Not a Medical Course, but a Life Course
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The hardest conviction to get into the mind of a beginner is that the education upon which he is engaged is not . . . a medical course, but a life course, for which the work of a few years under teachers is but a preparation.

—Sir William Osler, The Student of Medicine

Beyond providing a foundation in medical knowledge and skills, an effective medical education also must develop students’ abilities to recognize and fill current and future knowledge gaps. Given the flood of information and innovation—often from commercial interests such as pharmaceutical companies and device manufacturers—our medical students and trainees must become reflective and skeptical lifelong learners, lest they unwittingly prescribe ineffective treatments to those who cannot afford them.

This need is universally recognized but widely ignored. The temptation to cram one more fact into the curriculum prevents the teaching of lifelong learning skills. The disastrous consequences for medicine have been well documented—a systematic review of 62 studies showed an inverse association between years in practice and quality of care, concluding that “Physicians who have been in practice longer may be at risk for providing lower-quality care.”1 Even good clinicians fail to recognize areas of knowledge deficits, are poor at searching for, and being appropriately critical of, the information that they find, and are unable to integrate new knowledge into practice. The subsequent cost to the health of individuals and populations is enormous.

The clinician’s task of lifelong learning is daunting. Faced with over 13,000 known diseases, over 2,000 new MEDLINE articles each day, and a deluge of commercially conflicted information, it is not surprising that we struggle. An analysis of 100 systematic reviews2 showed that the “half-life” for clinical research was five and a half years, before a clinically important change occurred. Coping with this information chaos requires hundreds of hours of practice and well-honed skills—including self-learning skills and the ability to recognize knowledge gaps, formulate answerable questions, and search and critically appraise knowledge. How to perform these skills is included in medical courses, but the opportunity to practice and receive feedback is not. It’s akin to being shown a stethoscope without being given time for training or assessment.

We suggest making five changes to address the shortcomings in our medical education system and improve the health of patients.

• Early in training, teach and assess skills in question recognition and formulation, searching, and critical appraisal as thoroughly as anatomy or pathology.

• At the bedside, teach the application and integration of these basic skills. For example, give students “educational prescriptions” to formulate clinical questions and find answers before the next teaching session and involve them in team journal clubs.

• Teach students to explain evidence about diagnosis, prognosis, treatment, and their uncertainties to patients. This lesson should include, and extend beyond, shared decision making.

• Prepare students for the challenging task of integrating innovation and research into the realities of their clinics by teaching them how to link evidence from systematic research to their personal experiences and to their patients’ individual needs and hopes.

• With few exceptions, the practice of medicine is open-book; to test and foster real-world skills, all exams in all subjects should also be open-book.

The recent Global Independent Commission on health professional education3 advocates shifting “from memorization to searching, analysis, and synthesis of information for decision making.” Unless these skills are taught early, at both the basic and clinical levels, few students will learn to adopt them in practice. The integration of these skills at the bedside, by modeling and teaching, is vital for students to understand the complexities and subtleties of incorporating evidence into patient care. Students must learn to connect external evidence from research with internal evidence from their experiences and their patients’ circumstances and values. Leaving the development of these skills to chance or to later in the curriculum is not acceptable.

We recognize that these changes would necessitate a large cultural shift that would require deans to cut the Gordian knot of ever-expanding curricula. We think that it is time for teaching staff to take seriously Osler’s advice to medical students and for lifelong learning to become a prominent part of medical education to improve the health of patients.

References