CV Orientation

6E Specific

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6E Cardiovascular Surgery

- Orders from MD
- Report called to floor
  - ICU RN to fill out Ad-Hoc Transfer form, floor RN to sign it
- Never leave **arterial lines** or **introducers**, they must be removed before leaving ICU
- **Central lines** and **Foley** should be removed unless ordered to stay by provider
  - Pt must have a "Foley - **Do Not Remove**" Order *in addition to* "Std Removal Protocol" Order if being transferred with foley.
- 14g and 16g IV catheters must be **removed in 48hrs**, so 18g-22g is preferred if transferring to floor

EMORY HEALTHCARE

- Transported by ICU RN and met in room by floor RN.
  - Together, check chest tubes, pacing wires, any gtts, etc.
- Floor RN:
  - Place pt on telemetry monitor
  - Obtain vitals & weight
  - Orient pt to new room/unit
  - Connect necessary drains, i.e. oxygen tubing, Pleur-Evac to wall suction (if ordered), plug in wound vac to power, etc.
- **"It takes two"** – 2 Person Skin Assessment
  - RN & RN or RN & NT
  - Task charted within 2 hours of transfer – will be considered HAPI on receiving floor if not completed.
- Check for PT/OT orders.
  - Also Social Services, Chaplain, or Nutritionist if needed

- Early Mobilization
  - Dangle & monitor BP/Orthostats
  - OOB to chair at least **1 hour** if tolerating
- Incentive Spirometer, cough and deep breathe **10x every hour**
- Maintain dry OR dressings for 48hrs post op.
  - Removed by CTS/primary surgical team
- Remove ACE wrap from legs for assessment Q8hrs. Switch to SCD's at 24hrs post op.
  - Removed by CTS/primary surgical team

EMORY HEALTHCARE

Early Interventions

- Wound/Skin Care
  - CTS will remove sternotomy dressing & ACE bandages from legs.
  - RN's to **clean incisions** daily with CHG cloths and apply *dry* dressing if drainage present (unless ordered otherwise).
  - **Bathe** surgical patients with CHG cloths/"CHG Treatment" daily.
  - If shower/soap and water used, *CHG treatment should still be done* 1-2 hours later.
  - Surgical **Support Bra** for large breasted patients

- If LVAD pt - Floor RN changes driveline dressing from transparent to a **daily gauze** dressing.

- If Congenital (CHD) pt – ensure **0.2 micron filter** is attached to all IV lines.

- Diet: Clear liquids, then → Advance Diet Protocol Order *required* to advance as tolerated.
  - If patient is alert, listen for bowel sounds in **all** quadrants - if present, try clear liquids
  - **If passing gas and no nausea**, patient may advance to full liquids and then ordered diet.
- Patient needs to have **BM** before leaving hospital!
  - Ileus can be a significant problem post op, potentially leading to perforation

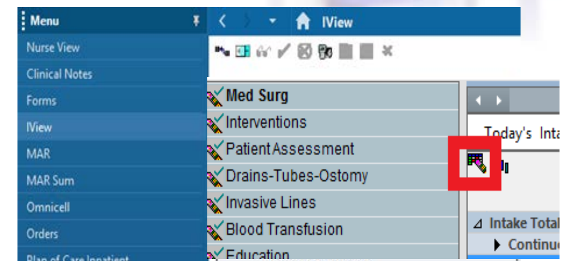
EMORY HEALTHCARE

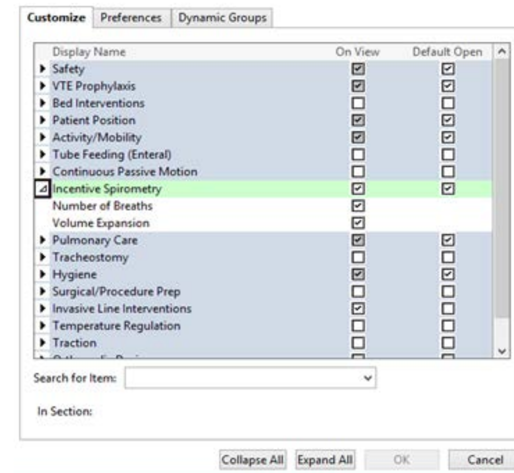
Mobilization- (Not just PT/OT responsibility!)

