Neurosciences

JOHN MUIR HEALTH

John Muir Health's Neurosciences Institute

A history of innovative excellence.

John Muir Health's Neurosciences Institute is the San Francisco Bay Area's most advanced community-based hospital resource for neurosciences. Our institute brings together clinical expertise in neurosurgery, neurology, interventional neuroradiology, radiation oncology, neuropsychology and physiatry in one of the most comprehensive diagnostic and treatment centers in Northern California.

The Institute grew out of the need for a continuum of expert neurological care for Northern California residents and specifically for those at risk for brain injury, stroke, brain/spinal tumors, acute and chronic back disorders, and dementia.

Today, our ongoing efforts to provide the surrounding communities with convenient, 24/7 access to advanced medical technologies include the addition of a 6-story patient care tower to our Walnut Creek campus. This contemporary facility features inpatient surgical suites equipped with the latest technologies, large, private patient rooms, a dedicated neurosciences ICU and a state-of-the-art rehabilitation nursing unit.

Collaborative care. Excellent outcomes.

Combining a highly skilled clinical staff, trauma services, dedicated neurosurgical operating rooms, a neurosciences intensive care unit, a neurologic constant observation unit, an acute rehabilitation unit and a vast network of outpatient rehabilitation centers, our Neurosciences Institute provides your patients with a comprehensive continuum of care. Additionally, when you refer your patients for treatment, you become an integral part of the treatment process. Our staff will work in tandem with you to ensure your patients receive attentive and individualized care and that you are provided with continuous updates at every step. Our goal is to keep your patients safe and stable and to return them to your care with optimum function.

Comprehensive neurological services:

- Trauma Services
- Neurosurgery
- Neuro-Spine
- Neurology
- Stroke Centers of Excellence
- Diagnostic Neuroradiology Services
- Interventional Neuroradiology
- Neuro-Oncology Program
- Stereotactic Radiosurgery
- Neuro-Rehabilitation Services
- Neuropsychology
- Brain Injury Program
- Mild Cognitive Impairment/Dementia Program

Our expert care—an extension of yours.

John Muir Health's Neurosciences Institute offers clinical expertise in a variety of areas, including:

Trauma Services/Transfer Center

John Muir Medical Center, Walnut Creek is Contra Costa County's only designated Level II Trauma Center. Our comprehensive approach to treating critically injured patients includes well-defined trauma policies and procedures, Traumatic Brain Injury (TBI) protocol, and 24-hour availability of trauma surgeons, intensive care units, medical imaging, laboratory and respiratory care.

Neurosurgery

Our comprehensive neurosurgery services include diagnostic and surgical treatment of adult brain tumors, spinal disease and trauma. Neurosurgeons are available 24/7 and support both Trauma Services and the Transfer Center. Our integrated services include outpatient consultation, a Stereotactic Radiosurgery (SRS) Program, a dedicated ICU staffed with certified critical care nurses, a neurologic step-down unit (NCOR-neurologic constant observation rooms), and operating rooms staffed with specialists trained in image-guided stereotactic surgery and other advanced technologies.

Neuro-Spine

Neurosurgeons with advanced spine training work closely with neuroradiologists and experienced neurosurgical operating room and nursing teams, utilizing the newest technology to provide the most advanced diagnostic, therapeutic and surgical techniques available. The Neuro-Spine Program offers minimally invasive spine surgery (MISS).

Neurology

Neurologists diagnose and treat patients with neurological disorders such as stroke, dementia, movement disorders, headaches, dizziness/vertigo, seizures/epilepsy, brain tumors, brain injury and multiple sclerosis. They also offer 24/7 consultation for emergency treatment.

Stroke Centers of Excellence

Stroke patients are cared for in dedicated stroke care units under the supervision of a multidisciplinary stroke team including Neurocritical Care Intensivists, Neurologists, and a stroke Nurse Practitioner. We actively participate in various clinical trials to advance stroke treatment capabilities aimed at reducing the impact of stroke. To ensure patients receive rapid stroke assessment and treatment that can significantly improve outcomes, we adhere to strict national standards and guidelines for certification by The Joint Commission as an Advanced Primary Stroke Center.

