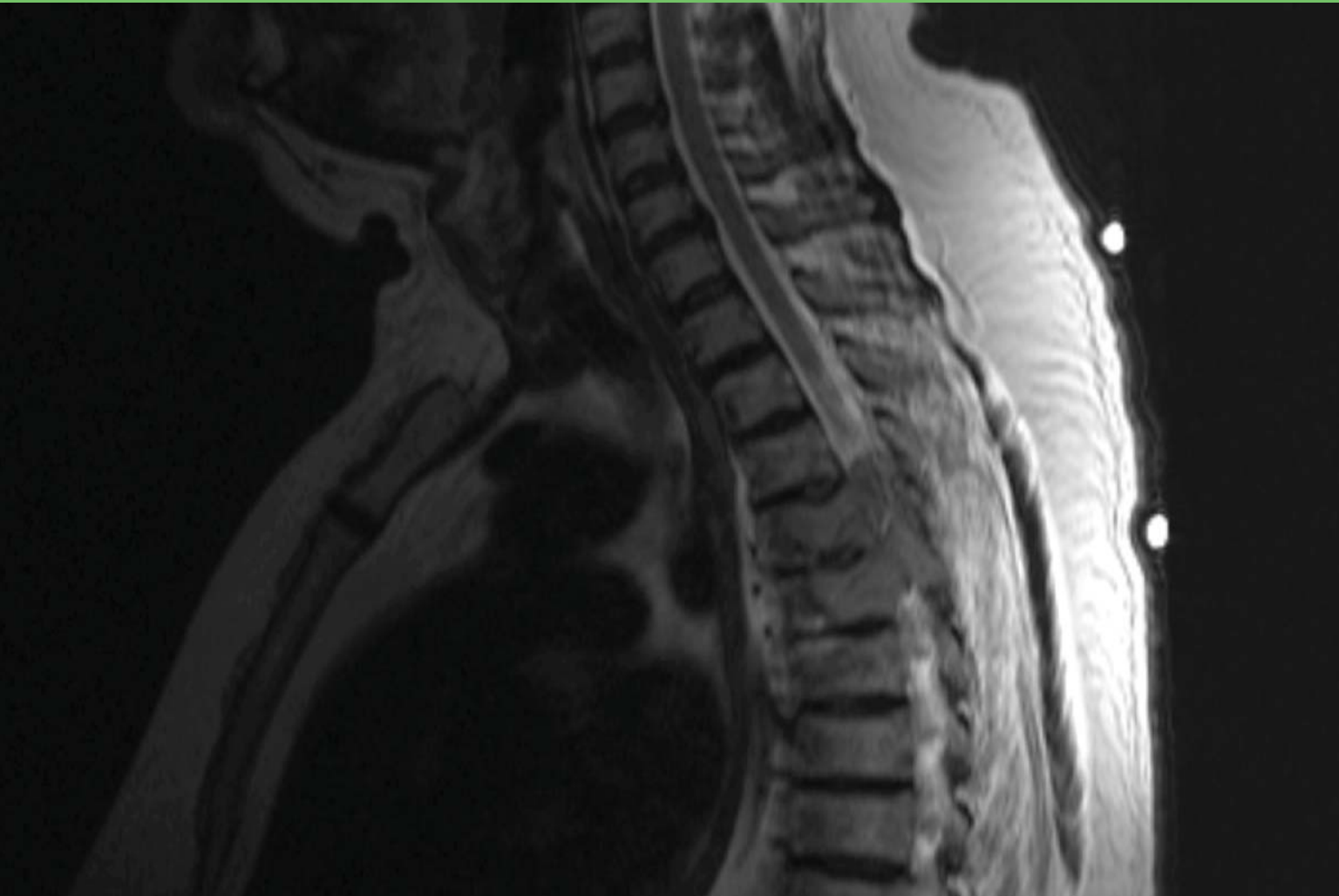


Munson Health Network

Physician Partners

Comprehensive Spine Treatment at Munson Medical Center

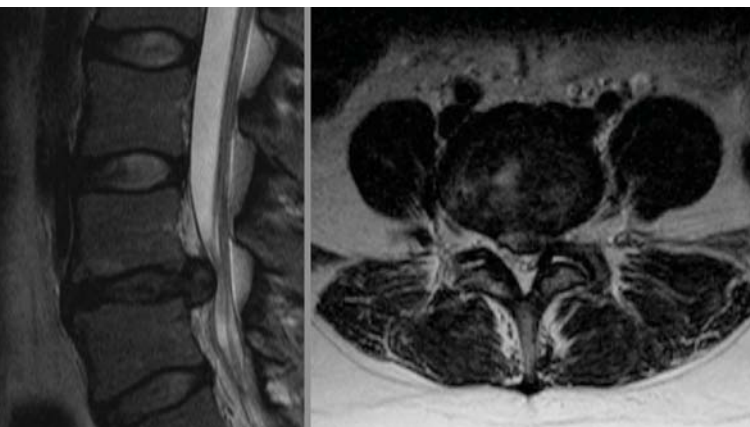


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Multi-disciplinary approach
benefits back patients.

Diagnostic Imaging Aids Evaluation, Contributes to Treatment Design



Sagittal (left) and Axial (right) T2 of lumbar spine showing herniated disc.

Diagnostic imaging plays an important role in evaluating back pain and in helping physicians design the best treatment strategy for each patient. Radiology studies enhance the clinical picture obtained from a patient's history and physical examination, and are critical in making therapeutic decisions and in pre-surgical planning.

Munson Medical Center radiologist Edward W. Stilwill, MD, and his colleagues work collaboratively with spine surgeons and physical medicine and rehabilitation specialists, and offer multimodality imaging technology including x-ray imaging, magnetic resonance imaging (MRI), myelography, computed tomography (CT), and discography to pinpoint spine pathology.

Many patients arrive at a physiatrist or surgeon office with radiologic studies in hand. However, additional specialized studies can provide valuable specific information. Leg length films document discrepancies in leg length which may contribute to back pain. Standing films allow physicians to visualize deformities that are not observable when the patient is lying down. Flexion and extension lateral cervical/lumbar films may show abnormal motion in the spine. Specialized x-ray studies can be cost effective and provide valuable information for the treating physician.

MRI

MRI is another excellent modality in evaluating spine pain. It does not use ionizing radiation or iodine-based contrast material and affords a direct view of the spinal cord and nerve roots. Many surgeons will not proceed to surgery without obtaining an MRI study. MRI is also useful in looking for tumors

