University of Minnesota Medical School
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Medical Education Program Highlights

Founded in 1888, the University of Minnesota Medical School (UMMS) is 1 of the 10 largest medical schools in the country—with 240 students per class across 2 campuses in the Twin Cities and Duluth. As a land-grant institution, we are dedicated to improving the health of the state’s citizens and beyond, educating its future physicians, and creating new knowledge through discovery. It is estimated that 70% of the state’s physician workforce is trained at UMMS, either in UME, GME, or both.

Mullan and colleagues defined a social mission score and ranked the nation’s 141 MD-granting medical schools using that score. In their 2010 publication, UMMS was 1 of only 2 schools in the country to rank in the top quartile for social mission, NIH funding, and primary care output. Our social mission ranking aligns with our UME vision: “A community, learning together, to prepare exceptional physicians to improve the health and well-being of Minnesota and beyond.” To achieve that vision, we have delineated 7 guiding principles:

- Build on diversity and inclusion
- Empower students
- Put patients first
- Standardize the outcomes, individualize the learning pathways
- Foster relationships
- Optimize the learning environment
- Provide evidence-based education

These guiding principles are the foundation for UME and are threaded through the following highlights:

- Individualized pathways with the opportunity to focus on rural health, research, earn a dual degree in our FLEX MD program, study abroad, or complete core clerkships in 1 of our 6 unique longitudinal integrated clerkships (LICs).
- We are 1 of 4 schools participating in Education for Pediatrics Across the Continuum. The program allows for competency-based, time-variable progression from medical school to pediatrics residency.
- In 2020, we move into the new Health Sciences Education Center. This state-of-the-art facility is designed to transform health education in Minnesota. The learning environment supports interprofessional education and active learning pedagogies, along with a focus on simulation and emerging technologies including VR/AR. Interprofessional student lounges and study and wellness spaces are also prominent features.

- Our regional campus in Duluth has a specific mission in educating physicians dedicated to family medicine to serve the needs of rural Minnesota and Native American communities and is a perennial leader in this area.
- We focus on student, staff, and faculty well-being: engaging our community through innovative programming and tools to incorporate well-being into daily practice.

Curriculum

Curriculum description

- Preclerkship years: This phase is organized into 2 academic years and offered in unique formats at the 2 campuses. Each campus provides students with a strong preclinical sequence that ensures essential foundational sciences are covered. Both campuses include additional specialized content areas shaped by the needs of the campus. Content spanning the preclerkship years includes rural medicine education and experiences as well as Essentials of Clinical Medicine and Foundations of Critical Thinking courses. Regional campus students transition to the Twin Cities campus for the final 2 years of clinical training.
- Year 3: Students select to complete their required foundational clerkships in a block or an LIC format during the third year. Students who choose block clerkships rotate in sequenced lanes and with a cohort of students through their required clerkships.
- Year 4: In this time frame, students complete 2 advanced required clerkships (emergency medicine and intensive care subinternship), 2 advanced selective clerkships, and at least 20 weeks of electives.

Curriculum changes since 2010

The curriculum has evolved over the last decade. Key changes are:

- Intentional integration of basic and clinical knowledge in the foundational science courses
- Greater emphasis on health system science, health policy, and population health
- Expansion of longitudinal clinical experiences, including 4 new LICs
- More individualization of clinical training in year 4 to enhance preparation for residency (advanced care selectives based on future specialty)
- “Return to school” weeks during the clinical phase of training in our new Becoming a Doctor course; this course includes health system science, medical socioeconomics, and pain management and offers an opportunity for students to propose workshop topics

See Table 1—Current Longitudinal Integrated Clerkships.

Class size changes since 2010

The class size was increased from 165 to 175 on the Twin Cities Campus, and from 60 to 65 on the Duluth regional campus.
The rationale was based on projections of future state workforce needs especially for rural and primary care providers and increased classroom and clinical training capacity.

**Assessment**

UMMS adopted the AAMC Physician Competency Reference Set (PCRS) as its educational program objectives, adding 2 competencies under a ninth domain, scientific and clinical inquiry. The PCRS is founded in the ACGME and American Board of Medical Specialties Outcome Project competencies, thus providing continuity for students as they head into residency and practice.

