

NGN NCLEX 2026 · STUDY SERIES



Anesthesia & Sedation

Perioperative · Pharmacology · Clinical Judgment

Diane's NGN NCLEX 2026 Study Series — High-Yield Review

1 Definition / Overview

What is Anesthesia?

Controlled, reversible loss of sensation (with or without LOC) to prevent pain & movement during procedures. Achieved with IV agents, inhaled gases, regional blocks, or local agents.

What is Sedation?

A drug-induced depression of consciousness on a continuum — anxiolysis → moderate ("conscious") → deep → general anesthesia. The nurse anticipates the next level & prepares for airway compromise.

Why It Matters for NCLEX

These drugs blunt the body's protective reflexes (cough, gag, breathing drive). The nurse is the safety net — monitoring airway, BP, and LOC is the priority every time.

Where You'll See It

OR/PACU, endoscopy, cardiac cath, ICU intubation, ECT, conscious sedation for bedside procedures, and titrated infusions (Propofol, Versed, Precedex).

2 The Sedation Continuum (Mechanism)

Sedatives depress the CNS by enhancing **GABA** (the brain's "brake pedal"). As dose ↑, consciousness, airway reflexes, and respiratory drive ↓. **The patient can slide into a deeper level than intended at any moment.**

1

Minimal (Anxiolysis)

Awake. Normal verbal response. Airway, breathing, cardiovascular function unaffected.

← LOWER RISK · Awake

2

Moderate ("Conscious")

Purposeful response to verbal/tactile. Airway maintained. Spontaneous ventilation adequate.

3

Deep Sedation

Purposeful response only after repeated/painful stimulation. May need airway support.

4

General Anesthesia

Unarousable. No protective reflexes. Airway & ventilation must be supported.

HIGHER RISK · Apnea →

3 Types of Anesthesia

General Anesthesia **Full LOC**

- ▶ Complete loss of consciousness, sensation & reflexes
- ▶ Requires intubation/LMA & ventilation
- ▶ IV induction (Propofol, Etomidate) + inhaled maintenance (Sevoflurane, Desflurane)
- ▶ Risk: malignant hyperthermia, aspiration, hypotension

Regional Anesthesia **Awake**

- ▶ **Spinal:** intrathecal — fast, dense block for C-section, lower-extremity surgery
- ▶ **Epidural:** catheter in epidural space — labor, post-op pain
- ▶ **Nerve block:** targets specific nerve (e.g., brachial plexus)
- ▶ Risk: hypotension, spinal headache, total spinal block (respiratory arrest)

Local Anesthesia **Surface**

- ▶ Small infiltrated area (e.g., laceration repair, dental)
- ▶ Lidocaine ± epinephrine (do NOT use epi on fingers, toes, nose, ears, penis)
- ▶ Watch for systemic toxicity: tinnitus, metallic taste, seizures, arrhythmias

Moderate (Procedural) Sedation **Conscious**

- ▶ Endoscopy, colonoscopy, cardioversion, line placement
- ▶ Drugs: Versed + Fentanyl (most common combo); Propofol
- ▶ RN with ACLS training monitors continuously — capnography + SpO₂ + BP + ECG
- ▶ Reversal agents at bedside

4 Key Medications & Reversal Agents

Drug	Class / Use	Key Side Effects	Reversal
Midazolam <i>Versed</i>	Benzodiazepine · Anxiolysis, amnesia, status epilepticus, anesthesia induction	Respiratory depression, hypotension, paradoxical agitation. Monitor LOC.	Flumazenil (Romazicon)
Propofol <i>Diprivan</i>	Hypnotic · Sedation in ICU, induction, procedural sedation	Hypotension, apnea, Propofol Infusion Syndrome . Watch triglycerides & any "-ase" labs (CK, AST, ALT, lipase). Greenish urine (benign). Egg/soy allergy caution.	No reversal
Fentanyl <i>Sublimaze</i>	Opioid · Analgesia + sedation pairing	Respiratory depression, bradycardia, chest-wall rigidity (rapid push), pruritus	Naloxone (Narcan)
Ketamine <i>Ketalar</i>	Dissociative · Induction, refractory pain, status asthmaticus	↑ HR, ↑ BP, ↑ ICP, emergence delirium/hallucinations (pre-treat w/ benzo, keep room quiet)	No reversal
Dexmedetomidine <i>Precedex</i>	α-2 agonist · ICU sedation w/o intubation	Bradycardia, hypotension. Patient stays easily arousable.	No reversal
Etomidate <i>Amidate</i>	Induction agent · Hemodynamically stable choice (trauma, shock)	Adrenal suppression, myoclonus, N/V	No reversal
Succinylcholine <i>Anectine</i>	Depolarizing neuromuscular blocker · Rapid sequence intubation	Malignant hyperthermia trigger , hyperkalemia, prolonged apnea (pseudocholinesterase deficiency), fasciculations	No reversal
Rocuronium / Vecuronium	Non-depolarizing NMBA · Paralysis for surgery/intubation	Prolonged paralysis. Patient is awake unless sedated — ALWAYS pair with a sedative.	Sugammadex / Neostigmine
Inhaled Agents <i>Sevoflurane, Desflurane, Isoflurane</i>	Volatile gas · Maintenance of general anesthesia	MH trigger , hypotension, post-op shivering, PONV	—
Lidocaine	Local anesthetic · Infiltration, topical, IV antiarrhythmic	Systemic toxicity: <i>tinnitus, perioral numbness, metallic taste</i> → <i>seizures, cardiac arrest</i>	Lipid emulsion 20% (rescue)

