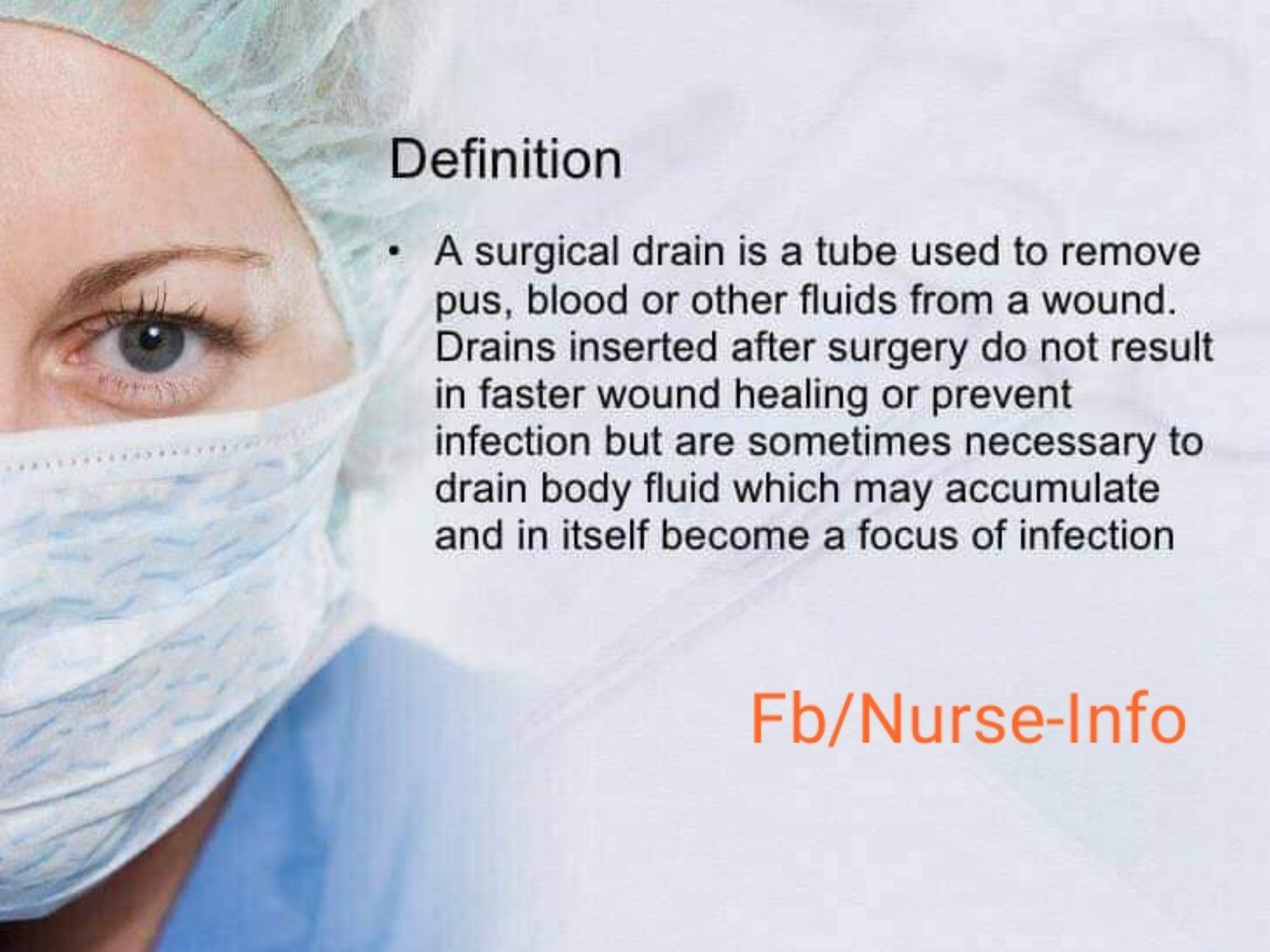


# Common Drainage Methods




Fb/Nurse-Info



## Definition

- A surgical drain is a tube used to remove pus, blood or other fluids from a wound. Drains inserted after surgery do not result in faster wound healing or prevent infection but are sometimes necessary to drain body fluid which may accumulate and in itself become a focus of infection

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## Types of Drain

- Jackson-Pratt Drain.
- Penrose drain.
- Negative pressure wound therapy
- Chest tube
- Redivac drain
- Pigtail drain – has an exterior screw to release the internal “pigtail” before it can be removed
- Redon drain
- Davol .



