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| <b>Clerkship title:</b>               | Neurocritical Care (NSICU)        |
| <b>Sponsoring department or unit:</b> | Department of Neurology           |
| <b>Name of clerkship director:</b>    | Anantha Vellipuram, MD, MPH, FCCM |
| <b>Location</b>                       | University Medical Center         |

### Neurology Contact Information

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### *Overview*

This is a 4 week rotation in the Neuroscience Intensive Care Unit (NSICU) of University Medical Center of El Paso. It meets the fourth year critical care requirement at the PLFSOM. Students will spend an average of 8 hours per day participating in the care of patients admitted to this unit. The goal of the Neurocritical care selective is to give students opportunities to develop basic skills required in the evaluation and treatment of critically ill neurological patients.

### **Academic Success and Accessibility**

TTUHSC El Paso is committed to providing equal access to learning opportunities to students with documented disabilities. To ensure access to this course, and your program, please contact the Academic Success and Accessibility Office (ASAO), to engage in a confidential conversation about the process for requesting accommodations in the classroom and clinical setting. Accommodations are not provided retroactively, so students are encouraged to register with the ASAO as soon as possible. Please note: faculty are not allowed to provide classroom accommodations to a student until appropriate verification from ASOA has been provided to the school and disseminated to the appropriate faculty member(s). For additional information, please visit the ASAO website: <https://elpaso.ttuhsc.edu/student-services/office-of-academic-and-disability-support-services/default.aspx>.

### **NSICU Daily schedule and expectations:**

The NSICU daily schedule starts with the student rounding on his/her assigned patients. Student will be assigned up to 3 patients. The student must arrive early enough to round on his/her patient and fill out the daily note. This note is on a template arranged by system. The student will attend morning rounds every day as assigned. Once team rounds end, the student will either attend a didactic session in the neurology

department or help with completing work. This work may also complete the student's goals and objectives. For example, the student may write a transfer summary as part of the daily work.

The student will report to the NSICU senior resident during the day. The student will be assigned one day off per week. The student will work no more than 12 hours per day. During the day, the student will be expected to follow up on test results, either x-rays, laboratory tests or other, including consults. Since the student may not give orders, if there is a need for his/her patient, the student will report to the senior resident, or on days the resident is off, the designated resident.

### *Clerkship Objectives*

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Each fourth year medical student of the Paul Foster School of Medicine (PLFSOM) will be required to complete a 4 week rotation in a critical care unit, for example, the Surgical Intensive Care, Medical Intensive Care, Pediatric Intensive Care, Neonatal Intensive Care, Neurology Intensive Care, or Cardiovascular Intensive Care.

The NSICU is a 4 week rotation that mimics, to the degree possible, the ICU experience of a Neurology resident in their first year of post-graduate training.

The educational goals and objectives were developed internally and are consistent with guidelines provided by the American Board of Psychiatry and Neurology and appropriate Critical Care subspecialty organizations.

### MEDICAL KNOWLEDGE

#### **GOALS:**

Students will acquire basic critical care knowledge and skills while developing professional attitudes and behaviors in the care of adult patients on the NSICU service.

Each medical student will be instructed by NSICU faculty and resident physician NSICU team members on relevant patient care issues requiring medical knowledge of the following conditions:

- Evaluation of Coma
- Evaluation and management of Acute Stroke
- Evaluation and management of intracranial hypertension
- Evaluation and management of status epilepticus
- Acute neuromuscular respiratory failure
- Neurological complications of critically ill medical or surgical patients

Students will understand the etiology, diagnosis and treatment of the conditions being managed while reading necessary texts and articles.

**OBJECTIVES:** By participation in this rotation, the student will demonstrate an acceptable level of proficiency in the following:

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- Formulate a plan for the cost-effective diagnosis of diseases commonly seen in the neuro ICU setting (PGO 1.3, 1.2, 2.2, 2.3)
- Communicate prognosis and plan of care with patients and families using lay terms (PGO 2.5, 4.1)
- Initiate discussion of end-of-life issues and advanced directives in a culturally sensitive manner (PGO 2.5, 5.4, 4.1)
- Formulate and clearly communicate clinical histories and the plan of care to members of the health care team both verbally and in the form of written orders and progress notes (PGO 4.2)
- Develop a systematic approach to organizing and acting upon clinical information in a time efficient manner (PGO 1.4)
- Evaluate their own fund of knowledge and utilize available resources to provide evidence based answers to clinical questions (PGO 3.1)

**ASSESSMENT:**

Clinical evaluations by faculty and residents.

