

## Telephone Numbers (Area Code 314)

<b>Washington University School of Medicine</b> . . . . .	<b>362-5000</b>
660 S. Euclid Ave., St. Louis, MO 63110-1010 medicine.wustl.edu	
<b>Admissions, Medical Student</b> . . . . .	<b>362-6858</b>
Fax: 362-4658 Email: wumscoa@wustl.edu	
<b>Alumni and Development</b> . . . . .	<b>935-9690</b>
<b>Alvin J. Siteman Cancer Center</b> . . . . .	<b>747-7222</b>
siteman.wustl.edu (800) 600-3606	
<b>Continuing Medical Education</b> . . . . .	<b>362-6891</b>
<b>Dean's Office</b> . . . . .	<b>362-6827</b>
<b>Doctors' Access Line</b> . . . . .	<b>(800) 252-DOCS (252-3627)</b>
(24-hour access for referring physicians)	
<b>EPNEC (Eric P. Newman Education Center)</b> . . . . .	<b>747-6338</b>
320 S. Euclid Ave., St. Louis, MO 63110-1024	
<b>Financial Aid, Medical Student</b> . . . . .	<b>362-6845</b>
Fax: 362-3045 (888) 840-3239 Email: money@wustl.edu	
<b>Human Resources</b> . . . . .	<b>362-7196</b>
jobs.wustl.edu	
<b>Physician Referral (for patients)</b>	
<b>Adult</b> . . . . .	<b>TOP-DOCS (867-3627)</b>
<b>Pediatrics</b> . . . . .	<b>454-KIDS (454-5437)</b>
WUPhysicians.wustl.edu	
<b>Protective Services</b> . . . . .	<b>362-HELP (362-4357)</b>
<b>Public Affairs and Media Relations</b> . . . . .	<b>286-0100</b>
<b>Barnes-Jewish Hospital</b> . . . . .	<b>747-3000</b>
One Barnes-Jewish Hospital Plaza, St. Louis, MO 63110-1003 BarnesJewish.org	
<b>St. Louis Children's Hospital</b> . . . . .	<b>454-6000</b>
One Children's Place, St. Louis, MO 63110-1002 StLouisChildrens.org	
<b>BJC HealthCare</b> . . . . .	<b>286-2000</b>

Washington University encourages and gives full consideration to all applicants for admission, financial aid and employment. The university does not discriminate in access to, or treatment or employment in, its programs and activities on the basis of race, color, age, religion, sex, sexual orientation, gender identity or expression, national origin, veteran status, disability or genetic information. Inquiries about compliance should be addressed to the university's Vice Chancellor for Human Resources, Washington University, Campus Box 1184, One Brookings Drive, St. Louis, MO 63130. The School of Medicine is committed to recruiting, enrolling and educating a diverse student body.

 **Washington University in St. Louis**  
SCHOOL OF MEDICINE

Office of Medical Public Affairs  
Campus Box 8508, 4444 Forest Park Ave.  
St. Louis, MO 63108-2212  
(314) 286-0100 Fax: (314) 286-0199

*COVER: Medical student Philip Perez with Quintin Porter.*

Washington University School of Medicine

# FACTS

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## 2013



 **Washington**  
University in St. Louis  
SCHOOL OF MEDICINE

## Introduction

The School of Medicine has a rich, 122-year history of success in research, education and patient care. It pioneered bedside teaching and led in the transformation of empirical knowledge into scientific medicine. From the earliest days, there has been an understanding that “investigation and practice are one in spirit, method and object.”

The School of Medicine selects applicants who, in addition to possessing keen minds, demonstrate an ability to perceive and serve their patients’ best interests. An outstanding education from Washington University School of Medicine provides graduates with solid opportunities for highly sought-after residencies and fellowships, engaging and challenging research endeavors, and successful, rewarding careers in medicine, allied health and public health.



