CLINICALJUDGE™ · MASTER STUDY GUIDE

MATERNAL & NEWBORN LABS

Every laboratory test and screening across pregnancy, labor, postpartum, and the newborn — each paired with its normal value, what an abnormal result means, and the priority nursing intervention it drives. Built to take you to 100% on maternal-newborn lab questions for the 2026 NGN NCLEX-RN.

2026 NGN BLUEPRINT · PRENATAL · INTRAPARTUM · POSTPARTUM · NEWBORN · VALUES + INTERVENTIONS · RHOGAM · GBS · BILIRUBIN · GLUCOSE · 7 REFERENCE TABLES

RED	BLUE	GREEN	ORANGE	YELLOW	PURPLE	TEAL
ABNORMAL SIGNIFICANCE	NORMAL VALUE	PRIORITY INTERVENTION	TIMING / SCREENING	MUST-KNOW FACT	CATEGORY	TEACHING

HOW TO READ THIS GUIDE

Each lab card moves the way a nurse thinks: **normal value → what an abnormal result means → the priority intervention.** Pregnancy changes many "normal" ranges (dilutional anemia, ↑WBC, hypercoagulable), so always interpret values against the **pregnant** and **newborn** baselines, not adult ones.

01 PRENATAL / INITIAL LABS

FIRST-VISIT PANEL

BLOOD TYPE & RH FACTOR

ABO + Rh + antibody screen

VALUE

ABO group + `Rh-positive or Rh-negative`; indirect Coombs (antibody screen).

SIGNIFICANCE

Rh-negative mother + Rh-positive fetus → isoimmunization risk (maternal antibodies attack fetal RBCs in future pregnancies).

PRIORITY

Rh-negative → indirect Coombs; **RhoGAM at 28 weeks & within 72 h postpartum** if baby is Rh-positive (also after bleeding/loss/procedures).

KEY

Indirect Coombs = mother (screens maternal antibodies); **direct Coombs = newborn** (detects antibodies on baby's RBCs).

CBC AT INITIAL VISIT

Hgb · Hct · WBC · platelets

VALUE

Pregnancy Hgb `≥11 g/dL`; Hct lower due to hemodilution; WBC normally elevated.

SIGNIFICANCE

Anemia (Hgb <11 in 1st/3rd, <10.5 in 2nd trimester) → fatigue, ↑infection & hemorrhage risk.

PRIORITY

Iron supplementation (with vitamin C); dietary teaching; monitor trend through pregnancy.

INFECTION / IMMUNITY SCREEN

rubella, HBsAg, HIV, syphilis, GC/CT

VALUE

Rubella titer (immune ≥1:8 / "immune"); HBsAg, HIV, RPR/VDRL, gonorrhea/chlamydia.

SIGNIFICANCE

Non-immune rubella → fetal risk if exposed; +infections → vertical transmission risk.

PRIORITY

Treat infections; **rubella-non-immune → vaccinate postpartum** (live vaccine, NOT during pregnancy); HIV → antiretrovirals to ↓transmission.

KEY

Rubella vaccine is live — give postpartum & avoid pregnancy for ~4 weeks after.

URINALYSIS

protein · glucose · ketones · bacteria

VALUE

Normally negative protein; trace glucose can be normal (↑GFR).

SIGNIFICANCE

Proteinuria → preeclampsia; glucosuria → screen GDM; bacteriuria → UTI (preterm-labor risk); ketones → inadequate intake/hyperemesis.

PRIORITY

Follow up proteinuria with BP/preeclampsia workup; treat asymptomatic bacteriuria.

02 PRENATAL SCREENING TESTS

GENETIC · GLUCOSE · GBS · FETAL

ALPHA-FETOPROTEIN (AFP) / QUAD SCREEN
15–20 weeks

SIGNIFICANCE

↑AFP → neural tube defects (spina bifida, anencephaly) or multiple gestation. **↓AFP → Down syndrome (trisomy 21)**.

PRIORITY

Abnormal → confirm dates, ultrasound, possible amniocentesis; provide genetic counseling & emotional support.

KEY

Screening, not diagnostic; timing (15–20 wks) matters — wrong dating skews results.

