Exam 3 Study Guide

This guide covers labor and birth and the emergencies that can interrupt them. You will learn to read position and station, judge whether labor has begun, follow the four stages, read a fetal heart tracing and restore oxygen delivery, and keep an epidural safe. Then you will work the emergencies in the order that saves lives: cord prolapse, shoulder dystocia, uterine rupture, eclampsia, magnesium toxicity and postpartum hemorrhage, with the newborn resuscitation running in the next cot. Work one chapter at a time. Read the "what to know" paragraphs, study the tables, then try each worked case with the steps covered. Finish each chapter with its ten self-test items. The cram sheet at the end puts the sequences in one place.

WHAT THIS GUIDE COVERS

- Chapter 5 · the fetal skull and fontanelles, attitude, lie, presentation, position and station, pelvic types, the powers and Montevideo units, tachysystole, true and false labor, rupture of membranes, the Bishop score, the cardinal movements, the four stages and their nursing care, GBS prophylaxis, oxytocin, fetal monitoring terms and categories, intrauterine resuscitation, pain pathways, comfort measures, opioids, nitrous oxide, epidurals and their complications, the newborn's first minutes, hemorrhage and the emergency first actions.
- Chapter 6 · baseline, variability, accelerations, the mechanism of each deceleration, sinusoidal patterns, the three categories and intrauterine resuscitation, protracted and arrest patterns, malposition and malpresentation, induction, oxytocin titration and tachysystole, preterm birth, GBS and TOLAC, cord prolapse, shoulder dystocia, uterine rupture, abruption, amniotic fluid embolism, severe hypertension and eclampsia, magnesium sulfate, HELLP, the four Ts and uterotonics, neonatal resuscitation, the Apgar score, SBAR and delegation.

CHAPTER 5

Labor and Birth

Read it in full: **Chapter 5 in the textbook**. Practice it in the lab: **Seven Movements and Four Stages** and **The Strip Draws Itself**.

What to know

The fetal skull molds because its sutures are not fused. The **anterior fontanelle** is diamond shaped, about 4 to 5 cm, and closes at 12 to 18 months; the **posterior fontanelle** is a small triangle that closes at about 2 to 3 months. On exam, the shape under your fingertip tells you where the head is. **Attitude** matters: full flexion presents the smallest diameter (about 9.5 cm); a brow presents about 13.5 cm, usually too large.

Lie compares the fetal spine with the maternal spine and is longitudinal in about 99 percent of term labors. **Presentation** is the part entering first: cephalic in about 96 percent, breech 3 to 4 percent. **Position** is three letters: maternal side (L or R), fetal landmark (O occiput, S sacrum, M mentum, A acromion), and direction (A, P or T). LOA is the most common and efficient. Occiput posterior causes back pain and a longer second stage; hands and knees, counterpressure and lunges help it rotate. **Station** runs from minus 5 to plus 5 relative to the ischial spines, and 0 means engagement.

The gynecoid pelvis is most favorable; squatting and McRoberts positioning widen the outlet. Describe contractions by frequency (start to start), duration (start to end), intensity (mild like the nose, moderate like the chin, strong like the forehead) and resting tone (soft, under about 20 mm Hg). **Adequate labor is 200 or more Montevideo units** in 10 minutes. **Tachysystole** is more than five contractions in 10 minutes averaged over 30 minutes; the placenta refills only between contractions. Fear and pain raise catecholamines and reduce uterine blood flow, and continuous labor support shortens labor.

Only **progressive cervical change proves labor**. True labor contractions become regular, closer and stronger, start in the back and do not stop with walking. False labor contractions are irregular and ease with walking or a bath. Rupture is confirmed by pooling, nitrazine turning blue-green, ferning or a protein assay. **The first action after any rupture is a full minute of fetal heart rate**, because the cord can be swept down. Then document time, amount, color and odor: green means meconium; port-wine suggests abruption; foul fluid with fever suggests infection. A Bishop score of 8 or more is favorable; 6 or less calls for ripening.

The **cardinal movements**: engagement, descent, flexion, internal rotation, extension, restitution and external rotation, then expulsion. The turtle sign is a failed expulsion step. The first stage has a **latent phase** (to about 6 cm, can last many hours) and an **active phase** (6 to 10 cm). Arrest of dilation needs at least 6 cm with ruptured membranes and no change for 4 hours with adequate contractions or 6 hours with inadequate ones despite oxytocin. A full bladder is a common reversible cause of stalled labor; empty it every 2 hours.

The second stage runs from complete dilation to birth; open-glottis pushing with the urge is preferred. Prolonged is more than 3 hours in a nullipara (4 with an epidural) or 2 in a multipara (3 with an epidural). The third stage lasts 5 to 30 minutes; signs of separation are a globular uterus, a rising fundus, a lengthening cord and a gush of blood. Active management with a uterotonic, controlled cord traction and massage roughly halves hemorrhage risk. The **fourth stage** (1 to 4 hours) carries the greatest hemorrhage risk: check fundus, lochia, bladder, perineum and vitals every 15 minutes for an hour, every 30 minutes for the next, then hourly. A boggy fundus above the umbilicus and to the right usually means a full bladder.

