

Lessons From Reimagining Residency and the Future of Innovation in Graduate Medical Education

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The American Medical Association Reimagining Residency (RR) initiative is an ambitious effort to support innovation in US graduate medical education (GME).¹ Its 11 projects focused on smoothing the transition from undergraduate medical education (UME) to GME, better preparing residents for practice, and supporting well-being in the learning environment (FIGURE). In this *Journal of Graduate Medical Education* supplement, project leaders describe their processes, outcomes, challenges, and successes.

Innovation in GME

In addition to individual project results, the RR initiative has generated insights about the process of medical education innovation.² In GME, the clinical responsibilities of faculty and residents create a relatively inflexible environment. Funding mechanisms are rigid and strongly influence program design and the experience of trainees. It is often difficult to modify approaches to residency training without affecting the delivery of care to patients. The impact of innovation on clinical outcomes, resident experiences, and program design must always be considered and respected.³ These challenges were highlighted in the low- and no-touch approaches to data collection in projects such as the Johns Hopkins GME Laboratory.^{4,5} These methods generated important data without interfering with delivery of care nor placing unusual demands on trainees and faculty.

Importance of Flexibility and Adaptation

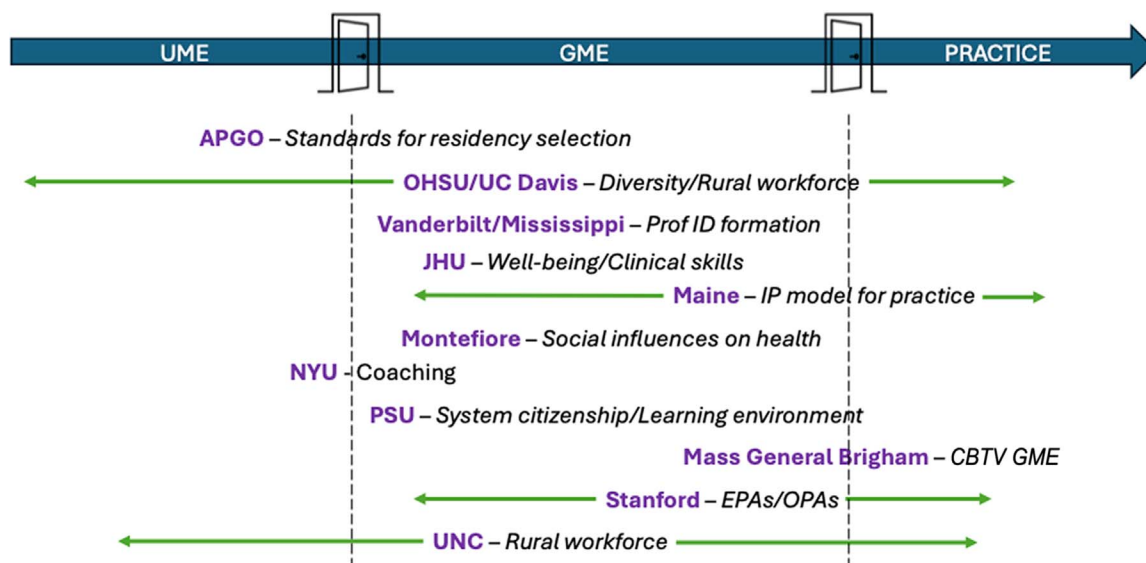
Due in part to these GME constraints, innovation projects do not always achieve their anticipated outcomes. Leaders directing innovation efforts must be comfortable changing course when planned approaches meet roadblocks or fail. This adaptability was a hallmark of many of the RR projects. For example, the

Association of Professors of Gynecology and Obstetrics (APGO) had initially proposed an early result acceptance program in obstetrics and gynecology (OB/GYN), similar to college early decision, as a way to reduce the number of applications OB/GYN programs were receiving.⁶ After thoughtful consideration and feedback from the GME community, this approach was not adopted, in favor of program signaling.⁶⁻⁸ When iPACE (Interprofessional Partnership to Advance Care and Education) at Maine Medical Center implemented its inpatient interprofessional model in an outpatient setting, it became evident that interprofessional processes, already existing in this setting, may be more effective and may not benefit from modification. Somewhat unexpectedly, the iPACE model translated well from an internal medicine unit to a surgical subspecialty service.⁹ At Mass General Brigham and Stanford University, in addition to their competency-based medical education project goals, their project generated insights about the deliberations of GME clinical competency committees that will inform future projects.^{10,11} These examples emphasize the importance of focusing on the goals of an innovation project but being willing to alter the process as new ideas and challenges arise.

