Riverside University Health System
Surgical Intensive Care Unit (Unit 2200)

Welcome Letter

Dear Trainees,

Welcome to your Surgical Intensive Care Unit rotation!

Riverside University Health System SICU rotation will provide a learning environment for the care and management of the critically ill patient requiring intensive care. Surgical basic science, including fluids and electrolytes, wound healing and nutrition will be emphasized. Clinically, residents will assess the critically ill patient, develop clinical judgment on managing these issues, and become proficient in managing and weaning off ventilator support. Careful postoperative care and follow up will be emphasized. Residents will develop cognitive and technical skills in dealing with complex critically ill patients.

The SICU is a 12 bed high-acuity, multi-specialty critical care unit located on the 2nd floor in Unit 2200 and the workroom (Room B2061) for the providers. The SICU call room is located on the second floor room E 2065 (code 3197) for those covering the overnight shift. The patient population supported in the SICU includes poly-trauma, general surgery, neurosurgery, vascular surgery, thoracic surgery, ENT, spine and orthopedics, with age ranging from 18 years and older.

The SICU is a closed unit, meaning, we serve as the **primary team** on **all** patients admitted to SICU service and therefore it is the responsibility of the SICU residents, nurse practitioners and attending physicians to manage these patients and communicate effectively with the consulting surgical teams. It is the expectation that all orders will be entered by the SICU team for all SICU patients, such as treatment recommendations from consulting surgical teams. **Remember that the patient is the responsibility of the attending physician and the final decision and ultimate responsibility for the patient's outcome always lie with the SICU attending.**

The goal of this rotation is to provide you with an environment to obtain the knowledge, skills, and experience necessary to care for the critically-ill surgical patient.

SICU Daily Workflow

0600: Daily patient handoff in the SICU work room (Rm B2061)
0645: Morning sign-out in **Magnolia**. Weekend sign-out **(Sat/Sun)** starts at **0730** in **Magnolia**
0715: **Every Tuesday** will be M&M- Morbidity and Mortality Conference after morning sign out in Magnolia room A, B
0730-0830: Pre-round on patients. **On days when there is a morning conference please plan to pre-round on patients prior to the conference so that formal rounds can start promptly.**
0830: Rounds with the attending physician. (Attendings rotate weekly in the SICU)
Residents have a conference every Wednesday after which you will report to the SICU workroom. You will engage in teaching sessions after rounds on various critical care topics on selected days. Please see the topic list, provided at the beginning of the rotation and in the SICU workroom on the white board and assign yourself a topic to present to the team.

You are expected to attend handoff, morning sign out, M&M and conferences unless exempt.

- During education conferences, *the SICU handset should be passed to the SICU NP*. Updates regarding patients should be provided prior to departure.

EDUCATION SESSIONS:
Monday 08:30am Joint Neurosurgery/SICU education rounds (in SICU)
Monday 04:00pm Fellow led Journal Club
Tuesday 11:30am Nutrition Rounds, **Call 65570** to confirm location
Thursday 12:00pm (starting August 2021) SICU Lecture (topics align with DeckerMed)
Friday 12:00pm Pharmacy Lecture, **Call to 64490** confirm

SICU General Policies:
General:

- You will function as a member of the SICU team for daily patient care.
- Medical Students are an integral member of the SICU team and should assist with patient care as directed by the senior resident, nurse practitioner or attending physician.
- Be courteous and respectful of your attending physicians, nurse practitioners, colleagues, the nursing staff, ancillary staff and all you come in contact with during your SICU rotation. Listen to nurses, they are experienced and have very important information to tell you.
- If you're going to be late or absent, please notify the attending physician and the senior SICU resident or nurse practitioner.

EVENTS:

- ***Notify the SICU attending physician*** of any acute changes in patient conditions including:
    - ICU admission
    - transfers to SICU
    - unplanned extubation
    - unplanned intubation or acute respiratory failure
    - Code Blue or hemodynamic instability
    - significant neurological change in patient,
    - medications errors requiring interventions to stabilize the patient
    - ongoing fluid resuscitation without improvement in hemodynamics
    - initiation of vasopressors
    - discharges or transfers not mentioned during rounds
    - patient deaths
    - Any additional concern you may have

- Document **all** acute events with a progress/"significant event" note detailing occurrence, response and interventions.