Interventional and Diagnostic Neuroradiology

Working closely with neurosurgery and neurology specialists, our team of interventional neuroradiologists utilize bi-plane, high-resolution, 3-D image processing technology for safer, faster, more effective treatment of neurovascular abnormalities. Our diagnostic neuroradiologists have ready access to 3.0 Tesla MRI, functional MRI (fMRI) and a 64-slice CT scanner. John Muir Health's Medical Imaging Services are accredited by the American College of Radiology in ultrasound, computed tomography, nuclear medicine, mammography and MRI.

Neuro-Oncology and Brain Tumor Programs

Our Neuro-Oncology Program brings together clinical experts in neurosurgery, neuropsychology, radiation oncology and medical oncology for comprehensive diagnosis and treatment. Our Brain Tumor Program offers evaluation and treatment of benign and malignant tumors by a multidisciplinary team of specialists, as well as inpatient and outpatient rehabilitation.

Stereotactic Radiosurgery Center

Our Neurosciences Institute and Cancer Institute collaborate in the delivery of stereotactic radiosurgery (SRS) and stereotactic body radiation therapy (SBRT). A transdisciplinary team works together to provide individualized treatment to patients with brain and spinal tumors that cannot be resected through traditional surgical interventions. Clinical trials are an integral part of the program.

Neuro-Rehabilitation Services

Rehabilitation Services is staffed with licensed professionals trained in brain injury management and follows a comprehensive, personalized and interdisciplinary approach to the rehabilitation of patients with neurological disorders. We also offer outpatient treatment involving physical and occupational therapy, speech pathology and neuropsychology.

Brain Injury Program/Neuropsychology

Our nationally recognized Brain Injury Program features specialty-trained neuropsychologists with expertise in the assessment of neurologically impaired patients, including functional MRI (fMRI), preneurosurgical assessments and management of brain-injured patients.

Mild Cognitive Impairment/Dementia Program

Neurosciences through neuropsychology/neurology and John Muir Health's Senior Services collaborate to provide evaluation, assessment and treatment of dementia. The program also includes education and referral, case management consultation, neuropsychological assessment and neuro-rehabilitation services.

Neurosciences Institute

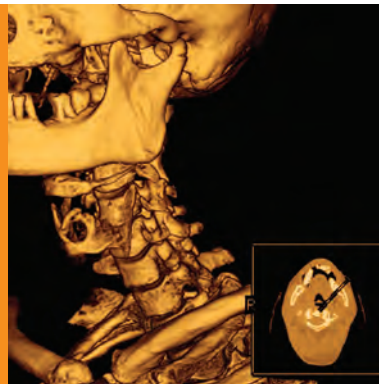
Neuro-Spine

At John Muir Health, our team of spine specialists treats spinal trauma, disease and tumors utilizing the most advanced diagnostic, therapeutic, surgical, and minimally invasive techniques. Specialty-trained spine neurosurgeons work closely with neuroradiologists and experienced neurosurgical operating room and nursing teams, utilizing the newest technology. Pain specialists are available to help manage pain before and after surgery, while our neuro-rehabilitation team works with you and your patient to ensure a rapid recovery.

Spinal disorders:

- Cervical and lumbar radiculopathy
- Cervical instability
- Disc herniation
- Peripheral nerve disease and neoplasm
- Spinal degenerative condition
- Spinal stenosis (cervical and lumbar)
- Spinal trauma
- Spinal tumor
- Spondylolisthesis

Discectomy/ microdiscectomy



Surgical options:

- Complex spine reconstruction
- Discectomy/microdiscectomy
- Laminectomy, laminoplasty, foraminotomy
- Minimally invasive spine surgery (MISS)
- Peripheral nerve reconstruction
- Spinal cancer reconstruction
- Spinal fusion
- Stereotactic radiosurgery
- Vertebroplasty
- Nerve block
- Epidural steroid injection

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Neuro-Oncology

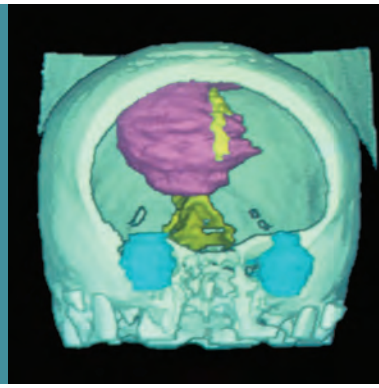
Our Neuro-Oncology Program brings together clinical experts in neurosurgery, neuropsychology, radiation oncology, medical oncology, hyperbaric oxygen therapy, radiology, pathology, endocrinology and medical physics to offer the most advanced diagnostic and treatment options.