*The White Coat Ceremony for new medical students.*

## WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

- Founded: **1891**
- Executive Vice Chancellor for Medical Affairs, Dean and President of Washington University Medical Center: **Larry J. Shapiro, MD**
- Total Students: **1,364**
  - MD, MD/PhD, MA/MD: **598**
  - Audiology and Communication Sciences: **72**
  - Clinical Investigation: **104**
  - Genetic Epidemiology: **29**
  - Occupational Therapy: **274**
  - Physical Therapy: **274**
  - Population Health Sciences: **13**
- Faculty: **1,968**
- Non-faculty Assistants and Others: **174**
- Staff: **6,708**
- Total Employees: **8,850**
- Affiliated Private Practice Faculty: **1,349**
- Fellows and Trainees: **883**
- House Staff: **1,110**
- Tuition, MD (2012–13 academic year): **\$52,020**  
(first year; includes student health service, hospitalization and disability insurance, and microscope lending plan)
- Revenue (in billions, FY 2012): **\$1.6**

## In Brief

## Departments and Department Heads

Anatomy and Neurobiology, *Azad Bonni, MD, PhD*  
Anesthesiology, *Alex S. Evers, MD*  
Biochemistry and Molecular Biophysics, *John A. Cooper, MD, PhD (interim)*  
Cell Biology and Physiology, *Robert Mecham, PhD (interim)*  
Edward Mallinckrodt Dept. of Developmental Biology, *Lilianna Solnica-Krezel, PhD*  
James S. McDonnell Dept. of Genetics, *Jeffrey D. Milbrandt, MD, PhD*  
John T. Milliken Dept. of Medicine, *Victoria J. Fraser, MD*  
Molecular Microbiology, *Stephen M. Beverley, PhD*  
Neurological Surgery, *Ralph G. Dacey Jr., MD*  
Neurology, *David M. Holtzman, MD*  
Obstetrics and Gynecology, *George A. Macones, MD, MSCE*  
Ophthalmology and Visual Sciences, *Michael A. Kass, MD*  
Orthopaedic Surgery, *Richard H. Gelberman, MD*  
Otolaryngology, *Richard A. Chole, MD, PhD*  
Pathology and Immunology, *Herbert W. “Skip” Virgin, MD, PhD*  
Edward Mallinckrodt Dept. of Pediatrics, *Alan L. Schwartz, PhD, MD*  
Psychiatry, *Charles F. Zorumski, MD*  
Radiation Oncology, *Dennis E. Hallahan, MD*  
Mallinckrodt Institute of Radiology, *R. Gilbert Jost, MD*  
Mary Culver Dept. of Surgery, *Timothy J. Eberlein, MD*

## Degree Programs

- Doctor of Audiology
- Doctor of Medicine, four-year
- Doctor of Medicine, five-year
- Doctor of Medicine/Master of Arts joint program
- Doctor of Medicine/Doctor of Philosophy joint program (Medical Scientist Training Program)
- Doctor of Occupational Therapy
- Doctor of Physical Therapy
- Master of Population Health Sciences
- Master of Public Health, through *George Warren Brown School of Social Work at Washington University*
- Master of Science in Biostatistics
- Master of Science in Clinical Investigation
- Master of Science in Deaf Education
- Master of Science in Genetic Epidemiology
- Master of Science in Occupational Therapy



*The Bernard Becker Medical Library serves as an information hub for the School of Medicine and Washington University Medical Center.*

## History

In 1891, responding to a national concern for improving doctors' training, the Washington University administration established a medical department. In 1909, Robert Brookings, a successful businessman turned philanthropist, set about transforming the department into a modern medical school with full-time faculty, adequate endowment, modern laboratories and associated teaching hospitals.

Brookings' dream of modern excellence centered on creating an outstanding faculty for teaching, research and patient care. Among the first four department heads recruited in 1910 was Joseph Erlanger, who went on to win the 1944 Nobel Prize in Physiology or Medicine.

In 1919, Everts Graham was appointed the first full-time head of surgery. Fourteen years later, he performed the first successful lung removal. In 1910, George Dock established a tradition of distinguished clinical research in the Department of Medicine. Carl and Gerty Cori arrived at the School of Medicine in 1931 to join the Department of Pharmacology. In 1947, they won the Nobel Prize in Physiology or Medicine for research on the catalytic conversion of glycogen. Six other Nobelists received training under their auspices.

Women first gained admission to the student body in 1918; today, they make up half of each incoming class. African-American graduates of the medical school now number more than 300. Scholarship support for all students, including special fellowships for those entering the Medical Scientist Training Program, is a high priority.

The transmission of excellence from one generation to the next is a hallmark of this School. Dean Robert Moore's 1951 comment remains true today: "An institution is only as great as the individual men and women who compose it."

