Virtuous Cycles: Patient Care, Education, and Scholarship in the Patient-Centered Medical Home

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BACKGROUND: Family medicine needs to enhance its scholarly contributions. The discipline is beginning to do so by developing virtuous cycles in which scholarship, education, and clinical care in the patient centered medical home are mutually reinforcing. (Fam Med 2013;45(4):235-9.)

Family medicine was first proposed as a distinct specialty in the 1960s, with a goal of creating expanded generalist training to produce personal physicians who could ensure the integration and continuity of medical services for every American. Residency training programs in the discipline started in 1968, and 1 year later family practice was approved as the nation’s 20th specialty. The initial focus for this new specialty was on enhancing clinical training of future family physicians, rather than on establishing a rigorous scientific basis for the discipline’s work. This notion is borne out in a 1974 quote from the editor of the Journal of the American Medical Association, who referred to “...creation of departments of family medicine...a welcome, long overdue development,” but also described family medicine as an “anti-intellectual, anti-specialty, anti-research movement....” Less than a decade after family practice’s formation, John Geyman, MD, published a report in the New England Journal of Medicine acknowledging that teaching programs had been effectively established at undergraduate and graduate levels in both community and university settings but calling for the refinement of these educational programs and the “initiation of a strong, ongoing research effort” as requisite to continued evolution of the discipline.¹

Although beginning from a different starting point, family medicine did eventually converge with other specialties in its concern about the future of scholarly productivity. Green described the research domain of family medicine, noting that family medicine research is important, ripe for fuller discovery, and invites the thinking and imagination of the best investigators. He went on to state that medical research would never likely be complete without a robust family medicine research enterprise.² More recently, however, Saultz reiterated concern that the culture of academic family medicine has not embraced scholarship, asking “Can we build a research culture within a field that values teaching so single-mindedly?”³ Citing recent work documenting limited scholarship in our residency programs,³ he identified “our discipline’s Achilles’ heel—weak scholarly standards.”³

Developing and sustaining both the education mission and research enterprise for clinical disciplines requires subsidized revenue from the clinical mission of the academic health center (AHC). John Stobo, senior vice president for Health Sciences and Services at the University of California, provocatively said that AHCs “have become addicted to the opium of clinical practice income...to support their research and educational mission.”⁴ Major teaching hospitals directly support at least 10%–15% of the research carried out in their institutions, in addition to providing indirect subsidies for facilities and equipment.⁵,⁶ The University of Michigan Health System estimated that 25%–29% of its direct cost goes toward subsidizing research.⁷,⁸ Current delivery system changes threaten to reduce this revenue stream and the academic mission it subsidizes.⁹,¹⁰

Unlike many other specialties, in which scholarship and education may be indirectly linked with everyday clinical practice, the ways in which family medicine research can best be conducted are more directly

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influenced by the clinical basis on which the discipline was formed. Research that assesses whether or not patients received recommended treatment determines how to change physician behavior, improve team function, and remove barriers to compliance with evidence-based practices, and measures and reports performance metrics to physicians, which is precisely the kind of scholarship that must coexist in the real world of primary health care delivery. In this sense, health services research can be thought of as “outcome optimizing” research, where the context in which an intervention is implemented influences its success. Family medicine therefore has the opportunity to create a different reality, one in which robust scholarship is not only integral to our daily work of patient care and teaching, but in which each of these reinforces, strengthens, and enhances the others: a virtuous cycle (Figure 1).

A virtuous cycle is “a beneficial cycle of events or incidents, each having a positive effect on the next.” Each of the authors chairs a medical school Department of Family and Preventive Medicine in which we have seen, firsthand, emerging virtuous cycles in which patient care, education, and scholarship, including externally funded research, reinforce and augment each other.

