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Perspective

Can Covid Catalyze an Educational Transformation? Competency-Based Advancement in a Crisis

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Covid-19 has become the singular priority of our health care delivery system — disrupting patient care processes, halting many research activities, and profoundly affecting medical education.

Graduate medical education (GME) programs have had to interrupt typical training experiences, given the sharp decline in routine care and the urgent need to reassign trainees to Covid-related activities outside their usual settings and specialties. This scenario forces educators to transform competency-based advancement from a largely theoretical concept to the new reality.

Historically, GME relied on immersion in patient care with informal supervision and assessment; residents graduated if they completed the prescribed duration of training without evidence of significant shortcomings. In 1999, the Accreditation Council for Graduate Medical Education (ACGME), which accredits train-

ing programs, articulated six core competencies, establishing a more structured and deliberate approach to physician training and thereby paving the way for the development of competency-based program curricula and assessment. Subsequent delineation of entrustable professional activities and specialty-specific milestones have advanced a framework for assessing physician competency.

The next logical step in this evolution is a transition from time-based to competency-based, time-variable (CB-TV) GME, in which each physician graduates from residency (or fellowship) to unsupervised practice when — and only when — the necessary competencies are achieved. Canada has launched a nationwide transition

to CB-TV GME across all specialties, after completing pioneering pilot work in orthopedics.¹

The United States, however, is still tethered to time- and case-volume-based training requirements, as evidenced by ACGME and specialty-board certification standards (see table). Several factors impede implementation of CB-TV GME, including heavy reliance on residents and fellows to deliver care, lack of confidence in our assessment of trainees, regulatory requirements that constrain innovation, scarce funding for medical education research, and complacency about the status quo. Although a pilot project examining CB-TV advancement in pediatrics is under way at four U.S. institutions² and a multispecialty pilot (funded through the American Medical Association's "Reimagining Residency" effort) is poised to begin at our institutions in 2021,³ these efforts will take years to generate potentially

Examples of Specialty-Specific Training Time and Minimum Case Requirements.*			
Specialty	Selected Specialty-Board Requirements		Time-Based ACGME Program Requirements
	Time-Based Minimums	Minimum Case Numbers	
Diagnostic radiology	PGY-1 transitional year of training (choice of multiple specialties) followed by 48 mo of diagnostic radiology training (option for enfolded fellowships)	3515 cases total: Chest x-ray: 1900 CT abdomen/pelvis: 600 CTA/MRA: 100 Image-guided biopsy/drainage: 25 Mammography: 300 MRI: body, 20; brain, 110; spine, 60; lower-extremity joints, 20 PET: 30 Ultrasound abdomen/pelvis: 350	"[A] minimum of 80 hours of classroom and laboratory training in basic radionuclide handling techniques...." "Residents must have a minimum of 12 weeks of clinical rotations in breast imaging."
Internal medicine	36 calendar mo of full-time internal medicine residency education At least 24 mo of the 36 mo of residency education must occur in settings where the resident personally provides, or supervises less experienced residents who provide, direct care to patients in inpatient or ambulatory settings	No case minimums	"Each resident's longitudinal continuity experience...must include a minimum of 130 distinct half-day outpatient sessions, extending at least over a 30-month period."
Neurosurgery	84 mo, including 54 mo of "core" neurosurgery: 12 mo as chief resident 3 mo basic neuroscience 3 mo critical care 6 mo structured education in general patient care 30 mo of electives	800 cases total, 400 cases as lead surgeon For each of the following three procedures, 30 as lead surgeon, 60 cases total: adult cranial tumor, adult cranial trauma, total adult vascular lesion	"The program must provide 54 months of clinical neurological surgery education..." "[A]t least three months of basic clinical neuroscience education and at least three months of critical care education"

* Information is from the Accreditation Council for Graduate Medical Education, the American Board of Internal Medicine, and the American Board of Neurological Surgery. CT denotes computed tomography, MRA magnetic resonance angiography, MRI magnetic resonance imaging, and PGY-1 postgraduate year 1.

persuasive pilot data and a road map for implementation.