This multidisciplinary approach ensures that patients with brain and spinal tumors receive individualized, compassionate care delivered in a respectful and informed manner.

Your patients will have access to the newest multi-modality treatments including radiation oncology capabilities, surgical options and chemotherapy. Our team, which includes nurse navigators, social services, and research coordinators will work hand-in-hand with you, providing updates throughout the duration of treatment and recovery. Clinical trials are an integral part of our program.

NSI/SRS Tumor Board referral

To help ensure your patients receive optimal treatment, our Tumor Board provides a multidisciplinary review of individual cases. If you would like to schedule a consultation and evaluation, please call 925-941-3250. You are encouraged to provide your patient's recent MRI and history/physical. The Tumor Board will review the case and you will receive a written recommendation for treatment.



3-D CT scan of meningioma tumor, in pink, is a tumor derived from arachnoid cells or dural fibroblasts, arranged in various patterns and involving the meninges or other central nervous system structures.

Conditions treated:

- Acoustic neuroma
- Arteriovenous malformation/glioma
- Astrocytoma
- Primary and secondary brain tumors
- Cavernous angioma
- Ependymoma
- Glioblastoma
- Medulloblastoma
- Pituitary tumor
- Spinal tumor
- Meningioma

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Stroke

Rapid Stroke triage and treatment are critical for patients experiencing a stroke.

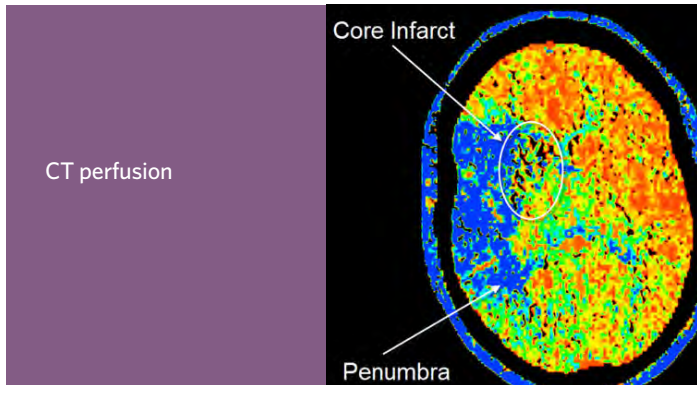
At John Muir Health, stroke patients are cared for in dedicated stroke care units under the supervision of a multidisciplinary stroke team including experienced neurologists, neurocritical care intensivists, and a stroke trained nurse practitioner. Emergency treatment and stroke services are available 24/7. Patient education, rehabilitation and research are also available.

To significantly improve outcomes for your stroke patients, we adhere to strict national standards and guidelines for certification by The Joint Commission as an Advanced Primary Stroke Center. These standards ensure your patients receive the latest evidence-based treatment available aimed at improved outcomes.

Stroke Centers of Excellence

John Muir Medical Centers, Walnut Creek and Concord were both designated by The Joint Commission (TJC) as the first stroke-certified medical centers within Contra Costa, Solano, and Alameda counties in May 2005.These certifications were granted on the basis of our responsiveness to stroke assessment and treatment in the emergency departments along with consistent adherence to national guidelines for providing quality inpatient care.

John Muir Health's Stroke Centers have achieved and maintained Gold Plus awards from the AHA/ASA's GWTG-Stroke program for consistent quality in 12 measures over a 2-year period. They have also been awarded the AHA/ASA's Target: Stroke® Honor Roll and Honor Roll Elite Plus levels of achievement in providing intravenous tPA in the most expeditious manner to patients who qualify.