## Faculty

### Outstanding faculty achievements:

- 17 Nobel laureates have been associated with the School of Medicine.
- 13 faculty members are fellows of the prestigious National Academy of Sciences; 20 faculty members belong to its Institute of Medicine.
- 97 faculty members hold individual and/or institutional career development awards from the National Institutes of Health (NIH) (including direct-pay and pass-through awards).
- 51 faculty members hold career development awards from non-federal agencies.
- 13 faculty members have MERIT status, a special recognition given by the NIH that provides long-term, uninterrupted financial support to investigators.
- 4 faculty members are Howard Hughes Medical Institute investigators.

## Students

### First-Year Class

The School of Medicine received 4,337 applications for admission to the 2012–13 first-year class. The School enrolled 124 students, resulting in more than 35 applicants per position.

### Graduates

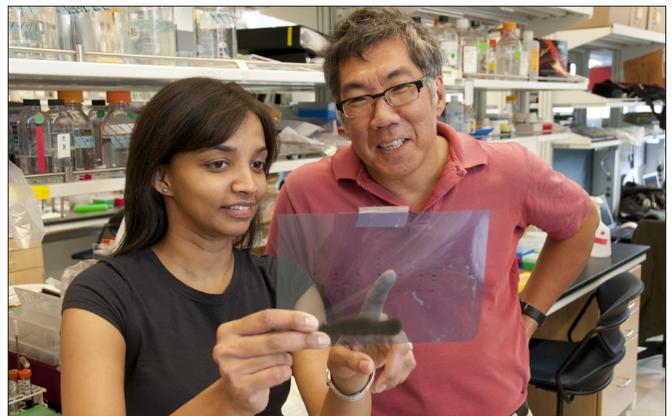
The School conferred the MD degree on 95 individuals in 2012. In addition, three students earned the MD/MSCI degrees, four students earned the MD/MA degrees and 25 students earned MD/PhD degrees.

Graduating seniors are highly successful in obtaining competitive residency training positions through national matching programs. Thirty-four percent of the graduating class of 2013 selected a primary care field (pediatrics, internal medicine or family medicine) for residency training; 24 percent matched into highly competitive specialty fields such as dermatology, neurosurgery, orthopaedic surgery, otolaryngology, plastic surgery, general surgery, urology and ophthalmology.

### Degree Programs

Washington University School of Medicine offers several programs and combined medical degree programs: a regular four-year MD program, a five-year MD program, the combined MD/MA program, the combined MD/MSCI program and the combined MD/PhD program. MD students may also elect to complete the MPHS degree while enrolled in the MD program, which extends the course of study one year.

The MD/PhD degree program, known as the Medical Scientist Training Program (MSTP), is the largest in the country. It is designed for students interested in academic careers at major medical schools and research institutions.



*Andrey Shaw, MD, Howard Hughes Medical Institute investigator, right, and graduate student Shuba Srivatsan review data.*

## Community Service

School of Medicine students participate in student organizations such as the American Medical Student Association, the American Medical Women's Association and the Student National Medical Association. Highlights of other activities:

- Health Outreach Program works to improve health outcomes among the underserved. Areas of active work include screenings, patient navigation and nutrition.
- The Student-Organized Clinics, established by medical students and staffed by students and faculty, provide free medical care to needy people in the St. Louis community.
- Students Teaching AIDS to Students puts medical students in junior high schools to teach AIDS awareness.
- Community CPR teaches regular classes at public schools, churches, shelters and community education centers.
- The Young Scientist Program promotes science and careers in science to high school students from disadvantaged backgrounds.

## Graduate Medical Education Consortium

Washington University School of Medicine, with Barnes-Jewish Hospital and St. Louis Children's Hospital, sponsors a consortium for graduate medical education. The group has 85 training programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) and approximately 40 non-accredited specialties that continue the institutions' long histories of successfully training outstanding residents and clinical fellows. The GME Consortium and all of its sponsored training programs are in good standing with the ACGME and are fully committed to providing a quality educational experience to the residents and clinical fellows training in these programs. To learn more, visit the group's website at [gme.wustl.edu](http://gme.wustl.edu).

## Gifts and Grants

Grants and contracts totaling more than \$536.6 million supported faculty research efforts at the School of Medicine during the fiscal year ending June 30, 2012. Substantial additional support was provided directly to faculty investigators by the Howard Hughes Medical Institute. Gifts and grants from 11,184 private sources, including alumni, individuals, foundations, corporations and other organizations, totaled \$137.4 million.

