The Transformation of Pediatric Education With a Focus on the Subspecialists

Members of the academic societies, colleagues, and friends: I'm deeply honored to receive the Joseph W. St Geme Jr Leadership Award today on its 25th anniversary in my home town of Boston with the opportunity to share the joy with my family. As I review the names of the previous recipients, I am humbled to be in their company. Although I did not know Dr St Geme personally, I have had the wonderful opportunity to work closely with many of the recent recipients of this award, who have served as mentors, role models, colleagues, and indeed, close friends. Since I have not been as fortunate as many other recipients in having the opportunity to work directly with Dr St Geme, in preparation for this address I took time to review and reflect on a wonderful series of commentaries that he wrote in the 1980s that were published in *Pediatrics*.

I learned a number of things about Dr St Geme. He wrote and spoke with great clarity. He was straightforward in his approach and he cared passionately about education, training, and the quality of care that we provide to our patients. He carried forth a message of optimism, always looking toward the future and anticipating change. I suspect he would be very surprised, and perhaps bothered by, some of the changes under consideration in the realm of pediatric education today. But I hope he would be pleased with the rigor and the thoughtfulness that have been brought to this endeavor. I would like to use this opportunity to address pediatric education and its current transformation with particular focus on the subspecialties.

MORE THAN A DECADE OF CHANGE

Just as societal mandates for quality, accountability, and evidence-based assessment of clinical outcomes are transforming pediatric health care and the way in which we practice pediatrics, a similar transformation is occurring in graduate medical education (GME). There has been more than a decade of extraordinary change. The change began when the 6 general physician competencies were articulated by the Accreditation Council of Graduate Medical Education (ACGME) and the American Board of Medical Specialties. The educational paradigm was reframed from one of process measurement, that is, the potential to educate, to the measurement of actual accomplishments or outcomes. The ultimate outcome, of course, is the quality of care provided to our patients. David Leach, who spearheaded the Outcomes Project at ACGME when he served as its chief executive officer, often said “what we measure we tend to improve.” Implicit in this transformation is the use of formal measurements to assess educational effectiveness and the attainment of competencies.

The focus on outcomes and their measurement was an enormous change that at times has engendered skepticism and concern. A colleague in...
internal medicine\textsuperscript{10} contends that the wide-ranging changes being proposed in medical education today lead to the typical grief reaction as shown in Fig 1. As GME undergoes transformation, change has led to initial reactions of denial and anger with progression to increased acceptance of change as an opportunity. The discipline of pediatrics has seized the opportunity and in many ways has been in the forefront for a number of reasons. There have been collaborative efforts of many of the organizations within pediatrics, including the Association of Pediatric Program Directors, the American Academy of Pediatrics, the American Board of Pediatrics (ABP), and the Federation of Pediatric Organizations as outlined in Table 1. There has been active engagement with the other primary care specialties around residency redesign and faculty development. The effort in pediatrics began with the Future of Pediatric Education (FOPE) II in 2000 and has continued to the present time as we are beginning to embark on the Milestones Project, a joint effort of the ACGME and the ABP.

FOPE II made 2 recommendations that were very forward looking at the time,\textsuperscript{11} and relate to a theme you will hear throughout my address. FOPE II embraced flexibility to accommodate a broad range of individual career goals and recommended that each resident should have an individualized learning plan that incorporates anticipated needs for future practice.

In 2005, the pediatrics community embarked on a major project sponsored and convened by the ABP Foundation, which was called The Residency Review and Redesign in Pediatrics (R3P) Project.\textsuperscript{12} It started out as an initiative to address the duration and content of general pediatrics training and to make specific recommendations for the future. But it morphed over several years of deliberation in an extraordinary way. It evolved into an ongoing process of innovation leading to goal-directed change, that is, a quality improvement model of GME that was to build on local strengths while fostering educational collaboration. It was in perfect synchrony with the ACGME Outcomes Project. The project is now ongoing and is supported by an entity known as the Initiative for Innovation in Pediatric Education (IIPE),\textsuperscript{13,14} which is serving as the infrastructure to support and foster outcome-directed experimentation in general pediatrics residencies. The IIPE is providing the framework in which innovation can move forward. The goals of the R3P Project and the IIPE are to create flexibility in training to meet diverse career goals, to develop a continuum of education from medical school through a lifetime of practice, and to address gaps between the current and the optimal health care outcomes of our patients by educating our residents and fellows in the science and practice of quality improvement.

