

## Minnesota's Medical School in 2007

The University of Minnesota Medical School is a large, complex institution. As the state's only public medical school, the University of Minnesota Medical School bears a responsibility to serve the people of Minnesota. The Medical School faculty also are major contributors to the aim of this University to join the top ranks of public research universities. The school has both a four-year campus in the Twin Cities and a two-year campus in Duluth, a budget of more than \$650 million, and a statewide reach. Surveys show that the Minnesota public considers this a "world-class" medical school. Its high status is reinforced by the Medical School's ability to recruit increasingly talented students, attract and retain internationally renowned scientists, and provide top-quality care to patients from Minnesota and beyond. Capturing the entire scope of this Medical School is not possible within this brief description. We will touch on its variety of students, its organization and faculty, major components of its research enterprise, ongoing transformation of medical education, commitment to clinical care, and the collaborations, networks, and relationships that connect the Medical School with so many other enterprises, communities, and people.

### Students and admissions

The Assistant Dean for Admissions Paul White, J.D., was recruited from John Hopkins University Medical School in summer 2006. Applications for the class admitted in August 2007 increased 22 percent over the previous year (national average, on the other hand, increased less than 8 percent) and 10 percent more students were admitted (58 on the Duluth campus and 183 on the Twin Cities campus). Applications are already up this year over last year. A faculty task force has revised the admissions requirements for the Medical School, with more emphasis on our expectations for the self-directed type of student we wish to admit and less on the particular course expectations. These will go into effect for the class that enters in fall 2009.

While they do coordinate with White and the admissions staff, the Duluth campus has a separate admissions process. This is primarily because the Duluth campus mission is to recruit future physicians interested in primary care who wish to serve in rural communities and American Indian medical students.

Our entering class this year was composed primarily of Minnesotans, although some of them left the state to pursue bachelor's degrees before returning to our Medical School. Of the 183 Twin Cities matriculants, 150 are Minnesota residents representing 21 counties throughout the state. The 58 Duluth campus matriculants include 53 Minnesota residents. Our students in the Twin Cities are above the national norm for overall GPA and MCAT Mean Scores:

	Twin Cities	Duluth	National
GPA	3.71	3.62	3.65
MCAT Verbal	10.46	9.45	9.81
MCAT Physical Sciences	10.69	9.09	10.12
MCAT Biological Sciences	11.10	9.66	10.49

The Medical School is committed to admitting a diverse student body. The school continues to invest in pipeline programs to recruit future physicians from ethnic and socio-economic groups who are underrepresented in medicine. Our Office of Minority Affairs and Diversity has offered a short course called the Empowering Seminar for eight years. Twelve from the seminar currently are enrolled in our Medical School and eight alumni already have earned M.D.'s. Our Medical School ranks second in the nation in graduating American Indian doctors, primarily because of the support provided by the Center for American Indian and Minority Health. In summer 2007, the school launched Minnesota's Future Doctors, a joint program with the Mayo Medical School, to give college students from around the state preparation for a career in medicine. Our 2007 entering class includes 49 multicultural students, of whom 27 are underrepresented minorities including 11 American Indian students.

In addition, up to 40 third-year medical students experience rural medicine for nine-month rotations through the Rural Physician Associate Program. This 31-year-old program has 575 alumni practicing in Minnesota, 361 of whom serve rural Minnesota communities.

### **Organization**

In 2004, the Medical School was accredited as a single school with two campuses in the Twin Cities and in Duluth. The Twin Cities campus houses the main administrative offices of the Medical School (see organizational chart). The Twin Cities campus has 25 departments: 6 basic science departments, and 19 clinical departments (see chart). In addition, there are 11 centers and institutes within the Medical School. The departments, centers, and institutes are responsible for the Medical School mission areas of education, research, clinical care and service (to community, state, and nation).

The Duluth campus is led by Senior Associate Dean Gary Davis, appointed in 2007, and has five departments (Anatomy, Microbiology, and Pathology; Behavioral Sciences; Biochemistry and Molecular Biology; Family Medicine and Community Health—Duluth; and, Physiology and Pharmacology). Clinical faculty on the Duluth campus are appointed in the Medical School clinical departments. Family Medicine has a large presence on the Duluth campus and has a chair who reports to the Family Medicine department head in the Twin Cities. The Duluth campus students may do some clinical rotations in Duluth hospitals and others in the Twin Cities.

### **Faculty**

There are 875 full-time faculty in the Medical School: 500 in tenure-track lines, 226 in clinical scholar tracks, and 149 who hold other types of faculty appointments. In addition, there are 618 faculty involved in education and research at our affiliated teaching hospitals, including Children's Hospitals and Clinics, Hennepin County Medical Center, Regions Hospital, and Veterans Affairs Medical Center. Students also are taught by 2,076 preceptor faculty at practice sites throughout Minnesota.