During the Washington University fiscal year ending June 30, 2012, the School of Medicine received \$375.8 million from the National Institutes of Health (NIH), coming in 686 separate grants.

## Research Highlights

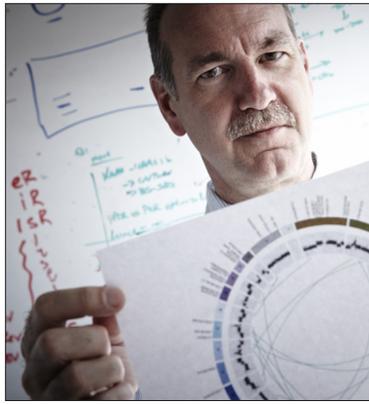
The many firsts at the School of Medicine include:

- Served as a major contributor of genome sequence data to the Human Genome Project, providing the foundation for personalized medicine.
- Developed a genetic test that detects whether an individual will develop a form of thyroid cancer and would benefit from thyroid removal — the first surgical prevention of cancer based on genetic test results.
- Developed screening tests used worldwide to diagnose Alzheimer's disease.
- Created the first positron emission tomography (PET) scanner, a device that images the brain at work.
- Helped pioneer the use of insulin to treat diabetes.
- Proposed the now-common practice of taking aspirin to help prevent heart attacks.
- Performed the world's first nerve transplant using nerve tissue from a cadaver donor.
- Developed a blood test that quickly and safely identifies whether a patient needs invasive treatment for a heart attack.
- Decoded the entire genome of a cancer patient and used the results to alter the course of treatment, which put the cancer into remission.
- Demonstrated that severely malnourished children given antibiotics along with a therapeutic peanut-butter based food are far more likely to recover and survive than children who only receive the therapeutic food.

### Ongoing research includes:

- Participating in the National Children's Study, the largest U.S. study of child and human health ever conducted.
- Seeking new ways to diagnose and treat stroke as part of a national network of state-of-the-art stroke treatment centers.
- Decoding the genomes of thousands of cancer patients and their tumors to understand the genetic roots of the disease and to find better treatments.
- Leading an international research collaboration to study inherited forms of Alzheimer's disease and one of the first clinical trials to evaluate whether the disease can be prevented before memory loss and dementia develop.
- Developing and using nanoparticles for molecular imaging and targeted drug delivery for cancer and heart, lung and vascular diseases.
- Mapping the major circuits in the human brain to understand normal brain function and connectivity errors involved in alcoholism, autism and schizophrenia.
- Exploring the links that connect obesity and malnutrition to the community of microbes that live in the gut.
- Searching for clues in the brain and spinal cord to help physicians diagnose Alzheimer's disease before symptoms develop.

- Leading research, teaching and community engagement to improve population health through Washington University's Institute for Public Health.
- Investigating changes to the brain in soldiers exposed to roadside bomb blasts and athletes who have suffered repeated concussions to understand their long-term mental and physical consequences.
- Exploring the genetic influences at play in alcohol, smoking and drug addiction.
- Leading research to improve care for heart failure and cardiovascular disease, including clinical trials to evaluate mechanical assist devices and studies to look at the link between diabetes and aggressive heart disease.



*Richard Wilson, PhD, is Director of the The Genome Institute at Washington University School of Medicine, one of only three NIH-funded, large-scale sequencing centers in the U.S.*

## Alumni

Medical and Graduate Medical: 8,570  
 Former House Staff: 7,548  
 Health Administration Program (1946-2008): 1,320  
 Program in Occupational Therapy: 2,102  
 Program in Physical Therapy: 2,367  
 Nursing Program (1905-69): 901

To complement the aims of the School of Medicine, the Washington University Medical Center Alumni Association sponsors various programs for MD alumni, former house staff and current students:

- The Distinguished Alumni Scholarship Program provides four-year, full-tuition scholarships to four incoming medical students each year. The scholarships are named after alumni who have distinguished themselves as Washington University faculty. Created in 1989, this program has provided scholarships for 98 medical students to date.
- Members of the William Greenleaf Eliot Society and other annual donors contribute funds aimed at endowing a chair in each department in the School of Medicine through the Alumni Endowed Professorship Program. Nine have been established.
- The WUMC Alumni Association provides funds to support student community-service projects, transition-to-residency loans to students, academic societies (faculty and students), primary care preceptorships and other student-related initiatives.



