NGN NCLEX 2026 · MATERNAL-NEWBORN / INTRAPARTUM

Vacuum-Assisted Delivery *vs* Forceps Delivery

Operative vaginal delivery: instruments used to expedite the second stage of labor when maternal or fetal compromise threatens. Indications overlap — complications and nursing care differ sharply.

INTRAPARTUM · OPERATIVE DELIVERY · MATERNAL-NEWBORN · HIGH YIELD

📚 **Source transparency:** This topic was not present in the uploaded personal notes. Content drawn from standard NCLEX references: *Saunders Comprehensive Review for the NCLEX-RN (2026)*, *ATI Maternal Newborn Nursing*, *Lowdermilk Maternity & Women's Health Care*, ACOG Practice Bulletin No. 219 (Operative Vaginal Birth), and AWHONN intrapartum standards.

1 Definition & Overview

WHAT & WHY

VACUUM-ASSISTED DELIVERY

- A soft or rigid **suction cup** applied to the fetal scalp; negative pressure (≤ 500–600 mmHg) creates traction with maternal pushing
- Used **only at +2 station or lower**, with fully dilated cervix, ruptured membranes, vertex presentation
- Pulls only **during contractions** while mother pushes — coordinated effort
- **≥ 34 weeks gestation** required (fetal scalp not durable before this)

FORCEPS DELIVERY

- Two curved **metal blades** applied around the fetal head to grasp, rotate, and extract
- Requires fully dilated cervix, ruptured membranes, known fetal position, empty bladder, adequate anesthesia
- Classified by station: **outlet, low, mid** forceps (high forceps no longer practiced)
- Operator must have skill — improper application is the #1 cause of injury

2 Indications & Decision Flow

WHEN USED

PATHWAY TO OPERATIVE DELIVERY

2nd stage labor → Maternal exhaustion / fetal compromise →

Criteria met (dilated, +2, ROM) → Vacuum OR Forceps →

Delivery within 3 pulls / 20 min

COMMON INDICATIONS (BOTH)

MATERNAL

Prolonged 2nd stage · maternal exhaustion · cardiac/pulmonary disease (avoid pushing) · ineffective pushing with epidural

FETAL

Non-reassuring FHR (late decels, bradycardia) · suspected fetal compromise · need for rapid delivery

REQUIRED CRITERIA BEFORE EITHER PROCEDURE

MOTHER

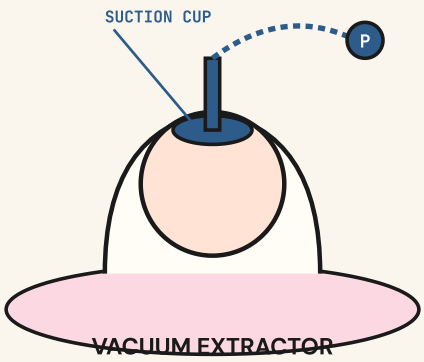
Fully dilated cervix · ruptured membranes · empty bladder · adequate anesthesia · informed consent

FETUS

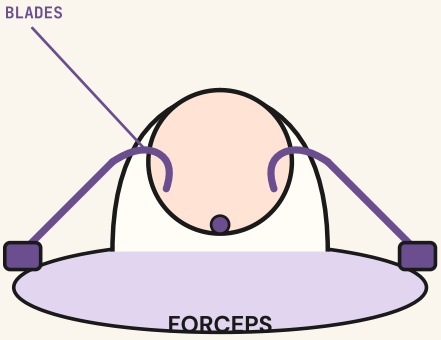
Vertex presentation · known position · engaged head at +2 station or lower · no suspected CPD