**Assessment changes since 2010**

Along with curricular changes, we have also created alignment and altered our assessment strategies in the following ways:

- Elimination of grades in the first 2 years moving to a pass/fail system
- Standardization of assessment based on common course objectives in the preclinical phase, including integration of competency-based testing with robust psychometric analysis
- Development of a framework for assessment for direct observation in the clinical phase, focusing on the Core Entrustable Professional Activities for Entering Residency
- Increased use of peer assessment of students
- Implementation of “Pulse Surveys” in 2018 for real-time tracking of burnout and satisfaction
- Development of the Medical Education Outcomes Center (MEOC) to centralize all educational data, make data-driven decisions, and link educational to clinical outcomes

**Parallel curriculum or tracks**

- We have 1 parallel track, comprising the Rural Physician Associate Program (RPAP)/Metropolitan Physician Associate Program (MetroPAP). These are 9-month, community-based LICs for third-year medical students. RPAP occurs in rural community training sites, and MetroPAP in medically underserved and diverse urban communities.
- A 3-year MD degree program does not exist at UMMS; however, we have the 7-year BA–MD Joint Admissions Scholars Program, providing an opportunity for exceptional Minnesota residents from broadly diverse backgrounds. Three years are spent taking undergraduate coursework and 4 years are spent at the medical school.

**Pedagogy**

The frequency that various instructional methods are employed during years 1 and 2, and years 3 and 4, is varied. A major focus has been to increase the amount of active learning in large-group settings.

See Supplemental Digital Appendix 1—Sessions Using AAMC Instructional Methods in Year 1 and 2 Required Courses—at http://links.lww.com/ACADMED/A878.


**Clinical experiences**

- Our inpatient clinical teaching sites at which medical students take 1 or more clinical clerkships include 14 hospitals in Minneapolis and St. Paul, 2 hospitals in Duluth, and 1 hospital in St. Cloud. For our RPAP program, 46 hospitals in Greater Minnesota are used. Multiple ambulatory clinical teaching sites are used, including hospital-associated clinics, community health centers, private physician offices, and rural clinics.
- The first clinical encounter for year 1 students on the Twin Cities campus occurs in the Process of Care clerkships where

### Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Program</th>
<th>Focus area(s)</th>
<th>Capacity</th>
<th>Setting</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>Rural Physician Associate Program (RPAP)</td>
<td>Primary care in rural Minnesota</td>
<td>36–45</td>
<td>Ambulatory and hospital settings in outstate towns with populations ≤30,000</td>
<td>9 months</td>
</tr>
<tr>
<td>2010</td>
<td>Metropolitan Physician Associate Program (MetroPAP)</td>
<td>Primary care for underserved in the Twin Cities</td>
<td>9</td>
<td>Ambulatory and hospital settings in Minneapolis</td>
<td>9 months</td>
</tr>
<tr>
<td>2013</td>
<td>Veterans Administration Longitudinal Undergraduate Medical Education (VALUE)</td>
<td>Patient safety and quality improvement; interprofessional education</td>
<td>10</td>
<td>Veterans Administration Medical Center</td>
<td>10 months</td>
</tr>
<tr>
<td>2013</td>
<td>Education in Pediatrics across the Continuum (EPAC)</td>
<td>Competency-based assessment and progression</td>
<td>4</td>
<td>Ambulatory and hospital settings in Minneapolis</td>
<td>9–12 months*</td>
</tr>
<tr>
<td>2017</td>
<td>Hennepin Longitudinal Clinical Experience (HeLX)</td>
<td>Physician advocacy, care of the underserved</td>
<td>6</td>
<td>Hennepin County Medical Center (HCMC)</td>
<td>9 months</td>
</tr>
<tr>
<td>2018</td>
<td>Regions Equitable and Affordable Community Health Program (REACH)</td>
<td>Population health and the social determinants of health; interprofessional education</td>
<td>6</td>
<td>Regions Hospital/HealthPartners</td>
<td>9 months</td>
</tr>
</tbody>
</table>

\*Advancement in EPAC is competency based and time variable, which accounts for the ranges in length of time.
*students have the opportunity to see patients in clinic, hospital,*
*and extended care settings. On the Duluth campus, the Rural*  
*Medical Scholars Program in the first year places students in*  
rural communities living and working with medical preceptors in a clinical environment.

