The third and final colloquium of the Residency Review and Redesign in Pediatrics (R3P) Project was held on August 1 through 3, 2007. At the first colloquium, participants envisioned the creation of a set of new recommendations for training programs that would meet the needs of pediatric residents and their patients in the future. By the third colloquium, there was agreement that a simple revision of current Accreditation Council for Graduate Medical Education (ACGME) requirements for pediatric training would be insufficient. Taking into account the uncertainties identified in the first colloquium regarding the future needs of children and how to meet them, it was clear that there are too many variables and no easy solutions. There is an obvious need for a sustainable process that can respond to changing health care needs, new models of assessment, and variations in health care–delivery systems, as opposed to recommendations developed at one point in time. Therefore, participants decided to support the creation of a supply system that would continuously seek improvements in what and how pediatricians are taught.

The third colloquium had 4 primary goals. The first goal was to determine if the competencies needed for 4 different types of pediatric practice (ambulatory, hospital based, comprehensive general practice [a combination of ambulatory and hospital based], and subspecialty care) were sufficiently different to justify differences in general pediatric residency training. The second goal was to refine and prioritize a list of problems requiring innovative solutions in residency training. The third goal was to determine how the initiatives begun as part of R3P might continue into the future, and the fourth goal was to consider administrative aspects of how to deal with residency improvement initiatives.

PROCESS

The colloquium began with a keynote presentation by Dr David Leach, former chief executive officer of the ACGME. Dr Leach emphasized the importance of clear aims for any change that might be proposed. He went on to note that people are attracted to the novelty and challenge of change but seldom like the inconvenience of transition, so we will need to work to minimize the disruptions. He encouraged us to see the future as “larger than we are” and, thus, something that can be noticed but not really “redesigned.” He urged us to observe what is “outside our cave” or comfort zone so that we can generate ideas that go beyond our traditional health care system. He charged us with “strengthening our values of integrity, altruism and prudence (practical wisdom) and overcoming our cynicism and fear” to do what is best for the patient and community rather than what is best for health care providers.

The next 2 days were intense. Formats included small discussion/brainstorming groups, poster sessions, large-group reports, and plenary discussions. Through these varied exercises, recommendations were proposed and analyzed with determinations as to how they could be delivered to the pediatric community. The colloquium ended with suggestions as to possible future courses for innovative change in pediatric graduate medical education (GME).
TABLE 1  Months Required by ACGME for Pediatric Residency Education

<table>
<thead>
<tr>
<th>Residency Education</th>
<th>Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (excluding vacation)</td>
<td>33</td>
</tr>
<tr>
<td>Requirements</td>
<td>24–25</td>
</tr>
<tr>
<td>Inpatient</td>
<td>5</td>
</tr>
<tr>
<td>Emergency and acute illness</td>
<td>4</td>
</tr>
<tr>
<td>Normal/term newborn</td>
<td>1</td>
</tr>
<tr>
<td>Intensive care experience</td>
<td>5–6</td>
</tr>
<tr>
<td>NICU</td>
<td>3–4</td>
</tr>
<tr>
<td>PICU</td>
<td>2</td>
</tr>
<tr>
<td>Subspecialty rotations</td>
<td></td>
</tr>
<tr>
<td>Adolescent medicine</td>
<td>1</td>
</tr>
<tr>
<td>Developmental/behavioral</td>
<td>1</td>
</tr>
<tr>
<td>Additional subspecialties</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Accreditation Council for Graduate Medical Education. Program requirements for residency education in pediatrics. Available at: www.acgme.org/acWebsite/downloads/RRC_progReqs/120pediatrics07012007.pdf.

In preparation for the colloquium, participants reviewed the content and number of months specifically required by ACGME for pediatric residency education (Table 1) to remind themselves of opportunities for use of flexible time that already exists. At least 8 to 9 months could be devoted to requirements other than those that are mandated, and mandated months include 7 months of subspecialty electives that could also be used with considerable flexibility. They reviewed previous recommendations for revision of residency education for pediatricians to understand the context for any new initiative, and they reviewed an article that described for business initiatives the advantage of small decentralized experiments over infatuation with a single fashionable idea. Participants concurred that the best approach was to perform small decentralized pilot projects.

Colloquium participants had been involved in 1 of 4 work groups created just after the second colloquium. Each workgroup was charged with examining 1 of the 4 areas of clinical practice mentioned above (ambulatory with little or no hospital care, almost entirely hospital based [hospitalist], comprehensive general practice responsible for both ambulatory and hospital care, or subspecialty). Although these areas do not encompass all possibilities for pediatric careers, they were perceived as representative of a majority of the career paths for residents.