and infection in the spine and for postoperative assessment.

Approximately 12 percent of patients are not candidates for MRI, either because of claustrophobia, a pacemaker or other implantable devices, or because they cannot tolerate being inside the magnet. Stilwill said, "At Munson, we have the latest gantry technology — a short-bore wide-gantry magnet — that feels more spacious for claustrophobic patients. We offer special appointment times when the patient can receive mild sedation and remain under observation by a nurse for the duration of the study. We encourage patients to bring their favorite music to enjoy during their study."

Myelography

Myelography is useful in evaluating nerve root or cord compression and may be an option for patients who cannot tolerate MRI. Under fluoroscopic guidance, a radio opaque material is injected into the thecal space, providing an indirect look at the spinal cord, spinal canal, and nerve roots. Myelography is sometimes indicated as an adjunct when other studies do not yield enough information.

CT

CT is another option for patients with back pain who are not candidates for MRI. CT affords an indirect view of the neural structures and is routinely used as a confirmatory test following myelography.

Discography

Discography is a low risk invasive procedure that may be useful in determining whether degenerative disc disease is causing the patient's pain. It involves injecting a radiographic substance into the disc. If this maneuver reproduces the pain the patient is experiencing, it can be inferred that a specific disc level is the cause of the pain. Discography is valuable in treatment planning, especially when multiple degenerated levels are affected. It allows the surgeon to differentiate the level that is causing subjective pain from those that are asymptomatic.

For more information on diagnostic care for spine patients contact the following Radiology departments:

Mercy Hospital Cadillac	(231) 876-7260
Mercy Hospital Grayling	(989) 348-0258
Munson Medical Center	(231) 935-6400

