NCLEX-RN · 2026 TEST PLAN  SYSTEM: MATERNITY / OB  CATEGORY: PHYSIOLOGICAL ADAPTATION

# Preeclampsia, *Eclampsia* & HELLP Syndrome

*Hypertensive disorders of pregnancy — a clinical judgment & prioritization review for the high-yield, high-stakes NGN question.*

◆ ONSET: ≥ 20 WKS GESTATION ◆ DEFINITIVE TX: DELIVERY ◆ POSTPARTUM RISK: UP TO 6 WEEKS

## 01 Definition & Overview

WHAT & WHY

Condition A

### Preeclampsia

New-onset hypertension (BP ≥ 140/90) + proteinuria *or* end-organ dysfunction after 20 weeks gestation in a previously normotensive patient.

● MILD → ● SEVERE FEATURES

Condition B

### Eclampsia

Preeclampsia **plus new-onset tonic-clonic seizures** not attributable to another cause. An obstetric emergency.

● LIFE-THREATENING — MATERNAL & FETAL

Condition C

### HELLP Syndrome

Severe variant: **H**emolysis, **E**levated **L**iver enzymes, **L**ow **P**latelets. May occur *without* hypertension.

● HIGH MATERNAL MORTALITY

*Why it matters: leading cause of maternal morbidity & mortality worldwide. Early detection + $MgSO_4$ prophylaxis + timely delivery save lives.*

## 02 Pathophysiology — Simplified

MECHANISM

1. Abnormal placental implantation →
2. Poor spiral artery remodeling →
3. Placental ischemia + anti-angiogenic factors →
4. Widespread endothelial dysfunction →
5. Systemic vasospasm + ↑ permeability →
6. ↑BP, proteinuria, multi-organ injury

**BOTTOM LINE →** *It's not just "high blood pressure in pregnancy." It is a whole-body endothelial & vascular disease driven by the placenta — which is why delivery is the only cure.*

# 03 Signs & Symptoms

MILD → SEVERE → CRISIS

## Mild Preeclampsia — Monitor

- BP ≥ 140/90 (×2, 4 hrs apart)
- Proteinuria ≥ 300 mg/24 hr
  or 1+ dipstick
- Mild dependent edema (face, hands)
- Weight gain > 2 lb/week
- Mild headache
- Normal DTRs (+2)

## Severe Features — Act Fast

- BP ≥ 160/110 RED
- Severe, persistent headache
- Visual disturbances — blurred vision, scotoma, photophobia
- Epigastric / RUQ pain
- Oliguria < 500 mL/24 hr
- Pulmonary edema, dyspnea
- Hyperreflexia (+3/+4), clonus
- Platelets < 100,000
- AST/ALT 2× normal
- Creatinine > 1.1 mg/dL

## Eclampsia / Crisis — EMERGENCY

- Tonic-clonic seizure
- Loss of consciousness
- Postictal confusion
- Placental abruption
- DIC / coagulopathy
- Stroke / ICH
- Pulmonary edema
- Acute kidney injury
- Fetal distress / demise
- Hepatic rupture (HELLP)

## H•E•L•L•P

**H**emolysis — ↓ H&H, schistocytes on smear, ↑ LDH, ↑ bilirubin

**EL**evated **L**iver enzymes — AST & ALT > 2× normal

**L**ow **P**latelets — < 100,000/mm³

Clinical clues: *RUQ / epigastric pain, nausea, vomiting, malaise, "feeling off."* BP may be normal — don't be fooled.

# 04 Priority Nursing Interventions

ABCS · SAFETY · PRIORITIZE

A AIRWAY | B BREATHING | C CIRCULATION | SAFETY FIRST — SEIZURE PRECAUTIONS | LEFT LATERAL TILT

## A Assess & Monitor

- ✓ Monitor BP, HR, RR, $SpO_2$ q 15–60 min
- ✓ Assess DTRs & clonus q 1 hr on $MgSO_4$
- ✓ Continuous fetal heart monitoring (FHR)
- ✓ Hourly strict I&O — foley in severe
- ✓ Daily weight; labs: CBC, LFTs, Cr, coags, uric acid
- ✓ LOC, headache, visual & epigastric changes
- ✓ Lung sounds q 2–4 hr (pulmonary edema risk)

## S Safety & Environment

- ✓ Seizure precautions: padded side rails ↑
- ✓ $O_2$ & suction at bedside — ready to go
- ✓ Quiet, dim, low-stimulation room
- ✓ Limit visitors; bedrest, left lateral position
- ✓ Fall precautions; call light in reach
- ✓ Assist with ambulation; avoid sudden movement

## M Medicate

- ✓ **Magnesium sulfate IV** — seizure prophylaxis (see §05)
- ✓ **Labetalol / Hydralazine / Nifedipine** for severe HTN
- ✓ **Betamethasone** IM × 2 if < 34 wks (fetal lung maturity)
- ✓ Avoid methergine postpartum (↑ BP)
- ✓ Calcium gluconate at bedside — $MgSO_4$ antidote

## D Deliver & Report

- ✓ Prepare for delivery — *only definitive tx*
- ✓ Notify provider: ↑ BP, severe HA, vision changes, RUQ pain, ↓ UOP, ↓ DTRs, ↓ FHR
- ✓ Anticipate: IV access ×2, type & cross, NICU standby
- ✓ Postpartum monitoring 24–48 hr minimum (seizures still possible)

