HIGH-YIELD REFERENCE · OBSTETRIC NURSING

Pregnancy *Laboratory Tests* Per Trimester

A trimester-by-trimester roadmap of routine prenatal screening, diagnostic studies, critical values, and priority nursing actions — built for clinical judgment and NCLEX 2026 success.

SYSTEM: REPRODUCTIVE / MATERNAL | SETTING: ANTEPARTUM CLINIC | FOCUS: SCREENING & PREVENTION | CARDS COMING NEXT

SOURCE TRANSPARENCY – This topic was not present in your uploaded notes. Content drawn from standard NGN NCLEX 2026 references: Saunders Comprehensive Review (2025/26 ed.), ATI Maternal Newborn, Lippincott NCLEX-RN, ACOG Committee Opinions, and USPSTF prenatal screening guidelines.

01 Definition & Overview

WHAT IT IS · WHY IT MATTERS

- **PRENATAL LAB PANEL** — A standardized set of blood, urine, and genetic studies completed across pregnancy to detect maternal disease, fetal anomalies, infection risk, and obstetric complications *before* they become emergencies.
- **WHY IT MATTERS** — Early detection of anemia, isoimmunization, gestational diabetes, infections (HIV, syphilis, HepB, GBS), and chromosomal abnormalities directly reduces maternal & fetal morbidity/mortality.
- **NCLEX FOCUS** — Recognize which lab belongs to which trimester, identify abnormal values, and select the correct nursing action (educate, repeat, report, or treat).

40-WEEK GESTATIONAL TIMELINE

02

Physiology & Screening Rationale

WHY TIMING MATTERS

1	2	3
WEEKS 1-13	WEEKS 14-27	WEEKS 28-40
Establish baseline & detect early risk	**Detect anomalies & metabolic shifts**	**Prepare for safe delivery**
→ Confirm viability → Baseline H&H, blood type → Screen for infections that cross the placenta → Early aneuploidy screening	→ Quad screen (15–20 wk) → Anatomy U/S (18–22 wk) → Glucose tolerance (24–28 wk) → RhoGAM at 28 wk if Rh-	→ GBS culture (35–37 wk) → Repeat CBC & STIs → Fetal well-being (NST/BPP) → Kick counts

03 First Trimester Labs

WEEKS 1-13 · INITIAL PRENATAL VISIT

Routine Bloodwork BASELINE

- **CBC** — Baseline H&H; flag Hgb < 11 g/dL = anemia
- **BLOOD TYPE & Rh** — Identifies Rh- mothers needing RhoGAM
- **ANTIBODY SCREEN** (indirect Coombs) — Detects existing isoimmunization
- **RUBELLA TITER** — Immunity check; if non-immune ⇒ vaccinate *postpartum* (live vaccine = contraindicated in pregnancy)
- **VARICELLA TITER** — Same principle as rubella
- **TSH** — If symptomatic or history of thyroid disease

Infection Screening STI / VIRAL

- **HBsAg** — Hepatitis B surface antigen
- **HIV** — Opt-out testing; positive ⇒ antiretroviral therapy reduces vertical transmission
- **RPR / VDRL** — Syphilis screen; treat with PCN if positive
- **GC / CHLAMYDIA** — Especially < 25 years or at risk
- **URINALYSIS & URINE CULTURE** — Detect asymptomatic bacteriuria (treat to prevent pyelonephritis & preterm labor)
- **PAP SMEAR** — If due per cervical screening guidelines

Pregnancy Confirmation HORMONE

- **SERUM β-hCG** — Confirms pregnancy; doubles every 48–72 hr in viable early pregnancy
- **QUANTITATIVE β-hCG** — Trended for suspected ectopic or threatened abortion (failure to double = abnormal)
- **PROGESTERONE** — Low level may suggest ectopic / nonviable pregnancy

