Warren Alpert Medical School’s Doctoring Program: A Comprehensive, Integrated Clinical Curriculum

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The Doctoring program at Alpert Medical School (AMS) teaches students the knowledge, attitudes, skills, and behaviors necessary to develop into competent, ethical, and humane 21st-century physicians. Over the past eight years, the Doctoring course has grown from a one-year, two-semester introduction to clinical skills into a four-year, seven-course systematically integrated program designed for a medical school class of 120 students per year. In this paper, we describe the current Doctoring program in the preclinical years (Years 1 and 2), as well as the ongoing clinical curriculum redesign process that has led to a series of new Doctoring courses in the clinical years (Years 3 and 4). The overarching goal of the program remains to provide all graduating medical students with the fundamental clinical skills they need to succeed as physicians, regardless of clinical specialty.

Doctoring in the Preclinical Years (Doctoring I - IV)

Doctoring in Years 1 and 2 is a two-year, four-course required program that combines instruction and assessment in medical interviewing, physical examination, oral presentation, and professional development. Year 1 of the course runs from mid-August to late-May. Students are in class on Tuesday afternoons for three hours and work with a clinical mentor on Thursdays for four hours. Year 2 of the course runs from late-August until late-February. Students are in class on Thursday afternoons for three hours and work with a clinical mentor on Tuesdays or Wednesdays for four hours. Course leaders hail from the clinical specialties of General Internal Medicine, Geriatrics, and Emergency Medicine.

The courses use an educational paradigm that models interdisciplinary teaching and collaboration, and promotes patient-centered care, reflection, teamwork, and teacher-learner partnerships. Thirty-three physician (MD) faculty co-teach in the classroom setting. Their specialties include family medicine, pediatrics, internal medicine, emergency medicine, and surgery. Thirty-three social and behavioral science (SBS) faculty co-teach in the classroom setting. They have a variety of different training and careers including nursing, social work, psychology, education, medical administration, and public health.

At the medical school, students work in groups of eight with an MD and SBS faculty pair and standardized patients to learn fundamental clinical skills including medical interviewing, physical examination, oral case presentations, written documentation, and professionalism. They write reflections (field notes) as well as case write ups. Each course includes both formative and summative objective structured clinical exams (OSCEs) that take place in the medical school’s new Clinical Skills Suite using Learning Space technology.

In addition to the classroom co-teachers at AMS, the two-year course uses more...

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Table 1. Doctoring I and II (Year 1), 2012-13.

<table>
<thead>
<tr>
<th>Course Category</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Medical Interviewing Skills (15 hours)</td>
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<tr>
<td>Physical Diagnosis Skills (21 hours)</td>
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<tr>
<td>Oral Case Presentation Skills (3 hours)</td>
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<tr>
<td>Written Documentation Skills (write ups from ALF sites)</td>
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<tr>
<td>Professionalism / Ethics (6 hours)</td>
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<tr>
<td>Cultural Competence (3 hours)</td>
<td></td>
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<tr>
<td>ALF** Curriculum (15 hours)</td>
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* Objective structured clinical examinations
** Assisted living facility
than 250 community faculty each year as mentors in the outpatient, inpatient, and emergency room settings. The continuity experience in a mentor’s clinical practice enables students to form relationships with real patients, to practice the clinical skills they are learning in class, and to see the clinical presentations of common diseases. Students work with a different mentor in each year of the course so they can gain initial experience with individual clinicians, specialties, patient populations, and clinical settings. In Year 1, there are fifteen mentor sessions; in Year 2, there are fourteen.

Unique to Year 1 of the Doctoring course is a now well-established Assisted Living Facility (ALF) experience. The goal of the ALF curriculum is for students to develop proficiency and confidence in performing clinical examinations on older adults in the context of a longitudinal care relationship. Every small group is assigned to a single ALF site; at the site, each medical student is matched with an individual ALF resident. Small groups visit their ALF sites five times during the year. During those half-day sessions, students practice their medical interviewing and physical diagnosis skills under the close supervision of their MD and SBS faculty.

