

COMMENTARY

Aligning practice redesign and interprofessional education to advance triple aim outcomes

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Introduction

Achieving the goals of health care reform – described by the Institute for Healthcare Improvement as the “Triple Aim” – will place new demands on the health care workforce. Interprofessional team-based care, quality and process improvement, and population health management are not skills that have been emphasized in traditional health professions education and training. Preparing health professionals to meet these demands will require significant changes in education and training – changes that can only occur if educational institutions align with practices, health systems and the communities they serve. Together they must define the knowledge and skills required for better care, added value, and improved health outcomes, and together they must align and integrate health professions education with the reformation and redesign of health systems that are currently underway. This commentary describes a case example of what such change could look like, reviews current opportunities and challenges to progress, and offers a review of current initiatives and opportunities to move forward toward an optimal alignment of practice and education that will improve population health, reduce costs, and improve the quality of care.

Case example – Amina and a vision of the “New Nexus”

Amina, a young Somali refugee mother with juvenile-onset diabetes, pricks her finger. Sitting in her urban apartment, she squeezes the finger and raises a drop of blood that she carefully places on a device to measure her blood sugar. With this act she sets in motion a system of health care and learning that has been carefully constructed around her. Amina is a member of a team of clinicians, university faculty, health professionals-in-training, and members of her community who are continuously working and learning together to keep her healthy.

The local university and a federally qualified health center (FQHC) that recently integrated into the region’s largest health system created a “learning and health care delivery partnership”, called *The Nexus*, with the Somali Community Development Alliance (SCDA). This shared vision benefits each partner;

together, they are meeting goals that none could accomplish in isolation. The SCDA receives culturally competent and respectful health care for the Somali community, as well as role models and an education pipeline for a new generation of Somali health professionals. The university is graduating “collaboration-ready” health professionals who learned their skills in the community, focused on achieving the Triple Aim (Berwick, Nolan, & Whittington, 2008) – articulated by the Institute for Healthcare Improvement (IHI) – to continually improve the experience of care and population health while reducing per capita costs.

The FQHC, a patient-centered medical home, has exceeded its performance goals: costs are down 20%; hospitalization rates have plummeted; emergency department utilization is at an all-time low; and most importantly, Amina’s community now has health and survival statistics that are indistinguishable from the wealthy suburbs around it.

This partnership was initiated when the university formed an institution-wide health science curriculum committee with faculty from all health professions, health system leadership, policy-makers, students and community members. Their goal was to redesign and consolidate the health science curricula to meet the IHI Triple Aim. Today, from the first day of their professional programs, students across the university learn together, rotate through communities in interprofessional teams, use state-of-the-art learning technologies, and are continually assessed for their competence as collaborators and team members (Interprofessional Education Collaborative Expert Panel, 2011).

Amina is benefiting from the “community as curriculum” component of the program embedded in her FQHC. Students now complete their clinical training in one integrated care system that incorporates acute care, ambulatory clinics, transitional care units, patient-centered medical homes, and community settings. This carefully planned learning system allows them to longitudinally experience a system’s improvement cycles, build healing relationships with patients, understand the role of data in health, become immersed in diverse cultures, coordinate care across a variety of settings, work with non-traditional care providers such as community health workers, and incorporate families into care. The interprofessional team of students who will work with Amina today are on this community rotation. The FQHC’s nurse practitioner can serve as the preceptor for all students because of “interchangeable precepting”, a concept made possible once licensure and maintenance of certification based upon point-of-care learning and demonstrated performance in team-based practice replaced the former system of profession-specific

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accreditation, certification, and licensure processes (American Association of Colleges of Nursing & Association of American Medical Colleges, 2009; Institute of Medicine, 2010).

The medical, nursing, pharmacy, and occupational therapy students are completing their fifth rotation as a team. Their days are structured so they work both in teams and independently with their profession-specific mentors. Amina's morning glucose reading, transmitted by her glucometer to the clinic, has set in motion another opportunity for them to learn together.