Over several months, work groups examined the strengths and weaknesses of residency education in each area, as well as changes and trends in pediatric practice that presented challenges for training future pediatricians in those 4 areas. They sought outside consultation from others with special expertise and insights in each of the areas. For example, the group that examined ambulatory practice conferred with dermatologists, sports medicine specialists, and mental health professionals to learn what they thought pediatricians would need to prepare for practice in the future. Among other things, the groups learned that current training in a hospital setting may be appropriate for pediatricians who work in hospital-based practices and for some comprehensive generalists and subspecialists who practice predominantly in hospital settings. However, for ambulatory pediatricians and office-based subspecialists (eg, allergists or specialists in developmental/behavioral pediatrics), hospital-based training does not provide enough relevant experiences.

At the colloquium, the members of each work group were reconfigured randomly into different small groups to analyze and critique their findings and to discuss how teaching techniques would need to change, how teaching faculties would have to adapt, and how health care payers might pay for new approaches to teaching.

Participants then considered whether changes were needed to a previously drafted document identifying potential goals (termed “innovation guidelines” at the colloquium) for innovative change in pediatric residency education. Small groups analyzed the goals as if they were program directors, residents, parents, a hospital, teaching faculty, ACGME Review Committee for Pediatrics members, or the American Board of Pediatrics (ABP). From those various perspectives, they critiqued the advantages and disadvantages of each goal and how each might affect various types of residency training programs. Once the participants agreed on the goals, small breakout groups discussed how innovative pilot initiatives directed at the goals could be implemented in different programmatic settings (eg, children’s hospitals, large- and medium-sized programs in university general hospitals, large and small programs in community hospitals, and programs in military hospitals). Two other groups examined global oversight issues for pilot initiatives. Another group discussed how pilot programs might lead to changes in ABP initial certification and maintenance of certification.

Participants acknowledged that redesigning pediatric training involves a complexity of data gathering, thoughts, and solutions that are nonlinear in their relationships. Therefore, they approached the challenge by examining not a specific scenario but a variety of options and scenarios (“what ifs”) and by exploring a variety of possible outcomes that would change training paradigms.

OUTCOMES

Participants of the third colloquium affirmed previous positions and provided consensus on new ones. First, on the basis of previous deliberations supplemented by detailed examination of different varieties of pediatric practice, participants affirmed that a “one-size” approach to pediatric residency training, even if substantially revised, cannot meet the needs of all trainees.

Second, participants agreed that the best way to identify effective approaches to resident learning is through an ongoing process of innovation, evaluation, and improvement guided by specific articulated goals. They agreed that having multiple residency programs pilot and test a variety of innovative approaches would be a prudent way to proceed. Proposals would have to follow a quality improvement (QI) approach analogous to QI in health care, defined as “an interdisciplinary process de-
signed to raise the standards of the delivery of preventive, diagnostic, therapeutic, and rehabilitative measures to maintain, restore, and improve health outcomes of individuals and populations."6,7 Promising proposals would be implemented as pilot projects are evaluated.

Third, participants finalized a list of goals for innovative change in pediatric residency education. The list agreed on at the colloquium, with subsequent editing by the R³P Committee, is presented in Table 2.

REFLECTIONS

A process that uses innovative pilot studies focused on the goals recommended by R³P Project participants raises complex issues. It will require a mechanism to request and review proposals. Proposals would be evaluated according to rigorous criteria including measurable outcomes. Projects that are successful in one setting would have to be tested in other settings to determine if outcomes could be replicated. A monitoring and evaluation process will require funding to provide staffing and resources for data collection and analysis. The source of funding has yet to be determined but, ideally, will represent a collaborative effort of pediatric organizations.

The roles of the ACGME Review Committee for Pediatrics and the ABP in that process must be defined, including how waivers of current review committee requirements will be handled and how pilot programs will be monitored by the review committee and perhaps by the ABP. Because this will be a complex process about which much must be learned, the initial number of approved proposals will be small.

Among questions that arose repeatedly were: Is such a project sustainable? Will there be a permanent body, such as a “Residency Improvement Committee,” tasked with ongoing responsibility for driving and overseeing this long-term endeavor? What will determine success, and how will it be measured? An ongoing assessment process will need to ensure achievement of the ultimate goal, which is improvement in child health.

Dr. Leach suggested that one way to think of the task is to give ourselves an “A” grade for “fixing pediatric education” and then think of what we would have to do to deserve that “A.” If we can demonstrate how we achieved it, we will succeed in improving the training of future pediatricians.

