Reflections on the Medical Education Continuum and How to Improve It

After an international medical education conference in Ottawa, Canada, I had to pass through customs. The agent was a serious young man in a dark blue uniform reading questions from a list. “What was the purpose for your visit?”

“I was attending a conference,” I said and, hoping to allay any concerns, added, “A medical education conference.”

“What are you bringing back to the United States?”

I thought for a moment. I had not gone shopping or bought anything. But I had learned a lot at the conference, and it did not feel quite right to say I was bringing nothing back. There had been many provocative lectures and discussions with such themes as

- assessment could drive physician behavior change,
- medical educators should take responsibility for workforce planning,
- reflection improves learning at all levels of medical education,
- workplace assessment might be as important as knowledge testing, and
- we need better transitions between undergraduate medical education and graduate medical education.

So in response to his second question, I answered, “New knowledge.”

Without skipping a beat the agent responded, “And what would be the value of that knowledge?”

I paused for a moment. Everyone seems interested in value in health care: insurance executives, hospital administrators, and now a customs official. “Well, I hope it will make me a better doctor and teacher. But I don’t know how to give it a monetary value. Priceless, I guess.” I smiled.

Since he waved me through, I guess my answer was sufficient. But I kept thinking about the value of the key themes of the meeting as I prepared to fly home. How could I apply my new knowledge about assessment, particularly workplace assessment, across the continuum of medical education? Would the idea of reflection resonate for practicing physicians, residents, and medical students in the same way? How can we participate in planning for workforce needs without knowing what kind of delivery system will exist in the future, how long people will practice, and the roles of advanced practice nurses and physician assistants? And finally, what do we mean by a continuum of medical education? Who is responsible for defining it? In the rest of this editorial, I reflect mainly upon these last two questions.

It is instructive to know that the word continuum is derived from the Latin con (together) and tenere (to hold), thus something that holds together. The word first appeared in the mid-17th century, according to the Oxford Dictionary, and means “a continuous sequence in which adjacent elements are not perceptibly different from each other although the extremes are quite different.”

Most definitions of the medical education continuum separate the phases of medical education: premedical education, undergraduate medical education, graduate medical education (GME), and continuing medical education (CME) for practicing physicians, and attempt to place them like villages along a mountain trail where a physician will stop along the way for clues about how to master the next part of the trail, hoping to eventually reach a mystical valley of Shangri-La of ageless and perfect medical knowledge and skill. Although it is not difficult to identify the various phases of medical education, it is more difficult to justify calling this series of segments a continuum, since in a continuum there is a smooth transition from one phase to the next. In 1994, Petersdorf wrote

Most of us focus on one part of the continuum and try to make that part of the educational experience as useful and successful as possible. We hope that those responsible for the next segment will be equally committed, but we recognize that our influence to alter someone else’s segment is limited. During my career, I have been fortunate to participate in some limited ways with the entire spectrum of learners, from premedical students to practicing physicians. The problems of the continuum, as well as of other topics featured at the conference, can be illustrated through these learners’ stories, so I share a few of them below to provide context for the possible solutions I will propose.

A premedical student: Mary (this and all other names changed) is a premedical student and student athlete from a working class family. She has been shadowing me and is excited to be learning what real doctors do. She asks the kinds of questions that reveal her amazement and wonder at the world I take for granted. “Who cleans up all the blood? Is it always this busy? Do you ever get tired?” I want to encourage her to pursue medical school because I am impressed with her dedication, compassion for the patients, and interest in primary care, but I worry about her grades and MCAT scores and what the workforce for primary care will be in seven or eight years. And when I think about the continuum, the transition from premedical to medical school seems more like jumping over a river than crossing a smooth bridge over that river.

A first-year medical student: Tim is a first-year medical student whom I taught in a tutorial. I quickly recognized his leadership and self-directed learning style. He wants to be an orthopedist, and we

have discussed the various steps he can take to improve his chances of matching in that specialty, such as carrying out research, achieving honors in his classes, getting elected to AOA, and developing a relationship with our orthopedics faculty. We have discussed his approach to learning and the effectiveness of lectures versus online content and how to use prep questions to help him evaluate his areas of weakness. He is reflective and thoughtful, but I worry about the increasing numbers of medical students competing for GME slots in orthopedics, whether we have an overall picture of how many orthopedists we will need for an aging and growing population in 20 or 30 years, and whether answers to these questions bear any relation to the number of available residency slots we have now.

A fourth-year medical student: Duard is a fourth-year student who has already matched and will be leaving our medical school to begin his residency education. He and his wife are newly married and have a small child. He has excelled as a student, and he wants to know how he can continue to excel as a resident. We don’t yet have a boot camp experience for students going into his specialty, but he has done enough clinical work that he should be prepared to make the transition. Although I am confident of his success, I worry about all I know from the data about burnout, loss of empathy, and depression among residents. When we talk prior to his departure, I encourage him to keep a journal of his experiences so that he can process them; I also emphasize that he needs to find an apartment in a quiet neighborhood not too distant from the hospital where he can sleep after night call. I worry that we have not done enough to keep students like Duard physically and mentally healthy during residency so that they retain the enthusiasm and empathy that characterized them as students.

An intern: Tina is finishing her internship. She has grown enormously over the past year and is ready to take on the responsibilities of a second-year resident. I marvel at how she has gained in confidence and ability to do procedures that were a mystery to her when she began. I wish I knew what was responsible for this growth so that we could distill it from the many hours of less useful time she has spent on doing discharge paperwork and documenting the medical record for billing and administrative purposes. I also know that the next year of her training will accelerate her growth as she becomes responsible for sicker patients. I worry about how she will handle her first medical error that ends up in a morbidity and mortality conference and whether we have given her sufficient skills in medical school to cope with such an experience. I also wonder if we have given adequate emphasis to patient safety and quality improvement in her medical education.

