Neurology Clerkship

Neurology
MS 316
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Clerkship Director: Okeanis Vaou, MD
Clerkship Coordinator: Alison O’Connor
# Neurology Syllabus

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## Medical Education Program Objectives

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<th>INSTITUTIONAL LEARNING OBJECTIVE</th>
<th>MEDICAL EDUCATION PROGRAM OBJECTIVE</th>
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<tr>
<td><strong>B - Behaves in a caring, compassionate and sensitive manner toward patients and colleagues of all cultures and backgrounds.</strong> <em>(Interpersonal and Professionalism)</em></td>
<td><strong>B.1</strong> - Apply principles of social-behavioral sciences to provision of patient care; including assessment of the impact of psychosocial and cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care. (2.5) <strong>B.2</strong> - Demonstrate insight and understanding about emotions that allow one to develop and manage interpersonal interactions. (4.7) <strong>B.3</strong> - Demonstrate compassion, integrity, and respect for others. (5.1) <strong>B.4</strong> - Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation. (5.5)</td>
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<td><strong>U - Uses the science of normal and abnormal states of health to prevent disease, to recognize and diagnose illness and to provide and appropriate level of care.</strong> <em>(Medical Knowledge and Patient Care)</em></td>
<td><strong>U.1</strong> - Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice. (1.1) <strong>U.2</strong> - Gather essential and accurate information about patients and their conditions through history-taking, physical examination, and the use of laboratory data, imaging and other tests. (1.2p) <strong>U.3</strong> - Interpret laboratory data, imaging studies, and other tests required for the area of practice. (1.4) <strong>U.4</strong> - Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence and clinical judgement. (1.5) <strong>U.5</strong> - Develop and carry out patient management plans. (1.6) <strong>U.6</strong> - Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health. (1.9) <strong>U.7</strong> - Demonstrate an investigatory and analytic approach to clinical situations. (2.1) <strong>U.8</strong> - Apply established and emerging bio-physical scientific principles fundamental to health care for patients and populations. (2.2) <strong>U.9</strong> - Apply established and emerging principles of clinical sciences to health care for patients and populations. (2.3) <strong>U.10</strong> Recognizes that ambiguity is a part of clinical health care and respond by utilizing appropriate resources in dealing with uncertainty. (8.8)</td>
</tr>
<tr>
<td><strong>C - Communicates with colleagues and patients to ensure effective interdisciplinary medical care.</strong> <em>(Interpersonal and Communication Skills; Patient Care)</em></td>
<td><strong>C.1</strong> - Gather essential and accurate information about patients and their conditions through history-taking, physical examination, and the use of laboratory data, imaging and other tests. (1.2h) <strong>C.2</strong> - Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making. (1.7) <strong>C.3</strong> - Participate in the education of patients, families, students, trainees, peers and other health professionals. (3.8) <strong>C.4</strong> - Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds. (4.1) <strong>C.5</strong> - Communicate effectively with colleagues within one's profession or specialty, other health professionals, and health related agencies (4.2, see also 7.3) <strong>C.6</strong> - Maintain comprehensive, timely, and legible medical records. (4.5) <strong>C.7</strong> - Demonstrate sensitivity, honesty, and compassion in difficult conversations, including those about death, end of life, adverse events, bad news, disclosure of errors, and other sensitive topics. (4.6) <strong>C.8</strong> - Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations. (7.3)</td>
</tr>
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</table>
| A - Acts in accordance with highest ethical standards of medical practice (Professionalism) | A.1 - Demonstrate responsiveness to patient needs that supersedes self-interest. (5.2)  
A.2 - Demonstrate respect for patient privacy and autonomy. (5.3)  
A.3 - Demonstrate accountability to patients, society, and the profession. (5.4)  
A.4 - Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations. (5.6)  
A.5 - Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust. (7.1)  
A.6 - Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients. (8.5) |
|---|---|
| R - Reviews and critically appraises biomedical literature and evidence for the purpose of ongoing improvement of the practice of medicine. (Practice-Based Learning and Improvement and Medical Knowledge) | R.1 - Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations. (2.4)  
R.2 - Locate, appraise, and assimilate evidence from scientific studies related to patients' health problems. (3.6)  
R.3 - Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes. (3.10) |
| E - Exhibits commitment and aptitude for life-long learning and continuing improvement (Practice-based Learning) | E.1 - Identify strengths, deficiencies, and limits in one's knowledge and expertise. (3.1)  
E.2 - Set learning and improvement goals. (3.2)  
E.3 - Identify and perform learning activities that address one's gaps in knowledge, skills, and/or attitudes. (3.3)  
E.4 - Incorporate feedback into daily practice. (3.5)  
E.5 - Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care. (3.9)  
E.6 - Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors. (8.1)  
E.7 - Manage conflict between personal and professional responsibilities. (8.3) |
| S - Supports optimal patient care through identifying and using resources of the health care system. (Systems-Based Practice and Patient Care) | S.1 - Provide appropriate referral of patients including ensuring continuity of care throughout transitions between providers or settings, and following up on patient progress and outcomes. (1.8)  
S.2 - Systematically analyze practice using quality-improvement methods and implement changes with the goal of practice improvement. (3.4)  
S.3 - Use information technology to optimize learning. (3.7)  
S.4 - Work effectively with others as a member or leader of a health care team or other professional group. (4.3, see also 7.4)  
S.5 - Work effectively in various health care delivery settings and systems relevant to one's clinical specialty. (6.1)  
S.6 - Coordinate patient care within the health care system relevant to one's clinical specialty. (6.2)  
S.7 - Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care. (6.3)  
S.8 - Advocate for quality patient care and optimal patient care systems. (6.4)  
S.9 - Use the knowledge of one’s own role and the roles of other health professionals to appropriately assess and address the health care needs of the patients and populations served. (7.2)  
S.10 - Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable. (7.4) |
Third Year Learning Objectives

During the third-year clerkships, students will

- Demonstrate use of patient-centered interviewing and communication techniques (U.2)
- Take a clinical history that demonstrates both organization and clinical reasoning (U.7)
- Perform accurate and relevant physical exam techniques (U.2)
- Demonstrate an ability to synthesize clinical information and generate a differential diagnosis, assessment and plan (U.3, R2, U.5)
- Demonstrate a compassionate and patient-sensitive approach to history taking and physical examinations (B.3)
- Communicate well organized, accurate and synthesized oral presentations (C.1)
- Counsel and educate patients and families (C.3)
- Demonstrate timely, comprehensive and organized documentation (C.6)
- Demonstrate a fund of knowledge in the clinical discipline and apply this to patient care (U.4)
- Demonstrate an awareness of one’s own learning needs and work to address these gaps (E.1, E.3)
- Show respect and empathy for others (B.3)
- Demonstrate accountability to the responsibilities of the student’s role and expectations of a clinical clerk (S.4)
- Communicates effectively with the interprofessional team (S.9)

Neurology Clerkship Learning Objectives

By the end of the Clerkship the student will be able to:

a. Demonstrate competency in performing and interpreting the neurological history and examination, i.e. the ability to recognize abnormal findings on the examination and put these together with the history to localize the lesion in the nervous system. (U2, U3, U4, U7, B3, C1, C4)


c. Localize a lesion in the nervous system based on history and examination. (U.2, U.3, U7)

d. Recognize the indications and the information obtained from routine neurological tests such as lumbar puncture, electroencephalography, electromyography, computerized tomography and magnetic resonance imaging. Also, to become familiar with the possible complications of these tests. (U.1, U.3, U.4, R.2, S.3, S7)

e. Describe routine treatments for neurological diseases and the risks of these treatments. (U.4, U5, R.1, R.3)

f. Describe how end of life, cultural competency, and domestic violence issues are addressed in neurologic patients. (B.1, B.3, U.4, C.2, C.7, A.4)

g. Discuss how health care disparities can affect underserved populations and impact medical care. (B4, S.8, C.4)
h. Demonstrate competency in performing LP Simulation (B1)
i. Consistently demonstrate professional behavior consistent with the values of the medical profession (A.1, A.2, A.3, A.4, A.5, A.6, E.7).
Contact Information