### The Clinical Curriculum Redesign Process

In 2008, the Associate Dean of Medical Education and AMS’s Curriculum Committee, a 27-person committee of administrators, course leaders, and medical students that meets monthly, embarked on a redesign of the clinical curriculum. A major component of the clinical curriculum redesign was the plan to extend the Doctoring program from Years 1 and 2 into Years 3 and 4. In 2009, a Doctoring curriculum development working group made the fundamental decision to work around the current specialty-specific clerkships rather than trying to integrate new Doctoring curriculum into those existing clinical courses.

The working group started the expansion process by conceiving of a three-week transition course for students to complete before beginning specialty-specific clerkships, similar to other medical schools nationally. In 2010, a core group of medical educators from the working group designed a Clinical Skills Clerkship (CSC) as an extension and continuation of the Doctoring course from Years 1 and 2. The team deliberately incorporated and expanded every component of the previously existing two-day orientation to clinical clerkships.

To make room for the new CSC in the Year 2 curriculum, while preserving students’ time to prepare for the USMLE Step 1 exam and vacation, the second year of the basic science curriculum was deliberately shortened by three weeks. Over two years, each second-year basic science course in the pre-clerkship curriculum was reduced proportionately, primarily by eliminating redundant content.

### The Clinical Skills Clerkship (Doctoring V)

In 2012, the Office of Medical Education launched a new three-week, innovative, non-specialty-specific, classroom-based CSC. The CSC is technically a second-year clerkship but is only available for students going immediately on to clinical clerkships. Therefore a student who takes time off from medical school between Years 2 and 3 would not take the CSC until he or she returned to medical school for clinical clerkships. A password-protected e-syllabus with the schedule, syllabus, readings, resources, videos, and discussion questions was designed as a resource for students during their clinical years of medical school.

The overarching goal of the new CSC is to fully prepare medical students for their seven specialty-specific clerkships in Community Health, Family Medicine, Obstetrics and Gynecology, Pediatrics, Internal Medicine, Surgery, and Psychiatry. The first course ran in April and May of 2012 with three course leaders including two physicians and one nurse: the Director of Clinical Curriculum (which includes the basic science curriculum), and the Director of the Clinical Skills Suite, respectively. The inaugural CSC included close to 90 hours of new curriculum taught by more than 120 faculty members from a wide variety of medical specialties and a broad range of health care disciplines. The CSC is comprised of

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**Table 2. Doctoring III and IV (Year 2), 2012-13.**

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<thead>
<tr>
<th>Fall semester:</th>
<th>31 small group faculty hours</th>
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<tbody>
<tr>
<td>Spring semester:</td>
<td>15 small group faculty hours</td>
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Feedback and evaluation (written work and 5 OSCEs*): 45 hours

- **Medical Interviewing Skills (11 hours)**
  - Screening for depression
  - Screening for interpersonal violence
  - Caring for gay, lesbian, bisexual, and transgender (GLBT) patients
  - The pediatric interview
  - Delivering bad news
  - End of life conversations
  - Family meetings

- **Physical Diagnosis Skills (21 hours)**
  - Cardiopulmonary exam
  - Abdominal exam
  - Head, eyes, ears, nose, and throat (HEENT)/neck exam
  - Neurological exam
  - Musculoskeletal exam
  - The complete physical exam
  - GU/GYN exam training (2 hours per student)
  - The pediatric examination with an emphasis on normal growth and development

- **Oral Presentation Skills (9 hours)**

- **Written Documentation Skills (10 hours, 6 case write ups)**

- **Professionalism / Ethics (6 hours)**
  - Truth-telling
  - Informed consent
  - Medical errors

- **Cultural Competence (1 hour)**
  - Working with interpreters

**Objective structured clinical examinations**
three main content areas—a virtual family curriculum, interactive clinical skills training, and professional development—each implemented under the primary direction of a different course leader (Table 3).

