Boston University School of Medicine
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Medical Education Program Highlights

Boston University School of Medicine (BUSM) has a long, proud history of integrating the values of our medical school, diversity, commitment to the study and practice of medicine, advocacy, and social justice into the curriculum. In the first week of medical school, students participate in a bus and walking tour that exposes them to Boston neighborhoods where they learn about their patients’ demographics, health disparities, and community resources. We continue to address topics of diversity, inclusion, disparities, and the impacts of social determinants of health at an individual behavioral level and at a population health level throughout our curriculum. Since the founding of our program, service and advocacy have been fundamental to our institutional identity. Our students participate in required service learning; a community health assessment project embedded in the Essentials of Public Health (EPH) course; and extracurricular experiences, including numerous service learning/community service organizations and enrichment courses such as the Advocacy Training Program to support our mission and student interests.

Early clinical exposure to patients, longitudinal relationships with faculty, and patient-centered care serve as the backbone of our curriculum and begin with the Doctoring curriculum. During each Doctoring small-group session, groups work through a patient case with their longitudinal faculty facilitator. They role play with actors and expert faculty to practice interviewing and communication skills, and they learn and practice physical exam, diagnostic schema, problem representation development, oral presentation, and note-writing skills to prepare them for the clinical setting. The cases are designed to teach teamwork skills and clinical reasoning, and deliberately develop a framework for building meaningful doctor–patient relationships, understand patients’ perspectives and experience of illness, and explore the impact of social determinants on patients’ lives.

Curriculum

Curriculum description


Curriculum changes since 2010

BUSM has moved toward meaningful integration of content throughout the curriculum. In 2015, the first-year foundational science curriculum was redesigned and became the yearlong Principles Integrating Science in Medicine course, integrating histology, physiology, genetics, and biochemistry throughout the course. In 2019, our Doctoring courses were redesigned to deliberately integrate clinical reasoning, physical diagnosis, and communication skills training into weekly cases. The cases also further reinforce concepts and content taught within the foundational science courses. In addition, anatomy and Doctoring courses have developed cases and sessions together where the physical exam is taught directly after exposure to an anatomic area, highlighting anatomic function and consequences of anatomic lesions that can be illustrated through physical examination. To assist with integration between the foundational science and clinical science phases, we have developed integrated clinical reasoning cases, a series of cases taught longitudinally within foundational science courses to demonstrate how clinical findings (patient signs and symptoms) emerge from anatomic and/or pathophysiologic derangements. For our 4-year integrated curriculum, we have defined the clinical presentations that every graduating BUSM medical student must encounter and adequately demonstrate clinical reasoning skills in by graduation. The BUSM Core, a set of 45 chief complaints and 15 chronic patient presentations, serves as the backbone for curricular integration and ensures spiraling of content as well as defined competence for graduation. In the first 2 years, the core is used in Doctoring cases and for the integrated clinical reasoning cases, and in the clerkship phase, the core informs the required patient encounters that are logged.

The EPH course was redesigned to focus on public health issues faced by the diverse urban population of patients whom students encounter throughout their training. The course includes content in biostatistics, population health, ethics, health care financing, and social determinants of health, and has developed a week of small groups to allow students to more deeply explore emerging topics in public health, engage in service learning, and complete a community project that is presented at the end of the week. Student groups visit local community agencies, learn about the assets and challenges of a Boston neighborhood, and propose an intervention to improve the health of the community based on an identified need.

In response to the state’s opioid morbidity and mortality crisis, a vertically integrated substance use and prescription drug misuse curriculum was developed. Core competencies for the prevention and management of prescription drug misuse were defined through a statewide medical education working group convened by the governor. Sessions addressing pain management, substance use screening, neurobiology of substance use disorder, and the opioid epidemic are integrated throughout
the 4 years. Students learn and practice negotiated interviews with standardized patients and provide screening and counseling for substance use. All students are assessed using standardized patient experiences.

Assessment changes since 2010
To enhance consistency in student assessment across clerkship sites, we revised our clerkship assessment form, the clinical student evaluation form, during the 2017–2018 academic year to include achievable, observable behaviors expected of a third-year clerk in all domains. The behavioral anchor for level 4 (the highest level on the scale) includes language from the AAMC’s Entrustable Professional Activities. Since 2010, we have increased the number of objective structured clinical examinations (OSCEs) in the curriculum. We have added OSCEs at the middle and end of years 1 and 2, and at the end of year 3, to assess communication, physical examination, and clinical reasoning skills as students progress and prepare for the USMLE Step 2 CS examination. The majority of clerkships now also include either a standardized patient–based OSCE or an oral clinical reasoning exam as part of summative assessment at the end of the clerkship. The NBME shelf exam is limited to 30% of the total grade across all clerkships.

In addition, we have added formative assessments during clerkships to ensure direct observation of core skills. Medical students in each clerkship are given feedback on Clinical Skills forms that document direct observation experiences in each clerkship and ensure that every component of the physical exam is observed during the third year.

Medical education program objectives
The curriculum is guided by BUSM’s medical education program objectives that are based on the Physician Competency Reference Set. The objectives have been mapped to the 7 BUSM institutional learning objectives, represented by the acronym BU CARES, which are based on ACGME domains of competence.


