University of Rochester School of Medicine and Dentistry
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Medical Education Program Highlights
Consistent with the University of Rochester School of Medicine and Dentistry's legacy of bridging basic and clinical sciences, our Double Helix Curriculum—Translations and Transitions integrates the scientific foundations of medicine with clinical medicine across a 4-phase curriculum. Home of the Biopsychosocial Model, the school emphasizes a holistic understanding of the patient—the translation of the molecular mechanism of disease and their living environment into strategies for prevention and treatment. A recent curricular addition, Meliora in Medicine, is a 4-year curricular thread that weaves 3 pillars: collaborative practice, technology in medicine, and professional identity formation. Medical humanities remain a school strength and is incorporated as both a dedicated content area and an instructional method. Transitions across the medical education continuum are facilitated with focused activities, curricular elements, self-reflection, and career advising. Specialty-specific competencies assist students in preparing for internship. The medical education program also offers elective pathways in medical humanities and bioethics, medical education, deaf health, Latino health, and global health. Learning in a collegial and collaborative environment, students are guided through the established Advisory Dean Program. The school supports students' intellectual curiosity and passions through funded research opportunities (e.g., academic research track), as well as international and volunteer service work, offering a distinction in research and a distinction in community health. In addition to our MD–PhD MSTP program, the school has multiple combined degree programs (e.g., MD–MBA, master's degrees) and certificate programs. The medical education program also offers elective pathways in medical humanities and bioethics, medical education, deaf health, Latino health, and global health. Learning in a collegial and collaborative environment, students are guided through the established Advisory Dean Program. The school supports students' intellectual curiosity and passions through funded research opportunities (e.g., academic research track), as well as international and volunteer service work, offering a distinction in research and a distinction in community health. In addition to our MD–PhD MSTP program, the school has multiple combined degree programs (e.g., MD–MBA, master's degrees) and certificate programs.

See Table 1—Meliora in Medicine.

Curriculum
Curriculum description

Curriculum changes since 2010
The medical school's continuous quality improvement process has led to ongoing changes throughout the last decade. Several years ago, we embarked on a curriculum remodel process, from which emerged the Double Helix Curriculum—Translations and Transitions, which retains core elements of our previous Double Helix Curriculum—the Biopsychosocial Model, including a basic science emphasis throughout the curriculum and early clinical exposure. Curriculum change highlights include streamlined instruction, greater health services science topic presence, and additional clinical requirements. The curriculum is also now defined by phases, a structure that provides a more cohesive and developmentally appropriate clinical curriculum in Phases 1 and 2. The basic science strand in Phases 1 and 2 continues to provide foundational knowledge using a systems-based approach. Streamlining the curriculum now allows students to complete Phase 2 earlier, allowing a longer Phase 3—our clinically immersive period—that now includes a critical care requirement and Family Medicine clerkship. Phase 3 also includes Scientific and Social Foundations of Medicine courses, which include translational basic science and Meliora in Medicine content. The final phase (Phase 4) now includes a course devoted to health systems improvement and an expanded capstone course. Student progress and achievement of objectives are confirmed through 3 end-of-phase assessments.

Assessment
The medical school has a robust system of student assessment that provides multiple opportunities for direct observation, feedback, and assessment of progress in key knowledge, skills, and behavioral areas that are linked to the school’s overall education objectives. Changes in assessment practices in the past decade have included peer assessment across the first 3 phases, Phase 2 Assessment Days (described below), and end-of-phase assessments, which provide students with formative feedback to inform subsequent individual development plans. Current efforts are targeted toward the assessment of professionalism using the institution's IICARE attributes of professionalism (inclusion, integrity, compassion, accountability, respect, excellence) as a guiding theoretical framework.

Medical education program objectives

Our curriculum is designed to meet the medical school’s overall education program objectives. Each objective is linked to ACGME domains of competence, which help to facilitate the transition to GME. As part of the medical school’s curriculum management process, education program objectives are linked to specific session objectives to provide greater specificity with respect to where they are taught and how they are assessed.

Pedagogy
In addition to lecture, the medical school uses multiple small-group learning formats including problem-based learning,
team-based learning (TBL), and laboratory experiences for nonclinical courses in Phases 1 and 2 to meet education program objectives. The school uses small-group formats to provide clinical instruction in interviewing and physical examination skills. A robust and integrated simulation program in Phases 1 and 2 facilitates clinical skills development as well as formative and summative assessments in these phases, as well as Phase 3. Simulation activities are also used for teaching in pharmacology, interprofessional education, and team science. Purposeful efforts have resulted in the increased utilization of online learning activities. Humanities-focused pedagogical approaches (e.g., Theater of the Oppressed) are used to provide instruction in specific areas including bias and advocacy. Optional elective pathways (e.g., medical education, deaf health) provide students with focused experiences under faculty supervision.

Changes in pedagogy since 2010

In 2013, the school transitioned to an electronic curriculum to deliver all content (e.g., TouchBooks, histology and pathology instruction, etc.), which resulted in the school being named an Apple Distinguished Institution in 2019. Another notable change was the addition of TBL activities to Phase 2 of our curriculum and developmentally appropriate interprofessional experiences involving other health professions students. Current medical school initiatives are focused on the incorporation of iPads/mobile devices into an emergent telehealth curriculum.

