Commentary: Osler in a Brave New World
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Abstract

The current issue of *Academic Medicine* includes a proposal to reform internal medicine residency education by returning to the Oslerian ideal of an internist as a consultant–generalist. To meet this goal, the proposed model focuses on a traditional inpatient learning experience with outpatient learning structured in blocks rather than continuity clinics. In this commentary, the author contends that today’s learning environment is significantly different from the learning environment of the 1890s when the Oslerian ideal was conceived. Inpatient wards are often filled with patients who arrive to the hospital ward with a diagnosis already made. Residency education needs to take into account the technological and scientific advances of today’s age to ensure that residents are learning the fundamental skills required of all physicians—delivering a precise differential diagnosis which leads to the ultimate evaluation and treatment plan. Meaningful experience with patients who cover the full spectrum of health and illness will bring the most robust learning for our residents. To attain these experiences, our residents must practice in a variety of environments, including in inpatient services, intensive care units, and outpatient clinics. Just as in designing a well-balanced financial portfolio, educational programs must be equally well balanced to achieve the learning and patient outcomes that residents expect and patients deserve.


Editor’s Note: This is a commentary on Huddle TS, Heudebert GR. Internal medicine training in the 21st century. Acad Med. 2008;83:910–915.

The value of experience is not in seeing much, but in seeing wisely.
—William Osler

We can’t allow science to undo its own good work.
—Brave New World by Aldous Huxley

The early years of the 21st century have brought numerous calls both for reform of medical education and for reform of our entire health care system.1–4 The proposals calling for change in internal medicine residency education are arising across the spectrum of the entire discipline—from the specialty societies and large membership organizations, from residency program directors, and from the trainees themselves. Many of the proposals are in response to the complexity of the current health care system. The escalating costs, discontinuity of care, and the intense focus on patient safety are transforming the experiential learning of residents in graduate medical education programs.

In this issue of the journal, Huddle and Heudebert5 propose a model for internal medicine residency education based on the traditional inpatient experience, with outpatient learning structured in blocks rather than in continuity clinics. They assert that the Oslerian ideal of the consultant–generalist is based on acquiring knowledge in internal medicine that is both wide and deep, and developing clinical acumen from several years of experience caring for sick patients in inpatient settings. The authors make the point that in the inpatient setting, residents have opportunities to see disease evolve over hours to days. They argue further that the extended exposure to disease in the inpatient setting allows trainees to appreciate the variability of common diseases, along with the pitfalls of addressing this variability in a stereotyped fashion with guidelines and algorithms. There are many aspects of their proposal with which I agree. The density of the potential learning experience in the inpatient setting is unequaled. Gaining familiarity with the potential pace of illness, disease progression, and complications is a powerful learning experience, one that is critically important in developing clinical judgment and competence.

However, the consultant–generalist model that Osler conceived of is that of an expert diagnostician and compassionate caregiver born in a substantially different world than the one we live in today. In 1890, Osler’s laboratory for learning medicine—in order to hone the skills that create the expert diagnostician—was an inpatient ward largely occupied by patients with undifferentiated illness.6 I am confident that the length of stay on Osler’s ward was several times the length of stay in our teaching hospitals in 2008. His was a laboratory for learning where the residents lived in the hospital—not a laboratory with the duty hours restrictions and multiple hand-offs that create discontinuity of care. His was a laboratory where doctors were “married” to the profession, not one where lifestyle choices by young physicians drive career choice.

The Brave New World
Our brave new world, so different from Osler’s, demands that we rethink the entire paradigm for learning medicine. The revolution in both science and technology has had a profound impact on medicine in general and, specifically, on medical education in the hospital. This is an era where the patient may arrive on the hospital ward not with undifferentiated illness, but with a chief complaint being an abnormal magnetic resonance image. The number of

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therapeutic options and interventions available to us today is logarithmically greater than in Osler’s world. Additionally, patient-safety concerns invite a rethinking of the paradigm of experiential learning and attaining competency. Graduate medical education programs seek to carefully balance the educational needs of learners whose education requires increasing amounts of independence with the safety needs of patients who benefit when being cared for by the most experienced doctor. The proposal by Huddle and Heudebert focuses on venues for internal medicine residency education with the goal of educating Oslerian generalists. This provokes us to consider both what internal medicine residency education seeks to accomplish and how doctors learn. Only by first raising these questions may we then grapple with the best models to achieve the goals of internal medicine residency education.

Experience and Apprenticeship

The traditional learning model for residency education is in part experiential and in part apprenticeship. Experiential learning occurs when residents acquire knowledge, skills, and attitudes in the context of taking responsibility for patients and ultimately learning through practice. The model suffers from a lack of clarity regarding the role that supervision plays while the learner gains experience.

In the context of patient care, the supervision that is assumed is likely present in many different forms. The wide spectrum of supervision models ranges from direct guidance that is physically present to supervision available by telephone. The apprenticeship model in the best circumstances provides modeling of knowledge at work, skill in application, and virtuous attitudes toward patients and the profession, balancing the appropriate amount of supervision with resident autonomy.

Residency education ideally incorporates a blend of both models. While Huddle and Heudebert’s paper does not call for a radical redesign of the traditional model of residency education, the question of supervision is a vital one in our brave new world and is independent of practice setting.

Internal medicine will not be completely learned during the period of residency education. But, presenting residents with the framework for approaching issues of health and disease, problem solving, and clinical judgment may be shortchanged if we start with a focus on the venue rather than on the skills. If we think rigorously about how doctors learn and ultimately acquire competency in the six general domains required by the Accreditation Council for Graduate Medical Education, we must consider the knowledge and skills required of a competent resident, the best methods for acquiring the knowledge and skills, and, finally, the venues in which those competencies are best achieved. If too much of the debate focuses on time spent in inpatient and outpatient settings, we may lose sight of what we are actually expecting our residents to learn.