Day to Day:

- All residents are expected to participate in daily patient care, including independent assessment and documentation of a daily progress note and all notes must be selected for attending co-signature.
- Medical students notes cannot be copied or submitted as documentation in place of the resident's daily progress note.
- All notes must be sent to the correct attending covering the SICU and all orders entered must have the correct SICU attending covering during the time the order was received and entered.
- Second year residents should be assigned patients of higher acuity and complexity. Patient should be distributed evenly across residents on rotation
- Nurse Practitioners support resident

- <u>SICU Admission:</u>
    - SICU resident will initiate admit orders for patient pending arrival.
    - Notify the Attending or Fellow of all admissions

- SICU resident will document SICU Admit note upon patient arrival to the unit and assessment completed.
- All admissions from the OR require direct sign out at the bedside in accordance with the **OR to ICU handoff Guideline**

- <u>SICU Discharge</u>:
  - Occasionally patients are discharged directly from the SICU and need to have a discharge summary documented. Must be done on day of discharge.
  - Organ donors/One Legacy patients needs to have a discharge note completed upon pronunciation of brain death and One Legacy has assumed care.

- <u>Death Occurring in SICU</u>
  - Resident must call the Coroner's office and fill out the required form (ask RN or unit secretary for form).
  - ***Attendings MUST review and sign the yellow death form, reviewing cause.*** This form cannot be signed by a trainee.

- <u>SICU downgrade</u> will be as followed:
  - ICU pt. activated as a trauma---downgrade to trauma service/purple surgery
  - ICU pt. s/p gen surg (appe, chole etc.)---downgrade to red/orange surgery
  - ICU pt. with vascular injury---downgrade to vascular service—blue team
  - ICU pt. with colorectal, surg onc issues—downgrade to green service—colorectal
  - If unsure, ask your senior resident

  It is the responsibility of the SICU team to write the transfer summary and ***call the receiving downgrade team*** to provide a verbal handoff of the patient. Transfer summary should be detailed and brief with all essential information needed to resume care of the patient.

Rounds:

- **Rounds begin with the highest acuity and intubated patients,** with the presence of the Respiratory Therapist assigned to the patient ***(please call the RCP to let them know when we will start rounding and confirm availability)***.
- During rounds, the SICU RN at bedside will start with the FASTHUGS BID (Feeding, analgesia, sedation, thromboembolic prophylaxis, ulcer prophylaxis, glycemic control, SBT. Bowel care, indwelling foley, de-escalation of antibiotics) and brief overview of any acute overnight events.
- The resident/medical student will present the patient giving a brief introduction of the patient including reason for admission, followed by the system approach (Neuro, Cards,

Resp, GI/FEN, GU, MSK, ID, Integ, etc. during which relevant labs, imaging, medications etc. as it applies to the systems. **Pre-round on patients and provide accurate findings based on <u>your</u> assessment of the patient.**

- Utilize the ***SICU pharmacist: Ext. 66608*** as a resource (med dosing, interactions etc.). *The ICU pharmacist rounds with the SICU team every Tuesday and Thursday please call them to let them know when you are rounding and where you are starting.*

Management:

- Trauma patients admitted to the SICU service as multi-trauma will require an admitting and then weekly DVT ultrasounds. This usually will be bilateral LE ultrasound unless upper extremity injuries present or mechanism for injury present.
- All patients should be assessed daily for need for GI, DVT, and seizure prophylaxis and orders placed accordingly. Please ensure that stop dates are indicated on orders, e.g Keppra x7days should be ordered as such reflecting the dose duration.
- Please make sure that on Mondays, every patient that has been in the SICU for more than 48 hours and any patient that you expect will be in the SICU for more than 48 hours should have a nutritional assessment done by ordering pre-albumin, albumin and CRP levels.
- Assess the need for lines, drains, and tubes on a daily basis. Make sure this assessment is documented in your progress note.
- Multimodal pain management should be initiated for patients, de-escalate in anticipation of extubation/discontinuation of continuous analgesic infusions, and in preparation for transfer out of SICU.
- Social work consultation should be initiated for any patient testing positive for recreational drugs, include SBIRT in the order comments. Social workers also cover patients with no insurance, MediCal, Medicare issues and will require an order.
- Case Managers are involved with placement, obtaining DME etc. and require an order entered into EPIC specifying the required DME and for SNF placement, reason such as rehab.
- Geriatric consult should be placed on all trauma patients older than 65 years of age admitted to the SICU.
- All procedures performed in SICU require documentation in Epic on the day of procedure.
- Familiarize yourself with the Organ, Eye and Tissue Donation and the Compassionate Extubation Policy found on RUHS intranet.

Goals of Care:

All care plans are most successful through partnerships with patients and practitioners. Eliciting patient wishes facilitates the delivery of appropriate medical recommendations and care.