The Virtual Family Curriculum introduces students to different medical specialties and clinical skills via a multi-generational virtual family that travels through the health care system and encounters each specialty in the course of their health care. Teaching materials prepared for this curriculum include 1) videotaped encounters between a senior medical student and members of the virtual family as portrayed by standardized patients, 2) small group facilitation guides, and 3) oral presentations performed by senior medical students. Each of the six sessions takes four hours and has three components: a one-hour content-heavy skills lecture, a 30-minute introduction by clerkship directors to the medical specialty of the day, and two and a half-hours of skills practice taught by senior medical students in small groups of eight or nine students per group. For example, on the Pediatrics Day, the lecture is on intravenous fluids (IVF) and the skills include writing IVF orders, pediatric medication dosing, and obtaining a specialty consultation.

The Clinical Skills Training introduces students to common clinical procedures and protocols. These five days of curriculum are primarily organized as stations and co-taught in small groups by medical, nursing, and pharmacy faculty as well as senior students.

The Professionalism Curriculum focuses on practical strategies for maximizing students’ experience as learners and health care team members in a series of new clinical learning environments. Teaching formats include interactive panels, workshops, team exercises, and multiple individual peer mentoring sessions.

Much of the CSC curriculum is taught or co-taught by a core team of 12 senior medical students participating in a new four-week medical education elective led by a senior medical student as part of his or her Medical Education Scholarly Concentration work. The Scholarly Concentration Program at AMS is an elective program at our institution through which medical students may “pursue a course of study beyond the scope of their conventional curriculum and to translate personal interests and activities into scholarship.”

The team of senior medical students has a myriad of teaching responsibilities in the CSC ranging from facilitating small group sessions to supervising procedure stations to giving lectures and demonstrations to individual peer counseling to grading OSCE stations, all under the guidance of course leaders. In addition to the senior medical students as teachers, all of the Doctoring III–IV small group faculty (who teach in the clinical courses the students have just finished) and all the clerkship directors and coordinators (who are responsible for the courses the students will be taking next) taught in the course.

**Table 3. Doctoring V: The inaugural Clinical Skills Clerkship (Year 3), 2012.**

**1. Virtual Family Curriculum**

*Content:* The matriarch of the 3-person, 3-generation virtual family is Barbara Garcia, a 69-year-old woman whom students first meet in the outpatient setting (Family Medicine) and follow through the Emergency Room to a hospital admission (Internal Medicine), an operation (Surgery), and discharge from the hospital to a rehabilitation unit where she gets depressed (Psychiatry). Her daughter, Samantha Garcia, has a baby named Joseph (Obstetrics and Gynecology) who gets sick (Pediatrics) and requires a hospital admission and a specialty consultation.

*Clinical Skills:* Oral presentations, written documentation including history and physicals ("H+Ps"), admission orders, daily progress notes, discharge paperwork; interpretation of diagnostic tests, electrocardiograms (EKGs), and chest x-rays (CXRs); management of intravenous fluids (IVF) and blood sugars; dosing medications.

**2. Clinical Skills Training**

*Content:* Basic suturing; searching for clinical evidence: formulating clinical questions and accessing practice guidelines; lumbar punctures; IVs; subcutaneous and intramuscular injections; venipuncture and phlebotomy; arterial blood gases; nasogastric tube insertions; male and female catheterizations; operating room scrub technique including gloves, gowns, and sterile fields; wound care including stapling and vacuums; ABCs for trauma.

*Clinical Skills:* Familiarity with the above procedures (indications, equipment and supplies, consent, and documentation); medical student roles during codes, Advanced Cardiac Life Support (ACLS) certification.