**PATIENT CARE**

**GOALS:**

Medical students will be introduced to complex adult critically neurological patients requiring extensive monitoring and hemodynamic management. The goal is for each student to:

- be responsible for understanding his or her patients' medical conditions throughout the student's rotation
- provide appropriate treatment and examination studies of his or her patients in conjunction with the NSICU team
- have exposure to invasive monitoring techniques including central venous access and arterial lines
- develop an appreciation for the intensive, around-the-clock patient care needs
- experience and participate in end-of-life ethical issues, including the potential for organ procurement

**OBJECTIVES:**

The student should become competent in performing and accurately recording a complete history and physical with assessment, differential diagnosis and plan.

To achieve the goals, each student will:

- The student should participate in common ICU procedures including central line placement, endotracheal intubation, ABGs, NG tube insertion, lumbar puncture. (PGO 1.2, 1.8)
- Develop skills in ventilator management and weaning protocols. (PGO 1.2, 1.8)
- Develop skills in the evaluation of critically ill neurological patient, specifically the role of the clinical exam, neuroimaging and neurophysiological studies. (PGO 1.2)
- Interpretation of lab tests as ABGs, EKGs, CXR, electrolytes etc.(PGO 1.3)
- The student should be able to learn effective communication skills with patients and families using appropriate language and avoiding jargon and medical terminology.(PGO 1.6, 4.1, 5.1)

**ASSESSMENT:**

Clinical evaluations by faculty and residents.

**INTERPERSONAL AND COMMUNICATIONS SKILLS**

**GOALS:**

Management of critically ill neurological patients requires a team approach involving multiple levels of communication. Medical students will:

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- Able to provide compassionate and empathic patient care in acute care settings.
- Sensitive to the diverse factors affecting patients and their health care beliefs and needs including race, culture, income and ethnicity.
- Develop effective communication skills with the staff including other physicians, nurses, respiratory therapists and social workers for better patient care delivery.

**OBJECTIVES:**

- During daily rounds, medical students will present their patients in the expected and accepted format. (PGO 4,2)
- Students will be expected to communicate treatment plans with a minimum of 2 patients in the NSICU while under direct observation of the NSICU faculty member. (PGO 4.2)

**ASSESSMENT:**

- Clinical evaluations by faculty and residents.

**PROFESSIONALISM**

**GOALS:**

- Medical students will be expected to arrive in a timely fashion for all weekday rounding activities in the NSICU
- Adequate preparation of patient information prior to rounds
- NSICU rounds are often long and extensive, appropriate behavior and attentiveness is expected throughout the experience on a daily basis
- Practice and respect patient privacy and confidentiality while maintaining highest standards of professionalism.
- Discuss ethical issues including end of life care.

**OBJECTIVES:**

- Medical students will be present and prepared a minimum of 10 minutes prior to rounds on each day. (PGO 5.3, 5.7)
- All relevant laboratory and imaging results must be presented to the MICU team by the medical student for those patients that s/he is following.(PGO 5.7, 5.3,

**ASSESSMENT:**

Promptness and preparation for rounds will be assessed by rounding Critical Faculty.

Clinical evaluations by faculty and residents.

**PRACTICE BASED LEARNING AND IMPROVEMENT**

**GOALS:**

- While on their NSICU rotation, each medical student will learn to present patient data in a coherent fashion to team members and consultants.
- Students will be instructed and educated about obtaining current best practices related to the care of their particular patients.

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**OBJECTIVES:**

- Students will be expected to coherently discuss their patients' conditions and relevant medical management.(PGO 4.1, 4.2)
- Students will demonstrate the ability to access and obtain medical knowledge resources through appropriate electronic media. (PGO 3.1)

**ASSESSMENT:**

Clinical evaluations by faculty and residents.

