

NEUROLOGY / 2020



DEPARTMENT STRATEGIC PLAN

INTRODUCTION:

The Department of Neurology at University of Mississippi Medical Center (UMMC) has undergone an external review. This review resulted in a formal report containing multiple helpful observations and suggestions. At the same time, UMMC was conducting several institution wide strategic planning exercises, the results of which have been released as the “UMMC / 2020” strategic plan document. Combining the collective knowledge and wisdom from these two events and their associated documents, the Department of Neurology put forth this department strategic plan.

STRATEGIC ASSESSMENT:

The opportunities and challenges currently facing UMMC and the Department of Neurology are clear. We enjoy a privileged position as the only academic medical center in the state, and as such, we assume the singular responsibility to provide healthcare and neurologic leadership for Mississippi. Students in UMMC’s six degree granting schools and several graduate medical education programs rely on our department for neurologic education as do students in regional undergraduate and physician assistant programs. Patients and their providers throughout Mississippi put their trust in our clinical neurologic expertise for both routine and high complexity conditions. We also pursue scientific discovery through funded research programs in basic and clinical neurosciences.

With the privileges of our unique position comes responsibilities and challenges. Challenges to our educational mission include adapting our curricula to better address current trends in healthcare and moving toward greater inter-professional learning models. Key challenges facing our service mission include insufficient breadth of department faculty in several subspecialty areas, tenuous depth in key areas already represented, and less than ideal collaborations with some entities at the medical center. Tighter alignment across institution missions, departments, and strategic priorities was identified in UMMC / 2020 as a key current challenge which we all face. In research, difficulties obtaining extramural funding continue to exist, as do struggles to effectively advance translational and clinical research projects.

STRATEGIC PRIORITIZATION:

Over the past several years, the department of neurology has solidified several critical ‘building blocks’ necessary for the foundation of a stable department structure. In education, these have included establishing and then expanding a required medical school clerkship, enlarging our neurology residency program, and accrediting three new fellowship training programs in neurology subspecialty areas. In the clinical area, we established the UMMC Comprehensive Stroke Center and re-established the UMMC Comprehensive Epilepsy Center as the state’s only NAEC Level 4 (highest level) epilepsy center. Key research building blocks now in place include a new neuroscience research division in our department, the recruitment of additional basic science faculty and post-doctoral researchers, and successful attainment of extramural funding from government, foundation, and industry sources.

Looking forward toward the next several years, and incorporating the knowledge and wisdom from our department external review and from UMMC / 2020, the following department strategic priorities loom clear and are enumerated as 28 mission-specific goals:

MISSION-SPECIFIC GOALS: (education goal = EG; service goal = SG; research goal = RG)

EG #1 – Recruit and train PhD candidates in Vig and Bidwell laboratories.

EG #2 – Improve M3 Clinical Neurosciences course evaluation ratings.

EG #3 – Add new M4 electives.

EG #4 – Foster inter-profession learning in all education venues.

EG #5 – Maintain full accreditation of all our GME programs.

EG #6 – Recruit trainees for Vascular Neurology fellowship.

EG #7 – Recruit trainees for Neurocritical Care fellowship.

EG #8 – Recruit trainees for Neuromuscular Medicine fellowship.

EG #9 – Develop new ACGME accredited epilepsy fellowship.

EG #10 – Diversify teaching technologies in SOM and GME programs.

SG #1 – Revive the Neuroscience Intensive Care Unit (NSICU) faculty.

SG #2 – Collaborate with MIND Center on Parkinson's disease and movement disorders.

SG #3 – Solidify easy outpatient access in general neurology.

SG #4 – Strengthen the stroke program.

SG #5 – Expand the epilepsy program.

SG #6 – Increase intraoperative neurophysiologic monitoring services.

SG #7 – Realize the Neuromuscular Center of Mississippi.

SG #8 – Partner with the Cancer Institute and Neurosurgery on neuro-oncology program.

SG #9 – Coordinate Teleneurology services with UMMC's Center for Telehealth.

SG #10 – Recruit a board certified headache specialist.

SG #11 – Transition the neuro-ophthalmology service.

RG #1 – Successfully compete for investigator initiated grants (NIH, NSF, foundations).

RG #2 – Collaborate on multi-center federally funded clinical research efforts.

RG #3 – Engage with MRC scientists and NAS colleagues on cross-disciplinary opportunities.

RG #4 – Increase clinical trial contracts.

RG #5 – Expand basic neuroscience research infrastructure (post-docs, scientists, techs).

RG #6 – Expand clinical neuroscience research infrastructure (coordinators, clerical, space).

RG #7 – Move Vig and Bidwell laboratories to new TRC building when completed.

