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The Practice Is the Curriculum

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ABSTRACT: The training family medicine residents receive will have a lasting impact on how they deliver care in the future. Evidence demonstrates an imprinting effect based on the training environment itself. Thus, residency training represents a critical time for establishing clinical experiences that embody core primary care principles and ensure excellent care delivery. This paper focuses on the clinical experience in the family medicine practice setting. We have used Starfield's four C's of primary care and added two more: cost and community, as the tools to achieve the triple aim. In reviewing the current state of residency programs across the country, we noted that there was a lack of measurement on how programs were performing when it came to the six C's. We will briefly describe some recent innovative collaboratives among residencies. Next, we examine the six C's of primary care in context of current care. These six C's inform our recommendations for residency training standards to create the family physicians of the future. The overarching theme of these recommendations is the need to measure and report on what we want to ultimately improve.

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Family medicine residency training is foundational for creating physicians who care for communities across multiple settings with the goal of achieving the triple aim of improving the patient experience and quality care, while decreasing costs.[1] Research indicates that the resident training environment has a lasting impact on the care physicians deliver for at least two decades after residency completion.[2] Thus this setting provides an opportunity to imprint activities and decisions consistent with high-value care for the next generation of physicians.

Historically, the concept of the model family practice formed the basis of program requirements to augment didactics. This reflected a more physician-centered model that was typical of the time and persists today. Additionally, the requirements focused on specific aspects of a family physician's scope of practice and the specific patient populations served (eg, maternity care, pediatrics). Contrary to this traditional structure that focuses on deconstructed elements of our scope of practice, with the clinic being a supplement to training, we propose that the practice environment itself is the curriculum to model and teach residents how to effectively deliver health care, demonstrate excellence, and achieve the goals of the triple aim.

Simply stated, outstanding medical education occurs best in an environment of outstanding patient care. The upcoming Accreditation Council for Graduate Medical Education (ACGME) review allows for reenvisioning the family medicine residency education and is an ideal time to reexamine Review Committee standards for clinical sites and ensure they meet patients' and society's current and future needs. This is a move beyond just meeting the educational needs of residents. While the triple aim is the goal, the means to achieve this can be found in Starfield's four C's of primary care: first **C**ontact care, **C**ontinuity, **C**omprehensiveness and **C**oordination. Strong evidence indicates improved health outcomes when greater levels of the four C's are achieved.[3,4] Two additional C's impacting health care in the United States include **C**ost and **C**ommunity.[5,6] These six C's are insufficiently addressed by the current ACGME Review Committee (RC) program requirements for family medicine. For residency training environment to ensure these values are met, the

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family medicine practice needs new metrics.

The ACGME Review Committee for family medicine sets forth several structural, process, and outcomes requirements for outpatient training (Table 1). These requirements stipulate that residents have a patient panel, achieve a minimum volume of office visits, and experience a diversity of clinical conditions and patients. However, while these requirements lay a foundation for outpatient resident practice, they allow for interpretation that does not ensure a standardized environment of excellence during these formative years. For example, residents must have 1,650 continuity visits, but there is neither a defined standard metric for continuity nor an

Table 1. Current and Proposed ACGME Standards

Domain	Section	Current ACGME Standard	Additional Recommendations
Empanelment	IV.C.4	Assigned a primary care clinic	
	IV.C.4.c)	Must have a panel (no size specified)	Must provide demographic data on this panel
First contact care/access	IV.C.4.a)	Must be in clinic a minimum of 40 weeks out of the year.	Adopt open access scheduling
	IV.C.4.a).(1)	Must not be away from clinic for more than 8 weeks at a time.	Must measure access for each resident
	IV.C.4.f)	Residents' patient encounters should include telephone visits, e-visits, group visits, and patient-peer education sessions.	Must have a defined process for evaluating competence and independence in virtual care
			Rotation demands should not prohibit timely response to patients.
Continuity	IV.C.4.e)	1,650 in-person clinic visits, of which: 165 visits with patients <10 years of age, and165 visits with patients >60 years of age.	A proportion of these visits can be virtual
	IV.C.4.c)	Must see their panel across a spectrum of settings.	Must measure usual-provider continuity.
	IV.C.4.c).(1)	Long-term care experiences must occur over a minimum of 24 months.	
Comprehensiveness	IV.C.4.b)	Should have a mix of acute, chronic, and wellness visits.	Must measure and provide feedback on referral rate
			By PGY-2 year, panel should include patients with two or more chronic disease states including mental health diagnoses.
			Residents should have an opportunity to be directly involved in the care of conditions currently amenable to primary care that were previously in the realm of specialists such as hepatitis C, HIV, and substance use disorder.
	VI.A.1.b).(2).(a)	Must receive data on quality metrics and benchmarks related to their patient populations.	The FMP must have an established process for quality improvement.
	IV.D.3.b)	Must participate in at least one quality improvement project.	Must participate in a quality improvement project that is integrated into the FMP QI process and addresses practice- or community-level metric.