Genetic / Aneuploidy Screening OPTIONAL

- **CELL-FREE DNA (NIPT)** — From *10 weeks*; screens for trisomies 21, 18, 13 & fetal sex
- **FIRST TRIMESTER COMBINED SCREEN** — 11–13 wk: PAPP-A + free β-hCG + nuchal translucency (NT) ultrasound
- **CHORIONIC VILLUS SAMPLING (CVS)** — 10–13 wk; diagnostic, not screening; risk of pregnancy loss
- **CARRIER SCREENING** — CF, SMA, hemoglobinopathies (sickle cell, thalassemia), Tay-Sachs based on ancestry

04 Second Trimester Labs

WEEKS 14-27 · ANOMALY & METABOLIC SCREENING

Quad Screen (15–20 wk) MATERNAL SERUM

- **AFP** — Alpha-fetoprotein
- **hCG** — Human chorionic gonadotropin
- **uE3** — Unconjugated estriol
- **INHIBIN A**
- ↑ **AFP** ⇒ Neural tube defect (spina bifida, anencephaly), multiples, abdominal wall defect, or wrong dates
- ↓ **AFP** + ↑ **hCG** + ↓ **uE3** + ↑ **Inhibin A** ⇒ Down syndrome (T21)

Anatomy Ultrasound (18–22 wk) DIAGNOSTIC

- **FETAL ANATOMY SURVEY** — Brain, heart, spine, abdomen, limbs, kidneys
- **PLACENTA LOCATION** — Detect previa
- **AMNIOTIC FLUID INDEX (AFI)** — Oligo vs polyhydramnios
- **CERVICAL LENGTH** — Preterm birth risk
- **FETAL SEX** — Confirmed

Glucose Tolerance Testing (24–28 wk) GDM SCREEN

- **1-HR GCT** — 50 g oral glucose; *fasting not required*; abnormal if ≥ **140 mg/dL**
- **3-HR GTT** (diagnostic) — 100 g load after fasting
  • Fasting < 95
  • 1 hr < 180
  • 2 hr < 155
  • 3 hr < 140
  ≥ 2 abnormal values ⇒ **Gestational Diabetes**
- **NURSING TIP** — Client must finish glucose drink within 5 min; blood drawn at exact intervals

Other 2nd Trimester Studies TARGETED

- **CBC** — Repeat at 24–28 wk (physiologic hemodilution = lowest H&H here; Hgb < 10.5 = anemia)
- **ANTIBODY SCREEN (Rh-)** — At 28 wk before RhoGAM
- **AMNIOCENTESIS** — 15–20 wk; diagnostic for chromosomal & genetic disorders; rests for ~30 min post-procedure; monitor for cramping, bleeding, leakage
- **FETAL FIBRONECTIN (fFN)** — If preterm labor symptoms

05 Third Trimester Labs

WEEKS 28–40 · PREPARING FOR DELIVERY

Group B Strep (35–37 wk) CULTURE

- **VAGINAL & RECTAL SWAB** — Single specimen, lower vagina then rectum
- **POSITIVE** ⇒ Intrapartum IV penicillin G (or ampicillin) once labor begins or membranes rupture
- **WHY** — Prevents early-onset neonatal sepsis, pneumonia, meningitis
- **PCN ALLERGY** ⇒ Cefazolin (low-risk) or clindamycin/vancomycin (anaphylaxis history)

Fetal Well-Being SURVEILLANCE

- **KICK COUNTS** — Begin ~28 wk; expect ≥ 10 movements in 2 hours
- **NON-STRESS TEST (NST)** — 32 wk+ if high risk; reactive = 2 accelerations of 15 bpm × 15 sec in 20 min
- **BIOPHYSICAL PROFILE (BPP)** — NST + 4 U/S parameters (tone, movement, breathing, AFV); 8–10 = reassuring
- **CONTRACTION STRESS TEST (CST)** — Negative = no late decels with contractions = reassuring

