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6. ALIGNING HEALTH PROFESSIONS EDUCATION WITH CONTEMPORARY NEEDS: THE PERSPECTIVE OF THE JOSIAH MACY JR. FOUNDATION

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In her prescient letter of 1930 establishing the endowment in memory of her father, Josiah Macy Jr., who had died at age thirty-eight of typhoid fever, Kate Macy Ladd wrote: ". . . it [the Josiah Macy Jr. Foundation] should primarily devote its interests to the fundamental aspects of health, sickness and of methods for the relief of suffering. . . . The preference should be given to the use of these funds to integrating functions in the medical sciences and medical education for which there seems to be particular need in our age of specialization and technical complexities. . . . The Foundation will take more interest in the architecture of ideas than in the architecture of buildings and laboratories." With this charge, eight presidents have guided the foundation since its inception and have defined the contributions to the "relief of suffering" appropriate in each decade. In recent decades, that has been expressed by focusing on innovations in medical and health professions education. Education has served as an "integrating function" and is also consistent with a focus on the "architecture of ideas." Macy is now the only national foundation with innovations in medical and health professions education as its sole mission.

In recent times it has become increasingly clear that improving education in isolation will not achieve the goal of better health for the public. The goals of the educational innovations must be aligned with contemporary health care needs; and this has become a major theme of the foundation's work in this decade.

RATIONALE AND NEED FOR ALIGNMENT OF EDUCATION WITH HEALTH CARE DELIVERY

The health needs of the populations of the developed world, and even the developing world, are changing. This is characterized by a growing prevalence of chronic disease within these populations. Although chronic conditions are particularly common among older persons, they occur at all ages. In the United States, in the 2005 Medical Expenditure Panel Survey, 45 percent of persons ages twenty to sixty-four reported one or more chronic conditions; and 12 percent reported three or more chronic conditions (Paez, Zhao, and Hwang 2009). In that same survey, 87.5 percent of persons ages sixty-five and older reported one or more chronic conditions; and 48 percent reported three or more. Several factors have contributed to these statistics, including an increase in obesity, which, in turn, is causing an increase in type 2 diabetes in the population; an increase in childhood asthma that persists into adulthood; increased detection of hypertension; and better ways of treating persons with a variety of conditions ranging from congestive heart failure to malignancies. The majority of persons with these conditions, even serious manifestations of these conditions, can be managed without needing hospitalization. In addition, many diagnostic tests and therapeutic procedures that used to require hospitalization can now be performed in ambulatory settings, and the recovery period can be managed at home.

Over the past thirty years or so, these changes in the population and in traditional medical care have led to changed demands on health care delivery organizations and the health professions. For example, persons with chronic conditions need to understand their individual conditions, the possible interactions between their multiple conditions, the medications and services they need to live successfully with their conditions, the complications that might occasionally arise, and the first steps that need to be taken to manage those complications. Empowerment of patients to understand and manage their conditions, not surprisingly, has been shown to increase confidence in handling the conditions and also to improve outcomes. As another example, health care delivery systems that were configured primarily for providing inpatient care have had to extend their operations into ambulatory care; and they have had to understand how best to interact with all the other services and organizations in a community that might be marshaled to benefit their patients. This is an ongoing process in the United States and several other countries.

One objective of US health reform was to change the US health care delivery system so that it could be accountable for the quality of care provided to defined populations and use resources more efficiently. The Patient Protection and Affordable Care Act of 2010 (the health reform act) is leading to innovations in health care delivery such as Accountable Care Organizations (ACOs) and medical homes (PPACA 2010). Medical homes are enhanced primary care practices that are expected to involve teams of physicians, nurses, and possibly others, and assume responsibility for coordinating care for the population they serve. ACOs are organizations that assume responsibility for a population and enable the providers—physician practices and hospitals—to meet quality standards and cost targets. These delivery system innovations are being accompanied by new payment methods designed to provide incentives for achieving better outcomes and providing care more efficiently.

To handle the needs of the population for more effective, better-coordinated, efficient care, the health professions need to adapt and change from their traditional roles, and, of course, the education of health care professionals also needs to adapt and change. In the past, health professions education occurred entirely in silos, and particularly in medicine and nursing, curricula focused primarily on the care of hospitalized patients. It is now understood that more education in ambulatory settings is essential to meet population needs and that care both in ambulatory and inpatient settings is often provided by teams of professionals in multiple disciplines and professions.