(Continued on next page)

Table 1: Continued

Domain	Section	Current ACGME Standard	Additional Recommendations
Coordination of care			Residents must participate in a formal transitions-of-care process for hospitalized patients.
			Ability for direct coordination between behavioral health provider and continuity physician whether in person or virtual
Cost	IV.B.1.f).(1).(g)	Understanding health care finances and its impact on individual patients' health decisions.	Residents must have access to basic cost of labs and imaging (at least relative costs).
			Must provide data on cost per member, ordering rates of high-cost imaging for panel
Community	VI.A.1.b).(3).(a).(i)	Activities aimed at reducing health care disparities.	FMP must have a way to document social determinants of health and have community resources available.
			Must have patient representation in an advisory role

Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; PGY, postgraduate year; FMP, family medical practices; QI, quality improvement.

established goal. While visit numbers are controversial, recommendations that will meaningfully improve the care delivered, and thus the educational imprinting achieved, should be prioritized.

In this paper, we outline the current state of family medicine residency practices, recent innovative work, the timely relevance of the six C's, and recommendations for residency clinical site requirements. While the objective is to create family physicians with maximally appropriate scope of practice across multiple settings, this paper focuses on care delivery for the family medicine practice population, which often accounts for the majority of a practicing physician's professional time.

Current State of Residency Practices

Obtaining performance data on the triple aim and the six C's of primary care is challenging because they are not routinely measured. Data from the I3 collaborative, comprised of 10-23 primary care residency programs across four states, suggests wide variability in achieving the triple aim across residency programs.[7,8] In a recent unpublished survey by the American Board of Family Medicine, fewer than half of residents knew the size of their panel and only half knew anything about their panel's demographics or clinical conditions.[9] The Clinic First initiative conducted site visits at 23 residency clinics, finding less than half measured continuity from the patient's perspective, and these rates varied from 21%-81%.[10] Similarly, the Length of Training Pilot, a case control study of 13 residency programs extending training to 4 years, found that defining resident continuity was challenging and needs special attention.[11] Specialty referral rates, an indirect marker of comprehensiveness, also vary widely between programs, 7%-31%.[12] Overall, there is not enough measurement to know how the majority of programs are performing, and, when areas are measured, there is wide variability.

Some lessons can be learned from a few programs examining transformative changes in one or more of the six C's.[13] The Preparing the Personal Physician for Practice (P4) project studied new models of family medicine education, focusing on the patient-centered medical home (PCMH). Fourteen residency programs, selected after a national application process, demonstrated that it was possible for multiple residency programs to actively engage in work to transform the resident educational experience.[14] Early work by the I3 collaborative demonstrated significant improvement in congestive heart failure hospitalization rates by using the Institution for Healthcare Improvement Breakthrough Collaborative design.[15] However, later iterations found that gains towards the triple aim and value-based care remain challenged by the strain to accomplish success across multiple domains simultaneously.[16] Lastly, a Colorado initiative centered on transforming 10 residency practices into PCMHs through coaching and redesign. This work led to increased engagement, team-based care, and continuity with patients.[17] The number of residency programs in these different initiatives was small and the programs were likely more motivated by virtue of being in a collaborative, however, taken together these studies show a desire

and need for clinical redesign in residency practices.

Recommendations

The recommendations below expand the RC requirements to ensure residents train in family medical practices (FMPs) designed to achieve the triple aim (Table 1). Despite the evolving nature of medical practice, the four C's of primary care plus the additional two C's (**C**ost and **C**ommunity) are guiding principles that will help practices achieve the triple aim. Using the principles of the six C's and the available evidence, we recommend the following additional standards to create excellent training practices, and in turn, excellent family physicians.

Even before addressing the six C's, empanelment is critical to a FMP site. It allows us to assess access and enables continuity to be measured. Therefore, all patients of a practice must be empaneled. Panel sizes for residents vary widely across training programs.[18] Some flexibility is needed in panel sizes based on the number of clinic sessions by year at each program. Increases in panel size can result in decreased continuity,[19] thus panel size should be designed to balance visit volume, access and continuity.