- Sternal Precautions – see handouts
- Range of Motion – performed **2x daily** by RN, NT, PT/OT or family
  - Prevents muscle loss and joint stiffness
- OOB to Chair – as soon as possible, for **≥1 hr**.
  - Up in chair for all meals
  - Improves breathing, relieves back pressure
- Walking- in room and hallway **3x daily** with podium walker at first
  - Strengthens, clears lungs, reduces skin breakdown, improves GI motility

Incentive Spirometry

- How to:
  - Seal your lips tightly around mouthpiece
  - Breathe **in** slowly through your mouth as deep as possible. The blue piston will rise toward the top of the column.
  - Keep the blue coach indicator on the right side between the arrows.
  - Open your mouth and exhale, letting the blue piston to fall to the bottom of the column.
  - Rest for a few seconds and repeat steps above at least **10 times every hour** while you are awake. If you feel dizzy, slow your breathing down.
- Chart **q4 hours** under IView → Interventions → Incentive Spirometry
  - Number of breaths
  - Volume Expansion



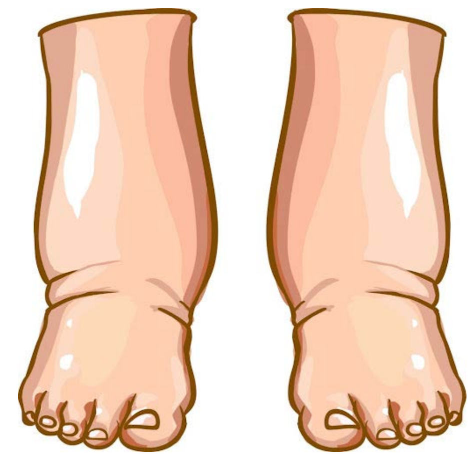


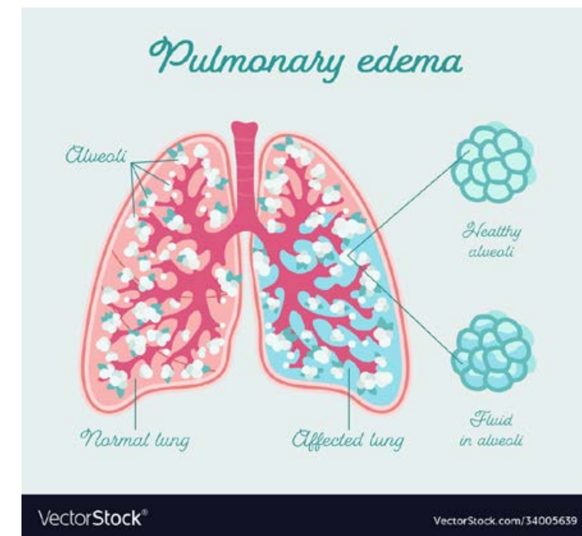
Incentive Spirometry
Number of Breaths
Volume Expansi... mL

EMORY HEALTHCARE

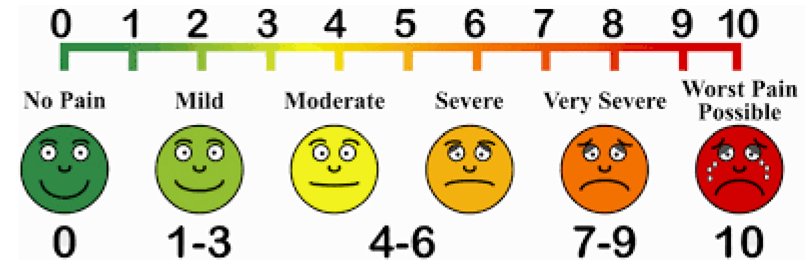
Diuresis

- Almost all surgical patients experience fluid retention post operatively in the body and/or lungs
- Treated with diuretics
  - Amount is determined by MD as they look at daily weights and I's/O's
- **Electrolyte Replacement Protocol**: Potassium, Magnesium
- Monitor for **hypotension**





Pain Management



- Place a pillow against the sternal incision to ease discomfort while coughing.
- Sternal Precautions (see handout)
- Treat Pain with ordered **analgesics**
  - Pain goal will not be zero, but tolerable. Set realistic expectations for patient.
  - We need patient walking and coughing, so pain needs to be managed! Talk to provider if pain regimen is not sufficient

Codes on 6E

- When a code is called on 6E, Code RR team or 5E will send their Code Runner for assistance in the critical situation.
- This is helpful for several reasons, including:
  - "Shelter in Place" situations
    - 6E RNs have 4-5 patients at a time, once we have deemed the pt needs to be transferred to ICU, they are now an ICU pt and require the attention of an ICU pt.
    - Once your patient is stabilized for transport & we're just waiting on a bed, utilize your Code RR leader to cover your critical patient if the code is still active so you can tend to your other patients.
  - Transfers, runner for ICU supplies, extra set of hands, skills that are not allowed on 6E

