

## **CRITICAL CARE CURRICULUM FOR RESIDENTS**

### **Goals and Objectives**

The goals of the rotation are to develop skills and an adequate knowledge base in the essential methods of caring for critically ill patients. Upon completion of the rotation, residents should be more skillful in diagnosing and treating patients with critical illnesses. Following this rotation, we expect you to be more competent in managing and resuscitating critically ill patients on the wards until they can be transferred to an intensive care unit. In addition, residents should be capable of deciding about the utility and appropriateness of this advanced but invasive and expensive care in the overall treatment of patients.

This is by definition an introduction to a large body of knowledge, which residents cannot master in such a short time, but will gain familiarity with and be better able to access. The Supervising Faculty for the DOM residents will be Dr. Norman Rizk at (650) 724-1748. For Anesthesia and ED residents, Dr. Fred Mihm at (650) 723-0456 will be the Supervisor. We recognize six general areas where competency-based goals have been defined:

#### **I. Patient Care: Designed to provide compassionate, appropriate, and effective care for the treatment of critically ill patients.**

By the end of this rotation, you will have gained experience in the evaluation and management of the diverse systems encountered in critical care units that include the following areas:

- A. circulatory disorders;
- B. shock syndromes;
- C. cardiovascular diseases;
- D. sepsis and sepsis syndrome;
- E. hypertensive emergencies;
- F. acute and chronic respiratory failure;
- G. acute metabolic disturbances, including over dosages and intoxication syndromes;
- H. multi-organ failure;
- I. electrolyte and acid-base disorders;
- J. metabolic, nutritional, and endocrine effects of critical illnesses;
- K. hematologic and coagulation disorders associated with critical illness.

Within these areas, the attending staff will discuss with you the appropriateness of invasive modalities, and the balance between performing services for patients and those procedures that may not be helpful in reaching the family's or patient's goals for their care. We expect residents to be able to diagnose these disorders and perform the initial steps in effective management.

#### **II. Medical Knowledge: Designed to allow you to develop a knowledge base about evolving biomedical, clinical and cognate sciences.**

The field of critical care is extremely broad and this rotation is designed to give you exposure to its breadth, in the hopes of your evaluating it as a career opportunity- and to allow you to make informed decisions about when it is most helpful to refer to critical care units. It encompasses the following areas, as recognized by ACGME:

- A. management of the immunosuppressed patient;
- B. management of anaphylaxis and acute allergic reactions;

- C. hemodynamic and ventilatory support of patients with organ system damage or in the post operative period;
- D. use of paralytic agents and sedative and analgesic drugs;
- E. detection and prevention of iatrogenic and nosocomial problems in critical care medicine;
- F. psychosocial and emotional effects of critical illnesses on patients and their families;
- G. management of end of life issues and palliative care, and have formal instruction and clinical experience and competency in the following areas:
  - 1. with trauma;
  - 2. with neurosurgical emergencies;
  - 3. with disorders of the cardiovascular, respiratory, renal,
  - 4. gastrointestinal, genitourinary, neurologic, endocrine, hematologic,
  - 5. musculoskeletal, and immune systems as well as of infectious
  - 6. diseases;
  - 7. with critical obstetric and gynecologic disorders
- H. after discharge from the critical care unit (To assess the various
- I. aspects of critical care, the fellow should learn about former
- J. critical care patients after hospital discharge);
- K. airway management
- L. use of variety of positive pressure ventilatory modes, to include:
  - 1. initiation, maintenance, and weaning of ventilatory support;
  - 2. respiratory care techniques;
  - 3. withdrawal of mechanical ventilatory support.
- M. use of reservoir masks and continuous positive airway pressure masks for delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry;
- N. management of pneumothorax (needle insertion and drainage
- O. system);
- P. insertion of chest tubes and drainage systems;
- Q. insertion of arterial, central venous, and pulmonary artery balloon
- R. flotation catheters;
- S. emergency cardioversion;
- T. interpretation of intracranial pressure monitoring;
- U. operation of bedside hemodynamic monitoring systems;
- V. nutritional support.

Residents should also acquire knowledge about the indications for and utility of the procedures listed below. Actually performing these procedures would require fellowship training in most instances.

