UNIVERSITY OF MINNESOTA

Medical School

Driven to Discover℠

Head, Department of Neurosurgery
University of Minnesota Medical School
Minneapolis, Minnesota

THE SEARCH

The University of Minnesota Medical School seeks an accomplished and entrepreneurial leader to serve as Head of the Department of Neurosurgery. The successful candidate will guide a collegial group of faculty and staff to strengthen research and education and build the partnerships needed to advance neurosurgical innovation across Minnesota. The next Head will join a department known for providing cutting-edge patient care, world-class education, and transformative research.

The University of Minnesota Medical School is one of the largest and most comprehensive medical schools in the country, with campuses in the Twin Cities, Duluth, and St. Cloud. The Department of Neurosurgery benefits from its location at the University of Minnesota, the only institution in the country that houses schools of medicine, dentistry, pharmacy, nursing, public health, and veterinary medicine on a single campus. The medical school is ranked 25th in NIH funding by Blue Ridge Research Rankings and is a worldwide leader in regenerative medicine, transplantation, global medicine, novel device-based therapeutics including in the nervous system, and basic science research. The research serves as an economic engine that drives Minnesota's health industry. The Medical School closely collaborates with Minnesota's biomedical companies to bring technologies to clinics and hospitals worldwide. For more information on the University of Minnesota, the University of Minnesota Medical School, clinical partners, and a sample of key research centers and institutes, please visit the Appendix.

The Department of Neurosurgery is comprised of 21 faculty members, 13 residents, three fellowship programs, and eight research labs. The Medical School closely collaborates with University of Minnesota Physicians (UMP) and Fairview Health Services, which together operate under the M Health Fairview system. The Department of Neurosurgery and the Medical School also maintain relationships with Hennepin Healthcare, Minneapolis VA Health Care System, and M Health Fairview Masonic Children's Hospital. The Department has exceptional strengths in functional neurosurgery, neuromodulation, and device-driven research, supported by multiple laboratories engaged in regenerative science, imaging, gene therapy, and spinal cord injury. The next Head will work within this context as the University, UMP,

and M Health Fairview undergo new strategic agreement terms. This time of change will require a Head with experience navigating a multi-entity system and aligning academic and clinical priorities across institutional boundaries.

The Department of Neurosurgery sits within a research enterprise of significant scale. The department conducts groundbreaking research in the areas of neuromodulation, stem cell, gene therapies, neuro-oncology projects, neuroprotective compounds, and neuro-transport. UMN's strength in the neurosciences and the presence of many medical device companies in the area provide exciting opportunities for collaboration and funding. The department's connections to engineering, neuroscience, and biomedical science, coupled with proximity to Minnesota's medical technology sector, create a strong platform for translational research and clinical collaboration. Opportunities abound for the next leader of the department to leverage centers and institutes like the Institute for Translational Neuroscience, focused on brain function across one's lifespan, Minnesota's Discovery, Research and InnoVation Economy (MnDRIVE), focused on discoveries and treatments for brain conditions, and the Center for Magnetic Resonance Research, focused on the development of unique magnetic resonance (MR) imaging and spectroscopy methodologies. The University's land-grant status has allowed some of these programs to be funded by dedicated legislative allocations outside the University's main budget, allowing investments in higher-risk, higher-reward research. There is a strong desire to grow beyond these existing strengths.

Reporting to the Dean of the Medical School & Vice President for Clinical Affairs, the Head of Neurosurgery will provide leadership, strategic direction, and coordination across the department's clinical, research, and educational programs. The successful candidate will have experience guiding complex academic and clinical enterprises and will be a creative thinker, collaborative leader, and effective mentor. The Head will understand the forces shaping academic neurosurgery today and the expectations of trainees navigating a rapidly evolving field. Candidates must hold an MD or DO degree, be board-certified in Neurological Surgery, and be eligible for licensure in the state of Minnesota.

The University of Minnesota Medical School has retained Isaacson, Miller, a national executive search firm, to assist with this search. Inquiries, nominations, and applications should be directed in confidence to the firm as indicated at the end of this document.