3 Visual Comparison

ANATOMY AT A GLANCE



VACUUM: CUP ON SCALP, VERTICAL TRACTION



FORCEPS: BLADES CRADLE HEAD, LATERAL GRIP

4 Side-by-Side Comparison

MASTER THIS TABLE

FEATURE	🔵 VACUUM	🟣 FORCEPS
MECHANISM	Suction cup on fetal scalp; **traction only** with maternal pushing	Curved blades grasp head; allows **traction + rotation**
MIN. GESTATIONAL AGE	**≥ 34 weeks** (premature scalp tears)	No strict GA cutoff; clinician judgment
ANESTHESIA NEEDS	Less anesthesia required	**Regional/epidural typically required**
MATERNAL TRAUMA RISK	**Lower** — fewer vaginal/perineal lacerations	**Higher** — 3rd/4th degree lacerations, hematomas
FETAL RISK PROFILE	**Cephalohematoma, scalp lacerations,** retinal hemorrhage, **subgaleal hemorrhage (life-threatening)**	**Facial bruising/nerve palsy, skull fracture,** ICH, corneal abrasion
"POP-OFF" RULE	⚠️ Discontinue after **3 pop-offs OR 3 pulls without descent OR 20–30 min**	⚠️ Discontinue after **3 contractions without descent**
BEST FOR	Maternal exhaustion, mild fetal distress, occiput-anterior presentation	Need for rotation (OP/OT positions), urgent delivery, dense epidural

5 Complications: Mother & Baby

SIGNS & SYMPTOMS

VACUUM — COMPLICATIONS

NEWBORN

- **Cephalohematoma:** swelling that does NOT cross suture lines; resolves in weeks
- **Caput succedaneum / chignon:** diffuse scalp edema from cup — crosses sutures, resolves in hours-days
- **Scalp lacerations & bruising**
- **Retinal hemorrhage** (usually self-resolving)
- **Hyperbilirubinemia** (from RBC breakdown in hematoma)
- **Subgaleal hemorrhage** — bleeding crosses sutures, extends to nape of neck; **life-threatening blood loss**
- **Intracranial hemorrhage** (rare)

MOTHER

- Perineal lacerations (less severe than forceps)
- Postpartum hemorrhage

FORCEPS — COMPLICATIONS

NEWBORN

- **Facial bruising / forceps marks** — resolve in days
- **Facial nerve palsy (CN VII):** asymmetric crying face, eye won't close on affected side; usually resolves spontaneously
- **Caput & cephalohematoma** possible
- **Skull fracture**
- **Intracranial hemorrhage**
- **Corneal abrasion**
- Brachial plexus injury (with shoulder dystocia)

MOTHER

- **3rd / 4th degree perineal lacerations** (anal sphincter / rectal mucosa)
- **Vaginal & cervical lacerations**
- **Vulvar / vaginal hematomas** — severe perineal pain w/ stable vital signs early, then hypotension
- **Bladder/urethral injury**
- **Postpartum hemorrhage**
- Pelvic floor injury → long-term incontinence

RED FLAGS — CALL HCP IMMEDIATELY

- **Newborn:** bulging swelling crossing suture lines (subgaleal) · pallor + tachycardia · seizures · poor feeding · hypotonia
- **Mother:** severe perineal/rectal pain disproportionate to exam · sudden hypotension/tachycardia · fundus boggy + heavy lochia · inability to void

6 Priority Nursing Interventions

ABC + SAFETY

A
AIRWAY / NEWBORN FIRST

- Suction newborn airway promptly at delivery
- Assess Apgar at 1 & 5 min
- Monitor for respiratory distress, grunting, retractions
- Inspect for facial nerve palsy (forceps): test symmetry of cry

B
BLEEDING / BRAIN

- Inspect scalp/head — measure head circumference q1h × 4 (subgaleal)
- Monitor for pallor, tachycardia, ↓ BP in newborn
- Check pupils, tone, reflexes, level of consciousness
- Monitor maternal lochia, fundus, perineal pain
- Pad count + estimate blood loss for mom