The next step in the journey is the Pediatrics Milestones Project,\textsuperscript{15,16} which was initiated by ACGME in partnership with the ABP. It is a grassroots effort from within pediatrics to take competency-based learning and assessment to the next level, to refine the language of competence in the context of pediatrics and, to make the 6 general physician competencies more meaningful as they center around specific clinical activities that can be observed.\textsuperscript{17} The charge was to develop benchmarks that in the aggregate address the general competencies, to define the expected performance across the continuum, and to identify or develop tools to be used to measure performance.

**EXTERNAL INFLUENCES ON MEDICAL EDUCATION: A CALL FOR REFORM**

Medical education across the continuum from medical school through GME is under increasing stress due to limited resources, concerns about the adequacy of the workforce, and greater public accountability. There is a major call to redesign the education of our health care workforce that improves access to services and creates high-quality and lower-cost health care. The Medicare Payment Advisory Commission (MedPAC) has called for major changes in GME financing,\textsuperscript{18} and GME financing, as we know it today, is in jeopardy. The MedPAC report has concluded that society is not getting an appropriate return on its 9-billion-dollar investment in GME. There is an intent to leverage GME payment policies to accelerate change in resident education and to improve care coordination, care in the nonhospital setting, multidisciplinary teamwork, and information technology.

The ACGME has put into place new duty hour regulations\textsuperscript{19} and is embarking on the Next Accreditation System,\textsuperscript{20} which will use milestones to assess performance and to evaluate training

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**TABLE 1 Collaborative Efforts of the Pediatric Organizations to Transform GME**

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<tr>
<th>Initiative</th>
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<tr>
<td>Future of Pediatric Education (FOPE) II</td>
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<tr>
<td>Residency Review and Redesign in Pediatrics (R3P)</td>
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<td>Initiative for Innovation in Pediatric Education (IIPE)</td>
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<td>Pediatrics Milestones Project of ACGME/ABP</td>
<td>2011</td>
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\textsuperscript{10} Holmboe, MD (Figure provided courtesy of Dr. Holmboe with permission, American Board of Internal Medicine, 2010).

**FIGURE 1** Changes in GME and the grief reaction. Eric S. Holmboe, MD (Figure provided courtesy of Dr. Holmboe with permission, American Board of Internal Medicine, 2010).
programs. A number of private foundations are weighing in including the Macy21 and the Carnegie Foundations.22 Congress has just recently called for an Institute of Medicine committee to analyze the governance and financing of GME and to propose specific reforms.

The Macy Foundation made recent recommendations for reforming GME, which are very likely to impact the decisions of the Institute of Medicine. The recommendations have focused on many issues but one I would like to emphasize relates to the length of training. The 2011 Macy report21 states that an individual’s readiness for independent practice should not be tied to a fixed duration of training but rather be demonstrated by the fulfillment of specialty specific standards, ie, the milestones. The defined period of prerequisite general specialty training before subspecialty fellowship should be evaluated and, where possible, shortened. Finally, opportunities to reduce the duration of subspecialty fellowship training should be explored. The clear message is that flexibility should be allowed and encouraged at both the program and the individual trainee’s level.

WHAT ABOUT THE SUBSPECIALISTS?

Whereas the discipline of pediatrics has focused most intently on robust residency redesign, there have also been repetitious calls to reevaluate subspecialty training over the last 15 years as outlined in Table 2.11,23–26 Beginning in 1999, James Stockman23 addressed this topic when he received the St. Gme Award. Most recently, in 2011, Gary Fleisher26 touched on the issue in his American Pediatric Society presidential address. Although the views of these individuals and various workgroups differ and each proposed somewhat different models as to how subspecialty training could be redesigned, all emphasized the need for flexibility in the education of subspecialists with different pathways dependent on the ultimate goal of training.

In 2004, after several years of wide-ranging deliberations by the pediatric subspecialty community, the ABP made changes in the requirements for subspecialty training and certification.27 But the focus was exclusively on requirements for research or scholarly activity. There have been no recommendations about clinical training despite the increasing interest in a competency-based approach to expectations for clinical performance. All subspecialists are held to the same training model: 3 years of training including a scholarly component as well as clinical experiences without specifying the duration of either.

There continues to be major concern about the availability of subspecialty care for children with perceived shortages in many subspecialties. The interest in pediatric subspecialty careers is at an all-time high. Based on a survey of residents, at the time of the ABP’s 2011 In-Training Examination, 51% of third year pediatric residents plan to pursue fellowship training. Since 1998 there has been more than a doubling in the number of first-year fellows, with 1412 entering training in 2011. There has been a change in demographics of those interested in subspecialty training, with an increasing percentage of fellows who are graduates of US medical schools and who are women. This trend is beginning to more closely approximate the demographics in pediatric residency training programs.