THE DEPARTMENT OF NEUROSURGERY

The Department of Neurosurgery at the University of Minnesota Medical School was formally established in 1937 and quickly rose to national prominence. Under the leadership of pioneers in the field, the Department became known for groundbreaking contributions to the practice of neurosurgery. Among its notable achievements were the introduction of dexamethasone into neurosurgical practice, early procedures for transthoracic correction of spinal deformity, important advances in the understanding of brain death, and laboratory work that led to the development of nimodipine for treating cerebral

vasospasm. In 1996, the department also became one of the first in the United States to establish an intraoperative MRI facility, further cementing its reputation for innovation.

Over its more than 75-year history, the University of Minnesota's neurosurgery program has trained generations of neurosurgeons who went on to lead departments across the country, making it a cornerstone of neurosurgical education and research. Today, the Department of Neurosurgery provides clinical care, education, and research across the full range of neurological diseases. Neurosurgeons at the University of Minnesota Medical School collaborate closely with multiple specialties and research partners, both within the Medical School and across the broader university and the Twin Cities.

Education

The Department is dedicated to preparing future leaders in neurosurgery through a robust education program that emphasizes clinical excellence and research innovation. The Department has been known for providing outstanding training programs for the next generation of neurosurgeons.

The neurosurgery residency program has operated for more than seventy-five years and offers training across major subspecialties of the field. Residents rotate at M Health Fairview, Hennepin Healthcare, the Minneapolis VA Health Care System, and Masonic Children's Hospital, which provides exposure to a wide clinical spectrum that includes trauma, tumor, spine, cerebrovascular disease, movement disorders, epilepsy, and pediatric neurosurgery. The Department has maintained an average graduation of two residents per year. Discussions are underway to add an additional resident every year and create a new fellowship program in Spine. Current fellowship programs include Stereotactic and Functional Neurosurgery, Neuroanatomy, and Endovascular Surgical Neuroradiology.

Research

The department supports basic, translational, and clinical research across a range of neurologic conditions. Faculty lead programs in neuromodulation, stem cell and regenerative medicine, gene therapy, neuro-oncology, neuroprotection, and fluid dynamics of the central nervous system. Research activity is carried out within eight laboratories and through collaborations across the University and partner institutions.

Neuromodulation is a major area of focus. Faculty works closely with the Neuromodulation Research Center, which combines expertise from neurology, neurosurgery, neuroscience, biomedical engineering, and radiology. The department has been involved in early clinical use of deep brain stimulation for movement disorders and has participated in first-in-nation device deployments for Parkinson's disease and essential tremor. Multiple center grants, including a Udall Center, support this work. Ongoing work includes the development and evaluation of neuromodulation approaches for a range of neurologic and psychiatric conditions.

Additional research programs include studies of stem cell therapies for ischemic brain injury, Parkinson's disease, and spinal cord injury; development of gene therapy vector systems for lysosomal storage disorders such as MPS I and MPS II; neuro-oncology projects that involve vaccine development in collaboration with pediatrics and veterinary medicine; trials of blood-brain barrier disruption techniques; investigation of neuroprotective compounds such as tauroursodeoxycholic acid for stroke, Alzheimer's disease, and spinal cord injury; and studies of water movement and debris clearance relevant to hydrocephalus and traumatic injury. These efforts are supported by funding and collaborative relationships with the NIH, the VA, the State of Minnesota, Hennepin County Medical Center, and industry partners.

Clinical Care

The Department generates more than 85,000 work RVU's. The clinical services address conditions involving the brain, spine, and peripheral nervous system. The department employs technologies that include intraoperative MRI, Gamma Knife radiosurgery, ROSA robotics, and the Mazor X Stealth Edition robotic guidance platform. Care is delivered across the M Health Fairview system with support from a centralized transfer center and an established telestroke network, which facilitates coordinated access for patients across the Twin Cities and surrounding regions.

The department maintains a longstanding commitment to serving the people of Minnesota through clinical care, scientific advancement, and the training of neurosurgeons who contribute to the state's health care workforce. The department offers a dynamic set of clinical programs covering subspecialties of neurosurgery, including spinal surgery, cranial base surgery, brain tumors, stereotactic and functional neurosurgery, pediatric neurosurgery, and cerebrovascular and endovascular surgery.

