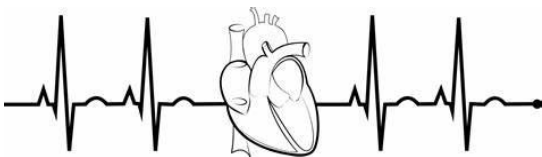


Cardiac Surgery Intensive Care Unit Provider Quick Reference Guide



VCUHealth™

Pauley Heart Center

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WELCOME TO THE CSICU!

Critical care of the cardiac surgery patient is a unique, complex and dynamic endeavor. Cardiac surgery critical care takes a multidisciplinary and collaborative approach to the resuscitation and management of the perioperative cardiac surgery patient to ensure that they have an enhanced and safe recovery. Cardiac surgery critical care involves meticulous attention to detail relating to fluid therapy and inotropic support, in addition to the other standard critical care needs of a post-surgical patient.

CSICU Core Values:

Respect:

- Learn names
- Respect the dignity of each individual and celebrate the diversity of the communities we serve.
- Acts of kindness will take you far! Display a positive attitude through kindness, compassion and empathy to those in our care and with whom we interact.

Communication:

- Communication is key with the patients, families, and each other.
- It is imperative that closed-loop-communication be continuously maintained.

- It is ALWAYS better to over-communicate than to under-communicate.

Teamwork:

- Critical Care Medicine is a Team Sport!
- Remember that every individual serves a vital function to the service.
- Support your teammates.
- Be involved, Be Visible, Be approachable!

Service and Professionalism:

- Put the needs of the patient first.
- Arrive on time - ready to work and learn.
- Be open to feedback.

*We are glad to have you here!
Remember, you will get out of this
rotation what you put into it.*

The CSICU Team



Intensivist:

Dr. Christin Kim (Medical Director CSICU)
Dr. Pranav Shah
Dr. Megan Rashid
Dr. Kenny Potter
Dr. Kate Klein

CSICU APPs:

Katie Rodman, NP (Lead APP)
Nikki Gardner, NP
Jessica Norman, DNP
Jennifer Cox, NP
Shanon Beam, NP
David Starling, NP

Cardiac Surgeons:

Dr. Vigneshwar Kasirajan (Chief of Surgery)
Dr. Mohammad Quader
Dr. Patricia Nicolato
Dr. Katherine Klein
Dr. Arturo Cardounel
Dr. Thomas Yeh (Pediatrics)

Cardiothoracic Fellow:

Dr. Lee Warren

Thoracic Surgeons:

Dr. Anthony Cassano, Dr. Rachit Shah, Dr.
Robert Ferguson, Dr. Walker Julliard

Vascular Surgeons:

Dr. Mark Levy, Dr. Francisco Albuquerque,
Dr. Robert Larson, Dr. Kedar Lavingia, Dr.
Daniel Newton

Nursing:

Sherry Lockhart, RN (Nurse Manager CSICU)
Linda Currie, RN (Nurse Clinician CSICU)
Clinical Coordinators: Dhol Tuason, RN, Dana
Millner RN, Jen Mincks RN, Catie Walsh RN
Shirly Beavers (Nurse Support Manager)

Pharmacy:

Cassandra Baker, PharmD
Billy Cahoon, PharmD

Nutrition:

Grace Cooper, RD

Social Work/Care Coordination:

Carla Doan

10West/Central APPs

Courtney Drissi NP, Janaya Ogunware NP,
Lenore Roach NP, Morgan Childress NP, Hailey
Sinapont, PA

Phone Directory



CSICU Provider	535-3336
CSICU NP	525-3335
CSICU Charge	525-3307
CSICU Respiratory	663-4705
CSICU Unit	828-9176
10W APP Ascom	663-3713
10W APP Office	6-3054
ABG Lab	6-6991
Abx Stewardship	3144 (P)
Acute Pain	6-0888
Anesthesia Bag Resident	1475 (P)
Bronch	8-5960 663-4749
Blood Bank	8-0256
Cath Lab	8-3638
Chaplain	6140 (P)
CT	8-5555
ECHO TTE	8-9986
EEG	9071(P)
EP	8-7565
Ethics	6-3844
Fluoroscopy	8-5498

