simple method is to ask her to lie down on her side after a meal and note how long it takes for the foetus to kick 10 times. If the foetus does not kick 10 times within 2 hrs, she should immediately consult a healthcare worker and if required should be referred to a higher centre for further evaluation.

Pregnancy with Previous Caesarean sections

About 15% of pregnancies suffer from major obstetric complications that require emergency care and nearly 10% of the total delivery cases may require CS. In the past 35 years, the rate of cesarean section has steadily increased from 5% to approximately 25%. So pregnancy with history of previous cesarean section is prevalent in present day obstetric practice

Risks to mother in subsequent pregnancies;

Risk to PW; Antenatal complications in a woman with history of previous cesarean section is not high but may include; Impending or Uterine rupture & placenta previa or accrete with accompanying hemorrhage, bladder discomfort, incidental morbidity can occur during pregnancy, labor & in repeat cesarean section.

In case of a repeat CS the operative complications may include; operative interference. There are more technical difficulties & increased chance of injury to the surrounding structures during repeat section. Difficulty in stitching the uterine incision due extreme thinning and post-operative complications are likely to be increased.

Risk to fetus; preterm delivery, low birth weight.

Danger signs in women with previous CS; Scar tenderness,

Birth Planning for Woman with previous CS The woman is to be advised to deliver at a CEMOC facility with facility for blood transfusion.

Intrauterine growth retardation (IUGR)

It is referred to birth weight below the 10th percentile for the gestational age caused by fetal, maternal or placental factors. The fetus is healthy but small for gestational age(SGA).

Causes; Pre-eclampsia, long standing DM, placenta praevia, pre-pregnancy wt of <50 kg, nutritional deficiency particularly protein intake.

Diagnosis;

- Accurate assessment of gestational age is critical in diagnosis of IUGR.
- Clinical assessment of fetal growth is done by maternal weight gain and SFH(Symphisio- fundal height) measurement done by using measuring tape. After 20 weeks it is weeks of gestation +_ 2cms. IUGR is suspected if the fundal height is less than 3cms below the GA in weeks.
- Maternal weight gain < 500gms per week.

Assessment of fetal wellbeing by clinical and USG parameters

- Daily fetal movement count
- Serial SFH and abdominal girth measurement
- NST (Non stress test) and BPP(Biophysical profile) where possible

Antenatal steroids ;One course to be given between 24 and 34 weeks of gestation

Timing of Delivery;

It is determined by the gestational age, severity of IUGR and fetal condition. To be conducted in centres with facility for antenatal and intrapartum fetal monitoring and NICU facility.