- A. emergency pericardiocentesis;
- B. transvenous pacemaker insertion;
- C. percutaneous needle biopsies;
- D. renal replacement therapy;
- E. pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness;
- F. principles and techniques of administration and management of an MICU;
- G. ethical, economics, and legal aspects of critical illness;
- H. recognition and management of the critically ill from disasters, including those caused by chemical and biological agents; management of critical illness in pregnancy; and quality improvement and patient safety activities in the intensive care unit.

**III. Practice-based learning and improvement: Designed to improve your ability to investigate and evaluate the care that occurs here on our patients to assimilate evidence and improvements in patient care.**

Every two weeks we have a Continuous Quality Improvement Committee meeting with nurse managers, representatives of pharmacy, respiratory therapy and the quality department to consider and implement new initiatives based on data from our own patients outcomes. Attending this and participating in the initiatives is an important part of your educational experience. We also want you to make suggestions about areas for improvement based on your observations in our units, compared with evolving clinical literature; and you will have the opportunity to study their implementation or develop practice algorithms to be presented in our Continuous Quality Improvement (CQI) Committee. At the end of this rotation, we expect you to know how to organize the CQU activities to improve care within a defined area of practice.

**IV. Interpersonal and Communication Skills: Designed to improve the effective exchange of information and collaboration with patients, their families, and other health professionals.**

Weekly care review committees (Mondays at 2 pm at Stanford) with allied professionals allow you to participate in multidisciplinary approaches that emphasize consensual and collaborative approaches to patient care. Biomedical ethics consultations are freely available for difficult issues. Effective communication with consultants is also an art that must be developed and can be challenging. At the end of this rotation, each resident will be able to demonstrate the ability to:

- A. Communicate in a consensual and collaborative approach with allied professionals.
- B. Effectively participate in a family conference where you deliver necessary information to patient surrogates.
- C. Develop receptivity to others' views and contributions during consults.

**V. Professionalism: Designed to support ethical principles and responsibilities and sensitivity to patients of diverse backgrounds within our patient population.**

By the end of this rotation, each resident is expected to develop skills in the following areas:

- A. The fluent demonstration of respect, compassion, integrity and kindness to patients, families and other care-givers, including those with whom you may disagree;
- B. The ability to recognize and avoid conflicts of interest;
- C. Strict adherence to confidentiality and the provision of informed consent that is understandable and within context;
- D. Sensitivity to the gender, age, culture, religion, socioeconomic class, disabilities, sexual preferences and other characteristics of our diverse patient group.

Professionalism optimizes our effectiveness, lends us credibility, and permits us to work in complex environments with many cross- currents.

**VI. Systems-based practice, as manifested by actions that make you responsive to and interactive with the larger context and system of health care, and make you knowledgeable about how to call effectively on resources within our system.**

By the end of this rotation, each resident will learn to:

- A. Participate in the conferences about cost effectiveness and the organization of health care within California and Stanford Hospital provided by the Department of Medicine.
- B. Collaborate with case workers in identifying post-discharge planning congruent with the economic means and prerogatives of our patients, to optimize their chance of a good outcome.
- C. Determine how to use the considerable resources of the School of Medicine, the University, legal consultants at your disposal to optimize patient care.

**Methods of Instruction**

Daily rounds are at 8 am - 10 a.m. and at 3 p.m. - 4 p.m. and include patient-based teaching to improve patient care and medical knowledge base. Formal didactic teaching for residents occurs each day at 10:45 a.m. - 11:30 p.m. The core curriculum is on Thursdays at 10:30 a.m. - 11:30 a.m. and includes all of the topics described above under the core competency of Medical Knowledge. Daily radiographic and imaging interpretation is taught at 11:30 a.m. coincident with review of our patients' radiography and scanning studies. Practice-based learning and systems-based learning occurs in the critical care Quality Improvement Committees (Tuesdays at 1 pm) and in implementation of our protocols; and in Multidisciplinary Care Review Committees (Mondays at 2 pm, in conjunction with Biomedical Ethics) every week. Professionalism should be demonstrated daily and practiced in interactions with nursing, other allied health care professionals, families, consultants and referring physicians.

The CCM fellows are also required to attend weekly didactic lectures (Thursdays at 10:30 am) given by Stanford faculty; conferences on other weekdays are designed for residents. Additional aids include a computerized bibliography with links to landmark articles available on disk in the fellows room; and computer-based learning through the e-journals, and e-texts (like Up-To-Date) available on-line through Lane Library. The attendance of national meetings in critical care (ATS, SCCM, etc) is desirable and financial underwriting will always be provided for those presenting abstracts or giving talks at these conferences.