Procedures/interventions for stroke:

- Thrombolytic agents (tPA given intravenously within 4.5 hours of stroke inset to dissolve a clot)
- Intra-arterial thrombolysis (targeted administration of thrombolytic agents at the site of the clot)
- Endovascular Mechanical Thrombectomy (targeted removal of the occluding clot in the brain by use of a retrieval device)
- Intracranial angioplasty and stenting of vessels
- Coiling (insertion of coils into an aneurysm)
- Carotid Artery Stenting
- Carotid endarterectomy (surgical removal of occluding material in the carotid artery)
- Trevo®- Stent retrieval device to withdraw a clot
- Penumbra System- Suction retrieval device to remove a clot
- WingSpan™ System (stent device designed to reinforce arteries)
- CT Angiography
- CT Perfusion imaging
- Continuous EEG recording
- Trans Cranial Doppler (to identify cerebral vasospasm after subarachnoid hemorrhage)
- Investigative stroke research
- Stroke Prevention education and resources

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Neurosurgery

Neurosurgery provides comprehensive services to evaluate and treat adult brain and spinal tumors, as well as degenerative and traumatic injuries of the spine from skull to sacrum. Additionally, when you refer your patients for neurosurgery, an experienced team of neurosurgical and neurocritical care specialists will work in tandem with you to ensure your patient receives the highest level of quality care. Our goal is to keep your patients safe and to return them to your care with maximum function. Neurosurgery is a critical component of the John Muir Trauma Services, on of the busiest trauma centers in California.

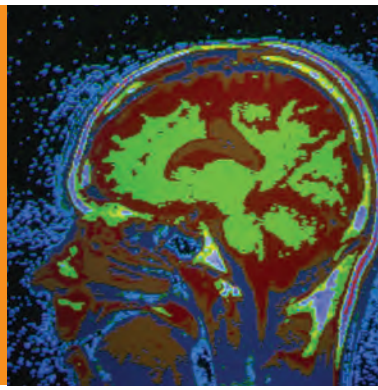
Disorders and conditions treated:

- Acoustic neuroma
- Arteriovenous malformation
- Cerebral aneurysm
- Pituitary disorder
- Trigeminal neuralgia
- Degenerative disc disease and herniation
- Spinal cord trauma
- Spinal stenosis
- Spondyloarthropathy
- Spondylolisthesis
- Carpal tunnel syndrome
- Normal pressure hydrocephalus
- Intracerebral hemorrhages

A comprehensive continuum of neurosurgical care

Our neurosurgeons utilize the latest technologies and advanced therapies to maximize each patient's functional outcome and quality of life. Patients are treated in dedicated, state-of-the art neurosurgical operating suites, and a neurosciences intensive care unit ensures patients recover in a stable, comfortable environment. Should your patients require more urgent care, neurosurgeons are available 24/7 to provide consultation and treatment coordinated with John Muir Health's Transfer Center.

MRI brain scan



Neurosurgical diagnostics and procedures:

- Diagnostic neuroradiology, including 3T MRI, functional MRI (fMRI) and 64-slice CT
- Image-guided stereotactic biopsy
- Image-guided surgery, including Medtronic StealthStation® S7®
- Intracranial vascular surgery
- Nerve transpositions
- Peripheral nerve reconstruction
- Spine surgery, including minimally invasive approaches
- Stereotactic radiosurgery and radiotherapy
- Intraoperative neurophysiologic monitoring
- Minimally invasive 3D endoscopic pituitary tumor surgery

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Neurocritical Care

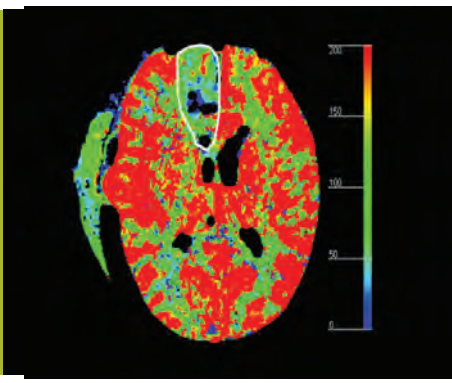
Neurocritical Care is the intensive care management of patients with life-threatening neurological and neurosurgical illnesses. The United Council of Neurological Subspecialties (UCNS) recognized Neurocritical Care as a new neurological subspecialty in 2005. Key to Neurocritical Care is the neurointensivist.

