# Pharmacological and Parenteral Therapies

**Regulatory Exam, Practical Nurse (REx-PN)**

14 to 20% of the exam · 22 activity statements · 2027 REx-PN Test Plan

Pharmacological and Parenteral Therapies covers how the practical nurse reconciles, stores, checks, calculates, prepares, gives and evaluates medications by every route, and how the nurse monitors IV infusions, blood products, parenteral nutrition, pain control devices and subcutaneous infusions. REx-PN items test whether you apply the rights of medication administration, check the data that should stop a dose, calculate accurately in metric units, recognize a harmful response early and know when to consult the RN, the pharmacist, the primary health care provider or the employer's policy because parenteral scope differs by province, employer and individual competence.

**You should be able to:** After this guide you should be able to give any medication safely by the routes in the practical nurse's practice, calculate doses and flow rates in metric units, recognize transfusion, infusion and opioid complications early, and know when to stop, report or consult policy because parenteral scope varies.

## Every activity statement: the key point and the trap

### 1. Take part in reconciling a client's medications

Reconciliation compares what the client actually takes with what is prescribed now, at admission, transfer and discharge.

**Trap:** Assuming an omission on the admission prescriptions was intended and recording it that way instead of asking the prescriber.

### 2. Store and keep medications safe and secure

Medications are stored securely: carts and rooms locked, access limited to authorized staff.

**Trap:** Using a refrigerated product, such as a vaccine, that has been outside its temperature range before the excursion has been assessed.

### 3. Teach the client about their medications

The practical nurse teaches clients about medications within the plan of care: purpose, how and when to take it, key adverse effects and what to report.

**Trap:** Choosing a client statement that sounds positive but contains the unsafe practice, such as taking a medication with a food that blocks it.

### 4. Work out medication doses correctly

Use one method consistently: desired over have times quantity, or dimensional analysis.

**Trap:** Forgetting to convert micrograms to milligrams, or rounding partway through the calculation.

### 5. Check relevant data, such as allergies, labs and interactions, before giving a medication

Before each medication check allergies, the drug's purpose, contraindications and current data that could make the dose unsafe.

**Trap:** Giving the dose and planning to report the abnormal result afterward, or changing the dose without a prescription.

### 6. Prepare and give medications following the rights of administration

The rights: right client, drug, dose, route, time and documentation, plus right reason, right response and the right to refuse.

**Trap:** Accepting a yes to "Are you Mrs. Okafor?" or a room number as identification.

### 7. Watch a client who is receiving a blood product

Before a transfusion, two qualified people check the client's identity and the blood product at the bedside against the prescription.

**Trap:** Slowing the transfusion or treating the fever while the blood keeps running instead of stopping it.

### 8. Judge how the client responds to a medication

Evaluate each medication against its purpose: pain relief, lower blood pressure, easier breathing, more urine output, a normal glucose.

**Trap:** Choosing a side effect, such as a faster heart rate after salbutamol, as the sign the drug worked.

### 9. Handle or give controlled drugs as the law requires

Controlled substances are stored under double lock and handled according to federal law and facility policy.

**Trap:** Signing a count as correct or wasting a dose alone and planning to get a witness's signature later.

### 10. Watch IV infusions and look after the site

Check the IV site and infusion at set intervals and whenever the client reports discomfort: site, dressing, tubing, fluid, rate and volume infused.

**Trap:** Flushing or speeding up a slow infusion before checking the site for infiltration.

### 11. Use a peripheral IV access device

Before using a peripheral venous access device, check that it is patent and in the vein: no pain, no swelling and an easy flush.

**Trap:** Using a small syringe or more force to clear resistance, which can rupture the catheter or push a clot in.

### 12. Adjust a medication dose within ordered limits based on your assessment

A titration order gives a range and a target: a dose range for pain, a correction scale for glucose, or hold parameters for heart rate and blood pressure.

**Trap:** Giving a dose because one parameter is within limits while another listed parameter is outside its limit.

**13. Watch a client on parenteral nutrition and judge the response**

Parenteral nutrition runs on a pump at a constant prescribed rate through a dedicated lumen.

**Trap:** Increasing the rate to make up for time lost when the infusion was paused.

**14. Handle or give high-alert medications**

High-alert medications cause serious harm when given in error: insulin, heparin and other anticoagulants, opioids, concentrated electrolytes and some others.

**Trap:** Treating a second nurse who only watches or is told the dose as an independent double check.

**15. Give medications by mouth**

Check that the client can swallow safely and sit the client upright before giving oral medications.

**Trap:** Crushing a modified-release tablet into applesauce to make it easier to swallow.

**16. Give medications through a feeding tube**

Confirm tube placement according to policy before giving anything through the tube.

**Trap:** Adding crushed medications to the feeding bag to save time.

**17. Give injections under the skin, into the skin or into muscle**

Subcutaneous: 45 to 90 degrees depending on needle length and tissue; abdomen, thigh or upper arm; rotate sites.

**Trap:** Choosing the deltoid for a large intramuscular volume or massaging an intradermal or enoxaparin site.

**18. Give medications into the ear, eye or nose, by inhaler, rectally, vaginally or on the skin**

Eye: drop into the lower conjunctival sac without touching the eye, then gentle pressure on the inner corner; wait between different drops.

**Trap:** Pulling an adult's pinna down and back, or using the corticosteroid inhaler first or for acute symptoms.

**19. Give IV medications as a piggyback**

A secondary (piggyback) infusion runs through the primary line; its bag hangs higher than the primary bag.

**Trap:** Connecting a secondary medication labelled as incompatible with the primary fluid and watching for a precipitate.

**20. Work out and watch the IV flow rate**

Pump rate: mL/h = total volume (mL) / time (h).

**Trap:** Speeding up a behind-schedule infusion to finish on time, or rounding before the last step of the calculation.

**21. Look after pain control devices such as PCA pumps or nerve catheters**

Patient-controlled analgesia is safe because only the client presses the button; a drowsy client stops pressing.

**Trap:** Assuming the lockout makes it safe for someone other than the client to press the button.

**22. Start a subcutaneous infusion that runs continuously, keep it running and take it out**

A continuous subcutaneous infusion delivers fluids or medications, such as palliative symptom drugs, through a small cannula in the fatty tissue.

**Trap:** Placing the cannula in a swollen limb, or continuing an infusion at a site that is red, hard and leaking.

## Key terms

**Rights of medication administration:** Right client, drug, dose, route, time and documentation, plus right reason, right response and the right to refuse.

**Best possible medication history:** A complete list of what the client actually takes, built from at least two sources.

**Medication reconciliation:** Comparing the client's medication history with current prescriptions at each transition to catch discrepancies.

**High-alert medication:** A drug that causes serious harm when given in error, such as insulin, heparin, opioids and concentrated electrolytes.

**Independent double check:** A second qualified person verifies the prescription, product and dose on their own before comparing results.

**Drop factor:** The number of drops per mL a gravity tubing delivers, such as 10, 15, 20 or 60 gtt/mL.

**Secondary (piggyback) infusion:** An intermittent IV medication run through the primary line from a bag hung higher than the primary.

**Infiltration:** IV fluid leaking into surrounding tissue, shown by cool, pale, swollen skin.

**Phlebitis:** Inflammation of the vein, shown by redness, warmth, pain and a cord-like vein.

**Circulatory overload:** Fluid excess from an infusion or transfusion, with dyspnea, crackles and rising blood pressure.

**Parenteral nutrition:** Nutrients given intravenously through a dedicated central or peripheral line at a constant rate.

**Patient-controlled analgesia (PCA):** A pump that lets the client give themselves set opioid doses within programmed limits.

**Continuous subcutaneous infusion:** Fluids or medications infused steadily into fatty tissue through a small cannula (hypodermoclysis for fluids).

**Controlled substance:** A drug regulated by federal law, counted and signed for at every step, such as opioids.

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