**Level of Supervision**

Attending physicians will maintain an independent familiarity with and knowledge base of each patient on our service, separate from your own, designed to assure adequate oversight. The Attendings dictate daily progress notes that capture their plans, developed consensually with you. Either attendings or fellows must supervise all line placements and procedures performed by residents. As you progress in skill sets, you will place arterial lines by yourself and more independently evaluate patients in the ED. The attending staff is always available and can be at bedside whenever needed.

**Evaluations**

The MedHub system allows you to document hours of duty, procedures performed and to register your evaluations of our teaching functions. Doing this documentation is very important, but does not supplant direct discussions with the faculty about any concerns or suggestions you may have to improve our rotation. Faculty are expected to provide an end of rotation evaluation and discussion with you, so please expect this and use it as an opportunity. MedHub evaluations of each resident will be performed by the faculty attendings.

Professionalism and interpersonal and communication skills are also assessed by other health care professionals by direct communication with the Program Director. Expect feedback regarding these skills from nursing staff, respiratory therapists and pharmacists to be routed through the Program Director.

## **E2ICU**

### **Operations and Management Structure**

Welcome to E2! We are looking forward to working with you. E2 is a 33-bed unit with a staff of about 180 nurses. Our patient population includes general medicine, general surgery, trauma, neurosurgery, neurology, liver, kidney, pancreas, and small bowel transplant, plastics, ENT, ortho, and oncology.

#### **Management Team**

Patient Care Manager –	Susan Nekimken
Assistant Patient Care Managers –	Maureen Fay, Monica Moore and Chris Szura-Shen (days) Darren Batara and Anita Girard (nights)
Clinical Nurse Specialist –	Mary Lough
Unit Educators –	JoAnn Schumaker-Watt and Teri Vidal

#### **Resource/charge Nurse**

The E2 charge nurse is responsible for patient flow into and out of the unit and staffing the unit during the shift. By 09:00, the charge nurse will have a list of expected post-op admissions for the day from the nursing supervisor. Some of the post-ops will be admitted to the ICU service. Feel free to ask the charge nurse or one of the clerks for a copy of the list. Keep in mind that we also get add-ons, ED/traumas, and RRTs and codes from the floors.

#### **Staff Nurses**

Each nurse has one or two patients to care for during the shift. We have a widely varied mix of experienced and new nurses, so please feel free to extend the teaching spirit to the nursing staff as well, and please don't be offended if more experienced nurses offer their knowledge to you.

#### **Float Nurses**

Float nurses cover two to four rooms. They provide breaks to the nurses in the rooms, provide guidance to new nurses, help in busy rooms, help with admissions, and with procedures. If there is a Rapid Response Team call or an adult code off the unit, an E2 float nurse goes and takes the AED. Floats may or may not have extensive knowledge about the patients in their assigned rooms, so please refer to the nurse who is actually assigned to that room for the shift if you have detailed questions.

#### **Social Workers**

The Social worker for E2 and NICU is Tim Chamberlain (page ID 16314). He is available to help with family issues, finding family or next of kin, durable power of attorney, etc., and social issues outside the hospital that affect families of patients. Always notify the social worker if you would like to coordinate a family conference. The social worker for liver transplant is Jenny Kwok (page ID 25190).

#### **Case Manager**

The case manager for E2 is Anne Quincy (page ID 17657, phone x48274). She coordinates all outgoing interfacility placements and transfers. Her "office" is at the desk outside E258.

#### **Patient Charts**

Patient charts are kept in the patient rooms. If you need to take a chart out of the room, please let the nurse know where the chart is, and please bring it back when you are finished. Physical charts contain EKGs, blood transfusion sheets, and forms that require signature (consents, advance directives, etc.). Old charts and records from transferring facilities are kept at the main desk.

### Main Nursing Desk

This is the main desk in front of the patient board, also known as the “right” desk, as it is to the right of the main entrance to the unit. This desk is very busy, so we ask that only the unit clerks and resource nurse use the computers or the phones *inside* the desk area.