Neurointensivists are physicians specially trained in Neurocritical Care. Their primary training may be in neurology, neurosurgery, anesthesiology or internal medicine, but they have undergone additional subspecialty training to care for the unique needs of neurocritically ill patients. Along with treating neurological injuries, neurointensivists also manage medical complications to provide complete care for patients by integrating and balancing the management of both the brain and the body. Neurointensivists provide medical management and perform many bedside invasive procedures (such as intubation, central line placement, and brain pressure monitor placement). In many facilities, neurointensivists are the leaders of the multi-disciplinary Neurocritical Care team.

Neurocritical Care is mostly a specialty of large academic university centers. Because of our robust neurosciences program, we're proud to offer this service at our community hospital. We have multiple providers who cover 24/7. Besides their excellent training and expertise in the field of Neurocritical Care, our providers take most pride in their relationship with their patients and their families.

Our providers also stay abreast of the latest strikes and technologies in the field of neurosciences by staying involved in research at our institution, with other university medical centers and through the Neurocritical Society Research Network.

CT Scan of cerebral blood flow (CBF)



Conditions treated:

- Massive stroke
- Bleeding in or around the brain (Subarachnoid, Intracerebral, Subdural and Intraventricular Hemorrhages)
- Brain tumors
- Brain and spine trauma
- Status epilepticus
- Nerve and muscle diseases (myasthenia gravis, Guillain-Barre Syndrome)
- Spinal cord disorders
- Cardiopulmonary complications of brain injury
- Post cardiac arrest management
- Infections of the brain and spine
- Other neurological illness in the intensive care unit

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Stereotactic Radiosurgery

Our Neurosciences Institute and Cancer Institute collaborate in the delivery of stereotactic radiosurgery (SRS) and stereotactic body radiation therapy (SBRT). A multidisciplinary staff, including specialists from the fields of radiation oncology, neurosurgery, medical oncology, radiology, neuropsychology, medical physics, and other health care specialists work together to provide individualized treatment. As the referring physician, you are considered a part of this team, and will be updated and consulted throughout the duration of treatment.

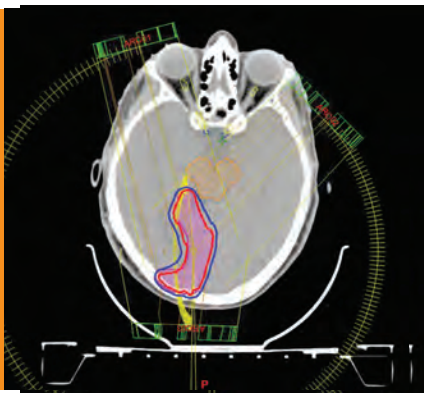
Our team utilizes the TrueBeam™ STx linear accelerator, state-of-the-art technology that applies radiation in a way that conforms to the shape of a tumor. This approach precisely targets cancer cells with pinpoint accuracy while sparing healthy surrounding tissue.

The TrueBeam™ STx system delivers radiation up to 4 times faster than other systems, reducing treatment times to just under 10 minutes. Faster treatment time and frameless delivery enhance overall patient comfort.

Sub-millimeter accuracy is made possible by a sophisticated control system, which choreographs imaging, patient positioning, motion management, beam shaping and dose delivery.

A multidisciplinary Tumor Board meets weekly to review all current cases and past cases that have new imaging results.

Treatment planning with the TrueBeam™ STx System



Conditions treated:

- Primary brain tumor
- Brain metastases from breast, lung, prostate, melanoma, gynecologic and renal cancers
- Glioma
- Glioblastoma
- Meningioma
- Pituitary tumor
- Acoustic neuroma
- Spinal tumor
- Trigeminal neuralgia
- Arteriovenous malformation

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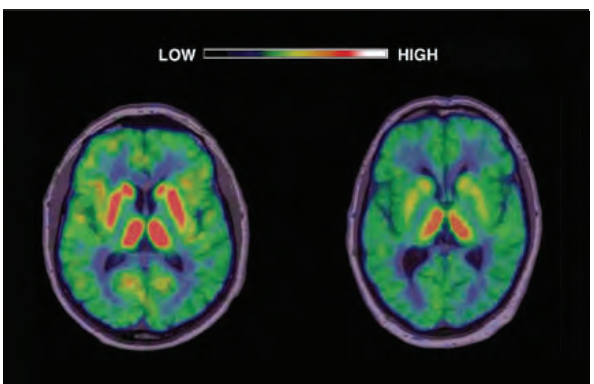
Deep Brain Stimulation Therapy

Deep Brain Stimulation (DBS) is one of the latest surgical procedures for treating a variety of disabling neurological symptoms associated with Parkinson's Disease and other common neurological movement disorders. The procedure is used only for patients whose symptoms cannot be controlled with medications.

