Pre-eclampsia
Diagnosis and Management
WHAT IS PRE-ECLAMPSIA?

Hypertension in pregnancy: $BP \geq 140/90_{mmHg}$

Proteinuria in pregnancy: $Protein \geq 300_{mg}$ in 24-hour urine

$OR \geq 1+$ on dipstick

Serious consequences of pre-eclampsia include:

- Eclampsia / Seizure
- Stillbirth
- Stroke
- Renal failure / Anuria
- Disseminated intravascular coagulation
- Pulmonary edema

Pre-eclampsia is more than hypertension, proteinuria, and seizures. It is often without any symptoms until the condition deteriorates. The progressive, and unpredictable nature of the disease makes it potentially life-threatening.
Diagnosing

The two primary signs used to diagnose pre-eclampsia are **blood pressure** & **proteinuria**.

**Tips** for taking blood pressure measurements accurately:

1. **Blood Pressure Assessment**

   Women should be seated **comfortably** with back supported.

   The woman should **stay still** for 5 minutes before and during the measurement.

   The cuff should be placed around the upper arm, and the arm should be supported at the **level of the woman’s heart**.

   Measurements should be **repeated at least once**, after a minimum of 1 minute wait, to ensure accuracy.
2. Proteinuria Assessment

**Tips** for testing urine sample:

It is best to use a urine sample that is freshly collected directly into the specimen bottle.

After dipping the protein test strip into the sample, **wait one minute** before reading the result.

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**Assessing Disease Severity Part I:**

- **Severe hypertension** (very high blood pressure) is defined as $BP \geq 160/110\ mmHg$
- Women with severe hypertension are at high risk for **maternal complications**
- Women with the highest level of **proteinuria** are at high risk of **stillbirth**
The presence of any of these symptoms in a woman with high blood pressure in pregnancy indicates that she is severely ill and at higher risk of complications such as seizures.

Development of the disorder early in pregnancy is another risk factor for complications of pre-eclampsia.

Therefore, estimating gestational age early is an important part of monitoring pregnant women.
## Antihypertensive treatment

**Acute treatment of severe hypertension** should begin immediately.

Once blood pressure is reduced to the non-severe range (<160/110 mmHg) ongoing treatment should be initiated using oral medication.

### Antihypertensive therapy administration instructions by severity of hypertension

<table>
<thead>
<tr>
<th>Severe Hypertension Defined as</th>
<th>Non-Severe Hypertension Defined as</th>
</tr>
</thead>
<tbody>
<tr>
<td>$BP \geq 160/110 \text{ mmHg}$</td>
<td>$BP$ between $140/159/90-109 \text{ mmHg}$</td>
</tr>
</tbody>
</table>

**Treatment goal:**
- Severe: $<160/110 \text{ mmHg}$ over hours (not below 130/80 mmHg on antihypertensive therapy)
- Non-severe: $<140/90 \text{ mmHg}$ over days (not below 130/80 mmHg on antihypertensive therapy)

#### Oral treatment:

**Severe Hypertension**
- **$\alpha$-Methyldopa**
  - Repeat dose after 3 hr until treatment goal achieved
  - 750 mg
- **Nifedipine capsules**
  - Repeat dose after 30 minutes until treatment goal achieved
  - 5–10 mg
- **Nifedipine intermediate-release tablets**
  - Repeat dose after 1 hr until treatment goal achieved
  - 10 mg
- **Labetalol**
  - Repeat dose after 1 hr until treatment goal achieved
  - 200 mg

**Non-Severe Hypertension**
- **$\alpha$-Methyldopa**
  - Given 3–4 x daily to a maximum of 2000 mg/d
  - 250 mg
- **Nifedipine intermediate-release tablets** (e.g., “retard” or “PA”)
  - Given 2 x daily to a maximum of 120 mg/d
  - 10–20 mg
- **Labetalol**
  - Given 2–4 x daily to a maximum of 1200 mg/d
  - 100–200 mg

#### Intravenous treatment:

**Severe Hypertension**
- **Hydralazine**
  - Repeat dose after 30 minutes until treatment goal achieved, to a maximum of 20 mg
  - 5 mg i.v.
- **Labetalol**
  - Repeat dose after 30 minutes until treatment goal achieved, to maximum of 300 mg then switch to oral
  - 10–20 mg i.v.