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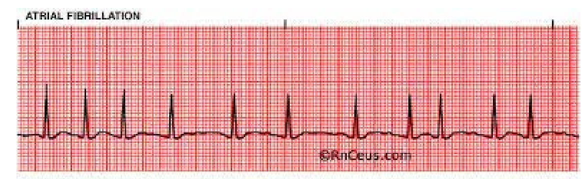
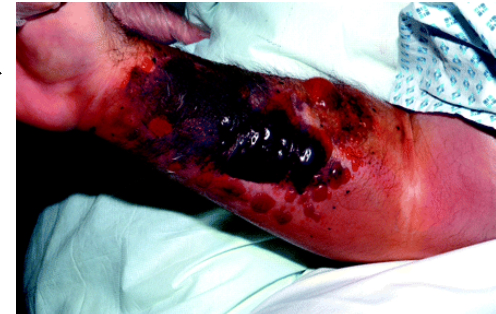


Post Op Afib

Atrial Fibrillation is common after surgery

- Check patient's vital signs and symptoms
  - Call Code Met if symptomatic or vitals are unstable. Notify provider.
  - S/Sx:
    - Decreased CO → lightheaded, fatigue, SOB, decreased BP
    - Palpitations, CP
- IV **Amiodarone** infusion will likely be ordered
  - **150mg bolus** given first over 10 mins (in omnicell)
  - Pharmacy will send amiodarone gtt bag
    - Always give **1mg/min for 6hrs**, then decrease to **0.5mg/min for 18hrs**. MD will change it to PO, notify them if they forget
    - Always use a 0.22 Micron filter
  - Watch IV closely for phlebitis! Remove IV at first sign of redness or pain
    - WARM compress & ELEVATE extremity
  - Have a second IV available
- Other possible Tx:
  - BBs, CCBs, Anti-coags, Cardioversion, pacing, ablation

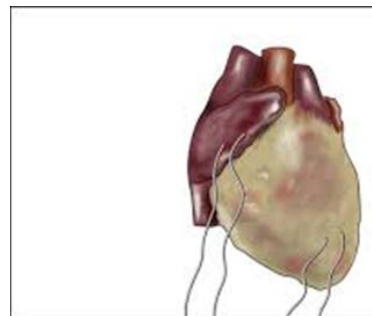


EMORY HEALTHCARE

Epicardial Pacing

6E RN's-

1. When attached, keep External Pacer hanging on IV pole (keeps it from dropping/tugging and is visible to all providers)
2. Keep it locked, and take note of settings
3. Instruct patient and visitors on handling



Medtronic Model 5392

Basic Operation

- **Rate and Output Adjustments**

1. If the Lock indicator appears in the status bar, press lock/unlock key.
2. To adjust rate, a (Atrial) output, or v (Ventricular) output, turn the dials clockwise to increase their values; turn the dials counterclockwise to decrease their values, or to set the outputs to off.
   - *Rate and output values appear on upper screen.*

- **Viewing Patient's Intrinsic Rhythm**

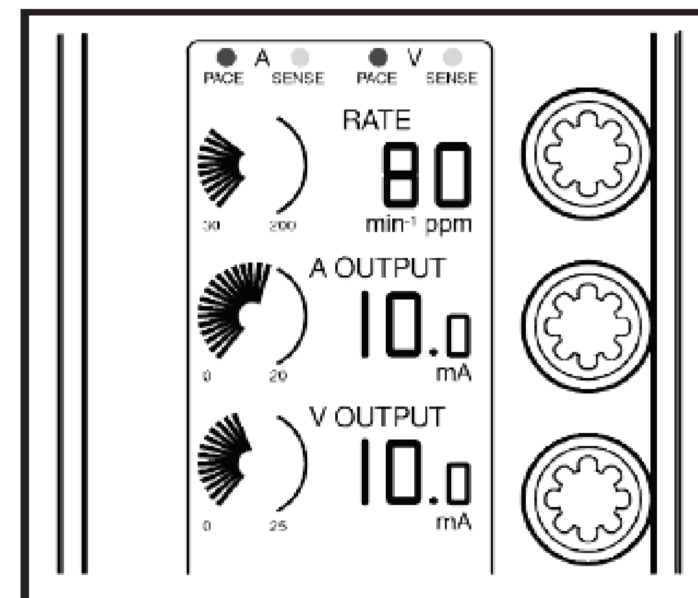
Reduce the rate gradually, while watching the ECG, until the patient's intrinsic rhythm takes over

Press and hold pause key to suspend pacing and sensing up to 10 seconds

- Note: To pause again up to 10 seconds, release pause key; then press and hold the pause key again.