DBS works by delivering electrical stimulation to targeted areas of the brain that control movement, thereby blocking abnormal nerve signals that cause Parkinson's Disease symptoms. DBS changes brain behavior in a controlled manner and is reversible. DBS does not destroy the nerve cells so it leaves healthy brain tissue intact.

With DBS, a neurosurgeon will use MRI or CT scanning to pinpoint the exact location in the brain where nerve signals are creating the symptoms. A small device that delivers controlled electrical stimulation, called a neurostimulator, is surgically implanted near the clavicle. The neurostimulator sends electrical pulses through two leads that are placed in the brain. The implanted system is then programmed to customize therapy for the patient. Over time, patient settings are adjusted as their symptoms change. A portable programming device lets patients adjust their settings within the limits set by their treatment team.

Studies have shown that with DBS, many patients have reported an improvement in quality of life, a reduction in dyskinesia and psychological symptoms, and are able to lower their medications doses.



Dopamine activity in a normal brain (left) and a brain with Parkinson's Disease (right)

Conditions treated:

- Parkinson's Disease
- Tremor
- Dystonia

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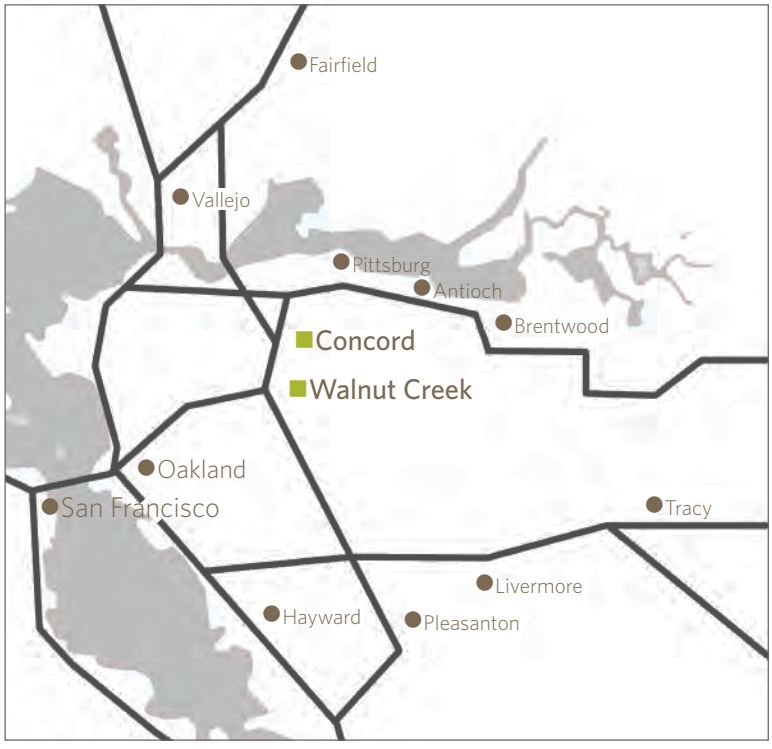
About John Muir Health

John Muir Health is a nationally recognized, not-for-profit health care organization east of San Francisco serving patients in Contra Costa, eastern Alameda and southern Solano Counties. It includes a network of more than 1,000 primary care and specialty physicians, more than 6,000 employees, medical centers in Concord and Walnut Creek, including Contra Costa County's only trauma center, and a Behavioral Health Center. John Muir Health also has partnerships with UCSF Health, Tenet Healthcare/San Ramon Regional Medical Center and Stanford Children's Health. The health system offers a full-range of medical services, including primary care, outpatient and imaging services, and is widely recognized as a leader in many specialties – neurosciences, orthopedic, cancer, cardiovascular, trauma, emergency, pediatrics and high-risk obstetrics care.

For more information, visit johnmuirhealth.com.



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