Interventional Radiology	8-6986
Main Control (OR)	6-6850
MRI	8-4494 8-3731
Nutrition	5580 (P)
OR Room 27	6-6727
OR Room 28	6-6728
OR Room 31	6-6731
PACU	6-6935
Pathology Lab	8-PATH
Perfusion	6-6880
Pharmacy - CSICU (closes 11pm)	8-7425
Pharmacy – STICU (After 11pm)	525-2793
PICC	6-7422
Radiology	8-5500
Service Response	6-4772
Speech	2646 (P)
TEE	6-0738
Telepage	8-0951
Transfer Center	8-2638
Vascular Lab	8-0238
VCU Police	8-1196

Handoff



Handoff occurs daily at 6pm and 6am

Guidelines:

- ◆ ARRIVE ON TIME
- ◆ Interruptions should be minimized
- ◆ Pay attention to ALL patients, not just those assigned to you.
- ◆ Sign out should include:
 - Type of surgery
 - Daily/overnight events
 - Overall Daily Plan
 - Current Drips
 - Device Settings and flow
 - Ventilator settings/Oxygen Requirements
 - Antibiotic Plan
 - Anticoagulation Plan
 - Lab Trends
 - Fluid Balance and Plan
 - Consults
 - Items to follow up on

Morning Rounds



Purpose:

Multidisciplinary rounds allow for protected time during which the ICU team can review and discuss clinical information and develop clear and concise plans for the critically ill patient.

Guidelines

- ◆ All team members will have a defined role: Presenter, Chest X-rays, RAMS, Orders
- ◆ Give the presenter your undivided attention and know the plan for every patient in the unit.
- ◆ Do not work on notes or use your phone/computer for non-work-related reasons.
- ◆ Be professional and respectful to all members of the team

Order of Presentation

1. Patient History
2. Overnight Events
3. Presentation of Data
4. Proposed Plan
5. Attending Input
6. Pharmacy Concerns
7. Nutrition Concerns
8. Any other team Member concerns
9. Nursing Concerns
10. FASTHUGS

PM Rounds

Purpose: To follow up on plans and interventions that were established during AM rounds. To prepare the patients for handoff to the nighttime provider.

Guidelines

- ◆ Know labs and fluid balances
- ◆ Make sure that you have followed up on consults
- ◆ Establish plans of care going into the evening shift

FASTHUGS



Feeding
Analgesic
Stress Ulcer Meds
Thrombolytics
HOB
Urine Goal
Glycemic Control
Antibiotics
VAD Anticoagulation
Coronary Meds
Unnecessary Lines/wires
BM
Pulses
Move/PT/OT
Steroids
Skin
Disposition

RAMS Template



Setting up

VCUHS > Surgery > Critical Care
Surgery > CSICU

Patient Summary Field

CC: Chief Complaint

History:

All the pertinent history in a tight sentence

E.g.: ICM (EF 25%), CAD, DM, PAD

Plan:

Date:

Key Plan:

Vasoactive Drips:

I/O goal and How:

Anticoagulation goal & Why:

Abx & why started. EOT date

CSICU Admission Criteria

- All patients post-op from cardiopulmonary bypass, off pump CABG, and mini-MAZE
- All LVAD/TAH patients who require ICU level of care (regardless of how long they have had the LVAD/TAH)
- Any patient with a temporary mechanical circulatory support including ECMO, Impella, Centrimag, Protek Duo, and IABP
- Any CT/Vascular/Thoracic surgery patient requiring vasoactive medication or titrating inotropes
- s/p Esophagectomy patients
- All VAD patients requiring TPA for VAD thrombosis
- All vascular patients requiring catheter directed TPA
- All Vascular patients with a lumbar drain
- All Vascular patients s/p TAAA repair or other major aortic surgery
- All aortic dissections requiring continuous infusions of antihypertensive medications

- All patients who require q1 hours neuro-checks
- Frailty and advanced age of an operative patient
- Shock of all forms
- Respiratory failure
- Substance withdrawal
- Surgical bleeding or other form of bleeding requiring resuscitation
- Renal failure requiring CRRT
- AMS
- ACS
- Unstable arrhythmias
- Severe electrolyte disturbances
- All patient requiring transvenous pacing or who are in complete heart block receiving temporary epicardial pacing
- All outside hospital transfers accepted by the surgeons that require ICU level of care or who are being transferred from an ICU at the outside facility