GBS prophylaxis is intrapartum IV penicillin G, adequate after at least 4 hours before birth. Oxytocin is a high-alert drug: a pump, a secondary line at the port nearest the patient, titrated to a pattern (every 2 to 3 minutes, 40 to 60 seconds, soft tone) and watched for water intoxication.

Normal baseline is 110 to 160. **Moderate variability (6 to 25 bpm) is the most reassuring finding.** Accelerations are 15 by 15 at 32 weeks or more. Remember VEAL CHOP: variable is cord compression, early is head compression, acceleration is oxygen intact, late is placental insufficiency. Category I is normal; Category III is absent variability with recurrent late or variable decelerations or bradycardia, or a sinusoidal pattern; Category II is everything between. Intrauterine resuscitation in this chapter's order: **reposition laterally, stop or reduce oxytocin, IV bolus 500 to 1000 mL, vaginal exam for prolapse, notify with SBAR**. Routine oxygen for a Category II tracing has not improved newborn outcomes, so it never delays the steps that change uterine blood flow.

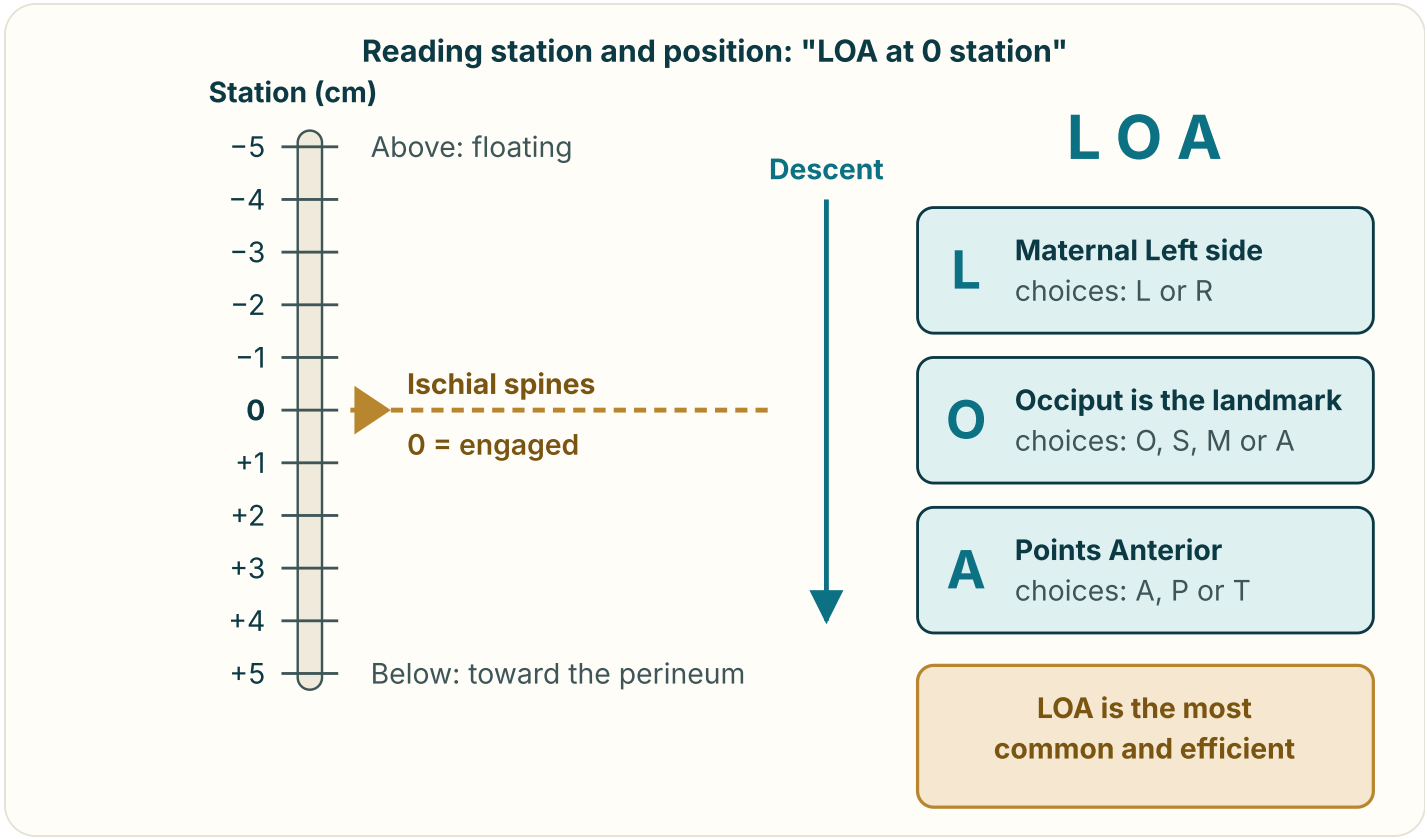
First-stage pain is visceral through T10 to L1; second-stage pain is somatic through the pudendal nerve, S2 to S4. Continuous one-to-one support is the best-evidenced comfort measure. IV opioids cross the placenta; one given within about 1 to 4 hours of birth peaks in the newborn at the worst

time. Mixed agonist-antagonists (butorphanol, nalbuphine) can cause withdrawal in an opioid-dependent patient. A depressed newborn after maternal opioid gets ventilation, not naloxone. Nitrous oxide is held only by the patient.