### The Middle Desk

The middle desk (outside E223) is unstaffed and available for your use. If housekeepers or nursing assistants are using the computers, feel free to ask them to move. If you page someone, let the unit clerks know so they can direct the call, or feel free to answer the phone.

### The Upper Eastside Desk

This desk is used by the second resource/charge nurse for the far side of the unit. You are welcome to use the computers and phones at this desk, but please minimize use the computer facing room. We are happy to share this computer, but it is the only computer that has functions the resource nurse needs to use periodically throughout the day.

### The Patient Board

The patient board is in front of the main desk between rooms E242 and E243. Patient names are color-coded to indicate their primary teams. A star after a patient’s name indicates a consulting service, and the same color code applies. Color codes are:

Blue – ICU

Red – SICU (red star = trauma consult)

Green – Neurosurgery

Black – Neuromedicine/stroke

Orange – Liver transplant

Brown – Kidney transplant

### Transfer Orders

It is an enormous help if you notify the charge nurse as soon as it is decided that a patient is going to transfer. This way, we can start looking for a bed. When the bed is ready, you will be asked to initiate transfer orders. It is extremely helpful to us if you do this quickly, because there is always another patient waiting for that ICU bed! If transfer plans change, we can always cancel the bed request.

\*If the ICU team requests a non-monitored bed and the receiving team writes for a monitored bed, the receiving resident must get approval for the need for a monitored bed from the ICU attending MD.

### Lab Orders

Labs (including q am chest x-ray) must be rewritten every Monday and Thursday.

### Isolation Rooms

Please help us observe isolation precautions and prevent nosocomial infections by gowning appropriately before entering isolation rooms. When you leave the room, take off your isolation garb. Gowns and gloves are for inside the rooms only! Please gel in and gel out of every patient room.

### Isolation Rooms with Double Doors

E223 is a negative flow (isolation) room. E242 and E259 are positive flow (reverse isolation) rooms for neutropenic patients. Only one door can be open at a time. Having both doors open eliminates the airflow effect. Please help us keep bugs in or out and prevent spreading infection!

### Service Center

The service center is in room E230 between E2 and the E2 upper east side. Most items taken from the service center must be charged to the patient. If you take an item when the attendant is not there, please write the patient name and item on the clipboard on the counter, or tell the nurse in the patient room what you took so we can bill the patient. Otherwise, the loss will be charged to E2.

### Procedures

It is very helpful to the nurse at the bedside if you tell him/her that you are planning to do a procedure, i.e., line insertion/change, bronch, etc. This way, we can try to plan our work around the procedure in order to be available to assist you, if necessary.

### Weekend Radiology and Scans

If you order a scan, fluoro procedure, echo, etc., after 17:00 on weekdays, on the weekend (beginning Friday at 17:00), or stat at any time, you will need to call the radiologist in addition to entering the order.

### Visiting Hours

Please refer patient family members to the nurse in the room or to main desk for the visiting guidelines. We have a helpful brochure at the main desk.

### Restraint Orders

The nurses will remind you to initiate or renew orders for patients who are in restraints, but please be proactive and be aware of who is tied to a bed – and renew the order for 24 hours before it expires. State law mandates that restraint orders are renewed every 24 hours. Failure to comply with State regulations around restraints can result in hospital investigations and fines, so please help us achieve 100% compliance!

Nurses can take a verbal order to initiate restraints, but all renewal orders must be entered by an MD. After a failed trial release of restraints, a new restraint order must be written. Please note also that the State frowns upon inappropriate restraint orders, i.e., writing prophylactic orders for patients who might need restraints in the future.

### When a Patient Dies

These things must be done by the primary service when a patient dies:

1. Pronounce the patient promptly. (It is not ok to put this off until after rounds.)
2. Notify CTDN (1-800-55-donor). Typically the charge nurse will do this, so feel free to remind us!
3. **Notify patient's family if they are not present, even in the middle of the night.**
4. Notify the consulting team, especially if the deceased is an oncology patient, even in the middle of the night.
5. Complete highlighted areas on deceased paperwork (death certificate with time and cause) from chaplain, **and sign**. The chaplain will help you with this.
6. Consent for autopsy, if applicable.
7. Call county coroner if coroner's case (admission less than 24 hours, VOVC, and/or inmate).

Completing death certificate is imperative. If this is not done promptly, completely, and correctly, release of body, funeral, and burial are delayed at the family's expense. This causes undue stress and hardship on the family. The decedent chaplain is very helpful with this process.