## Classification:

- **Open Vs Closed Systems:**
  - Open
  - Closed
- **Active Vs. Passive**
  - Active,
  - Passive

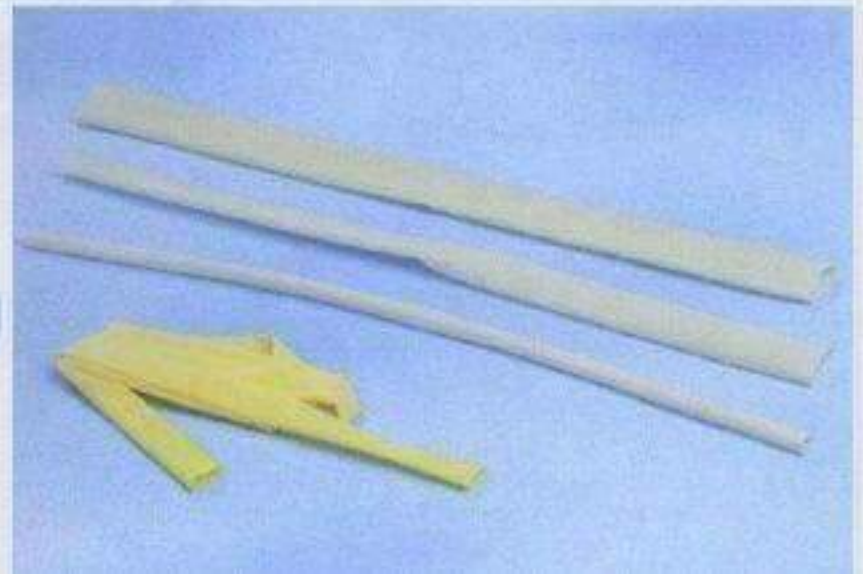
## Jackson-Pratt drain

- Jackson-Pratt drain, JP drain, or Bulb drain, is a drainage device used to pull excess fluid from the body by constant suction.
- The device consists of a flexible plastic bulb -- that connects to an internal plastic drainage tube.



## Penrose drain (open drain) :

- A Penrose drain is a surgical device placed in a wound to drain fluid. It consists of a soft rubber tube placed in a wound area, to prevent the build up of fluid



## Pigtail drain

- A pigtail drain tube (pigtail) is a type of catheter that has the sole purpose of removing unwanted body fluids from an organ, duct or abscess. Pigtail drains are inserted under strict radiological guidance to ensure correct positioning.
- A pigtail is a sterile, thin, long, universal catheter with a locking tip that (once inserted and adjusted by the radiologist) forms a pigtail shape, hence its name. A guide wire is also part of the sterile insertion kit.

The tip of the pigtail has several holes, which facilitate the drainage process. The open end of the catheter has an outlet, which is compatible with an intravenous (IV) luer lock



## Redivac Drain (a close drain)

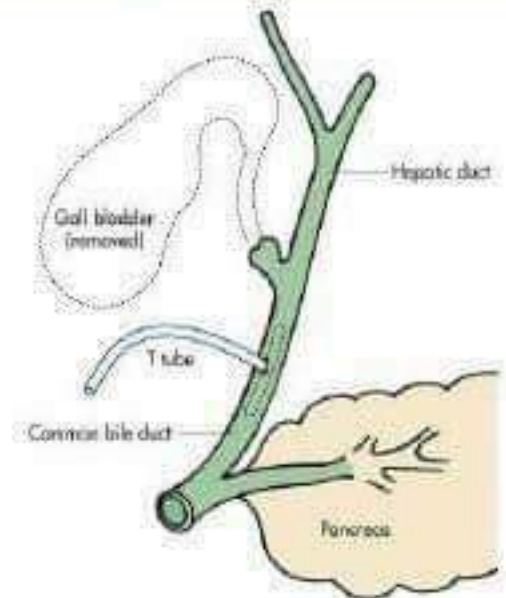
- This is a fine tube. with many holes at the end, which is attached to an evacuated glass bottle providing suction. It is used to drain blood beneath the skin, e.g. after mastectomy or thyroidectomy, or from deep spaces, e.g. around a vascular anastomosis.