Clerkship Director
Okeanis Vaou
Movement Disorders and Sleep Specialist, Neurology
Telephone: (617) 617-638-7963
Email: Okeanis.vaou@bmc.org
Pager: 0055
Office: Sleep Lab 6th Floor Newton Pavilion Rm 6

Assistant Clerkship Director & Director of 4th Year Electives
Shuhan Zhu
Telephone: (617) 638-5380
Email: zhuhan.zhou@bmc.org
Pager: 5309
Office: Collamore – D408
Office Hours: email to set up a meeting

Clerkship Coordinator

Alison O’Connor
Neurology Academic Coordinator
Telephone: (617) 638-5348
Email: amoconn@bu.edu
Office: Sleep Lab 6th Floor Newton Pavilion Rm 6
Office Hours: 8:30-5:00pm
**Clerkship Description**

*Focus of clerkship*

The purpose of the third year clerkship in Neurology is to provide the basics of neurological disease seen in General Neurology clinic and Specialty clinic. This Clerkship focuses in immersing the student to Neurology and prepare him/her for any encounter of Neurological disease in the student’s future career in any chosen specialty. The clerkship will teach the basics of taking a neurological history and performing an examination with the goal of localizing the lesion in the nervous system. It will also teach how to synthesize information from history and physical in order to produce a differential diagnosis and treatment plan. You will be exposed to the outpatient clinic where you will encounter chronic disorders and to the inpatient where you will be involved in treatment of acute neurological disorders. You will also be required to complete an LP simulation. In addition, the clerkship offers support to those considering Neurology as a future career.

Neurology is an expanding field with increasing treatment modalities and breakthrough in therapeutics including multiple sclerosis medications, deep brain stimulation in movement disorders or anti-sense-oligonucleotides for genetic diseases such as Spinal Muscular Atrophy to name a few.

**What to Expect During the Neurology Clerkship**

You will work in high volume ambulatory and inpatient practices of Neurologists and residency programs. In the course of the clerkship you will:

- Learn how to complete a neurological examination in a timely manner, interpret the findings of the neurological examination and localize the lesion.
- Learn how to work in a large team and focus on patient care.
- You will be taking care of patients, working with your team, preparing for rounds, and keeping-up with reading assignments.
- You will understand the concepts of evidence based medicine
- You will get exposure to lumbar puncture

**How to Succeed**

To successfully complete the clerkship, the students is required to do the following:

- Remain professional at all times
- Participate fully in ALL didactics, inpatient and outpatient setting
- Treat Neurophobia
- Be pro-active about seeing patients! Follow-up patient visits on your own time by reading and doing questions about the medical problems you see. This will help you retain and integrate everything you learn.
- 5 minute topic presentations on the floors
- Review your neuro-anatomy and radiology
- Practice your neurological exam whenever possible.
- Show interest and motivation.
- For the differential mention the most common, the most treatable, most dangerous and a couple of zebras
- Carry snacks in your white coat. Rounds can take very long!
- Ask questions
- Read about the diagnoses your patients have IN REAL TIME (use the syllabus’ references)
- Do practice questions throughout the clerkship

• Students in the 4-week Neurology Clerkship are placed on in-patient and out-patient services at:
  - Boston Medical Center
  - Mount Auburn
  - West Roxbury & Jamaica Plain VA
  - Braintree Rehabilitation Center
  - Manchester VA
  - Kaiser Permanente, California
  - St. Elisabeth’s Hospital

Ambulatory experiences at all of these locations are obtained in either general and/or specialty clinics.

Any questions or problems during the rotation should be brought to the attention of the Site Coordinator as early as possible.

Pre-requisite knowledge and skills
Students must have completed their second year curriculum, attended the 3rd year orientation, and have taken the Step-I exam prior to taking this clerkship.

Students in the Clerkship are expected to have passed the first year Neurosciences Course and the Neurology section of Disease and Therapeutics in the Second year.

Site Information
Students will be assigned to Boston Medical Center, Boston Veteran’s Hospital, Manchester VA, Mount Auburn, Braintree Rehabilitation Hospital, St. Elizabeth’s Hospital or Kaiser Permanente in California.
**Boston Medical Center**
72 East Concord, Boston MA, 02118
Site Director: Okeanis Vaou, MD, 617-638-7963, Okeanis.vaou@bmc.org
Site Administrator: Alison O’Connor, 617-638-5348, amoconn@bu.edu

**Outpatient Clinic at Boston Medical Center:** All BMC students are required to complete one clinical week in the outpatient neurology clinic.

Depending on the specialty of your attending, you will show up to your outpatient clinic at either 88 East Newton, East Wing (Sleep Clinic and Movement Disorders Clinic**) or Shapiro Building on the 7th floor, Suite 7B at 8:00 AM. You will report to the conference room in the clinic. Introduce yourself to the residents there (on each day of the week you’re supposed to be there), and ask which patient(s) you should see alone, and then later present to that resident. You may also be shadowing the attending and/or residents. You may get to see procedures being completed in clinic. The patient schedule is listed in Epic by the name of the neurology resident/attending with scheduled patients for that day, and you should refer to it to look up the patient(s) you will be seeing either alone, or with a resident/attending. Alternatively you can find the patient list in Shapiro under SHA Neurology and at ENC under ENP Neurology. Usually the resident or attending will ask you to write a note. Patients report to the neurology clinic for a variety of conditions and disorders. These patients may present for an initial work-up or evaluation, treatment, or for follow-up. It is your responsibility to plan the visit accordingly.

*Note: For those students whose outpatient week is the first week of the rotation, you will not have clinic on that Monday (orientation day), or that Tuesday (didactic day). Your first day of clinic will be that Wednesday.

**Expectations:**

- Be well prepared to present your patient with a thorough history, relevant past medical history, ROS, medications, prioritized differential, and plan.
- If clinic is slow, research your patient(s) and their disorders, volunteer to take on more patients, or study independently.

**Neurosurgery at Boston Medical Center**

Some students will elect or be assigned to spend a portion of their neurology rotation on the neurosurgery service. Depending on scheduling, you may spend one day to one week on this service.

**One-Week Inpatient Rotation**

Clinical Expectations:
1) Round daily (1) with the neurosurgery house staff team in the AM
2) Attend at least 2 outpatient clinic sessions (9 AM- 5 PM)
3) Observe or participate in operating room activities at least 1 day
4) Take 1 night call with the house staff or round with the house staff on a Saturday or Sunday
5) Demonstrate at least 1 neurological History and Physical and at least 1 neurological Exam to an attending neurosurgeon.

One-Day Clinic Rotation
Students are to report to the neurosurgery clinic (1) at 9 AM on Thursday and will see patients with Dr. Holsapple. Students are expected to review patient records, interview new and follow-up patients, present patient information to the attending, construct and review a neurological differential diagnosis for each patient seen, demonstrate history and physical exam skills, review radiographs, and demonstrate at least one full neurological exam to the attending.

(1) 7th floor Shapiro Building

General Consult Service at Boston Medical Center

Some students will spend a portion of their neurology rotation on the general consult service. You will receive an assignment of either the Menino or East Newton side. **On the first day of your scheduled consult week,** report to sign out rounds at 7am and then Morning Report at 7:30 a.m. held in 7th floor neurology workroom of Menino on 7W next to the service elevators. Your resident will help you choose a suitable patient who you will then pre-round on.

Pre-rounding includes: checking with your resident regarding any overnight issues, seeing your patient with a focused history and exam, checking Epic for new labs or imaging, reviewing vital signs and notes from consults, seeing if there are any overnight event notes or consult recommendations in the chart, and checking telemetry at the nursing station, if applicable.

After pre-rounding, you will report back to the workroom for rounds, where you will present the patient that you have pre-rounded on. The time that rounds begin depends on the attending for that day. Pre-rounding runs from 8-9 and general rounds begin at 9:30. After rounds are over, you will return to the workroom, and assist the resident with managing the patients on the neurology service as needed. Expect to work with an attending, fourth or third year resident, second year resident, and occasionally another third year student and/or sub-I(s).

During the course of the day, the neurology consult team will be paged about patients presenting with neurologic complaints in the emergency room. You may be asked to independently evaluate a patient in the ER. Neurology is consulted for a wide variety of reasons, but some of the most common include possible seizure, altered mental status, headache, dizziness, or focal weakness.