Before an epidural: consent, IV access, a 500 to 1000 mL preload of isotonic non-dextrose fluid, baseline vitals and FHR, an empty bladder and positioning. Contraindications include refusal, coagulopathy, low platelets, site infection, uncorrected hypovolemia and raised intracranial pressure. **Hypotension** (systolic under 100 or a fall over 20 percent) is the most common complication; check BP every 5 minutes for 15 to 20 minutes. The sequence: **left uterine displacement first**, then fluids, then oxygen, then anesthesia and a vasopressor. Also watch for urinary retention, fall risk, itching and a positional post-dural-puncture headache. A high spinal is an airway emergency; local anesthetic toxicity gets lipid emulsion 1.5 mL/kg.

For a vigorous newborn: dry, skin-to-skin with a cap, and delay cord clamping 30 to 60 seconds. Normal axillary temperature is 36.5 to 37.5 °C. If not breathing or the heart rate is under 100, start positive-pressure ventilation within the first minute; if the rate stays under 60 after 30 seconds of effective ventilation, add compressions at 3:1. Every dose is per kilogram with the arithmetic shown.

Postpartum hemorrhage is 1000 mL or more, or any loss with hypovolemia, within 24 hours. **Measure it**: weigh soaked items, subtract dry weight, 1 g equals 1 mL. Causes are the four Ts: Tone (70 to 80 percent), Trauma, Tissue, Thrombin. **Massage the fundus first**; if the fundus is firm and bleeding continues, look for a laceration or hematoma. Check BP before methylergonovine; ask about asthma before carboprost. In emergencies: lift the presenting part off a prolapsed cord; McRoberts plus suprapubic pressure, never fundal pressure, for shoulder dystocia; suspect rupture from sudden bradycardia; stop magnesium before the antidote. Screen for intimate partner violence privately.



Station is measured from the ischial spines. Minus numbers are above the spines and plus numbers below; 0 means engagement. The position code gives the maternal side, the fetal landmark and the direction it points.

LOCK THESE IN

- Station 0 is the ischial spines and means engagement; LOA is the most common position.
- Only progressive cervical change proves labor.
- After any rupture of membranes: a full minute of fetal heart rate first.
- Moderate variability is the most reassuring finding on a strip.
- VEAL CHOP: variable cord, early head, acceleration OK, late placenta.
- Epidural hypotension: left uterine displacement first, then fluid, oxygen, vasopressor.
- Fourth stage: fundus, lochia, bladder, vitals every 15 minutes for the first hour.
- Hemorrhage: massage the fundus first and quantify the loss.

The four stages of labor

Stage	Boundaries	Duration	Nursing priority
First, latent	Onset to about 6 cm	Highly variable, hours	Support, hydration, ambulation
First, active	6 to 10 cm	Faster, wide normal range	FHR, comfort, position change, bladder
Second	Complete to birth	Up to 3 h nullipara, 2 h multipara; add 1 h with epidural	Pushing, perineal support, FHR
Third	Birth to placenta	5 to 30 minutes	Uterotonic, cord traction, inspect placenta
Fourth	First 1 to 4 hours	1 to 4 hours	Fundus, lochia, bladder, vitals; skin-to-skin

Uterotonics for hemorrhage

Drug	Dose and route	Do not give if
Oxytocin	10 to 40 units in 500 to 1000 mL IV, or 10 units IM	Never as an undiluted IV push
Methylergonovine	0.2 mg IM every 2 to 4 hours	Hypertension, pre-eclampsia, cardiac disease
Carboprost	250 micrograms IM every 15 to 90 min, max 8 doses	Asthma
Misoprostol	600 to 1000 micrograms oral, sublingual or rectal	Known prostaglandin allergy
Tranexamic acid	1 g IV over 10 min within 3 hours of birth	Active thromboembolic disease

Worked cases

WORKED CASE 1 · ARE THE CONTRACTIONS ADEQUATE?

An intrauterine pressure catheter shows four contractions in 10 minutes with peaks of 60, 55, 65 and 58 mm Hg. The resting baseline is 10 mm Hg.

STEP 1 · FIND EACH AMPLITUDE

Subtract baseline from each peak: 50, 45, 55 and 48 mm Hg.

STEP 2 · ADD THEM

50 + 45 + 55 + 48 = **198 Montevideo units**.

STEP 3 · COMPARE

Adequate is 200 or more, so this is just below adequate.

STEP 4 · USE IT

Document the number. An arrest diagnosis depends on whether contractions were adequate, so this matters before anyone labels the labor.

WORKED CASE 2 · THE EPIDURAL AND THE FALLING PRESSURE

Ten minutes after an epidural dose, a laboring patient's blood pressure drops from 124/78 to 88/50 and late decelerations appear.

STEP 1 · NAME IT

Post-epidural hypotension: systolic under 100 and a fall of more than 20 percent. The placenta feels it before the patient does.

STEP 2 · FIRST ACTION

Turn her to her side or displace the uterus to the left to relieve aortocaval compression.

STEP 3 · THEN

Open the IV fluid, apply oxygen, and notify anesthesia for an ordered vasopressor such as ephedrine or phenylephrine.

STEP 4 · RECHECK

Blood pressure every 5 minutes and watch the tracing recover.