# T-Tube


- Kehr's T tube : a tube consisting of a stem and a cross head (thus shaped like a T). The cross head is placed into the common bile duct while the stem is connected to a small pouch (i.e. bile bag). It is used as a temporary post-operative drainage of common bile duct. Sometimes its used in ureteric problems too.





## Davol Drain

- In soft, supple silicone with x-ray opaque strip. Designed to minimize tissue trauma and discourage clogging.
- Drains have a triple lumen configuration to increase drain versatility and effectiveness. Large center lumen for maximum removal; filtered air vent helps reduce risk of infection. Third lumen permits irrigation and instillation of medication. 0.3 micron antibacterial filter removes virtually all bacteria from incoming air. Suture cuff helps fasten drain. Packaged 5 per box.



## Continue Chest Tube Removal

### 4. Removing Chest tube:

- a. Remove sutures around chest tube while holding chest tube steadily in place.
- b. Instruct patient to perform valsalva maneuver.
- c. Withdraw chest tube quickly while simultaneously covering entrance site with vaseline gauze.
- d. Tightly tape 4 X 4 gauze over entire entrance site ensuring that no air is able to leak into the chest tube wound.
- e. Order CXR 4 hours following chest tube removal.
- f. Document chest tube removal on skill check off sheet.

## Some Info!

Size of chest tube	
Adult or teen male	28-32 Fr
Adult or teen female	28 Fr
Child	18 Fr
Newborn	12-14 Fr


The **French scale** or **French gauge** system (most correctly abbreviated as Fr, but also often abbreviated as FR or F) is commonly used to measure the size (diameter) of a catheter. 1 Fr = 0.33 mm, and therefore the diameter of the catheter in millimeters can be determined by dividing the French size by 3:

$$D \text{ (mm)} = \text{Fr}/3$$

# Negative pressure wound therapy :

- Negative pressure wound therapy - Involves the use of enclosed foam and a suction device attached; this is one of the newer types of wound healing/drain devices which promotes faster tissue granulation, often used for large surgical/trauma/non-healing wounds.