Expectation
Pick-up at least one patient (approved by a resident) to present at rounds.

Pre-round on your patient(s). Specific responsibilities are listed above. In general, be aware of the results in Epic for all vitals, labs, imaging, tests, notes left by consulted teams, overnight events, etc. for your patient.

Be well-prepared to present your patient(s) succinctly during rounds, with a prioritized differential, plan, and any updates.

Take a thorough history (including relevant past medical history and medications) and perform a comprehensive neurologic exam for a consult in the emergency room. Present to a resident, fellow, or attending, and include a prioritized differential, and plan.

Complete at least one H&P or progress note daily, and ask your resident or attending to evaluate and review it with you.

Sometimes you may be able to witness procedures being done, such as lumbar punctures. Try to participate in such procedures, or assist your resident/attending, as needed.

Research your patients or other interesting patients on the team if the service is slow, volunteer to take on more patients, teach on topics, or study. If there is work to do, you should be volunteering to help.

**Stroke Service at Boston Medical Center**

Some students will spend a portion of their neurology rotation on the stroke service, ranging from 2 weeks.

On the first day of your scheduled stroke assignment, **On the first day of your scheduled consult week**, report to sign out rounds at 7am and then Morning Report at 7:30 a.m. held in 7th floor neurology workroom of Menino (7W21). Then you will be expected to pre-round on a patient approved by your resident. See General Consult Service Expectations above for more information on pre-rounding.

Rounds begin 9AM. On the stroke service, there will be a different attending every week. After rounds are over, you will return to the workroom, and assist the resident and team with managing the stroke service as needed. Expect to work with an attending, stroke fellow, third year resident, second year resident, and sometimes another third year student and/or sub-I.

During the course of the day, the stroke team may be paged about patients presenting with a possible stroke in the emergency room or in the trauma bay. Stroke is consulted for a wide variety of reasons, but some of the most common include focal weakness or numbness, dysarthria, aphasia, changes in vision, or altered mental status. You will either see these acute patients independently or with a resident.

**Expectations:**

- Pick-up at least one patient (approved by your resident) in the morning to present at rounds.
- Pre-round on your patient(s). Specific responsibilities are listed above. In general, be aware of the results in Epic for all vitals, labs, imaging, tests, notes left by consulted teams, overnight events, etc. for your patient.
- Be well-prepared to present your patient(s) succinctly during rounds, with a prioritized differential, plan, and any updates.
- Take a thorough history (including relevant past medical history and medications) and perform a comprehensive neurologic exam for a stroke consult in the emergency room. Present to a resident, fellow, or attending, and include a prioritized differential and plan.

- Participate in chief rounds by having a patient to present to Dr. Greer, the chief of the neurology department. Chief rounds are usually on Monday afternoons in the heart center, but refer to the emails sent by the department for the most up-to-date information. Usually only one student needs to pick a patient for that day. Dr. Greer will want to discuss the history, exam findings, and imaging for that patient, and may do some bedside teaching as well.

- Attend a stroke conference that may be held once a week. Ask your resident for instructions on location, time, and whether you should go.

- Complete at least one H&P or progress note daily, and ask your resident or attending to evaluate and review it with you.

- Research your patients or other interesting patients on the team if the service is slow, volunteer to take on more patients, teach on topics, or study. If there is work to do, you should be volunteering to help.

**Pediatric Neurology at Boston Medical Center**

Some students will elect or be assigned to spend a portion of their neurology rotation on the pediatric neurology service. These students will receive an email from Lan Ruan, the pediatric neurology coordinator, with specific instructions and a schedule.

If your first day on the pediatric neurology week is a Monday, you will begin on that Monday in the pediatric neurology clinic on the 8th floor of the Shapiro building, Suite 8C. Introduce yourself to the attending in clinic that you will be working with (listed on your schedule). Patients report to pedi neurology clinic for a variety of conditions and disorders, including, but not limited to: seizure management, migraine management, concussions, cerebral palsy, or autism. These patients may present for an initial work-up or evaluation, treatment, or for follow-up.

Please introduce yourself to the chief resident on Wednesday morning in the resident workroom at 7:30 a.m. before clinic starts. If this is not possible, then introduce yourself on Wednesday afternoon after clinic is over.

The chief resident will orient to the current in-patients. The chief resident will also assign you a presentation topic for Thursday or Friday. This can be a 10-15 minute brief talk.

The time for attending rounds will be decided at the start of each day. During the course of the day, the pediatric neurology team may be paged about patients presenting with neurologic issues in the emergency room. After rounds, you will see these consults with your resident. Work after rounds will include reviewing these patients’ records in Epic, speaking with patients and families about updates, and communicating the issues to the team. You may be expected to go and evaluate a patient in the emergency room alone. Pedi neurology is consulted for a wide variety of reasons, but some of the most common include for possible seizure, altered mental status, or headache.
Expect to attend neuroradiology rounds on Friday afternoons, and EEG rounds, pediatric neurology grand rounds, and other educational lectures as scheduled throughout the week. The times will be listed on your schedule.

The attending on the service will be the point person and responsible for your evaluation. You can find the attending’s last name on your schedule (emailed to you by Lan Ruan) below the listed date.

Expectations:
- Prepare a 10-15 minute presentation on both a topic and date approved by your chief resident.
- Prepare for outpatient clinic days by reading up on scheduled patients in Epic. The patients will be scheduled under the attending’s name.
- Take a thorough history (including relevant past medical history and medications) and perform a comprehensive neurologic exam, if asked to see a patient in the clinic or emergency room. Present to the attending, fellow, or resident, and include a prioritized differential and plan.
- Complete at least one H&P or progress note, and ask your resident or attending to evaluate and review it with you.
- Attend all scheduled teaching conferences including Grand Rounds, EEG rounds, and neuroradiology rounds on Thursdays and Fridays.
- Sometimes you may able to witness procedures being done, such as lumbar punctures. Try to participate in such procedures, or assist your resident/attending, as needed.
- Research your patients or other interesting patients on the team if the service is slow, volunteer to take on more patients, or study. If there is work to do, you should be volunteering to help.

Neurology ICU at Boston Medical Center

Some students will spend a portion of their neurology rotation in the neurology intensive care unit for 1 week. The ICU service tends to be the busiest service. You manage numerous patients and rounds can last half or the whole day depending on the patient census. The ICU team covers very complicated patients both in Menino and ENC.

On the first day of your scheduled ICU week, report to sign out rounds at 7am and then Morning Report at 7:30 a.m. held in 7th floor neurology workroom of Menino (7W21). At the conclusion of morning report, ask which residents are covering the ICU service, and introduce yourself. You will then look up your patients. If you cannot find the residents, Page 8000 and the team will let you know where they are and they will orient you to the service. Then you will be expected to pre-round on a patient approved by your resident. See General Consult Service Expectations above for more information on pre-rounding.
Rounds typically start after sign out and morning report, where you will present the patient you have pre-rounded on. This is the service where you will learn the most about medical management of your patients. The days tend to be long (7 am to 5 PM). In addition, you are expected to research management and treatment options for your patient. You serve as a liaison for your patient to other services and with the family. You may or may not write notes on your patient’s every day. In addition, you should be prepared to present short (2-10 min) presentations on topics related to your patients. These may be presented during rounds, after rounds, or during downtime.

**Expectations:**

- Pre-round on your patients and be prepared for rounds with ALL information from tests, images, consults, vitals, vent settings, ins and outs, and any other ICP or line information that is available.

- Know the pulmonary, cardiac, GI, GU, hepatic, and renal function of each patient assigned to you. On this service you will be managing not only the neurological aspects of your patients but ALL systems.

- Learn how to do coma and brain death examinations. Many of the patients will be intubated so you may have a chance to learn these.

- Research your patients or other interesting patients on the team if the service is slow, volunteer to take on more patients, teach on topics, or study. If there is work to do, you should be volunteering to help.