WORKED CASE 3 · WEIGH THE BLOOD

After birth, a pad and underpad together weigh 520 g. Their dry weight is 120 g. The fundus is boggy.

STEP 1 · SUBTRACT

520 g minus 120 g = 400 g.

STEP 2 · CONVERT

1 gram counts as 1 mL, so the measured loss is **400 mL**.

STEP 3 · ACT ON THE FUNDUS

Massage the fundus first, then empty the bladder, call for help and give uterotonics as ordered.

STEP 4 · KEEP COUNTING

Hemorrhage is 1000 mL or more, or any loss with signs of hypovolemia. Visual estimates miss 30 to 50 percent, so keep weighing.

WORKED CASE 4 · LIPID EMULSION FOR ANESTHETIC TOXICITY

During epidural dosing a 62 kg patient reports a metallic taste and ringing in the ears, then becomes agitated. The team prepares 20 percent lipid emulsion at 1.5 mL/kg as a bolus.

STEP 1 · RECOGNIZE

Circumoral numbness, metallic taste, tinnitus and agitation are early local anesthetic systemic toxicity.

STEP 2 · STOP AND SECURE

Stop the injection and secure the airway.

STEP 3 · CALCULATE

1.5 mL/kg × 62 kg = **93 mL** bolus, followed by an infusion.

STEP 4 · VERIFY

A second nurse checks the weight, the concentration and the volume.

TRAPS PEOPLE FALL INTO

- **Calling regular contractions labor.** Only progressive cervical change proves labor has begun.
- **Charting fluid color before listening.** After rupture, a full minute of fetal heart rate comes first because of cord prolapse risk.
- **Reaching for oxygen first on a worrying strip.** Reposition and stop the oxytocin; those change uterine blood flow.
- **Treating epidural hypotension with fluid first.** Displace the uterus first, then fluid, oxygen and a vasopressor.
- **Giving naloxone to a depressed newborn after maternal opioid.** Ventilate. Naloxone is not in the initial sequence and can cause seizures in a newborn of an opioid-dependent parent.
- **Pressing on the fundus in shoulder dystocia.** Use McRoberts and suprapubic pressure; fundal pressure drives the shoulder harder into the symphysis.

Chapter 5 self-test · ten items

1. An exam note reads "ROA, minus 2 station." Where is the occiput?

A. Maternal right, toward the back
B. Maternal left, toward the front
C. Maternal right, toward the front
D. Maternal left, toward the back

C. Maternal right, toward the front R is the maternal right side, O is occiput and A is anterior.

2. What does 0 station mean?

A. The head is crowning at the perineum
B. The head is floating above the inlet
C. The cervix has reached complete dilation
D. The head is level with the ischial spines

D. The head is level with the ischial spines Station is measured from the ischial spines; 0 means engagement.

3. Which finding proves true labor?

A. Progressive dilation on serial exams
B. Contractions every 8 minutes for an hour
C. Contractions that started in the back
D. A sudden burst of energy at home

A. Progressive dilation on serial exams Only cervical change confirms labor; contraction patterns alone do not.

4. Membranes rupture spontaneously. What does the nurse do first?

A. Test the fluid with a nitrazine strip
B. Count the fetal heart rate for a full minute
C. Record the color and odor of the fluid
D. Start the GBS antibiotic straight away

B. Count the fetal heart rate for a full minute A gush can sweep the cord past the presenting part, so the heart rate comes first.

5. Which tracing feature best shows the fetus is well oxygenated now?

A. Early decelerations
B. Absent decelerations for an hour
C. A baseline of exactly 140
D. Moderate baseline variability

D. Moderate baseline variability Moderate variability reflects an intact, oxygenated nervous system pathway.

6. In VEAL CHOP, a late deceleration matches which cause?

A. Placental insufficiency
B. Umbilical cord compression
C. Fetal head compression
D. Normal fetal oxygenation

A. Placental insufficiency Late decelerations reflect uteroplacental insufficiency and demand action.

7. Fifteen minutes after an epidural the BP is 86/48. What comes first?

A. A 1 L isotonic fluid bolus
B. Oxygen by non-rebreather
C. Left uterine displacement
D. A vasopressor by IV push

C. Left uterine displacement Positioning relieves aortocaval compression in seconds; fluid, oxygen and vasopressors follow.

8. One hour after birth the fundus is boggy, 2 cm above the umbilicus and to the right. What is the most likely cause?

A. A retained placenta
B. A distended bladder
C. A cervical laceration
D. Normal involution

B. A distended bladder A boggy fundus displaced up and to the right usually means a distended bladder.

9. Before giving methylergonovine for hemorrhage, what must the nurse check?

A. Platelet count
B. Temperature
C. Blood pressure
D. Asthma history

C. Blood pressure Methylergonovine can cause a sharp rise in pressure and is avoided in hypertension.

10. A vigorous term newborn is crying with good tone. What is the plan?

A. Skin-to-skin and delayed cord clamping
B. Radiant warmer with deep suctioning
C. Positive-pressure ventilation at once
D. A full Apgar score before any care

A. Skin-to-skin and delayed cord clamping A vigorous term newborn stays with the parent; the cord is clamped after 30 to 60 seconds.