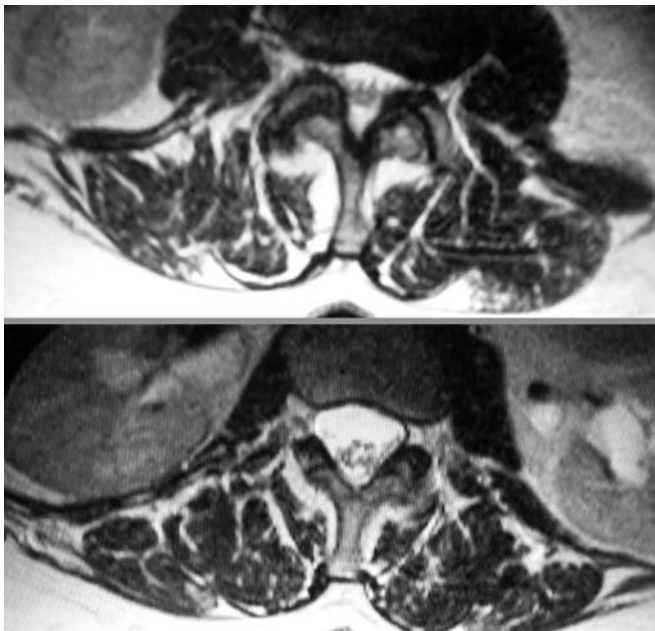
Surgeons Offer Help for Spine Problems

Spine care at Munson Medical Center (MMC) is provided by a multi-disciplinary team that includes spine surgeons, physical medicine and rehabilitation specialists, pain management specialists, and diagnostic imaging specialists. Orthopaedic surgeon Vincent R. Prusick, MD, and neurosurgeon Thomas C. Schermerhorn, MD, are members of the spine care team, and along with John M. Cilluffo, MD; Paul F. Davis, MD; and J. Eric Zimmerman, MD, provide comprehensive surgical care for the full range of spinal conditions, including degenerative spine disease, trauma, and spinal tumors and metastases.

Indications for Referral

An overwhelming number of patients with back pain do not require surgery, but patients with any of the following complaints should be referred for evaluation:

- Back or neck pain with arm or leg symptoms, especially with pain radiating below the elbow or knee
- Back or neck pain with associated weakness or any suggestion of spinal cord dysfunction
- Rapidly progressing degenerative scoliosis
- Pain that has not responded to conservative measures
- Back or neck pain with a question of infection, tumor, or hypermobility
- Back or neck pain accompanied by gait disturbance or sphincter symptoms



Transverse section of moderately severe stenosis (top) and Transverse section of normal spinal canal (bottom).

Start With a Thorough Evaluation

Prusick and Schermerhorn agree that a careful history and physical examination should elicit the following information:

- Where is the pain located?
- What makes the pain better or worse?
- How long has the patient been in pain?
- Does the pain follow a dermatomal pattern, or is it referred?
- Are there signs of neurologic deficit?
- Has the patient developed guarding behaviors?

Depending on what the history and physical examination suggest, and on what imaging already has been performed, the surgeons may order additional imaging to aid in evaluation and possible surgical planning (see Diagnostic Imaging Aids Evaluation, Contributes to Treatment Design, A2).

Match Treatment to Complaint

Back, leg, and arm pain can be notoriously difficult to evaluate. Symptoms may be diffuse, non-specific, and difficult for patients to describe. Furthermore, imaging studies may show pathology that is not related to the cause of the patient's pain. Prusick said, "It is common to see some pathology, including mild-to-moderate stenosis, bulging discs, or hip arthritis on x-ray studies of adults. These findings may not be symptomatic, and it is very important to ensure that the patient's complaint matches the pathology we see on imaging before we initiate treatment."

Conservative Measures Help Many Patients

The challenge of surgeons is twofold: first, to identify those patients who are going to get better on their own and not subject them to the risks of surgery, and second, to identify those patients who are not going to improve without surgery and operate sooner, with the goal of preventing permanent nerve damage.

The majority of spine pain patients will improve with conservative management strategies. Therefore, Prusick and Schermerhorn work closely with their colleagues in physical medicine and pain management to provide the best treatment strategies for their spine pain patients. Pain management specialists offer fluoroscopically-guided injections including facet blocks, transforaminal epidural steroid injections, lumbar caudal epidural steroid injections, and facet rhizotomy to relieve pain. Physical medicine specialists help patients with core stabilization and strength as well as lifestyle interventions to manage pain (see Physical Medicine and Rehabilitation Strategies Benefit Most Back Pain Patients, A5).

Continued on A4

Continued from A3

Prusick noted, “Even when a patient most likely will require surgery, initiating healthy back habits – smoking cessation, weight reduction, and aerobic conditioning – should be initiated at the earliest possible time. These are universally successful strategies in improving back health and an important part of a successful treatment program.”

Schermerhorn concurred, “Surgery is a single point in time in a patient’s life-long spine care and has to be considered in conjunction with proper lifestyle choices in order to maintain the benefits of surgery.”