University of Utah
At the University of Utah, the department partners with the University’s Community Clinics practice network to develop and implement redesigned primary care practice. Beginning in 2003, the practice network developed and implemented “Care by Design™ (CBD),” a system of care that anticipated many of the elements of the patient-centered medical home (PCMH), focused on three core elements: Appropriate Access, Care Teams, and Planned Care. Drawing on principles of Advanced Access, Appropriate Access is designed to provide care when and where patients want it, whether same-day appointments, advance scheduled appointments, web portal to the electronic medical record (EMR), or shared medical appointments. Care Teams begin with the microsystem, consisting of the primary care provider working in partnership with medical assistants (MAs) who are operating in a substantially expanded role. Planned Care implements preventive and chronic care protocols to enhance quality of care prospectively. All elements of CBD are supported by a robust EMR.

Building on this unique clinical design, the department and the school of medicine have utilized CBD as a strategic foundation for the education of medical students and residents. The medical school curriculum includes clinical exposure beginning in the first year of medical school. As a vehicle for this, first-year medical students are trained to serve as expanded MAs in the community clinics, which immerse them in an active primary care clinical practice one half day twice a month using the CBD model. This prepares them to move into clinical clerkships in the M-3 year and provides them with an opportunity to participate in a new advanced primary care track in the M-4 year. Primary care residents (predominantly family medicine, with some pediatrics and internal medicine/pediatrics residents) complete continuity clinics in CBD-redesigned outpatient practices. As such, these redesigned practices form the basis for a continuum of medical education in which both students and residents learn a more accessible, efficient, and effective primary care practice model in a “practice with a residency,” rather than a residency that has a clinical practice.

Learners also enhance the practice, thus creating another part of the virtuous cycle. Medical students facilitate practice improvement by serving in a real and meaningful role on the team, while supporting, not detracting from, practice efficiency. Graduating residents have been hired directly into practice in the community clinics, thus further strengthening these practices with clinicians prepared to function at a high level in the redesigned system. The university has also developed an advanced education program for MAs to support the redesigned practice model.

Resident/faculty QI projects initiate another part of the virtuous cycle: scholarship. Faculty and residents work together to define a problem, design a methodology to better understand or influence the problem, and develop and test an intervention designed to improve care. They subsequently present their work in annual symposia for all members of the health care team. One QI project led to National Institutes of Health (NIH)-funded research and publications and led to a new health services research program to enhance and advance the CBD model. Several small intramural grants were followed by extramural funding now supporting an in-depth, multi-method analysis of CBD implementation, while a subcontract and additional grant are supporting the development and evaluation of care management activities, patient engagement, and analysis of the impact of CBD on the overall cost and quality of care for patients served in these practices. Together, these three external funding sources are providing $4.5 million new funding over several years to analyze and further enhance CBD.

The redesign has led to more than 30 national, regional, and local presentations by members of our research and educational leadership teams. Interest in site visits from other health systems and academic health centers led us to initiate formal 1½-day “Learning Days” to teach about our transformation. These have been attended by more than 300 physician and administrator leaders from more than 50 health systems. Our redesign has led to four peer-reviewed publications to date by our team, multiple additional manuscripts in preparation, and published monographs by others who have studied our work. This represents a
completely new area of scholarship for our department and one we anticipate continuing to grow in concert with practice redesign and education reform.

University of South Carolina
At the University of South Carolina, a redefining of the mission of the Department of Family and Preventive Medicine in 2003 resulted in a commitment to “transform health care for diverse populations through patient-centered caring, education, and research.” From this, a multiyear strategic plan was launched that included clinical redesign of integrated faculty and resident practice using principles outlined in the Future of Family Medicine report. Through participation in an IHI Collaborative for Access and Efficiency in Primary Care Practice, the department’s Family Medicine Center (FMC) formed four clinical teams of staff, residents, and faculty who focused on improving both individual and team access for patients as well as establishing higher rates of continuity, which had been lagging in its residency program. Following this, engagement in the AAMC Academic Chronic Care Collaborative helped faculty to better understand the principles of the chronic care model, patient activation, care management, team-based care, and use of the model for improvement to enhance care for patients with diabetes. Subsequently, a partnership with Blue Cross Blue Shield of South Carolina provided for ongoing enhanced reimbursement for improvements in clinical service delivery provided in the context of a PCMH.