A large portion of clinical services in the department are provided at the University of Minnesota Medical Center, Masonic Children's Hospital, Hennepin County Medical Center, and the Minneapolis VA Medical Center. The Medical School's clinical practice plan, University of Minnesota Physicians (UMP), is a diverse, multi-specialty group that employs approximately 1,200 physicians, over 300 advanced practice providers, and additional clinical and administrative staff. UMP is a separately incorporated non-profit organization. The organization maintains clinical partnerships with health systems throughout the region, including Fairview Health Services, Park Nicollet, Regions Hospital, North Memorial Hospital, Children's Minnesota, Gillette Children's Specialty Healthcare, TRIA Orthopedic Center, and CentraCare Health.

Since 2018, UMP, the University of Minnesota, and Fairview Health Services have collaborated through the M Health Fairview joint care delivery system. This partnership combines academic and community resources to provide coordinated clinical services across the state. A significant portion of UMP's operating revenue is contributed to the Medical School to support its research and education priorities.

THE ROLE OF THE HEAD OF THE DEPARTMENT OF NEUROSURGERY

This is an exciting time for the Head of Neurosurgery to join a renowned department. The Head oversees a complex academic and clinical enterprise and reports directly to the Dean of the Medical School and the Vice President for Clinical Affairs. The role carries responsibility for an annual budget of about eighteen million dollars supported by both university and clinical practice revenue. The department's leadership team includes vice chairs for Clinical Affairs, Education, Academic Affairs, Diversity, Equity and Inclusion, and Professional Development and Compliance. Faculty report to the Chair, along with the department administrator who oversees day-to-day operations and supports the department's administrative and financial functions.

This position is uniquely positioned for a visionary leader who can unite a department, advocate for resources, and drive strategic growth across clinical, research, and educational missions. The Head's main charges will be expanding clinical services beyond the current footprint, optimizing operating room access, fostering multidisciplinary collaboration, and enhancing research partnerships with tremendous opportunities in the neurotechnology and device innovation space. The role also involves navigating intricate relationships with hospital partners and collaborating closely with neuroscience service line leadership to align clinical operations, strategy, and quality initiatives. The Head is responsible for ensuring quality residency training and supporting faculty development. With a collegial and passionate team, the department seeks a leader with academic gravitas, entrepreneurial and political savvy, and high emotional intelligence. The opportunity lies in elevating the department, building bridges within the institution and the broader community, and setting a national standard in neurosurgical innovation and impact.

KEY OPPORTUNITIES FOR THE HEAD OF THE DEPARTMENT OF NEUROSURGERY

Set a clear strategic direction for academic neurosurgery

- Lead a unified strategy that aligns clinical care, research, and education with institutional priorities.
- Define the organizational structure, leadership roles, and program alignment needed for coordinated growth.
- Establish clear goals and expectations that create focus and momentum across the department.
- Represent neurosurgery effectively within the Medical School and health system to ensure visibility and influence.
- Guide long-term planning around space, access, and operational capacity to support sustainable progress.

Integrate priorities across the department & promote cross-collaboration

- Align departmental priorities with the missions and operational needs of the Medical School, UMP, and the health system.
- Build strong partnerships across entities to improve coordination, access, and system performance.
- Foster close collaborations with Neurology, Otolaryngology, Physical Medicine & Rehabilitation, Anesthesiology, Orthopedic Surgery, among others.

- Advocate for space, resources, and investments essential for growth and stability.
- Ensure neurosurgery's voice is present and impactful in system-wide planning and decision-making.

Expand clinical programs and regional reach

- Direct a cohesive clinical strategy that includes services across Fairview, Hennepin Healthcare, the VA, Masonic Children's, and community partners.
- Improve access and throughput across ORs, ICUs, and clinics to support growth and reduce bottlenecks.
- Strengthen outreach, referral pathways, and regional partnerships — including new collaboration opportunities with community hospitals and health systems — to ensure reliable patient flow and broader clinical impact.
- Advance key programs in spine, neuro-oncology, functional neurosurgery, and pediatrics with clear plans for growth and quality.