CHAPTER 6

Intrapartum Complications and Obstetric Emergencies

Read it in full: **Chapter 6 in the textbook**. Practice it in the lab: **Build the Strip: Baseline, Variability, Category** and **The First Move: Intrapartum Emergencies as They Unfold**.

What to know

Fetal monitoring shows the autonomic response to oxygen, not oxygen itself. **Baseline** is the mean rate over 10 minutes, rounded to 5, with at least 2 minutes identifiable. Above 160 for 10 minutes is tachycardia: think maternal fever and chorioamnionitis first. Below 110 is bradycardia: think cord compression, epidural hypotension, rapid descent, rupture or maternal hypoxia.

Variability reflects a pathway from cortex to vagus to heart, so it tells you about the fetal brain. Absent, minimal (5 or less), moderate (6 to 25) or marked (over 25). Minimal or absent variability can be sleep (20 to 40 minutes), opioids, magnesium or prematurity, but absent variability with recurrent late decelerations is escalated. **Variability trumps decelerations.**

Gradual means 30 seconds or more from onset to nadir and implies a reflex pathway; abrupt means under 30 seconds and implies the cord. **Early**: gradual, nadir under the contraction peak, head compression, benign. **Variable**: abrupt, at least 15 below baseline for 15 seconds to 2 minutes, cord compression. **Late**: gradual, with onset, nadir and recovery all after the contraction,

uteroplacental insufficiency, never normal. **Prolonged**: 2 to 10 minutes. **Sinusoidal**: a smooth wave of 3 to 5 cycles a minute for 20 minutes, severe fetal anemia, an emergency.

Category I: baseline 110 to 160, moderate variability, no late or variable decelerations. Category III: absent variability with recurrent late or variable decelerations or bradycardia, or sinusoidal. Category II is everything else and means look harder and intervene. Intrauterine resuscitation in this chapter's order: **(1) stop the oxytocin, (2) reposition laterally or knee-chest, (3) vaginal exam for prolapse, (4) IV bolus 500 to 1000 mL, (5) vasopressor for hypotension, (6) terbutaline for tachysystole, (7) notify and prepare**. Amnioinfusion treats recurrent variables from oligohydramnios. Tracing interpretation is never delegated.

"Failure to progress" is retired. Describe a **protracted** pattern (slower than expected) or an **arrest** pattern. The active phase begins at about 6 cm. Second-stage arrest is considered after 3 hours of pushing in a nullipara and 2 in a multipara, plus an hour with regional anesthesia. A hypotonic pattern responds to augmentation; a hypertonic pattern (frequent, painful, ineffective, high tone) responds to rest, hydration and analgesia, and augmenting it makes it worse.

Occiput posterior causes back pain and an early urge to push; positions help it rotate. Footling breech carries the highest prolapse risk because it does not fill the inlet. Face with chin anterior can deliver vaginally; chin posterior cannot. Brow and transverse lie usually need cesarean. After any rupture, listen for a full minute; with an unengaged part and ruptured membranes, no walking without an order.

A Bishop score of 6 or less calls for ripening; misoprostol is never used with a uterine scar. **Oxytocin** (commonly 30 units in 500 mL) runs on a pump, piggybacked at the port nearest the patient, starting at 0.5 to 2 milliunits a minute and rising 1 to 2 no more often than every 30 to 60 minutes. The goal is contractions every 2 to 3 minutes lasting 40 to 90 seconds, resting tone under 20 mm Hg and at least 60 seconds of rest. **Tachysystole** with a Category II or III tracing: stop the oxytocin. Oxytocin has a half-life of about 10 to 12 minutes; the stopcock is the antidote.

Preterm birth priorities: steroids, magnesium before 32 weeks for neuroprotection, and GBS prophylaxis. TOLAC suits one or two prior low transverse incisions, never a classical incision, and needs continuous monitoring. **Cord prolapse**: gloved hand lifts the presenting part and stays

there until birth; knee-chest or Trendelenburg; stop oxytocin; prepare for cesarean. Filling the bladder with 500 to 700 mL saline can elevate the part if delay is expected. Never push the cord back or keep handling it.