### Tips for a Good Rotation

- When you enter a room, introduce yourself. There are many teams who consult on ICU patients, and it is helpful for the nurses to know who you are!
- If the nurse is not able to join rounds, please let him/her know your plan and goals for the day to ensure understanding and maximum cooperation. Please ask if there are any nursing issues that need to be addressed. **Please call the nurse if you enter orders remotely, especially for scans.**
- Know what orders consulting teams can write. For example, the transplant teams can write for immunosuppressive meds. The neuromedicine team can write for some labs and scans. All other orders should be written by the managing team, in communication with the consulting team.
- DNR orders signed by a resident are good for 24 hours. DNR orders signed by an attending physician are valid indefinitely.
- TPN orders must be entered daily in the morning. Enter them early, and the pharmacy will love you!
- Learn where things are (service center, closets, bedside carts, and set-up boxes). We are happy to help you, but sometimes we can't leave our rooms to get supplies.
- If you are planning a family conference, please include the nurse taking care of the patient. This way, we'll know the plan and goals and be better able to work with you and the patient's family.
- If a patient or family member requests a private room, please refer them to the resource nurse. We always try to accommodate special needs (i.e., withdrawal of support), but if the unit is full, we have to do some gentle explaining.
- If you are from anesthesia, this is your month to deliver patient care through others! Please ask the nurse to make IV drip rate and ventilator changes! (The nurse will call RT to make the vent change.)

## North Intensive Care Unit Operations and Management Structure

**Patient Care Manager (PCM):** Kathy Seppala

The PCM has 24 hour responsibility for overall unit operations, staff development, policy approval and patient rooming issues.

**Assistant Patient Care Managers (APCM):** *Days:* Valerie Marrone and Nancy Clark  
*Nights:* Maia Duque and Richard Quitevis

The APCMs act as the Resource/Charge Nurse and are responsible for patient management, staff development, staffing, and patient rooming issues. In the absence of the PCM or APCMs, a relief Resource Nurse is assigned.

**Clinical Nurse Specialist:** Julie Shinn**Nurse Educator:** Pao-Hsia Yeh

**RN Case Manager:** Melissa Valdez is the North ICU Case Manager. She is available on the unit from 9:00 – 5:00 pm.

**Social Worker:** Tim Chamberlain is the unit Social Worker. Allyson Rupp, Lesley Seeger, Evonne David and Tonia Gregory are the Transplant Social Workers. The Emergency Department Social Worker is available for after hour coverage.

**Administrative Nursing Supervisor (ANS):**

All potential transfers from other facilities should be reported to the ANS. It is vital that this communication is passed on early to the ANS otherwise OR cases can be held, cancelled, or transfer center admissions may not take place.

**Staff Nurses:**

Per federal and state regulations, nurse to patient ratios in the ICU are 1:2. If patient acuity increases, patients are staffed 1:1. Being an institution that thrives on teaching and mentoring, staff nurses have various skill levels and years of experience ranging from new graduates to 40 years. Float Nurses are assigned each shift to cover 3-4 rooms to provide assistance to the primary nurse in clinical decision making and patient care.

**For Physician Order Entry:**

- Please establish a pro-active approach in communicating to the primary nurse the plan of care during rounds.
- It is important to communicate all orders, especially STAT orders to the bedside RN for PATIENT SAFETY.
- Verbal orders are not to be taken by the RN unless it is deemed an emergency or the physician is unable to access a computer workstation.
- There is a paper form for general critical care orders and can only be used during STAT situations. The unit clerk will then enter the orders checked into EPIC.
- Hints for the On-call CVICU Resident.
- Please do not access the RN bedside computers. There is a workstation in each patient room, portable notebooks, and COWs available in the unit. For order entry help call 3-3333
- Please do not change settings on patient clinical equipment without the RN's knowledge.
- Please communicate to the charge nurse as soon as you know a patient can transfer.

- During afterhours and weekend hours, arrangements must be made directly with the Radiology Fellow/Resident for special diagnostic procedures including CT/MRI/Nuclear Medicine scans.
- On-call CVICU resident to meet with Resource Nurse by 2300 to establish a clinical plan of care and to answer questions that will help to eliminate unnecessary phone calls during the night.