University of Massachusetts Medical School
Anne Campbell Larkin, MD, and Melissa A. Fischer, MD, MEd

Medical Education Program Highlights
The University of Massachusetts Medical School (UMMS) admitted its first class in 1970 as the only public medical school in Massachusetts, and celebrates its first 50 years in 2020. With a strong emphasis on and dedication to primary care, the school has forged a reputation of excellence through innovative teaching and learning, the early use of standardized patients, and recognized success in all of our missions, including education, research, and clinical care. Now having finished the first decade of the Learner-centered Integrated Curriculum (LInC), we have embraced early clinical experiences, integrated clerkships, and flexible experiences to achieve our core competencies: physician as scientist, problem solver, communicator, professional, advocate, and person. Students participate in interprofessional activities throughout the curriculum, and the spirit of giving back is powerful, with virtually 100% of students engaging in service to the community. We greatly value the emotional well-being of our students and, as such, have established the robust Student Life Office, emphasizing perhaps our most important competency of physician as person.

Curriculum
Curriculum description
Following an extensive planning process, the LInC was initiated in academic year 2010–2011. This innovative curriculum pairs basic and clinical scientists to deliver curriculum integrated across courses, with very early clinical experiences and an increased emphasis on communication skills. Building upon our strong history of simulation and standardized patient experiences, many such experiences were added into the preclinical years with deliberate addition of formative assessment. In the clinical years, clerkships are cohorted into 3 main themes (care of families, care of the adult, perioperative and maternal care), with shared curricula across clerkships and in some cases shared assessments. Longitudinal threads include the capstone Scholarship and Discovery course, in which students engage in using the scientific method to complete a project over the course of 4 years. Additionally, learning communities were established that have longitudinal faculty and peer mentorship, enhanced career advising, and an overall sense of community.

Curriculum changes since 2010
The curriculum has continued to evolve, increasing the emphasis on diversity embedded within the curriculum, the expansion of the social determinants of health curriculum, and the addition of a robust interprofessional curriculum and experiences, all of which have greatly enhanced the ability of our students to work in and across teams. Some examples of curricular innovations are:

- An Interstitial Curriculum serves to meet the learning needs of our students across a variety of topics for which there are no discreet experiences within the clerkships, including veteran's care, patient safety, and intimate partner violence, among many others.
- Student-led curricular initiatives are strongly embraced, an example of which is an LGBTQ+ session designed by a second-year student that was built around the engagement of members of the Worcester community to teach students important culturally competent strategies for caring for this vulnerable population.
- The opioid crisis has not spared Massachusetts, and to meet this public health need, an interprofessional simulation-based curriculum titled Opioid Safe-prescribing Training and Immersion is now required for all students.
- UMMS also now offers pathways for select students who augment their medical school experience through a concentration on global health, clinical and translational research, or rural health, and a recently implemented urban health pathway.
- We are now also proud to offer an MD–MBA degree in collaboration with the UMass Lowell campus.
- Additionally, we have begun an initiative across all learners on the campus to improve and enhance diversity, representation, and inclusion throughout the curriculum.
- In the coming years, we are embarking upon a dramatic change in our curriculum that will work toward increased community engagement, diversity, and interprofessional education. We will be augmenting the use of technology, supporting independent and engaged learning through the use of virtual reality, expanding an academic electronic health record populated with patients designed for learning, and enhancing simulation exercises. Continued amplification of small-group teaching and the codification of a robust health systems science longitudinal thread will be key components of this transformation. An additional critical component of these advancements will be the creation of an academy of teachers, called the Leadership/Education Academy Program. This curricular transformation is being accomplished under the auspices of our newly developed strategic plan, IMPACT 2025.

Assessment
- The medical education program objectives for UMMS are framed around the 6 core competencies noted above, which largely parallel with ACGME core competencies. These competencies were initially developed in 2008 and revised in 2017.
• Student assessment has evolved in the last decade, expanding formative assessment and feedback to help guide self-directed learning.

See Supplemental Digital Appendix 1—Medical Education Program Objectives—at http://links.lww.com/ACADMED/A864.

Parallel curriculum or tracks
• UMMS recently initiated a parallel track, the population-based urban and rural community health (PURCH) track. This track is primarily housed and delivered at UMMS–Baystate, our new regional campus located in Springfield, Massachusetts. If accepted into this track, students participate in a curriculum with enhanced engagement and exercises related to population-level care, social determinants of health, and disparity. The first class to complete this track will graduate in 2021.
• While UMMS does not currently offer a 3-year track, a task force is actively working toward the adoption of such an option for select students, and we anticipate the initiation of the track within 2 years.

Pedagogy
• UMMS uses a wide variety of pedagogical techniques to effectively teach medical students. The preclinical years use a combination of self-directed learning, small-group teaching, lab, simulation, and lectures. These experiences are augmented by role play experiences to learn communication skills, standardized patient experiences for learning and assessment, and peer teaching for a variety of topics including physical diagnosis.
• Since 2010, and with the implementation of the LINC, we have integrated our courses across the basic and clinical sciences, enhanced threads across the entire 4-year curriculum, and established a required scholarly project. The learning communities constitute a longitudinal foundational thread that has thrived as an integral component of the curriculum, enhancing peer teaching and promoting the strong sense of community experienced by our students.