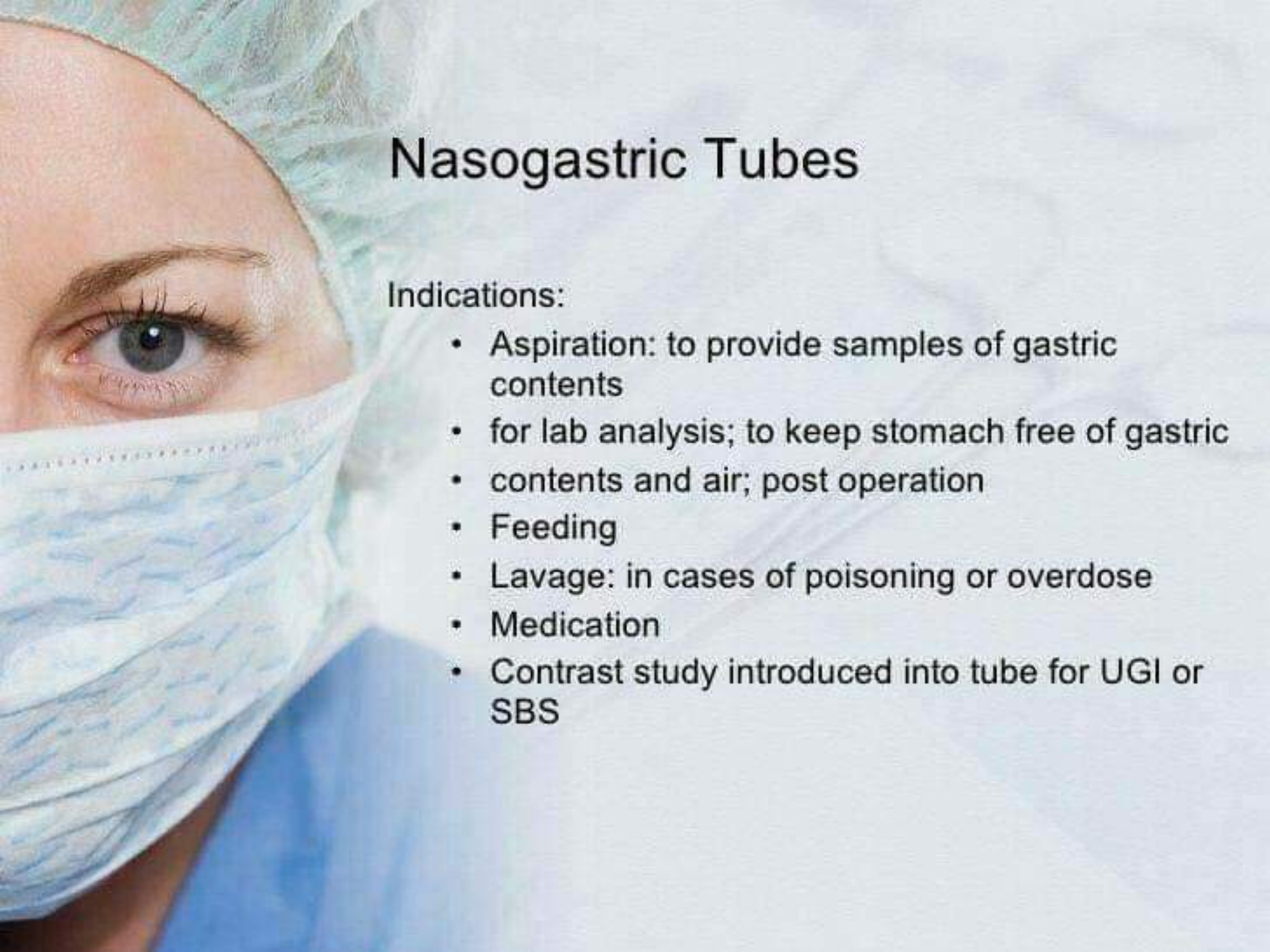


## Open drains

- Include corrugated rubber or plastic sheets
- Drain fluid collects in gauze pad or stoma bag.
- They increase the risk of infection

## Closed drains


- Consist of tubes draining into a bag or bottle.
- They include chest and abdominal drains.
- The risk of infection is reduced.



# Nasogastric Tubes

## Indications:

- Aspiration: to provide samples of gastric contents
- for lab analysis; to keep stomach free of gastric contents and air; post operation
- Feeding
- Lavage: in cases of poisoning or overdose
- Medication
- Contrast study introduced into tube for UGI or SBS



# Reasons For Inserting Central Venous Catheters

- Limited vascular access
- Administration of highly osmotic or caustic fluids or medications
- Frequent administration of blood and blood products
- Frequent blood sampling
- Measurement of CVP
- Hemodialysis





## So; Indications:

1. To help eliminate dead space
  2. To evacuate existing accumulation of fluid or gas, To remove pus, blood, serous exudates, chyle or bile
  4. To prevent the potential accumulation of fluid or gas
  5. To form a controlled fistula e.g. after common bile duct exploration
- Indication

# Types of Nasogastric Tubes



- **LEVIN TUBE:**
  - Single lumen, holes near tip
  - Prevents accumulation of intestinal liquids and gas during and following surgery. Prevents nausea, vomiting and distention due to reduced peristaltic action.



- **SUMP: (SALEM)**
  - Double lumen, radiopaque
    - 1st lumen: suction of gastric contents
    - 2nd lumen: blue extension (pig tail) open to room air to maintain a continuous flow of atmospheric air into the stomach.
  - Controls the amount of suction pressure placed on stomach walls. Prevents injury, ulcers.

# Continue Types of Nasogastric Tubes

- **MINNESOTA TUBE:**
  - 4 LUMEN




- **NUTRIFLEX TUBE**
  - Feeding tube: usually radiopaque.
  - Mercury weighted
  - Coated with lubricant
  - activated with gastric secretions to keep
  - tube supple and not injure stomach lining



## Continue Chest Tube Removal

### 5. Monitor:

- a. Respiratory pattern.
- b. Chest excursion.
- c. Oxygen saturations.
- d. Respiratory rate.
- e. Heart rate.
- f. Blood pressure



## Complications and Failure of Drains

- Poor Drain Selection
- Poor Drain Placement
- Poor Post-operative Management