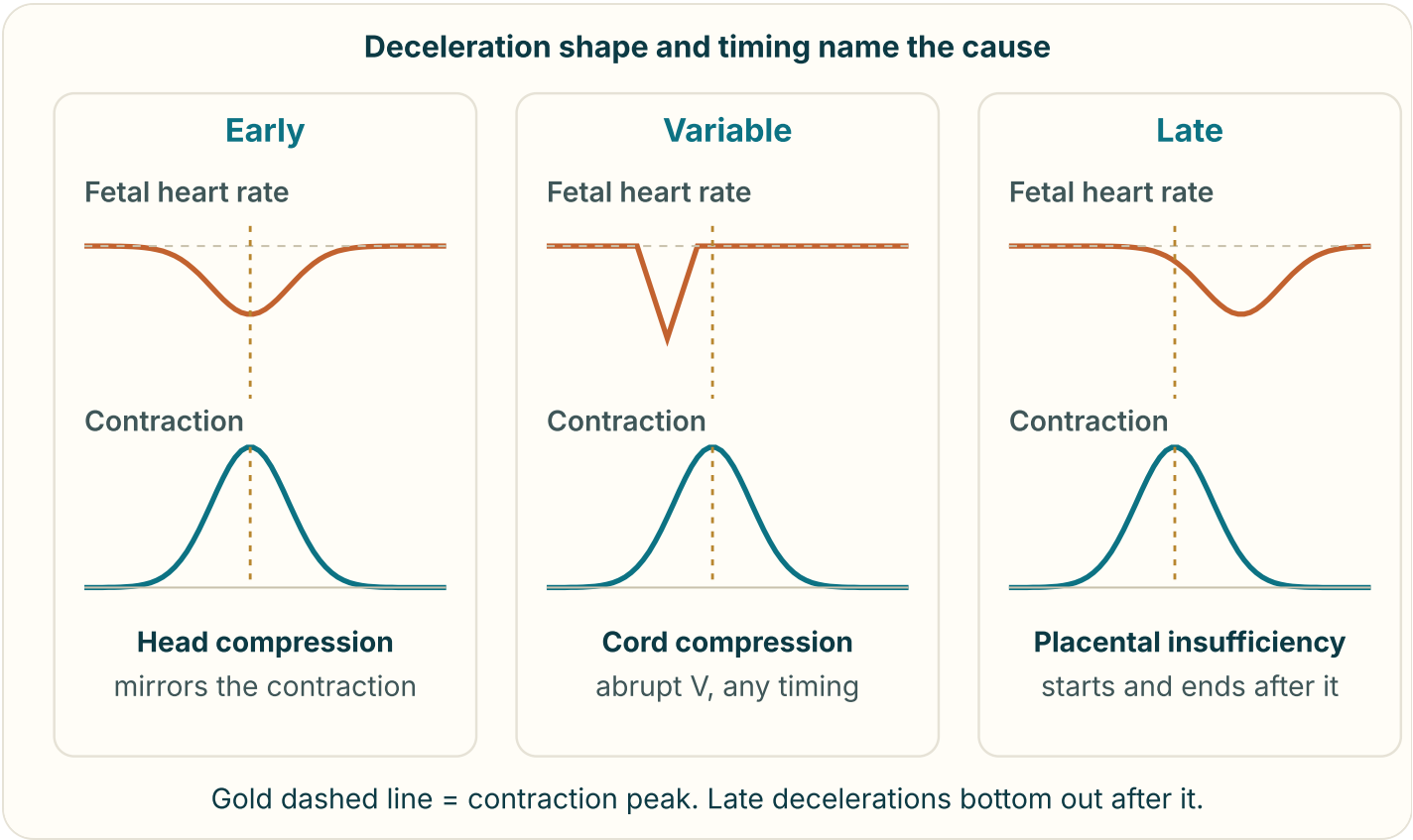
Shoulder dystocia (turtle sign): call for help and note the time, then HELPERR. McRoberts plus suprapubic pressure solves more than half. **Never fundal pressure. Uterine rupture**: the most common early sign is an abnormal fetal heart rate, then tearing pain, loss of station, loss of contractions and shock; immediate laparotomy. **Abruption**: trust pulse, rising fundal height and the tracing over the pad. No vaginal exam for third-trimester bleeding until ultrasound excludes previa. **Amniotic fluid embolism**: hypoxia, collapse, then DIC; CPR with manual left uterine displacement and perimortem cesarean starting at 4 minutes without return of circulation.

Severe hypertension (160 or 110 sustained) is treated within 30 to 60 minutes, ideally 30: labetalol 20, 40, then 80 mg IV every 10 minutes; hydralazine 5 to 10 mg IV; or oral nifedipine. Recheck every 10 minutes; target about 140 to 150 over 90 to 100. In **eclampsia**: protect airway and prevent injury, side-lying, no restraints, nothing in the mouth. After the seizure: suction, oxygen, IV access, magnesium bolus, labs, then the fetus. Birth follows stabilization. Magnesium continues 24 hours after birth or the last seizure.

Magnesium prevents seizures and does not lower pressure. Load 4 to 6 g IV over 15 to 30 minutes, then 1 to 2 g per hour on a pump with an independent double check. Reflexes go before breathing; if an epidural blocks the knee reflex, use the biceps. Hold for RR under 12, absent reflexes, urine under 30 mL/h, a high level or falling consciousness. Then: stop, call, calcium gluconate 1 g over about 3 minutes, ventilate, level, monitor. The newborn may be floppy and slow to breathe. In HELLP, bleeding precautions; never palpate a painful RUQ deeply.

Postpartum hemorrhage: quantify; the **shock index** (heart rate divided by systolic BP) of 0.9 or more is concerning. Four Ts. Massage first, then help, bladder, access, oxytocin, labs. If the fundus cannot be found and shock is out of proportion, think uterine inversion. Newborn: three questions (term, tone, breathing). Any no means warmer, dry, stimulate, position, clear only if obstructed, within the Golden Minute. PPV at 40 to 60 a minute for heart rate under 100 or apnea, starting with 21 percent oxygen at 35 weeks or more; MR SOPA if the chest does not rise; compressions at 3:1 if under 60 after 30 seconds of effective ventilation; epinephrine 0.02 mg/kg

IV of 0.1 mg/mL. Preductal targets climb from 60 to 65 percent at 1 minute to 85 to 95 at 10. The **Apgar** describes the transition at 1 and 5 minutes and never starts resuscitation.