A graduating resident: Lane is about to graduate from residency. I notice that he is more interested in going over cases with me now than when he was a second-year resident. He tells me, “I realize I am going to be on my own in 3 months and I won’t have anyone to talk with in the middle of the night. I want to make sure that I take advantage of the opportunity while I am still here.” I try to think of teaching points and references for each of his cases that will consider useful and memorable, and he nods in appreciation at my effort, but I wonder whether this represents an acknowledgment of real learning. I wonder why we could not continue to support Lane during his first year or two as a practicing physician and perhaps be able to help him through a difficult case. He is struggling to finish all of his projects—his research and his quality improvement projects in particular. I like to think that he will remember these projects as valuable in helping him learn critical skills that he will need throughout his career. But I wonder whether some of them will be as quickly forgotten as the Krebs cycle.

A practicing physician: Michael is in the front row of the hall as I give a CME lecture to practicing physicians. I have known him for 30 years. He is well respected in the community as an excellent clinician but has recently closed his practice and taken on a medical directorship for a managed care organization. He is furiously taking notes as I discuss physician payment and delivery system reform. After the lecture he comes up to me to discuss some fine points of the lecture. When I ask him about his new position, he shrugs and tells me that he just could not take the clinical grind any more. This was a way out. He hopes to do the job for about five years before he retires, and he wants to do it well. “It’s a job,” he says, and I nod. I hope he will become enthusiastic and knowledgeable about his new responsibilities, but I feel sad that the community is losing a skilled clinician and wonder what we could have done to better support him in his clinical practice.

As I reflect on each of these learners’ stories and others, I notice recurring themes that exist in all phases of medical education: the incessant testing that may not align with what is most important about our future physician workforce; the inadequate transitions; the minimal involvement in workforce planning and support; the isolation, excessive stress, and long work hours; and limited opportunities for reflection and mentorship that could prevent burnout. All of these problems involve the continuum of medical education. If I had to sum up what concerns me about the continuum, I would say that (1) there is a failure to create a unifying vision for medical education, and (2) the transitions between the segments of education are rough.

To address the first concern, some have suggested that the development of expertise from novice to expert could be a unifying theme. However, this focus begs the question: Expertise for what ends? Just as pilot training could initially focus on the development of expertise in flying without knowing the purpose of the flight—for example, transporting passengers, bombing enemies during a war, carrying goods, or mapping an area—the training would be both incomplete and misaligned without eventual clarity of purpose. Kruse6 renewed the call to improve the continuum of medical education starting with a “common mission statement of social accountability for governing, accrediting, and licensing bodies.” His idea was to bring together all of those involved in the public oversight of medical education to reach agreement on the purpose and value of medical education, which could then provide scaffolding for curriculum and assessment.

Regarding the second concern, because the design and supervision of each segment of the continuum is under the control of different bodies with different goals, improvement has focused on better sewing together the individual segments, the way one would sew independently created squares into a complete quilt. However,
without any overall design for the finished product, one risks creating a chaotic mess without any recognizable pattern. In a recent white paper, the Royal College of Physicians and Surgeons of Canada emphasized the various transitions that occur during the continuum of medical education and the changes of identity that occur during the transitions. They identified various transitions that occurred after formal GME beyond the one leading to independent practice. These transitions may involve taking on new administrative roles, learning new procedures or techniques, or dealing with changes associated with various life situations such as marriage, children, illness, divorce, or aging. They offered recommendations about how to manage the transitions and emphasized the concepts of lifelong learning and feedback to physicians about their performance. A similar focus on transitions in the earlier phases of medical education could help create a vision for the overall goal of medical education, in part because such an effort would reveal commonalities among the transitions.

Transitions between phases of medical education and the overall structural integrity of the educational process appear to be the overriding concerns about the medical education continuum. Solutions have focused on bringing together the various agencies responsible for the oversight of the component parts of the continuum with the aim of creating common goals and a shared vision. However, because each group has unique legal and administrative responsibilities, it is not clear that any agreed-upon approach would emerge from such a summit meeting. A more likely scenario is the adoption of a model by one group that could diffuse to other groups, as has happened with the core competency framework of the Accreditation Council for Graduate Medical Education. However, the gradual adoption of a model created for one segment of the continuum by other segments provides no assurance of appropriateness or applicability.

A better option might be the promotion of overarching goals such as the triple aim of improving health care, improving the health of populations, and reducing costs of health care articulated by Berwick et al. Another approach might be adoption of the Institute of Medicine’s attributes of quality as an overarching goal, which I have previously described as a possible model for curricular development. Either approach could provide an overarching goal for medical education throughout the continuum that would create the scaffolding for each curricular element as well as the connections between them. Such an approach would help in the difficult prioritization decisions about which elements of the curriculum should be required, which should be optional, and which could be eliminated. Such a framework would also provide guidance about skill sets needed during transitions. Assessment could provide consistent goals for the behaviors that we would desire for our students at each phase of the continuum. Ultimately, we would finally be able to present a unified vision for our students at all stages of their development that would facilitate transitions and the fostering of their professional identities. And the value of such an agreed-upon framework? As I suggested to the customs agent, it would indeed be priceless.

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Editor’s Note: The opinions expressed in this editorial do not necessarily reflect the opinions of the AAMC or its members.

References
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