Operative Management Is the Best Choice for Some Patients

For patients who are surgical candidates, the surgeons offer a full range of surgical options including discectomy, foraminotomy, laminectomy, and arthrodesis, and revision surgeries. Revision surgery candidates may have had an adequate decompression but are having recurring symptoms that require surgical management. Revision surgeries are more complex because there is scar tissue and delineating the surgical planes is much more difficult.

MMC surgeons are using innovative fusion techniques using bone graft supplements and bone substitutes for appropriately selected patients. These techniques allow them to take much less native bone from the patient, avoiding additional surgical sites and associated risks.

Posterior lumbar interbody fusion (PLIF) is appropriate for patients who require only fusion. Through limited exposure, the surgeon removes the diseased disc, places a cage as a spacer, and places bone graft, screws, and rods to create the fusion.

Posterior cervical laminoforaminotomy, or keyhole foraminotomy, may be a good therapeutic choice for cervical radiculopathy. Again through a small incision, the surgeon dilates the muscles and removes bone impinging on the nerve root. This procedure does not require a fusion and helps maintain motion in the cervical spine.

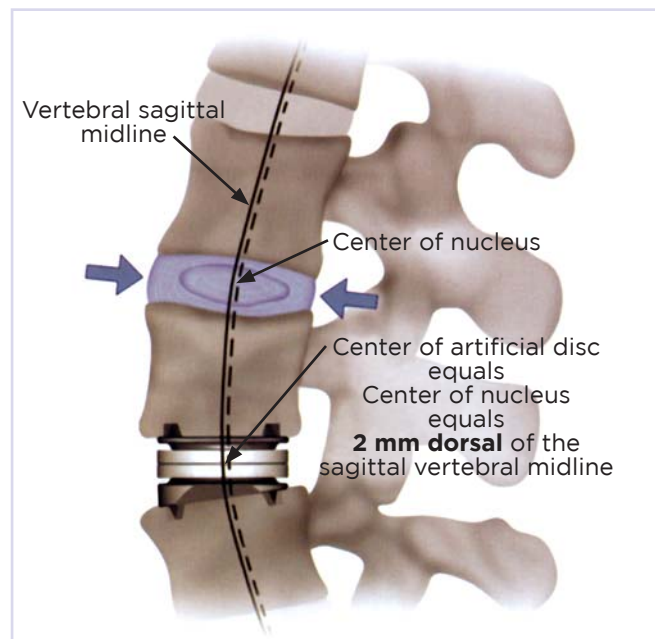
Anterior cervical discectomy and fusion may be performed to treat ruptured cervical discs and cervical spinal stenosis. The surgeon makes a small incision in the front of the neck, separates the tissues of the throat, removes the diseased disc, places bone in the disc space, and fuses the area with a bone graft and a plate. Schermerhorn noted that the FDA is currently investigating the safety and efficacy of an artificial disc which could be used in the cervical spine to avoid fusion, and that this technology should be clinically available in the near future.

In addition, MMC surgeons offer all the accepted minimally invasive motion-preserving procedures. These surgeries feature smaller incisions, less tissue trauma, less stress to adjacent levels, fewer long-term problems at adjacent segments, perhaps a more rapid recovery, and possibly a lower infection rate. These techniques yield very good results for appropriately selected patients.

Minimally invasive discectomy, or microdiscectomy, is offered to treat disc disease and herniation in the lumbar spine. Working through a small (approximately 2 cm) incision and using a microscope, the surgeon separates the muscles instead of cutting them, thereby avoiding trauma to articular segments at that level. The microscope allows the surgeon to see the nerve well in spite of the small exposure, and nerve manipulation is minimized.

On the Horizon

Spinal surgery is a dynamic field, and a promising recent addition to the spine surgeon’s armamentarium is total disc replacement. The surgery involves placing in the disc space a mechanical device that recreates disc height and normal disc motion. Recent studies suggest that this procedure has as good a clinical response as single fusion without exposing the patient to adjacent segment disease. Paul F. Davis, MD, a neurosurgeon at MMC, said, “We hope to begin total disc replacement in 2006 for appropriately selected patients — those with severe chronic lower back pain unresponsive to conservative therapies — and anticipate that it will become the standard of care for this group of patients.”



To speak with a surgeon regarding back surgery, please contact one of the following physicians:

- | | |
|----------------------------|----------------|
| John M. Cilluffo, MD | (231) 935-5720 |
| Paul F. Davis, MD | (231) 935-5961 |
| Vincent R. Prusick, MD | (231) 935-0900 |
| Thomas C. Schermerhorn, MD | (231) 929-3486 |
| J. Eric Zimmerman, MD | (231) 935-7312 |

Physical Medicine and Rehabilitation Strategies Benefit Most Back Pain Patients

Eighty percent of adults experience back pain at some point in their lives; it is one of the most cited reasons for seeking medical care. Physical medicine specialists at Munson Medical Center (MMC) provide comprehensive non-surgical care — conservative healthy back strategies as well as pre- and post-surgical rehabilitation — for this multitude of back pain patients.

Careful Evaluation Is Key for Appropriate Management

According to physiatrist Julie A. Gronek, MD, a member of the Physical Medicine and Rehabilitation team at MMC, the first step toward managing a patient's pain is a thorough evaluation, including a history and physical examination. "Ninety percent of the information we need to help our patients comes from a careful history and physical."

Depending on the clinical picture, further studies may be indicated, including electrodiagnostic and radiologic studies (see Diagnostic Imaging Aids Evaluation, Contributes to Treatment Design, A2). Electrodiagnostic studies, or electromyography (EMG), are used to diagnose pain of neuropathic origin and are useful in diagnosing radiculopathy and inflammatory myelopathy.

Conservative Management Strategies Help Most Patients

While some patients clearly require surgical intervention, numerous published studies, including the March 1997 Archives of Physical Medicine and Rehabilitation, confirm that the vast majority of patients with back pain do not need surgery. In fact, 80 percent of those with lumbar pain and upwards of 90 percent of those with cervical spine pain respond well to conservative management.

Conservative management consists of lifestyle changes to promote a healthy back, as well as specific interventions to relieve pain. Some lifestyle changes, such as maintaining an appropriate weight, are intuitive. Some may be a surprise for patients. For example, sedentary lifestyle, not heavy lifting, is the biggest risk factor for back pain associated with herniated discs. Individuals who spend a significant part of the day sitting are at highest risk for slipped or herniated discs.

Nicotine is also a primary risk factor for back pain, as is poor hydration. Not surprisingly, poor posture and related bad motor patterns cause abnormal forces across the joints and

discs and also contribute to back pain. According to Gronek, "The vast majority of back pain is mechanical and musculoskeletal in nature, not the result of a pinched nerve."



Munson Physical Therapist Lee Nowak explains a simple exercise regimen to a patient suffering from lumbar pain.

Continued on A6

Continued from A5

Therefore, helping patients with weight control, an aerobic exercise program, nicotine cessation, adequate hydration, and maintenance of good posture are the key elements of MMC's healthy back program.

Physical Therapy Relieves Pain, Restores Function

A good physical therapy program, faithfully adhered to, can relieve pain and restore function for both non-surgical back pain sufferers and pre- and post-surgery patients. At MMC, the goals of rehabilitation include:

- Strengthening core muscles
- Correcting abnormal biomechanics
- Addressing deconditioning that results from chronic pain or from enforced inaction in the peri-surgical period
- Reinforcing correct postural alignment
- Stretching to loosen muscles, relieve stress in joints, and correct spinal alignment

Patients may require physical therapy for as little as a week or as long as six months, depending on individual circumstances. Most patients experience significant relief after a four-to-six-week course of physical therapy.

Indications for Referral

Physical therapy is a modality prescribed by a physician to treat a condition. A patient who has been in pain for more than a few weeks and is not responding adequately to standard treatments should be referred to a physiatrist

“Ninety percent of the information we need to help our patients comes from a careful history and physical.”

— Julie A. Gronek, MD
Physical Medicine & Rehabilitation

who can prescribe appropriate physical therapy and follow up to ensure that treatment is effective. Gronek concluded, “Healing is a process that needs to be directed and overseen by a physician.”

To refer a patient for physical therapy contact your local facility:

Interlochen Therapy Clinic	(231) 275-0166
Kalkaska Memorial Health Center	(231) 258-7528
Leelanau Therapy Clinic	(231) 386-0080
Mercy Hospital Cadillac	(231) 876-7443
Mercy Hospital Grayling	(989) 348-0341
Munson Community Health Center	(231) 935-8600
Paul Oliver Memorial Hospital	(231) 352-2231
West Front Street Physical Therapy	(231) 935-0590
West Shore Medical Center	(231) 398-1166

For patients not responding to physical therapy, please contact Neuromuscular & Rehabilitation Associates, (231) 935-0860.



Aquatic therapy provides all the benefits of exercise without risk of over-stressing muscle groups.

Physician Opportunities

Physician Opportunities with Munson Healthcare and Affiliates

A nationally-recognized system of six hospitals with more than 447 physicians, Munson Healthcare and its affiliated hospitals form a nonprofit system offering services to people from 24 counties.

If you have a colleague interested in relocating to northern Michigan, contact David McGreaham, MD, Munson Medical Center VPMA, at **(231) 935-6156** or dmcgreaham@mhc.net. Visit www.munsonhealthcare.org for more information on opportunities at Munson Healthcare or contact Deborah Glicker at **(231) 935-5890** or Joan Alt at **(231) 935-5889**.

Additional Opportunities in Northern Michigan

Primary and specialty care opportunities at Alpena Regional Medical Center include: Cardiology, Dermatology, Emergency Medicine, Otolaryngology, Gastroenterology, Med/Peds, Orthopaedics, Psychiatry, and Sleep Medicine. For more information, visit www.agh.org or contact Diane Sims at **(989) 356-7540**.

For information on primary and specialty care opportunities at Otsego Memorial Hospital in Gaylord, visit www.otsegomemorialhospital.org or contact Skip Kasprazak at **(989) 731-7707**.

For information on primary and specialty care opportunities at War Memorial Hospital in Sault Ste. Marie including Cardiology, visit www.warmemorialhospital.org or contact Henry Oklat at **(906) 635-7899**.

Specialty	Affiliate	Location
Certified Midwife	Mercy Hospital Cadillac	Cadillac
Dermatology	Munson Medical Center	Traverse City
Dermatology	Munson Medical Center	Traverse City
Endocrinology	Munson Medical Center	Traverse City
Family Practice	Kalkaska Memorial Health Center	Kalkaska
Family Practice	Munson Medical Center	Traverse City
Gastroenterology	Munson Medical Center	Traverse City
Gastroenterology	Munson Medical Center	Traverse City
General Surgery	Mercy Hospital Grayling	Grayling
General Surgery	Mercy Hospital Cadillac	Cadillac
General/Breast Surgery	Munson Medical Center	Traverse City
Hematology/Oncology	West Shore Medical Center	Manistee
Hospitalist	Mercy Hospital Cadillac	Cadillac
Hospitalist	Mercy Hospital Grayling	Grayling
Infectious Disease	Mercy Hospital Cadillac	Cadillac
Internal Medicine	Mercy Hospital Cadillac	Cadillac
Internal Medicine	Munson Medical Center	Traverse City
Internal Medicine	West Shore Medical Center	Manistee
Internal Medicine /Pediatrics	Mercy Hospital Grayling	Grayling
Neurology	Mercy Hospital Cadillac	Cadillac
Neurology	Munson Medical Center	Traverse City
Orthopaedic/Hand	Munson Medical Center	Traverse City
Orthopedic Surgery	Mercy Hospital Grayling	Grayling
Orthopedic Surgery	West Shore Medical Center	Manistee
Orthopedic Surgery	Munson Medical Center	Traverse City
Orthopedic Surgery	Mercy Hospital Cadillac	Cadillac
Otolaryngology	Munson Medical Center	Traverse City
Pediatrics	Munson Medical Center	Traverse City
Physical Medicine & Rehabilitation	Munson Medical Center	Traverse City
Physician Assistant or Nurse Practitioner	Paul Oliver Memorial Hospital	Frankfort
Psychiatry - Adult	Munson Medical Center	Traverse City
Psychiatry - Adult	Munson Medical Center	Traverse City
Rheumatology	Munson Medical Center	Traverse City
Rheumatology	Mercy Hospital Cadillac	Cadillac
Urology	West Shore Medical Center	Manistee

Munson Medical Center CME

Munson Medical Center provides a wide variety of CME opportunities, including several program series that are available via the REMEC TeleHealth Network, MMC's interactive video conferencing system.

For more information on CME opportunities offered through Munson Medical Center, visit munsonhealthcare.org or contact Sandy Somers, RN, at **(231) 935-6546** or ssomers@mhc.net.

Munson Healthcare

Munson Medical Center
Munson Home Health
North Flight
Paul Oliver Memorial Hospital

Affiliated Hospitals

Kalkaska Memorial Health Center
Mercy Hospital Cadillac
Mercy Hospital Grayling
West Shore Medical Center