Create a cohesive, engaged faculty culture

- Build a clear, shared framework that aligns faculty contributions across all missions.
- Strengthen unity across sites by fostering a consistent sense of purpose and departmental identity.
- Promote open, reliable communication and decision-making that reinforce trust.
- Support faculty development through mentorship, growth opportunities, and meaningful recognition.

Strengthen research and drive innovation

- Foster a collaborative research culture that supports faculty development, mentorship, and growth across all career stages.
- Encourage interdisciplinary partnerships within the University and across the broader neuroscience and engineering community.
- Build relationships with Minnesota's medical technology ecosystem to advance translational science and innovative clinical solutions.
- Strengthen the department's national profile through impactful research and visible academic leadership.

Advance education and support learners across the continuum

- Provide strategic oversight for residency training and fellowship development and possible expansion.
- Ensure consistent, high-quality teaching and case exposure across all clinical sites.
- Support program directors and faculty educators with clear expectations and development opportunities.
- Strengthen systems for assessment, feedback, and learner advancement to maintain strong training programs.

Build philanthropic and industry partnerships.

- Leverage a strong foundation for donor engagement and translational research support, with institutional encouragement to cultivate external partnerships.

- Engage Minnesota's philanthropic and biomedical communities to support research, recruitment, and infrastructure.
- Cultivate relationships with medical technology companies, start-ups, and research organizations across the Twin Cities.
- Position neurosurgery as a national leader by integrating clinical excellence with scientific and technological advancement.

QUALIFICATIONS AND CHARACTERISTICS

The successful candidate must hold an MD or DO degree, be board-certified in Neurological Surgery, and be eligible for medical licensure in the state of Minnesota. They should possess a record of accomplishment that warrants appointment at the rank of Professor in the University of Minnesota Medical School. The ideal Head will demonstrate the following qualities and characteristics:

- National or international recognition in neurological surgery, with high-impact scholarly contributions and a strong academic reputation.
- Proven ability to develop and expand clinical programs while maintaining high standards of quality, safety, and patient-centered care.
- A successful track record securing competitive research funding through federal agencies, foundations, or industry.
- At least ten years of progressive leadership experience in an academic medical setting with evidence of mentorship, recruitment, program design and the highest level of patient care.
- Demonstrated success advancing departmental or institutional goals and leading multidisciplinary teams across clinical care, research, and education.
- Strong fiscal management skills, including experience overseeing complex budgets and aligning resources with strategic priorities.
- Outstanding communication and interpersonal skills, with the ability to engage effectively with faculty, learners, staff, patients, donors, and external partners.
- A collaborative, relationship-driven leadership style that builds trust and alignment across departments, institutions, and health system entities.
- Professionalism, judgment, high EQ, and organizational savvy, with the capacity to build strong relationships, advocate effectively for the department, and navigate a complex academic health system with integrity and ease.
- A strong dedication to mentoring and developing junior faculty and trainees, supporting their career growth and academic advancement.

TWIN CITIES: MINNEAPOLIS & ST. PAUL

Minneapolis and St. Paul offer a vibrant and dynamic environment that is both an economic powerhouse and a cultural hub. With a combined population of nearly 3 million, the metropolitan area is home to 17 Fortune 500 companies, including industry leaders such as 3M, Target, and UnitedHealth Group. This

strong economic foundation is complemented by a highly educated workforce and one of the lowest unemployment rates among large metro areas in the country.

The area is renowned for its diverse arts and music offerings, featuring numerous theaters, museums, and galleries. Outdoor enthusiasts will appreciate the extensive parks and trails system, which includes over 340 miles of interconnected trails and 52 regional parks that welcome more than 47 million visitors annually. The Twin Cities also offer a rich culinary landscape with award-winning restaurants and food trucks, making it a delightful place for food lovers. Additionally, an exciting arts and music scene, exceptional shopping, award-winning restaurants, wineries and craft breweries, and distinctive accommodations can be found throughout the area. Minneapolis-Saint Paul is recognized as a hub for medical innovation and research, with numerous healthcare organizations.