Repeat & Late Studies VERIFICATION

- **CBC** — Confirm Hgb adequate for delivery blood loss
- **REPEAT STI SCREEN** — HIV, syphilis, HBsAg, GC/Chlamydia if at risk
- **URINALYSIS** — Each visit: protein, glucose, ketones, leukocytes
- **TYPE & SCREEN** — Prior to delivery

Preeclampsia Workup IF INDICATED

- **BP ≥ 140/90** on 2 readings, 4 hr apart, after 20 wk
- **URINE PROTEIN** — ≥ 300 mg/24 hr OR P/Cr ratio ≥ 0.3 OR dipstick 2+
- **SEVERE FEATURES LABS** — Platelets < 100K, Cr > 1.1, AST/ALT 2× normal, LDH elevated
- **HELLP SYNDROME** — Hemolysis, Elevated Liver enzymes, Low Platelets 🚨

06 Critical Values & Red Flags

RECOGNIZE CUES THAT REQUIRE ACTION

TEST	NORMAL / EXPECTED	ABNORMAL & MEANING	PRIORITY ACTION
Hgb (1st & 3rd tri)	≥ 11 g/dL	< 11 = anemia RED FLAG	Start oral iron + vit C; educate on dietary iron
Hgb (2nd tri)	≥ 10.5 g/dL	< 10.5 = anemia (physiologic dilution lowest here)	Confirm trend; iron therapy
1-hr GCT	< 140 mg/dL	≥ 140 ⇒ proceed to 3-hr GTT	Schedule 3-hr GTT; nothing more until done
3-hr GTT	F<95 / 1h<180 / 2h<155 / 3h<140	≥ 2 abnormal = Gestational Diabetes	Diet → finger sticks 4×/day → insulin if needed (oral agents per provider)
AFP (Quad Screen)	Trimester & age-adjusted MoM	↑ = NTD / multiples · ↓ = Down syndrome	Refer for U/S & possible amniocentesis
Rh / Antibody Screen	Negative	Rh- mom + Rh+ fetus = isoimmunization risk	RhoGAM at 28 wk + within 72 hr postpartum (if baby Rh+)
GBS culture	Negative	Positive at 35–37 wk	IV penicillin in labor (or upon ROM)
Urine protein	Negative or trace	2+ or higher after 20 wk + ↑ BP = preeclampsia	Notify provider; assess BP, DTRs, headache, vision, RUQ pain
Urinalysis	Negative leukocytes / nitrites	Positive = asymptomatic bacteriuria	Treat to prevent pyelonephritis & preterm labor
Platelets	≥ 150,000	< 100,000 + ↑ liver enzymes = HELLP	Immediate provider notification; prep for possible delivery
NST	Reactive (2 accels of 15×15 in 20 min)	Non-reactive ⇒ BPP, CST, possible delivery	Reposition L lateral, O_2, IV fluids, notify HCP

07 Priority Nursing Interventions

ABCS · SAFETY · RECOGNITION OF CUES

A — Airway / Bleeding

ACUTE

- Severe abdominal pain + bleeding < 12 wk = **RULE OUT ECTOPIC** (β-hCG, transvaginal U/S)
- Third tri bleeding ⇒ *no vaginal exam* until previa ruled out
- Maternal hypotension after epidural / supine ⇒ left lateral tilt

B — Blood Pressure & Glucose

MONITOR

- BP every visit; ≥ 140/90 ⇒ reassess in 4 hr + urine protein
- Educate finger-stick technique & logbook for GDM
- Trend Hgb, glucose, BP across all 3 trimesters

C — Coordinate & Counsel

EDUCATION

- Verify **informed consent** for genetic screening & HIV testing
- Administer **RhoGAM** at 28 wk if Rh- & within 72 hr postpartum
- Schedule and reinforce visit timing (q4 wk to 28, q2 wk to 36, q1 wk to delivery)