As Amina prepares breakfast for her family, the FQHC's computer triggers an alert based on the elevated glucose reading. The alert appears simultaneously in her electronic health record (EHR), to inform her care team, and in the app on her mobile device purchased for her by the SCDA. The alert informs Amina in her native language that she will soon receive a call from the FQHC.

At 9 a.m. the nurse preceptor at the FQHC scans the morning's alerts with the team. The learning team reviews Amina's record and begins to develop a plan together. The pharmacy student is designated to document the team meeting in the EHR and to engage the FQHC's Somali community health worker, a trained interpreter. To prepare for the call with Amina, the community health worker reviews Somali cultural issues around diet and family, Amina's English proficiency level, and the notes from the last diabetes group meeting.

Later that morning, the pharmacy student and the community health worker call Amina to inform her that they are working with the nurse practitioner preceptor whom she knows by sight and by name. Together, they review the events of the past few days – her diet and activity, new symptoms, changes in her medication regimen, and new stressors. After a few minutes, they reach tentative conclusions as to why her diabetes control may have gone awry. After the call, the student and the preceptor discuss a plan, document it in the EHR and forward it to Amina's primary care provider.

Within an hour, Amina's physician reviews and refines the plan of care which is quickly relayed to Amina. A short time later, Amina's blood is drawn and urine analyzed at the FQHC's lab a few blocks from her home. Three hours after the original alert, Amina receives a call from the pharmacy student and the community health worker. Amina has a urinary tract infection. They ask a few more questions clarifying the severity of the infection and confirming her medication allergies, pharmacy of choice, and the follow-up plan. By 3 p.m., Amina has taken her first dose of an antibiotic.

At the 4 p.m. team huddle, the pharmacy student discusses Amina's case. She reflects upon Amina's history of hospitalizations, medication expenses, Somali culture, family responsibilities, and the roles of her care team members. Focusing on systems issues, the students discuss the FQHC's diabetes care goals and their own roles in gathering and reviewing data on care processes and outcomes.

The following day, Amina receives a call from her learning team inquiring about her symptoms and noting that her blood sugars that morning were back in line. After three consecutive days of normal blood sugars, Amina receives a final message reminding her of her monthly health goals and her upcoming group visit.

For Amina, none of this is particularly remarkable or unusual. Although calls from the FQHC are not common, she regularly receives text messages from the practice: goals she's set for herself; reminders for a pap smear or a flu shot; links to information on cooking or exercising for diabetes; or a warning that a prescription will soon expire. Hospitalization and emergency care, formally a frequent occurrence, have not been

necessary since the FQHC began its diabetes monitoring and communication program. Through every episode of care, each step is planned and each person she encounters appears to know exactly what happened before and what needs to happen next. Amina is pleased with her care.

Discussion

Current realities

Patient-centered, interprofessional, team-based, data-driven care can be found today in a growing number of innovative health systems scattered across the United States (US). Similarly, students from different health professions in many educational settings learn with, from, and about each other in highly innovative curricula and authentic patient-care experiences. Unfortunately, such exemplars of care and educational innovation are still rare, and the systematic integration of the two—truly collaborative interprofessional practice and education—is very difficult to find. A quick scan of most health professions schools today reveals a collection of siloed educational structures, working in parallel in affiliated practice organizations with little dialogue, integration, or collaboration between them.

The need for change is well-documented. Health care in the US is exorbitantly expensive, fragmented, unreliable, reactive, and does little to improve population health or attenuate shocking and ubiquitous disparities in health status and life expectancy. Higher education is similarly criticized for its high cost, inefficiencies and poor alignment with the needs of patients and communities. Specifically, health professions education produces individuals with high degrees of technical competence, but with little understanding of each other, the systems in which they work, or the complex ecologies around them that do much more to determine health than the clinical enterprises in which they will spend their careers.

Given today's realities, Amina's case would likely look very different than the one portrayed. Support to help her navigate the byzantine US healthcare system would be difficult to find. A community clinic that accepts her Medicaid card might be miles from her apartment, and getting there would be a challenge. Appointments would be poorly coordinated and would often occur without an interpreter. The clinic's limited hours would force her to choose between her health needs and her responsibilities for work and childcare, at times causing her to use the emergency department. She might ration medications and glucose monitoring to save money. Hospitalizations for preventable events would occur because care was too hard to access and too many details would fall between the cracks.