GLUCOSE CHALLENGE → GTT (GDM)
24–28 weeks

VALUE

1-hr 50 g GCT: **≥140 mg/dL** → proceed to 3-hr 100 g GTT (two+ abnormal values = GDM).

SIGNIFICANCE

GDM → macrosomia, birth injury, **neonatal hypoglycemia**, preeclampsia.

PRIORITY

Diet/exercise, glucose monitoring, insulin if needed (oral agents limited); monitor fetal growth & **newborn glucose** after birth.

GROUP B STREPTOCOCCUS (GBS)
vaginal/rectal swab 36–37 weeks

SIGNIFICANCE

+GBS colonization → risk of **neonatal sepsis/pneumonia/meningitis** if transmitted during birth.

PRIORITY

Intrapartum IV antibiotics (penicillin/ampicillin) — at least 4 h before delivery for adequate prophylaxis.

KEY

+GBS is treated **in labor**, not before — the goal is protecting the baby during passage.

AMNIOCENTESIS & FETAL LUNG MATURITY
L/S ratio · genetic studies

VALUE

L/S ratio ≥2:1 indicates fetal lung maturity; presence of phosphatidylglycerol (PG) confirms maturity.

SIGNIFICANCE

Genetic analysis, lung maturity, infection; risk of infection, bleeding, ROM.

PRIORITY

Empty bladder (later pregnancy), monitor FHR & for contractions/leakage after; Rh-negative → RhoGAM.

03 PREGNANCY HEMATOLOGIC SHIFTS
WHY "NORMAL" CHANGES IN PREGNANCY

PHYSIOLOGIC ANEMIA ("PSEUDOANEMIA")
dilutional, expected

WHY

Plasma volume rises more than RBC mass → **hemodilution** lowers Hgb/Hct without true anemia.

PRIORITY

Distinguish dilutional from true iron-deficiency anemia; iron + vitamin C; expect lower Hct as normal.

KEY

A modestly lower Hgb/Hct mid-pregnancy is **expected**, not necessarily pathologic.

ELEVATED WBC
normal leukocytosis

VALUE

WBC normally up to **~15,000** in pregnancy; **labor & early postpartum up to ~25,000–30,000**.

SIGNIFICANCE

Elevated WBC alone may be physiologic — correlate with fever & clinical signs before assuming infection.

KEY

A high WBC right after delivery can be **normal** — look for fever, foul lochia, and tenderness to diagnose infection.

HYPERCOAGULABLE STATE
↑clotting factors & fibrinogen

WHY

Clotting factors & fibrinogen rise (protective against hemorrhage) → **↑VTE/DVT/PE risk**.

PRIORITY

VTE prevention (ambulation, SCDs); assess for DVT/PE; anticoagulate with heparin/LMWH (not warfarin) if indicated.

OTHER EXPECTED CHANGES
GFR · clotting · cardiac output

WHY

↑GFR (trace glucosuria can be normal), ↑blood volume & cardiac output, mild dilutional ↓ in some electrolytes.

KEY

Interpret labs against **pregnancy norms**; many "abnormal-looking" values are expected adaptations.

04 COMPLICATION LABS
PREECLAMPSIA · HELLP · MAGNESIUM · DIC

PREECLAMPSIA / HELLP LABS
multi-system involvement

SIGNIFICANCE

Proteinuria; **HELLP: Hemolysis, Elevated Liver enzymes (AST/ALT), Low Platelets**; ↑uric acid/creatinine, ↑bilirubin.

PRIORITY

1. Monitor BP, DTRs, urine output, platelets & LFTs
2. Magnesium sulfate for seizure prophylaxis; antihypertensives for severe BP
3. **Bleeding precautions** with low platelets; plan delivery

KEY

Falling platelets + rising liver enzymes = HELLP → bleeding/DIC risk.

MAGNESIUM SULFATE LEVEL
therapeutic monitoring

VALUE

Therapeutic **4–7 mEq/L**.

SIGNIFICANCE

Toxicity: **loss of DTRs (earliest) → RR <12 → ↓LOC → cardiac/respiratory arrest**.

PRIORITY

Monitor DTRs, RR (≥12), urine output (≥30 mL/h); toxicity → **stop infusion + calcium gluconate**.