Enter Covid-19. Cancellation of routine ambulatory care visits and elective surgeries has dramatically reduced overall clinical volume and consequently the learning opportunities for trainees in many specialties. A concurrent surge of patients with Covid has threatened to overwhelm available internists, emergency physicians, and critical care specialists. As a result, many teaching hospitals have deployed residents and fellows across usual specialty boundaries. General surgery and orthopedics residents, for example, have been reassigned to emergency departments or Covid intensive care units. They work alongside dermatology and radiology residents,

neurology subspecialty fellows, and others, getting a different kind of education while their expected (sub)specialty-based learning experiences are diminished.

Covid's disruption of GME presumably affords some educational value, including the broader clinical experience of cross-specialty assignments, and this impact should be examined. However, the loss of planned, curriculum-based training will almost certainly result in shortfalls in time-based requirements such as required rotations, number of ambulatory sessions, and procedural minimums for some of the trainees due to graduate this summer. Requiring residents or fellows to extend their training would cause substantial upheaval for these phy-

sicians, as well as for their GME programs and future employers. Instead, this circumstance presents an urgent imperative to rethink graduation requirements and an opportunity to implement the competency-based approach for which many educators have been calling.

National oversight organizations similarly anticipate that some trainees will not meet the time- or volume-based thresholds on which program completion and board eligibility still rely. In a joint statement issued on April 10, 2020, the American Board of Medical Specialties (ABMS), which is responsible for physician certification, and the ACGME indicated that they "endorse and rely upon the authority and judgement of

Clinical Competency Committees (CCCs) and training program directors (PDs) to determine readiness for unsupervised practice and to inform specialty-board decisions regarding eligibility for initial board certification. This authority and judgement are especially important during times of crises when traditional time- and volume-based educational standards may be challenged.⁴ Thus, Covid may propel us over the threshold to CB-TV GME.

Pivoting to CB-TV GME will be challenging after we have long relied on time-in-program and procedure minimums as unproven indicators of readiness for unsupervised practice. With graduation decisions largely defaulting to fulfillment of these requirements, many CCCs have failed to develop robust assessment processes. Some CCCs focus their attention mainly on identifying struggling trainees as negative outliers,⁵ and graduate others with little evaluation data under the assumption that “no news is good news.” This approach does not fulfill the intent of ensuring each person’s competence and seems especially precarious when the planned training has been altered or cut short.

Instead, a developmental assessment of trainees is needed, and the ACGME’s specialty-specific milestones provide a useful framework for such evaluations. CCCs will need to tackle the critical work of defining specific competency-based criteria for graduation and then determine what type of assessments they have (or need to compile) to inform these decisions. How does the CCC know that a resident with subthreshold numbers of surgical cases is nevertheless able to operate unsupervised? What is the evidence that a resident has demonstrated the

expected level of professionalism or is able to implement practice-based learning and improvement? After individual CCCs address these issues on an urgent basis, national specialty organizations will need to consider how to achieve consistent thresholds for graduation.

With the latitude newly provided by the ACGME and the ABMS, available assessments are likely to suffice for most of the imminent graduation decisions. For some trainees, however, especially those in 1-year subspecialty fellowships, the loss of key training experiences or insufficient evaluations may leave CCCs unable to responsibly assess competence. In such cases, we recommend that program directors rapidly pursue targeted assessments; carefully selected clinical assignments with focused faculty observation, objective structured clinical examinations, or medical simulation can be used. Expanded use of chart review, and of peer- and self-assessment, may also provide useful information, especially when evaluations are difficult to obtain amid ongoing pandemic-related disruptions.

As clearer competency-based graduation criteria are established, and as adequate assessments are compiled, some trainees may not be considered ready for unsupervised practice. Indeed, the competency-based, time-variable approach to GME presumes that some people will need less than the standard volume of experience or time in training and others will need more. Our accelerated foray into CB-TV GME will have to tackle the challenge of requiring and providing extended training for those who need it.

Because Covid’s disruption to GME may continue — and because CB-TV GME has been a

goal for educational reform — we should use this unexpected, uncontrolled experiment as an opportunity to learn how best to implement CB-TV GME. Studying outcomes of physicians who graduate without fulfilling case quotas or time requirements, and investing in evidence-based methods to assess physician competence, will help in charting the course ahead. In these ways, we hope that the Covid crisis will be used to capitalize on prior work and catalyze planning for a robust system of CB-TV GME, achieving sustainable improvement in how we train physicians.

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