*Victoria Fraser, MD, is head of the John T. Milliken Department of Medicine, the largest department in the School of Medicine.*

## The Division of Biology and Biomedical Sciences

Organized in 1973, the Division of Biology and Biomedical Sciences (DBBS) is a graduate educational consortium of faculty affiliated with 37 basic science and clinical departments in the School of Medicine, the School of Engineering and the College of Arts & Sciences. DBBS programs are designed to provide a broad, collaborative, interdisciplinary approach to graduate education, emphasizing investigation into many of today's most important biological questions.

Graduate study in the DBBS is highly individualized and focuses on the needs and interests of students, each of whom is free to choose a mentor for laboratory and dissertation research from more than 450 faculty members in the division.

Currently, 655 students are enrolled in the DBBS, 194 of whom are pursuing a combined MD/PhD degree under the auspices of the Medical Scientist Training Program. Nearly 85 percent of MSTP graduates who have completed their residencies are actively involved in research programs at leading institutions.

## Washington University Medical Center

Washington University School of Medicine, Barnes-Jewish Hospital, St. Louis Children's Hospital and the Alvin J. Siteman Cancer Center are all located on the Washington University Medical Center campus.

The medical center generates an annual economic impact of nearly \$4.9 billion for the St. Louis area, according to an economic model maintained by the St. Louis Regional Chamber. With more than 21,000 employees, the combined medical center institutions are among the largest employers in the metropolitan area.

The 164-acre Washington University Medical Center, spread over portions of 17 city blocks, is located along the eastern edge of Forest Park in St. Louis, in a vibrant urban community known as the Central West End. At the western boundary of the park is the 169-acre Danforth Campus of Washington University in St. Louis.

## Facilities

Facilities that have opened recently include:

- Siteman Cancer Center at South County (2013)
- Alzheimer's Disease Research Center (ADRC) (2013)
- Data Center for Research Computing (2012)
- Barnes-Jewish Center for Outpatient Health (2012)
- The BJC Institute of Health at Washington University School of Medicine (2010)

The 680,000 square-foot BJC Institute of Health at Washington University School of Medicine, located at Euclid Avenue and Children's Place, is an 11-story research building housing laboratories and support facilities for BioMed 21, Washington University's research initiative to rapidly translate basic research findings into advances in medical treatment. The top five floors are wet labs to support multidisciplinary research centers associated with BioMed 21 along with lab space for the departments of Pathology and Immunology, Obstetrics and Gynecology, and Orthopaedic Surgery and the divisions of Pediatric Surgery and Bone and Mineral Health. Barnes-Jewish Hospital occupies the first five floors.

The Barnes-Jewish Center for Outpatient Health, located at Forest Park Avenue and Euclid Avenue, houses clinics from five sites around the medical center campus on three dedicated floors, including dermatology, neurology, obstetrics and gynecology, primary care, psychiatry, specialty care and surgical and wound care. The 12-story building is connected via an enclosed walkway to the Center for Advanced Medicine.

The School of Medicine has announced plans to construct an energy-efficient, multistory research building on McKinley Avenue just west of Taylor Avenue. Dedicated to interdisciplinary research on some of the most complex problems in human biology, the six-story building will eventually house 138,000 square feet of highly flexible, open laboratories. The building's target completion date is June 2015.

In the aggregate, the School of Medicine occupies more than 4.8 million gross square feet on campus. Research and instructional endeavors occupy more than 2.1 million gross square feet.



*Construction on the School of Medicine's new research building begins this summer with a June 2015 target date for completion.*

## Faculty Physicians

Washington University Physicians are full-time faculty at the School of Medicine. The clinical practice group — one of the five largest academic clinical practices in the nation — is made up of 1,242 university-employed physicians representing more than 76 specialties and subspecialties in medicine and surgery. Washington University Physicians provide comprehensive care at more than 49 clinical sites in St. Louis and surrounding counties. In fiscal year 2012, they provided care at 941,849 outpatient visits.



