WHAT IS THIS SH!T??

LINES, TUBES AND DRAINS 101
First thing’s first

- Jamii
  - Jah - MEE
Goals

- Identify
- Understand
- Troubleshoot
Arterial Lines

- **Function:**
  - Continuous blood pressure
  - Arterial blood gas measurements

- **Sites:**
  - Radial, femoral
  - Axillary, brachial

- **Troubleshooting bad wave forms**
  - Reposition, splint
  - Replace vs guidewire exchange
Central Venous Catheters

- Intravenous access
  - Fluid/medication administration
  - Phlebotomy

- Invasive monitoring
  - CVP
  - Allows placement of PA artery catheter

- Dialysis access

- Sites:
  - Internal jugular, subclavian, femoral
Temporary central venous lines

- Triple lumen catheter
- Cordis introducer
- MAC SLIC
- PICC
- Vascath (dialysis)
Vascath
Always check your position
Swan-Ganz (Pulmonary Artery)

- Right atrium: Normal pressure: 2-6 mm Hg
- Right ventricle: Normal pressure: 0-5 mm Hg
- Pulmonary artery: Normal pressures: 6-15 mm Hg, Mean pressures: 10-20 mm Hg
- Pulmonary capillary wedge pressure: Normal pressure: 4-12 mm Hg
Tunneled catheters

- Hickman
- Broviac
- Permacath (Dialysis)
- Portacath (chemotherapy)
Nasogastric tubes

- Gastric decompression:
  - Small bowel obstruction, ileus
  - Postoperative foregut surgery
  - Upper GI bleed
  - Toxic ingestion
- Aspiration prevention
- Feeding/medication
Salem sump

- 1\textsuperscript{st} lumen – suction port
- 2\textsuperscript{nd} lumen – sump port
- 16Fr or 18Fr
What to do on rounds

- Continuous wall suction
- Flush ports (every time)
  - Suction: Water/Saline
  - Sump: Air (permitted to throw away filter)
- Quantity/character of drainage
  - If persistently high bilious output check KUB (post-pyloric)
- Do not replace NGT after foregut operation (notify upper level)
Dobhoff tube

- Feeding
- Blind, image-, fluoroscopically-, and endoscopically-guided placement
- Need KUB to confirm before feeding!
- Weighted/Non-weighted
- Stylet needs to be removed prior to use
Gastrostomy tube

Long term enteral access

Open, laparoscopic, fluoroscopic, endoscopic (PEG)

Continuous & bolus feeds, meds

Drain x24hrs, then feed

Abdominal binder

Nausea/vomiting = place to gravity

Drain
PEG complications:

- < 7 days:
  - Stomach not adequately secured to abdominal wall = leak

- OR

- > 30 days:
  - Immediately replace with KUB with gastrograffin contrast study
Jejunostomy

- Open, laparoscopic, endoscopic (PEG-J, PEJ)
- Continuous feeds only (can cycle)
- NO CRUSHED MEDS!
  - Carbonated beverage, enzymes to unclog
  - GI Lap (endoscopy) or IR (fluoroscopy) to replace PEG-J
Drains

- Evacuate fluid collections
  - Intraop, postop
- Open
- Closed suction
Open drains

- Penrose
- Malecot
- Pezzer
Closed suction

- **Jackson Pratt**
  - Round
  - Perforated or fluted
- **Blake**
  - Flat
  - Perforated or fluted
- **Davol**
  - Sump and irrigation ports
- **Pigtail catheter**
On rounds

- Strip drains
- Ensure suction
- Know character/quantity
- Know location
  - Op note, resident, attending
- Remember to take off suction when removing drain
- Don’t forget to cut suture in pigtail prior to removal
Chest Tubes

- Drain air
- Drain fluid
- 28-32Fr, pigtail
Position

Sentinel eye
Underwater-Seal Drainage of Chest

One-bottle system

Collection and water seal
Fluid level fluctuates with respiration
Bottle initially primed with about 200 ml saline for water seal

Air vent

Two-bottle system

From patient
Collection
Water seal
Air vent

Three-bottle system

From patient
Collection
Water seal

Suction regulation by depth of tube in water
To suction
Things to do on rounds

- Suction or waterseal?
- Presence/absence of air leak?
- Quantity/character of output
Vacuum Assisted Closure (VAC)