There has been a long-held perception that the private practice rates among subspecialists are low; however, a recent publication by Freed et al28 calls that assumption into question. The study provided data obtained from a survey of a random-stratified national sample of nearly 1700 subspecialists in 5 different subspecialties to assess their clinical practice settings. Overall, only 65% were working in academic settings. This percentage ranged from a low of 49% in neonatology to a high of 77% in hematology-oncology.

The Federation of Pediatric Organizations has endorsed a policy statement about pediatric fellowship training. The statement was first issued in 1988 and has evolved over the years. The most recent statement in 200429 opined that the goal of subspecialty training is to develop future academic pediatricians. But there was a new phrase that appeared in the policy statement for the first time: “ie: while recognizing the diverse roles they now play.” This is a clear acknowledgment that within our academic institutions, subspecialists are no longer all engaged in a combination of clinical care, education, and research.

It is time for us to reexamine the current “one size fits all” model of pediatric subspecialty fellowship training and certification and make changes in that model, if they are warranted after careful evaluation and deliberation. We have begun the process with a new Initiative on Subspecialty Clinical Training and Certification convened by the ABP Foundation in 2010.30 The ongoing discussions have identified a number of common themes that have
surfaced again and again. One-size training of 3 years’ duration for all subspecialties requires reevaluation. There is considerable variation between and within subspecialties, both in terms of the design and content of training programs and the career paths of the graduates. Many feel that 3 years of training for all subspecialists may serve no one very well. The physician scientist may need a longer training period with protected time and financial support and clinicians may benefit from altered training that might imbibe advanced clinical competencies. There continues to be a strong sentiment that scholarship is a core value and that fellows must learn to analyze, interpret, and apply research evidence at the point of care. There is a continued call for flexibility during fellowship recognizing that the flexibility that is already available is not fully used.

There are a number of questions that we need to carefully consider:

- What is good about our current training requirements and what should be preserved?
- How closely should training align with the diversity of professional practice in a subspecialty?
- If more flexibility is desirable, what specifically is meant by this notion that can’t be achieved in our current model?
- Should training in different subspecialties vary in length with a shorter minimum, perhaps 2 years?
- Should formal tracking be explored? Or is the flexibility that already exists sufficient to allow extended research training, clinical educator tracks, and advanced clinical tracks?

- How should individual subspecialties determine core professional activities (clinical, scholarly, and procedural) and what should be expected of all fellows upon completion of training?

The last is thorniest question of all. It will require hard work that is ongoing over time. Leaders in each subspecialty will need to come together and develop consensus around these core professional activities, and develop the curriculum to support these activities. Faculty will be required to engage in rigorous assessment of trainees on the basis of direct observation.

**A WORD ABOUT TIME**

I would like to end with a word about time. It is obvious from the external influences coming to bear on GME that there is a push to shorten training, to eliminate waste, increase efficiency, and decrease overall cost. A recent editorial commentary in the *Journal of the American Medical Association* was provocative in its premise that the length of undergraduate and graduate medical education could be decreased by 30% without harm. There were 2 statements pertinent to pediatrics: the first is that the third year is not essential. “This year is mainly engaged in teaching the patient care aspects of a subspecialty and that can be achieved in our current model.” The second comment was that learning the patient care aspects of a subspecialty could be accomplished in 1 or 2 years. “Time devoted to research is relevant only for that small number of trainees destined to become academic researchers.” Many in pediatrics might take issue with these comments. I believe there is considerable value to time. But we need to think carefully about how that time can best be used.

This topic was recently addressed by Hodges in an article in *Academic Medicine* in which he contrasted a tea-steeping (time-based) or i-Doc (outcomes-based) model of medical education. What is the value of time? It allows for immersion in the discipline and the development of professional identity. Certain elements of competence require time to attain: problem solving, pattern recognition, judgment, capability for self-reflection. If we are going to assess competence in a meaningful and deliberate way, it will require repetitive observations by multiple observers and this will take considerable time. Last, there is the issue of personal development and a “sense of journey” on the way to becoming a pediatrician and a subspecialist. The pressure for outcomes-based education has been building for a long time. The pure time-based approach is no longer sufficient. Our challenge according to Hodges is “to make sure once the dust settles we have not lost all the elements of time and context that mark the journey of becoming a physician.”

I would like to end with a quote by Dr St Geme that was published in *Pediatrics* in March 1983: “Pediatrics is a discipline that deals with the future, children, and we must be prepared to move in that direction with our training and our practice. We must anticipate challenges which bring forth the best in the human spirit.” I believe we now have that challenge.

**REFERENCES**

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/content/131/4/767.full.html