EMERGENCY Pacing

- • Press doo/emergency key to initiate high-output, dual chamber asynchronous pacing (DOO for emergency)
- Risks: microshock, equipment failure, competitive or fatal arrhythmias, lead dislodgment, bleeding, myocardial perforation, and pulmonary embolism, infection, cardiac arrest, and diaphragmatic stimulation



NBG Codes

1st Letter

Chamber(s) Paced

A = atrium

V = ventricle

D = dual (both atrium and ventricle)

2nd Letter

Chamber(s) Sensed

A = atrium

V = ventricle

D = dual

O = none

3rd Letter

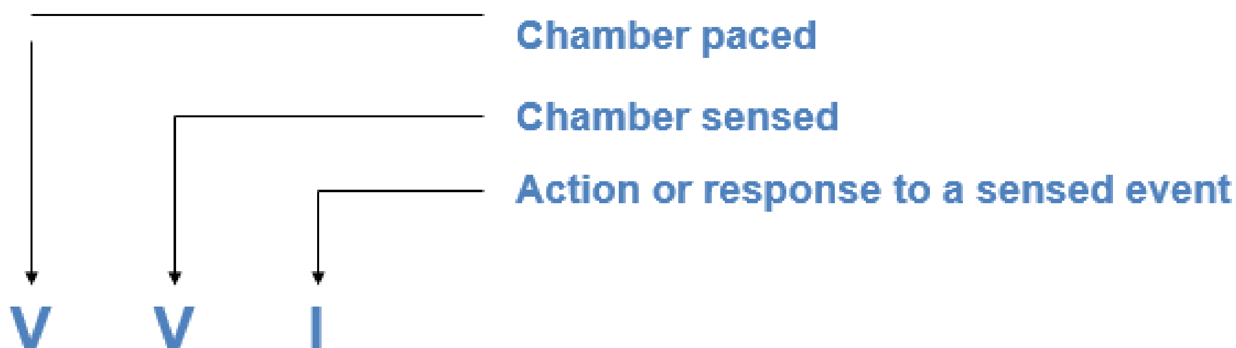
Response to Sensing

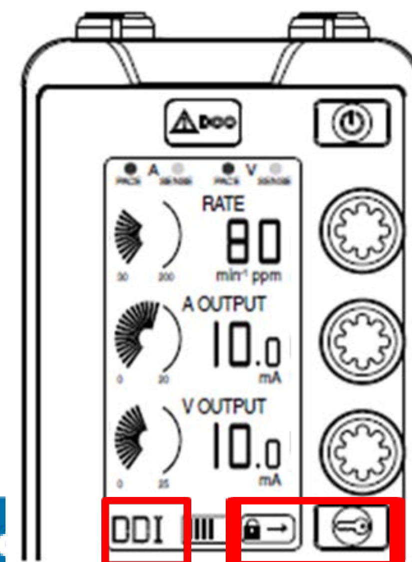
I = inhibit (Demand mode)

T = triggered

D = dual

O = none (Asynch)





Model 5392

DUAL CHAMBER TEMPORARY EXTERNAL PACEMAKER

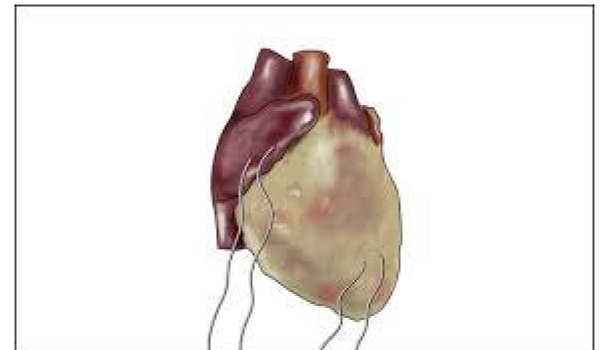
B450's

If a provider wants to adjust pacemaker and see rhythm at same time, you can use the B450 located in the Supply Room near the Soiled Utility Room.

