Duke University School of Medicine
Colleen O’Connor Grochowski, PhD, and Edward G. Buckley, MD

Medical Education Program Highlights

Duke University School of Medicine (DUSOM) offers a unique educational program. The basic sciences are taught in 1 year in 2 half-year integrated courses that use flipped classroom, interactive, team-based, and case-based methods. Core clinical clerkships are completed in the second year either traditionally or longitudinally; A minimum of 10 months of dedicated intensive mentored scholarly investigation is required as a mechanism to facilitate the training of clinician–scientists. We have created a clinical education urgent care clinic experience emphasizing interprofessional clinical care. Our educational program also features longitudinal curricular threads in leadership, cultural determinants of health/health disparities, and ends with a discipline-focused capstone course.

Curriculum

Curriculum description

DUSOM’s Foundation for Excellence Curriculum consists of 1 year of foundational basic sciences followed by a year of required clinical clerkships in year 2. The third year is devoted to 10 months or more of scholarly investigation. The fourth year consists of electives and a required subinternship, acute care curriculum, and capstone course.


Curriculum changes since 2010

Our curriculum has evolved over the last 10 years. Highlights of these changes include the following:

Year 1—Preclinical:
- Reduced from 4 to 2 the basic science courses in year 1 and maintained organ-systems approach
- Enhanced the integration of foundational basic science principles
- Implemented a clinical correlations course director to improve the quality, consistency, and increasing complexity of the clinical correlates in the basic science courses
- Aligned physical examinations skills training with organ systems being taught in basic science courses

Year 2—Required clinical clerkships:
- Added a longitudinal 3-year leadership curricular thread beginning in year 1
- Added a longitudinal 2-year course called Cultural Determinants of Health and Health Disparities

Year 3—Scholarly investigation:
- Added several new study program tracks for a new total of 18
- Added 5 approved master’s degree programs for a new total of 13
- Transitioned the Medical Statistics course and the Evidence-Based Medicine course from the classroom to online
- Implemented policy guaranteeing students a minimum of 4 weeks of dedicated USMLE Step 1 examination preparation time

Year 4—Electives and capstone:
- Created a standardized acute care curriculum
- Converted the capstone course from a 4-week course to a longitudinal course with required modules beginning in January of the fourth year and culminating in a 3-week classroom-based course in March
- Added specialty-specific boot camps to the capstone course

Multiyear:
- Created an interprofessional education and care (IPEC) clinic supervised by an interprofessional team of faculty; medical students are required to work in the IPEC clinic at least once during their first, third, and fourth years

In 2013, we moved into a state-of-the-art health professions education building that could accommodate more than the 100 students we recruited previously. Since 2013, class size gradually increased to 120.

Assessment

Our medical education program objectives are based on the AAMC Physician Competency Reference Set,1 with the addition of 2 competency areas reflecting our unique curriculum: scientific foundations of health and disease, and research and scholarly activity.


We have made some changes to our assessment program since 2010. Examinations in the first year now occur on a predictable
schedule every 2 weeks. We have created a mobile technology-enabled process providing students with actionable formative feedback during each week of each clerkship in the second year and implemented a dashboard for visualizing this data. Lastly, 3 clerkships added mini-OSCEs (obstetrics–gynecology, neurology, and surgery) in addition to the existing mini-OSCE in the medicine clerkship. We also eliminated the week devoted to assessment after the clerkship year, but maintained the summative OSCE, increasing the number of stations from 8 to 10.

Parallel curriculum or tracks
We have a primary care leadership track (PCLT) that runs in parallel to our standard curriculum. The goal of the PCLT is to create change agents for the health care system through primary care. The 4-year program offers leadership training, a longitudinal integrated clerkship (LIC) in the second year that includes following pregnant mothers and delivering their babies, time for service with a community health care agency, and research in community-engaged population health. Features of each year are listed below.

Year 1: PCLT students participate in a 2½-day preorientation in late July at Duke before the general DUSOM orientation. This focuses on leadership skills and team building. Leadership training continues with weekly PCLT team meetings and monthly student-led dinner programs. PCLT students organize a community service project in both the fall and spring. They participate in evaluation of their skills. Students complete the rest of the DUSOM curriculum with students in the traditional MD track.

Year 2: PCLT students participate in a 7-month LIC where they learn medicine alongside faculty in their clinics in family medicine, pediatrics, general internal medicine, and gynecology. In addition, PCLT students serve a community agency working on health issues 1 half day each week during the LIC. Students follow pregnant patients through pregnancy and delivery in a Centering model of group prenatal care. They follow patients to surgery, therapy, and specialty visits. They meet weekly in a primary care seminar to share experiences and learn clinical medicine topics. PCLT students complete an orientation to the Durham community and learn about community engagement.

There are inpatient immersions in internal medicine, neurology, surgery, psychiatry, and pediatrics. PCLT students attend a behavior health seminar as well as population health seminars each designed especially for PCLT with primary care in mind. PCLT students attend the Clinical Skills Foundation and Clinical Skills courses with students in the traditional track.