Procedural Nursing Care

- **BEFORE GCT/GTT** — Confirm fasting status (only 3-hr requires fasting); ensure glucose drink consumed within 5 min; draw blood at exact intervals.
- **BEFORE AMNIOCENTESIS** — Empty bladder if > 20 wk (full if earlier); informed consent; baseline FHR & maternal VS.
- **AFTER AMNIOCENTESIS** — FHR monitoring 30–60 min; teach to report cramping, bleeding, fluid leakage, fever, decreased fetal movement.
- **BEFORE GBS SWAB** — Avoid douching/lubricants; swab lower vagina *then* rectum with one swab.
- **RhoGAM ADMIN** — IM in deltoid; verify Rh- mom & Rh+ or unknown baby (postpartum); also given after miscarriage, ectopic, amnio, abdominal trauma.

08 Pharmacology Companion

DRUGS TIED DIRECTLY TO PRENATAL LAB RESULTS

DRUG / CLASS	MECHANISM	INDICATION (LAB TRIGGER)	NURSING CONSIDERATIONS
RhoGAM (Rh_0(D) Immune Globulin)	Passive immunization; binds fetal Rh+ RBCs before maternal immune response	Rh- mom at 28 wk + within 72 hr postpartum if neonate Rh+; also after miscarriage, ectopic, amnio, trauma	IM deltoid; verify type & antibody screen; document lot # & expiration
Prenatal Vitamin + Folic Acid 400–800 mcg	Replenishes folate, iron, calcium, DHA	All pregnancies; folate 4 mg/day if prior NTD	Start *preconception* when possible; reduces NTD risk
Ferrous Sulfate	Replaces iron stores	Hgb < 11 (1st/3rd tri) or < 10.5 (2nd tri)	Give with vit C / OJ on empty stomach (best absorption); take with food if GI upset; expect dark stools; ↑ fluids/fiber for constipation
Penicillin G (IV)	Bactericidal; covers GBS	GBS culture positive (or unknown at < 37 wk or ROM > 18 hr or fever)	Given in labor; allergy history → cefazolin, clindamycin, or vancomycin per risk
Insulin (Regular / NPH / Lispro)	Replaces deficient insulin	GDM uncontrolled by diet; insulin does *not* cross placenta — preferred	Teach finger sticks & rotation of sites; recognize hypoglycemia; insulin needs rise across pregnancy then drop after delivery
Metformin / Glyburide	Oral hypoglycemics	GDM (per current provider preference; insulin remains gold standard)	Cross placenta; monitor maternal & neonatal glucose
50g Glucose Load (Glucola)	Provokes insulin response	1-hr GCT screen	Finish in 5 min; no eating until blood drawn 1 hr later
Methyldopa / Labetalol / Nifedipine	Antihypertensives (pregnancy-safe)	Gestational HTN, preeclampsia	AVOID ACE inhibitors & ARBs (teratogenic — fetal renal failure)
Magnesium Sulfate	CNS depressant — seizure prevention & tocolysis	Severe preeclampsia (platelets ↓, BP ↑, proteinuria)	Monitor RR ≥ 12, DTRs, urine output ≥ 30 mL/hr, LOC; *antidote = calcium gluconate*
Rubella / Varicella / MMR vaccines	Live attenuated	Non-immune titer	⚠ *CONTRAINDICATED in pregnancy* — give postpartum; avoid pregnancy × 4 wk after
Tdap & Influenza	Inactivated; passive immunity to neonate	All pregnancies — Tdap 27–36 wk; flu any trimester	SAFE in pregnancy; protects newborn from pertussis & flu

09

NCLEX Test Traps

COMMON CONFUSIONS & PRIORITY-ACTION GOTCHAS

⚠ TRAP 1 — RUBELLA TITER IS NEGATIVE

WRONG: Administer the MMR vaccine now to protect the fetus.