DIC PANEL (OB)
coagulopathy

SIGNIFICANCE

↑PT/PTT, ↑D-dimer, ↓platelets, ↓fibrinogen; triggered by abruption, AFE, retained fetus, sepsis, severe HELLP.

PRIORITY

Treat the underlying cause; replace platelets/FFP/cryoprecipitate; support perfusion; monitor coags.

INDIRECT COOMBS (ANTIBODY TITER)
Rh sensitization monitoring

SIGNIFICANCE

Detects maternal antibodies against fetal RBCs; rising titer in Rh-negative mother → **isoimmunization**.

PRIORITY

Monitor titers; if sensitized, monitor fetus (MCA Doppler) for anemia; RhoGAM prevents (does not treat) sensitization.

05 POSTPARTUM LABS & RHOGAM
AFTER DELIVERY

POSTPARTUM CBC
blood-loss assessment

SIGNIFICANCE

Hgb/Hct drop reflects delivery blood loss; significant drop → hemorrhage. WBC may be physiologically high.

PRIORITY

Correlate with bleeding/fundus/VS; iron if anemic; transfusion if severe; assess for PPH.

RHOGAM (RHO(D) IMMUNE GLOBULIN)
postpartum decision

WHO GETS IT

1. **Rh-negative mother** at 28 weeks (routine antepartum dose)
2. Within **72 hours postpartum** if the **newborn is Rh-positive**
3. After any bleeding event, trauma, miscarriage, ectopic, amniocentesis, or version

KEY

RhoGAM **prevents** sensitization; it does **not** help an already-sensitized (Coombs-positive) mother.

RUBELLA STATUS & VACCINATION
postpartum immunity

PRIORITY

Rubella-non-immune → **MMR vaccine postpartum** before discharge.

TEACH

Avoid pregnancy for ~4 weeks (live vaccine); breastfeeding is fine.

KEY

Live vaccine — given **after** delivery, never during pregnancy.

POSTPARTUM GLUCOSE / OTHER FOLLOW-UP
GDM resolution

PRIORITY

GDM mothers → postpartum glucose follow-up (↑lifetime type 2 risk); monitor newborn glucose.

TEACH

Lifestyle counseling and screening for future diabetes.

06 NEWBORN LABS & SCREENS
GLUCOSE · BILIRUBIN · COOMBS · METABOLIC

BLOOD GLUCOSE (HEEL STICK)
first hours of life

VALUE

Should be `>40–45 mg/dL` (institutional thresholds vary).

SIGNIFICANCE

Hypoglycemia → jitteriness, lethargy, poor feeding, hypothermia; risk in **IDM, LGA, SGA, preterm, cold-stressed** infants.

PRIORITY

1. Feed (breast/formula) for mild low
2. IV dextrose if severe/symptomatic; recheck glucose
3. Maintain warmth (cold stress worsens hypoglycemia)

BILIRUBIN
total & direct

SIGNIFICANCE

Physiologic jaundice appears AFTER 24 h (peaks day 3–5). **Pathologic jaundice appears <24 h** or rises rapidly → kernicterus risk.

PRIORITY

1. Monitor bilirubin against hour-specific nomogram
2. **Phototherapy** (eye protection, adequate hydration/feeding, monitor temp)
3. Severe → exchange transfusion

KEY

Jaundice in the first 24 hours is pathologic and must be evaluated.

DIRECT COOMBS TEST
hemolytic disease of the newborn

SIGNIFICANCE

Positive = maternal antibodies coating newborn RBCs → **hemolysis** (ABO or Rh incompatibility) → anemia & jaundice.

PRIORITY

Monitor bilirubin & H&H closely; anticipate phototherapy; watch for anemia.

KEY

Direct = baby, indirect = mother.

NEWBORN CBC
newborn-specific ranges

VALUE

Hgb `14–24 g/dL`, Hct `44–64%`, WBC high (`9,000–30,000`), platelets 150–400k.

SIGNIFICANCE

Newborn values are **higher than adults**; polycythemia (high Hct) → jaundice/sluggish flow; low → anemia/bleeding.

NEWBORN METABOLIC SCREEN
heel stick · state panel

SIGNIFICANCE

Detects **PKU, congenital hypothyroidism, galactosemia, sickle cell, cystic fibrosis**, and others — early treatment prevents disability.