These changes pose significant challenges, such as the logistics of working in settings that have been set up exclusively for delivering care, not teaching, and the development of faculty capable of teaching effectively about both the content and the organization of care in ambulatory settings. Similarly, development of teams requires interprofessional education, which the World Health Organization has defined as occurring “when students from two or more professions learn

about, from and with each other to enable effective collaboration and improve health outcomes" (WHO 2010). Although the idea of interprofessional education is not new, it is now beginning to be implemented and needs to become a routine part of the education of all health professionals. Again, there are several issues that must be addressed, including the fact that even in one city or region, not all the schools that prepare persons in different professions, for example, medicine, nursing, and pharmacy, are co-located. And even when the schools are all part of the same university, they may have very different sizes of student bodies and different schedules. In addition, the content of interprofessional education is just emerging. We discuss this at greater length in the following pages and provide some examples of work in the area.

HOW DOES THE MACY FOUNDATION BRING ABOUT CHANGE TO CREATE ALIGNMENT?

A not-for-profit foundation has a limited armamentarium available to bring about change. In almost all instances, the resources necessary to effect societal change in any given area far exceed the resources of the foundation. The foundation, therefore, needs to act as a catalyst to promote changes that others will adopt using resources beyond those of the foundation. It also needs to leverage its resources by choosing wisely and finding partners for its initiatives. The traditional way that most non-operating foundations do this is through grant-giving programs. The Macy Foundation has two grant-giving programs. Presidential Grants (up to $35,000) are given throughout the year. They often fund a focused event or activity with a finite horizon—generally less than a year. Sometimes the work funded by these Presidential Grants will be the basis for a larger proposal. All larger grants are approved by the Macy board of directors, which meets three times a year. These grants are usually multiyear and involve a curriculum or faculty intervention with assessment and dissemination. Many of these are multidisciplinary or multi-institutional. We have intentionally begun to cluster grants in selected areas (see next section on strategic focus) in order to have greater impact in the change process and to foster more learning and collaboration among our grantees.

In addition, the Macy Foundation has a long history of successfully convening groups to influence thought and policy in a given field. To be successful in this convening function, the selections of topics and participants are crucial. The topic must be well enough developed that there is a body of empirical data to be reviewed, and the meeting must occur at a juncture where there are important questions to be posed about the direction to be taken. The participants must be recognized thought leaders from multiple disciplines who are known to be fair-minded and open and not partisan advocates for a particular point of view. The participants are also chosen for their individual expertise and not as representatives of an organization or professional group.

In most instances, papers are commissioned prior to the meeting to supplement the existing literature. The conferees then participate in open, structured discussions leading to conclusions and consensus recommendations by the end of the conference.

Recent examples of successful Macy conferences on the broad theme of aligning health professional education with contemporary needs have focused on the medical education mission at a time of medical school expansion (Hager and Russell 2008), primary care education and training (Cronenwett and Dzau 2010), and graduate medical education accountability (Johns 2010; Weinstein 2011). In each of these instances, conference recommendations have influenced subsequent actions of academic institutions, regulatory bodies, and funders. The Macy Foundation has played an active role in disseminating the conclusions and recommendations and, where appropriate, funding follow-up actions. Some of the recommendations from these conferences are highlighted in the following sections.

In addition to grant giving and convening, foundations can play an important role in the career development of professionals in their areas of interest. Participation in foundation-sponsored activities is one form of career development, and creating networks of health professional educators in areas of mutual interest is an important function of the Macy Foundation. Many of the grant-supported activities include a faculty development component. In this way the number of faculty nationwide with a given set of skills and knowledge is enhanced. In addition, foundations may establish specific programs to mentor and promote the careers of leaders and innovators in their field of interest (what some have called "human capital development"). In this vein, we have created the Macy Faculty Scholars program, described later in this paper.

Finally, foundations have impact through the speaking, writing, and advocating activities of their staff. To that end, we have presented our alignment themes in meetings and speeches at academic medical centers, national professional meetings, and policy meetings in Washington, DC.