EMORY HEALTHCARE

Epicardial Pacing Wires Removal

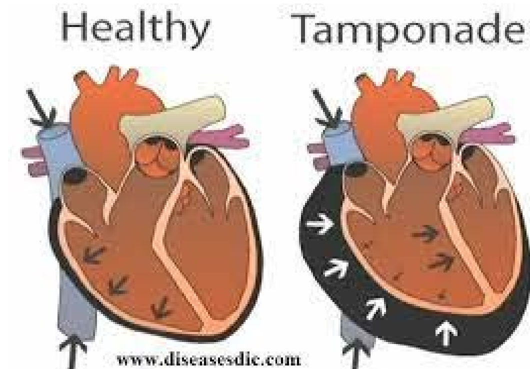
- If not attached to external pacer, wires must always be **capped** (see Lippincott procedure)
- RNs cannot remove or cut wires
- Provider should notify RN when removing so RN can complete **Tamponade Precautions**



EMORY HEALTHCARE

Cardiac Tamponade Precautions

- Monitor the patient's vital signs every **15 minutes x2**, **every 30 minutes x2** after removal. Bedrest 1 hour
- Watch for: -narrowed pulse pressure
  - The Beck triad (hypotension, muffled heart tones, and jugular vein distention)
  - Tachycardia, decreased peripheral pulses, and dyspnea.
- Cardiac tamponade may not be immediately evident if bleeding is slow, so monitor up to 2 hours.



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Capping Pacing Wires (usually done by ICU or our APP's) Lippincott Procedure

6E RN's Responsibilities:

1. Ensure Wires are capped (covered as pictured) and not exposed
2. Make sure the wires are not pulled at
3. Tape them in a way that keeps them secure

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Tamponade Precautions

Date	Time	Vital Signs every 15 min. x 2, every 30 min. x 2

Clinical manifestations include:

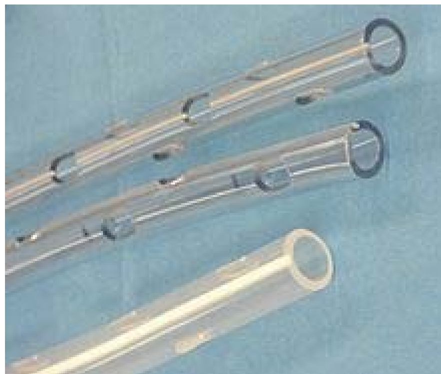
- Tachycardia
- Decreased cardiac output
- Elevation and equalization of filling pressures (CVP, PAD, LAP)
- Diminished or excessive CTD
- Distant heart sounds
- Decreased urine output
- Mediastinal widening on CXR
- Paradoxical pulse

Pulsus Paradoxus

To assess for pulsus paradoxus, auscultate systolic blood pressure during slow, gradual release of the cuff pressure. Note the systolic value at which you hear the first korotkoff sound during inspiration and expiration. The first heart sound will normally disappear on inspiration and return during expiratic[n] but a difference between these pressures of more than 10mm Hg is considered pulsus paradoxus.