Shape and timing tell you the mechanism. Early dips mirror the contraction, variables are abrupt and V-shaped, and lates lag behind the peak. Lates are never normal and call for intrauterine resuscitation.

LOCK THESE IN

- Variability trumps decelerations.
- Early = head, variable = cord, late = placenta, sinusoidal = severe anemia.
- Category III: absent variability plus recurrent late or variable decels or bradycardia, or sinusoidal.
- Tachysystole is more than 5 contractions in 10 minutes averaged over 30; stop the oxytocin.
- Shoulder dystocia: McRoberts plus suprapubic, never fundal.
- Rupture shows first as an abnormal fetal heart rate.
- Magnesium: off before antidote; reflexes before respirations.
- Newborn: ventilation is the key step; the Apgar never decides when to start.

Decelerations by mechanism

Type	Shape and timing	Mechanism	Response
Early	Gradual; nadir under the contraction peak	Head compression, vagal reflex	None; document
Variable	Abrupt; any timing	Cord compression	Reposition; amnioinfusion if recurrent
Late	Gradual; all phases after the contraction	Uteroplacental insufficiency	Full intrauterine resuscitation
Prolonged	2 to under 10 minutes	Occlusion, hypotension, tachysystole, rupture	Exam for prolapse; full resuscitation
Sinusoidal	Smooth wave, 3 to 5 per minute, 20 min or more	Severe fetal anemia	Category III; prepare for birth

Apgar scoring

Sign	0	1	2
Appearance (color)	Blue or pale	Pink body, blue hands and feet	Completely pink
Pulse	Absent	Below 100	100 or above
Grimace (reflex)	No response	Grimace	Cry, cough or sneeze
Activity (tone)	Flaccid	Some flexion	Active motion
Respiration	Absent	Slow, irregular, weak cry	Good, strong cry

Worked cases

WORKED CASE 1 · SET THE OXYTOCIN PUMP

Oxytocin 30 units in 500 mL is ordered to start at 2 milliunits per minute.

STEP 1 · FIND THE CONCENTRATION

30 units = 30,000 milliunits. 30,000 ÷ 500 mL = **60 milliunits per mL**.

STEP 2 · DOSE PER HOUR

2 milliunits/min × 60 min = 120 milliunits per hour.

STEP 3 · CONVERT TO ML/H

120 ÷ 60 milliunits/mL = **2 mL/h**. At this concentration, milliunits per minute equals mL per hour.

STEP 4 · TITRATE SAFELY

Increase by 1 to 2 milliunits a minute no more often than every 30 to 60 minutes, to a pattern, not a number.

WORKED CASE 2 · EPINEPHRINE FOR A 3.5 KG NEWBORN

After 60 seconds of compressions with ventilation through a secure airway, the heart rate is still under 60. Epinephrine 0.02 mg/kg IV of the 0.1 mg/mL concentration is ordered.

STEP 1 · MULTIPLY

0.02 mg/kg × 3.5 kg = **0.07 mg**.

STEP 2 · CONVERT TO VOLUME

0.07 mg ÷ 0.1 mg/mL = **0.7 mL**.

STEP 3 · VOLUME EXPANDER IF NEEDED

10 mL/kg × 3.5 kg = 35 mL over 5 to 10 minutes.

STEP 4 · VERIFY

Two nurses check the weight, the vial concentration and the syringe volume aloud.

WORKED CASE 3 · SCORE THE APGAR

At 1 minute: heart rate 90, slow irregular breathing, some flexion, a grimace to suction, and a pink body with blue hands and feet.

STEP 1 · SCORE EACH SIGN

Pulse under 100 = 1. Respiration slow and irregular = 1. Tone some flexion = 1. Grimace = 1. Color with acrocyanosis = 1.

STEP 2 · ADD

1 + 1 + 1 + 1 + 1 = **5**.

STEP 3 · INTERPRET

4 to 6 is moderately depressed.

STEP 4 · REMEMBER THE ORDER

The heart rate under 100 already called for ventilation in the Golden Minute. The score describes; it does not start care.

WORKED CASE 4 · THE BLEEDING PATIENT AND THE SHOCK INDEX

Twenty minutes after birth, the measured loss is 900 mL and rising. Heart rate 122, BP 96/54, fundus boggy and deviated right.

STEP 1 · SHOCK INDEX

122 ÷ 96 = **1.27**, above the 0.9 level of concern.

STEP 2 · FIRST ACTION

Massage the fundus; it is both the assessment and the treatment for atony.

STEP 3 · NEXT

Empty the bladder (the deviation suggests it is full), call for help, check access, increase oxytocin, send labs and crossmatch.

STEP 4 · CHOOSE THE SECOND DRUG SAFELY

Check BP before methylergonovine; ask about asthma before carboprost. Escalate with SBAR and a specific request.

TRAPS PEOPLE FALL INTO

- **Worrying more about deep variables than about absent variability.** Variability trumps decelerations; absent variability means the reserve is gone.
- **Augmenting a hypertonic latent labor.** It gets worse. Use rest, hydration and analgesia.
- **Using misoprostol in a patient with a uterine scar.** It markedly raises the risk of rupture.
- **Waiting for pain to diagnose rupture.** The earliest sign is usually an abnormal fetal heart rate.
- **Rushing to cesarean during an eclamptic seizure.** Stabilize first; fetal bradycardia after a seizure usually recovers.
- **Treating magnesium as the antihypertensive.** It prevents seizures. Severe pressure needs labetalol, hydralazine or nifedipine.

Chapter 6 self-test · ten items

1. A fetal baseline of 170 has lasted 15 minutes. The patient has a temperature of 38.4. What is the most likely cause?

A. Maternal fever from infection
B. Head compression in descent
C. Hypotension after an epidural
D. A normal fetal sleep cycle

A. Maternal fever from infection Fetal tachycardia points first to maternal fever and intra-amniotic infection.

2. A deceleration drops abruptly 30 beats below baseline and recovers in 40 seconds with no fixed link to contractions. What is it?

A. A prolonged deceleration
B. A variable deceleration
C. An early deceleration
D. A late deceleration

B. A variable deceleration Abrupt onset under 30 seconds with variable timing reflects cord compression.

3. Which tracing is Category III?

A. Minimal variability for 30 minutes alone
B. Moderate variability with recurrent variables
C. Absent variability with recurrent late decels
D. Baseline 155 with accelerations present

C. Absent variability with recurrent late decels Absent variability plus recurrent late decelerations predicts abnormal acid-base status.

4. Tachysystole appears with a Category II tracing during oxytocin. What is the first action?

A. Start an amnioinfusion
B. Give an IV vasopressor
C. Increase the oxytocin rate
D. Stop the oxytocin infusion

D. Stop the oxytocin infusion The placenta refills between contractions; remove the cause first.

5. After the head delivers it retracts against the perineum. Which action is correct?

A. Firm downward head traction
B. Fundal pressure with traction
C. McRoberts with suprapubic pressure
D. Push the head back for cesarean

C. McRoberts with suprapubic pressure McRoberts plus suprapubic pressure resolves most cases; fundal pressure is contraindicated.

6. During a TOLAC the FHR drops to 80 and the presenting part is suddenly higher. What is suspected?

A. Normal descent
B. Uterine rupture
C. Placenta previa
D. Cord prolapse

B. Uterine rupture Sudden bradycardia with loss of station suggests rupture; prepare for immediate laparotomy.

7. A patient has an eclamptic seizure. What does the nurse do during the seizure?

A. Turn her to her side and protect her head
B. Insert a padded bite block between teeth
C. Check the fetal heart rate before anything
D. Restrain her arms and legs to the bed

A. Turn her to her side and protect her head Protect the airway and prevent injury; nothing in the mouth and no restraints.

8. A patient on magnesium has an epidural that blocks her knee reflex. How are reflexes checked?

A. Check the ankle reflex instead
B. Rely on the respiratory rate alone
C. Skip reflexes until the epidural ends
D. Use the biceps or brachioradialis reflex

D. Use the biceps or brachioradialis reflex An upper limb reflex keeps the early warning working.

9. A postpartum patient's fundus is firm and midline, but bright red bleeding continues. What is the likely cause?

A. A laceration in the birth canal
B. Uterine atony with a soft fundus
C. A distended bladder
D. Normal lochia rubra flow

A. A laceration in the birth canal If tone is good and bleeding persists, look for trauma.

10. A newborn's heart rate is 80 and breathing is weak at 30 seconds of life. What is the next step?

A. Start chest compressions at 3:1
B. Give epinephrine through the UVC
C. Begin positive-pressure ventilation
D. Assign the 1-minute Apgar score

C. Begin positive-pressure ventilation A heart rate under 100 or poor breathing calls for PPV; compressions only if under 60 after 30 seconds of effective ventilation.

ONE PAGE

Cram sheet

Everything from chapters 5 and 6 in one place. Cover the right column and see if you can rebuild each row.

Labor numbers

Item	Value	Note
Anterior fontanelle	Diamond, 4 to 5 cm, closes 12 to 18 months	Posterior closes at 2 to 3 months
Adequate contractions	200 or more Montevideo units	Sum of peak minus baseline in 10 min
Tachysystole	More than 5 in 10 min over 30 min	Placenta refills between contractions
Active phase	Starts about 6 cm	Arrest: no change 4 h adequate or 6 h inadequate
Second stage limit	3 h nullipara, 2 h multipara	Add 1 h with an epidural
Third stage	5 to 30 minutes	Inspect the placenta
Fourth stage checks	Every 15 min for 1 h, every 30 min for 1 h	Then hourly
FHR baseline	110 to 160; moderate variability 6 to 25	Accelerations 15 by 15 at 32 weeks

Sequences that save lives

Event	First action	Never
Rupture of membranes	Full minute of FHR	Chart fluid first
Worrying tracing	Stop oxytocin and reposition	Delay for oxygen mask
Epidural hypotension	Left uterine displacement	Start with vasopressor
Cord prolapse	Lift presenting part and keep hand there	Push cord back
Shoulder dystocia	McRoberts plus suprapubic	Fundal pressure
Magnesium toxicity	Stop infusion, then calcium gluconate 1 g	Antidote with drip running
Hemorrhage	Massage the fundus	Methylergonovine in hypertension
Newborn not breathing	PPV within the first minute	Wait for the Apgar

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