AREAS OF STRATEGIC FOCUS TO CREATE ALIGNMENT

To bring about meaningful societal changes, foundations have to focus their activities on a handful of strategically chosen areas of concentration. Given the Macy Foundation's objective and intense interest in creating better alignment of education with health care delivery, the foundation has been focusing on the following broad areas: fostering interprofessional education; creating new content for better aligned professional education; reforming the graduate education of physicians; preparing health professionals to serve the underserved; and developing a strong cadre of educational leaders for the future. Each of these areas of strategic focus is briefly discussed in the subsequent sections.

Fostering Interprofessional Education

As we reflected on the need for better aligning health professions education with contemporary need, one of the paradoxes that struck us was that we have good evidence that well-functioning teams lead to better health care, yet we continue to educate health professionals totally separate from one another. We have asked why it should not be the norm to have some part of health professionals' education overlap with learners from other professions.

Over the past three years we have involved more than twenty institutions nationwide in interprofessional education through grants and collaboratives and an even larger number through Macy-supported conferences. All of our grant-funded initiatives involve medical schools and nursing schools, and in many instances other health professional schools are involved (e.g., pharmacy, social work, public health, dentistry). The educational interventions represent a spectrum of content and pedagogy, and they occur at different points along the educational trajectory. That is quite appropriate as we learn the optimal timing, dose, and content for these interprofessional experiences. Some involve early clinical encounters in interprofessional teams (e.g., Vanderbilt University and Hunter College/Weill Cornell Medical School). Some focus on teaching quality and patient safety interprofessionally (e.g., the Institution and Healthcare Improvement collaborative, described later in the article). Others involve a simultaneous plan for four-year curriculum reform at nursing and medical schools in the same university (e.g., Case Western Reserve University, New York University, and the University of Virginia). And still others focus on high-fidelity simulation as a tool for interprofessional education (e.g., University of Washington and Texas Women's University/Baylor College of Medicine). This is but a partial list of the initiatives but gives a flavor of the range of educational interventions.

In April 2012 the Macy Foundation held a two-day meeting of all of its grantees and prior conference participants in the interprofessional education field (twenty teams from twenty-four institutions). This provided the opportunity to review the significant progress that has been made in interprofessional education with a particular focus on nursing and medical education. It also helped to define the next steps that need to be taken to advance the field (Thibault 2012). Though we are still relatively early in this major program initiative, some lessons about success factors have already emerged. The first is that this requires committed leadership from the top of each of the health professions involved in an interprofessional initiative. There are innumerable logistical barriers that can prevent interprofessional education from happening, and they can be overcome only if the leadership wants it to happen. Second, interprofessional education should be undertaken only after extensive, thoughtful planning. These must be rigorous experiences with clear educational goals and metrics; they are not casual social encounters. Third, these experiences must be repeated throughout the educational trajectory if they are to have a lasting impact. Single encounters will not be sufficient to overcome the history and examples of the

more siloed approach; a continuum of interprofessional experiences must be carefully planned. Fourth, new educational technologies can be used to support interprofessional goals. High-fidelity simulation and online learning are valuable supplements to direct patient and faculty encounters and can be helpful in overcoming some logistical barriers. Finally, a sustained interprofessional educational initiative will require a commitment to faculty development. Since most faculty have not experienced interprofessional education in their own education, they will be unfamiliar with the setting, content, and expectations of learners.

The overall interest in interprofessional education has been very gratifying. The response of students and faculty and the participating institutions has been overwhelmingly positive, and the list of new institutions that want to get involved grows longer.

Creating New Content in Professional Education: Quality, Patient Safety, Teamwork

Toward the end of the twentieth century, attention was focused on the fact that health systems in the United States and throughout the world are not as safe as they should be or as patients expect them to be. Errors occur very frequently; and although most errors do not result in harm to patients, the frequency of harm, including avoidable deaths, is high (Kohn, Corrigan, and Donaldson 2000). It will require many changes to ensure that health care is safer for patients in the twenty-first century, and education must be aligned with providing safer care. Two other attributes of quality of care are delivering effective care and delivering care equitably to all populations, particularly underserved populations. These attributes—safe, effective, and equitable care—are often linked. Accordingly, the Macy Foundation has made grants to several organizations to develop courses and tools that are designed to support safer, more effective, and more equitable care by individuals and teams.

