



Handout for Doctors

Needle Prick Injury, Basic Life Support, CPR, and Medical Emergency Management

1. Needle Prick Injury (NPI) Management

Definition: Accidental puncture of the skin by a used needle or sharp object, potentially transmitting blood-borne pathogens (HIV, HBV, HCV).

A. Immediate Steps (FIRST AID)

1. **Stop the ongoing procedure safely**
2. **Do NOT squeeze the wound** – encourages deeper inoculation.
3. **Wash immediately** with running water and soap. Avoid harsh scrubbing.
4. **Apply antiseptic** (e.g., 70% alcohol or povidone-iodine).
5. **Report immediately** to infection control/occupational health department.

B. Risk Assessment

- **Type of exposure:** Percutaneous, mucous membrane, or non-intact skin.
- **Type of fluid:** Blood, serum, CSF, semen, vaginal secretions.
- **Infectious status of the source patient** (HIV, HBsAg, HCV).
- **Depth and nature of injury.**

C. Post Exposure Prophylaxis (PEP)

HIV

- **Start as soon as possible**, ideally within 2 hours (maximum 72 hours).
- **Regimen (Adults):**
 - **Tenofovir 300 mg + Lamivudine 300 mg + Dolutegravir 50 mg** — once daily for 28 days.
- Baseline HIV testing and follow-up at 6 weeks, 3 months, 6 months.

HBV

- If unvaccinated: **Hepatitis B vaccine series + Hepatitis B Immunoglobulin (HBIG)** within 24 hours.
- If vaccinated: Check Anti-HBs antibody titre. Booster if <10 mIU/mL.

HCV

- No effective PEP; monitor Anti-HCV and liver enzymes.
-

2. Basic Life Support (BLS) & CPR

Chain of Survival:

1. Early recognition & activation of emergency response.
2. Early CPR.
3. Rapid defibrillation.
4. Advanced life support.
5. Post-cardiac arrest care.

Adult BLS Sequence (CAB Approach)

1. **Check responsiveness & breathing** — call for help, activate Code Blue.
 2. **Compressions:**
 - Depth: 5–6 cm, rate: 100–120/min, allow full recoil.
 - Ratio: **30 compressions : 2 breaths** (with or without advanced airway).
 3. **Airway:** Head tilt–chin lift or jaw thrust if trauma.
 4. **Breathing:** Give 2 rescue breaths (1 second each, chest rise visible).
 5. **Defibrillation:** AED as soon as available.
-

3. Medical Emergencies & Management in Hospital

A. Anaphylaxis

- **Signs:** Hypotension, bronchospasm, urticaria, angioedema.
- **Drug of choice: Adrenaline (Epinephrine) 1:1000**, 0.5 mg IM (mid-anterolateral thigh) every 5–15 min as needed.
- **Adjuncts:** Oxygen, IV fluids, antihistamines, corticosteroids.

B. Hypoglycemia

- **Conscious:** 15–20 g oral glucose.
- **Unconscious:** 50 mL of 50% dextrose IV bolus or **Glucagon 1 mg IM/SC**.

C. Myocardial Infarction

- MONA protocol: **Morphine, Oxygen, Nitrates, Aspirin**.
- Aspirin: 325 mg chewable immediately.
- GTN: 0.5 mg sublingual (avoid if hypotensive).

D. Seizures

- Protect airway, prevent injury.
- **Diazepam 5–10 mg IV slowly** or **Midazolam 0.2 mg/kg buccal/intranasal**.

E. Asthma Attack

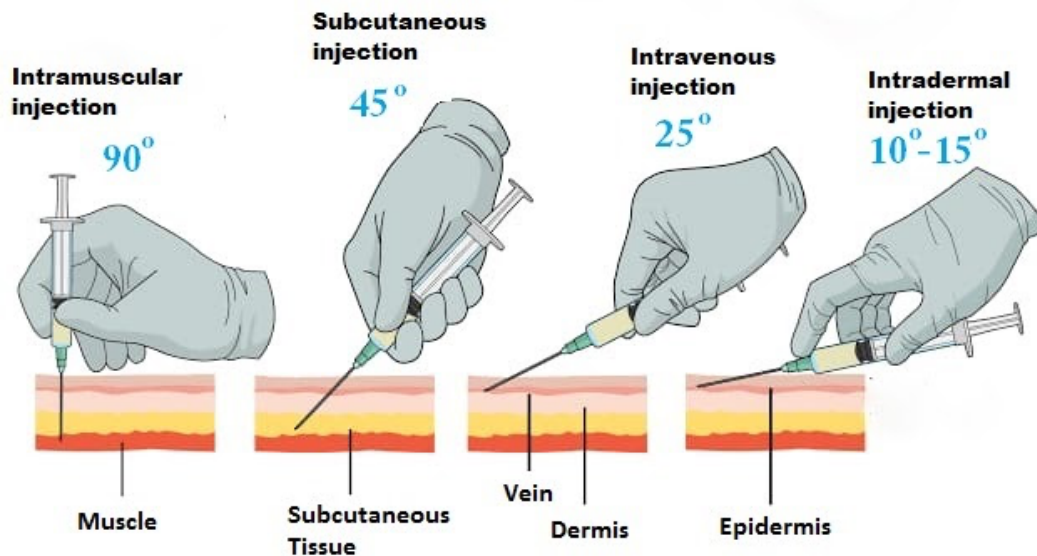
- Salbutamol nebulization (2.5 mg in 3 mL saline) every 20 min × 3 doses.
- Oxygen to keep SpO₂ >94%.
- IV hydrocortisone 100 mg.