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Complications: Early vs. Late

Early / Mild Warning Signs

- ⚠ SpO₂ trending down (e.g., 96 → 92%)
- ⚠ Rising EtCO₂ (capnography) — first sign of hypoventilation
- ⚠ ↓ RR or shallow breathing
- ⚠ Drowsiness deeper than ordered level
- ⚠ BP dropping > 20% from baseline
- ⚠ Restlessness, agitation (could be hypoxia!)
- ⚠ Nausea, shivering, urinary retention

Late / Severe — Act NOW

- 🚨 Apnea / no spontaneous breath
- 🚨 SpO₂ < 90% despite O₂
- 🚨 Unresponsive to sternal rub
- 🚨 Profound hypotension, bradycardia
- 🚨 Rigid jaw, masseter spasm (MH!)
- 🚨 ↑↑ EtCO₂ + rising temp (MH!)
- 🚨 Seizures (local anesthetic toxicity)
- 🚨 Cardiac arrest

RED FLAG: Malignant Hyperthermia (MH)

A genetic, life-threatening hypermetabolic crisis triggered by **succinylcholine** and **volatile inhaled anesthetics**. Always ask about family history of anesthesia complications.

EARLIEST SIGNS

- Rising end-tidal CO₂ (EtCO₂) — *FIRST sign*
- Masseter (jaw) rigidity
- Tachycardia, tachypnea
- Generalized muscle rigidity

LATER SIGNS

- Fever (LATE — up to 1°C every 5 min)
- Dark, tea-colored urine (myoglobinuria)
- Metabolic + respiratory acidosis
- Hyperkalemia, dysrhythmias

TREATMENT: Stop trigger agent → 100% O₂ → **Dantrolene** 2.5 mg/kg IV (re-bolus to 10 mg/kg) → cool the patient (cold saline, ice packs to groin/axilla, lavage) → treat hyperkalemia & dysrhythmias → ICU monitoring.

6 Priority Nursing Interventions (ABC)

A Airway

- ✓ Position: head tilt / jaw thrust / chin lift
- ✓ Suction equipment at bedside
- ✓ Oral or nasal airway ready
- ✓ Bag-valve-mask within reach
- ✓ Capnography for procedural sedation

B Breathing

- ✓ Continuous SpO₂ + RR monitoring
- ✓ Supplemental O₂ per protocol
- ✓ Reverse opioids → Naloxone
- ✓ Reverse benzos → Flumazenil
- ✓ Stay alert for *silent* hypoventilation

C Circulation

- ✓ BP q5 min during sedation, q15 in PACU
- ✓ ECG monitoring throughout
- ✓ IV access patent + IVF available
- ✓ Vasopressors (ephedrine, phenylephrine) ready
- ✓ Defibrillator/ACLS cart on the unit

Pre-Procedure

- Verify NPO status (usually 6–8 h solids, 2 h clear liquids)
- Consent signed BEFORE any sedative given
- Baseline VS, SpO₂, allergies, family Hx of MH
- Remove dentures, contacts, jewelry
- IV access established + patent

Intra-Procedure

- Continuous monitoring: BP, ECG, SpO₂, EtCO₂, LOC
- Document drug, dose, time, response q5 min
- Reversal agents drawn up & at bedside
- Time-out / surgical pause

Post / PACU (Phase I)

- VS q15 min × 4, then q30 min
- Aldrete score before transfer/discharge
- Pain control · PONV prophylaxis (ondansetron)
- Bladder scan if no void in 6–8 h
- Discharge criteria: VS stable, ambulating, voiding, alert, escort home

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NCLEX Test Traps ⚠️

✖ WRONG

"Fever is the first sign of malignant hyperthermia."

✔ RIGHT

Rising EtCO₂ is the earliest sign. Fever is LATE — by the time temp spikes, MH is well underway.

✖ WRONG

"Give Flumazenil to reverse Propofol."

✔ RIGHT

Propofol has NO reversal agent. Flumazenil reverses benzodiazepines (Versed). Naloxone reverses opioids (Fentanyl).

✖ WRONG

"Restless post-op patient — give more sedation."

✔ RIGHT

Restlessness = HYPOXIA until proven otherwise. Check SpO₂, airway, and breathing FIRST. Never sedate a restless patient before assessing oxygenation.

✖ WRONG

"Patient paralyzed with rocuronium — they're asleep, no sedative needed."

✔ RIGHT

Neuromuscular blockers **paralyze but do NOT sedate.** Patient is awake and aware — always give sedative + analgesic alongside.

✖ WRONG

"Sign the consent after the sedation is given."

✔ RIGHT

Consent must be obtained BEFORE any sedative. A sedated patient cannot give informed consent.

✖ WRONG

"COPD patient post-anesthesia — give high-flow O₂."

✔ RIGHT

COPD patients rely on a **hypoxic drive**. Titrate O₂ carefully — start low (1–2 L/min), watch the RR. High O₂ can cause apnea.

8

Patient & Family Education



NPO Instructions

No solids 6–8 h, no clear liquids 2 h before procedure. Chewing gum & hard candy count. If you slip up — tell the team.



Medication Review

Bring full list — including herbals, OTCs, ASA, anticoagulants. Anesthesia may want some held the morning of surgery.



Discharge Safety

You CANNOT drive, sign legal documents, or care for children for 24 h after sedation. Arrange an adult escort home.



Family History Matters

Report any family history of anesthesia complications, sudden surgical deaths, or "high fevers" during surgery — could signal MH risk.



What to Expect

Grogginess, mild sore throat (from airway), nausea, shivering, brief memory gap. All normal & temporary.



Call HCP If

Trouble breathing, chest pain, fever > 101°F, uncontrolled pain, persistent vomiting, dark urine, calf pain/swelling.

9 Memory Boosters & Mnemonics

MH Triggers — "Sucks & Gases"

SUX + -FLURANES

Suxcinyllcholine

Sevo**flurane**

Iso**flurane**

Des**flurane**

Treatment: **D**antrolene → "Dan stops the *damn* fire"

Reversal Pairs

N · F · S

Narcan ↔ **N**arcotics (opioids/Fentanyl)

Flumazenil ↔ Benzos (Versed) — "Flu-*menz*-enil"

Sugammadex ↔ Roc/Vec (non-depolarizing NMBA)

Propofol = **no reversal** — short half-life, time + support

Propofol — "MILK of Amnesia"

MILK

Milky white emulsion (egg/soy)

Infusion syndrome — watch CK, lipase, ABG

Low BP — fluid bolus ready

Keep tubing changed q12 h (infection risk)

Restless = Hypoxia

RACE

Restlessness

Agitation

Confusion

Elevated HR/RR

→ **Check O₂ FIRST, never sedate first**

Local Anesthetic Toxicity — "TIPS"

TIPS

Tinnitus / metallic taste

Irritability, perioral numbness

Paresthesias

Seizures → cardiac arrest

Rescue: **Lipid emulsion 20%**

Spinal Headache — "Flat & Fluids & Fix"

3 F's

Flat — supine, lie flat

Fluids — PO and IV hydration

Fix — caffeine, then blood patch if persistent

Cause: CSF leak from dural puncture

NCJMM Clinical Judgment Scenario

Six-Step Clinical Judgment Measurement Model · NGN 2026

CLIENT SCENARIO

A 42-year-old client is undergoing a colonoscopy with moderate sedation using Versed 2 mg IV and Fentanyl 50 mcg IV. Ten minutes into the procedure, the nurse notes: **SpO₂ 88% (was 98%), RR 6, BP 92/54, HR 48**. The client does not respond to verbal stimulation. EtCO₂ is rising. The patient is snoring.

1 Recognize Cues

Hypoxia (SpO₂ ↓88%), hypoventilation (RR 6, ↑ EtCO₂), hypotension (BP 92/54), bradycardia (HR 48), ↓ LOC (unresponsive to verbal), partial airway obstruction (snoring) — all on sedatives.

2 Analyze Cues

Combined Versed + Fentanyl = synergistic respiratory depression. Client has progressed from *moderate* to *deep* sedation with airway compromise. Reversible with antidotes.

3 Prioritize Hypotheses

#1 Airway/Breathing failure from over-sedation → must address now to prevent arrest. Hypotension & bradycardia are secondary to drug effect.

4 Generate Solutions

Stop the procedure · Open airway (jaw thrust) · 100% O₂ via BVM · Stimulate · Naloxone 0.4 mg IV (reverse Fentanyl) · Flumazenil 0.2 mg IV (reverse Versed) · Call rapid response · IVF bolus for BP.

5 Take Action

FIRST: Open airway + 100% O₂ + BVM ventilation. **NEXT:** Administer Naloxone (opioid likely the dominant cause of RR 6). Reassess; give Flumazenil if no improvement. Monitor for re-sedation — reversal agents have shorter half-lives than the drugs they reverse.

6 Evaluate Outcomes

Effective if: SpO₂ > 94%, RR ≥ 12, LOC returns, BP & HR normalize. Continue monitoring 2 h post-reversal for rebound sedation. Document event, drug doses, times, and patient response.