**Boston VA: West Roxbury & Jamaica Plain**

JP: 150 S Huntington Ave, Boston, MA 02130  
West Rox: 1400 VFW Parkway, West Roxbury, MA 02132  
Site Director: Dr. Manisha Thakore Manisha.Thakore-James@va.gov  
Site Administrator: Nancy Caruso, 857-364-6184, Nancy.Caruso2@va.gov

Students will spend two weeks on the combined ward/consult service at the West Roxbury VA, (WR) and two weeks in the outpatient clinics at the Jamaica Plain VA, (JP). **Students return to BUMC for Tuesday didactic sessions.**

**Orientation:** In the afternoon after orientation at BMC, the students assigned to the VAMC will go to the JPVA, 6D, and meet with Dr. Thakore. She will orient you to the schedule at the VA and you will go through a check in process and obtain computer access. Any questions regarding the VA may be brought to the site coordinator, Christina Bianchetto (Christina.Bianchetto@va.gov).

**Call:** Students at the VA are expected to take one weekend day call per rotation from 7:30am-9pm. Call schedules will be given during orientation.
Parking: Free parking is available at both the JP and WX sites. Shuttle buses run between ENP and JPVA and WRVA. The ride is 10-15 minutes (depending on the traffic).

Mount Auburn
330 Mt Auburn St, Cambridge, MA 02138
Site Director: Dr. Hreib, khreib@mah.harvard.edu
Site Administrator: Elenore D’Agostino, 617-8640524, edagosti@mah.harvard.edu

Students will participate in outpatient patient interactions with a focus on general neurology and multiple sclerosis. Students will also have the opportunity to participate in the inpatient neurology consult service. Students are expected to return to BUMC for Tuesday didactic sessions.

Call: Mount Auburn students will take call at BMC: one weekend day call per rotation from 7:30am-9pm. Call schedules will be given during orientation

Parking: Please check in with the Mount Auburn coordinator, Eleanor, for more details.

Braintree Rehab
250 Pond Street Braintree, MA 02184
Site Director: Dr. Brigid Dwyer, Brigid.Dwyer@bmc.org
Site Administrator: Savage, Linda Linda.Savage@healthsouth.com

Students will participate in a predominantly inpatient service with a focus on traumatic brain injury, stroke, and movement disorder inpatient rehabilitation. Students may also be exposed to the outpatient clinics if possible. Students are expected to return to BUMC for Tuesday didactic sessions.

Call: Braintree students will take call at BMC: one weekend day call per rotation from 7:30am-9pm. Call schedules will be given during orientation

Parking: A car is needed but free parking is available at the hospital.

Saint Elizabeth’s Medical Center
736 Cambridge St, Boston, MA 02135
Site Director: Dr. Anna Hohler, Anna.Hohler@steward.org
Site Administrator: Maureen Walsh, Maureen.Walsh@steward.org

Students will participate in a mix of one week of outpatient followed by three weeks of inpatient training. Six neurologists will assist in the training and supervision of the student. The student will have the opportunity to work in the movement disorders and general neurology clinics. Additional participation in the epilepsy, stroke, and neuromuscular clinics may also be coordinated. On the inpatient service, the student will have the opportunity to evaluate patients
in the ED, on the ward, and in the ICU. The student will see a wide range of patient types including stroke, epilepsy, neuroinfectious, neurotrauma, neurooncology, and patients with neurological issues related to systemic diseases to name a few. Students will work with residents and will participate in robust educational programming. Students interested in research will have an opportunity to participate in projects.

**Call:** Takes place at BMC one weekend day of the rotation.

**Parking:** Students can park the first day in Lot B and then will receive information on parking during orientation

**Manchester VA**
718 Smyth Rd, Manchester, NH 03104  
Site Director: Dr. Selbst, Richard.Selbst@va.gov  
Site Administrator: Sherri Henry, Sherri.Henry2@va.gov

Manchester VA Medical Center is an all outpatient facility where 3 clinically trained neurologists see a variety of neurological diseases on a daily basis. The student will report to the second floor Specially Clinics, starting at 8–8:30 AM. We plan to have the medical student shadow at least 1 neurologist for much of the first week to learn the culture of patient management here. Following that, we expect the student to take probably 3 patients a day to evaluate on their own, performing complete history taking and neurological examination, formulating a differential diagnosis and plan of treatment. This will then be presented to the neurologist for that day, so that this information can be reviewed together and then the patient seen together. A note will be entered by both student and physician for each patient seen. There should be adequate time at least 1 day prior to clinic, where the student can review the patient’s record he'll see, so that some individual study will be helpful. In times when there may be a lighter patient load (rarely), students will have time to practice the normal neurological examination, spend time with Neuroradiology, Physiatry/Spinal Cord, the Botox Clinic and Sleep Medicine.

**Kaiser Permanente (Santa Clara and San Jose)**
Santa Clara: 700 Lawrence Expy, Santa Clara, CA 95051  
San Jose: 250 Hospital Pkwy, San Jose, CA 95119  
Site Director: Dr. John Neely, John.D.Neely@kp.org  
Site Administrator: Sandeep Tumber, Sandeep.X.Tumber@kp.org

Students will participate in a mix of outpatient and inpatient Neurology patient interactions. Students have the option of Pediatric Neurology or other Neurology electives like MS, epilepsy, or neurosurgery at Kaiser Santa Clara or Redwood City. Please send Dr. Neeley your choice a few weeks in advance. As students will not be able to return to BMC for Tuesday didactics, that day will be dedicated to independent reading and didactic lectures recordings located on the Blackboard Learn site as well as logging into live broadcasts.

**Call:** Takes place as organized by Dr. Neely, 1 weekday day per rotation.

**Parking:** Please discuss the parking situation once on site in CA.
Clerkship Schedules

Block Schedule
Block schedule dates for all clerkships can be located on the Office of Academic Affairs website: http://www.bumc.bu.edu/busm/education/academic-affairs/academic-calendars/

Didactic Schedule

Didactic Schedule
Didactics happen every Tuesday. Didactics for the 2018-2019 academic year are in L210. A didactic schedule will be sent out in the beginning of the block, posted on Blackboard and sent out the Thursday before and the night before.

<table>
<thead>
<tr>
<th>Neurosurgery</th>
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</thead>
<tbody>
<tr>
<td>Pain: From Injection to Anatomy</td>
</tr>
<tr>
<td>Cases 1-5</td>
</tr>
<tr>
<td>Cases 6-10</td>
</tr>
<tr>
<td>Presentations Part 1</td>
</tr>
<tr>
<td>Presentations Part 2</td>
</tr>
<tr>
<td>Stroke Fellow</td>
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<tr>
<td>Neurology Clerkship Bootcamp</td>
</tr>
<tr>
<td>Neurology Jeopardy</td>
</tr>
<tr>
<td>Pediatric Neurology</td>
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<tr>
<td>Epilepsy Lecture</td>
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<tr>
<td>Sleep Intro</td>
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<tr>
<td>Mini-Mental Status</td>
</tr>
<tr>
<td>Neuro ICU</td>
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<tr>
<td>Neuro Rehab</td>
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<tr>
<td>LP SIM</td>
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<tr>
<td>Neurological Exam Workshops/Bedside Skills</td>
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<tr>
<td>Neuromuscular</td>
</tr>
<tr>
<td>Case Discussion</td>
</tr>
<tr>
<td>Movement Disorders</td>
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<tr>
<td>MS/Neuro Opth</td>
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<tr>
<td>Bedside Skills Teaching</td>
</tr>
</tbody>
</table>

Call Schedule
Students sign up for their call date at orientation. All students are required to complete one weekend call day from 7:30am-9pm.

Students placed at BMC, Manchester VA, Saint Elizabeth’s, Mount Auburn and Braintree Rehab complete call at BMC. Boston VA students do call at the Boston VA.
Students rotating with Neurosurgery at BMC will take call with that group instead. No overnight call is expected.

**Expectations:**
- Take a thorough history (including relevant past medical history and medications) and perform a comprehensive neurologic exam for a consult in the emergency room. Present to a resident, fellow, or attending, include a prioritized differential, and plan.
- Sometimes you may be able to witness procedures, such as lumbar punctures. Try to participate in such procedures, or assist your resident/attending, as needed.
- Research your patients or other interesting patients on the team if the service is slow, volunteer to take on more patients, teach on topics, or study. If there is work to do, you should be volunteering to help.

**Holidays**
Thanksgiving: Wed, Nov 21, 2018 at 12PM – Sun, Nov 25, 2018
Intercession: Fri, Dec 21, 2018 at 5PM – Tue, Jan 1, 2019

Other holidays that occur during specific blocks will be communicated by the clerkship director.

