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Toss Out the Term "Competency-Based"

Replace it with "mastery-based" residency education.

Practice Perfect is a continuing every-issue column in which Dr. Shapiro offers his unique personal perspective on the ins and outs of running a podiatric practice.

The Council on Podiatric Medical Education (CPME) states that residencies are "competency-based", but the time has come to end competency-based education. Yes, there's a better alternative: mastery education. Is it enough that our residents graduate at the competent level rather than being masters? What does it mean to master something? And what does mastery-based education look like, anyway? Before diving into mastery learning, let's review the current state of podiatric residency education.

Current Residency Education Performance Metrics

1) Time-based—All programs in the United States are required to have their residents do 36 months of training, at a minimum. Is a resident who acquires all the skills to be a modern podiatrist in 30 months allowed to leave early? Tough luck. Keep being a resident for 6 more months. Need 40 months to acquire those skills? Tough luck. Out you go.

2) Competency-based—Our residents are supposed to demonstrate their skills at some point to prove "competency." This looks different for every program. The one commonality is that the residency director signs off on a resident's completion without the need to prove that resident can actually do the job. This is why there is so much variation in the quality of residents graduating. One program graduates residents able to do any manner of surgical procedure, for example, while a different program may graduate someone with a lower level of skill. Where is the *proof* of competency? It's nonexistent.

3) Volume-based—The only actual milestone a resident is required to demonstrate is completion of "minimum activity volumes", in which they log a number of completed surgical procedures, biomechanical exams, comprehensive history and physicals, etc. This volume doesn't prove a resident can do anything. Did resident X do those 300 podiatric procedures skin-to-skin? Or did they simply retract the skin? Does this prove a resident can do a certain procedure? No, it doesn't. How many of a certain procedure are needed before someone is competent? Have these numbers been validated in some way? No, they haven't.

The result of our current system is a set of variably competent graduates, some of whom will function as high-quality podiatric physicians and surgeons and others who go out and damage patients. Is this really the best we can do? No, it's not.

But there is a better way: *mastery-based education*. Mastery learning has been around for a long time, and, like many good ideas, has been ignored by the medical education community. Elementary school teachers have been using it for decades. Unfortunately, it has not previously trickled into medical education. However, with the advent of simulation training, especially in the surgical fields, this type of education is becoming increasingly popular and attainable.[1] The characteristics of mastery education in medical training are:[2]

Baseline, or Diagnostic Testing

1) Clear learning objectives, sequenced as units in increasing difficulty.

2) Engagement in educational activities (e.g., skills practice, data interpretation, reading, all focused on reaching the objectives).

3) A set minimum passing standard (e.g., test score) for each educational unit.

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4) Formative testing to gauge unit completion at a preset minimum passing standard for mastery.

5) Advancement to the next educational unit. Given measured achievement at or above the mastery standard.

6) Continued practice or study on an educational unit until the mastery standard is reached.

What does it look like to be a master? Within the field of podiatry, this is not difficult to imagine. The master podiatric surgeon plans and performs surgical procedures with an authoritative approach, employing modern techniques and technologies to attain high quality outcomes. The master clinician efficiently diagnoses disorders, utilizing proper imaging and drawing on a deep fund of knowledge to apply clinical treatments. In both cases the master podiatrist employs an organized and logical thought process that also self-critiques, stays updated on the literature, and is a life-long learner. It should be possible to bring our podiatric residents to this level before they graduate, using the concepts of mastery education.

What would this education method look like?

Mastery-Based Residency Education Structure

• ***Learning Objectives***—Residency programs would have a uniform set of very specific learning objectives, including skills and knowledge that would be used to organize resident education. Mastery of every objective would define the master podiatrist by uniform standards developed by the residency education community.

• ***Orientation and Baseline Testing***—When residents begin their programs, they will undergo a series of knowledge-based and procedural examinations to determine their true level.

• ***Experiences***—Residents would matriculate through their various rotations, each with its own set of very specific mastery objectives, during which they would be tasked to analyze each of their activities using the principles of deliberate practice, receiving feedback that is aimed at helping them master skills at increasingly complex levels. Educational sessions would be focused on supporting and enhancing these clinical experiences.

• ***Testing and Feedback***—Throughout this process, each resident would receive formative assessments of various types during every rotation with the express purpose to provide constructive feedback for positive growth. At certain periods, these assessments would become summative and high stakes, confirming a resident's mastery of a set of skills. Remediation of skills not attained would occur with testing later to prove mastery.

• ***Reporting***—At the end of the process, a summary report on each resident would be written, certifying that resident's skills in various fields.

Clearly there are barriers to achieving this type of education, including funding for technologies like simulations and the use of cadavers, as well as a much more labor-intensive use of faculty and clinician time. Additionally, residency programs are currently listed as "resource-based" because every program has unique resources, including the variable clinical material (patients) in which to gain experience. These barriers are not insurmountable. It takes a little time, planning, organization, and dedication, but it is possible to graduate master podiatrists and move on from just being competent. **PM**

References

[1] McGaghie WC. Mastery learning: it is time for medical education to join the 21st century. Academic Medicine. 2015 Nov 1;90(11):1438-1441.

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