C
CIRCULATION / COMFORT

- Maternal VS q15 min × 1 hr postpartum
- Ice to perineum first 24 hr; sitz bath after
- Assess bladder — encourage void within 4–6 hr
- Newborn: monitor bilirubin (cephalohematoma → jaundice)
- Pain management; document forceps marks (photo/diagram)

VACUUM-SPECIFIC NURSING

- Document **number of pop-offs and pulls**
- Document **total application time** (cup-to-delivery)
- Assess scalp for **chignon** (mild, expected) vs **subgaleal hemorrhage** (emergent)
- Watch for jaundice 24–72 hr (RBC breakdown)
- Reassure parents: chignon & caput are temporary

FORCEPS-SPECIFIC NURSING

- Assess **facial symmetry** at rest and with crying
- Inspect for forceps marks; document location & appearance
- **Inspect perineum thoroughly** — 3rd/4th degree tears, hematomas
- Assess rectal tone; monitor for incontinence/fistula
- Monitor maternal pain — severe = hematoma until proven otherwise
- Maintain Foley if ordered (bladder injury risk)

7 NCLEX Test Traps

WRONG VS RIGHT

❌ TRAP
"Cephalohematoma and subgaleal hemorrhage are the same thing — just monitor both."

✅ RIGHT ANSWER
Cephalohematoma **does NOT cross suture lines** (self-limited). Subgaleal hemorrhage **crosses sutures, extends to neck — EMERGENCY**, can hold 40% of newborn's blood volume.

❌ TRAP
"Vacuum delivery is preferred whenever rotation is needed because it's gentler."

✅ RIGHT ANSWER
Vacuum applies **traction only**. **Forceps** are the operative tool that allows **rotation** (e.g., OP → OA position).

❌ TRAP
"After forceps delivery the priority newborn assessment is hearing test."

✅ RIGHT ANSWER
Priority is **facial symmetry** (CN VII palsy), **scalp/skull integrity**, and **neuro status**. Hearing screening is routine — not the priority post-forceps.

❌ TRAP
"Severe perineal pain after forceps is normal — give scheduled acetaminophen."

✅ RIGHT ANSWER
Severe, **disproportionate** perineal/rectal pain after forceps = **vulvar/vaginal hematoma until proven otherwise**. Assess perineum, VS, notify HCP — do not just medicate.

❌ TRAP
"Vacuum can be used at any cervical dilation if fetal distress is present."

✅ RIGHT ANSWER
Vacuum AND forceps require **fully dilated cervix, ruptured membranes, engaged head (+2 or lower), vertex, empty bladder, GA ≥ 34 wks (vacuum)**. Otherwise → **cesarean**.

❌ TRAP
"Chignon on the newborn's head needs urgent surgical drainage."

✅ RIGHT ANSWER
Chignon = artificial caput from vacuum cup; **benign, resolves in 24–48 hr**. **Reassure parents**. Watch only for expanding lesions that cross sutures.

8 Patient & Family Education

BEFORE DISCHARGE

NEWBORN — NORMAL FINDINGS

Chignon, caput, mild bruising, and forceps marks are **expected** and resolve within hours to days. Cephalohematoma may take 2–6 weeks. Watch for jaundice as bruising resolves.

NEWBORN — CALL PROVIDER

Bulging soft swelling that grows or extends to the nape of the neck, pallor, poor feeding, abnormal cry, seizures, or asymmetric face when crying.

MOTHER — PERINEAL CARE

Ice first 24 hr, then sitz bath 2–3×/day. Peri-bottle with warm water after each void/BM. Pat dry front to back. Witch-hazel pads for hemorrhoids/sutures.

MOTHER — BOWEL & BLADDER

Stool softeners with 3rd/4th degree lacerations — **avoid constipation & straining**. Void within 4–6 hr postpartum; report difficulty voiding (urethral trauma).

MOTHER — ACTIVITY & REST

Pelvic rest 6 weeks (no intercourse, tampons, douching). Kegel exercises when comfortable to restore pelvic floor tone.

MOTHER — WARNING SIGNS

Heavy bleeding (saturating a pad/hr), foul-smelling lochia, fever > 100.4°F (38°C), severe perineal pain, calf pain/swelling, inability to control stool/gas.

9 Memory Boosters & Mnemonics

PATTERN RECOGNITION

"FORCEPS" — Maternal Risks

F acial nerve palsy (newborn) · **O** pen lacerations (3rd/4th deg) · **R** otation possible · **C** ephalohematoma · **E** pidural required · **P** elvic floor injury · **S** kull / cervical lacerations

"SUCTION" — Vacuum Rules

S ubgaleal hemorrhage = #1 fear · **U** nder 34 wks → don't use · **C** up + contraction + push together · **T** hree pulls / three pop-offs MAX · **I** nspect scalp (chignon vs subgaleal) · **O** ne traction force only — no rotation · **N** otify HCP if swelling crosses sutures

Quick Differentiator: Crosses Sutures?

NO = **Cephalohematoma** (subperiosteal — bound by sutures) → benign, watch for jaundice
YES = **Caput succedaneum** (scalp edema) → resolves in hours
YES + EXPANDING + PALLOR = **Subgaleal hemorrhage** → 🚨 EMERGENCY

"Vacuum = Vertical · Forceps = Force"

V acuum pulls **straight (vertical traction)** with mom's pushing — partner sport.
F orceps deliver **force + rotation** — operator-driven, more anesthesia, more maternal trauma.

"The Three-Three Rule"

3 pop-offs of the cup → **STOP, go to cesarean**
3 pulls without descent → **STOP, go to cesarean**
3 contractions with forceps without descent → **STOP, go to cesarean**

10 NCJMM Clinical Judgment Scenario

6-STEP FRAMEWORK

SCENARIO: A 28-year-old G2P1 delivers a 4,100 g newborn via vacuum-assisted vaginal delivery after a prolonged second stage. The cup was applied for 22 minutes with 2 pop-offs and 3 pulls. Two hours postpartum, the nurse notes the newborn has pallor, HR 188, RR 70, and a soft, fluctuant swelling that extends from the forehead to the nape of the neck. The newborn appears lethargic during feeding.

STEP 1 · RECOGNIZE CUES

What stands out?

Pallor, tachycardia (HR 188), tachypnea (RR 70), **swelling crossing suture lines from forehead to neck**, lethargy during feeding, large birthweight, vacuum delivery with 2 pop-offs & prolonged application.

STEP 2 · ANALYZE CUES

What do they mean?

Swelling crossing sutures + signs of shock = **subgaleal hemorrhage**. The subgaleal space can hold up to 40% of a newborn's blood volume — pallor, tachycardia, and lethargy reflect hypovolemic shock.

STEP 3 · PRIORITIZE HYPOTHESIS

Most likely problem?

#1: Subgaleal hemorrhage with developing hypovolemic shock. Differentials: severe cephalohematoma (excluded — it doesn't cross sutures), sepsis (no fever, no risk factors yet).

STEP 4 · GENERATE SOLUTIONS

What should be done?

Notify provider STAT · transfer to NICU · obtain IV access · type & crossmatch · serial head circumference q15–30 min · serial H&H · prepare for volume resuscitation and possible PRBC transfusion · monitor coagulation studies (DIC risk).

STEP 5 · TAKE ACTION

Implement priorities

Call provider/NICU now · place newborn on cardiorespiratory monitor · establish IV · draw labs (CBC, type & cross, coags, bilirubin) · measure & mark head circumference · give NS bolus 10 mL/kg per order · document timeline.

STEP 6 · EVALUATE OUTCOMES

Did it work?

Goal: HR <160, RR 30–60, perfusion restored, head circumference stable or shrinking, H&H stable, no further expansion of swelling, normal feeding/tone returns. Continue serial assessments q1h × 24 hr.