Outside Hospital Admission to the CSICU Procedure

1. The Admitting attending from the primary service will notify the ICU attending regarding the transfer from the OSH
2. The CSICU charge nurse will be notified regarding the pending admission
3. The admitting attending from the primary service will perform all communication with the transfer center and the outside hospital
4. The Admitting attending and provider from the primary service will be notified by the ICU team once the patient has arrived in the CSICU
5. The CSICU staff is responsible to complete all H&Ps for patients admitted to the Cardiac Surgery Surgeons (Use Pauly Heart Center Template)

In-House Admission to the CSICU Procedure

1. The primary surgical service will determine the need for ICU level of care
2. The primary surgical service will contact the ICU team (attending to attending and provider to provider) regarding the pending ICU admission
3. The CSICU charge nurse will be notified regarding the pending admission
4. The transfer or admission order to the ICU will be placed by the primary surgical service
5. A person from the primary surgical service/transferring service will be present for in-person handoff when the patient arrives to the ICU

Post-Op Cardiac Surgery

Since the heart is injured during cardiac surgery, the goal of the first 48 hours post-op is to focus on optimizing and maintaining adequate cardiac output. This is achieved with pacing, inotropes, fluid management, and control of bleeding.

$$CO = SV \times HR$$



Dr. Kasirajan's Cardiac Surgery Rules for Success

The Captain's Rule:

1. The Captain* is always right.
2. When in doubt, see number 1

*The patient is the Captain

The Rule of Tensions:

Your tension is inversely proportionate to your patient's tension. If their (hyper)tension is high, then yours should be low. If their (hypo)tension is low, then yours should be high. If they have no tension – start CPR!

Chest Tube VS Foley:

Chest tube output should always be less than urine output.



Lasix in Cardiac Surgery:

Lasix is not a medication in cardiac surgery. It is a vitamin (Vitamin L). Cardiac Surgery patients need their daily Vitamin L.

Inotropes

Early use of inotropes is not a weakness, but a must in Cardiac Surgery.

ICU = I SEE YOU

You must see and touch the patients every day. Do not get caught up behind a computer. When you arrive in the morning, examine your patients first.

Always treat the patient, not the machines or yourself!!

Admitting a Cardiac Case from the OR

Prior to arrival to the CSICU

- Read through the chart and learn the patient's history and about patient's planned procedure
- Initiate the post-op cardiac surgery power plan in Cerner. In addition to the post-op cardiac surgery power plan, initiate the general cardiac surgery section or device section, as appropriate
- Suspend all pre-op medications not appropriate for the post-op period (anti-hypertensives, diuretics, long-acting insulin, etc.)

Arrival to the CSICU

ALWAYS BRING A COMPUTER

Sterile Cockpit:

- The ICU team receives handoff from Anesthesia and Surgery
- Please provide your undivided attention during this time

Admission Procedure:

- Order LEVEL 1 Chest x-ray (make sure the patient's location has been changed to the ICU prior to ordering)
- Arrival Note: Fill out all information on form. Include brief history, RV/LV function and location of chest tubes
- Order post-op ABX from Power Plan.
 - ☒ Ancef for general cardiac surgery patients unless allergy x 5 doses. If allergy, order vancomycin x48 hours
 - ☒ Device patients: vancomycin and Zosyn x48 hours

- ☒ Transplant: vancomycin and Zosyn until donor cultures finalize
 - ☒ Open Chest: vancomycin, Zosyn, fluconazole for 48 hours post-closure. (If prolonged QTc - get micafungin approval)
- Order drips from the Power Plan. Always order the lowest concentration (epi 2/250, norepi 4/250)
- Order AM labs and am chest x-ray
- Evaluate chest x-ray/EKG and compare to pre-op x-ray/ekg
- Maintain CO: Common failures (escalating pressor and > 1.5 liters of fluid): Bleeding, Tamponade, or worse LV/RV function than planned
- *****GOAL:** To extubate all patients within 24 hours of exiting the operating room
- At sterile cockpit it will be determined whether a patient is eligible as a “Fast-Track” extubation (extubation within 6 hours of arrival to the ICU)

Cardiac Surgery Post-Op Day 1

This is to serve as a guideline only. All patients are different and need to be assessed for appropriateness to continue with pathway.