When Amina did visit the clinic, she would encounter a series of unfamiliar students asking her the same questions, often multiple times on the same day. The clinic's staff would spend hours managing the regulatory requirements for students from multiple schools who would arrive with varying levels of preparation, expectations, and course requirements. Training for Health Insurance Portability and Accountability Act (HIPAA) compliance and EHR, and criminal background checks, would consume precious time and resources. The clinic administrator would have to hire a staff member just to manage student placement, while clinicians would complain about the drain teaching places on their productivity. Everyone would be unhappy: Amina, the clinicians, the staff, and the students.

Why is this care the best that Amina is likely to find?

The status quo exists for a reason. Modern health professions education and clinical practice systems are the natural

evolutionary product of the cultural and historical forces from which they arose. At the dawn of the twentieth century, the promise of modern health care lay clearly in the explosion of scientific discoveries that revealed the biological basis of disease and led to a growing armamentarium of drugs, devices, and treatments. The challenge for health professions education was to move away from the historical tradition of idiosyncratic coursework and apprenticeships, often driven by folklore and tradition, into a standardized and modern model grounded in science. Health professions education evolved to reliably produce scientifically grounded, technically competent practitioners, capable of advancing their fields and the state of the art.

As the complexity of biomedical understanding grew, specialties multiplied, and so did the complexity of training and practice. New specialties had to establish professional standards, formalize and standardize education and training processes, negotiate licensure, and jostle amongst each other to define the scopes of practice that would determine their professional stature and, often, market share. A vast complex machine evolved as a collection of self-designed parts, often with little consideration of, or consultation with, adjacent components.

Health professions education and health practice systems today both face a revolutionary moment. They evolved under a different set of imperatives than the ones they currently face. The shining promise of biomedicine has lost some of its luster as the sole answer to health. Exponential growth in healthcare costs can no longer be sustained. Like a malignancy, any additional resources the health system takes will come at the expense of the whole, starving the education and social services sectors that may ultimately do more to promote health than the traditional health care system. Practices, practice systems, and the education enterprises that support them cannot succeed in the coming century unless they respond to the new imperative summarized in the Triple Aim (Berwick et al., 2008).

In order to making the type of care Amina experienced in the visionary scenario commonplace, we must create a *new nexus* aligning practice and education. This alignment must achieve its own triple aim: improved quality of experience for patients, families, communities and learners; shared responsibility for achieving health outcomes; reduced cost and added value in health care delivery and education.

Creating the “triple aim for alignment”

For healthcare and education systems to create the “triple aim for alignment”, the way forward is *together*. Health systems and educators need to develop a common understanding of transformation and reform, define new workforce competencies and the educational resources needed to meet them, and repurpose existing resources to meet shared goals. To do so successfully, all stakeholders – not just education and practice leaders, but patients, families and community members – will need to be engaged. Dialogue is critical. The new nexus requires leadership, vision, incentives, and mutual performance expectations.

Change is occurring rapidly. Practices are transforming and integrating into larger systems. Systems are reforming and reorganizing, and none will succeed by clinging to old models of care. New practice models require new skills, currently in short supply. Health systems frequently note that new health professions graduates are not prepared for these emerging practice environments. What they may fail to note is that graduates are unlikely to be better prepared in the future unless they partner more fully in answering the question – “prepared for what?” Innovative practices and systems play a critical role in shaping the

future health care workforce. Those systems must partner with educators to create the learning environments where students and trainees can apply and refine their skills and develop the competencies necessary for advancing the Triple Aim. Success depends on entirely new models which merge practice and teaching, along with new policies and regulations to support and sustain those models.

Other needs are increasingly apparent. All health professionals must develop foundational knowledge and skills in teamwork, communication, health information systems, quality and process improvement, social determinants of health, and population health. Increasingly, effective education and health care will rely on new pedagogical approaches such as hybrid online learning and the incorporation of mobile devices and social media.