**3. Professional Development**

*Content:* Working in clinical environments; scholarship in the clinical years; inter-professional team training exercises (in conjunction with students from local pharmacy and nursing schools); student health and Occupational Safety and Health Administration (OSHA) certifications; user names and passwords and training for various electronic health records (EHRs).

*Skills:* Clear understanding of attendance, medical student work hour, and evaluation policies. Strategies and resources for choosing a medical specialty, answering clinical questions (including app sharing), navigating social media, and self-care.

**4. A six-station Objective Structured Clinical Examination (OSCE)**

- Observe a videotaped clinical encounter of a senior medical student evaluating one of the members of the virtual Garcia family.
- **Documentation:** Write an admission H+P and hospital admitting orders.
- **Interpretation:** CXR and EKG.
- **Procedures:** Perform an evidenced-based medicine literature search using a PICO strategy (patient or population; intervention; comparison; and outcome)\(^\text{12}\).
- Place 3 simple interrupted stitches and remove them.

The team of senior medical students has a myriad of teaching responsibilities in the CSC ranging from facilitating small group sessions to supervising procedure stations to giving lectures and demonstrations to individual peer counseling to grading OSCE stations, all under the guidance of course leaders. In addition to the senior medical students as teachers, all of the Doctoring III–IV small group faculty (who teach in the clinical courses the students have just finished) and all the clerkship directors and coordinators (who are responsible for the courses the students will be taking next) taught in the course.

**The Longitudinal Ambulatory Clerkship (Doctoring VI)**

Students are required to complete a longitudinal ambulatory clerkship (LAC) in their last two years of medical school. The LAC must be of six months duration and consists of one-half day per week of seeing patients at a single outpatient site. When the Doctoring working group considered in depth what was actually “longitudinal” about the experience—patient care, clini-
cal site, or the attending physician—it is the ongoing physician mentorship that is most valuable to students, quite similar to the mentoring component of the Doctoring course in Years 1 and 2. As such, in 2013, this very successful existing course will be renamed an “Advanced Clinical Mentorship,” goals and objectives will be refined, and additional assignments, such as quality improvement projects, may be incorporated.

**The Internship Preparation Elective (Doctoring VII)**

The new Doctoring program will be complete in the spring of 2013 with a one-week Internship Preparation course that will be piloted as an elective for graduating seniors during the week after Match Day. This classroom-based course will be a collaboration between the Office of Medical Education (clinical skills) and the Office of Student Affairs (professional and personal development) designed to prepare AMS students for the professional and personal challenges of internship, considering the needs common to all nascent physicians, again regardless of specialty choice. Specific objectives for this final Doctoring course are as follows:

1. To provide a broad review of key clinical information and skills
2. To introduce new clinical skills that will be essential for internship
3. To practice increasingly effective, efficient clinical skills
4. To refine teaching and learning skills, of self and others
5. To build robust resources for professional and personal development and self-care

**The Fourth-Year OSCE**

The Doctoring program culminates with a ten-station summative OSCE that is designed to prepare students for the USMLE Step 2 Clinical Skills Examination. At AMS, students take the fourth-year OSCE immediately following the completion of their third-year specialty-specific clerkships. Successful completion of the exam is a graduation requirement and results are reported on students’ residency applications.

Grading options for the components of Doctoring as well as the fourth-year OSCE are Pass/Fail, with the exception of Doctoring IV and the Longitudinal Ambulatory Clerkship. These two courses offer the possibility of Honors. In all cases, students must pass one course before they can proceed to the next one in the series.

**Conclusion**

In summary, Brown’s Doctoring program is now in the final stages of becoming a robust, seven-course experience to provide all AMS graduates with strong clinical and professional skills. Next steps in program development involve further refinement and integration of the curriculum both across the individual Doctoring courses and between Doctoring courses and other curriculum, expansion of our technologic capacity for education within the Clinical Skills Suite including feedback and evaluation, and adjusting to the increased class size that has now reached its target of 120 students per class with the MD Class of 2016.

**References**


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