**Assessment and Grading**

**Clerkship Grading Policy**

<table>
<thead>
<tr>
<th>HOW MUCH EACH PART OF YOUR GRADE IS WORTH:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Grade Percentage</td>
<td>50%</td>
</tr>
<tr>
<td>Shelf/Exam Percentage</td>
<td>30%</td>
</tr>
<tr>
<td>“Other” Components Percentage</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOW YOUR FINAL WORD GRADE IS CALCULATED:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Honors</td>
<td>88.5%-100% **</td>
</tr>
<tr>
<td>High Pass</td>
<td>79.6-88.4% **</td>
</tr>
<tr>
<td>Pass</td>
<td>69.6-79.5 **</td>
</tr>
<tr>
<td>Fail</td>
<td>&lt;69.6% OR &lt;5% on the shelf or &lt;2 on Professionalism</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHELF/EXAM GRADING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam minimum passing (percentile/2 digit score)</td>
<td>65</td>
</tr>
</tbody>
</table>

What is “Other” and what percentage is it worth?
- Student presentation | 15% |
- FOCUS form, mid-clerkship form completion and professionalism | 5% |

**Other components that need to be completed in order to pass the clerkship**
- Patient log
**Clerkship Specific Grade Procedures/Policies**

**Guiding Principles**: We strive to provide a grading system that is:
- Fairly applied - a system that we follow for all students.
- Transparent - students can clearly see the process by which the grade is derived.
- Discriminating - the HONORS grade represents a performance of true distinction.
- Based on your absolute performance. There is no ‘curve’ or fixed percentage about who can/cannot get HONORS...
- Performance –based- what the student does and is reported- not based on potential.

The **CSEF score** (a total of 52 points) will be converted to a score out of 100 to generate the clinical grade. (Example CSEF score of 42 out of a total of 52 points correlates to 80.7 points out of 100, which would count towards 50% of the final grade).

The CSEF grade is complemented by narrative description on the EValue form and by other observations conveyed by instructors.

The Formal Evaluation of the Oral Patient Presentation is graded using standardized grading rubric.

If the student scores > 5th percentile nationally on the initial attempt at the **NBME Shelf Exam**, he/she is assigned points for the NBME Shelf Exam component of the final grade in proportion to the 2-digit score.

*** Integrating the Clinical Performance Score into the Final Grade

The student will request evaluations from residents and faculty with whom they had a meaningful encounter. A meaningful encounter would be at least a half day on the inpatient wards or in clinic. **The evaluations will be weighed** depending on the number of sessions a student spends with a preceptor/resident.

To achieve a final grade of **HONORS**, the student must achieve ≥88.5 Total Points, an average CSEF score of ≥ 2.5 in “Management Planning Skills” and ≥ 3 in each other CSEF category. In addition, the student must achieve a score on the shelf exam of 70 or above.

To achieve a final grade of **HIGH PASS**, the student must achieve 79.6 to < 88.4 Total Points, a CSEF score of ≥ 2 in “Management Planning Skills” and ≥ 3 in each other CSEF category. The student must pass the shelf exam.

To achieve a final grade of **PASS**, the student must achieve 69.6 to < 79.5 Total Points, and an average CSEF score of ≥ 2 in each CSEF category, except for “Management Planning Skills”. The student must pass the shelf exam.
Deriving the Final Composite Grade from the input. An example:

50% ---Clinical evaluation---CSEF score 42 out of 52 is converted to score of 80.7 out of 100. The student received a CSEF score of ≥ 2 in “Management Planning Skills” and ≥ 3 in each other CSEF category.
30 % ---NBME shelf exam--- 84 points x .30
15 % ---Averaged score of the oral presentation, 100 x 0.15
5%-completion of passport: 100 x 0.5

(80.7) x 0.50 + (84) x 0.30 + (100) x .15 + 100 x 0.5= 85.5

This student’s final (composite) grade for the clerkship is HIGH PASS.

Professionalism
Evaluation of a medical student's performance while on a clinical clerkship includes all expectations outlined in the syllabus and clerkship orientation as well as the student's professional conduct, ethical behavior, academic integrity, and interpersonal relationships with medical colleagues, department administrators, patients, and patients' families. Any lapses in professionalism may result in a loss of up to 3% of the total possible clerkship points regardless of performance in other areas of the clerkship. Any professionalism lapses resulting in a loss of clerkship points will require narrative comments by the clerkship director in the professionalism comment section of the final evaluation.

Clerkship-Specific Failure and Remediation Policies/Procedures
If a student scores <36.4/52 on the CSEF or if a student receives a score of 1-1.9 (averaged score across evaluators) in any CSEF domain (except for “Management Planning Skills”) , this may result in a failure.

Fail Clinical-If the student Fails the clinical portion of the clerkship, or does not meet the standards for professionalism, the student must retake the clerkship in its entirety

Fail Shelf only -For students who meet expectations for all grading elements except that they score < 5th percentile (63) on the subject exam, they may retake the subject exam one time. If the student fails to meet > 5th percentile on the retake shelf exam, the student must retake the entire clerkship, including the shelf exam.

BUSM Grade Review Policy

Formative Assessments
The purpose of formative assessment is to improve student learning by providing feedback on how well they are learning skills and content during the clerkship. Formative assessments are not included in the calculations of students’ final grades. Each clerkship has required FOCuS (Feedback based on Observation of Clinical Student) forms which must be completed by the
mid/end of the clerkship. These forms will provide formative assessment through direct observation of CSEF behaviors.

On the Neurology clerkship, students are required to complete the following FOCUS forms by the end of the clerkship:

- Interviewing and Data Collection
- Physical Exam
- Patient Education
- Documentation

Two of the four FOCUS forms should be completed before the mid-clerkship meeting

Formative Assessment and Feedback Policy
Boston University School of Medicine (BUSM) ensures that each medical student is provided with formative assessment early enough during each required course or clerkship to allow sufficient time for remediation. Formative assessment occurs at least at the midpoint of each required course or clerkship four or more weeks in length.


Mid-Clerkship Review
You and your clerkship director, site director or primary preceptor will complete the BUSM Mid-clerkship Evaluation form at the mid clerkship point.

The purpose of this evaluation is to give the student a chance to understand both their strengths as well as opportunities to improve. The feedback received at the mid-clerkship review is intended to allow the student to improve their clinical skills in real time.

You should print out a copy of your patient log summary to bring to this meeting and you should work with your preceptor to make a plan for remediating any missing patient encounter or procedures. Your preceptor will provide you with formative feedback regarding your performance, and together you will make a learning plan for the second half of the rotation. You should BOTH sign the form, and you should bring the Mid-Clerkship Review form and completed Mid-Clerkship CSEF to your meeting with the clerkship director on the Friday of week #2. You will review it with the clerkship director and it will be handed in at that time.

Each student will meet with the clerkship director during Friday on week #2. In addition to other topics, the mid- clerkship review meeting, forms, and plan will be reviewed and discussed at that time.
Final Summative Assessments
The final summative assessment will be based on the clerkship grading policy and include a clinical performance grade with the CSEF (Clinical Student Evaluation Form), a NBME performance grade, and other assessments depending on the clerkship.

NBME Subject Examination
Students will take the Neurology NBME Subject Examination on the last Friday of the clerkship (unless otherwise communicated by the Office of Academic Affairs). Students are given a reading day the day before the exam. Students do not report to their clerkship site on the reading day or the day of the exam. Students will be given 2 hours and 45 minutes to complete this exam.

Shelf Exam Laptop Certification Process
Students must certify their laptops one week before the NBME Subject Exam and again on the day before the exam. Instructions are provided on the Alumni Medical Library website at: http://medlib.bu.edu/computing/nbmelaptopcertification.php

Exam Policies
http://www.bumc.bu.edu/bsm/education/academic-affairs/policies/exam-policies-for-medical-students/

Testing Center Policies
http://www.bumc.bu.edu/bsm/education/academic-affairs/policies/l-11-testing-center/

Make-Up Exams
Students needing to make up the exam or remediate only the exam portion of the clerkship must contact the Clerkship Coordinator to arrange for a make-up/remediation date. Students may not take a make-up or remediation exam during any block they currently have a scheduled rotation. Make-ups and remediation exams will typically be scheduled at the end of the third year blocks between mid-May and early June.