RIGHT: MMR is a *live vaccine* — contraindicated in pregnancy. Vaccinate **postpartum** & counsel to avoid pregnancy × 4 weeks.

⚠ TRAP 2 — RH- MOM AT 28 WEEKS

WRONG: Wait until baby is born and check the baby's blood type first.

RIGHT: Give **RhoGAM at 28 weeks** regardless of fetal status, and again within **72 hours postpartum** if baby is Rh+.

⚠ TRAP 3 — 1-HOUR GLUCOSE CHALLENGE = 152 MG/DL

WRONG: Diagnose gestational diabetes and start insulin.

RIGHT: 1-hr GCT is a *screen*, not diagnostic. ≥ 140 ⇒ proceed to **3-hr GTT**; diagnosis requires ≥ 2 abnormal values on the 3-hr test.

⚠ TRAP 4 — ELEVATED AFP ON QUAD SCREEN

WRONG: Immediately tell the client she has a baby with spina bifida.

RIGHT: AFP is a screening test. Elevated AFP can also mean *multiple gestation, wrong dates, or abdominal wall defect*. Next step: **ultrasound**, possible amniocentesis.

⚠ TRAP 5 — HGB 10.6 AT 24 WEEKS

WRONG: Diagnose iron-deficiency anemia and start transfusion.

RIGHT: 2nd-tri H&H is lowest due to **physiologic hemodilution** (plasma expands faster than RBC mass). Use the 2nd-tri threshold (< 10.5) & assess iron stores before transfusing.

⚠ TRAP 6 — GBS POSITIVE AT 36 WK; NOT IN LABOR YET

WRONG: Start oral antibiotics now as outpatient.

RIGHT:	GBS prophylaxis is	**intrapartum IV**	only — penicillin G is given	*once labor begins or membranes rupture*	. Outpatient oral antibiotics do not prevent neonatal GBS sepsis.

⚠ TRAP 7 — THIRD-TRIMESTER VAGINAL BLEEDING

WRONG: Perform a vaginal exam to assess the source.

RIGHT: **No vaginal exam** until placenta previa is ruled out by ultrasound — exam can cause catastrophic hemorrhage.

⚠ TRAP 8 — BP 146/94, 1+ PROTEIN, HEADACHE AT 32 WK

WRONG: Send home with rest instructions.

RIGHT:	Concerning for	**preeclampsia**	. Repeat BP in 4 hr, draw	*preeclampsia labs*	(CBC w/ platelets, AST, ALT, Cr, LDH, urine protein/Cr), monitor fetus, notify provider.

10 Patient & Family Education

TEACH-BACK PRIORITIES

Before Each Visit

- Bring a list of medications including OTC, herbal, supplements
- Note any contractions, bleeding, leaking fluid, fevers, decreased fetal movement
- Track weight; expected gain depends on pre-pregnancy BMI

Lifestyle & Safety

- No alcohol, tobacco, or recreational drugs
- Limit caffeine < 200 mg/day
- Avoid raw fish, deli meats, soft cheeses (listeria), high-mercury fish
- Avoid cat litter (toxoplasmosis); wash produce; cook meat thoroughly

When To Call The Provider

- **BLEEDING** of any amount
- **GUSH or LEAK** of fluid (rupture of membranes)
- **SEVERE HEADACHE, BLURRED VISION, RUQ PAIN, SWELLING of face/hands** (preeclampsia)
- **DECREASED FETAL MOVEMENT** < 10 kicks in 2 hr
- **REGULAR CONTRACTIONS** before 37 weeks
- **FEVER > 100.4 °F**, painful urination, persistent vomiting

Lab Day Tips

- 1-hr GCT: no fasting needed; drink Glucola in 5 min; blood at 1 hr
- 3-hr GTT: fast 8–14 hr; remain seated, no eating/smoking/exercise during test
- Quad screen: timing window is 15–20 wk — confirm dates first
- NIPT: as early as 10 weeks; reports trisomy risk + sex (optional)

11 Memory Boosters & Mnemonics

PATTERN RECOGNITION SHORTCUTS

"GBS at 35–37, PCN at the door"

GBS culture at **35–37 weeks**. If positive, IV **Penicillin** when she walks through the door in labor.