DISTILLATION

Participants began this project hopeful that they could identify relatively simple modifications in residency education to improve children’s health. Examination of the issues showed that the complexity of the undertaking precluded simple prescriptions. A better alternative is goal-directed innovation using a process to develop, test, refine, and disseminate innovative solutions.

Colloquium participants concluded that an ongoing “QI-like” approach would be most likely to identify and implement effective approaches to resident education and most likely to allow training programs to adapt to changing circumstances in child health needs, health care delivery, and health care financing. This will allow

| TABLE 2 | Goals for Innovative Change in Pediatric GME |
|-------------------------------|
| **Preamble:** Innovations in pediatric GME should address challenges that are specific to pediatrics as well as challenges common to all GME. The effect of changes on education processes should be measured, when appropriate, the effect on patient outcomes should be measured.
| The following are goals for transformative change: In all cases, residency education must emphasize the role of the pediatrician as child health advocate who has a view of the population of children and who can work collaboratively with other disciplines to promote broad changes in child health.
| **Pediatricians** should be prepared for diverse careers in the care of children, adolescents, and young adults. In addition to providing a foundation in general pediatrics, pediatric residency education should offer education programs that prepare residents for the diverse and emerging health care needs of children.
| **Pediatric education** must provide a continuum of learning that begins in medical school. Pediatric residency programs should develop innovative mechanisms for tying residency to medical school and postresidency learning.
| **Pediatricians** must be committed to closing the gap between current and optimal health care outcomes for children, adolescents, and young adults. Excellent residency education requires an environment of excellent clinical care so that residents learn to adhere to acknowledged care guidelines as they evaluate and improve their practice.
| Programs might choose to use at least one of the following strategies to assist in achieving transformative change:
| Improve child health outcomes and resident education by minimizing fragmentation of resident experiences and resident-faculty interactions. The negative effect of fragmentation of care and education, especially the effect on the development of a graduated sense of independent resident responsibility, must be addressed.
| Develop skills to internalize a sense of personal responsibility for learning and patient care beginning in medical school and continuing through residency and beyond. Pediatric residency programs should provide for self-assessment and external assessment supplemented by documentation that residents have internalized the sense of professional responsibility needed to maintain competence throughout a career.
| Prepare pediatricians to function as members of health care teams. Pediatric residency education should provide residents with opportunities to function as authentic members of health care teams.
| Develop skills in critical thinking, decision-making, assessment of evidence, and prioritization in evaluation and management of children, adolescents, or young adults with an unusual presentation of a common health problem or with a disorder of unknown origin. Pediatric residency education needs to ensure a balance between experiences in which residents are members of teams caring for complex patients with experiences in which residents gain confidence when caring for less complex patients and confronting novel situations.
| Assess the 6 ACGME competencies by using valid and reliable measures. Pediatric residency education should document accomplishment in each of the 6 competencies as well as the effect on patient outcomes.
| Prepare faculty to teach, assess, and counsel residents. Pediatric residency programs should provide for faculty development in education and provide teaching faculty with adequate time, resources, and professional rewards.
| Organize the medical education workplace for maximum efficiency and health outcomes. Pediatric residency programs should improve health outcomes by eliminating the use of residents to perform administrative and clinical tasks better done by others.
| Explore innovative methodologies of improving education and patient outcomes. Pediatric residency programs should integrate new evidence-based approaches to teaching, learning, and assessment such as simulation and computer-based technology to improve both patient care and education. |
the pediatric education community to learn from carefully monitored pilots conducted in a way that allows the pilots themselves to learn as implementation uncovers unanticipated opportunities and barriers.¹⁴

Achievement of the recommendation faces obstacles. It will be difficult to start, maintain, and finance an ongoing process. It will also require a period of time before the fruits of these efforts are realized. Some projects will take 1 to 2 years to complete, whereas others may take substantially longer. There are areas in which the need for answers is immediate, such as the inadequacy of education in mental health.

The outcome of a process that improves medical education will be better health for children. It is an opportunity, and a responsibility, for everyone involved in resident education to join forces in this vital undertaking.

ACKNOWLEDGMENTS
The R³P Committee thanks Dr David Leach for keynoting this crucial third colloquium and for comments throughout. Dr Leach finds unique ways of reminding us of the values that guide us in doing the best for children, adolescents, and young adults and their families.

REFERENCES
Report of Colloquium III: Challenges for Pediatric Graduate Medical Education and How to Meet Them—A Quality Improvement Approach to Innovation in Pediatric Graduate Medical Education
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*Pediatrics* 2009;123:S22
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