CABG Patients

- ◆ ASA 162 mg daily
- ◆ Statin: Starting dose, atorvastatin 40 mg (start home dose if higher)
- ◆ Plavix 75mg daily
- ◆ DVT prophylaxis (heparin subcut)
- ◆ Beta blocker (if patient is stable from a hemodynamic standpoint and off pressors. Look up patient's home beta blocker)
Starting dose: 6.25-12.5 mg q12hours
- ◆ Review home medication and assess for appropriateness to resume
- ◆ Advance diet as tolerated
- ◆ Change PPI to PO if tolerating PO
- ◆ Address any barriers to discharge

Valve and Aortic Surgery Post-Op Day 1

- ◆ ASA 81mg daily
- ◆ Beta-blocker, if appropriate.
Starting dose 6.25mg-12.5 mg
q12 hours
- ◆ Review home medications and
appropriateness to restart
- ◆ Advance diet as tolerated **
- ◆ Change PPI to PO if tolerating PO
- ◆ If mechanical valve, ascertain
anticoagulation plan
- ◆ Address barriers to transfer
- ◆ DVT ppx

****ALL patients undergoing surgery on
their AORTIC ARCH MUST BE
STRICT NPO and must be evaluated by
ENT after extubation due to high risk of
left vocal cord paralysis due to left
recurrent laryngeal nerve injury.****

Minimally Invasive Mitral Valve Repair, Mini MAZE POD 1

- ◆ ASA 81 mg daily
- ◆ Colchicine 0.3-0.6 BID (based on renal function)
- ◆ Chest tubes typically removed POD day 1 or 2
- ◆ Early initiation of Diuresis
- ◆ Advance diet as tolerated DVT ppx

AM labs:

- ◆ BMP with mag and phos (stat)
- ◆ CBC (stat)
- ◆ PT/INR/PTT (stat)
- ◆ Hepatic panel if indicated (liver injury, concern for RV failure ect.)
- ◆ Plasma hemoglobin, LDH if patient has a device
- ◆ Daily Chest xray

PM labs: Based on patient's individual needs. Afternoon BMP if received diuretic or on CRRT

Chest Tubes and Wires

Daily for all patients: Assess appropriateness to remove wires and chest tubes.

Chest Tubes: How much have the chest tube put out (should be less than 100mls/8hours or <300mls/24 hours)? What is the quality of the output? Has the patient ambulated? Are there any concerns on chest x-ray that would indicate chest tubes are still needed (pneumothorax, large effusion)? Are the wires out?

Wires: Are we using the wires or when was the last times the wires were needed (should be >24 hours)? If we are using wires, what is the underlying rhythm. See wire removal protocol for CABG patients

****DO NOT REMOVE WIRES IF
PATIENT IS PACER DEPENDENT****

Post-Op Heart Transplants



Before Arrival:

- Review patient's chart
- Suspend any medication that will not be appropriate post-op (antihypertensives, beta-blockers, diuretics, NPH, etc.)
- **Do not initiate power plan until patient arrives in the unit (or it will throw off the timing of steroid administration)**

Arrival to CSICU:

- Sterile Cockpit
- Level 1 chest x-ray
- **Initiate General Cardiac Surgery and Heart Transplant section of Power Plan.** This will time the steroids and MMF correctly

- Order inotropes and vasoactive medication. Order ONLY from power-plan
- Order antibiotics. All transplant patients will be on VANC and ZOSYN until donor cultures result
- Review EKG and epicardial pacemaker functionality
- Order AM labs and chest x-ray for next day
- Complete Arrival Note

Post-op:

- Prevention of RV failure is the guiding principle
- Atrial (A) pace patient for heart rate 95-115 if patient not doing this intrinsically. If problems with capturing, consider the addition of dopamine or isoproterenol
****BRADYCARDIA=DEATH****
- Don't wean inotropes unless cleared by attending

- Be mindful of fluid resuscitation. RV is very sensitive to volume changes. Monitor CVP closely. Greater than >15, notify attending.
- Nitric Oxide: often used to support right side of heart after surgery. Check met hemoglobin every 12 hours
- If extubated: 6 liters NC if patient is on Nitric regardless of SpO₂
- Wean to Extubate

Contraindicated Medications:

Beta Blockers

Amiodarone

Atropine (ineffective in transplant patients)

Immunosuppression:

Tacrolimus

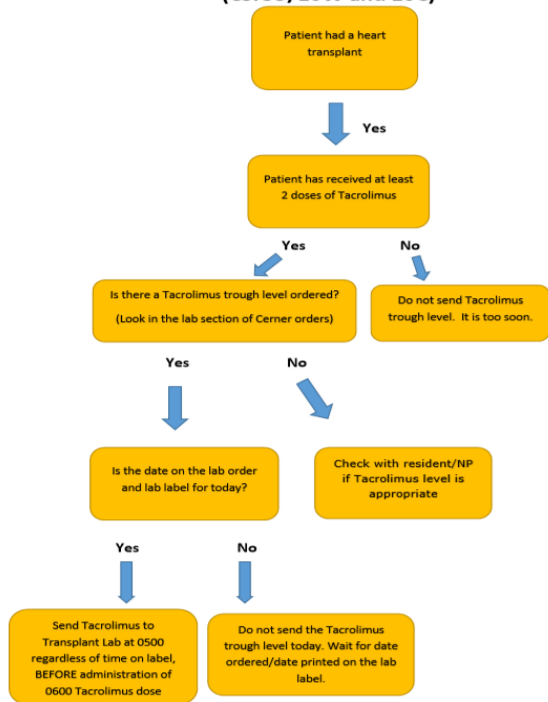
Mycophenolate

Steroid Taper

(IVIG, basiliximab, and thymoglobulin are ordered on a case-by-case basis)

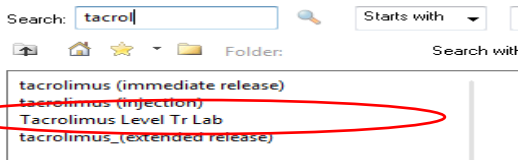
- ♥ Transplant patients do not feel chest pain in the setting of ischemia, will need to look for other signs of MI
- ♥ Most common complications of transplant: RV failure, rejection, and infection

Heart Transplant Tacrolimus Administration Algorithm (CSICU/10W and 10C)



TAC Trough Level Ordering

1. In Cerner, type “Tacrolimus” into the search box and choose “Tacrolimus Tr Level”



2. Enter in the specific time and date that the lab is to be drawn. Enter in a different order for each date, or a date range, noting that the lab slip will print up in the location that the patient is residing when the order is placed.



LVADs 101:

Devices that we see:

HeartMate II

HeartMate III

HeartWare

All LVADs requiring ICU level of care
are admitted to the CSICU

Deciphering the LVAD Console:

Pump Flow:

- L/min, often be used as a surrogate for cardiac output.
- Most patients contribute to their CO with contractility, so this number isn't 100% accurate.
- 15-20% inaccuracy.

Speed:

- RPMs: Speed the pump moves at.
- Balanced speed usually so the aortic valve will open roughly every 2-3 beats

in an effort to minimize thromboembolic events from a static AV.

Power:

- Should increase and decrease with speed and flow.
- Be alert with an increase in power, as it could be a sign of thrombus.

Pulsatility Index (PI):

- Related to how much assistance is being given the LVAD by LV.
- Seen only on Heartmate II and III, but is calculated on HeartWare.

Expected Parameters

Heartware:

- Recommended speed: 2400-3200 RPM.
- Flow Time Peak-Trough >2L/min.
- Flow: 2 to 4 LPM
- Expected power range: 3-7 watts.

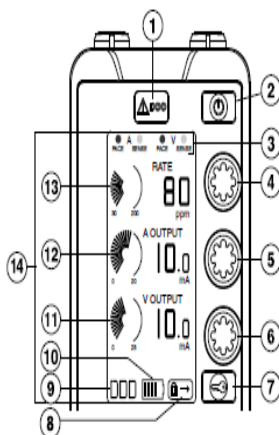
Heartmate II :

- Recommended speed range: 6,000 to 15,000 rpm.
- Flow range: 3 – 10 L/min.
- PI: 4-6LPM
- Expected power range: 6-7 watts.

Heartmate III

- Recommended speed range: 5000-6000 RPM
- Flow: 4-6 LPM
- PI: 2-5
- Power 3-6 watts

Epicardial Pacemakers



- | | |
|--|---------------------------------|
| 1 DOO/Emergency key | 8 Lock indicator |
| 2 On/Off key | 9 Pacing mode indicator |
| 3 Pacing and sensing status bar indicators | 10 Battery indicator |
| 4 RATE dial | 11 V (Ventricular) OUTPUT scale |
| 5 A (Atrial) OUTPUT dial | 12 A (Atrial) OUTPUT scale |
| 6 V (Ventricular) OUTPUT dial | 13 RATE scale |
| 7 Lock/Unlock key | 14 Upper screen |
-



Pacemaker Codes

1 st letter	2 nd Letter	3 rd Letter
Chamber(s) Paced	Chamber(s) Sensed	Response to sensing
A = atrium	A = atrium	I = Inhibit (demand mode)
V = ventricle	V = ventricle	T = Triggered
D = dual (both atrium and ventricle	D = dual	D = dual
	O = none	O = none

Capture: Mechanical capture with each paced beat. MA up to 20 on Atrial side.
MA up to 25 on Ventricular Side.