"RhoGAM 28 & 72"

RhoGAM at **28 weeks** antepartum, and within **72 hours** postpartum if baby is Rh+.

"GTT at 24–28"

Glucose Tolerance screening between **24–28 weeks** for all pregnancies.

"Quad 15 to 20"

Quad screen window is **15–20 weeks**. Outside that window = invalid timing.

Mnemonic — "T-O-R-C-H" Perinatal Infections

T	Toxoplasmosis (cat litter, raw meat)
O	Other (syphilis, hep B, HIV, varicella, parvo)
R	Rubella
C	Cytomegalovirus (CMV)
H	Herpes simplex

Mnemonic — "H-E-L-L-P" Severe Preeclampsia Variant

H	Hemolysis
EL	Elevated Liver enzymes (AST/ALT)
LP	Low Platelets (< 100K)

Mnemonic — Initial Visit Labs: "Be A Really Healthy Happy Pregnant Person"

B	Blood type & Rh
A	Antibody screen
R	Rubella titer
H	HBsAg + HIV
H	Hgb / CBC
P	Pap + Pelvic + GC/Chlamydia
P	Pee — UA & culture

12 NCJMM Clinical Judgment Scenario

SIX-STEP NEXT-GEN WALKTHROUGH

SCENARIO

A 28-year-old G2 P1 at **28 weeks gestation** arrives for a routine prenatal visit. Chart review: **Blood type O−, antibody screen negative** at first prenatal visit. Today's vitals: T 98.6 °F, P 84, R 18, BP 118/72. Fundal height 28 cm; FHR 142 reactive. The 1-hour 50 g GCT drawn today returned at **156 mg/dL**. Hgb is **10.4 g/dL**. Urine dip: negative protein, trace ketones. The client reports good fetal movement, no bleeding, no contractions, no headache.

STEP 1 — RECOGNIZE CUES

What stands out?

- `Rh- mom at 28 wk` — RhoGAM timing
- `1-hr GCT 156` (≥140) — screen failed
- `Hgb 10.4` — anemia by 2nd-tri thresholds borderline; trend
- Otherwise stable maternal & fetal status

STEP 2 — ANALYZE CUES

What do they mean together?

- Two priority issues: `Rh prophylaxis` due now, plus `GDM workup` needed
- Mild anemia consistent with hemodilution; not emergent
- No preeclampsia features, fetus reassuring

STEP 3 — PRIORITIZE HYPOTHESES

Rank the concerns

1. `Isoimmunization risk` (28-wk RhoGAM)
2. `Possible GDM` (3-hr GTT)
3. `Iron-deficiency anemia` (iron supplement, dietary teaching)

STEP 4 — GENERATE SOLUTIONS

Plan the actions

- Administer `RhoGAM IM` after repeat antibody screen confirms negative
- Schedule `3-hr 100 g GTT` within a few days; teach fasting prep
- Start `ferrous sulfate` with vit C; dietary iron teaching
- Reinforce `kick counts` & warning signs

STEP 5 — TAKE ACTION

Implement

- Verify type & antibody screen, then give `RhoGAM 300 mcg IM deltoid`; document lot/expiration
- Provide 3-hr GTT instructions in writing & teach-back
- Provide iron Rx + dietary handout; review constipation prevention
- Schedule next visit per 28-wk protocol (q2 wk)

STEP 6 — EVALUATE OUTCOMES

Did it work?

- RhoGAM tolerated; documented in record
- Client verbalizes prep for 3-hr GTT and returns for testing
- Hgb rechecked at follow-up (target ≥ 11 by delivery)
- Continued reactive FHR & normal kick counts