The Ways of the Expert Diagnostician

The primary skill on which the consultant generalist—or internist—rests is as a diagnostician. Huddle and Heudebert opine that diagnostic skill is best learned in an inpatient setting. To a large extent, I agree. However, I am fearful that learning in the inpatient setting is at risk because of the responses to the current health care environment such that acquiring the basic skills of a premier internist may be lost. All too commonly, patients arrive to the hospital bed with a diagnosis made even before the residents meet the patient. The opportunity for putting the Oslerian observations together to make a diagnosis may have already been done in the radiology department.

Projecting into the future, we see artificial intelligence at work, with many new tools helping patients make their own diagnosis and perhaps even teaching novice students of medicine. Powerful search engines such as Google or eMedicine invite the Internet user to type in a symptom and have a differential diagnosis immediately appear. More advanced tools such as DiagnosisPro are specifically designed to generate the most appropriate differential diagnosis. Each time I sample these tools, I am impressed in some instances with how misled one might be and on other occasions with how on-target the differential diagnosis appears. What are missing from these search engines are the context, the nuance, the social interaction, and the clues that the doctor elicits from interacting with the patient, thus allowing the prioritization of the relative likelihood of each entity and the development of a differential diagnosis.

Yet, I contend that the skill of differential diagnosis is the fundamental skill for all physicians, and perfecting this skill is one of the major goals of residency education. Perfecting the skill of differential diagnosis has powerful implications for containing health care costs, for designing the most effective and efficient treatment plans, and for ultimately delivering the most significant patient outcomes. If this is less likely to happen on the inpatient ward, the question becomes, where and how is this skill, as one example of many skills, best and most effectively learned?

Skills will be learned in many settings—but the very best setting will be those where a large number of patients with undifferentiated illness present. While those settings may sometimes be, or may have been, our inpatient wards, it is too commonly the case now that our inpatient wards are filled with patients waiting for or recovering from procedures, undergoing transplants, or receiving treatments already initiated in the office or in the emergency department. Some of this diagnostic skill can surely be learned in the inpatient setting. However, creating the learning environments where patients present with the widest possible explanations for their shortness of breath, chest pain, or swollen face provides the most ideal setting for learning differential diagnosis and the skills of an expert internist.

The Fundamental Components of Learning Physicianhood

Creating optimal learning experiences for internal medicine residents demands several fundamental components. One of these must be actual practice or experiential learning. The theories of expertise strongly suggest that practice builds the neural connections ultimately leading to expert performance.9 In studying music, for instance, one begins by learning the notes and the fingering, the rhythm, phrasing, dynamics, pitch, and tone. After years of practice, the musician transforms the notes on the page to the beauty of music through nuance—the color of the sound; the power of sound punctuated by silence.

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This is not unlike the process of becoming a competent and, ultimately, an expert clinician. It takes time. Skill acquisition and development of competency requires time for reflection and for the discipline of analyzing multiple data points, time for personal connection with patients, and time for demonstrating empathy and compassion. Healing requires time. The pace in today’s residency programs provides less time than before for reflective practice and learning.

Medical education programs must continue to emphasize experiential learning and appropriate supervision by expert clinicians. However, these experiences must be fundamentally designed for the purpose of acquiring skills of application of knowledge as reflected in differential diagnosis, design of treatment plans, judgments of prognosis, pace of illness, impending complications, and the ingredients necessary for healing. Meaningful experience with patients who cover the full spectrum of health and illness will bring the most robust learning for our residents. That spectrum includes opportunities to care for the well patient as well as those with illness in various forms, ranging from undifferentiated illness to chronic disease, and acute decompensation. In all cases, residents working in settings with model practice environments—including inpatient services, intensive care units, and outpatient clinics with models for chronic care delivery—will be situated in the very best learning environments. These environments are very different from Osler’s learning laboratory, but they are the contemporary venues that will teach doctors the best skills in thinking and problem solving. I continue to see the inpatient, acute setting as fundamentally important for effectively assimilating these skills. Yet, the ambulatory venue presents opportunities for residents to see patients with more undifferentiated illness, who may or may not be compliant with medical regimens, and whose complaints may range from those born in anxiety or depression to a medical catastrophe in the making. Obviously, there is a role for multiple venues for internal medicine education.

The singular most important challenge in our experiential, apprenticeship learning model in both the inpatient and the ambulatory settings is the subordination of the educational aspects of residency education to institutional service needs. Although gains have occurred in many of our teaching hospitals to use models without residents to provide patient care, this focus on service at the expense of education needs continued attention and decisive action. With real responsibility comes authentic opportunity to manage the complexities of illness along with the social context of illness. While all would agree there are rich learning opportunities here, when intervening on a patient’s behalf depends on residents to fill in the infrastructure gaps of patient transportation, adequate nursing staffing, patient scheduling, and other necessary components of patient care, then the balance between education and service is wrong irrespective of the setting where this occurs.

In medicine, as in many other life endeavors, achieving excellence is in discovering balance. To hone one’s skills in differential diagnosis, treatment plans, and learning when to act and when to restrain is to become an expert clinician. This cannot be forced. Where is the highest density of patients with undifferentiated illness? They are in our inpatient wards—and in our emergency rooms, in our outpatient clinics, and in our offices. Just as in designing a well-balanced financial portfolio, our educational program must be equally well balanced to achieve the learning outcomes and the patient-care outcomes that doctors expect and their patients deserve.

References