Year 3: PCLT students develop and implement a population health improvement research project. All projects have a required community- or stakeholder-engaged component. PCLT has a dedicated director of research to guide students’ research efforts. PCLT students complete a continuity clinic experience, like students on the traditional track. All students have the option of a 10- or 12-month third year.

Year 4: PCLT students choose from a variety of clinical electives available to all students. Along with traditional students, they complete a subinternship, critical care training, radiology training, and the capstone course.

DUSOM also offers a 3-year pathway in orthopedic surgery. The Accelerated Pathway in Orthopaedics (APO) is a unique opportunity for interested third-year students to pursue a clinical experience in orthopedic surgery and to demonstrate the potential (competency, quality, maturity, etc.) for entering the postgraduate year 1 Duke orthopedic surgery residency class the following year, thereby graduating from DUSOM after their third year of medical school. The goals of the APO are to enhance effectiveness and efficiency of orthopedic surgery training; streamline the number of required years; provide structured preparation for orthopedic surgery residency training; and promote skills in leadership, professionalism, research, ethics, and practice- and systems-based medicine. Features of the APO include combining 3 years of medical school with 5 years of residency training, students earning their MD degree in 3 years, direct admissions into the orthopedic residency program, and providing focused mentorship and coaching.

Pedagogy
DUSOM uses a variety of pedagogies to achieve medical education program objectives, including case-based learning, clinical experience in inpatient and ambulatory settings, large- and small-group discussion, laboratories, lectures, peer teaching, preceptorship, role playing, self-directed learning, simulation, standardized patients, team-based learning, video, and workshops. Since 2010, we have more consistently integrated case- and team-based learning, with an increased emphasis on clinical correlations and clinical reasoning.

Clinical experiences
First-year medical students have their first clinical encounters with real patients in October of their first year as part of the required Clinical Skills Foundation course. Required clerkships on the traditional track occur in Duke-affiliated hospitals and outpatient clinics. LICs are available to up to 12 students in the traditional track and 10 students in the PCLT. LICs occur in Duke-affiliated outpatient clinics and the Durham Health Department. Eighty percent of students will rotate through the Durham Veteran's Administration Medical Center during their clerkship year.

Curricular Governance
The DUSOM Curriculum Committee (CC) has ultimate authority over the curriculum. The CC has several subcommittees that support different phases of the educational program.

See Figure 1—Curriculum committee organizational chart.

Education Staff
The Office of Curricular Affairs (OCA), under the leadership of the associate dean for curricular affairs, is responsible for
the administrative and academic support for planning the implementation and evaluation of the educational program; general oversight of the curriculum; and the development and maintenance of the tools to support curriculum delivery, monitoring, and management. The OCA includes 4 assistant deans (basic science education, clinical education, assessment, and learning environment), a director, and 30 faculty and staff members. The associate dean for curricular affairs reports to the vice dean for education, as do the other associate deans and directors involved in UME, faculty development, and learner support.

See Figure 2—Undergraduate medical education organizational chart.

The role of the primary education staff and administrative faculty is support of UME and multiple masters’ degree programs housed within DUSOM, and also includes student affairs. The hospital is responsible for GME although there is a dotted line from the designated institutional officer/associate dean of GME to the DUSOM vice dean for education.

**Faculty Development in Support of Education**

**Professional development for faculty as educators**

Professional development for faculty educators and professional staff in the School of Medicine and the School of Nursing is centrally provided by the Duke Academy for Health Professions Education and Academic Development (Duke AHEAD). The mission of Duke AHEAD is to promote excellence in the education of health professionals by creating a community of education scholars, fostering innovation in health professions education, supporting outstanding teachers, providing faculty development programs, and facilitating quality education research. The mission is accomplished through a variety of annual offerings ranging from education grand rounds to a yearlong certificate program, Education Celebration Day, consultative preparation of dossiers for promotion, grant funding for educational innovations, and teaching awards. Duke AHEAD is interprofessional, supporting educators from the DUSOM’s graduate health professions programs (e.g., physician assistant, doctor of physical therapy, occupational therapy) and the School of Nursing.

**Role of teaching in promotion and tenure**

To be considered for promotion, faculty must demonstrate effectiveness in clinical or educational practice as well as at least one additional domain (research/original investigation, clinical practice advancement, and administration/service). Effectiveness is demonstrated for the purposes of evaluation for promotion by portfolio development. Contributions are documented and described using one of the following portfolios: clinician–investigator, clinician–educator, clinical practice advancement, clinician leader–administrator, or individualized portfolio for other contributions or combination of areas of contribution. An education portfolio provides the framework for the faculty member to submit evidence of impact in education for the purposes of promotion.

**Initiatives in Progress**

DUSOM is in the early stages of fleshing out a curriculum innovation initiative. The goals of the innovation are to provide early meaningful clinical experiences for first-year students with level-appropriate clinical skills training immersion the first 2 weeks of medical school and subsequent longitudinal clinical experiences in year 1; to create an explicit clinical framework for teaching the foundational basic sciences; and to develop innovative approaches to clinical education that include leveraging technology, the EHR, and big data.
References