Establishing longitudinal, well-coordinated, interprofessional rotations can improve the quality of educational experiences and lower the costs of teaching. For individual and team growth, trainees need to stay in a practice for longer periods to master communication skills, patient-centeredness, an understanding of the social determinants of health, shared decision-making, quality improvement skills, and cultural competence. In such a planned system, these learners can also add considerable value to practices. They can gather data on practice performance and process and analyze care flow. They can research care processes and guidelines and bring this information into the practice for consideration. If appropriately prepared and supervised, students can be more active liaisons between the practice, their patients, families, and the community.

Sustainable, effective change – linking practice and education in mutual accountability for health outcomes – requires broad changes in policy from the government, licensing and accrediting agencies and payers. At a most basic level, the nation must ensure health coverage for every American. Appropriate incentives are needed as well. Payers must create a financial structure that supports proactive, population-focused, team-based care, engaging patients. Otherwise the type of care Amina experienced in the scenario above will be too expensive to provide and healthcare systems will suffer if they are too successful in keeping people out of their hospitals and emergency departments. Accrediting agencies and regulators must account for the interdependence of professions, and ensure the formal and informal arrangements necessary to weave together disparate scopes of practice into seamless tapestries of care.

Discussions are underway and considerable independent, although uncoordinated, groundwork has been laid across multiple sectors: professions, health systems, educators, payers, regulators, government, foundations, and consumer groups. Examples include recent reports (Cunningham, 2011; Josiah Macy Jr. Foundation, 2011) on graduate medical education reform; the American Board of Medical Specialties’ Maintenance of Certification Portfolio program; the Institute of Medicine’s Global Forum on Innovations in Health Professions Education; collaborative practice demonstration projects (e.g. US Department of Veterans Affairs Office of Academic Affiliations, 2013), the Robert Wood Johnson Foundation’s Future of Nursing: Campaign for Action, the Centers for Medicare and Medicaid Innovations grants and programs, Institute for Healthcare Improvement’s Open School (Institute for Healthcare Improvement, 2014) and the American Board of Internal Medicine Foundation’s Choosing Wisely Campaign. In addition, the recent release of the Interprofessional Education Collaborative’s (2011) consensus core competencies for inter-professional collaborative practice is providing a critical guiding framework in which to consider the training needs of a new workforce.

In 2012, the Health Services and Research Administration awarded a cooperative agreement to the University of Minnesota to establish the US National Center for Interprofessional Practice and Education to harmonize and align the efforts necessary to move forward. The Josiah Macy Jr Foundation, the Robert Wood Johnson Foundation, the Gordon and Betty Moore Foundation, and The John A. Hartford Foundation have collectively committed additional resources to support the center. A recent Macy Foundation report makes recommendations for the National Center's work to align interprofessional education with clinical practice redesign. Nevertheless, much work still needs to be done to ensure that tomorrow's workforce is prepared to care for Amina and her family in the manner necessary to ensure their maximal opportunity for health.

Concluding comments

Like generations before her, Amina immigrated to the US for the opportunities found here. The nation that has welcomed her and her family was founded on the revolutionary principle that all were created equal. That nation's currency carries a motto testifying that from the diversity of many comes a stronger unified whole. Standing beside this hinge in history, it is clear that realizing America's promise to Amina and the millions of other families on these shores requires us to create a stronger whole from the disparate parts of our healthcare and education systems. These distinct threads must be woven together into a tightly knit cloth that will wrap around Amina and her family and guarantee the maximal opportunity for health in all its dimensions.

The history of health care in this country is a complex story with an array of successes and many failures. Like all stories of progress, the plot is not linear, and like all histories, the outcome is not pre-ordained. Progress is always the result of visionaries and leaders who, in critical moments of need and opportunity, seized the initiative and charted a way forward. A century hence, this moment will clearly stand out as one ripe with both need and opportunity. The question we are begged to answer is what will we do with it? The stakes are high. Amina and her children are depending on us to get it right.

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Declaration of interest

The authors declare no conflicts of interests. The authors alone are responsible for the writing and content of this article.

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