Following the mantra “the clinic is the curriculum,” DFPM faculty have substantially expanded practice transformation into resident training, beginning with PGY-1 activities built on intentional patient panel assessment and a 1-year longitudinal class project that focuses on improving one aspect of care for FMC patients. PGY-1 residents also begin work on a 3-year METRIC project that requires completion of modules based on review of their own patient panel. PGY-2 year residents begin work on a scholarly QI project, which carries through their PGY-3 year and has resulted in regional and national presentations of their work. Additionally, PGY-3 residents complete an analysis of their care quality using NCQA’s individual recognition for diabetes care. During all 3 years of training, residents are involved in monthly clinical team meetings focused on practice redesign issues and have served on periodic, topic-based process improvement teams. As a result of these, residents have helped develop and analyze quality metrics for the practice’s clinical dashboard, assessed patient flow and cycle time and determined ways to maximize efficiency from data collected by public health students, and identified high-risk cohorts of patients for enhanced care management. Each represented new competencies for the residency program. DFPM work in ambulatory QI curriculum development was recognized by the sponsoring institution, which granted approval and funding for a PGY-4 Healthcare Quality Improvement fellowship. Fellows in this program have lead QI teams in the health system and mentored residents and medical students, creating a new cycle of educational activities.

Medical student education has also improved through this effort, through summer research programs in which students between their M-1 and M-2 year work with faculty on QI activities and though a new M-3 clerkship emphasis on having students learn about the PCMH model when they are paired with faculty who demonstrate these principles during clinical time in the FMC. Other health professions students have also benefitted from the department’s clinical redesign work, including MPH/MHA and PharmD students from the University of South Carolina and MA students from a local technical college.

Realizing the need to strengthen the DFPM’s research mission, and wishing to align this with the clinical and educational transformation process, intramural funding was obtained that supported 3 years of start-up funds for hiring a health services researcher with an interest in ambulatory quality improvement.
This new faculty member not only supported the department’s overarching clinical transformation mission, he was also able to establish himself as an independent investigator in the area of ambulatory practice transformation through funding from an Agency for Healthcare Research and Quality (AHRQ) Career Development Award. His work additionally served as a nidus to stimulate collaborations with clinician-educator faculty, resulting in numerous joint publications and new grant funding from this initial investment. Spread from the department’s practice redesign scholarly work also gained the notice of state agencies, university research groups, and a large regional foundation, which have each funded further expansion of the department’s scholarly, educational, and clinical improvement work.

Intradepartmental virtuous cycles expanded beyond the borders of the DFPM when its leaders secured funding, along with our sister department at UNC-Chapel Hill, to sponsor two back-to-back regional collaboratives for faculty, residents, and clinical staff from regional primary care residency programs focused on improving chronic care delivery and PCMH transformation in primary care teaching practices. These have resulted in enhanced faculty development activities, ongoing clinical improvements derived from shared learning, expanded scholarship opportunities for both faculty and residents, and documented improvements in care.

As a result of our focus on practice transformation, we have seen a marked increase in departmental extramural funding and scholarship. We have had consistent federal and private foundation funding for projects related to practice redesign and supporting educational changes starting within 18 months of developing our strategic plan. Since 2005, extramural funding for this work in practice transformation has exceeded $200,000 per year, increasing to more than $300,000 per year since 2009, with a total award amount of $1.97 million dollars that would not have been realized without this strategy. Publications and presentations also increased, with more than 18 peer-reviewed publications and 40 national and regional presentations on practice redesign, new models of care, and curricular change to support its sustainability. Aligning our clinical and educational transformation has not only increased the number of publications and presentations but also the number of faculty members and other clinical team members involved in scholarship, which is an elusive goal for many departments of family medicine.