For example, a grant to the Mayo Clinic has enabled its team to develop several courses and tools. These include a series of sustainable annual two-day train-the-trainer workshops for educators of medical students, residents, and fellows; allied health students and staff; and practicing physicians. The Mayo Clinic has also developed a set of eleven curricular modules designed to equip those who use them with the tools needed to conduct or lead quality and safety improvement projects. Most modules have both basic and advanced sections and associated pre- and post-tests. The modules are designed to be web-based. Finally, the Mayo Clinic has developed specifications for a set of eight stations for Objective Structured Clinical Examinations (OSCEs) using standardized patients to assess learners' knowledge of quality improvement and safety knowledge, skills, and attitudes. Again, these are designed for web-based dissemination.

Another grant—to the Institute for Healthcare Improvement's (IHI) Open School for Health Professions—had the objective of demonstrating that US medical and nursing schools could

work together to integrate health care improvement and patient safety into existing required curricula of these schools. Six universities were chosen by IHI to participate: Case Western Reserve University, Johns Hopkins University, Pennsylvania State University, University of Colorado–Denver, University of Missouri, and the University of Texas Health Science Center at San Antonio. Although each university developed its own educational goals, which determined the level of learners, cross-institutional faculty development workshops and frequent conference calls facilitated sharing of educational and evaluation plans across the universities. Most (87 percent) of the resulting educational encounters were interprofessional, which undoubtedly reflects an understanding that it will take interprofessional teamwork to achieve better, safer care for patients. In every school, the performance of the students was assessed and students received this feedback. As a result of these pilot activities, IHI has developed change concepts and models that can be spread to other institutions. Now, IHI staff and faculty, on request, can help other universities and schools in implementing interprofessional education and quality improvement into their curricula.

A grant to Geisinger Health System is specifically designed to determine the interaction between teamwork and quality improvement activities. In several different hospital units, Geisinger has created teams of resident physicians and nurses to work for a nine-month period on quality improvement projects. After an initial phase, the teams have been expanded to include medical students and nursing students. The teams have a structured didactic curriculum on quality improvement; they then choose quality improvement projects and execute them. Preliminary results have shown successful performance by most but not all teams, an area that is being examined further.

Effective communication between health professionals and patients and their families is critical to reducing medical error. This is impeded in persons from culturally and linguistically diverse populations. A recent grant to the Massachusetts General Hospital and the MGH Institute of Health Professions is enabling the development of case-based lessons and exercises to help train health professionals to work more effectively and in teams to communicate with such patients. The exercises will enhance the TeamSTEPPS model, an evidence-based teamwork system developed jointly by the U. S. Agency for Healthcare Research and Quality and the Defense Department, to improve communication and teamwork skills among health care professionals and lead to improved patient safety.

Reforming Graduate Medical Education (GME)

The graduate medical education (GME) system in this country is responsible for the training of physicians between medical school graduation and independent practice. It is largely responsible for the specialty and geographic distribution and the skills and attitudes of the

entering physician workforce in the nation. Although it is widely acknowledged that the GME system produces highly competent physicians who have appropriate knowledge and technical skills in their field, there has been a growing concern that the training being provided is not adequately preparing residents for practice in the modern health care system and that the number, specialty mix, and geographic distribution of the workforce are not optimal to meet present and future societal needs. These questions have led to concerns that the GME system, which is largely funded by public dollars, is not sufficiently accountable to the needs of the public.

Through a series of conferences in 2010 and 2011 the Macy Foundation examined the GME system, and its expert conferees generated a number of consensus recommendations. The first set of recommendations had to do with the governance and financing of GME. It called for an extensive review of the governance and financing of GME, by a group such as the Institute of Medicine, to assure that the system produces an adequate number of physicians with the appropriate incentives to attain the specialty and geographic mix that serves the public's needs. It further called for a system with the accreditation policies, incentives, and resources to innovate to meet changing societal needs. In the second report, a group of highly esteemed educators called for educational reform to make the system more publicly accountable, more flexible, more competency based, and more diverse in its training sites, patient population, and content. Taken together these reports call for a fundamental reform of the GME system to align it with contemporary needs.