All full-time clinical faculty practice their specialties of medicine as part of the University of Minnesota Physicians (UMP). This faculty practice plan is governed by a 26-person Board of Directors that includes faculty and community members. Each clinical department is a separate clinical service unit (CSU) within the practice plan. The clinical departments are clustered into six administrative centers.

The Administrative Center directors report to the Associate Dean of Finance and Administration, to the department heads within their center, and to the Chief Medical Officer of UMP. They are responsible for the administrative support of all the functions in their departments, including clinical and research activities, budgets, graduate medical education, space management, and human resources.

The Duluth campus currently has 40 full-time faculty, with the following distribution: 15 professors with tenure, 13 associate professors with tenure, 5 assistant professors, and 7 contract faculty. Two faculty searches are either underway (1) or beginning (1). There are approximately 110 medical students in the two-year program with, on average, 15-20 students taking clinical rotations or electives in the local hospitals.

The Office of Faculty Affairs, staffed by an associate dean for Faculty Affairs, an assistant dean for Faculty Development (part-time), and an administrative assistant, is responsible for faculty promotion and tenure, faculty programs and faculty development, including mentoring, performance reviews, and grievances. The Faculty Advisory Council (40 elected faculty) meets monthly with the dean and the associate dean and is the faculty governance committee of the Medical School.

### **Research enterprise**

The research budget of the Medical School was \$179,446,000 in 2006. The largest proportion of the research dollars comes from the National Institutes of Health (\$140,249,959 in 2006). Based on NIH reported grant totals in 2006, the Medical School ranked 27th in NIH research dollars among 126 U.S. medical schools. The Medical School generates more than one-third of the total research funding for the University of Minnesota. The Medical School has identified five areas of research focus: cancer; cardiovascular and pulmonary diseases; diabetes; infectious disease and immunology; and neurosciences. In addition, the school has identified three areas of cross disciplinary focus: stem cell biology, imaging, and genetics/genomics.

The Center for Magnetic Resonance Research (CMRR) is a world leader in high-resolution functional magnetic resonance imaging in animals and humans and in nuclear magnetic resonance spectroscopy. CMRR Director Kamil Ugurbil, Ph.D., was elected to membership in the prestigious National Academy of Science's Institute of Medicine this year.

The Center for Immunology and the transplant programs in the Departments of Surgery, Medicine, and Pediatrics have made the Medical School an international and national leader in blood, bone marrow, and organ transplantation. The Stem Cell Institute was the first of its kind in this country and its new Director Jonathan Slack, Ph.D., has just been

recruited from Bath, England. Dan Garry, M.D., Ph.D., a physician-scientist and graduate of the University of Minnesota Medical School, recently was recruited back to the Medical School as head of the Division of Cardiology and director of the Lillehei Heart Institute. He will build on the pioneering cardiovascular research of Dr. C. Walton Lillehei.

The Duluth campus recently established a new Research Institute where faculty from the Medical School, College of Pharmacy, and UMD campus can interact around targeted research programs. The institute will serve as a means to build faculty research strength in specific areas (cancer, neuroscience), build shared resources, and link to research programs in the Twin Cities.

In addition to the Medical School's centers and institutes, our faculty represent the majority of researchers in the University of Minnesota Cancer Center, the AHC Center for Translational Medicine, and University-wide Institute for Translational Neuroscience.

### **Education**

Medical School faculty teach undergraduate courses, graduate students and health professional students, including all three phases of physician education: undergraduate medical education (leading to the M.D.), graduate medical education (often called residency), and continuing medical education (for practitioners). Medical School basic science faculty teach in undergraduate courses in neuroscience, physiology, anatomy, biochemistry, and other sciences. The Medical School has six Ph.D. graduate programs—neuroscience; microbiology, immunology and cancer biology; molecular, cellular, developmental biology and genetics; biochemistry, molecular biology and biophysics; cellular and integrative physiology; and, pharmacology—with more than 370 graduate students enrolled. In addition, the Medical School NIH-funded M.D./Ph.D. program has 49 students (approximately 8-10 per year) enrolled in this dual-degree program to train physician-scientists.

The undergraduate medical education program leading to the M.D. degree has xx students enrolled on the two campuses. In May 2007, 226 students received the M.D. degree. The Medical School tuition and fees for students in the class of 2011 (starting in August 2007) was \$10,450 per semester for 11 semesters. This is the second highest public medical school tuition in the country. The average debt of students graduating in 2007 was \$141,000 compared with a national mean of \$ 129,810 (public medical schools).