Clinical experiences
• The medical school’s primary site for clinical teaching is our clinical partner, UMass Memorial Healthcare, which has 3 campuses in Worcester. We also use more than 80 community-based hospitals, health centers, and community practices across the region.
• Most recently, UMMS was fortunate to forge an educational alliance with Cape Cod Hospital, which has been an outstanding addition to our robust clinical experiences. Additionally, we have established a regional campus in Springfield, Massachusetts, in collaboration with the Baystate Health System, which oversees our regional campus track.
• Learners engage in their first clinical encounter during the second month of medical school, in which they start the Longitudinal Preceptor Program, which pairs them with a clinician for the purposes of learning communication and physical diagnosis skills.

• Community-based rotations are completed at a variety of practice sites, including federally qualified community health centers, multispecialty groups, and over 200 private practices statewide.
• Challenges in clinical education include limited compensation for community faculty, faculty pressures for clinical productivity, and ensuring the standardization of assessment across diverse sites.

Curricular Governance
The provision of the curriculum is centralized through our maintained governance. Administration of the courses, however, is maintained through both the Office of Undergraduate Medical Education and the clinical and basic science departments. Support for teaching activities is through the Office of the Dean. In an effort to more effectively meet the needs of clinical faculty, we are moving toward an FTE-based model for support of the educational mission.

See Figure 1—Curriculum governance.

Education Staff
• The Office of Undergraduate Medical Education is led by the associate dean of undergraduate medical education and oversees a staff of 10, including her assistant dean of undergraduate medical education and assistant dean of health systems science. The administrators in this office provide support for many of the preclinical courses. The associate dean is responsible for the management and delivery of curriculum management and innovation, working collaboratively with committees and divisions across the institution. The office oversees the OASIS curriculum database, and in collaboration with the Office of Institutional Research, Evaluation, and Assessment continually augments and improves upon the tools and strategies used for student teaching and assessment.
• The Office of Undergraduate Medical Education provides for the oversight of the delivery of the program leading to the MD degree and oversees the interprofessional Center for Experiential Learning and Simulation. The associate dean works closely with the associate dean of student affairs and many others in accomplishing this mission. In addition to the Office of Undergraduate Medical Education, the offices of Admissions, Student Affairs, and Continuing Medical Education are managed through separate offices, but report to the senior associate dean of educational affairs.

See Figure 2—Organizational chart.

Faculty Development and Support in Education
• Professional development for medical educators is offered through the Office of Faculty Affairs, which provides several programmatic opportunities for faculty across the institution. In addition, the Educational Policy Committee, through its annual education retreat, provides workshops
Figure 1 Curriculum governance.

Figure 2 Organizational chart.
and other sessions devoted to the provision of education around teaching skills and techniques. Lastly, the Office of Undergraduate Medical Education, through the associate and assistant deans of undergraduate medical education, provides consultative services for all faculty teaching medical students.

- The UMMS Academic Personnel Policy was recently revised to include an additional area of distinction in education. It is the expectation that all faculty will engage in education of students, residents, or fellows. However, individuals now may gain promotion based on the quality and quantity of their academic achievements and scholarship as it specifically relates to education. This has been a particularly important enhancement.

**Regional Medical Campus**

The UMMS–Baystate regional campus was established with its first class of students in the PURCH track in 2017. Students complete their preclinical courses between the Worcester campus (basic sciences) and Springfield campus (clinical skills and determinants of health). Clinical experiences are completed at the Springfield campus. The 2 campuses use identical grading and assessment tools, and faculty work together closely to provide comparable experiences. Site directors at UMMS–Baystate report to course and clerkship leadership on the main campus, thereby enhancing comparability of the sites. To date, analysis has indicated excellent alignment between the 2 campuses.

See Table 1—Regional Medical Campus.

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<tr>
<th>Campus name</th>
<th>Type</th>
<th>Student enrollment</th>
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<tbody>
<tr>
<td>UMMS–Baystate regional campus</td>
<td>Combination</td>
<td>73</td>
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**Initiatives in Progress**

- In an effort to provide more transparent support of faculty teaching efforts, we are moving toward an FTE-based model.
- A teaching academy will be designed and implemented as part of our strategic plan.
- Student wellness initiatives are being enhanced substantially, and will continue to grow.
- In alignment with the clinical system, a greater focus is being placed on the learning and working environment by adopting common definitions and expectations that will ultimately benefit not only our learners but also all staff and patients.
- Expansion of the academic electronic health record as a tool for teaching and learning across the curriculum is underway.
- Implementation of the Committee on Student Well-being will support innovation in this arena.
- Defined health systems science curricula have been added across all years.