- Code Status should be addressed with every patient and updated in Epic.
- Each major clinical event (surgery, change in clinical status, organ system failure, substantial recovery) should prompt a reassessment of code status and update. *Patients returning from the operating room must have their code status reassessed and documented.*
- Goals of care conversations with patients and surrogates **must** be documented by the resident that attends the meeting with the attending.
    - Update note type to ACP (Advance Care Planning) to ensure population in ACP tab and link to CODE STATUS bar.
- Palliative care consultation should be placed as soon as possible for patients with life threatening injuries, multiple comorbidities, ICU readmissions, and those with poor prognosis to discuss goals of care.
- Hospice referral, transition of goals of care, comfort care and family support in these instances warrant an early palliative care referral.
- As with all consults, communication is critical. Team prognosis, recommendations and expectations should be relayed to the Palliative Care team at the time of consultation and over the course of care.

Objectives:

Medical Knowledge:

- Learn in depth the fundamentals of basic science as they apply to patients in the intensive care unit. Examples include anatomy, physiology and pathophysiology of the cardiovascular, respiratory, genitourinary, gastrointestinal, musculoskeletal, hematologic, endocrine systems, respiratory failure, coronary ischemia, shock, malnutrition, stress ulceration, nonocclusive intestinal ischemia, antibiotic-associated colitis, antibiotic resistance, jaundice, and renal insufficiency.
- Learn the rationale for admission and discharge criteria in the ICU.
- Learn factors associated with assessment of preoperative surgical risk. Examples include evaluation of the high risk cardiac patient undergoing non-cardiac surgery.
- Learn fluid compositions and the effect of the losses of such fluids as gastric, pancreatic and biliary fistulas at various levels.
- Learn the indications for, and complications of blood component therapy.
- Be able to discuss the pathophysiology of respiratory failure.
- Be able to demonstrate an understanding of acid-base disorders, including diagnosis, etiology, and instituting appropriate treatment.
- Be able to discuss the pathophysiology, indications, and complications associated with various modes of mechanical ventilation. Examples include ventilator management of ALI, ARDS and thoracic trauma, as well as weaning from ventilator support.
- Become familiar with the role of hormones and cytokines in the graded metabolic response to injury, surgery and infection.
- Understand the indications, routes and complications of administration of parenteral and enteral forms of nutrition.
- Become familiar with the factors associated with altered mental status. Examples include traumatic, septic, metabolic and pharmacologic causes.
- Become familiar with the risk factors associated with stress gastritis.
- Become familiar with the causes and treatment regimens for gastrointestinal bleeding. Examples include bleeding from upper and lower GI sources.
- Become familiar with the factors associated with bleeding disorders. Examples include DIC, ITP, hemophilia, coagulopathy associated with shock and hypothermia.
- Become familiar with the pathophysiology of hemodynamic instability. Examples include types of shock, cardiac arrest.
- Know and apply treatments for arrhythmias, congestive heart failure, acute ischemia and pulmonary edema.
- Become familiar with adjuncts to the analysis of respiratory mechanics and gas exchange. Examples include work of breathing, rapid shallow breathing index, CO2 analysis and dead space measurements.

- Learn fluid and electrolyte as well as acid/base abnormalities associated with complex surgical procedures and complications. Examples include massive fluid shifts associated with trauma, shock and resuscitation, high output fistulas and renal failure.
- Learn the pathophysiology associated with endocrine emergencies in the ICU. Examples include thyroid storm, hyper, hypoparathyroid states and adrenal insufficiency.
- Become familiar with the risk factors and common pathogens that are associated with nosocomial infections.
- Be able to discuss the mechanism of action as well as the spectrum of antimicrobial activity of the different antibiotic classes. Examples include carbapenems, extended spectrum penicillin's and fluoroquinolones.
- Learn the risk factors that result in multiple resistant organisms. Examples include antibiotic dosing, antibiotic synergy and transmission patterns.
- Be able to discuss the factors that result in an immunocompromised state. Examples include malignancy, major trauma and steroids.
- Learn the pathophysiology of traumatic brain injury and neural disease. Examples include knowledge of intracranial pressure monitoring and maneuvers to normalize ICP.
- Be able to discuss the pathophysiology, presentation, and causes of hepatic failure.
- Be able to discuss the pathophysiology, presentation, and causes of renal failure and indications for intermittent dialysis or continuous hemofiltration. Examples include pre-renal failure, acute tubular necrosis, hepatorenal syndrome.
- Be able to discuss end of life ethical issues. Examples include organ donation and withdrawal of support.
- Become familiar and proficient with Ultrasound Techniques from their skills lab during the ICU rotation