PRIORITY

Collect **after feeding is established** (≈24 h of protein/milk intake) for accurate PKU result; repeat if drawn too early.

KEY

Timing matters — drawn too early (before feeding) → false-negative PKU; warm the heel & use the lateral heel.

CCHD & HEARING SCREENS
pulse oximetry · auditory

SIGNIFICANCE

CCHD pulse-ox screen detects critical congenital heart disease (compares pre/post-ductal SpO_2). Hearing screen detects loss early.

PRIORITY

Failed/abnormal screen → referral for echocardiography or audiology before discharge.

07 NEWBORN ASSESSMENT VALUES
VITALS · APGAR · MEASUREMENTS

NEWBORN VITAL SIGNS
normal ranges

VALUE

HR `110–160` · RR `30–60` · Temp `36.5–37.5°C (97.7–99.5°F)` · BP ~60–80/40–50.

SIGNIFICANCE

HR <100 or RR <30/>60, grunting/flaring/retractions, cyanosis → distress. Temp instability → cold stress/sepsis.

PRIORITY

Maintain warmth (radiant warmer/skin-to-skin), support respirations, assess for distress.

APGAR SCORE
1 & 5 minutes

VALUE

Each of 5 signs scored 0–2 (total 0–10): `7–10 = good`, 4–6 = moderate distress, 0–3 = severe.

SIGNIFICANCE

Reflects transition; persistently low → resuscitation need (the strip's trend matters more than one number).

KEY

APGAR = Appearance, Pulse, Grimace, Activity, Respirations; it guides resuscitation, not the cause.

MEASUREMENTS & GESTATIONAL AGE
weight · length · head · Ballard

VALUE

Weight ~2,500–4,000 g; length ~45–55 cm; head circumference ~32–37 cm (≈2 cm > chest). Ballard/Dubowitz estimates gestational age.

SIGNIFICANCE

SGA/LGA & preterm → hypoglycemia, thermoregulation, respiratory risk.

NEWBORN REFLEXES & TRANSITION
neuro integrity

SIGNIFICANCE

Expected reflexes: Moro, rooting, sucking, palmar/plantar grasp, Babinski, tonic neck, stepping — presence indicates intact neuro function.

PRIORITY

Absent/asymmetric reflexes → further neuro evaluation; support successful feeding & thermoregulation.

★ MASTER REFERENCE TABLES
THE CONSOLIDATED HIGH-YIELD VALUES

08 · MATERNAL LAB VALUES (PREGNANCY)

LAB	PREGNANCY VALUE	SIGNIFICANCE / ABNORMAL
Hemoglobin	`≥11 g/dL`	**<11 (1st/3rd) or <10.5 (2nd) = anemia**
Hematocrit	`~33–44% (lower)`	**Dilutional drop expected; very low = anemia**
WBC	`up to ~15,000 (labor/PP 25–30k)`	**Physiologic; correlate with fever/signs**
Platelets	`150,000–400,000`	**↓ in HELLP/preeclampsia (bleeding risk)**
Fibrinogen	`↑ (~300–600 mg/dL)`	**↓ in DIC**
1-hr GCT	`<140 mg/dL normal`	**≥140 → 3-hr GTT**
Magnesium (therapeutic)	`4–7 mEq/L`	**>7 = toxicity (DTRs, RR, UOP)**
AFP	`15–20 wk screen`	**↑ neural tube defect; ↓ Down syndrome**
Urine protein	`Negative-trace`	**Proteinuria → preeclampsia**
L/S ratio (amnio)	`≥2:1 mature`	**<2:1 → lung immaturity**

09 · NEWBORN LAB VALUES

LAB	NEWBORN VALUE	SIGNIFICANCE
Glucose	`>40–45 mg/dL`	**Low → feed / IV dextrose**
Hemoglobin	`14–24 g/dL`	**Higher than adult; low → anemia**
Hematocrit	`44–64%`	**High → polycythemia (jaundice risk)**