Pedagogy
We use multiple pedagogical approaches in our curriculum. Our foundational science faculty use lecture, videos, large- and small-group discussion, labs, team-based learning, and patient panels to teach curricular content. Human Behavior in Medicine and EPH use lectures, case-based learning, small groups, and workshops to teach. Our Doctoring courses use peer teaching, with fourth-year students teaching the first-year students inpatient interviewing; they also teach second-year students inpatient history and the physical exam portion of the course. The majority of the Doctoring course is taught in small groups facilitated by a longitudinal academic medical educator (AME) who uses techniques such as role play, think–pair–share, deliberate practice, and peer learning. Actors are also used several times in the year when more complex interviews or communication skills are practiced, such as sexual history taking or breaking bad news.

A longitudinal preceptorship occurs throughout the first 2 years of the Doctoring course. The third and fourth years are predominantly clinical experiences in the ambulatory and inpatient settings. Core content is delivered in all clerkships using workshops, simulated patients, lectures, and cases. Self-directed learning is incorporated throughout the program.

Changes in pedagogy since 2010
The pedagogical changes made since 2010 are numerous including the creation of new videos for flipped content, new application exercises in the classroom to increase active learning, more case-based exercises, and small- and large-group work. We have maintained consistency of faculty and students in small groups in the Doctoring courses to support faculty development and team building. Finally, we have increased the use of simulated patients throughout the 4 years. Currently, we are using virtual reality for the first time to teach first-year students about poverty and social determinants of health.

Clinical experiences
We immerse students in the clinical setting from the first month of medical school. During the first 2 years, students see hospitalized patients at Boston Medical Center and at the Veterans Administration Boston Healthcare System for approximately 20 hours each year and participate in a longitudinal preceptorship in private group practices and community health centers for approximately 30 hours each year. BUSM is affiliated with over 25 hospitals, multiple community health centers, and private practices, providing our students with a diverse group of patients to learn from during the third and fourth years. Students also have the opportunity to participate in clerkships and electives at our regional campus, Kaiser Permanente Regional Campus–Silicon Valley (KP-SV), located in Santa Clara and San Jose, California. BUSM has successfully addressed the challenge of maintaining consistency of experiences at multiple sites by appointing an assistant dean for affiliated sites (AD-AS), who focuses on faculty and site development.

Curricular Governance
See Figure 1—Curricular governance.

Education Staff
The Medical Education Office (MEO) consists of the associate dean of medical education (ADME), 3 assistant deans, 5 faculty, and 13 staff. Each assistant dean oversees a separate area of focus: curriculum and instructional design, affiliated sites, and enrichment (global health, research, and service learning). Our staff provide direct support for administration of the undergraduate medical education program. This includes administrations of all of the preclerkship courses, maintaining and supporting program tools such as the curriculum database and eValue, and collecting
and analyzing educational program outcomes and student performance in the curriculum. The MEO works in collaboration with the other deans’ offices to support students and faculty. All clerkship coordinators, except one with a dual role in the education office, are located in their respective departments.

Faculty appointments are overseen by the Faculty Affairs Office. Affiliate preceptors are appointed through the faculty’s clinical department. Faculty must teach medical students at least 50 hours per year to receive a faculty appointment.


**Faculty Development and Support in Education**

Professional development on the medical campus is overseen by the assistant provost of faculty development for Boston University Medical Campus (BUMC). Five longitudinal faculty development programs and a seminar series are regularly offered: early career, midcareer, women in medicine, underrepresented minorities in medicine, narrative writing, and a longitudinal faculty development seminar series.

The medical campus hosts the annual John McCahan BUMC Education day, a 1-day conference that focuses on teaching and education. The conference includes a keynote lecture; workshops; and oral and poster presentations by medical campus faculty, staff, and students.

**Table 1**

### Regional Medical Campus

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<thead>
<tr>
<th>Regional campus name</th>
<th>Type</th>
<th>Student enrollment</th>
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</thead>
<tbody>
<tr>
<td>Kaiser Permanente Branch Campus–Silicon Valley</td>
<td>Clinical</td>
<td>16 full-time equivalent students</td>
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Within the MEO, the ADME and the assistant dean of medical education for curriculum and instructional design provide faculty development and individual coaching to our faculty educators, including the AMEs who work with students in the year 1 and year 2 Doctoring courses. All AMEs are also provided access to faculty development sessions on medical education scholarship and research held by the MEO. The AD-AS and the manager of affiliated sites provide faculty development and training to affiliated faculty during regular site visits, including visits to KP-SV.

**Regional Medical Campus**

To maintain consistency of experience across our clinical sites, we have appointed an AD-AS within the MEO. She and her administrative manager work closely with the 2 KP-SV assistant deans for BUSM and communicate regularly with them. The KP-SV faculty are also represented in the membership of the curriculum committees.

All Kaiser campus clerkship students participate in the same third-year orientation as students on the Boston campus before leaving for their clerkships at Kaiser. Kaiser students have all of the same learning objectives, requirements, and assessments as the Boston-based students. Kaiser learners use Zoom web conferencing to participate in the required clerkship didactics, which are based in Boston.

See Table 1—Regional Medical Campus.

The operational leadership team monitors the performance of the Kaiser learners to assure that their academic performance and match rates are comparable to classmates.