*Mario Castro, MD, professor of medicine and of pediatrics, provides care for patients with asthma, lung cancer and pulmonary disease.*

## WASHINGTON UNIVERSITY MEDICAL CENTER

Washington University Medical Center Institutions:

- Alvin J. Siteman Cancer Center
- Barnes-Jewish Hospital
- The Rehabilitation Institute of St. Louis
- St. Louis Children's Hospital
- Washington University School of Medicine

• Beds: **1,573**

• Employees: **21,600** (approximate for all medical center institutions)

## WASHINGTON UNIVERSITY PHYSICIANS

CLINICAL ACTIVITIES (2012)

- Physician Outpatient Visits: **941,849**
- Hospital Admissions (BJH/SLCH): **67,779**
- Patient Services Revenue (WUSM): **\$747 million**

# In Brief

## Hospitals/Affiliates

**Barnes-Jewish Hospital**, licensed for 1,315 beds, is the largest hospital in Missouri. With a premier reputation in patient care, medical education and community service, the hospital has been ranked among an elite group of the nation's best academic hospitals on the *U.S. News & World Report* Honor Roll since 1993. In 2003 it was the first adult hospital in Missouri to receive Magnet status, nursing's highest honor for clinical excellence, and was given Magnet status again in 2008. Barnes-Jewish Hospital provides clinical experience for medical students in all clinical departments except pediatrics. The medical staff is composed exclusively of Washington University full-time or voluntary School of Medicine faculty physicians.

**St. Louis Children's Hospital**, also staffed exclusively by Washington University faculty physicians, is on the *U.S. News & World Report* Roll of America's

Best Children's Hospitals. The hospital provides a full range of medical services for children and their families across a 300-mile service area and beyond. The school's comprehensive pediatric specialty services at Children's Hospital include one of the country's top pediatric transplant programs and the region's only American College of Surgeons (ACS) verified Pediatric Level 1 Trauma Center. St. Louis Children's Hospital provides extensive community outreach services, including a Critical Care Transport Team, mobile health care units, affiliations with regional hospitals and physicians, support groups and a free child health information line staffed by pediatric registered nurses.

**Barnes-Jewish West County Hospital** is an 84-bed facility with a medical staff of more than 740 physicians, offering a model that is a mix of Washington University, BJC Medical Group and private-practice physicians; its Washington University physicians number 481. The Alvin J. Siteman Cancer Center has an outpatient center on the campus with more treatment space and a linear accelerator for advanced radiation therapy. Washington University-employed faculty physicians now staff the emergency room and hospitalist service at Barnes-Jewish West County Hospital and provide pediatric outpatient services there in association with St. Louis Children's Hospital.

**The Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine** is composed of the combined cancer-related programs of Washington University School of Medicine and Barnes-Jewish Hospital. Siteman is an

international leader in cancer treatment, research, prevention, education and community outreach. It is the only cancer center in Missouri to hold the prestigious Comprehensive Cancer Center designation from the National Cancer Institute and membership in the National Comprehensive Cancer Network. Siteman offers the expertise of more than 350 Washington University research scientists and physicians who provide care for about 8,000 newly diagnosed cancer patients each year. These scientists and physicians hold about \$160 million in cancer research and related training grants. At any time, Siteman has more than 240 therapeutic clinical trials under way. In addition to its main facilities at Washington University Medical Center in St. Louis' Central West



*Colorful characters welcome visitors to St. Louis Children's Hospital.*



*To improve the convenience of mammography, the Alvin J. Siteman Cancer Center operates a mobile mammography van that offers screenings by appointment in the St. Louis area.*

End, Siteman has satellite facilities at Barnes-Jewish West County Hospital in west St. Louis County, at Barnes-Jewish St. Peters Hospital in St. Charles County, and in south St. Louis County.

Created in 2001 through a partnership between BJC HealthCare and HealthSouth and an affiliation with Washington University School of Medicine, **The Rehabilitation Institute of St. Louis** is a state-of-the-art, 96-bed rehabilitation hospital. As the first freestanding acute rehabilitation hospital in the St. Louis area, it is a leader in rehabilitative care, research, education and community service. It provides a full range of inpatient, outpatient and community rehabilitation services focused on limiting disability and restoring function to patients.

Washington University faculty physicians provide some limited specialty services at other area hospitals: Christian Hospital, Missouri Baptist Medical Center, Shriners Hospital for Children, Progress West HealthCare Center, Veterans Administration Medical Center, Phelps County Regional Medical Center (Rolla, Mo.) and Parkland Health Centers (Bonne Terre, Mo., and Farmington, Mo.).