Patient Care:

- Evaluate critically ill patients and make supervised decisions regarding patient care.
- Utilize a daily rounding checklist (FASTHUGGS) to ensure all prophylactic measures against infectious and other complications are in compliance.
- Read plain radiography and CT imaging and show proficiency in reading chest and abdominal X-rays.
- Under appropriate supervision, the resident should be able to
    - Insert central venous catheters using ultrasound guidance in full compliance with central line precautions bundles
    - Insert, interpret and troubleshoot arterial lines
    - Insert chest tubes and manage chest drainage sets
    - Perform bedside bronchoscopy
    - Perform bedside ultrasound
- Work on gaining competency in:
    - Central line placement

    - Arterial line placement
    - Bronchoscopy
    - Tube Thoracostomy
    - Removal of chest tubes
- Resuscitate patients from shock and cardiac arrest.
- Recognize and treat ischemia and arrhythmias on ECG.
- Utilize correct class of antiarrhythmic, vasodilators and diuretics as they pertain to cardiac disease.
- Correctly diagnose and treat gastrointestinal bleeding associated with ulcers, portal hypertension and lower GI sources.
- Diagnose cause and appropriately alter treatment regimens to compensate for hepatic failure.
- Perform the following aspects of ventilator management:
    - Set up initial and advanced ventilator settings.
    - Wean patients from ventilator support using weaning parameters.
- Treat common complications of mechanical ventilation, including pneumothorax and tube thoracostomy.
- Provide cardiovascular support including, but not limited to, invasive monitoring, use of inotropes and vasopressors, management of dysrhythmia.
- Utilize appropriate blood product transfusion indications and alternatives.
- Correctly utilize prophylaxis for stress gastritis in high risk ICU patients.
- Initiate appropriate nutritional support through the optimal route and manage complications of nutritional support.
- Assist in managing patients with intracranial hypertension and cerebrovascular disease.
- Use antibiogram, clinical and pharmacy resources to prescribe appropriate antibiotics.
- Apply concepts of patient isolation and prevent spread of nosocomial infection.
- Initiate appropriate DVT prophylaxis and manage thromboembolism.
- Provide culturally sensitive care and gain skill in providing end-of-life care.
- Understand and provide Patient-Centered and Family-Centered Care.
- Consult the Palliative Care service when indicated

Interpersonal and Communications Skills:

- Gain knowledge in the education of patients and families in post operative and rehabilitative strategies,
- Be expected to interact and communicate with other Critical Care team members in an effective, professional manner to facilitate highly effective care
- Develop skills in providing adequate counseling and informed consent to the critically ill patient and their families.

Systems-Based Practice:

- Be able to communicate effectively with patients, families, nurses, and allied health care personnel.
- Be able to use appropriate consult services to improve care of patients in the SICU
- Participate in the coordination of the rehabilitation of the critically ill patient. Demonstrate knowledge of cost-effective critical care.
- Learn how to be an advocate for critically ill patients within the health care system.
- Refer critically ill patients to appropriate practitioners and agencies.
- Facilitate the timely discharge and/or transfer of critically ill patients.
- Function as a member of the ICU team and act as a liaison with each patient's home service to communicate patient progress and plans for care by the ICU team.
- Relate concerns and advice from the patient's home team to the ICU service.
- Be able to work with family to respect patient's end of life wishes, including withdrawal of care in a dignified manner.
- Support and participate in SICU Quality Improvement Programs.

Professionalism:

- Develop a sensitivity of the unique stresses placed on families of patients in the SICU.
- Demonstrate an unselfish regard for the welfare of SICU patients.
- Demonstrate a commitment to carrying out professional responsibilities and adherence to ethical principles.
- Demonstrate firm adherence to a code of moral and ethical values.
- Be reliable, punctual and accountable for your own actions.
- Effectively deal with dissatisfied patients and their families, those with substance abuse problems and indigent patients and families.
- Understand the benefits and functionality of multidisciplinary health care teams and use a professional and appropriate demeanor when with fellow team members and with other disciplines.

SICU Attendings and Advanced Practice Providers

The SICU attendings are all general surgeons, specializing in trauma and critical care medicine. They rotate through the SICU weekly and are always available to you for guidance, questions or concerns.