Roles and Responsibilities

Clerkship Director
- Oversee the design, implementation, and administration of the curriculum for the clerkship
- Create and maintain an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Ensure student and faculty access to appropriate resources for medical student education
- Orient students to the clerkship, including defining the levels of student responsibility necessary for required diagnoses and procedures
- Oversee teaching methods (e.g. lectures, small groups, workshops, clinical skills sessions, and distance learning)
- Develop faculty involved in the clerkship
- Evaluate and grade students
  - Develop and monitor assessment materials
- Use required methods for evaluation and grading
- Assure mid-clerkship meetings and discussion with students
- Ensure students are provided with feedback on their performance
- Submit final evaluations for students via E*Value

- Evaluate faculty and programs via peer review and reports from the Office of Medical Education and national reports
- Support each student’s academic success and professional growth and development, including working with students experiencing difficulties
- Participate in the BUSM clerkship peer review process
- Ensure LCME accreditation preparation and adherence
- Adhere to the AAMC-developed guidelines regarding Teacher-Learner Expectations

Clerkship Coordinator
- Support the clerkship director in the responsibilities provided above
- Create and maintain an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Maintain student rosters and clinical schedules
- Coordinate orientations and didactic sessions
- Liaise with site directors and administrators to coordinate student experiences across all sites
- Verify completion of clerkship midpoint and final evaluations for each student
- Monitor students’ reported work hours and report any work hours violations to the clerkship director
- Coordinate and proctor clerkship exams

Site Directors
- Create and maintain an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Orient students to the clinical site
- Sets student expectations for clinical encounters and discusses student role and responsibilities
- Supervises students by observing history taking, physical exam skills and clerkship specific required observations.
- Ensures formative feedback in an appropriate and timely fashion
- Delegates increasing levels of responsibility
- Meets with the student for the Mid-clerkship review
- Meets with the student for the final exit meeting
- Recognize students who have academic or professional difficulties and communicate this to clerkship leadership
- Collects feedback and evaluation data from all physicians who work with the student
- Evaluates students fairly, objectively and consistently following medical school and department rubrics and guidelines
- Ensure student and faculty access to appropriate resources for medical student education
Adhere to the AAMC-developed guidelines regarding Teacher-Learner Expectations

Primary Clinical Faculty/Preceptors/Trainees
- Set and clearly communicate expectations to students
- Supervise students by observing history taking and physical exam skills, and document it on the FOCuS form
- Delegate increasing levels of responsibility to the student within clerkship expectations
- Maintain appropriate levels of supervision for students at site.
- Create and maintain an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Recognize student learning or professional difficulties and communicate to clerkship director directly in real time in person or via email or phone
- Give students appropriate and timely formative feedback
- Assess students objectively using the CSEF form
- Adhere to the AAMC-developed guidelines regarding Teacher-Learner Expectations

Supervision
Initially, the primary clinical faculty members should designate time to observe you performing: history taking, focused physical exam, clinical problem-solving and interaction with patients and patient education. Once the supervisor establishes the student’s level of confidence and competency, the student should be delegated increasing levels of responsibility in patient care, as appropriate. Although students may initiate a particular patient encounter on their own and without direct supervision, the faculty must at some point review the encounter with the student and inform the patient in-person that the student’s assessment and management plan has been reviewed and approved by the faculty. The faculty is ultimately responsible for the evaluation, treatment, management, and documentation of patient care. If students have concerns regarding their clinical supervision, the site director and clerkship director should be immediately notified.

Supervision and Delegating Increasing Levels of Responsibility
It is expected that the level of student responsibility and supervision will be commensurate with student’s competency and level of confidence. When the student arrives to a new setting, a faculty may wish to observe you for the first session. Thereafter, you should begin to see patients on your own. In the outpatient setting, the student should initially perform 4-5 focused visits per day in the first week, increasing to 6-12 thereafter. In the inpatient setting, the student should initially follow 1-2 patients and increased to 3-4 thereafter. When a student feels that he or she is being asked to perform beyond his or her level of confidence or competency, it is the responsibility of the student to promptly inform the preceptor. It is then the preceptor’s responsibility to constructively address the student’s concerns and appropriately restructure the teaching encounter to address the student’s learning needs.

Under no circumstances should the following occur:
- Patient leaves the office/hospital with never having had a direct face-to-face encounter with clinical faculty/ supervising resident.
• Primary faculty gives “prior approval” for student to perform intervention (order labs, prescribe meds) without satisfactory review.
• Patient leaves office/hospital without being informed that assessment/management plan has been directly reviewed and approved by the faculty.
• Learning in which a student is expected to perform an intervention or encounter without the prerequisite training and/or adequate supervision.
• Student note provides the only record of the visit. Although all faculty see all patients, faculty must document that they were actually the person responsible for seeing and examining the patient.

**Third Year Student**
To successfully complete the clerkship, the students is required to do the following:

- Remain professional at all times
- Participate fully in ALL didactics, inpatient and outpatient setting
- Present a 10 min PowerPoint presentation during Tuesday didactics
- Topics for presentations will be selected during orientation
- Complete an observed history and physical by an attending
- Complete an observed neurologic exam
- Complete a Neurology clerkship specific QI
- Complete an on-line stroke module
- Complete a Mid-clerkship evaluation
- Complete a patient encounter and procedure log in e-value, hand it in to the clerkship director during the mid-clerkship evaluation and to clerkship coordinator at the beginning of the shelf
- Take a weekend day call, site specific
- Complete FOCUS forms, 2 by mid-clerkship and the final 2 should be done by the shelf
- Complete all FOCuS forms and upload them to evalue
- Complete the LP Simulation

**List of required diagnosis:** only the patients who the student saw independently and wrote a note on or seen on rounds and discussed in detail and the student has a very strong understanding of should be included

Weakness (focal/global)
Headaches
Dizziness/Lightheadedness
Altered Mental status
Loss of consciousness
Memory Difficulties
Seizures
Gait/Movement abnormalities- abnormal gait
Gait/ Movement abnormalities- tremor
Numbness and Tingling
Neck/Back pain

**Required procedures:**
Lumbar puncture simulation: *will be done during didactics.*

EMG/EEG: *discussion on rounds or in clinic with some understanding of subject matter would be sufficient*

*If the student fails to see a patient with a required diagnosis or procedure, preparing a small presentation to your resident/attending pertaining to the diagnosis and/or procedure would be sufficient*

**Professional Comportment**

Students are expected to adhere to the AAMC-developed guidelines regarding Teacher-Learner Expectations, located on the Policies page, under “Academic Policies and Information” ([http://www.bumc.bu.edu/busm/files/2015/05/AAMC-Teacher-Learner-Expectations.pdf](http://www.bumc.bu.edu/busm/files/2015/05/AAMC-Teacher-Learner-Expectations.pdf))

Students are expected to be aware of and follow the site expectations on professional comportment, including, but not limited to, dress code and the use of phones, pagers, and laptops. Students must arrive on time at their site and for any scheduled sessions. Any missed sessions and absences must adhere to the Clinical Student Time Off Policy.

Further, below are expectations for student professionalism in the core clerkship curriculum. These include, but are not limited to:

- Treating the clerkship team in a professional and respectful manner
- Engaging in the core curriculum and participating respectfully at all times
- Arriving at clerkship didactic sessions on time
- Requesting faculty and resident evaluations in a timely manner
- Reviewing and responding to e-mail requests in a timely manner.
- Returning borrowed clerkship materials on time
- Handing in all assignments on time
- Completing all logs and FOCuS forms by the clerkship specific deadline
- Inform clerkship leadership and supervising faculty/residents of absences

Feedback on professionalism will be given to students during the mid-clerkship meeting so students will be made aware of any concerns noted by the clerkship directors, clerkship coordinator, faculty or residents.

Positive and constructive comments on professionalism will be included in the narrative of the final clerkship evaluation for each student. Any lapses in professionalism may result in a loss of up to 3% of the total possible clerkship points.