- The major challenge is capacity for clinical training related to faculty effort, but being the only medical school in the Twin Cities is an advantage. Availability of housing at some sites remains a challenge.

**Curricular Governance**

The Education Council (EC) is the curriculum committee of UMMS and is composed of faculty, students, and educational leaders. EC is the approved body for final decisions in curriculum and policy. The committees that report to EC include the Education Steering Committee that serves as an advisory group (“think tank”), Scientific Foundations Committee (Twin Cities year 1 and 2 course directors), Committee on Undergraduate Medical Education Duluth (Duluth course directors), Clinical Education Committee (clerkship directors), and the Assessment Committee that oversees all aspects of assessment in the MD program. All aspects of curricular governance are managed centrally with funds allocated to departments to support faculty teaching.

See Figure 1—Curriculum governance structure.

**Education Staff**

The Office of Medical Education (OME), directed by the vice dean for education and academic affairs, administers the medical education program and works with faculty to develop programming and strategy. OME comprises the following components and leaders to oversee the continuum of medical education:

- Admissions and pipeline programs (associate dean of admissions)
- UME (associate dean of UME)
- GME (associate dean and designated institute official)
- Continuing professional development (director of continuing professional development)
- Anatomy bequest program (director of anatomy bequest)
- Program in mortuary science (director)
- Medical educator development and scholarship (MEDS) (director)
- MEOC (vice dean for education and academic affairs)

See Figure 2—Organizational chart.

**Faculty Development and Support in Education**

While faculty appointments are in medical school departments and not in OME, the office does provide substantial faculty development and support.

- MEDS is charged with improving the quality and effectiveness of medical education by providing faculty with the skills and tools they need to be effective teachers, educational leaders, and scholars. Programming includes workshops, works-in-progress conference, annual best practice conference, individual consultations, web-based tool kit, and research support through the MEOC.
- The assistant dean for assessment and evaluation provides faculty with workshops and consultations designed to ensure sound teaching practices. These include but are not limited to improving the quality of narrative assessment, creating effective exam questions, and interpreting exam results using effective statistical methods.
- The assistant dean for curriculum and a team that includes 2 directors (director of integrated education in the foundational sciences and director of integrated education in the clinical sciences) work with faculty on all aspects of curriculum development.
- The University of Minnesota Center for Educational Innovation (CEI) supports faculty in identifying sound educational approaches for teaching. Faculty development with a member of the CEI team is a standing item on the monthly course directors meeting. One-on-one consultations with a CEI education specialist are available to provide pedagogical support.
Role of teaching in promotion and tenure

UMMS has 3 tracks for promotion: tenure track, academic track, and master clinician track.

- For promotion on the tenure track, educational scholarship is a requirement.
- For promotion on the academic track, candidates must demonstrate sustained peer-reviewed scholarship in the form of a traditional peer-reviewed publication or other products, including peer-reviewed online repositories. Other criteria include development of educational products that have been adopted by others outside of the institution; successful grant funding; instructional, curricular, or assessment innovations; educational policy development; or chapter or book authorship. Candidates must demonstrate excellence in their educational roles demonstrated by learner reviews, teaching awards, and peer evaluations.
- For promotion on the master clinician track, the major focus is clinical excellence, which is defined differently by departments. For most departments, demonstration of teaching excellence is required and must be documented by learner evaluations.
- The University of Minnesota has the Academy for Excellence in the Scholarship of Teaching and Learning, which is open to all health science schools. The academy recognizes faculty who have demonstrated exceptional scholarly contributions to advance learning in their schools and across academic programs.

Regional Medical Campuses

UMMS Duluth was funded by the legislature in 1969, and the first students matriculated in 1972. Integration of the Twin Cities and Duluth campuses occurred in 2004. The Duluth campus provides the preclinical phase of medical education, after which the students enter the clinical phase of training at the Twin Cities campus. The mission of the Duluth campus is focused on rural medicine and serving Native American communities. A comparable educational experience is demonstrated by common learning objectives and assessments and standardized national examinations. Reporting relationships and regularly scheduled interactions between educational leaders, curriculum committees, and course directors at both campuses facilitate operational issues regarding comparability.

Reference