Because of the high tuition and debt levels of our students, in 2004 the Medical School changed its tuition model. Currently tuition is set when a student enters medical school and is “capped” at that level. Tuition will not be increased once a student has enrolled. This tuition cap was combined with the Flexible M.D. program in 2005. The Flexible M.D. allows students to earn their M.D. degree in 3.5 to 6 years while paying one price (*i.e.*, a total of 11 semesters of tuition). This allows students the opportunity to expand their medical education with experiences such as international medical service, research, volunteer clinical activities, and so on. It has proved to be extremely popular with applicants.

In addition, the Medical School oversees 102 specialty residency and fellowship training programs for more than 900 residents and fellows through its Office of Graduate Medical Education. These young physicians work in all of the major affiliated hospitals as well as Family Medicine clinics throughout the Twin Cities. The medical campus in Duluth participates as one of three partners in the Duluth Family Medicine residency program, training 8 family medicine residents per year.

The Office of Continuing Medical Education (CME) sponsors 242 CME courses and grand rounds annually. CME is required for physicians' re-licensure and re-certification. The Office of CME was recently re-accredited by the ACCME.

In 2005, the Medical School began an ambitious and visionary program of transformation of traditional undergraduate medical education, MED 2010. This program will build on the concept of the Flexible M.D. to create an individualized, competency-defined educational path for each of our students. A large number of faculty have been working on defining competencies as well as new types of educational experiences for MED 2010. A modified e-portfolio will be used as an integral part of MED 2010 as well as new roles for faculty as advisors to small groups of students. We expect to pilot some parts of MED 2010 starting in 2009. In the same year, the Medical School's new admission guidelines and requirements will go into effect.

### **Clinical care**

Team-based and patient-centered care are the foci of quality improvements for faculty practice plan, University of Minnesota Physicians, and its primary hospital partners, University of Minnesota Medical Center, Fairview, and University of Minnesota Children's Hospital, Fairview. Our clinical care teams are known for their expertise in blood and marrow transplantation, solid organ transplantation, cancer treatments, and many other conditions requiring the most up-to-date knowledge and top levels of care to benefit desperately ill patients. Revenues from the faculty practice plan have increased each year since it was established and are essential to the medical school as these revenues support the clinical component of faculty salaries.

### **Impact of the Medical School**

Large numbers of Medical School faculty and students serve their communities, their disciplines, and national and institutional organizations. Along with Ugurbil, four other faculty members have been elected to the Institute of Medicine of the National Academy of Sciences, which provides independent analysis and advice on biomedical topics: Apostolos Georgopoulos, Ashley Haase, Deborah Powell, and Paul Quie. From the student-run homeless clinic in the Phillips neighborhood of South Minneapolis, to local and state agencies, to pitching in as members of the University's Medical Reserve Corps after Hurricane Katrina, to NIH study sections and advisory councils, to international organizations, our medical students and faculty commit their skills, knowledge, and time to improve health directly and indirectly. The Medical School is not only an important element of the University of Minnesota, it is an institution that impacts people and communities throughout Minnesota, the nation, and the world.

**Medical School Departments, Centers, and Institutes  
(Twin Cities Campus)**

Basic Science Departments

Biochemistry, Molecular Biology, Biophysics  
Genetics, Cell Biology and Developmental Biology  
Integrative Biology and Physiology  
Microbiology  
Neuroscience  
Pharmacology

Clinical Science Departments

Anesthesiology  
Dermatology  
Emergency Medicine  
Family Medicine and Community Health  
Laboratory Medicine and Pathology  
Medicine  
Neurology  
Neurosurgery  
Obstetrics, Gynecology, and Women's Health  
Ophthalmology  
Orthopaedic Surgery  
Otolaryngology  
Pediatrics  
Physical Medicine and Rehabilitation  
Psychiatry  
Radiology  
Surgery  
Therapeutic Radiology  
Urologic Surgery

Centers and Institutes

Beckman Center  
Center for Developmental Biology  
Center for Immunology  
Center for Lung Science and Health  
Center for Magnetic Resonance Research  
Clinical Outcomes Research Center  
Deborah E. Powell Center for Women's Health  
Institute for Engineering in Medicine (joint with IT)  
Institute for Human Genetics  
Lillehei Heart Institute  
Stem Cell Institute

**Medical School Departments, Centers, Institutes  
(Duluth Campus)**

Departments

Anatomy, Microbiology, and Pathology

Behavioral Sciences

Biochemistry and Molecular Biology

Family Medicine and Community Health Duluth (joint with the Twin Cities)

Physiology and Pharmacology

Centers and Institutes

Center for American Indian and Minority Health

Center for Rural Health Studies

Duluth Medical Research Institute

Whiteside Institute for Clinical Research

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UNIVERSITY OF MINNESOTA  
**Medical School Dean's Office**