**SYSTEMS-BASED PRACTICE****GOALS:**

Medical students will learn:

- Typical criteria requiring NSICU admission
- the importance of discharge planning for NSICU patients and local resources that are available

**OBJECTIVES:**

- Each student will be expected to provide a written discharge plan for at least one patient. (PGO 4.4, 6.4)
- Students will be expected to discuss appropriateness of NSICU admissions (PGO 6.1, 6.2)

**ASSESSMENT:**

Critical Care Faculty will assess the written discharge plan which will be placed in the student's portfolio.  
Clinical evaluations by faculty and residents.

**INTERPROFESSIONAL COLLABORATION SKILLS****GOALS:**

- While on their NSICU rotation, each medical student will learn to present patient data in a coherent fashion to team members and consultants.

**OBJECTIVES:**

- Students will be expected to work professionally with other health care personnel including nurses, technicians, and ancillary service personnel. (PGO 4.2, 7.3)
- Is an important, contributing member of the assigned team. (PGO 7.3)
- Responds appropriately to circumstances involving conflict with other health care professionals or team members (PGO 7.4)

**ASSESSMENT:**

Clinical evaluations by faculty and residents.

**PERSONAL AND PROFESSIONAL DEVELOPMENT****GOALS:**

- Students will be instructed and educated about obtaining current best practices related to the care of their particular patients.

**OBJECTIVES:**

- Recognizes when to take responsibility and when to seek assistance (PGO 8.1)
- Demonstrate flexibility in adjusting to change. (PGO 8.3)
- Demonstrates the ability to employ self-initiated learning strategies when approaching new challenges, problems, or unfamiliar situations. (PGO 8.5)

**ASSESSMENT:**

Clinical evaluations by faculty and residents.

**Clinical Experiences and Op Log Requirements:**

The selective Clerkship director is responsible for ensuring that each student is being exposed to appropriate clinical experiences. Students are expected to review the selective syllabus and to discuss expectations and procedures at the beginning of the rotation. The selective director will also meet with the student as needed to review their patient care experiences.

A minimum of 10 op log entries at the level of assist or manage are required with one of each in the following categories:

- Intracranial hypertension
- Coma
- Acute stroke
- Status epilepticus
- Acute respiratory failure
- Multiple organ failure
- Hemodynamic instability
- Severe metabolic disorder

5 op log entries are due by mid-clerkship evaluation and the remainder is due by the end of the rotation.

The selective director will devise a strategy for addressing deficiencies if a condition is not encountered. In rare circumstances it may be necessary to assign students computerized cases, simulations, or special readings to achieve objectives that are not being met through actual patient care.

**Mid Clerkship Feedback:**

Students will have a mid-clerkship evaluation in order to assist them with progress in NSICU ICU; requirements, expectations, and possible methods of remediation will be discussed at that time. This will take place after at least two weeks in the Neuroscience ICU. The exact date will be assigned by the Clerkship Coordinator.

**Society for Critical Care Medicine Modules**

Students will be given access to SCCM adult learning modules. Modules must be completed as assigned.

**Grading Criteria:**

Assessment is based on the criteria described above under each competency. Failure of preparation for or completion of clerkship activities may result in a lower grade at the discretion of the Clerkship Director. As outlined in the Common Clerkship Requirements, it is expected that over the course of the rotation, student performance will have improved in many or all categories, based on constructive feedback and growing familiarity with the clinical discipline and patient care. The final assessment represents the student's final level of achievement. Also, please refer to the Common Clerkship Requirements, Section on Grading Policies.

Students will be given 4 articles at the beginning of the rotation. On last week, the student will be given a written exam based on the articles. Results will be taken into consideration for final evaluation.

#### **Missed Events:**

Please refer to the Common Clerkship Requirements.

#### **Remediation:**

The clerkship director will meet with students needing remediation and discuss a remediation strategy specific for objectives which are deficient. For example, if the notes are incomplete, the clerkship director can meet with the student about the note.

#### **Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the NSICU selective director and provided copies of the syllabus and evaluation form that they will use to assess student performance.

Residents will be required, as part of their training and orientation, to function as teachers. All residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education.

At present all instruction and clinical activity related to this critical care selective occurs at one site, University Medical Center of El Paso.

#### **Recommended reading**

**The NeuroICU book by Kiwon Lee**

**Monitoring in neurocritical care by Peter Le Roux**

**Stupor and Coma by Plum and Posner**

**The diving bell and the butterfly by Bauby**

**The feeling of what happens by Damasio**