Stimulation threshold: The minimum electrical stimulus needed to consistently capture the heart.

Pacemaker Sensing:

The ability of the pacemaker to “see” when a natural (intrinsic) depolarization is occurring. Expressed in mV

Objectives of sensing:

1. To “see” or detect appropriate intrinsic events
2. To filter out unwanted signals

The greater the number, the less sensitive the device to intracardiac events.

Undersensing: Pacemaker does not see intrinsic beat, and therefore does not respond appropriately.

Undersensing = Overpacing

Oversensing: Pacemaker picks up an electrical signal other than the intended P or R wave.

Oversensing = Underpacing



Atrial Fibrillation

New Onset

Chronic

DDX:

Hypoxia
Hypercarbia
Hypovolemia
Acidosis
Fever
Thyroid Dz
Sepsis
Pain/agitation
Electrolytes

-Obtain EKG
-Review labs
-Check Electrolytes
-Consider Mg and KCL

-Obtain EKG
-Review labs
-Check Electrolytes
-Consider Mg and KCL
-Review pre-op meds
-Consider increasing BB or give dose early

HR $\leq$ 110

HR $\geq$ 110

-Consider Amio
-Monitor if stable

-.Amio 150mg IV bolus (may repeat)
Amio load: IV: 1mg/min x6 hrs, then 0.5

-Notify attending

Patient Unstable:

-Diaphoretic
-Respiratory distress
-LOC change
-SBP < 85 or 10-30 from baseline

Other Considerations:
-If patient has pacing wires, consider - placing in back-up of VVI 60
-If show afib, may need to V pace

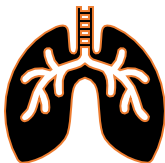
Patient Unstable:

-Diaphoretic
-Respiratory distress
-LOC change
-SBP < 85 or 10-30 from baseline

-Notify attending
-Prepare for synchronized cardioversion

Post-op Thoracic and Vascular Surgery

Cardiac output is always important, and management should involve optimization. Other considerations include aggressive pulmonary toileting, prevention of infection, pain management and early ambulation.



Post-op Esophagectomy Patient



Before Arrival

- Initiate Esophagectomy Power Plan
- Familiarize yourself with patient's history and planned surgery

Immediate Post-op

- SBP less than 160
- Metoprolol IV piggyback 2.5mg-5mg every 6 hours or hydralazine IV if metoprolol is not effective
- Avoid pressors, give fluid as needed. All patients will have a FloTrac monitor to guide resuscitation.
- Afib ppx: Keep Mag > 2.5, K > 4.0. Esophagectomy patients do not tolerate afib,
- Peri-op abx: Ancef x2 doses
- Notify intensivist and/or surgeon for combined chest tube and JP output of greater than 100 for 2 hours.
- Strip JP if clogged
- NGT to low wall suction (ensure that it is sumping appropriately)
- NGT only to be removed by thoracic surgery

- No medications or tube feeds via J tube until cleared by Thoracic
- NEVER Bipap for esophagectomy patients
- NEVER NT suction
- Albuterol/ipratropium/N-acetylcysteine every 6 hours
- Will remain intubated post-op until next morning. Wean vent to PSV overnight for extubation when cleared by thoracic in the morning.

Post-op Day 1

- Clear all new orders with thoracic attending
- Extubate
- Trickle feeds. Usually Promote 20/hr
- Keep foley
- No Lasix within first 24 hours unless requested by thoracic attending
- Decrease fluids to 50
- Meds down J Tube: NOTE: Flomax cannot be crushed and put in J Tube

Pre and Post-Op Abdominal Aortic Aneurysm Repair and TEVAR

Pre-op:

- Goal BP: MAP less than 90 to prevent further dissection or rupture. Heart rate usually less than 80.
- Blood pressure on both the right and left arm and notify attending for any discrepancies in bilateral blood pressure measurements
- Esmolol is first line of treatment for hypertension/heart rate management pre-operatively

Post-op:

Before Arrival:

- Initiate General Cardiac Surgery EVAR Power Plan
- Familiarize yourself with patient's history and planned surgery

Immediate Post-op:

- Goal BP: MAP 90-100 mmHg to maintain spinal perfusion if no delayed neurological deficit (DND)
- Goal BP (DND) present: MAP 110 mm hg
- Esmolol and Clevidipine are first-line treatment for hypertension and heart rate control post-op. Do not use nitroprusside or nicardipine as a spinal steal may develop.
- Utilize vasopressors and/or fluid for postoperative management of hypotension
- If DND present, increase hemoglobin goal to greater than 10
- Neuro assessments every hour x12 hours, then per unit routine
- Patient must be able to raise leg off bed or bend knee towards abdomen, notify vascular immediately for any changes from baseline assessment.
- Monitor for signs and symptoms of stroke

Lumbar Drains

- Patient may have lumbar drain, refer to nursing algorithms for drain management (Liquigard vs Codman)
- Headache or neuro changes may be related to unintentional CSF drainage, check insertion site/catheter if this occurs
- For a patient with a Codman, the patient is to remain on bedrest until the lumbar drain is capped.
- Liquigard patients may ambulate with the drain with the approval of the vascular surgeon.
- The lumbar drain is capped after 72 hours for open repairs and 48 hours for endovascular repairs.
- Lumbar drain removed at 96 hours for open repairs and 72 for stents.
- Goal INR prior to removal is less than 1.4
- Hold anticoagulation prior to removal
- If patient has indication for Plavix, do not start in the post-op period until lumbar drain is discontinued. Discuss with vascular before starting.

CSICU Transfer Criteria

The status of the patients admitted to the CSICU will be assessed continuously to identify patients who no longer require ICU level of care.

We should always be identifying and addressing barriers to transfer

Criteria:

- ♥ Stable respiratory status for 4-8 hours without mechanical ventilation
- ♥ Stable hemodynamics
- ♥ Absence of PA catheter
- ♥ Absence of arterial monitoring
- ♥ Absence of life threatening arrhythmias
- ♥ Absence of vasoactive drips
- ♥ Life sustaining underlying rhythm if receiving temporary epicardial pacing
- ♥ Patient receiving dopamine, dobutamine or milrinone therapy

may be transferred to the floor if receiving these medications in non-titrating doses

Transfer Procedure:

- ♥ Assess your patient. Are there any identified ICU needs? Refer to the level of care guidelines.
- ♥ Ask the bedside nurse if they have any concerns or interventions that he/she are doing for the patient that cannot be done on the step-down unit.
- ♥ Discuss transfer with the attending intensivist
- ♥ The transfer must be approved by the patient's attending physician
- ♥ Once cleared for transfer, the transfer order will be placed (step-down with telemetry)
- ♥ Notify the charge nurse of the transfer order
- ♥ Review the patient's orders and discontinue any that are contraindicated on step-down

♥ Once the bed is assigned, call the receiving provider and sign out the patient *before* the patient leaves the unit.

Cardiac Surgery Patients

Call M10W/Central APP

After 5pm: Page 9994 for the surgical intern

Thoracic patients

Notify the thoracic resident

Vascular Patients

Notify the vascular resident

Heart failure patients
(VADS/Transplants)

Notify TxMx APP, if unable to contact, have the ICU attending notify the heart failure attending

VCUHS Nursing Level of Care Criteria for Progressive Care

- ♥ Nursing assessment, vital signs, monitoring, intervention needed no more than every 4 hours
- ♥ Bradycardia/tachycardia responding to treatment
- ♥ SBP greater than or equal to 90 or within 20% of patient's normal baseline with hemodynamic stability (consider pending lab values, hemoglobin, lactate, fluid status)
- ♥ SBP less than 200 or within 20% of patient's normal baseline and requiring intermittent IV as needed or scheduled meds for control
- ♥ Recent and/or ongoing MI with stable symptoms
- ♥ Continuous neb treatments, NT suctioning with respiratory stability and stable work of breathing
- ♥ Use of intermittent, non-invasive ventilation support (CPAP/BIPAP) with maintenance of oxygenation
- ♥ High flow oxygen delivery by either nasal cannula or trach collar: FI02 <60% and flow rate < 50 liters
- ♥ Other non-high flow oxygen (face mask, trach collar) FI02 < 80%
- ♥ Continuous pulse oximetry
- ♥ New (first 7 days of a tracheostomy)
- ♥ Continued or progressive respiratory instability or work of breathing +/- marked increase for FI02 for greater than 2 hours, but responding to treatment