## *IF SEIZURE OCCURS →*

1. Stay with patient — call for help
2. Turn head to side (prevent aspiration)
3. Do NOT restrain; lower side rails padded
4. Suction PRN; $O_2$ via face mask 8–10 L
5. Note time, duration, characteristics
6. Assess FHR after seizure; prepare for delivery

# 05 Pharmacology

MAG · ANTIHYPERTENSIVES · STEROIDS

## Magnesium Sulfate ($MgSO_4$)

ANTICONVULSANT · 1ST LINE

| | |
|---|---|
| INDICATION | Seizure prevention & treatment in preeclampsia/eclampsia. *Not an antihypertensive.* |
| MECHANISM | CNS depressant; blocks NMDA receptors & calcium influx → smooth-muscle relaxation, ↓ neuronal excitability. |
| DOSE | Loading 4–6 g IV over 15–30 min, then 1–2 g/hr maintenance infusion. |
| THERAPEUTIC | 4–7 mEq/L (or 4–8 mg/dL) |
| TOXICITY | **Loss of DTRs (first sign!)** → RR < 12 → ↓ LOC → UOP < 30 mL/hr → cardiac/respiratory arrest. |
| NURSING | Q 1 hr: DTRs, RR, $SpO_2$, UOP, LOC, mag level. Hold & call if any toxicity sign. Continue 24 hr postpartum. |

## Labetalol / Hydralazine / Nifedipine

ANTIHYPERTENSIVES

| | |
|---|---|
| USE | Severe HTN: BP ≥ 160/110. Goal 140–155 / 90–105 — avoid overshoot (↓ placental perfusion). |
| WATCH | **Labetalol**: bradycardia · **Hydralazine**: reflex tachy, HA · **Nifedipine**: flushing, ↓BP. |

## Betamethasone

CORTICOSTEROID

| | |
|---|---|
| USE | Fetal lung maturity if delivery anticipated < 34 wks. 12 mg IM × 2 doses, 24 hr apart. |
| NOTE | May transiently ↑ glucose, ↑ WBCs. |

⚠ **Mag Toxicity Antidote**

**Calcium Gluconate**

1 G IV OVER 3 MIN

## 06 NCLEX Test Traps

DON'T GET CAUGHT

### Mag ≠ BP medication
$MgSO_4$ is for **seizures**. For severe HTN, the answer is **labetalol or hydralazine**. Students pick mag for BP and lose the point.

### First sign of Mg toxicity = ↓ DTRs
Not respiratory depression — that comes **after**. If reflexes are absent, **STOP the infusion** and call provider.

### Calcium GLUCONATE
Not calcium carbonate, not calcium chloride (unless central line). Know the exact name.

### Delivery is the cure
All other interventions **stabilize**. The only way to end the disease is to deliver baby + placenta.

### Don't restrain during seizure
Protect airway, turn head to the side, keep the environment safe. Restraints cause injury.

### Risk continues postpartum
Seizures & HELLP can occur **up to 6 weeks after delivery**. Continue $MgSO_4$ 24 hr postpartum.

### HELLP without hypertension
Up to 15–20% of HELLP patients have normal BP. RUQ pain + nausea in pregnancy = **think HELLP**.

### No Methergine
For postpartum hemorrhage in preeclamptic patient, Methergine is **contraindicated** (↑ BP). Use oxytocin or carboprost.

## 07 Patient Education

HOME · SELF-CARE · WHEN TO CALL

### Daily Self-Care
AT HOME

- Count fetal kicks daily — call if < 10 in 2 hrs
- Rest in **left lateral position** — improves placental blood flow & ↑ urine output
- Take BP at home; log AM & PM readings
- Weigh yourself same time daily — report > 2 lb/week
- Take prescribed meds exactly as ordered
- Eat balanced diet; do *not* restrict sodium or fluids
- Attend every prenatal appointment — no skipping
- Low-dose aspirin (81 mg) in future pregnancies if high risk

### Warning Signs
RED FLAGS

- Severe headache unrelieved by Tylenol
- Blurred vision, seeing spots, light sensitivity
- Pain in upper right belly or epigastric area
- Sudden swelling of face or hands
- Decreased fetal movement
- Decreased urine output
- Nausea/vomiting in late pregnancy
- Shortness of breath or chest pain

**CALL PROVIDER · GO TO L&D NOW**

Symptoms can progress rapidly. Preeclampsia and HELLP can appear — or worsen — up to 6 weeks after delivery. Teach partner/family the warning signs too.

# 08 Memory Boosters

MNEMONICS · PATTERN RECOGNITION

MNEMONIC · HELLP

## H • E • L • L • P

**H**emolysis
**E**levated
**L**iver enzymes
**L**ow
**P**latelets

MAG TOXICITY

## "No Reflexes, No Breath, No Pee"

**↓ DTRs → ↓ RR < 12 → ↓ UOP < 30 → ↓** LOC → arrest.
Check these *every hour.*

THERAPEUTIC RANGE

## "4 to 7"

Mg level **4 – 7 mEq/L**.
Below 4 = no anti-seizure effect.
Above 7 = toxicity climbs fast.

CLASSIC TRIAD

## HTN + Protein + Puffy

**H**ypertension
**P**roteinuria
**P**uffiness (edema)
*+ severe features = call provider now.*

TWO MEDS, TWO JOBS

## "Mag for Seizures, Labetalol for Pressure"

Never swap them. If BP still high *after* mag, the next answer is an **antihypertensive**.

ANTIDOTE

## "Calcium saves the Nerve"

Mag is a CNS depressant → **Calcium Gluconate** reverses it.
Keep it *at the bedside* during infusion.