

Titration of IV Medications

Critical care drips · Vasoactives · Sedation · Antihypertensives · Insulin

● DEFINITION & OVERVIEW

- HCP does **not** set a fixed flow rate — nurse calculates and adjusts it
- Flow rate adjusted based on a prescribed formula tied to **critical parameters**
- Most commonly adjusted **hourly**
- Commonly called **"Drips"**

! IV pump is MANDATORY — no exceptions when titrating any medication.

● TITRATION PARAMETERS

Clinical values the nurse monitors to adjust the drip rate:

CARDIOVASCULAR
Blood pressure, pulse, HR

RESPIRATORY
Respiratory rate, SpO₂

RENAL
Urine output

NEUROLOGICAL
Level of consciousness

HEMODYNAMIC
Pressures (invasive monitoring)

OTHER
Labs, weight, reflex irritability

● DRUG REFERENCE — PHARMACOLOGY

Dopamine

Vasoactive / Vasopressor

TREATS **HYPOTension**

MONITOR Blood pressure

CAUTION Harmful to kidneys — avoid in CKD

! Do NOT use with CKD

Dobutamine (Dobutrex)

Inotrope / Vasoactive

TREATS **Heart failure** + raises BP

MONITOR BP + urine output

KIDNEYS? Safe — does NOT harm kidneys

"Dobutamine is safe for Urine"

Labetalol

Alpha/Beta Blocker · Antihypertensive

TREATS **HYPERtension**

MONITOR BP + heart rate

WATCH **Bradycardia risk**

Midazolam (Versed)

Benzodiazepine · Sedative

TREATS Anesthesia induction, severe seizures

MONITOR Level of consciousness (LOC)

CLASS **Sedation**

Propofol (Diprivan)

Anesthetic / Sedative

TREATS Sedation (ICU/procedural)

MONITOR Triglycerides + enzymes ending in **-ASE**

lipase, amylase, transaminase...

Insulin (Drip)

Hormone / Antidiabetic

TREATS Hyperglycemia / DKA

MONITOR Blood glucose levels

LINE **Dedicated line ONLY — no piggyback**

Nitroglycerin

Nitrate · Vasodilator

TREATS CHF post-MI Hypertension MONITOR Blood pressure, chest pain relief

● PRIORITY NURSING INTERVENTIONS

- **ALWAYS** use an IV pump — never gravity drip
- **Assess** parameters per the prescribed titration formula before adjusting
- **Adjust** flow rate hourly (most common frequency)
- **Monitor** drug-specific parameters continuously
- **Establish** dedicated IV line for insulin — no piggyback
- **Verify** renal function before starting Dopamine (check for CKD)
- **Document** every rate change with clinical rationale
- **Reassess** after each adjustment for therapeutic and adverse effects

● CLINICAL JUDGMENT (NCJMM)

1 Recognize Cues

Abnormal vitals, BP trending up/down, declining LOC, low urine output, elevated glucose, hemodynamic instability

2 Analyze Cues

Identify which parameter is out of range → identify responsible drip → compare current flow rate against the formula

3 Priority Action

Adjust drip rate per prescribed formula via IV pump. Notify HCP if outside ordered parameters or adverse effects occur

4 Expected Outcome

Parameter reaches therapeutic target range; adverse effects absent; patient hemodynamically stable

● NCLEX TEST TRAPS

- ✗ **Dopamine vs Dobutamine:** Dopamine harms kidneys; Dobutamine is kidney-safe. The "U" in Dobutamine = Urine is safe.
- ✗ **Insulin piggyback:** Insulin drip CANNOT be piggybacked. A dedicated IV site/line is required.
- ✗ **IV pump optional?** Never — any titrated drip requires an IV pump. There is no exception.
- ✗ **Propofol monitoring:** Also monitor **triglycerides** and all "-ase" enzyme labs — not just sedation level.
- ✗ **Labetalol:** Lowers BP but also drops HR — watch for bradycardia, not just hypotension.

● MEMORY BOOSTERS

THE "U" TRICK — DOPAMINE VS DOBUTAMINE

- **Dop** amine → No "U" → Bad for **Urine** (avoid CKD)
- **Dobu** tamine → Has "U" → Good for **Urine** (kidney-safe)

PROPOFOL — MONITOR ALL "-ASE" LABS

Propofol is a lipid emulsion → risk of pancreatitis and hyperlipidemia. Monitor: **lip-ASE, amyl-ASE, transamin-ASE** — any lab ending in "-ase."

QUICK-MATCH: DRUG → USE → MONITOR

DRUG	USE	MONITOR
Dopamine	HYPotension	BP
Dobutamine	HF / low BP	BP + urine
Labetalol	HYPERtension	HR + BP
Midazolam	Sedation/seizure	LOC
Propofol	Sedation	Triglyc + -ase
Insulin	Hyperglycemia	Blood glucose
Nitroglycerin	CHF/HTN	BP