Dr. Kim's P's of Escalation/When to Call

Pressors: New pressor, escalating doses
pressors, ongoing/refractory
hypotension

Product: New transfusion requirement,
ongoing bleeding

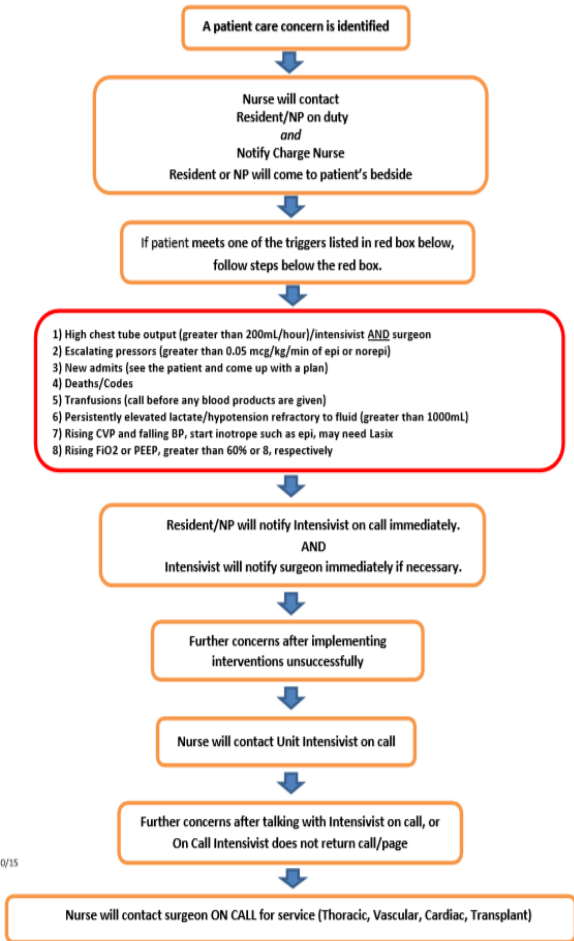
Plastics: Procedures on patients
(excluding PIV)

Penicillins: Starting new
antibiotics/patient looking septic

Patients: New admissions (planned or
unplanned)

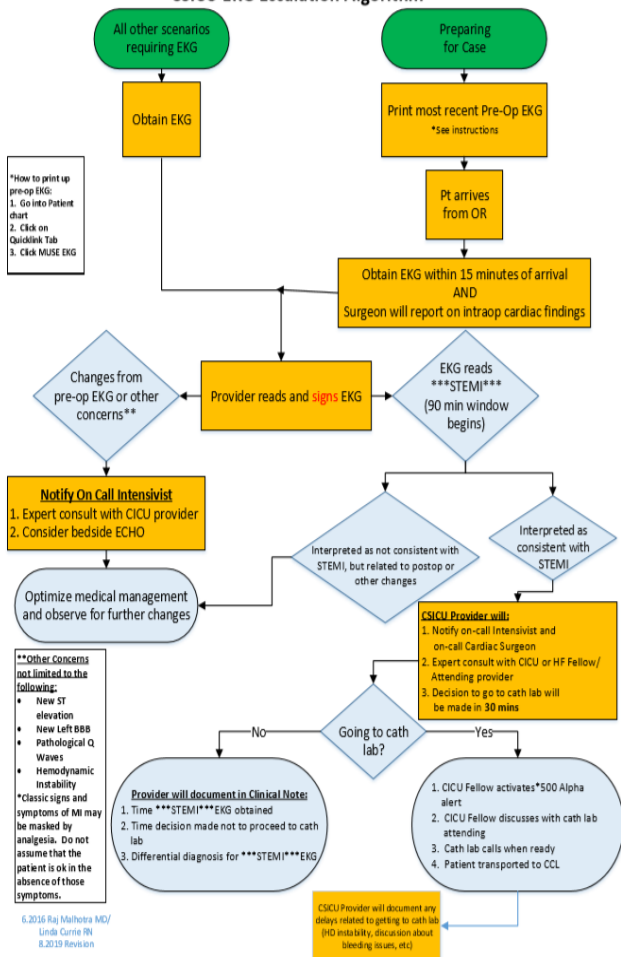
Postmortem: Dead, dying or coding
patient

CSICU Provider Notification Escalation



6/10/15

CSICU EKG Escalation Algorithm



6.2016 Raj Malhotra MD/
Linda Currie RN
8.2019 Revision

Notes: