

CLINICALJUDGE™ — NURSING EDUCATION PLATFORM

INTRADERMAL

SUBCUTANEOUS

INTRAMUSCULAR

INTRAVENOUS

NGN 2026

INJECTION ROUTES MASTER GUIDE

Complete reference for ID · SubQ · IM · IV — needle selection, angles, sites & lifespan considerations | NGN
NCLEX 2026 Ready

13 Sections Covered

All Developmental Stages

4 Routes

8 NCLEX Traps

Next-Gen Clinical Judgment

LEGEND

● Critical / Contraindicated ● Pathophysiology ● Safe / Expected ● Complications ● NCLEX Trap ● Medications ● Patient Education

● ID Route ● SubQ Route ● IM Route ● IV Route

03 ROUTE OVERVIEW — NEEDLE SPECS & TECHNIQUE

ID

INTRADERMAL

GAUGE
25-27 G

LENGTH
3/8-5/8"

ANGLE
10-15°

VOLUME
0.01-0.1 mL

KEY TECHNIQUE

- › Bevel **UP** — always
- › Do not aspirate
- › Expect a **wheal/bleb** to form (6-10mm)
- › Do **NOT** massage after injection
- › Use 1 mL tuberculin syringe

PRIMARY USES

- › TB skin test (TST/PPD)
- › Allergy testing
- › Local anesthetics
- › BCG vaccine (infants)

SUBQ

SUBCUTANEOUS

GAUGE
25-27 G

LENGTH
3/8-5/8"

ANGLE
45° or 90°

VOLUME
≤1 mL

ANGLE RULE

- › **45°** — thin/lean patients, short needles
- › **90°** — adequate adipose tissue
- › Pinch skin fold to elevate SubQ layer
- › Aspiration: **NOT** required (insulin/heparin)
- › Exception: EPINEPHrine — some sources aspirate

PRIMARY USES

- › Insulin injections
- › Heparin / LMWH (enoxaparin)
- › Some vaccines (MMR, varicella, flu)
- › Epinephrine auto-injector (EpiPen)

IM

INTRAMUSCULAR

GAUGE
18-25 G

LENGTH
1-3"

ANGLE
90°

VOLUME
1-5 mL

SITE VOLUMES (MAX)

- › Deltoid: **≤1 mL** (2 mL max adult)
- › Vastus Lateralis: **≤1 mL** infant; ≤5 mL adult
- › Ventrogluteal: **≤2.5-3 mL**
- › Dorsogluteal: **≤2-3 mL** (AVOID in infants)

Z-TRACK TECHNIQUE

- › Pull skin 2.5-3.5 cm laterally
- › Inject → wait 10 sec → withdraw
- › Release skin — seals medication
- › Used for: iron dextran, haloperidol

IV

INTRAVENOUS

GAUGE
14-24 G

LENGTH
3/4-1.25"

ANGLE
15-30°

VOLUME
Variable

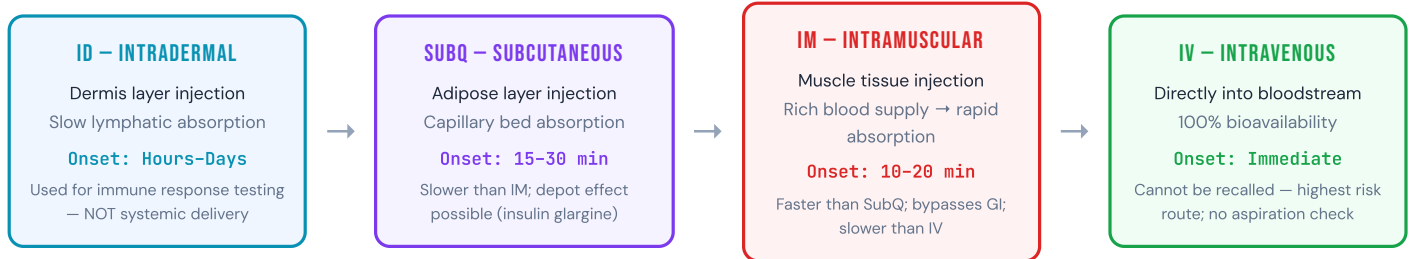
GAUGE SELECTION GUIDE

- › 14-16 G — Trauma, rapid infusion, blood
- › 18-20 G — General IV, blood products
- › 20-22 G — Most medications, fluids
- › 22-24 G — Peds, elderly, fragile veins

INSERTION SITES

- › Antecubital fossa (AC) — large, easy
- › Forearm cephalic/basilic veins
- › Dorsum of hand — smaller gauge
- › Foot/ankle veins — last resort adults
- › Scalp veins — neonates/infants

04 ABSORPTION PATHWAY — PHARMACOKINETICS BY ROUTE



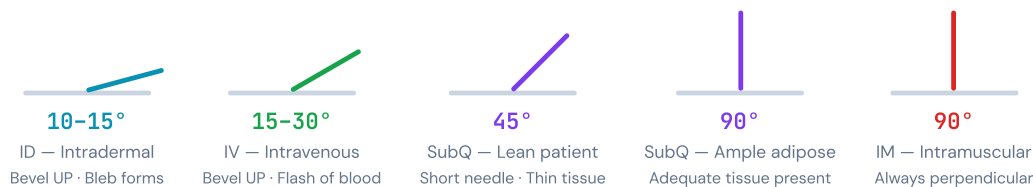
Absorption Speed Hierarchy: IV (immediate) > IM (10–20 min) > SubQ (15–30 min) > ID (hours–days, local effect only) | **NCLEX KEY:** IV medications cannot be retrieved — always double-check rate, concentration, compatibility BEFORE administering

05 INJECTION SITES BY LIFESPAN – ALL ROUTES & DEVELOPMENTAL STAGES

AGE GROUP	ID (INTRADERMAL)	SUBQ (SUBCUTANEOUS)	IM (INTRAMUSCULAR)	IV (INTRAVENOUS)
INFANT 0–12 months Needle: 22–25G · 5/8–1"	› Inner forearm (TST) › Upper chest/scapular region <i>Rarely used; BCG: deltoid or thigh</i>	› Anterior/lateral thigh (preferred) › Upper outer arm (if adequate tissue) Needle: 25–27G · 3/8–5/8" · 45–90° Avoid abdomen <2 yr	› Vastus lateralis ★ FIRST CHOICE › Middle third, anterolateral thigh › 22–25G · 5/8–1" · 90° NO deltoid <3 yrs NO dorsogluteal <3 yrs <i>Sciatic nerve too large relative to muscle mass</i>	› Scalp veins (neonates/young infants) › Foot/ankle veins › Antecubital fossa › Dorsum of hand 24G preferred; IO if emergent access fails
PRESCHOOL 1–5 years Needle: 22–25G · 5/8–1"	› Inner forearm (TST/Mantoux) › Upper back / upper chest	› Anterolateral thigh (preferred) › Upper outer arm (if adequate fat) <i>Pinch skin fold; 45–90° based on tissue</i>	› Vastus lateralis ★ Still preferred <3 yr › Deltoid — acceptable after age 3 if muscle adequate › 22–25G · 1" · 90° <i>Assess deltoid muscle mass before using</i>	› Antecubital fossa › Dorsum of hand › Forearm veins 22–24G; EMLA cream before insertion
SCHOOL AGE 6–12 years Needle: 22–25G · 1–1.25"	› Inner forearm (standard TST site)	› Anterolateral thigh › Upper outer arm (preferred if adequate fat) › Abdomen (insulin) <i>Rotate insulin sites within region</i>	› Deltoid ★ Preferred if adequate mass › Vastus lateralis (alternative) › 22–25G · 1–1.25" · 90°	› Antecubital fossa › Forearm / hand veins 20–22G; topical anesthetic recommended
ADOLESCENT 13–18 years Needle: 22–25G · 1–1.5"	› Inner forearm (volar surface)	› Upper outer arm › Abdomen (insulin — rotate) › Anterolateral thigh	› Deltoid ★ First choice (vaccines) › Ventrogluteal (larger volumes) › 22–25G · 1–1.5" based on body mass <i>BMI impacts needle length selection — always assess</i>	› Antecubital / forearm / hand veins 18–22G; privacy & consent important
ADULT 19–64 years Needle: 18–25G · 1–1.5"	› Volar forearm (inner) — standard TST › Upper chest/upper back	› Abdomen (2" from umbilicus — insulin) › Upper outer arm › Anterior/lateral thigh › Upper outer buttock	› Deltoid ★ Most vaccines (≤1 mL) › Ventrogluteal ★ Preferred large-volume › Vastus lateralis (self-inject) › Dorsogluteal (least preferred — sciatic risk) <i>Men: 1–1.5" Women: 1–1.5" based on adipose assessment</i>	› Antecubital fossa (AC) › Cephalic/basilic veins forearm › Dorsum of hand › Central line for irritants/long-term