**Non-Severe Hypertension**
- **Labetalol**
  - Given 2–4 x daily to a maximum of 1200 mg/d
  - 100–200 mg

**N/A**
# Eclampsia prevention & treatment

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**Prevention or Treatment of the seizures of eclampsia**

1. **MgSO₄** is the best choice for prevention or treatment

2. **Phenytoin** is NOT recommended

3. **Diazepam/lytic cocktail**

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**Recommended treatment or prevention regimens for MgSO₄** include both intramuscular and intravenous regimens.

### MgSO₄

<table>
<thead>
<tr>
<th>Loading dose*</th>
<th>Maintenance dose*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intramuscular only</strong></td>
<td><strong>Intramuscular and intravenous</strong></td>
</tr>
<tr>
<td>10g i.m. (5g/10mL solution in each buttock)</td>
<td>4g i.v. with 10g i.m. (5g in each buttock)</td>
</tr>
<tr>
<td>5g i.m. into alternating buttocks every 4 hours for 24 hours</td>
<td>Either 1-2 g/hr i.v. or 5g in alternating buttocks every 4 hours for 24 hours</td>
</tr>
</tbody>
</table>

*NOTE: If the women received a loading dose of MgSO₄ in the community (by i.v. / i.m. or i.m. only), maintenance therapy should be initiated if she arrives at the facility within 6hrs. If more than 6hrs has passed since the loading dose was administered in the community, a second loading dose should be administered prior to starting maintenance therapy.
Magnesium Sulphate (MgSO₄) intramuscular administration instructions:

1. Explain the reason and procedure briefly to the woman or attendant (as appropriate)

2. Wash hands

3. Put on gloves

4. Take the pre-prepared syringe from the medicine box

5. Check MgSO₄ expiry date and ensure medication is clear and colourless

6. Attach needle to syringe and ensure needle is securely attached (x2)

7. Fill each syringe with contents, ensuring 5g MgSO₄/10mL total volume

8. Clean the injection site with alcohol swab

9. Inspect skin surface for bruises, oedema, or inflammation

10. Have patient assume a position appropriate for the site selected

11. Administer a syringe’s contents intramuscularly in upper quadrant of each buttocks

12. Discard needles and syringes in the designated disposal container

13. Apply pressure to the injection sites for 2 minutes
Gestational age at diagnosis

- **20 wk - viability**: Not necessary. However, centre should be competent with midtrimester termination.
- **viability - 30 wk**: Yes, if stable for transfer. Perinatal outcomes unchanged if transfer occurs postpartum.
- **30 - 35 wk**: Yes, as significant perinatal gains without an increase in adverse maternal outcomes. Delivery decision guided by results of maternal and fetal testing. If testing not possible, delivery the safer option.
- **35 - 37 wk**: Yes, due to immediate morbidity and school age issues related to late preterm birth.
- **≥37 wk**: No, IOL indicated.

- **Corticosteroids for fetal lung maturation**: No
- **Transfer to referral centre while pregnant**: No, as routine. May be attempted close to viability to give fetus a chance.
- **Expectant management**: Yes

- **Route of delivery**: Vaginal (misoprostol or Foley catheter for labour induction).
- **Probable Caesarean section, unless intrapartum fetal death.**: Vaginal, although fetal, maternal, or uterine status may preclude vaginal delivery.
- **Up to 34+6 wk or 35+6 wk according to local protocol**: Vaginal, although fetal, maternal, or uterine status may preclude vaginal delivery.

Postpartum Patient Care

**Severe disease may deteriorate transiently postpartum.**

- Maintain surveillance and provide organ system support, as necessary.

**Postpartum BP reaches its maximal levels between days 3-6 after delivery.**

- If patient is on antihypertensives antenatally, consider maintaining treatment postpartum.
- BP targets can be lower as there are no fetal concerns. In high-income countries, more than 50% of eclampsia occurs postpartum.