Clinical experiences

In the Phase 1 course Foundations of Biopsychosocial Practice, students are placed in a range of settings including ambulatory offices, patient homes, nursing homes, rehabilitation facilities, and a children’s museum to provide experiences and instruction in child development, rehabilitation, and refinement of clinical exam skills. Longitudinal ambulatory clinical experiences in Phase 2 are focused in pediatric and adult medicine offices. Required Phase 3 clerkships (medicine, surgery, obstetrics–gynecology, pediatrics, neurology, and psychiatry) occur in 4 regional hospitals (community to tertiary referral), with most occurring at the university-owned Strong Memorial Hospital (SMH) and Golisano Children’s Hospital. The family medicine and emergency medicine clerkships are completed in Phases 3 or 4, with the latter occurring at SMH, a Level 1 trauma facility. Clinical electives are offered in a variety of settings spanning regional, national, and international locations.

Required longitudinal experiences

The school includes a longitudinal ambulatory experience in adult medicine and pediatric settings through the primary care clerkship in Phase 2. Here, students are assigned to an adult care ambulatory office (family medicine or general internal medicine) and a pediatric office. These experiences are completed in conjunction with systems-based courses, which facilitates integration and application of content. Phase 2 also includes 3 assessment days, which require students to perform several standardized patient encounters that present with complaints related to the concurrent systems-based course content. Students conduct a history and examination, complete a patient note, and answer examination questions. Questions are designed to assess and emphasize integration of content and the translation to patients.

Clinical experience first encounter

Students encounter standardized patients in the first semester of Phase 1 and begin to see patients in a variety of settings in its second half, with the goals of refining history and physical exam skills, oral and written presentations, early clinical reasoning, and developing prevention and counseling skills. Phase 2 includes the longitudinal primary care clerkship.

Required and elective community-based rotations

To offer a diverse clinical education, the medical school uses the local outpatient VA facility, nursing homes, home care agencies, and other community-based health systems. Elective opportunities exist in these settings and students are able to create their own elective experience with faculty guidance. The family medicine clerkship offers flexibility for completion at distant sites.

Challenges in designing and implementing clinical experiences for medical students

Consistent with other medical schools, the growing numbers of health professions students have made securing some experiences more challenging than 10 years ago.

Curricular Governance

All major areas of curriculum design, implementation, assessment, and continuous quality improvement are managed centrally. The majority of the budget for those with administrative and leadership roles is similarly managed centrally. Although clerkship director support is managed centrally and at the department level, allocations to core clinical departments for clerkship instruction is decentralized.

See Figure 1—Curriculum Steering Committee.
Medical school dean ex-officio member

Curriculum Steering Committee (CSC)

CSC chair, Senior associate dean for medical student education

Three ad hoc faculty (minimum 1 each basic science and clinical departments)

First and Second Year Instruction Committee Chair, Vice chair

Third and Fourth Year Instruction Committee Chair, Vice chair

Associate dean for admissions

Director, curriculum

Director, assessment

*The instruction committees include course and clerkship directors, theme directors, and library, technology, and education resources staff.

Figure 1 Curriculum Steering Committee.

CEO, URMC and UR Medicine, Dean, SMD; SVP for Health Sciences

Medical School Advisory Committee

Senior associate dean, finance and administration

Senior associate dean for medical student education

Senior associate dean for graduate medical education

Senior associate dean for graduate education

Senior associate dean for academic affairs

Vice dean for clinical affairs; CEO, URMC

Senior associate dean for basic research

Senior associate dean for clinical research

VP and senior associate dean for inclusion and culture development

Figure 2 Organizational chart.
Education Staff
The school’s Office of Curriculum and Assessment (OCA) provides direct support for most courses and pathways in the curriculum, whereas clerkships are coordinated at the department level. Supported by a highly skilled team, the director of assessment and the OCA administrator are integrated into the curriculum governance structure and the medical school’s continuous quality improvement processes. The OCA coordinates all student assessment and the evaluation of the curriculum more generally.

Although the OCA only serves UME, the integration of the medical school with a university-owned medical center facilitates regular contact and discussion across the medical education continuum. Our student services office oversees student affairs, working in conjunction with the OCA.

See Figure 2—Organizational chart.

Faculty Development and Support in Education
Professional development for faculty as educators
Professional development for faculty educators is coordinated through a central office led by a senior associate dean. Numerous onsite offerings address instruction, technology, assessment, and career development. Faculty development topics are defined with input from the school’s instruction committees. Medical school resources allow faculty to attend national programs and meetings for professional development.

The university’s medical center has the Institute for Innovative Education, which brings together education leaders throughout the medical center to develop and implement shared curricular initiatives. Additionally, the Dean’s Teaching Fellowship program supports selected faculty who receive instruction, mentoring, and guidance as they develop an education project over 2 years. To foster creativity and research, there is a collective of medical educators who strategize research initiatives to critically evaluate programs and disseminate best practices.

Role of teaching in promotion and tenure
All medical school faculty, with the exception of research appointments, must demonstrate excellence in teaching contributions. Teaching contributions and scholarship criteria are defined. At the time of reappointment or promotion, faculty members submit publications, teaching materials, evaluations, and other relevant information regarding educational contributions for review by a committee.