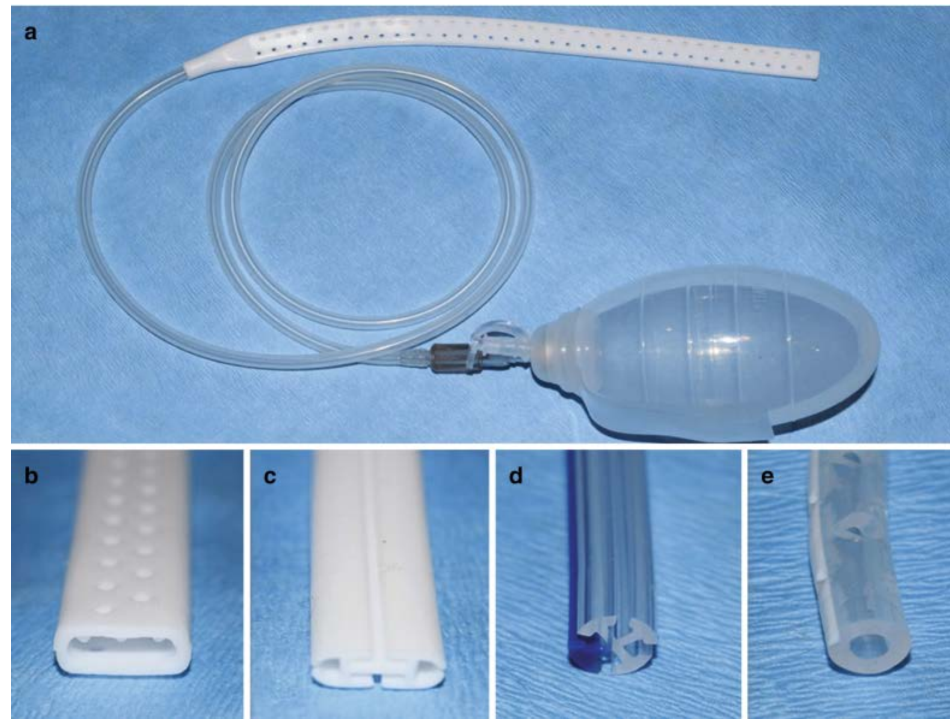
Types of Chest Tubes

Large bore/ conventional AKA Argyle



A. Jackson-Pratt (JP)
B. Jackson-Pratt (JP)
C. Flat Blake
D. Round Blake
E. Round Perforated Drain

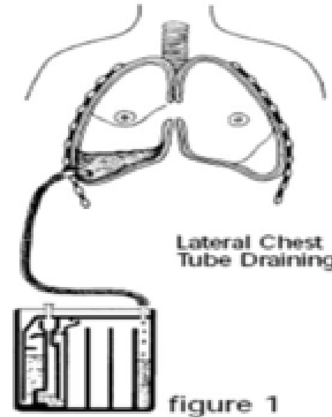
Small bore/ Silastic drain AKA Blakes or Hydraglide

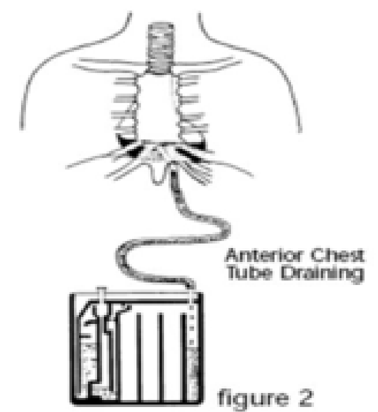


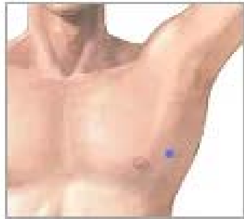
Blue line: Radiopaque Strip- confirms placement upon XRAY

Chest Tube (1)

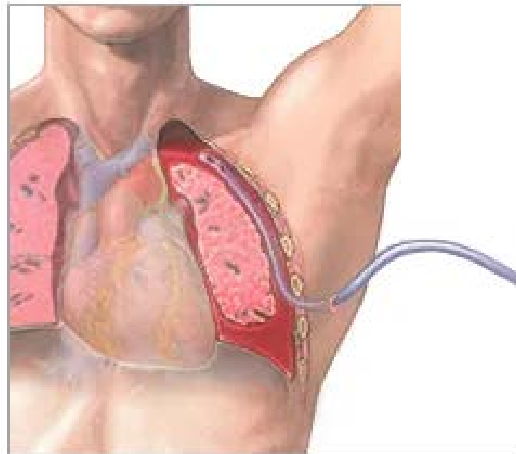
- There are usually 2 types of tubes used : PLEURAL AND MEDIASTINAL CHEST TUBES







Chest tube drains blood from the lungs



Chest Tubes

- Monitor and **chart** tube output- at shift change and throughout shift- mark Pleur-evac with Date/Time
  - Observe for "dumping" of drainage or blood quickly into the tube, notify provider
- Change gauze dressing and clean w/ CHG **daily**
- Ensure all connections have **2 zip ties** to prevent exposed open tubes (pneumothorax risk)
- When CT output is <100cc over 8hrs, MD will likely **order** for it to be removed after ambulation
  - RNs have to be "checked off" to remove CT's by themselves. **Only remove during the day shift**
  - RNs CANNOT remove **Purse String** sutures alone

Chest Tube Conversion

- Day and Night shift RNs can convert to bulbs when ordered(see handout)
- Tube adapters/connectors can be found in two places:
  1. Sent from ICU in small clear specimen cup
  2. In drawer across from the telemetry monitors on 6E

<u>Risks</u>: pneumothorax

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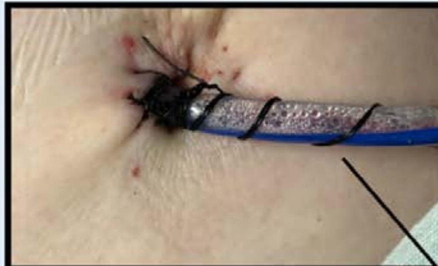
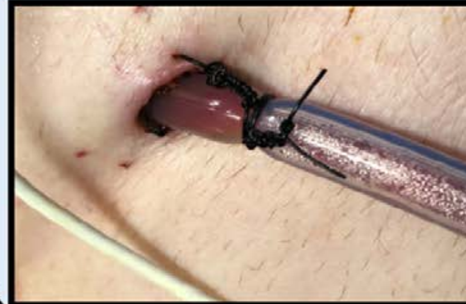
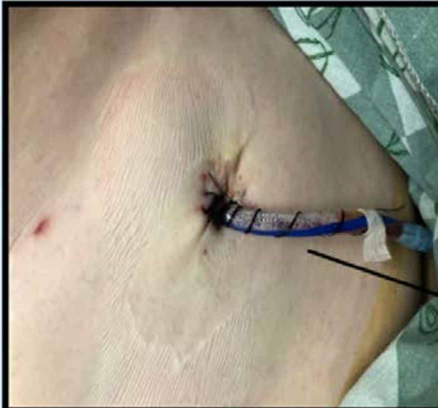
Purse String Sutures in Chest Tubes

