Course: Neurocritical Care NEUR 1901 (NEUR 4705)

Department: Neurology & Neurocritical Care
Faculty Coordinator: Dr. Stephen A. Figueroa
Hospital: Parkland Health & Hospital System
Periods offered: All
Number of students: One student per 4 week period – interested in furthering career in Neurology, Neurosurgery or Physical Medicine and Rehabilitation
Length: 4 weeks
First Day Contact: Neurocritical Care Fellow (Contact: NCC administrative assistant, Jessica Lopez, 2 weeks prior to starting rotation for fellow contact information at 214-648-6410)
First Day Time: 6:00 AM
First Day Location: 2 North SICU A nurse's station, PMH

I. Course Description

The course is intended to present a comprehensive exposure of acute neurological intensive care to fourth year medical students. The clerkship will provide exposure to Critical Care Neurology, Neurosurgery, Speech and Physical Therapy, and Surgical Sub-specialties to foster the knowledge and skills necessary for diagnosing and treating acute neurological conditions.

II. Course Goals and Objectives: (informed by ACGME competencies for resident education, modified for medical student education level)

a. Patient Care
   i. Goals: Students will provide assessment and care for patients in the Neurological ICU while mastering the neurological exam, medical treatment of common NICU signs and symptoms (e.g. coma, brain herniation, increased intracranial pressure, acute neuromuscular weakness, seizures, alteration of consciousness, headache, nausea and vomiting, neuropathic pain, muscle spasms and cramps, etc), and learning valuable psychosocial tools including helping patients with lack of insurance/citizenship, who can expect a difficult recovery, or who will be facing new disability.
   ii. Objectives: Students will be expected to show compassion, utilize preventative healthcare strategies (including prevention of iatrogenic infection), and to counsel and educate patients and their families regarding laboratory and imaging findings and treatment options.

b. Medical Knowledge:
   i. Goals: Demonstrate analytic thinking to assess a patient's global health, recovery, and complications during their ICU stay and determine when the patient no longer requires ICU level care.

ii. Objectives: Using evidence-based medicine, students will complete their rotation with competency in administering care of at least the following topics, through independent reading, teaching by residents, fellows, and attending physicians, and hands-on learning:
    1. Acute ischemic stroke
    2. Hemorrhagic stroke
    3. Status Epilepticus
    4. Traumatic Brain Injury
    5. Spinal Cord Injury
    6. Subarachnoid Hemorrhage
    7. Encephalitis/Meningitis
    8. Acute neuromuscular disorders:
        a. Myasthenia Gravis
        b. Acute Demyelinating Encephalomyelitis
        c. Guillain-Barre Syndrome
    9. Prevention/Management of common ICU problems:
        a. Elevated intracranial pressure
        b. Delirium
        c. Evaluation of patient with arrhythmia
        d. Evaluation of patient with hypo/hypertension
        e. Acute myocardial infarction
        f. Acute respiratory failure
        g. Pulmonary embolism
        h. Pneumonia
        i. GI prophylaxis
        j. Ileus
        k. Gastrointestinal bleed
        l. Urinary tract infection
        m. Deep venous thrombosis
        n. Anemia
        o. Thrombocytopenia
    10. Basic acute care principles:
        a. Ventilator Settings
        b. Fluid Management
        c. Hyperglycemia
        d. Nutrition

c. Professionalism:
    i. Goal: Students are expected to arrive early enough to complete all their clinical responsibilities and to stay with the team until their daily responsibilities have been completed. The dress code is clean Parkland scrubs.
    ii. Objectives: Demonstrate respect for the staff and faculty by arriving on time and efficiently completing all responsibilities including attending didactic lessons and contributing to the check-out list when required.

III. Methods of Instruction

a. Teaching by fellows, residents, and attending physicians during rounds and at specified additional times
b. Didactics
c. Independent Reading
    i. Students are expected to read one of the core textbooks in neurological critical care as well as any review articles or guidelines provided by fellow or attending physician.
    ii. Additional reading in medical literature is recommended.

IV. Schedule

a. Monday: 9:00 rounds, noon neurology didactics, afternoon rounds (time TBA)
b. Tuesday: 9:00 rounds, noon NICU (CS7.112) fellow didactics, afternoon rounds (time TBA)
c. Wednesday: 7:00-8:15: Vascular Conference (Zale Dining Room); 10:00: rounds, noon Neurology grand rounds, afternoon rounds (time TBA)
d. Thursday: 9:00 rounds, noon NICU (journal club or didactics every other week – CS7.112), afternoon rounds (time TBA)
e. Friday: 9:00 rounds, afternoon rounds (time TBA)
f. Call schedule: in lieu of in-house call, students are expected to work one full weekend day per week, to be decided with the approval of the team.
g. Students should be fully prepared to present 2-3 patients during morning rounds and their notes should be completed by or shortly after rounds. New patients may be assigned for afternoon rounds as well.
h. Students are encouraged to observe neurosurgeries in the OR after rounds when their duties allow (i.e. their notes are completed, rounds are finished, and their patients are not requiring any further acute attention).

V. Method of Evaluation of the Student

a. Grading will be pass-fail and there are no examinations. Completion of an online evaluation of all attendings is required for a passing grade. Students should comment on whether they believe the stated objectives of the course were achieved.

VI. Recommended reading: (expected to have one of these books for reference and reading during the rotation)

a. Neurocritical Care (Cambridge Medicine) by Michel T. Torbey MD
b. Handbook of Neurocritical Care: Second Edition by Anish Bhardwaj and Marek A. Mirski
c. The NeuroICU Book by Kiwon Lee ***(Recommended)***
d. Decision Making in Neurocritical Care by Jennifer A Frontera
e. Neurocritical Care (What Do I Do Now) by Eelco F. M. Wijdicks and Alejandro A. Rabinstein

f. The Practice of Emergency and Critical Care Neurology by Eelco F. M. Wijdicks
g. Neurocritical Care: A Guide to Practical Management (Competency-Based Critical Care) by John P. Adams, Dominic Bell and Justin McKinlay