Introduction to IV Therapy

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Important

- It is West Virginia State Law that nursing students (LPN and RN) are forbidden to start IVs or draw blood samples on patients

- Taking this class does NOT permit you to start IVs or draw blood samples

- As a student, you are only permitted to discontinue IVs per physician orders under the supervision of your clinical instructor
IV Basics

• Intravenous Access
  – Blood Draws
  – Medications
  – Nuclear Medicine / Radiology
Types of IV Access

• Ordered by MD/DO/NP/PA
  – Almost always need an order first
• ER / ICU Nurses often make determination prior to written orders
  – Standard IV Access Only
  – Usually standing orders or emergencies
  – Experience
    • Physicians back up decisions
  – Nurses often recommend IV Access type to ordering provider
Types of IV Access

• RN or LPN
  – Standard IV Access

• RN or Provider
  – External Jugular
  – PICC
  – Intraosseous
  – RNs only permitted by state and hospital regulations
    • Specialty IV Therapy RNs
    • Flight Nurses

• Physician / Radiologist
  – Central
    • Femoral
  – Hickman
  – Port
Types of IV Access
Types of IV Access

- **Peripheral IV**
  - Saline Lock / Heparin Lock
  - ‘Standard’ IV Access
  - Common Sites
    - Hand
    - Arm
    - Head (new borns / infants)
  - Less Common
    - Neck
    - Foot
    - Distal Chest
Types of IV Access

• PICC Line
  – May be inserted by RN (certified / permitted)
  – Ultrasound Guidance
  – Incision in arm
  – Moderate time frame use
    • Chemo
    • Poor Vascular Access
      – Hx. of long term IV therapy, IV drug abuse
  – Draw Blood from line
Types of IV Access

• Hickman
  – Tunneled IV Catheter
  – Interventional Radiologist Insertion
  – Moderate time frame use
  – Draw blood from line
• Groshong Catheter
  – Tunneled
  – Interventional Radiology insertion
  – Moderate Time Frame
  – Draw Blood From Line
  – Very Similar to Hickman
Types of IV Access

• Port Access
  – Surgical or Interventional Radiology Insertion
  – Long Term Use
  – Draw Blood from site
  – Use Huber Needle to access
  – Once accessed, continuous fluid infusion is often ordered
Types of IV Access

• Central Line Access
  – Broad name used for Hickmans and Groshongs
  – Also used by physicians in the ER / ICU
    • Subclavian
    • Femoral
Types of IV Access

- **Intraosseous Access**
  - Into the Bone
  - Most often used as a last resort in emergencies
  - Physician or flight RN initiated
  - 24-Hour Use
Anatomy and the IV Catheter

Fluids and medicines can be administered through catheter
Parts of the IV Access: Needles
Parts of the IV Access: Needles

- Introducer needle
- Cannula (ETFE or Teflon)
- Translucent catheter hub
- Preview chamber
- Flashback chamber
- Filter vent
- Tapered catheter tip
- Luer lock tabs
- Finger guard
- Needle bevel position indicator
- Needle heel
- Short bevel introducer needle
Parts of the IV Access: Needles

- Needle Release
- Flash Chamber
- Flash
- Hub
Parts of the IV Access: Needles
Placement of Central Lines
What IV Size to Use?

• Anatomy
  – Small Veins = Small Line

• Emergencies
  – Get what you can where you can

• Testing
  – CT scans
    • Preferably #20
      – Necessary for CT Angiogram
    • Antecubital Space

• Medication Type
Parts of the IV Access: Tubing

- Roller clamp
- Bag spike
- Drip chamber
- Injection port
- Needle end
- Auxiliary clamp
Parts of the IV Access: Tubing
Parts of the IV Access: End Caps
Parts of the IV Access: Burette
Parts of the IV Access: Dial – a - Flow
Parts of the IV Access: Fluids
Parts of the IV Access: IV Pumps
Parts of the IV Access: IV Pumps
Parts of the IV Access: Vein Finders

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Parts of the IV Access: Cleaning Agents

- ChloraPrep
  - National Standard to clean IV sites
  - Not alcohol wipes
  - Mandatory for Central Line Dressing Changes
  - Mandatory for Port Dressing Changes and Access
Parts of the IV Access: Dressings
Parts of the IV Access: Tourniquets

• Tourniquet Use
  – Reusable vs. Disposable
  – Double Tourniquets
  – Blood Pressure Cuffs
    • Different type of pressure
  – Towel Method
    • Better for your patients
  – Large, Superficial Veins
    • Tourniquets may actually cause the vein to blow
Parts of the IV Access: Labels

- **IV Labels**
  - Always label your lines when you change or start them
  - Always label your tubing, especially when multiple lines
    - i.e. NSS; Insulin; Cardizem
Parts of the IV Access: Labels

• When you start and IV or Change the Dressing
• Always Include Initials, Date and Time
Blood Draw

• Saline Locks / Peripheral IVs
  – May draw blood at the time of insertion
  – Do not draw blood after insertion

• Central Lines and Ports
  – May access blood draws at any time (RNs only)
    • Waste amount
    • Flushes
Blood Draw: Components
Blood Draw: Components
Blood Draw: Labeling the Specimen

• Labels MUST Have:
  – Patient Name
  – Account Number
  – Birthdate
  – Today’s Date
  – Time of Draw
  – Your Initials
Dressing Changes

• Aseptic vs. Sterile
  – Aseptic
    • Peripheral Lines
  – Sterile
    • Central Lines and Ports
Dressing Changes

- Peripheral
  - Simple Clear Window Dressing
  - Additional tape for secured placement
  - Be careful of tape allergies
  - Q 48 Hours
Dressing Changes

- Central Lines and Ports
  - Sterile Technique
  - Mask Use
  - Cleanse site with Chloraprep
  - Usually ordered Q7 days and PRN
  - Biopatch
  - Anchor
Complications of IV Access

- Phlebitis
- Infection
Complications of IV Access

- Infiltration
Complications of IV Access

- Air Embolism / PE
- Pulmonary Embolism
Break
Practical Teaching and Demonstrations

Hands – On Training in Nursing Lab for IV Starts, IV Pump Priming and Programming and Blood Draws