PURSE STRING SUTURE CHEST TUBES ARE NOT REMOVED BY RN's

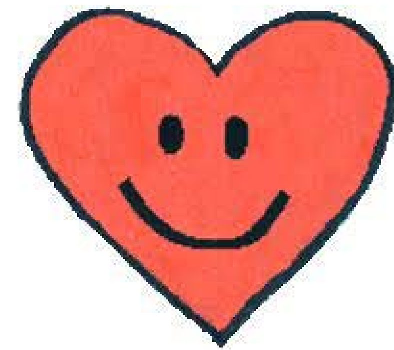
The types of sutures used to secure chest tubes vary according to the preference of the providers. One type is the horizontal mattress or purse-string suture, which is threaded around and through the wound edges in a U shape with the ends left unknotted until the chest tube is removed. Usually, one or two anchor stiches accompany the purse-string suture.

Ex. of Purse String Suture Chest Tubes	Ex. Regular Chest Tube Sutures
	
	

Purse– String/ horizontal mattress suture: leave ends long and curl around tube so it can be readily accessed to close the wound once the tube is removed.

* Nursing **DOES NOT REMOVE** Purse Strings Chest Tubes *

Empower your patient!



- Early teaching and frequent reinforcement of interventions leads to fewer complications and fewer hospital days for the patient
- Beginning during **pre-op**, continue in the **ICU** and during the duration of their stay, empower patients and family members to take care of themselves with our help
- Give "**Moving Right Along**" discharge booklet

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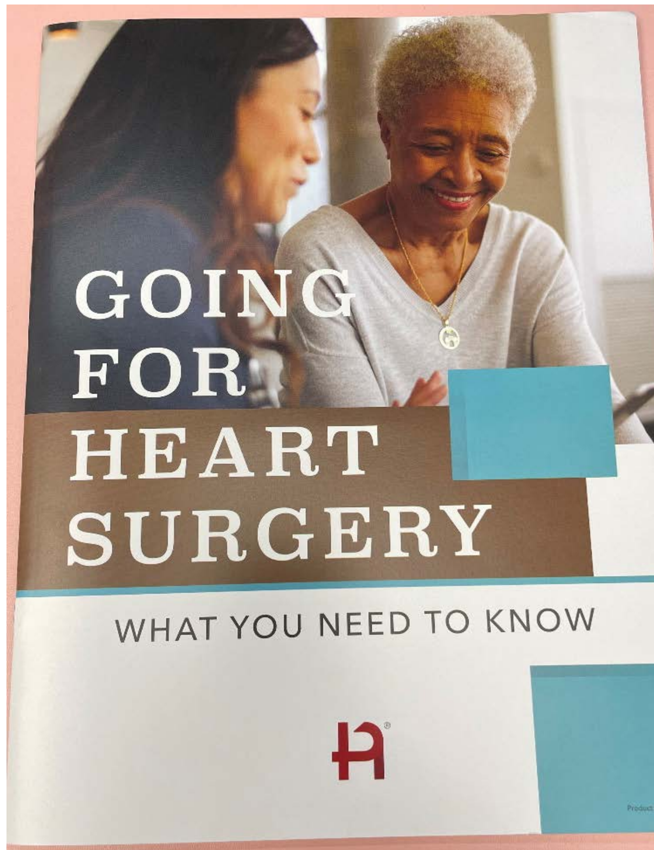
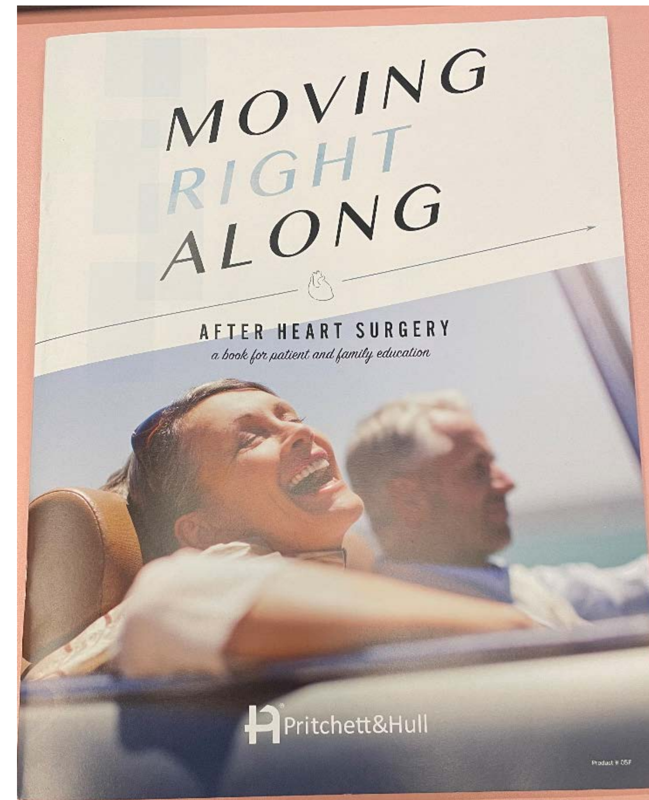
Both Booklets come in Spanish