Discussion

Challenges Faced in Choosing a Strategy of Virtuous Cycles

Creation of virtuous cycles in departments of family medicine is not without its logistical and operational challenges. However, with Pogo, who pointed out that “We have met the enemy and he is us,” the most common barriers are conceptual ones within our own thinking, especially the outmoded but persistent idea that patient care, research, and scholarship are separate, even competing, priorities within academic departments of family medicine. We believe the mental model of “virtuous cycles” should replace this outdated thinking. For our faculty, staff, and learners to shift their thinking in this way, we believe leaders should define the strategy as a clear vision, illuminate examples of how virtuous cycles have propelled the department forward, and lead by example, showing others how each mission can reinforce the others.

External challenges are both cultural and financial. Culturally, AHCs are in varying states of readiness to understand and implement practice-wide system change. Some are farther along than others, and some progressive AHC leaders have even recognized that “The central challenge for AHCs is to develop a form of the virtuous cycle in which clinical revenue and academic performance are functionally and strategically supportive of each other.” Whatever the culture in their AHC, family medicine leaders must find a way to begin implementing change adapted to local circumstances. It is more important to initiate the process than to lose momentum waiting for a favorable institutional climate. Financially, since it implies that change in any mission can enhance others, the “virtuous cycle” mindset increases options for funding transformation, with a focus on specific extramural, intramural, and institutional funding that invests in any one of the three traditional missions of academic departments. For example, funding that supports PCMHs can create the clinical “classroom” for curricular reform and can help refine new models of clinical care delivery.

Lessons Learned

The examples of our departments benefiting from virtuous cycles of patient care, education, and research are not unique. We are aware of other departments of family medicine and family medicine residency programs in which such virtuous cycles are also emerging.

They do, however, follow a similar pattern emphasizing practice transformation first, followed by integration with education and scholarship. That is, we see value in strategic and focused effort to transform the clinical practice model to provide advanced primary care, followed by education of health professions students and residents in new delivery models and leading change and subsequent augmentation of scholarship that further develops both the practice model and educational curricula.

As our nation recognizes the need for renovation of practice, education, and research in health care delivery, this also provides opportunities to increase and diversify funding for academic family medicine. These include new funding from federal agencies such as AHRQ, the NIH, and the Centers for Medicare and Medicaid Services. Funding for new models of care is also increasingly
available from commercial and governmental health insurance plans and corporations interested in health care delivery reform. Support for education is also becoming available for departments teaching in new medical school curricula.

Finally, this approach can strengthen family medicine by helping solve real problems for our AHCs, many of which are struggling to implement new models of care through creation of accountable systems of care that deliver value rather than volume. This is an enormously challenging transition for AHCs, many of which have succeeded providing fragmented, high-ly subspecialized care in a lucrative fee-for-service payment environment and are ill-prepared to manage cost and quality across the continuum of care for populations under constrained payment. Family medicine is uniquely positioned to lead health care delivery reform, from creation of PCMHs through improving care across the delivery system, preparing future health professionals to lead continued system transformation and through conducting comparative effectiveness studies to evaluate the outcomes of these interventions.

Conclusions
Taking advantage of a virtuous cycle strategy, in which a department’s three missions build on and support each other, can substantially expand and reinforce a unique clinical, educational, and research portfolio for family medicine. Successfully integrating our efforts across the missions of patient care, teaching, and scholarship will only enhance the ability of our departments and residency programs to improve care for those we serve during this increasingly resource-challenged period. It will also further strengthen our positions in academic health centers and health systems that are looking to our discipline for leadership in creating new systems of value-based care that is coordinated across the continuum of patients’ lives. It should also establish the basis for an ongoing research agenda for the discipline of family medicine.

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