**Ethical Behavior for Examinations and Mandatory Sessions**

- Refrain from any conversation with your peers during exams and as you leave the L-11 testing space, including within the vending room and elevator waiting area, until you are on the elevator.
- Don’t seek or receive copies of the examinations
- Signing in classmates, or signing in yourself and not staying, for mandatory sessions is considered cheating and violations will be referred to Medical Student Disciplinary Committee
- If you are aware of any violations of the ethical standards listed above, within the Student Disciplinary Code of Academic and Professional Conduct, or otherwise, report it to the Clerkship Director

**Student Evaluation of the Clerkship**

Student feedback is a highly valued, critical resource for helping us continually improve our curriculum. Evaluation of learning experiences is a requirement of the Liaison Committee on Medical Education. To ensure that we have a representative amount of data on our courses and clerkships, all students are expected to complete an evaluation via E*Value (www.e-value.net) for each of the courses/modules and their instructors. All evaluations are anonymous and aggregate data is only released to clerkship directors after grades have been submitted for the blocks. Please comment freely and honestly about your experience.

**Blackboard**

Students will have access to a Blackboard site for the clerkship. The site is listed under “My Courses” as Neurology Third Year on your Blackboard landing page.

On our Blackboard site you will find all contact information, your current block information and schedules, call information, clinic templates, assignments, didactics, study guides, and all BUSM policies.

Students who have questions about the Blackboard site or find that they do not have access to the site should contact the Clerkship Coordinator for assistance.

Blackboard Learn: https://learn.bu.edu/

**Assignments**

**Case Presentations:** Each student will provide a 10-minute talk on a pre-approved topic of their choosing during one of the didactic days. You will choose your topic and receive your assigned time slot during the first week.

- The informational portion of the talk should be no more than 8 minutes (8-10 slides) long.
- Two minutes are allotted for the question & answer portion of the talk
  - You will present 3 USMEL style questions based on your topic.
  - The questions should be original and in a USMLE multiple-choice format.
- Please practice so that you are not rushed. It is better to present less info effectively than to try to cover everything at lightning-speed.
- Dr. Vaou will evaluate your presentation on content, presentation skills, ability to answer audience questions, USMLE type question preparation, AND ADHERENCE TO THE 10 MIN TIME LIMIT.
- One the same day as the presentation, make sure to post your slides on Blackboard for the entire class.
When evaluating the literature for your oral presentation focus on evidence based medicine (EBM).

- There is an excellent breakdown of levels of evidence for each article in our journal *Neurology*.
- Remember that in general, the highest quality information comes from double blinded placebo controlled trials.

**Besdside Skills Session (BS):** This is the direct one to one observation of students on history and neuro examination.

Attendings/Residents/Fellows are expected to observe the student perform a history and physical examination for half hour at a time. They should then complete the FOCuS forms on evaluating the interview and physical examination.

The preceptors will meet the students at L210. Each preceptor will be assigned to one patient in the Mennino or ENC. Each preceptor will observe each student for half hour. The preceptor will not be overseeing more than 2 students/session. The patients will have consented to participate in this session.

The goal of BS is to teach students how to obtain an effective interview and perform an accurate, focused and skillful Neurological examination in a timely fashion. The diagnosis and clinical reasoning will not be tested for this exercise.

**NBME Subject Examination:** All students at all sites are required to sit for the National Board of Medical Examiners Subject Examination in Neurology.

- The examination will take place on the last Friday morning of the Clerkship unless it is a holiday in which case it will be given earlier. Details regarding exact time and location will be given during the block.
- Students with special testing needs, as determined by the Office of Student Affairs, should bring this to the attention of the Clerkship Coordinator as early as possible and accommodations will be made.
- **This is often a difficult examination and we suggest that you start studying for this examination during the first week of the rotation for maximal preparation.**
- Students who score at less than the 5th percentile or score < 63 will need to re-take the exam.
  - If you fail the shelf exam, you get an automatic FAIL for the rotation with a chance to retake the shelf exam during an unoccupied block.
  - If you pass the shelf on the 2nd try, the highest grade you can receive for the clerkship is a PASS.

Feedback and Observation of Clinical (UME) Skills (FOCuS): **These are replacing the passports.** Students will need to print the form and have it completed by their faculty/resident and then will upload to e-value. Clerkships should expect students to complete at least 2 forms
before mid rotation and bring to mid meeting so feedback can be reviewed and discussed with student. FOCUS forms are required.

- We want to ensure that each student has the opportunity to perform a witnessed neurological exam and history taking, a lumbar puncture on the simulator, encounter the required diagnoses and participate in call.
- **Two of the four FOCuS forms will be reviewed at the mid-clerkship meeting.**
- All four FOCuS forms will be uploaded to evalue by the shelf

**Patient Encounters/Case Logs**

Across the third year there are required patient encounters and procedures that must be logged whenever they are seen. To log the patient encounter, students must have participated in the history, physical exam, assessment and plan development of the patient.

**Required Patient Encounters**

http://www.bumc.bu.edu/busm/education/academic-affairs/faculty-resources/

**List of required diagnosis:** 
*only the patients who the student saw independently and wrote a note on or seen on rounds and discussed in detail and the student has a very strong understanding of should be included*

- Weakness (focal/global)
- Headaches
- Dizziness/Lightheadedness
- Altered Mental status
- Loss of consciousness
- Memory Difficulties
- Seizures
- Gait/Movement abnormalities- abnormal gait
- Gait/ Movement abnormalities- tremor
- Numbness and Tingling
- Neck/Back pain

**Required procedures:**

- Lumbar puncture simulation: will be done during didactics.
- EMG/EEG: discussion on rounds or in clinic with some understanding of subject matter would be sufficient

*If the student fails to see a patient with a required diagnosis or procedure, preparing a small presentation to your resident/attending pertaining to the diagnosis and/or procedure would be sufficient*
**Alternative Patient Encounters**

If a student has not been able to experience all patient encounters required for the clerkship, students must address any gaps in their patient encounters through an alternative experience. In this clerkship, the alternative experiences are case studies and simulation.

**Patient Encounter Log**

Students are expected to log their patient encounters in E*Value ([www.e-value.net](http://www.e-value.net)). Patient logs help the clerkship ensure that each student is seeing a diagnostically diverse patient population, an adequate number of patients, and performing a sufficient number of required procedures and diagnoses. The directions on how to log patient encounters can be found on the E value help page [http://www.bumc.bu.edu/evaluate/students/](http://www.bumc.bu.edu/evaluate/students/). Students must bring a printed copy of their patient encounter and procedure log to their mid rotation feedback meeting.

**Policies and Procedures for Evaluation, Grading and Promotion of Boston University School of Medicine MD Students**


**Collaborative Student Assessment System**

[http://www.bumc.bu.edu/busm/files/2016/03/OAA_Collaborative_Student_Assessment_System.pdf](http://www.bumc.bu.edu/busm/files/2016/03/OAA_Collaborative_Student_Assessment_System.pdf)

**Student Disciplinary Code of Academic and Professional Conduct**


**Attendance Policies**

On-site hours must be limited to 80 hours per week, averaged over a two-week period. Violations should be reported directly to the clerkship director or to an Associate Dean (Academic Affairs or Student Affairs). Time off requests must comply with the Attendance & Time Off Policy.

  - Time Off Request Form: [www.bumc.bu.edu/busm/files/2015/06/Time-off-Request-Form.doc](http://www.bumc.bu.edu/busm/files/2015/06/Time-off-Request-Form.doc)
- Work Hours: [http://www.bumc.bu.edu/busm/education/academic-affairs/policies/work-hours/](http://www.bumc.bu.edu/busm/education/academic-affairs/policies/work-hours/)

**Personal Day Policies**

[http://www.bumc.bu.edu/busm/education/academic-affairs/policies/personal-days-policy/](http://www.bumc.bu.edu/busm/education/academic-affairs/policies/personal-days-policy/)
**Clerkship Specific Blackout Dates**
- Didactic Days—Every Tuesday

**Scrubs Policy**
http://www.bumc.bu.edu/bsm/education/academic-affairs/policies/scrubs-policy/

**BUSM Policies**
In addition to the expectations listed above, all students are expected to adhere to BUSM and Boston University policies.
http://www.bumc.bu.edu/bsm/education/academic-affairs/policies/

**BU Policies and Student Support Services**

**Appropriate Treatment in Medicine**
Boston University School of Medicine (BUSM) is committed to providing a work and educational environment that is conducive to teaching and learning, research, the practice of medicine and patient care. This includes a shared commitment among all members of the BUSM community to respect each person’s worth and dignity, and to contribute to a positive learning environment where medical students are enabled and encouraged to excel.