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Tell Family what to expect day of surgery

- When the patient leaves for surgery, the care partners also have to leave the room with all belongings
- They can wait in the 3rd Floor OR Waiting Room
  - (A/B elevators)
- All valuables must be with a care partner or can be locked with Security before surgery
- Any excess luggage can be stored in our supply room with patient's name on it, but remind patients that this is not monitored or locked
- ?*5EICU is only having one care partner per 24 hours at this time, and they can sleep there if needed

Emotions and Fatigue

- Patient's will be recovering emotionally as well as physically from heart surgery. It is normal to have days where their spirits are down and they **feel depressed**. If this lingers more than 4-6 weeks, medical attention may be needed.

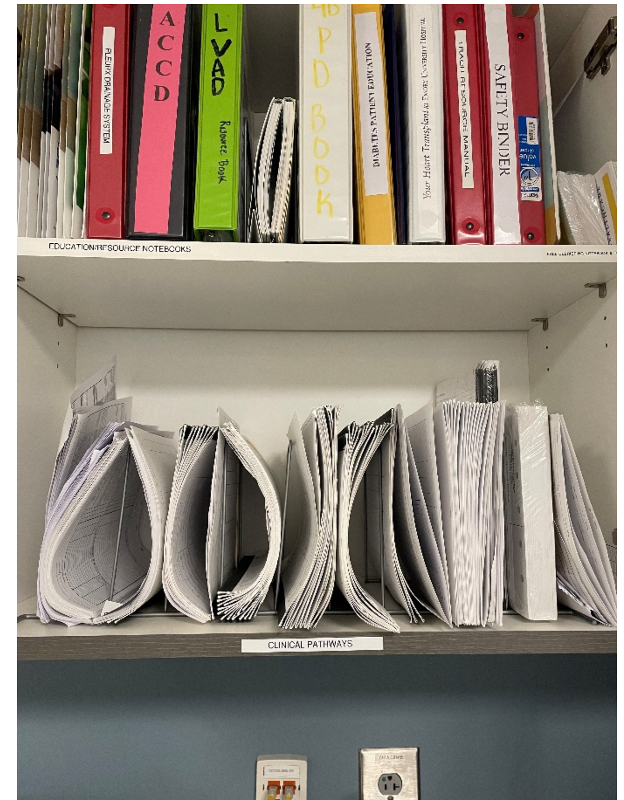
- Mild shortness of breath and feeling tired is not uncommon. Plan rest periods or short naps.
- **Balance activity and rest**. Good nutrition, exercise, relaxation, meditation and spirituality help.

Cardiac Rehab

- Cardiac rehabilitation is a comprehensive, outpatient program designed to help patients with heart disease or known cardiac risk factors live full, productive lives.
- Individualized exercise plans are provided after an evaluation of each patient's health status, fitness level and personal goals.
- Patients are supervised by the medical director, nurses and exercise specialists, and a case manager.
- Phone number is in discharge paperwork, but pt must be referred by MD.

Resources

- https://www.clwk.ca/buddydrive/file/procedure-wound-packing/
- Lippincott
- EUH Intranet
- Protocol: Cardiac Surgery-Guidelines for Patient Care
- Pathways:
  - Cardiac Surgery
  - VAD Surgery
  - Heart Transplant



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