LAB	NEWBORN VALUE	SIGNIFICANCE
WBC	9,000–30,000	High at birth normally
Platelets	150,000–400,000	Low → bleeding risk
Bilirubin (total)	↼~5–6 mg/dL early	Jaundice <24 h = pathologic
Direct Coombs	Negative	Positive → hemolytic disease (ABO/Rh)

10 · NEWBORN VITAL SIGNS

VITAL	NORMAL RANGE	CONCERN
Heart rate	110–160 bpm	<100 → bradycardia/distress
Respiratory rate	30–60 / min	<30 or >60; grunting/flaring/retractions
Temperature	36.5–37.5°C (97.7–99.5°F)	Low → cold stress; high → sepsis
Blood pressure	~60–80 / 40–50 mmHg	Varies with size/gestation
O_2 saturation	≥95% (after transition)	Low / pre–post ductal difference → CCHD

11 · APGAR SCORING

SIGN	0	1	2
Appearance (color)	Blue/pale	Body pink, extremities blue (acrocyanosis)	Completely pink
Pulse (HR)	Absent	<100	>100
Grimace (reflex)	No response	Grimace	Cry / cough / sneeze
Activity (tone)	Limp	Some flexion	Active motion
Respirations	Absent	Slow / irregular / weak cry	Good cry

Total: 7–10 = good condition · 4–6 = moderate distress · 0–3 = severe distress (resuscitation). Scored at 1 and 5 minutes.

12 · PHYSIOLOGIC VS PATHOLOGIC JAUNDICE

FEATURE	PHYSIOLOGIC	PATHOLOGIC
Onset	After 24 hours	Within first 24 hours
Cause	Immature liver / normal RBC breakdown	Hemolysis (ABO/Rh), infection, etc.
Bilirubin rise	Gradual, peaks day 3–5	Rapid rise; high levels
Management	Feeding, monitor	Phototherapy ± exchange transfusion

13 · GESTATIONAL DIABETES SCREENING

TEST	TIMING	INTERPRETATION
1-hr 50 g GCT	24–28 weeks (screen)	≥140 mg/dL → proceed to 3-hr GTT
3-hr 100 g GTT	After abnormal GCT (diagnostic)	≥2 abnormal values = GDM
Newborn glucose	After birth (IDM)	Monitor for neonatal hypoglycemia

14 · RHOGAM & RUBELLA DECISION POINTS

SITUATION	ACTION
Rh-negative mother, 28 weeks	Routine antepartum RhoGAM
Rh-negative mother, Rh-positive newborn	RhoGAM within 72 hours postpartum
Bleeding / miscarriage / ectopic / amnio / trauma (Rh-neg)	RhoGAM after the event
Already sensitized (indirect Coombs positive)	RhoGAM won't help — monitor fetus for anemia
Rubella non-immune mother	MMR vaccine postpartum (avoid pregnancy ~4 wks)

✓ MATERNAL-NEWBORN LAB MASTERY CHECKLIST

SELF-CHECK BEFORE TEST DAY

I CAN CONFIDENTLY... ✓

- [x] Explain physiologic anemia, leukocytosis, and the hypercoagulable state of pregnancy
- [x] Apply GDM screening values (GCT ≥140 → 3-hr GTT)
- [x] Distinguish indirect Coombs (mother) from direct Coombs (baby)
- [x] Time the rubella (MMR) vaccine to the postpartum period
- [x] Monitor magnesium toxicity (DTRs, RR, UOP) and give calcium gluconate
- [x] Differentiate physiologic (after 24 h) from pathologic (<24 h) jaundice
- [x] Time the newborn metabolic screen after feeding is established
- [x] Recognize CCHD pulse-ox and hearing screen follow-up
- [x] Interpret AFP (↑ neural tube defect, ↓ Down syndrome)
- [x] State GBS management: intrapartum IV penicillin
- [x] List all RhoGAM indications (28 wks, within 72 h if baby Rh+, after bleeding events)
- [x] Recognize HELLP labs and the bleeding/DIC risk
- [x] State newborn glucose threshold and the feed/IV dextrose response
- [x] Recall newborn-specific Hgb/Hct/WBC ranges (higher than adults)
- [x] Score and interpret APGAR (Appearance, Pulse, Grimace, Activity, Respirations)
- [x] Identify normal newborn vital signs and signs of distress

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