BUSM has a **ZERO** tolerance policy for medical student mistreatment.

Students who have experienced or witnessed mistreatment are encouraged to report it using one of the following methods:

- Contact the chair of the Appropriate Treatment in Medicine Committee (ATM), Dr. Robert Vinci, MD, directly by email (bob.vinci@bmc.org)

These reports are sent to the ATM chair directly. Complaints will be kept confidential and addressed quickly.


**Needle Sticks and Exposure Procedure**

**Boston University Sexual Misconduct/Title IX Policy**

**Boston University Social Media Guidelines**
**Recent Changes to the Clerkship**
The neurology clerkship has gone through some amazing changes in the last couple of years, resulting in a more comprehensive and a rewarding learning experience for students.

1. Site expansion:
   - We have added St. Elizabeth’s Hospital for the new academic year 2018-2019
   - We have added the Kaiser Permanente site in San Jose, CA and expanded it to Santa Clara, CA in the academic year 2017-2018
   - We have added a Manchester VA site in the academic year 2017-2018
   - The Mount Auburn site expanded to 2 students per block with a new improved curriculum under the leadership of their chair Dr. Hrieb
   - The Braintree site has welcomed Dr. Brigid Dwyer as the new site director and has already improved the student experience by creating a more streamlined introduction/orientation for the students and added to their education experience

2. Curriculum changes:
   - Added lectures to the student didactics to enhance the learning experience for the students
   - The residents and faculty will participate in Bedside Skills teaching, a direct one to one observation on history and neuro examination.
   - Added templates as guides for writing patient note documentation specific to each sub-specialty.
   - Revised Neurology Handbook
   - QI project
   - Stroke on line module

3. Grading changes:
   - New CSEF form which will allow for more fair grading for the students to assess their clinical performance on the wards and in clinic
   - New requirements on the CSEF and the shelf in order to achieve an Honors/High Pass/Pass/Fail (please refer to specifics in the syllabus)
   - Professionalism policy updated

**Learning Strategies and Tools**

**Recommended Texts**

Greenberg, Simon and Aminoff, Eds, *Clinical Neurology, 7th Ed.*, Lange Series. It is available in the bookstore. There is a copy of the 6th Edition available through etexts, which will be fine to use. Link is: [http://med-libwww.bu.edu/ebooks/](http://med-libwww.bu.edu/ebooks/)

**History and Neurologic Exam**

Denny-Brown D, Tyler HR and Dawson, DM. *Handbook of Neurological Examination and Case Recording*. Harvard University Press, Cambridge, MA.
DeJong, RN. *The Neurologic Examination*, Harper and Row, New York
Medical Research Council. *Aid to the Examination of the Peripheral Nervous System*

**Differential Diagnosis, Management of Neurological Illness**
Bradley WG, Daroff RB, Fenichel GM and Marsden CD. *Neurology in Clinical Practice*, Vols I and II, Butterworth-Heinemann, Boston
Patten J. *Neurological Differential Diagnosis*, Springer-Verlag, New York

**Mental Status Examination**
Strub, RL and Black WF. *Mental Status Exam in Neurology*, FA Davis, Philadelphia

**Neurologic Localization**

**Some Useful Journals**
*Neurology*
*Stroke*
*Annals of Neurology*
*Archives of Neurology, Clinical Neurophysiology*
*Journal of Neurology, Neurosurgery and Psychiatry*

**Websites**: Many useful and fun websites are listed on [BlackBoard](http://www.bumc.bu.edu/evalue/students/)

**Study Apps**

**E*Value Student Resources**
[http://www.bumc.bu.edu/evalue/students/](http://www.bumc.bu.edu/evalue/students/)

**Echo360/Technology**
Echo360 may only be used for streaming captured lecture videos; the videos may not be downloaded. Taking smartphone or digital pictures or videos of any part of the lecture in class, or at home, is similar to downloading and is not allowed. There are a number of reasons for this, including that students and/or the University may be liable for violations of federal copyright and privacy laws as a result of the use of copied material.

If you experience any technical problems, please report the issue in one of the following ways to generate an IT ticket:
- **Echo360 Related Issues:** Create a ticket on the Ed Media site ([http://www.bumc.bu.edu/bumc-emc/instructional-services/echo360/](http://www.bumc.bu.edu/bumc-emc/instructional-services/echo360/)): sign in and provide pertinent information that will enable an effective response. Have a link to the problematic video ready to copy/paste into this form.

- **Educational Technology Related Issues:** For assistance with technology supported by BUMC's Educational Media (e.g. ExamSoft), tickets can be created via their website at: [http://www.bumc.bu.edu/bumc-emc/instructional-services/report-an-educational-technology-issue/](http://www.bumc.bu.edu/bumc-emc/instructional-services/report-an-educational-technology-issue/)

- **Other Technology Related Issues:** For assistance with BU-wide technology, such as Blackboard, email an example (e.g. picture or very brief phone video) to ithelp@bu.edu with a descriptive subject line and give as many details as possible on the what, where, how you are using the service and what type of computer, browser, etc. along with type of student (i.e. BUSM III). Always include link(s) to or screen shots of where the issue is occurring.


**Tutoring**

Peer tutors may be requested via the Office of Academic Enhancement’s Peer Tutoring Program at: [https://www.bumc.bu.edu/bsm/student-life/professional-development/academic-enhancement/peer-tutoring-program/](https://www.bumc.bu.edu/bsm/student-life/professional-development/academic-enhancement/peer-tutoring-program/)

**Office of Disability Services**

Boston University is committed to providing equal and integrated access for individuals with disabilities. The Office of Disability Services provides services and support to ensure that students are able to access and participate in the opportunities available at Boston University. [http://www.bu.edu/disability/policies-procedures/academic-accommodations/](http://www.bu.edu/disability/policies-procedures/academic-accommodations/)

**Session Learning Objectives and Notes**

Neurorehabilitation
Brigid Dwyer, MD

By the end of the lecture students will be able to:

1. Identify common etiologies of brain injury and the physiologic underpinnings of disorders of consciousness
2. Describe the natural history of recovery in disorders of consciousness resulting from brain injury
3. Become familiar with the most relevant current and emerging interventions in Neurorehabilitation
4. Understand the implications of short and long term prognostic data after brain injury

Management of Ischemic Stroke
Stroke Fellows (rotating)

By the end of the lecture students will be able to:
1. Acute Stroke Management – identify the acute treatment options for ischemic stroke and determine which patients are appropriate for each type of therapy

2. Inpatient Stroke evaluation – identify common causes of ischemic stroke and understand the reasoning for each element of the inpatient workup

3. Secondary Stroke Prevention – understand appropriate prevention options based on different stroke etiologies

LP SIMULATOR
Dr Okeanis Vaou
By the end of this lecture students will be able to:
   1. To become familiar with the contents of the LP kit
   2. To understand the reasons, risks and benefits for performing an LP and how to properly consent a patient
   3. To learn the LP technique and to become familiar with performing an LP on a mannequin
   4. To understand which tests to order and how to interpret the results

Emergency and Critical Care Neurology
Rotating Neuro intensivist
By the end of this session, students will be able to:
   1. Introduction to the role of the Neurointensivist
   2. Understand the diagnostic and treatment considerations unique to emergencies involving diseases of the nervous system
   3. Be familiar with the differential diagnosis and diagnostic and therapeutic approach to common neurologic emergencies

Pain Medicine, Career and Wellness
Dr Michael Perloff
By the end of this lecture, students will be able to:
   1. Understand basic approach and principles to Pain medicine from a Neurology point of view
   2. Understand Neuropathic pain distributions, and the approach to treating these
   3. Approach to Medical school, with self, wellness, and success in mind

Movement Disorders
Dr Bissonnette
   1. To be able to identify the cardinal motor symptoms and associated non-motor symptoms of PD
   2. To be able to differentiate Essential tremor from Parkinson’s disease
   3. To learn commonly used drugs that can cause tremor in patients