APPLICATIONS, INQUIRIES, AND NOMINATIONS

Screening of complete applications will begin immediately and continue until the completion of the search process. Inquiries, nominations, referrals, and CVs with cover letters should be sent via the Isaacson, Miller website: https://www.imsearch.com/open-searches/university-minnesota-medical-school/head-department-neurosurgery

This role is dually employed by the University of Minnesota and University of Minnesota Physicians. Salary for the Professor role at the University of Minnesota is dependent upon academic effort of the person hired and begins at $55,000. Clinical salary, aligned with clinical effort, is provided through University of Minnesota Physicians. Total salary of academic effort, clinical effort and department head role is competitive with market and based on AAMC salary benchmarks. Total salary will be between $833,333 – $1,000,000. There is the potential for an annual bonus of up to 20%.

Stephanie Fidel, Partner
Jamie Sands, Partner
Erin Schwass, Senior Associate
Lily Sethares, Senior Search Coordinator
Isaacson, Miller

APPENDIX:
THE UNIVERSITY OF MINNESOTA

Founded in 1851, the University of Minnesota is the state's flagship public research institution and part of a five-campus system. The University enrolls more than 60,000 students across the system and more than 50,000 on the Twin Cities campus. It employs more than 4,000 faculty and 21,000 staff and has a global alumni network of over 600,000 graduates. The Twin Cities campus offers extensive academic and professional programs through 18 colleges and maintains one of the nation's largest research enterprises, supported by more than 300 research centers and institutes. The institution contributes approximately 11.5 billion dollars each year to Minnesota's economy through research, employment, and statewide engagement. Its land-grant mission guides education, discovery, and public service across Minnesota's communities.

THE UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

Founded in 1888, the University of Minnesota Medical School has a long history of educating physicians, advancing biomedical discovery, and delivering high-quality clinical care across Minnesota's urban and rural communities. It ranks twenty-fourth nationally in NIH funding and forms the core of a university-wide research portfolio exceeding one billion dollars annually. More than 1,500 residents and fellows train across the health sciences, contributing to a large, interdisciplinary teaching environment.

The School includes 27 departments, nearly 3,000 faculty, 20 centers and institutes, and 29 degree programs. It ranks among the nation's top medical schools in NIH funding, with more than $296 million in sponsored research. The Twin Cities campus serves as a major hub for interdisciplinary science and clinical innovation; the Duluth campus focuses on training physicians for rural and American Indian/Alaska Native communities; and the St. Cloud campus, developed with CentraCare, offers a strong rural clinical training environment.

The Medical School is closely affiliated with M Health Fairview, Hennepin Healthcare, the Minneapolis VA Health Care System, and Masonic Children's Hospital, providing a broad and diverse clinical platform across tertiary, quaternary, trauma, pediatric, and community settings. It sits within Minnesota's "Medical Alley," one of the nation's most robust medical technology and device development hubs, offering unique opportunities for translational research, clinical trials, and industry collaboration.

The University is home to a vibrant neuroscience and engineering community, with recognized strengths in neuromodulation, neuroengineering, regenerative medicine, and imaging science supported by major centers and institutes. The School also hosts a large and diverse GME enterprise, training more than 1,500 residents and fellows annually.

As Minnesota's flagship academic medical institution and the only university in the nation with medicine, dentistry, pharmacy, nursing, public health, and veterinary medicine on one campus, the Medical School offers an exceptionally integrated environment for clinical care, education, and scientific advancement.

KEY CLINICAL SITES & HEALTH PARTNERS

M Health Fairview University of Minnesota Medical Center (UMMC)

M Health Fairview University of Minnesota Medical Center (UMMC) is a 1,700-bed non-profit, tertiary, research, and academic medical center located in Minneapolis, Minnesota. It is the region's only university-level academic medical center and the largest hospital within the M Health Fairview Health System. UMMC is affiliated with the University of Minnesota Medical School and serves as a hub for groundbreaking research, education, and patient care. Designated as an ACS Level III Trauma Center, UMMC provides advanced care across a range of specialties, including neurosurgery, oncology, cardiology, and transplant services.

The medical center spans two campuses: the East Bank campus and the West Bank campus, which was previously Saint Mary's Hospital and Fairview-Riverside Medical Center. Attached to UMMC is the Masonic Children's Hospital, a leading facility for pediatric care that treats patients from infancy through adolescence and young adulthood. UMMC's integration of research, teaching, and clinical care makes it a cornerstone for innovation and collaboration in healthcare.

M Health Fairview Southdale Hospital

Fairview Southdale Hospital provides care for individuals living and working in the southwest Twin Cities metro area. Its doctors and staff collaborate closely with patients to deliver personalized care using the latest technology. The hospital offers convenient access to over 40 specialty services, including cardiology, orthopedics, oncology, obstetrics, primary care, neurosciences, critical care, vascular, and emergency services. Physician partners from Fairview, Fairview Physician Associates, University of Minnesota Physicians, and independent providers throughout the southwest metro and beyond combine their expertise to integrate innovative technologies and treatments with the art of medicine.

UMN Clinics and Surgery Center (CSC)

The UMN Clinics and Surgery Center (CSC) is a state-of-the-art outpatient facility that serves as the primary site for neurosurgical consultations and minimally invasive procedures. Designed to enhance patient experience and streamline care delivery, the CSC features cutting-edge imaging, surgical suites, and multidisciplinary care teams. Neurosurgery services at CSC include pre- and post-operative care for brain and spinal procedures, management of chronic pain conditions, and advanced treatment planning for complex neurosurgical cases. This innovative center bridges clinical care and research, offering opportunities to lead advancements in neurosurgical techniques and patient outcomes.

Hennepin County Medical Center

Hennepin Healthcare is a premier safety-net healthcare system in Minnesota, anchored by its 484-bed Level 1 Adult and Pediatric Trauma Center. With a high volume of trauma and emergency cases, Hennepin Healthcare offers specialized care for traumatic brain injuries, spinal cord injuries, and complex cranial and spinal fractures. The system's dedicated neurosurgery team provides 24/7 acute care services, as well as ongoing treatment for neurological conditions in both inpatient and outpatient settings. Hennepin Healthcare's commitment to serving a diverse population ensures access to comprehensive and equitable neurosurgical care.

Minneapolis VA Medical Center

The Minneapolis VA Health Care System is a 309-bed teaching hospital with a long-standing affiliation with the University of Minnesota. This facility specializes in treating veterans with neurological disorders, including traumatic brain injuries, spinal conditions, and peripheral nerve issues. Minneapolis VA features a robust research program focused on neuroscience, brain injury, and mental health, making it a key partner in advancing neurosurgical knowledge and care. The center's comprehensive approach includes access to cutting-edge technologies and integrated care models tailored to veterans' unique needs.

M Health Fairview U of M Masonic Children's Hospital

The M Health Fairview University of Minnesota Masonic Children's Hospital, located on the West Bank of the Mississippi River, is a 200-bed facility. A leader in pediatric care, Masonic Children's Hospital offers specialized services in neurology and neurosurgery for conditions such as brain tumors, hydrocephalus, congenital malformations, and trauma. The hospital houses multidisciplinary teams in neuro-oncology, craniofacial surgery, and other specialties, ensuring a collaborative approach to complex cases. With its focus on innovative treatments and family-centered care, the Masonic Children's Hospital is a vital resource for advancing pediatric neurosurgery in the region.

KEY RESEARCH CENTERS, PROGRAMS, AND INSTITUTES

Center for Magnetic Resonance Research (CMRR)

The Center for Magnetic Resonance Research stands as one of the world's premier imaging research facilities, pioneering the development and application of ultrahigh field magnetic resonance technologies. Housing some of the most advanced MR instrumentation globally, including 7T and 10.5T human systems, CMRR leads the field in developing cutting-edge imaging methodologies. The center's emphasis on ultrahigh magnetic fields, which it pioneered, has revolutionized the ability to study brain function and structure non-invasively. Through its interdisciplinary approach, combining expertise in physics, engineering, and neuroscience, CMRR continues to push the boundaries of what's possible in neuroimaging research and clinical applications.

Canine Brain Tumor Program

The Canine Brain Tumor Program represents a unique translational research initiative that bridges veterinary and human medicine. This innovative program provides cutting-edge therapies to dogs with spontaneous brain tumors while simultaneously advancing treatments for human patients. The program has pioneered several breakthrough therapies, including novel immunotherapy approaches and targeted drug delivery systems. Funded by multiple prestigious organizations, including the NIH and the American Cancer Society, the program demonstrates the University's commitment to "One Health" research approaches. Current clinical trials include investigations of targeted therapeutics and personalized vaccine therapies, making it one of the most comprehensive comparative oncology programs in the nation.

Masonic Institute for the Developing Brain (MIDB)

The Masonic Institute for the Developing Brain represents a groundbreaking initiative that unites clinical care and research in pediatric neurodevelopmental conditions. As one of the first facilities of its kind, MIDB serves as a one-stop destination for families seeking comprehensive care for children with neurobehavioral conditions. The institute brings together world-class experts in neuroscience, pediatrics, psychiatry, and psychology to advance understanding of brain development from early childhood through adolescence. Through its integrated approach to research and clinical care, MIDB exemplifies the translation of scientific discovery into practical treatments, while its state-of-the-art facilities provide an ideal environment for collaborative research and patient care.

Udall Center of Excellence for Parkinson's Disease Research

The University of Minnesota is home to one of only nine Morris K. Udall Centers of Excellence for Parkinson's Disease Research designated by the National Institute of Neurological Disorders and Stroke (NINDS). The Center exemplifies the institution's prominence in functional neurosurgery, particularly in the treatment of movement disorders. Through pioneering work in deep brain stimulation (DBS), the program has established itself as a leader in both clinical care and research innovation. The Center's multidisciplinary approach integrates advanced neuroimaging, sophisticated neurophysiology, and cutting-edge DBS techniques to improve outcomes for patients with Parkinson's disease and other movement disorders. This expertise extends beyond movement disorders to include comprehensive functional neurosurgery programs in epilepsy, pain management, and psychiatric disorders. The department's close collaboration with Medtronic, Abbott, and other industry leaders has facilitated numerous breakthrough developments in neuromodulation technology and surgical techniques. The program's strengths are further enhanced by state-of-the-art facilities, including intraoperative MRI capabilities, ROSA robotic assistance, and advanced neurophysiological monitoring, positioning it as one of the premier functional neurosurgery programs in the nation.

Comprehensive Stroke Program

The University of Minnesota's Comprehensive Stroke Program delivers full-spectrum, world-class care spanning advanced diagnostics, acute treatment, rehabilitation, and research. The program includes a Comprehensive Stroke Center at the University of Minnesota Medical Center and an Advanced Comprehensive Stroke Center at Fairview Southdale Hospital, recognized as a thrombectomy-capable stroke center offering advanced treatment for ischemic and hemorrhagic stroke. In addition, the Stroke Program directly oversees seven additional satellite hospitals through a state-of-the-art telestroke program.

The interdisciplinary stroke program partners experts from neurology, neurosurgery, and radiology to deliver world-class stroke care. This collaborative approach ensures that patients receive timely and effective interventions, contributing to improved outcomes and reduced disability.

In recognition of their commitment to integrating clinical excellence with innovative research, the Stroke Program serves as the Upper Midwest Regional Coordinating Center for the NIH StrokeNet and a hub site for the DISCOVERY network. The program is widely recognized as a national leader in stroke care and represents a vital component of the Department of Neurosurgery's mission to advance neurological health.

Stem Cell Institute

The Stem Cell Institute, uniquely located on the University of Minnesota campus, is a world leader in regenerative medicine research, with expertise in neural stem cell applications. The institute's researchers are pioneering treatments for neurological conditions, including spinal cord injury, stroke, and neurodegenerative diseases. Through close collaboration with the Department of Neurosurgery, the institute facilitates the translation of laboratory discoveries into clinical therapies. Their work in neural repair and regeneration has led to several groundbreaking clinical trials, positioning the university at the forefront of regenerative medicine research.

Biomedical Engineering (BME)

The Department of Biomedical Engineering serves as a crucial bridge between engineering innovation and clinical application, with strength in neural engineering and neuromodulation technologies. The department maintains strong partnerships with Minnesota's medical device industry leaders and the Department of Neurosurgery, facilitating the development of next-generation neurosurgical tools and techniques. Research focuses include neural interfaces, biomaterials for neural repair, and advanced imaging technologies, with numerous successful translations of research into clinical practice.

Center for Neuroengineering

The Center for Neuroengineering represents a multidisciplinary hub for the development of neural interfaces and therapeutic technologies. The center excels in brain-computer interface development, neural stimulation technologies, and rehabilitation engineering. Through collaborations with the Department of Neurosurgery, the center advances innovative solutions for neurological conditions, particularly in the areas of movement disorders and neural rehabilitation. Their work has led to several breakthrough technologies in deep brain stimulation and neural monitoring.

MN Drive (Minnesota Discovery, Research and Innovation Economy)

MN Drive represents a landmark partnership between the university and state government, focusing on advancing Minnesota's knowledge economy in key areas, including brain conditions and neurotechnology. The initiative provides crucial funding and support for innovative research projects, particularly those with potential for commercial application. Through MN Drive, numerous neurosurgical innovations have moved from concept to clinical application, strengthening Minnesota's position as a leader in medical device development and neurotechnology.

MDTA – Optical Imaging

The Minnesota Discovery and Translation Accelerator's Optical Imaging program pioneers advanced neuroimaging technologies, with particular emphasis on intraoperative imaging solutions. The program develops and implements cutting-edge optical imaging techniques that enhance surgical precision and outcome assessment. Their work in fluorescence-guided surgery and real-time neural imaging has revolutionized approaches to tumor resection and functional neurosurgery.

MINCEP – Epilepsy

The Minnesota Comprehensive Epilepsy Program (MINCEP) stands as one of the nation's premier centers for epilepsy care and research. The program combines advanced diagnostic capabilities, including state-of-the-art monitoring facilities, with innovative surgical treatments. Through close collaboration between neurology and neurosurgery, MINCEP provides comprehensive care for complex epilepsy cases, while advancing research in surgical techniques and neuromodulation approaches for seizure control.

Grossman Center for Memory Research and Care

The N Bud Grossman Center for Memory Research and Care, part of the Alzheimer's Disease Research Center, leads innovative research into memory disorders and neurodegenerative conditions. The center combines clinical care with cutting-edge research, particularly in early detection and intervention strategies. Their work in understanding neural circuits involved in memory provides crucial insights for neurosurgical approaches to memory disorders and cognitive dysfunction.

TBI Research Program

The Traumatic Brain Injury Research Program, supported by significant state funding and VA collaboration, conducts cutting-edge research into TBI treatment and recovery. The program benefits from a unique combination of resources, including three Level 1 Trauma Centers in the Minneapolis-St. Paul area and dedicated research facilities at the VA. Current research focuses on advanced imaging techniques, biomarker development, and novel therapeutic approaches for both acute and chronic TBI, with particular emphasis on military-relevant injuries and sports-related concussion.

Institute for Translational Neuroscience (ITN)

The Institute for Translational Neuroscience (ITN) at the University of Minnesota serves as a hub for collaborative neuroscience research, bringing together experts across multiple disciplines to accelerate the development of new treatments for neurological conditions. The Institute encompasses several centers of excellence, including the Center for Neuroengineering, the Center for Neurodegenerative Disease, the Center for Neural Circuits, and the Center for Clinical Neuroscience. Through these centers, ITN facilitates groundbreaking research in areas such as brain imaging, neuromodulation, neural repair, and precision therapeutics. The Institute's state-of-the-art facilities and strong partnerships with industry leaders and clinical programs create unique opportunities for translating scientific discoveries into innovative patient care. The Department of Neurosurgery maintains active collaborations with ITN researchers, particularly in areas of functional neurosurgery, neuro-oncology, and regenerative medicine.