Collaboration

The RR projects demonstrated the value of collaboration in exploring and implementing innovative approaches. The participants learned from one another, partnered with national organizations, and found synergies in their work. Through those collaborations, new ideas and new approaches to realizing project goals emerged. In some cases, a site has adopted an innovation developed by another site, with sharing occurring between projects, as well as between independent sites within an individual project. Through their GOL²D project, the University of Mississippi and Vanderbilt University evolved an approach to testing an innovation at one institution before promulgating it to the other. The COMPADRE and FIRST projects quickly found common ground in their shared vision to

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**FIGURE****Reimagining Residency Projects and Relationship to GME**

Abbreviations: UME, undergraduate medical education; GME, graduate medical education; APGO, Association of Professors of Gynecology and Obstetrics; OHSU, Oregon Health & Sciences University; UC, University of California; JHU, Johns Hopkins University; IP, Interprofessional; NYU, New York University; PSU, Penn State University; CBTV, competency-based time-variable; EPA, entrustable professional activity; OPA, observable practice activity; UNC, University of North Carolina.

train and place a rural workforce.¹² These collaborations expanded the reach of innovation efforts and also provided needed support and inspiration when addressing barriers.

Organization

The RR initiative demonstrated the importance of effective administrative structures to support collaboration. The promise of multi-institution partnerships proved challenging due to variable institutional approaches in areas such as finances and institutional review board approval.¹³ The COMPADRE project needed to devote considerable energy to maintaining a network of GME programs across 2 states, Oregon and California. This reality had to be balanced against the value of cross-institutional sharing of ideas and cultures. In another example, administrative support from a specialty society, APGO, in the “Right Resident, Right Program, Ready Day One” project, enabled broad implementation of the innovation across a large number of institutions.¹⁴ With strong leadership, organizations like APGO can raise standards, across an entire specialty, that contribute to rapid dissemination and implementation of innovative approaches.¹⁵

Scale

Although many of the RR projects were ambitious, there was a clear value in starting small. Some highly

productive efforts, such as the New York University “Transition to Residency Advantage” coaching innovations¹⁶ and the Maine Medical Center iPACE project, built on previous experience with small pilots.^{9,17,18} Demonstrating effectiveness in a limited, controlled environment contributes to buy-in and allows for adjustment to challenges, seen and unforeseen, before spreading novel approaches across a system. Conversely, some ideas required a broad canvas on which to test and generalize assumptions. Penn State coordinated a project across 4 health systems to study the impact of the learning environment on the evolution of health systems science. The unique characteristics of each of those systems and the varied perspectives of their respective leaders enhanced overall understanding of outcomes.^{19,20}

Funding Support

While RR funding created the necessary bandwidth to implement innovation, it did not fulfil all resource needs for the projects to succeed. For many projects, institutions or philanthropy contributed critical support to the effort. The American Medical Association (AMA) external funding energized champions and served as a catalyst for ideas that had been previously considered. Grant funds contributed external validation that the work was important. Supplemental funding created the capacity to act on good ideas.

Evaluation

Another lesson from the RR initiative concerns the role of evaluation, to sustain the innovation after grant funding ends. The AMA committed 5 years of support to each program. For lasting effects, a plan for sustaining the innovation beyond the grant period was critical. Thoughtful evaluation provides objective evidence of positive outcomes and contributes to interest in ongoing investment. This evaluation should demonstrate improvements over prior states, local successes, and broader regional or national effects. Evaluators must pay careful attention to the audiences for their work and the most appropriate messaging for each audience.²¹

Leadership

Finally, no innovation progresses or succeeds without strong leadership and champions, in positions of influence, for the project. Innovation is hard work that is subject to expected and unexpected challenges—such as the COVID-19 pandemic. As GME programs pivoted to support the clinical response to the pandemic, the bandwidth for innovation was markedly reduced. It was only through the ongoing engagement of leaders and the resilience of faculty and trainees that momentum on these projects was sustained. During this turbulent time, the RR consortium remained flexible and supportive of the RR projects.²² Not all of the projects viewed the COVID-19 pandemic as a barrier to innovation. For example, leaders at Montefiore Health System found a new urgency in their project to evolve curriculum around the social determinants of health, as the COVID-19 pandemic exposed and exacerbated inequities. Sometimes external stressors can fuel innovation if key leaders are invested and flexible.

The Future of Innovation in GME

Many questions remain in GME. How does the resident experience evolve in the face of new and emerging technologies such as artificial intelligence? Can competency-based medical education be fully realized through training learners to a consistent level of skill, using time as a resource rather than a determinant? Can GME assume responsibility for training the workforce needed to care for our population? Can GME address the need for a more diverse physician workforce, one that more closely resembles the population to whom they provide care? As RR has demonstrated, successfully pursuing innovation will require protected time, investment, flexibility, leadership, and collaboration. Institutions, national organizations, and philanthropic sources must create collaborative opportunities to sustain this effort. We hope that the

RR initiative work presented in this supplement inspires others to consider investing and participating in ongoing innovation to the benefit of programs, faculty, trainees, and ultimately, patients.

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