The Macy Foundation has already funded some initiatives to move the system in the direction of better alignment of GME with societal needs. These include an innovative program funded through the American Academy of Pediatrics to train residents in community pediatrics to serve the underserved. It also includes the funding of a new Medicine/Pediatrics program at Johns Hopkins to train leaders in urban medicine (discussed in the following section). The foundation is also funding the Robert Graham Center to develop a novel system to track the graduates of all GME programs in the United States to better understand the match between program output and social need. The foundation also is the principal funder of the recommended Institute of Medicine review of GME finance and reform, which was initiated in 2012.

Preparing Health Professionals to Serve Underserved Populations

As part of its alignment strategy, the Macy Foundation is encouraging and supporting initiatives that provide the means for earlier differentiation of medical students and residents to pursue a specific career interest, with a particular focus on careers in primary care and serving the underserved. Since the time of the Flexner Report in 1910 there has been a belief that the way to assure high standards in US medical education is for all learners to experience more or

less the same curriculum. This served us well in the transition from unstructured, unregulated proprietary schools to more rigorous academically affiliated schools. It also perhaps served us well when medicine and the population we served were less complex. There is increasing concern today that this approach not only is inefficient but also fails to provide the specific education and training needed to succeed in diverse careers. Further, it may unintentionally steer students and residents away from some careers that are highly needed and of great societal benefit.

The recommendations from the Macy conference "Who Will Provide Primary Care and How Will They Be Trained?" (Cronenwett and Dzau 2010) emphasized the importance of early longitudinal clinical experiences to attract and train primary care providers in all the professions. They also called attention to the value of special tracks to encourage such careers and to acquire the special skills and knowledge needed for better practice and leadership in primary care.

Two currently funded Macy programs serve as prototypes of such special tracks. The Rural Immersion Program at Tulane University School of Medicine recruits medical students from rural Louisiana and prepares them for a career in rural medicine with a special curriculum and with mentored, longitudinal clinical experiences in rural communities. The Medicine/Pediatrics Urban Medicine Residency Program at Johns Hopkins University prepares residents for practice and leadership in urban medicine with curricular content and clinical experiences centered on inner-city health issues. It also provides additional public health training.

Developing Educational Leaders: The Macy Faculty Scholars Program

The Macy Faculty Scholars program is designed to fill a void in faculty career development and to develop a cadre of future leaders and innovators in medicine and nursing education. Currently it is difficult for faculty in medical and nursing schools who are intent on a career in education to find protected time to develop their skills and to pursue their innovative ideas. If we are to better align health professions education with contemporary needs, we will need their innovative ideas and we will need talented faculty to lead the change process. Therefore, we developed a program that would support and nurture these career goals. Over time this network will grow and it will include the change agents of the future.

In 2011, a group of five persons, three physicians and two nurses, became the first Macy Faculty Scholars. Scholars are in midcareer and are chosen on the basis of having already shown promise as educators and for having the potential to develop further as educators and educational innovators. They receive support for dedicating at least half their time over a two-year period to an innovative educational project and to take part in other career development activities, such as the Harvard Macy Institute. This program represents the largest financial commitment of the Josiah Macy Jr. Foundation and reflects its desire to help ensure that there is a robust and growing

group of persons involved in health professions education and educational innovation. It is a way of aligning health professions education with contemporary needs, even as those needs evolve and change, and of creating for future students a group of role models who see scholarship in health professions education as essential to having a high-performance health system.

CONCLUSION

While the Macy Foundation activities described here are focused on health professions education in the United States, the need for alignment of the education system and the health system is a global issue. This is the major theme of the report of the Lancet Commission (Frenk et al. 2010). This landmark report calls for an integrative framework in which the health system—representing the health needs of the public—and the education system—as the providers of the health care workforce—are in a constant iterative process.

We have much to learn by comparing our alignment efforts internationally. Happily, this process has begun with a newly launched Institute of Medicine Global Forum on Innovation in Health Professions Education. As Julio Frenk, dean of the Harvard School of Public Health and co-chairman of the Lancet Commission, reminds us, “Domestic is not the opposite of global.” We are all part of the global problem, and hopefully we are all part of the global solution.

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