4. Emergency Drugs – Adult Dosages & Routes

Drug	Indication	Dose	Route
Adrenaline 1:1000	Anaphylaxis	0.5 mg	IM
Adrenaline 1:10,000	Cardiac arrest	1 mg	IV/IO every 3–5 min
Amiodarone	VF/VT refractory	300 mg bolus, then 150 mg	IV/IO
Atropine	Bradycardia	0.5 mg every 3–5 min (max 3 mg)	IV
Nitroglycerin	Chest pain	0.5 mg	Sublingual
Aspirin	Suspected MI	325 mg chewable	Oral
Glucose (50% dextrose)	Hypoglycemia	50 mL	IV
Glucagon	Hypoglycemia (no IV)	1 mg	IM/SC
Diazepam	Seizures	5–10 mg	IV slow push
Midazolam	Seizures, sedation	0.2 mg/kg	Buccal, intranasal
Hydrocortisone	Severe allergy/asthma	100 mg	IV
Salbutamol	Bronchospasm	2.5 mg	Nebulized

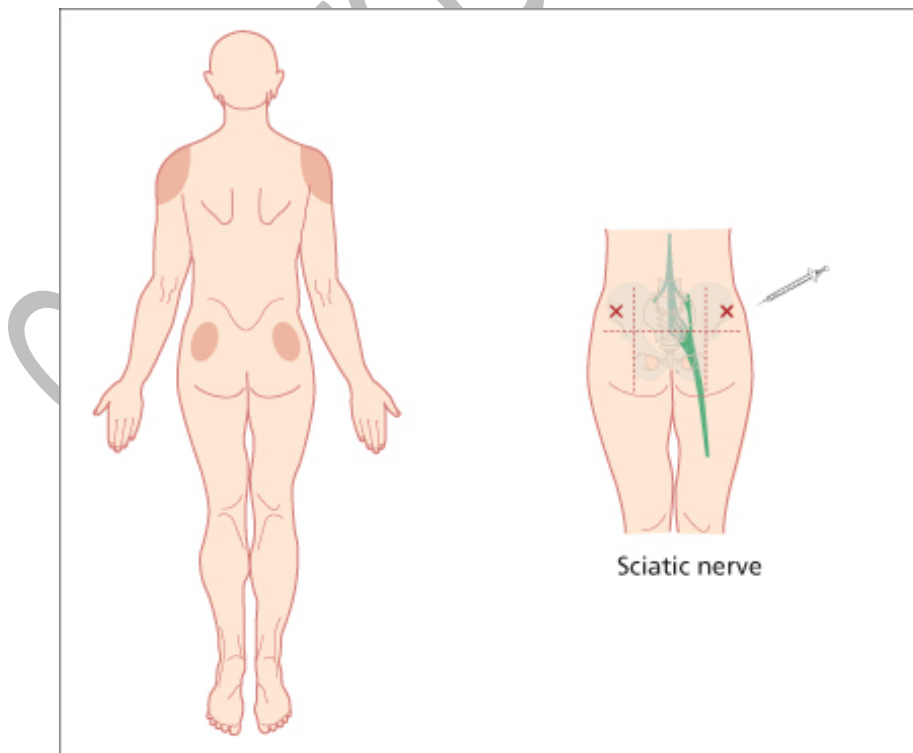
6. Injection Techniques for Emergency Drugs

Angle for Administration of Injection



IM (Intramuscular):

- Site: Mid-anterolateral thigh (vastus lateralis) — e.g., adrenaline in anaphylaxis.
- Needle: 22–25 gauge, 1"–1.5" length (adjust per patient size).
- Angle: 90°.



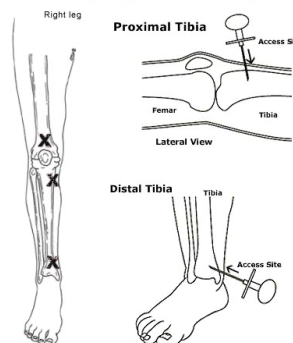
IV (Intravenous):

- Site: Peripheral vein (antecubital, dorsal hand).
- Flush with normal saline before and after drug administration.
- Administer at recommended rate — some drugs need slow push to avoid adverse effects.



IO (Intraosseous):

- Used in cardiac arrest if IV access not possible.
 - Site: Proximal tibia, humeral head.
- Identify the appropriate site
 - Proximal tibia: Anteromedial surface, 2-3 cm below the tibial tuberosity
 - Distal tibia: Proximal to the medial malleolus
 - Distal femur: Midline, 2-3 cm above the external condyle



Sublingual (SL):

- Place drug under tongue — rapid absorption (e.g., GTN).

Nebulization:

- Drug diluted with normal saline, given via oxygen-driven nebulizer mask.

ESPECIALLY MADE FOR THE GENERAL DENTISTRY COURSE AT ODONTOS.