Chief, Division of ACS and Director of Surgical Critical Care:

Dr. Sara Edwards x64011 s.edwards@ruheatlh.org

Attendings:

Dr. John Agapian	x18321	j.agapian@ruhealth.org
Dr. Paul Albini	x12486	p.albini@ruhealth.org
Dr. Dan Ludi	x18320	d.ludi@ruhealth.org
Dr. Andrew Nguyen	x18215	andrew.nguyen@ruhealth.org
Dr. Reyna Gonzalez	-	r.gonzalez@ruhealth.org
Dr. Stephanie Downing	Pgr 951-344-2695	s.downing@ruhealth.org

Nurse Practitioners:

SICU NP phone: 64616 Trauma 1 NP phone: 64093 Trauma 2NP phone:18583

Kristen Chavez	k.chavez@ruhealth.org
Shana Rogers	s.rogers@ruhealth.org

RUHS Frequently Called Numbers

Surgery Teams

Orange x18210	Orange senior x67581	Nsgy x18288
Green x18211	Green senior x64091	Ortho x18291
Blue x18212	Blue senior x64207	Plastics x18504
Purple x66683	Purple senior x18213	
ENT x18617		
Red x66684	Red senior x64804	GI x18519
SICU x64243	SICU senior x18214	

2200 Nursing station x64910
ICU Case Manager-Debra Schumm x65452
ICU Social Worker- TBD
Respiratory Therapy x64290
SICU pharmacist x66608
Spanish Interpreter: x65602, ID 501608, Code 26520

“The Ten Commandments for a Successful SICU Rotation”

- Honesty first, second, last and always
  - *“Admit when you are wrong and be truthful always”*
- Do it now, do not procrastinate
  - *“If the unit becomes busy, there may not be time later”*
- Do it right the first time
  - *“The patient will likely not give you a second chance to get it right”*
- Ask if you don’t know, do not assume.
  - *“There is no such thing as a stupid question. You are here to learn and without asking, no one knows what you don’t know”*.
- Communicate before, not after
  - *“You can be faulted only if you don’t reach out to your seniors, fellows or attendings”*
- Do it yourself
  - *“Assume nothing, always see test results or imaging results yourself and delegate with discretion”*
- Round frequently
  - *“Anticipate things can go wrong, know your patients and identify untoward physiologic events before they happen”*.
- Write things down
  - *“Keep a list of things to be done and revise and update it throughout the day”*
- Read everyday
  - *“Read about your patients diagnosis and appropriate treatment plans”*
- Remember the patient and their family
  - *“Keep in mind that it is a privilege to care for each patient and their family. Clear and open communication is paramount”*

(Adopted and modified from www.surgicalcriticalcare.net)

Example of Patient Presentation in SICU

RN will start with FASTHUGSBID

Resident: One liner why the patient was admitted.eg: John Smith, 65 y/o s/p MVC found to have SDH with 4mm midline shift, he was tachycardiac. Give a brief rundown of injuries if applicable
Neuro: GCS, pain/sedation medications, Any neuro meds such as Keppra etc
Pulm (allow respiratory therapist to contribute here)
CV
GI
FEN
Renal/GU
Heme
ID
Endocrine
MSK
Lines
Plans for the shift

Glasgow Coma Scale

Eye Response

- Spontaneous - Open before stimulus(+4)
- To Sound - After spoken request (+3)
- To Pressure - After fingertip stimulus (+2)
- None - No opening at any time, no interfering factor (+1)
- Closed by local factor - (NT)

Verbal Response

- Oriented - Correctly gives name, place, and date (+5)
- Confused - Not orientated but communicates coherently (+4)
- Words - Intelligible single words (+3)
- Sounds - Only moan/groans (+2)
- None - No audible response, no interfering factor (+1)
- Non-testable - Factor interfering with communication (NT)

Motor Response

- Obeys Commands - 2-part request (+6)
- Localizing - Brings hand above clavicle to stimulus on head/neck (+5)
- Normal Flexion - Bends arm at elbow rapidly but features not predominantly abnormal (+4)
- Abnormal flexion - Bends arm at elbow, features clearly predominantly abnormal (+3)
- Extension - Extends arm at elbow (+2)
- None - No movement in arms/legs, no interfering factor (+1)
- Non-testable - Paralyzed or other limiting factor (NT)

Every brain injury is different, but generally, brain injury is classified as:

- Severe: GCS 3-8
- Moderate: GCS 9-12
- Mild: GCS 13-15

Intubate patients GCS will be reported with a T after the number to indicated tube

SICU Electrolyte Replacement Protocol

At RUHS, there is an electrolyte order set in Epic.

SICU Frequent Orders Set

SICU Vasopressors Parameters