AGE GROUP	ID (INTRADERMAL)	SUBQ (SUBCUTANEOUS)	IM (INTRAMUSCULAR)	IV (INTRAVENOUS)
OLDER ADULT 65+ years Special Considerations	▶ Volar forearm (inner) Skin thinner — assess carefully	▶ Abdomen (insulin — reduced adipose may alter absorption) ▶ Outer upper arm <i>Shorter needle if reduced adipose; monitor glucose closely — unpredictable absorption</i>	▶ Deltoid (vaccines — may need longer needle if obese) ▶ Ventrogluteal (large-volume) ▶ Assess muscle mass — may be decreased Reduced muscle mass → use shorter needle; risk incomplete absorption	▶ Forearm / antecubital ▶ Use smallest effective gauge Fragile veins — higher infiltration risk; avoid hand if possible
PREGNANT All Trimesters Special Considerations	▶ Volar forearm (TST safe in pregnancy) <i>PPD/TST recommended if TB exposure — safe all trimesters</i>	▶ Upper outer arm ▶ Anterior/lateral thigh AVOID abdomen — uterus displacement risk <i>Insulin: thigh preferred as abdomen grows; rotate sites</i>	▶ Deltoid ★ Preferred (flu, Tdap, COVID) ▶ Vastus lateralis (alternative) AVOID dorsogluteal — sciatic nerve compression risk in pregnancy Tdap: 27–36 weeks recommended	▶ Forearm / antecubital preferred ▶ Avoid lower extremities (DVT risk ↑) AVOID lower leg IV — DVT/thrombophlebitis risk in pregnancy

INJECTION ANGLES — VISUAL REFERENCE



05 EXPECTED VS. CRITICAL — SIGNS & SYMPTOMS POST-INJECTION

✓ EXPECTED / NORMAL FINDINGS

- ✓ Mild localized erythema at injection site (≤ 48 hrs)
- ✓ Transient burning or stinging during injection
- ✓ Small wheal/bleb after ID injection (6–10 mm) — confirms correct placement
- ✓ Mild swelling or tenderness at IM/SubQ site (≤ 72 hrs)
- ✓ Low-grade fever $\leq 101.3^{\circ}\text{F}$ (38.5°C) after immunizations in peds
- ✓ Localized bruising at heparin SubQ site
- ✓ IV insertion site mildly tender immediately post-insertion
- ✓ Flash of blood in IV chamber confirms venous placement
- ✓ Induration 48–72 hrs after TST — EXPECTED and read at 48–72 hrs
- ✓ Slight muscle soreness 24–48 hrs after IM injection

⚠ CRITICAL / REPORT IMMEDIATELY

- ⚠ Anaphylaxis: urticaria, angioedema, bronchospasm, hypotension — CALL RRT/code immediately
- ⚠ Sciatic nerve injury (IM dorsogluteal): foot drop, numbness, shooting pain down leg
- ⚠ IV infiltration: swelling, pallor, pain, absence of blood return — STOP infusion
- ⚠ IV extravasation (vesicant drug): blistering, tissue necrosis — emergency intervention
- ⚠ Air embolism (IV): sudden dyspnea, chest pain, cyanosis, "mill wheel" murmur
- ⚠ Hematoma: firm, painful swelling at injection site — do NOT massage
- ⚠ Sterile abscess: indurated, fluctuant, non-healing injection site
- ⚠ Lipodystrophy (insulin SubQ): firm irregular nodules from site repetition
- ⚠ Phlebitis: redness, warmth, cord-like vein — remove IV immediately
- ⚠ Severe induration >15 mm TST in immunocompromised — high-risk positive result

06 NEEDLE SELECTION QUICK REFERENCE — GAUGE, LENGTH & NCLEX SIGNIFICANCE

ROUTE	GAUGE	LENGTH	SYRINGE TYPE	ASPIRATION?	NCLEX SIGNIFICANCE	PRIORITY
ID	25–27 G	3/8–5/8"	Tuberculin 1 mL	NO	Bevel UP always; bleb must form to confirm correct placement; do NOT rub	HIGH

ROUTE	GAUGE	LENGTH	SYRINGE TYPE	ASPIRATION?	NCLEX SIGNIFICANCE	PRIORITY
SubQ Insulin	25–28 G	4mm–1/2"	Insulin syringe (U–100)	NO	DO NOT aspirate insulin — increases bruising; pinch skin fold; rotate sites	HIGH
SubQ Heparin	25–27 G	3/8–5/8"	Prefilled or 1–3 mL	NO	Do NOT aspirate, do NOT massage — causes hematoma; abdominal sites preferred	HIGH
IM Vaccines (Adult)	22–25 G	1–1.5"	1–3 mL	NO (2020 CDC)	CDC 2020: aspiration NOT recommended for vaccines; use correct needle length for BMI	HIGH
IM Vaccines (Infant)	22–25 G	5/8–1"	1–3 mL	NO	Vastus lateralis ONLY; hold limb firmly; 90°; brief hold after injection	HIGH
IM Z-Track	19–23 G	1.5–2"	2–5 mL	YES (some meds)	Iron dextran, hydroxyzine, haloperidol; pull skin laterally 2–3 cm; release after 10 sec hold	HIGH
IV Peripheral (Adult)	18–20 G	1–1.25"	None (catheter)	Flash back confirms	Blood flash in chamber confirms venous placement; secure before use; check for patency	HIGH
IV Peripheral (Peds)	22–24 G	3/4–1"	None (catheter)	Flash back confirms	Scalp veins in infants; EMLA cream before insertion; secure IV board if needed	HIGH
IV Trauma/Rapid Infusion	14–16 G	1.25"	None (large bore catheter)	Flash back confirms	Largest gauge = fastest flow; needed for blood products, rapid fluid resuscitation	HIGH
IM Obese Adult (CDC)	22–25 G	1.5" (women) 1.5" (men)	1–3 mL	NO	CDC 2020: obese women >200 lbs → 1.5"; men >260 lbs → 1.5"; confirm muscle depth	MED

07 PRIORITY NURSING LADDER — PRE/INTRA/POST INJECTION ACTIONS

- Verify 10 Rights of Medication Administration BEFORE any injection**
 Patient, Drug, Dose, Route, Time, Reason, Documentation, Response, Form, Right to Refuse — verify ALL ten before drawing up medication. Check allergy history specifically for anaphylaxis risk with this medication class.
- Select the CORRECT site based on developmental stage, medication, and volume**
 Infant → Vastus lateralis first; Adults → Deltoid (vaccines), Ventrogluteal (larger volumes); Pregnant → Deltoid only; Avoid dorsogluteal in all peds and pregnant patients. Never use a site with bruising, edema, or lesions.
- Select correct needle gauge and length based on route and patient body habitus**
 ID: 25–27G, 3/8–5/8" | SubQ: 25–27G, 3/8–5/8" | IM: 22–25G, 1–1.5" based on BMI/muscle depth | IV peripheral: 18–24G based on need. Too short = wrong tissue layer. Too long = periosteum injury risk.
- Apply aseptic technique — clean site with alcohol swab; air-dry 30 seconds**
 Use 70% isopropyl alcohol or chlorhexidine wipe in outward circular motion. Allow to air-dry completely before injection — alcohol in tissue causes burning and may affect medication stability. Never fan or blow to dry.
- Administer at correct angle and depth; do NOT aspirate unless indicated**
 ID: 10–15°, bevel up | SubQ: 45–90° | IM: 90° | IV: 15–30°. Aspiration NOT recommended for vaccines (CDC 2020), insulin, or heparin. Aspirate per policy for select IM medications (e.g., Z-track drugs). Inject slowly and steadily.
- Post-injection care and site assessment**
 Apply gentle pressure with dry gauze (NOT alcohol — avoids medication absorption interference). Do NOT rub after ID or heparin injections. Never recap needle — activate safety mechanism immediately. Dispose in sharps container. Document route, site, lot number (vaccines).

7 Monitor for adverse reactions — minimum 15–30 minutes post-immunization

Observe for anaphylaxis (urticaria, dyspnea, hypotension, angioedema). Keep epinephrine 1:1000 immediately available. VAERS reporting required for vaccine adverse events. Read TB TST results at 48–72 hours — do NOT read earlier or later.

08 IF → THEN CLINICAL DECISION RULES

IF

No wheal/bleb forms after ID injection



THEN

Injection was too deep (subcutaneous or IM layer). Do NOT re-inject same site. Document, notify provider, and repeat at new site with correct technique (bevel up, 10–15°).

IF

Infant requires IM injection and no site specified by order



THEN

Select vastus lateralis (anterolateral thigh) automatically for any child <3 years. Deltoid is not appropriate — insufficient muscle mass and proximity to radial nerve.

IF

IV site shows swelling, pallor, pain without blood return



THEN

STOP infusion immediately — this is IV infiltration. Discontinue IV catheter, elevate extremity, apply warm or cold compress per policy. Document and restart IV at new site proximal to or on opposite limb.

IF

Vesicant drug extravasates into tissue (e.g., doxorubicin, vancomycin)



THEN

STOP immediately — do NOT remove catheter yet. Aspirate residual drug from catheter, then remove. Apply antidote per protocol (e.g., dexrazoxane for anthracyclines, hyaluronidase for others). Mark infiltration borders. Notify provider STAT.

IF

Patient (adult) reports sciatic-type pain after IM injection



THEN

Suspect sciatic nerve injury (most common with dorsogluteal site). Stop injection if still in progress. Assess for motor deficit (foot drop). Document, notify provider. Avoid dorsogluteal site — switch to ventrogluteal or deltoid.

IF

Pregnant woman needs IM injection for a larger volume medication



THEN

Use deltoid (1st choice) or vastus lateralis. AVOID dorsogluteal — sciatic nerve is more vulnerable due to uterine displacement of the nerve's anatomical path. Document site, lot number, and patient tolerance.

IF

Insulin-dependent diabetic patient reports lipodystrophy (firm nodules) at injection sites



THEN

Rotate injection sites systematically within approved regions (abdomen, thigh, arm). Injecting into lipodystrophic tissue causes erratic absorption and poor glucose control. Educate patient on rotation pattern. Avoid affected site for 2–4 weeks.

IF

TST (Mantoux) induration measures 10 mm at 48–72 hours in a healthcare worker



THEN

This is a POSITIVE result for healthcare workers (threshold ≥10 mm). Document measurement — induration only, not redness/erythema. Refer to provider for follow-up chest X-ray and IGRA/LTBI evaluation. No repeat test needed.

09 8-TRAP NCLEX PITFALL GRID — HIGH-YIELD INJECTION MISCONCEPTIONS



1

TRAP 1 — Aspiration for Vaccines

Many students aspirate before ALL IM injections. **CDC 2020 guidelines specifically state: do NOT aspirate before vaccine administration.** Aspiration increases pain, does not



2

TRAP 2 — Deltoid in Infants

Students often select deltoid for IM in infants. **Deltoid is CONTRAINDICATED <3 years old** — inadequate muscle mass and proximity to radial nerve. Vastus



3

TRAP 3 — Rubbing After ID/Heparin

A common NCLEX trap: rubbing/massaging after intradermal injection or heparin SubQ injection. **NEVER massage after ID injection**



4

TRAP 4 — TST Reading Timing

Students read TST (PPD) results immediately or at 24 hours. **TST must be read at 48–72 hours ONLY.** Earlier readings are inaccurate and false-negative. Measure INDURATION

prevent intravascular injection in recommended IM sites, and is no longer evidence-based.

NCLEX Key: No aspiration before vaccines

lateralis is always the FIRST CHOICE for infants through toddlers receiving IM injections.

NCLEX Key: Infant IM = Vastus lateralis

— destroys the wheal and invalidates TST reading. **NEVER massage heparin** — causes hematoma and altered absorption.

NCLEX Key: No massage = ID & Heparin

(raised, palpable hardness) — NOT redness/erythema. Measure in millimeters transversely.

NCLEX Key: TST read = 48–72 hrs, induration only



5

TRAP 5 — Dorsogluteal Safety Myth

Historically taught as a primary IM site. **Dorsogluteal (DG) is now LEAST preferred** due to proximity to sciatic nerve, superior gluteal artery, and thick adipose layer (may deposit in fat, not muscle). Never use in infants, toddlers, or pregnant patients.

NCLEX Key: Ventrogluteal > Dorsogluteal



6

TRAP 6 — Bevel Direction Confusion

Students confuse bevel direction for different routes. Rule: **Bevel UP for all parenteral routes (ID, SubQ, IM, IV)** when inserting. The bevel must face up during ID to ensure medication deposits in the dermis and the wheal forms correctly at the bevel tip.

NCLEX Key: Bevel UP = all injection routes



7

TRAP 7 — SubQ Abdomen in Pregnancy

Students select abdominal SubQ for insulin in pregnant women without thinking about trimester. **Avoid abdomen for SubQ in advancing pregnancy** — uterus displaces subcutaneous layer, reduces consistency of absorption, and risks uterine proximity. Switch to thigh or arm.

NCLEX Key: Pregnant + insulin = thigh/arm preferred



8

TRAP 8 — IV Gauge & Flow Rate

Students think higher gauge = faster flow. **OPPOSITE is true: lower gauge number = larger lumen = faster flow rate.** A 14G IV flows faster than a 22G. For trauma, blood, or rapid resuscitation, always use the LOWEST available gauge. A 24G is too small for blood products.

NCLEX Key: ↓ Gauge number = ↑ lumen = ↑ flow rate

10 NGN NCLEX PATTERNS — QUESTION ARCHETYPES & KEYS

PRIORITIZATION

"A nurse is administering multiple injections to a 6-month-old. Which site should the nurse select for the IM vaccine?"

✓ **Vastus lateralis (anterolateral thigh)**

Deltoid not appropriate <3 yrs. Dorsogluteal contraindicated in infants. Vastus lateralis has largest muscle mass in this age group.

SAFETY / ACTION

"After administering heparin subcutaneously, the nurse should take which action?"

✓ **Apply gentle pressure — do NOT massage**

Massaging heparin SubQ sites causes hematoma formation and alters absorption. Gentle pressure only with dry gauze.

ASSESSMENT (NGN)

"A client's IV infusion site shows: swelling, skin cool and pale, client reports pain. Which action is priority?"

✓ **Stop the infusion — IV has infiltrated**

Classic infiltration triad: swelling + pallor + pain + absence of blood return. Stop infusion first, then assess and restart.

TECHNIQUE

"The nurse administers an ID injection. Which finding indicates correct technique?"

✓ **A 6–10 mm wheal (bleb) forms at injection site**

Wheal formation confirms medication deposited in dermis. Absence of wheal means too deep. No aspiration, no massage.

KNOWLEDGE (NGN)

"Which gauge catheter is most appropriate for a client in hypovolemic shock requiring rapid fluid resuscitation?"

✓ **14 or 16 gauge large-bore IV catheter**

Lower gauge = larger lumen = faster fluid delivery. Two large-bore IVs recommended per ACLS for rapid resuscitation.

DEVELOPMENTAL

"A pregnant client at 32 weeks needs the influenza vaccine IM. Which site does the nurse select?"

✓ **Deltoid muscle**

Deltoid is first choice in pregnancy. Dorsogluteal avoided due to sciatic nerve vulnerability. Abdomen avoided due to uterus.

TST INTERPRETATION

"A TB test is administered and read at 48 hours. The nurse measures a raised, hard area of 12mm. Which is the correct interpretation for a healthcare worker?"

✓ **Positive — induration ≥10 mm = positive for HCW**

HCW threshold = 10mm. Immunocompromised = 5mm. General population = 15mm. Measure induration only, not erythema.

Z-TRACK METHOD

"The nurse is administering iron dextran IM using Z-track. Which sequence is correct?"

✓ **Pull skin laterally → inject → hold 10 sec → withdraw → release skin**

Z-track seals medication in muscle, prevents tissue staining and irritation (iron dextran stains skin permanently). Do not massage.

CUES (NGN)

"An older adult receiving IV fluids develops redness, warmth, and a cord-like feel along the vein. What action should the nurse take?"

✓ **Remove IV catheter — this is phlebitis**

Phlebitis triad: redness, warmth, palpable cord along vein ± pain. Remove IV, apply warm compress, restart in different vein.

11 NGN BOW-TIE — CLINICAL JUDGMENT SUMMARY

NGN CLINICAL JUDGMENT MODEL — INJECTION ROUTE SAFETY

BOW-TIE A: IV INFILTRATION

POTENTIAL CONDITIONS



EXPECTED OUTCOMES

NURSING ACTIONS

STOP INFUSION · ASSESS · REMOVE CATHETER · ELEVATE · ANTIDOTE IF VESICANT

IMMEDIATE

Infusion stopped; no further tissue damage; site assessed

SHORT-TERM

New IV established; medication delivery resumed safely

LONG-TERM

No tissue necrosis; documentation and SBAR report completed

CUE

IV site swelling, pale skin, absent blood return, client pain at insertion site

RISK FACTOR

Small veins, elderly patient, vesicant medication running

CONDITION

IV Infiltration / Extravasation

BOW-TIE B: POST-INJECTION ANAPHYLAXIS

POTENTIAL CONDITIONS

CUE

Urticaria, angioedema, dyspnea, hypotension within 30 min post-injection

CONDITION

Anaphylaxis — Type I IgE-mediated hypersensitivity reaction

RISK

Prior allergic reaction, penicillin allergy, latex allergy, bee sting allergy

PRIORITY ACTIONS

EPINEPHRINE 0.3MG IM (THIGH) · CALL RRT · O₂ · IV ACCESS · SUPINE · DIPHENHYDRAMINE

EXPECTED OUTCOMES

IMMEDIATE

EpiPen administered; airway maintained; BP stabilizing

SHORT-TERM

Symptoms resolve; transferred to higher level of care

PREVENTION

Allergy documented; MedAlert bracelet; auto-injector Rx; VAERS filed

12 PATIENT EDUCATION CHECKLIST – BY ROUTE

INTRADERMAL (ID)

- A small raised bubble (wheal) will form — this is normal and expected
- Do NOT rub or scratch the injection site
- Return in 48–72 hours for TST reading — NOT before
- Redness alone does not mean a positive result — hardness (induration) is what is measured
- A positive result does NOT mean you have active TB — further testing is needed
- Inform provider if you've had BCG vaccine previously — may cause false positive

SUBCUTANEOUS (SUBQ)

- Rotate injection sites every time — use a pattern (clock method or grid)
- Avoid injecting into areas with lumps, scar tissue, or bruising
- For insulin: inject at the same time of day; do not skip meals after rapid-acting insulin
- Keep insulin at room temperature before injection — cold insulin burns
- Monitor blood glucose as directed; know signs of hypoglycemia
- Do NOT share needles or pens with anyone, even family members
- Dispose of sharps in approved sharps container — never in household trash

INTRAMUSCULAR (IM)

- Mild soreness, swelling, or redness at injection site is normal for 1–3 days
- Apply cool compress to reduce swelling; warm compress after 24 hrs for muscle soreness
- Notify nurse if you have numbness, shooting pain, or weakness after injection
- After immunizations: stay in clinic for 15–30 minutes to be monitored
- Low-grade fever after childhood vaccines is normal — use acetaminophen as directed
- Do NOT give aspirin to children under 18 for post-vaccine fever (Reye's syndrome risk)

INTRAVENOUS (IV)

PEDIATRIC FAMILY EDUCATION

PREGNANT PATIENT EDUCATION

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> • Report any pain, burning, swelling, or coolness around your IV site immediately • Do not bend your arm if IV is in the antecubital fossa — it can occlude the line • Call the nurse before removing or adjusting IV tubing or pump settings • Keep IV site dry and covered — protect during bathing • Tell your nurse about any metal taste, flushing, or throat tightening during infusions • IV catheters are typically changed every 72–96 hours or per clinical indication | <ul style="list-style-type: none"> • Offer comfort positioning (upright hold, breastfeeding, skin-to-skin) during injections • Sweet-tasting solutions (sucrose) reduce pain in infants <6 months during injections • Expect your child to cry — this is normal and does not mean harm occurred • Do NOT give ibuprofen BEFORE vaccines — may reduce immune response • Febrile seizures: rare, not harmful; call if fever >104°F or seizure occurs • Keep immunization record (yellow card or MyIR) updated at all times | <ul style="list-style-type: none"> • Influenza vaccine is safe and recommended every trimester — protects you and baby • Tdap vaccine is recommended at 27–36 weeks to transfer antibodies to the fetus • Insulin sites should move from abdomen to thigh as pregnancy advances • Report any injection site pain that is unusual or prolonged immediately • Do NOT receive live vaccines (MMR, varicella) during pregnancy • IV access during labor is important — inform staff of any difficult venous access history |
|---|--|--|

13 PDF EXPORT INSTRUCTIONS & FOOTER

PDF EXPORT INSTRUCTIONS — FOR BEST PRINT QUALITY

- 1 Open this file in **Google Chrome** or **Microsoft Edge** (Firefox may not render background colors)
- 2 Press **Ctrl + P** (Windows) or **⌘ + P** (Mac) to open Print dialog
- 3 Set destination to "**Save as PDF**"
- 4 Under "More settings" → Set scale to **65–70%** to fit all content on fewer pages
- 5  Enable "**Background graphics**" — required for color-coded cards and headers
- 6 Set margins to **Minimum or None** for best use of page space
- 7 Click **Save / Print** — File will be saved as a high-quality PDF study card

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TOPIC: INJECTION ROUTES | 13 SECTIONS COVERED

ID · SubQ · IM · IV | All Developmental Stages

Infants · Preschool · School Age · Adolescents · Adults · Elders · Pregnant