As West Michigan’s leading neurosciences referral center, and one of the largest providers of adult neuroscience services in the state, we offer a full range of clinical expertise, highly specialized services, advanced technology and lifesaving treatments.

We are dedicated to clinical excellence, research and education. Together with affiliated and independent partners, we provide inpatient and outpatient programs and services that span the continuum of care, from diagnosis and treatment to rehabilitation and recovery.

Our goal is to find solutions that result in optimal outcomes and improved quality of life for each individual patient.
Neurology
Our neurologists offer a complete range of diagnostic, treatment and patient management services. In addition to general neurology, subspecialty expertise includes epilepsy, dementia, movement disorders, neuro-oncology, neuromuscular and electrodiagnostic medicine, and neurovascular and neurocritical care.

- Amyotrophic Lateral Sclerosis (ALS) Clinic for expert diagnosis and interdisciplinary team management of ALS
- Deep Brain Stimulation (DBS) Fast-track Evaluation Clinic provides comprehensive, time-compressed evaluation for patients with Parkinson’s and essential tremor to determine candidacy for DBS
- Epilepsy Clinic for expert diagnosis and ongoing medical management of epilepsy
- Epilepsy Monitoring Unit (EMU) for comprehensive diagnostic and presurgical evaluation of patients with refractory seizure disorders
- First Seizure Clinic provides rapid follow-up evaluation of patients initially seen in the emergency room for first-time seizure
- Memory disorders offers a multidisciplinary team to assist patient and family members/caregivers affected by neurocognitive disorders
- Movement Disorders Clinic expertise for patients with Parkinson’s disease, essential tremor, dystonia, Huntington’s disease and other conditions
- Neurohospitalist service to coordinate a patient’s hospital-based care and connect specialists with the patient’s primary care or referring physician
- Neurocritical Care Unit for critically ill neurosurgical and neurological patients
- Brain & Spine Tumor Center offers neuro-oncology
- Neuro-oncology expertise for diagnosis and medical management of central nervous system tumors, including brain metastases and neurological complications of systemic cancer and therapies
- Neuromuscular expertise for patients with amyotrophic lateral sclerosis (ALS), myasthenia gravis, muscular dystrophy and other conditions

Neuropsychology
Our neuropsychologists bring a psychological viewpoint to the evaluation, diagnosis and treatment of neurological, medical and emotional conditions affecting the structure and function of the brain. We work with patients and their family members/caregivers to document the type and extent of neurological or neuropsychological impairment and recommend ways to improve functioning.

- Comprehensive evaluations with standardized norm–referenced psychometric tests to determine brain functioning and mental capacity
- Inpatient consults, assistance with competency issues and discharge recommendations
- Memory Disorders Clinic (see Neurology)
- Pre- and post-surgical evaluations to establish baseline mental functioning, readiness for surgery and/or identification of changes following surgery
- Sports Concussion Clinic for baseline concussion testing and post-concussion evaluation/follow-up for student athletes

Comprehensive Epilepsy Program
As the first NAEC Level 4 epilepsy center in West Michigan, we have professional expertise and facilities to provide the highest level of medical and surgical evaluation and treatment for patients with various forms of epilepsy, including those with uncontrolled seizures (i.e., intractable or refractory epilepsy).

25 Michigan Street NE, Suite 6100, Grand Rapids, MI 49503
2750 East Beltline Avenue NE, Grand Rapids, MI 49525
Phone 616.267.7600 | Fax 616.957.4095

Shan E. Abbas, MD
Epilepsy
Medical Education: Dow Medical College, University of Karachi, Pakistan
Residency: University of Toledo Medical Center
Fellowship: Neurology, University of Michigan Health System
Board Certifications: Neurology, Epilepsy

Tamer Abdelkhalik, MD
Neurocritical Care
Chief, Inpatient Neurology
Medical Education: Ain Shams University School of Medicine, Egypt
Residency: Dow University College of Medicine
Fellowship: Neurointensive Care, Johns Hopkins University Hospital
Board Certifications: Neurology, Vascular Neurology

David Bartram, PsyD
Neuropsychology
Doctoral Education: University of Indianapolis
Fellowship: Neuropsychology, St. Louis Veterans Affairs Medical Center

David Burdette, MS
Section Chief, Epilepsy/Neurotelemetry
Medical Education: Boston University School of Medicine
Residency: Boston University Hospitals
Fellowship: Clinical Neurophysiology and Epilepsy, University of Michigan Medical Center
Board Certifications: Neurology, Epilepsy, Clinical Neurophysiology

Jordan Combs, MD
Neurohospitalist
Medical Education: Wayne State University School of Medicine
Residency: University of South Alabama

R. Ross Coleman, MD
Movement Disorders
Medical Education: Vanderbilt University School of Medicine
Residency: University of Michigan Health System
Fellowship: Movement Disorders, University of California, San Francisco (UCSF); San Francisco VA Medical Affairs
Medical Center

Michelle DeJesus, MD
Neurohospitalist
Medical Education: East Ramon Magsaysay Memorial Medical Center, Philippines
Residency: Georgia Health Sciences University

Steven DeRosa, MD
Pediatric Neurology
Medical Education: Wayne State University School of Medicine
Residency: Cincinnati Children’s Hospital Medical Center
Fellowship: Cincinnati Children’s Hospital Medical Center
Board Certifications: Neurology, Pediatric Neurology

Rajeev Deyshshw, MD
Neuromuscular
Medical Education: The University of Liverpool
Residency: University of Liouvillie Affiliated Hospitals
Residency: University of Oklahoma Health Sciences Center
Residency: William Beaumont Hospital
Fellowship: University of Oklahoma Health Sciences Center
Fellowship: Henry Ford Hospital
Fellowship: University of Illinois

Seth DeVries, MD
Pediatric Neurology
Medical Education: Indiana University School of Medicine
Residency: Nationwide Children’s Hospital
Fellowship: Clinical Neurophysiology, University of Michigan
Board Certifications: Neurology, Pediatric Neurology

Mona Elsayed, MD
Epilepsy
Medical Education: Az-Azhar University School of Medicine, Cairo
Residency: Henry Ford Hospital, Wayne State University
Fellowship: Clinical Neurophysiology/Epilepsy, Henry Ford Hospital, Wayne State University
Board Certifications: Neurology, Clinical Neurophysiology

Rachel Fabris, MD
Epilepsy
Medical Education: University of Michigan Medical School
Residency: Mayo Clinic, Rochester, Minnesota
Fellowship: Clinical Neurophysiology/Epilepsy, Mayo Clinic
Residency: University of Illinois
Fellowship: Mayo Clinic, Rochester, Minnesota
Fellowship: Clinical Neurophysiology/Epilepsy, Mayo Clinic
Residency: Henry Ford Hospital, Wayne State University
Fellowship: University of Pennsylvania School of Medicine
Board Certifications: Neurology, Clinical Neurophysiology

25 Michigan Street NE, Suite 6100, Grand Rapids, MI 49503
2750 East Beltline Avenue NE, Grand Rapids, MI 49525
230 West Oak Street, Lower Level, Fremont, MI 49402
588 East Lakewood Boulevard, Holland, MI 49424
Phone 616.267.7600 | Fax 616.957.4095
<table>
<thead>
<tr>
<th>Name</th>
<th>Specialty</th>
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| Daniel Fain, MD             | Pediatric Neurology                    | Medical Education: Indiana University School of Medicine  
Residency: Indiana University School of Medicine  
Fellowship: Pediatric Neurology, Baylor College of Medicine  
Board Certification: Neurology, Pediatric Neurology |
| Jeff Fletcher, MD, MS       | Neurocritical Care                     | Medical Education: Wayne State University School of Medicine  
Residency: University of Texas Health Science Center  
Fellowship: Vascular Neurology, Neurocritical Care, University of Virginia Health Science Center  
Board Certification: Neurology, Vascular Neurology |
| Asim Haque, MD, PhD, MPH, MSE | Neurohospitalist                        | Medical Education: Washington University School of Medicine  
Residency: University of Mississippi School of Medicine  
Fellowship: University of Michigan Health System  
Fellowship: Clinical neurophysiology and epilepsy, Beth Israel Deaconess Medical Center, Harvard Medical School |
| Maegan Hatfield-Eldred, PhD | Neuropsychology                         | Medical Education: Central Michigan University  
Fellowship: Rehabilitation Psychology and Neuropsychology, Hurley Medical Center |
| M. Ayman Haykal, MD         | Director, Epilepsy Monitoring Unit     | Medical Education: Damascus University School of Medicine, Syria  
Residency: University of Tennessee Health Science Center  
Fellowship: Clinical Neurophysiology (EEG/Epilepsy), Vanderbilt University Medical Center  
Board Certification: Neurology, Epilepsy |
| Angel Hernandez, MD         | Pediatric Neurology (February, 2017)   | Medical Education: Wayne State University School of Medicine  
Residency: University of Texas Health Science Center  
Fellowship: University of Toledo Medical Center  
Board Certification: Neurology, Vascular Neurology |
| Cynthia Hingtnen, MD, PhD   | Director, Neurology Residency Program   | Medical Education: Indiana University School of Medicine  
Residency: Indiana University School of Medicine  
Fellowship: Pediatric Neurology, Baylor College of Medicine  
Board Certification: Neurology, Pediatric Neurology |
| Elycia James, MD            | Neurocritical Care                     | Medical Education: Wayne State University School of Medicine  
Residency: University of Toledo Medical Center  
Fellowship: Neurocritical Care, Henry Ford Health System |
| Omran Kaskar, DO            | Neurovascular                          | Medical Education: Michigan State University College of Osteopathic Medicine  
Residency: Henry Ford Hospital  
Fellowship: Vascular Neurology, Duke University Medical Center |
| Multib Khan, MD             | Neuropsychologist                       | Medical Education: Aga Khan University College of Medicine  
Residency: Henry Ford Hospital  
Fellowship: University of Massachusetts |
| Chris Kobet, MD             | Movement Disorders                      | Medical Education: University of Cincinnati College of Medicine  
Residency: University of Cincinnati College of Medicine  
Fellowship: Movement Disorders, University of Cincinnati College of Medicine  
Board Certification: Neurology |
| Jena Krueger, MD            | Pediatric Neurology                    | Medical Education: Northwestern University  
Residency: Ann and Robert H. Lurie Children's Hospital of Chicago  
Board Certification: Neurology, Pediatric Neurology |
| Michael Lawrence, PhD, ABPP-CN | Section Chief, Neuropsychology         | Medical Education: University of Oklahoma Health Sciences Center  
Residency: University of Oklahoma Health Sciences Center  
Fellowship: neuropsychology, Geisinger Medical Center  
Board Certification: Neurology, Pediatric Neurology |
| Anastasia Lumieva, MD       | Pediatric Neurology                    | Medical Education: Alpert School of Medicine, Mount Sinai  
Residency: Children's Mercy Hospital and Clinics  
Fellowship: Chief Neuropsychology, Children's Mercy Hospital and Clinics  
Board Certification: Neurology, Pediatric Neurology |
| Ravi Madala, MD             | General Neurology                      | Medical Education: St. Luke's University School of Medicine  
Residency: University of Arizona  
Fellowship: Sleep Medicine, Duke University Medical Center  
Board Certification: Neurology, Sleep Medicine |
| Joseph McLaughlin, PhD      | Neuropsychology                         | Medical Education: St. Luke's University School of Medicine  
Residency: University of Arizona  
Fellowship: Sleep Medicine, Duke University Medical Center  
Board Certification: Neurology, Sleep Medicine |
| Andrew Mundwiir, MD         | Neuropsychologist                       | Medical Education: University of Pittsburgh School of Medicine  
Residency: University of Pittsburgh School of Medicine  
Fellowship: Neuropsychologist, University of Pittsburgh School of Medicine |
| Sadia Naimuddin, DO         | Epilepsy                                | Medical Education: Lake Erie College of Osteopathic Medicine  
Residency: Henry Ford Health System  
Fellowship: Epilepsy, University of Michigan  
Board Certification: Neurology, Epilepsy |
| Jared Pomeroy, MD, MPH      | Headache                                | Medical Education: West Virginia University School of Medicine  
Residency: University of Maryland  
Fellowship: Headache, Jefferson University  
Board Certification: Neurology |
| Bassel Raad, MD             | Neurocritical Care                     | Medical Education: Université de Sherbrooke, Lebanon  
Residency: University of Vermont Health Network  
Fellowship: Neurocritical Care, Case Western Reserve University  
Board Certification: Neurology |
| Vivek Rai, MD               | Neuropsychologist                       | Medical Education: Maulana Azad Medical College, India  
Residency: Henry Ford Hospital  
Fellowship: Vascular Neurology, Henry Ford Hospital |
| Emily Reuthler, MD          | Movement Disorders                      | Medical Education: Michigan State University College of Human Medicine  
Residency: Medical College of Georgia  
Fellowship: Movement Disorders, Mayo Clinic  
Board Certification: Neurology |
| Lori Ann Schul, MD, FAAN    | Vice President, Academic Affairs        | Medical Education: Robert Wood Johnson Medical School  
Residency: University of Virginia Medical Center  
Fellowship: Clinical Neuropsychology, University of Michigan  
Board Certification: Neurology, Epilepsy |
| Kasia Scott, PhD            | Neuropsychology                         | Medical Education: Colorado State University  
Residency: Mary Free Bed Rehabilitation Hospital  
Fellowship: Clinical Neuropsychology, University of Virginia  
Board Certification: Neurology, Epilepsy |
### Neurology & Neuropsychology, continued

#### Wendy Sherman, MD
- **Medical Education:** Northwestern University Feinberg School of Medicine
- **Residency:** Northwestern University Feinberg School of Medicine
- **Fellowship:** Neuro-Oncology, Northwestern University Feinberg School of Medicine
- **Board Certifications:** Neurology, Neuro-Oncology

#### Paul Teyvell, DO
- **Medical Education:** Michigan State University College of Osteopathic Medicine
- **Residency:** Henry Ford Hospital
- **Fellowship:** Neurorehabilitation Medicine, University of Rochester Medical Center
- **Board Certifications:** Neurology, Electrodiagnostic Medicine

#### Brian J. Smith, MD, FAAN
- **Medical Education:** Wayne State University School of Medicine
- **Residency:** Henry Ford Hospital
- **Fellowship:** Neuro-Oncology, Indiana University
- **Board Certifications:** Neurology, Clinical Neurophysiology

#### Jason Umfleet, MD
- **Medical Education:** Michigan State University College of Human Medicine
- **Residency:** Northwestern University Feinberg School of Medicine
- **Fellowship:** Chief Neurology, Northwestern University Feinberg School of Medicine
- **Board Certifications:** Neurology, Pediatric Neurology

#### Ashok Sriram, MD, MS
- **Medical Director:** Movement Disorders
- **Medical Education:** Armed Forces Medical College, India
- **Residency:** Movement Disorders, University of Florida
- **Board Certification:** Neurology

#### Evan Tank, DO
- **Medical Education:** Michigan State University College of Osteopathic Medicine
- **Residency:** Garden City Hospital
- **Fellowship:** Epilepsy, University of Michigan-Health System
- **Board Certification:** Neurology

#### Timothy K. Thoits, MD
- **Director:** Inpatient Services
- **Medical Education:** Wayne State University School of Medicine
- **Residency:** Henry Ford Hospital
- **Fellowship:** Epilepsy, Indiana University
- **Board Certifications:** Neurology, Epilepsy, Clinical Neurophysiology

#### James M. Tucci, MD
- **General Neurology
- **Medical Education:** Robert Wood Johnson School of Medicine
- **Residency:** National Naval Medical Center
- **Board Certification:** Neurology

#### Joseph Zachariah, DO
- **Neurocritical Care
- **Medical Education:** Lake Erie College of Osteopathic Medicine
- **Residency:** Mayo Clinic
- **Board Certification:** Neurology

### Neurosurgery

Our neurosurgeons specialize in advanced surgical treatments for patients with disorders affecting the central nervous system. We offer prompt access to general and subspecialized neurosurgical expertise and use the most advanced presurgical and intrasurgical technologies available.

Our experts support Spectrum Health’s Brain & Spine Tumor Center, Epilepsy Center, Movement Disorders program, Pituitary Tumor Clinic, Spine & Pain Management Center, Stroke Centers and Trauma Center.

- Brain tumor resection, including:
  - Awake craniotomy for tumors in eloquent areas
  - Skull-base and minimally invasive/endoscopic procedures
  - Intraoperative MRI
- Deep brain stimulation for functional disorders
- Neuroendovascular procedures, including: aneurysms, dural fistulas and arteriovenous malformations
- Epilepsy procedures, including:
  - Anterior thalamic stimulation
  - Cerebrotectical functional mapping
  - Integrated subdural/depth electrode recording
  - Corpus callosotomy
  - Hemispherectomy
  - Laser-mediated theroacoagulation
  - Responsive stimulus-inhibition of epileptogenicity
  - Temporal and extratemporal resection
  - Vagus nerve stimulation
- Pediatric neurosurgery
  - Spinal procedures, including:
    - Deformity correction and reconstruction
    - Minimally invasive
    - Multilevel segmental fusion
  - Revisions
  - Tumor resection
- Neuromodulation for pain and headache disorders

25 Michigan Street NE, Suite 6100, Grand Rapids, MI 49503
1900 Wealthy Street SE, Suite 290, Grand Rapids, MI 49506
705 South Greenville West Drive, Suite 202, Greenville, MI 48838
230 West Oak Street, Lower Level, Fremont, MI 49412
588 East Lakewood Boulevard, Holland, MI 49424
300 North Patterson Road, Reed City, MI 49677
Phone 616.267.7900 | Fax 616.267.7901

#### Healthgrades Neurosurgery Rating

Spectrum Health Butterworth Hospital was named a five-star recipient for neurosurgery for two years in a row (2015 – 2016)

#### Kaveh Asadi, MD, PhD
- **Medical Education:** Isfahan-Shiraz University, Shiraz, Iran
- **Residency:** Ohio State University, Wexner Medical Center
- **Fellowship:** Pediatric Neurosurgery, Cincinnati Children’s Hospital

#### Hayden M.K. Broyse, MD, FAANS, FACS
- **Medical Education:** New York University School of Medicine
- **Residency:** Henry Ford Hospital
- **Board Certification:** Neurosurgery

#### Kent Eloweich, MD, PhD, FRCS, FACS
- **Co-chair:** Department of Clinical Neurosciences
- **Chief:** Division of Neurosurgery
- **Medical and Doctoral Education:** University of Western Ontario, Canada
- **Residency:** McGill University Health Centre, Montreal Neurological Institute and Hospital, Montreal Children’s Hospital
- **Board Certification:** Neurosurgery

#### Lawrence T. Foydi, MD, PhD
- **Medical Education:** Saint Louis University
- **Residency:** University of Cincinnati Medical Center
- **Fellowship:** Pediatric Neurosurgery, Cincinnati Children’s Hospital
- **Board Certification:** Neurosurgery

#### Casey Madison, MD, MPH
- **Medical Education:** University of Michigan Medical School
- **Residency:** University of Wisconsin Hospital and Clinics
- **Fellowship:** Pediatric Neurological Surgery, Children’s of Alabama
Spine Surgery
Our team includes experienced, fellowship-trained neurologic and orthopedic spine surgeons with expertise in all types of surgical spine procedures. They work within the Spine & Pain Management Center, which provides interdisciplinary care through involvement with pain procedural and rehabilitation staff, as well as clinical psychology.

With minimally invasive techniques, surgeons are able to reduce the amount of trauma around the incision. Care is taken to limit damage to surrounding back muscles, tendons and blood vessels—all of which positively impacts your recovery period and success.

- Complex spinal reconstruction
- Deformity correction (adult)
- Discectomy
- Foraminotomy
- Fusion (single and multi-level)
- Laminectomy/laminoplasty
- Minimally invasive techniques
- Spinal cord stimulation
- Tumor removal

1840 Wealthy Street SE Grand Rapids, MI 49506
Phone 616.774.8345 | Fax 616.774.8350

Pain Management
Our pain management service provides care and treatment for patients with acute and chronic pain. We use advanced diagnostic technology to identify the source of pain, and medical and interventional therapies to eliminate, reduce and/or self-manage pain. Our goal is to provide a level of relief that allows patients to return to normal activities of daily living in comfort.

- Comprehensive services for patients with acute and chronic pain
  - Arthritis
  - Cancer pain
  - Complex regional pain syndrome
  - Headaches
  - Herniated disc
  - Lower back pain and injuries
  - Medication optimization
  - Neck pain
  - Peripheral neuropathy
  - Shingles
  - Other pre- and post-operative conditions

1900 Wealthy Street SE, Suite 290, Grand Rapids, MI 49506
Phone 616.774.8345 | Fax 616.774.8350
Neuro Rehabilitation; Physical Medicine and Rehabilitation (PM&R)

We provide a comprehensive continuum of programs and services designed for individuals recovering from traumatic brain injury, stroke, spinal cord trauma or other neurological diagnoses. Our focus is on restoring functional, cognitive, communication, psychosocial and emotional skills.

**Inpatient Rehabilitation**
- Special Care Hospital, a long-term acute care hospital (LTACH), provides long-term neurological acute care, including a vent weaning program
- Inpatient Rehabilitation Center at Blodgett Hospital is CARF accredited and provides comprehensive services with interdisciplinary teams led by PM&R
- Inpatient Rehabilitation Center at Blodgett Hospital medical rehabilitation accreditation, with specialty certification in brain injury, stroke and amputation
- Long-Term Care at Kalamazoo Avenue is CARF accredited in medical rehabilitation and provides comprehensive inpatient rehabilitation for patients who do not qualify for acute rehabilitation programming but can benefit from interdisciplinary rehabilitation
- One of only five subacute rehabilitation programs within a skilled nursing facility in the country that is CARF accredited in brain injury
- Specialty accreditation in stroke

**Outpatient Rehabilitation**
- Interdisciplinary occupational, speech/language, physical therapy, and case management designed for adults with various neurological disorders
- Physicians certified in LSVT Big and Loud for treatment of Parkinson’s disease and movement disorders
- Speech therapists certified in VitalStim® therapy to improve swallowing
- Mild Brain Injury (MBI) Program to diagnose and treat cognitive, physical, neurological, psychological, emotional and social challenges
- Balance Center, under the direction of a neurologist, to diagnose and treat vestibular disorders
- Spine & Pain Management Center interdisciplinary team to coordinate treatment and therapies most appropriate for each individual patient

**Neuro Residential Care**
- Adult foster care homes for long-term care following traumatic brain injury
- CARF accredited with specialty certification in brain injury

Inpatient Rehabilitation Center at Blodgett Hospital (Acute)
1840 Wealthy Street SE, Grand Rapids, MI 49506
Phone 616.774.5300 | Fax 616.774.5310

Special Care Hospital (LTACH)
750 Fuller Avenue NE, Grand Rapids, MI 49503
Phone 616.486.3691

Inpatient Rehabilitation Center at Kalamazoo Avenue (Subacute)
4118 Kalamazoo Avenue, Grand Rapids, MI 49508
Phone 616.455.7300

Neuro Rehabilitation Outpatient Services
2750 East Beltline Avenue NE, Grand Rapids, MI 49525
Phone 616.267.8330 | Fax 616.267.8335

Neuro Rehabilitation Services—Home Care
Phone 616.391.5720 | Fax 616.391.5731

PM&R and Spine & Pain Management Center
1900 Wealthy Street SE, Suite 290, Grand Rapids, MI 49506
Phone 616.774.8345 | Fax 616.774.8350

Balance Center and Mild Brain Injury Program
2750 East Beltline Avenue NE, Grand Rapids, MI 49525
Phone 616.774.7700 | Fax 616.774.7645

**Commission on Accreditation of Rehabilitation Facilities (CARF)**

Voluntary, internationally recognized accreditation demonstrating a commitment to excellence and continuous quality improvement.
Aero Med
With aircraft stationed in Grand Rapids and Big Rapids, Aero Med Spectrum Health is the only regional air medical transport program in Michigan staffed in flight by physicians and nurses with emergency medicine and critical care training.

Brain & Spine Tumor Center
The only comprehensive interdisciplinary center in West Michigan led by experts in central nervous system tumors and dedicated to the most advanced and innovative treatment options delivered in a coordinated, expedited and patient-centric care model.

Education and Research
Commitment to clinical and basic research, small group teaching sessions, individual mentorships and introduction of students to research environment; residency and fellowship programs also in development.

Partners
• Grand Rapids Clinical Oncology Program
• Grand Valley State University
• Henry Ford Health System
• Michigan State University College of Human Medicine
• Oakland University
• Rutgers University
• Van Andel Research Institute

Epilepsy Monitoring Units
Two epilepsy monitoring units for inpatient adult and pediatric patients. Video and EEG monitoring are used for the investigation of possible epileptic conditions or syndromes. They are a central component of Spectrum Health’s epilepsy program that provides the full complement of diagnostic and therapeutic applications to the investigation and treatment of the condition.

Neuroendovascular Care
Our fellowship-trained and certified neurointerventionalists diagnose and treat vascular conditions affecting the central nervous system with alternatives to open surgery and procedures that prevent stroke and extend the treatment window for occlusions.

Highlights
• Aneurysm coiling
• AVM embolization
• Intracranial and extracranial carotid and vertebral stenting
• Endovascular treatment for ischemic stroke
  − Thrombolysis (clot dissolution) using intra-arterial tissue plasminogen activator (IA tPA) and intravenous tPA
  − Embolectomy (mechanical clot extraction) using Solitaire™ and Penumbra System™
• Tumor embolization
• Vertebroplasty

Neurocritical Care Unit
Highly specialized medical expertise combined with leading-edge technology for optimal care of critically ill neurosurgical and neurological patients.

Highlights
• 24/7 in-house critical care attending physician and neurointerventional radiology, epileptology and neuroradiology experts
• Specially trained neurocritical care nursing and rehabilitation staff
• Neurohospitalist support for coordinated care and timely communication with referring physicians
• 14 single-bed private patient rooms with full ICU monitoring capabilities and observation windows
• Mobile CT technology

Neurodiagnostics
Advanced neuroimaging and electrodiagnostic technology for quick and accurate diagnosis and precisely targeted interventions.

Expertise
• Functional brain imaging for presurgical mapping
• Brain fiber tracking
• Diffusion and perfusion imaging to assess brain metabolism and blood volume
• Spectroscopy for noninvasive chemical assessment of lesion composition

Technologies
• 64-slice CT
• 3T MRI
• Ambulatory EEG
• Biplane angiography
• Carotid and transcranial doppler
• CT angiography (CTA)
• CT perfusion (CTP)
• Electromyography and nerve conduction studies
• Functional MRI (fMRI)
• Mobile CT (CereTom)
• PET-CT
• Prolonged video/EEG
• SPECT-CT

Neuropharmacology
Unique expertise in how drugs affect cellular function in the nervous system and, in turn, behavior, mood, sensation and thinking. Team provides insight on which medications have beneficial effects on neurological function and the latest approaches to pharmacological treatment of neurological diseases and conditions.

Neurotrauma
As West Michigan’s only ACS-verified Level 1 Trauma Center, we provide on-staff certified brain injury specialists and 24-hour emergency neurosurgery coverage and neurocritical care for medically complex patients.

Neurovascular Program
The only fully interdisciplinary institutional program in the state that brings together stroke neurologists, vascular neurosurgeons, neurocritical care specialists, neuroendovascular staff and neurorehabilitative specialists to address the great diversity of circulatory disorders of the brain and spinal cord.

Stroke Centers
As the leading provider of stroke treatment in Michigan, we offer clinical expertise in cerebrovascular neurosurgery, interventional neuroradiology, neurocritical care and neurorehabilitation.

Two primary stroke centers provide care for complex stroke cases that require the highest level of medical and surgical care, specialized tests and interventional therapies.

Highlights
• Multidisciplinary stroke response teams to rapidly assess and triage stroke patients 24/7 and begin IV tPA therapy when indicated
• TIA clinical pathway for urgent diagnostic evaluation and secondary stroke prevention measures
• Advanced imaging protocols for ischemic stroke patients who present beyond three-hour IV tPA treatment window
  − CTA and CTP identify patients best suited for advanced intervention by pinpointing blocked artery and viable brain tissue
• Endovascular interventions for ischemic stroke patients
  − IA tPA can extend treatment window up to six hours after onset of symptoms
  − Embolectomy can extend treatment window up to eight hours after onset of symptoms
• Dedicated stroke care units staffed by specially trained nurses
• Comprehensive neuro rehabilitation services

Additional Programs and Services
Spine & Pain Management Center

Only fully integrated and interdisciplinary center in West Michigan comprised of both neurosurgical and orthopedic spine surgeons, pain management proceduralists, rehabilitation specialists and clinical psychologists to provide comprehensive assessment and treatment of the full diversity of spinal and other pain disorders.

Services
- Acupuncture
- Pain management
- Pain psychology
- Physical medicine and rehabilitation
- Physical therapy
- Spine surgery

Primary Stroke Center Certification

Awarded Advanced Disease-Specific Care Certification as Primary Stroke Centers (Spectrum Health Butterworth and Blodgett Hospitals) by The Joint Commission

Healthgrades Stroke Awards and Ratings

Spectrum Health Butterworth Hospital was named among the top 10 percent in the nation for treatment of stroke for four years in a row (2013 – 2016)

Neurosciences Outpatient Locations

1. 25 Michigan Street NE, Suite 6100
   Grand Rapids, MI 49503
2. 2750 East Beltline Avenue NE, Floor 3
   Grand Rapids, MI 49525
3. 1900 Wealthy Street SE, Suite 290
   Grand Rapids, MI 49506
4. 4069 Lake Drive SE, Suite 114
   Grand Rapids, MI 49546
5. 588 Lakewood Boulevard
   Holland, MI 49424
6. 230 W. Oak Street, Lower Level
   Fremont, MI 49412
7. 705 South Greenville West Drive,
   Suite 202, Greenville, MI 48838
8. 300 North Patterson Road
   Reed City, MI 49677

For further information,
shmg.org/neuro

Office and Program Management Contacts

Renee Punches (Neurology, Neuropsychology) … 616.447.3470
Michelle Gordon (Neurocritical Care, Neurovascular) ………………………………………… 616.267.7959
Peggy Timmons (Neurosurgery, Epilepsy) … 616.267.8277
Katie Saladin (PMBP, Pain, Spine) … 616.774.8408

Michigan State University

College of Human Medicine

The Spectrum Health Medical Group Department of Clinical Neurosciences holds divisional status with the Michigan State University College of Human Medicine.