TABLE OF RESONANCE

Goal	UMMC / 2020	NEUROLOGY / 2020
Inter-professional learning	Goal #1-1	EG #4
Expanded training	Goal #1-3	EG #3, EG #9
Learning technologies	Goal #1-10	EG #10
Accreditation standards	Goal #1-11	EG #5
Research training	Goal #2-2	EG #1
Basic science research	Goal #2-3	RG #5
Clinical trials infrastructure	Goal #2-5	RG #6
High complexity services	Goal #3-3	SG #1, SG #2, SG #4, SG #5, SG #8
Targeted philanthropy	Goal #3-5	SG #7
Research funding	Goal #3-6	RG #1, RG #2, RG #4
Rural services	Goal #7-2	SG #9
Patient access	Goal #7-3	SG #3
Telehealth	Goal #7-4	SG #9
Subspecialty care services	Goal #7-5	SG #1, SG #2, SG #4, SG #5, SG #8, SG #10, SG #11
Underserved communities	Goal #8-7	SG #9

This table depicts areas of synergy and resonance between institution strategic goals as outlined in UMMC / 2020 and department strategic goals as outlined in NEUROLOGY / 2020.

IMPLEMENTATION PLAN:

The first priority in implementing this strategic plan is to address the deficiencies in our NSICU. UMMC administrative leaders and our external reviewer agree on this – as does the Department of Neurology. Our goal is to attract and keep a cadre of 3-4 full time faculty in neurocritical care. We will engage professional search firms straightaway and redouble our independent efforts to achieve this critical recruitment goal. A strong neurocritical care division will unburden hospital administration in their efforts to provide cross coverage of the NSICU from other departments, thereby saving considerable costs in per diem expenses. It will also serve to strengthen the Department of Neurology's financial performance via a steady stream of critically ill patients in need of our specialized care services.

Another high priority goal which will receive immediate attention is our collaboration with the MIND Center in expanding services for neurodegenerative disorders – most importantly Parkinson's disease. The "N" in MIND Center stands for 'neurodegenerative' and although Alzheimer's disease is the paramount neurodegenerative disorder, Parkinson's disease would rank second and would be followed closely by other movement disorders including Huntington's disease, progressive supranuclear palsy, and others. Dr. Juebin Huang is a China trained MD/PhD who has researched and published considerably on both Alzheimer's and Parkinson's disease and who was a UMMC research faculty member before joining our neurology residency program. He completes residency training this year and will rejoin our faculty as a fully trained and independent physician scientist. As such, he will provide clinical services to patients with neurodegenerative diseases and conduct clinical research on normal and pathologic brain aging using neuroimaging methods. Dr. Thomas Mosley, Director of the MIND Center, has agreed to partially support Dr. Huang's research and service efforts in Parkinson's disease and other movement disorders. In time, these activities should help the Department of Neurosurgery to recruit a functional neurosurgeon, thereby expanding patient services in movement disorders to include deep brain stimulation (DBS) therapy.

A third high priority for neurology at academic medical centers is easy access to outpatient appointments. Neurologists are fortunate that many non-neurology providers suffer from a degree of "neurophobia". This fear of neurologic disorders translates into anxiety over their patients' well-being, and results in a steady source of neurologic referrals. It is the responsibility of our department to allay this anxiety with excellent and timely consultative services. Nationally, the standard metric for outpatient waiting times is the "third next available" (3NA) appointment, and the American Academy of Neurology reports a mean 3NA of 27.8 days for new visits and 29.9 days for follow-up visits among US neurology practices (NB: academic neurology practices usually average about 35 days on this metric). When checked, our new patient visit 3NA stood at 20 days, and our follow-up visit 3NA was also 20 days. Nevertheless, our external review summary has signaled that institutional expectations call for more timely services from our department. To meet these expectations we plan to hire another general neurologist whose focus will be on outpatient clinic duties.

The Department of Neurology has enjoyed good success in research over the past few years. We have garnered extramural grants from NIH, NSF, AHA, and contract research (clinical trials) from industry sources. Expansion of both basic and clinical science infrastructure is a priority

goal, necessary to maintain and increase this momentum. Realizing these goals will require a variety of additional support personnel. We will actively recruit post-doctoral fellows, research scientists, nurse coordinators and technical/clerical staff to our research enterprise. We will also coordinate and align ourselves with the research infrastructure which Associate VC Richard Summers is developing on campus. As the nascent Neuroscience Institute unfolds, we will partner with leadership (Dr. Michael Lehman) and with scientific colleagues (Dr. Dobo Stokic from MMRC) to create collaborative translational research projects. When the new Translational Research Center building opens, we will move the Vig and Bidwell laboratories to designated space on the third and/or fourth floor.

Education goals ahead of us build upon our successes in establishing new SOM and GME training programs. Now that a required M3 clerkship in Clinical Neurosciences exists at UMMC, we need make it well received and highly regarded by students. Similarly, we need to populate our newly accredited subspecialty fellowships with trainees in Vascular Neurology, Neurocritical Care, and Neuromuscular Medicine. One new fellowship in Epilepsy is also planned and should be ACGME accredited by academic year '15-'16. Additional offerings as M4 elective courses will also be developed. Our research faculty plan to train graduate students in their laboratories. All our educational efforts will evolve in a fashion supporting inter-professional learning where possible and will utilize diverse teaching technologies and venues.

Our external review document described the opportunity for UMMC and the Department of Neurology "...to develop highly specialized destination programs." By 'destination' program, our reviewer means programs that require the subspecialty expertise, advanced technologic support, and other high complexity factors which prohibit their implementation at most facilities. Of course, the UMMC Comprehensive Stroke Center and the UMMC Comprehensive Epilepsy Center are two good examples of existing 'destination' programs at our academic medical center. Two other 'destination' opportunities ripe for development are a Neuro-oncology Center and a Neuromuscular Center. Each will be discussed in the following paragraphs.

UMMC is fortunate to have on faculty the only board certified neuro-oncologist in Mississippi, Dr. Mark Anderson. Dr. Anderson was recruited to the Department of Neurology less than two years ago, and has successfully integrated with key providers and other personnel in the Cancer Institute, and in the Departments of Neurosurgery (Dr. Rey-Dios), Radiation Oncology (Dr. Vijayakumar), and Internal Medicine (Dr. Thigpen). Patients with primary brain tumors, and patients with neurologic complications from systemic malignancies, are highly complicated and frequently require multi-disciplinary management through integrated healthcare delivery teams. Unsurprisingly, these healthcare scenarios are ideally realized in subspecialized environments like the Cancer Institute. In the near future, the Department of Neurology will strengthen collaborations with the Cancer Institute, the Department of Neurosurgery, and other integral departments at UMMC to pursue a 'destination' program in Neuro-oncology. This goal is also consistent with and supported by the findings and recommendation in Kurt Salmon's UMMC High Complexity Study and resonates with many of the strategic goals articulated in UMMC / 2020. Furthermore, a Neuro-oncology Center would create a natural home for the clinical research collaborations which Dr. Anderson has recently forged with the NCI-funded RTOG (Radiation Therapy Oncology Group).

Neuromuscular disorders present diagnostic and therapeutic challenges to most providers, including many neurologists. The ongoing expansions in identified genetic causes of these disorders, new physiological, biochemical, and histopathological diagnostic methods, and emerging treatment modalities have created a high complexity, subspecialty field. Fortunately, we have three board certified specialists in neuromuscular medicine at UMMC and have the only fellowship training program in neuromuscular medicine between Dallas and Birmingham. For years, UMMC has operated a Muscular Dystrophy Association clinic at the Jackson Medical Mall. In collaboration with the Department of Pediatrics, we seek to integrate this clinic and the other outpatient neuromuscular services at UMMC into a new Neuromuscular Center of Mississippi (NMCM). Space has been identified for this purpose, and staff in the Office of Development have already organized philanthropic support from an interested foundation. This move would allow the NMCM to expand with additional faculty recruitment and begin to offer clinical trial participation for appropriate patients. The NMCM could also become an ideal program of alliance with Mississippi Methodist Rehabilitation Center, as many patients with neuromuscular disorders have ongoing needs for rehabilitation services and adaptive equipment.

While the development of new high complexity subspecialty ‘destination’ programs is exciting and resonates well with UMMC / 2020 strategic goals, we must not neglect existing ‘destination’ programs at UMMC in the clinical neurosciences. The UMMC Comprehensive Stroke Center and the UMMC Comprehensive Epilepsy Center must be sustained and protected to ensure our continued capacity to deliver excellent service, teaching and research products for Mississippi. Recently, Dr. Rebecca Sugg spearheaded our hospital’s certification by the Joint Commission as a Primary Stroke Center. We are now seeking further Joint Commission certification as a Comprehensive Stroke Center. Sustained commitment from hospital leadership and supportive buy-in from extra-neurology partners such as nursing, radiology and neurosurgery are critical to realizing this objective external endorsement of excellence. It is also imperative that we recruit additional board certified vascular neurologists (two more were recommended in our external review report) to buffer against our current lack of depth in this subspecialty area. Our stroke program will also add value for UMMC’s patients through our ongoing expansion of stroke clinical trials (PRISM, CREST-2). The UMMC Comprehensive Epilepsy Center is led by Dr. Abuhuziefa Abubakr, and personnel from hospital administration supporting its infrastructure have recently changed. With this change, there is considerable optimism for the more effective management of program resources. For instance, the Epilepsy Monitoring Unit (EMU) on 4 North needs to be expanded by two additional beds (as recommended in our external review report) and ‘protected’ as a specialty unit from overflow medical/surgical admissions. This would allow the EMU to provide consistently for the high complexity, subspecialty needs of patients served by the Epilepsy Center. The Center is also planning to expand its portfolio of clinical trials of new drugs and devices to treat refractory epilepsy, and is preparing the curriculum for a new ACGME-approvable epilepsy fellowship training program. At least one additional faculty member (preferably two) in epilepsy will be required to realize these advancements. As the Center grows, there is also potential to offer DBS therapy of the anterior thalamus once neurosurgery hires a functional neurosurgeon. This would constitute another ‘destination’ therapy not available elsewhere in the state. One additional opportunity in high complexity services which our neurophysiology unit will pursue is intraoperative monitoring (IOM). Today, the standard of care for advanced cranial and spinal neurosurgery (and some orthopedic procedures) requires physiologic monitoring of the functional integrity of

neural tissues (brain, spinal cord) during surgery. Such monitoring can detect and thereby prevent incipient neurologic injury during neurosurgical and orthopedic procedures. With the addition of another neurologist trained in IOM, our institution has the opportunity to expand these services and thereby enhance quality and safety for UMMC patients.

The geographic realities of Mississippi’s rural landscape, coupled with the state’s very low ratio of physicians per capita, create a natural opportunity for telehealth services at UMMC. Our Center for Telehealth coordinates these activities and has linked with the Department of Neurology for the provision of telestroke and teleneurology services to remote sites. Ideally, a dedicated neurology faculty member should be hired to provide teleneurology consult services and to conduct scholarship related to this emerging healthcare delivery method.

Other subspecialty areas within neurology which need attention at UMMC include headache medicine, neuro-ophthalmology, and multiple sclerosis. Although almost every neurologist takes care of patient with headache syndromes, the headache field has advanced to the point where subspecialty board certification is now established in this niche area. As the state’s neurologic leader, it is appropriate that we recruit a board certified headache specialist to develop advanced headache care on campus. Opportunities for trans-departmental collaborations in headache care would logically involve the pain clinic, in our Department of Anesthesiology. Dr. Corbett has led our neuro-ophthalmology services for over 20 years; however, he is nearing retirement, and a successor is needed. The Department of Neurology and the Department of Ophthalmology shall jointly recruit a new neuro-ophthalmologist in the near future to extend this institutional legacy. Finally, Dr. Herndon is retiring this year, and his subspecialty is multiple sclerosis. Unfortunately, there are few academic specialists in this field, and most congregate in large regional programs. Until we are able to attract an appropriate faculty member to UMMC, we have been training advanced practice nurses to manage the needs of these patients.

It is apparent that much of this Department of Neurology strategic plan revolves around the need to **increase capacity in several neurologic service areas**. A synthesis of faculty recruitment needs gleaned from the above paragraphs is summarized in tabular form below.

Service area	Number of new faculty needed
Neurocritical care (NSICU)	2-3
Parkinson’s and movement disorders	1-2
General outpatient neurology	1
Neuromuscular medicine	1-2
Stroke	2
Epilepsy	1-2
Intraoperative monitoring	1
Teleneurology	1
Headache medicine	1
Neuro-ophthalmology	1
Multiple sclerosis	1
Total	13-17

In addition to achieving an adequate breadth and depth of neurology faculty members, it is critical to maintain the highest quality within our faculty. A commitment to quality begins with careful recruitment, but continues throughout the ‘lifespan’ of faculty development. The Department of Neurology is committed to professional development and quality assurance in all areas. Our faculty are expected to obtain advanced certifications (and we financially support their examination fees), participate in professional societal activities, maintain continuing medical education, and develop themselves both as people and as professionals. This year we are providing a mindfulness training program led by a clinical psychologist to promote introspection, self-awareness and empathy. Our department principles are excellence, civility and respect for one another.

CONCLUSIONS:

Although the Department of Neurology at UMMC has realized significant accomplishments in recent years, there is still a long way to go toward achieving key milestones appropriate for our state’s leader in neurologic education, service and research. This document outlines a vision and timeline for attaining 28 department strategic goals which support UMMC’s mission to improve the health of Mississippians. Our department strategic goals are consistent with institution strategic goals and will be pursued within a culture of recognized UMMC values including excellence, quality, transparency, collaboration and patient-centeredness.

TIMELINE:

Early Phase (AYs ‘14-’15 and ‘15-’16): EG #6, EG #9, SG #1, SG #2, SG #3, SG #4, SG #5, SG #6, SG #8, RG #5, RG #6

Middle Phase (AYs ‘16-’17 and ‘17-’18): EG #1, EG #2, EG #4, EG #7, EG #8, SG #7, SG #10, RG #1, RG #2, RG #3, RG #4

Late Phase (AYs ‘18-’19 and ‘19-’20): EG #3, EG #5, EG #10, SG #9, SG #11, RG #7