First-Contact Care

Family physicians play a principal role as point of first contact for the health system. With more subspecialization by internists and pediatricians, family physicians provide much of the primary care in the United States.[20] Access to primary care is associated with lower cost, better outcomes, and patient satisfaction,[4,21,22] yet there is no RC requirement to measure access. Studies show that one of the easiest and most cost-effective ways to improve clinic availability is open-access scheduling, which reserves some appointments that can only be filled on the same day.[23] Furthermore, technology changes the format in which patients access care and physicians deliver care. For example, the COVID-19 pandemic saw marked acceleration in telehealth visits.[24] For residents to learn the concept of first-contact care, FMPs should:

- Measure individual resident access resident using a standard metric (eg, time to third available);
- Adopt open-access scheduling; and
- Provide virtual (ie, phone or video) visits, and have defined processes for evaluating virtual care competence and independence.

Continuity

Greater care continuity is associated with improved patient outcomes, provider and patient satisfaction, and reduced health care costs.[3,10,25-88] Efforts to ensure timely and convenient access to care may conflict with ensuring continuity with specified providers or even provider teams. Achieving continuity in residency clinics faces additional tensions between assignment to the FMP and required/desired specialty rotations as well as the need to abide by ACGME work hour limits.[11] Despite these challenges, continuity during residency training is essential.

Given the complexities of care and the desire to achieve the triple aim, family physicians must provide continuity within the context of a care team. Development of team care models improves continuity and thus can be a strategy to overcome certain challenges.[25] A potential risk with team care is the dilution of the interpersonal physician-patient relationship which remains a critical element in achieving better outcomes.[29] Interpersonal continuity is also associated with greater self-reported physician meaning and joy in work reported, thereby supporting the critical of goal of provider wellness.[10,27]

Currently there is no ACGME RC requirement to measure continuity in residency FMP's. Trade-offs exist between emphasizing provider-oriented versus patient-oriented continuity and to favor one may hinder the other.[25] One metric has not been shown to lead to superior outcomes over another. Therefore, we do not recommend the type of continuity measurement except that it reflects patient care provided by residents. A baseline requirement for measurement of one or more types of continuity in the FMP would compel sponsoring institutions and health systems to prioritize this metric along with more traditional quality metrics.

To enhance continuity, all programs must:

- Facilitate patient access to their continuity resident physician whether in person, by video, phone or email every workday. Provisions should be established for team coverage when the resident is not available, but rotation demands should not be the determining factor.
- Establish an annually reported metric for continuity (either patient or resident provider-based) that reflects the average for each resident by year end.
- Ensure residents are actively engaged in addressing their patients' needs even if working within a team-care model. Patient messages and test results should be addressed by the assigned resident unless that resident is on vacation or otherwise unavailable.

Comprehensiveness

Primary care physicians coordinate the complex chronic care of patients who often have multiple comorbidities. In a study of 148 primary care practices, 45.2% of patients had two or more chronic conditions.[30] Furthermore, trends in chronic illness burden point to the increasing relevance of a comprehensive primary care specialty where previously specialized conditions will necessarily become generalized. This transition offers a broader role for primary care physicians in areas such as mental health, obesity, addiction, chronic infections (HIV, hepatitis C), palliative care, telehealth, and expanded outpatient care models (eg, "hospital at

home"). Additionally, increasing family physician comprehensiveness of care is associated with lower average payments per patient.[31] Conversely, a recent graduate survey indicated that graduates' actual practice scope was narrower compared with the scope they felt prepared to provide.[32] Thus, ensuring residents continue to provide a comprehensive scope of care will mean balancing training opportunities with what is needed and should be provided in the community setting.

Part of comprehensiveness is focusing on quality of care for both prevention and chronic disease. Residents must not only have access to quality data but must also actively engage in quality improvement (QI). Focusing resident QI work on health care system metrics (ie, aligning with the clinic's focus), can improve engagement and sustainability.[33] It would be challenging to set a target for individual metrics across all residency programs that stays relevant over time, thus, we recommend using externally reported metrics such as an Accountable Care Organization (ACO). The metrics already being reported should serve as the foundation of QI work.

To ensure a comprehensive scope of care, the FMP must:

- Track practice and individual referral rates to subspecialists and provide normative data to residents and FMP leadership to ensure comprehensive care is delivered in the FMP rather than referred.
- Maintain resident panels with multimorbid conditions such that by the second year; each resident must have patients on their panel with two or more chronic diseases.
- Provide opportunity for residents to be directly involved in the care of conditions currently amenable to primary care that were previously in the specialty realm.
- Provide residents with individual and practice-level data on any quality metrics being measured in the clinic.

Coordination of Care

Family physicians need to coordinate care for chronic medical conditions. This means that they need to have communication with the specialists taking care of their patients.[34] One area that has seen advances in care coordination is the integration of behavioral health, leading to improved chronic disease metrics, decreased utilization and reduced costs.[35] Additionally, programs that coordinate discharged patients between the inpatient and outpatient setting have demonstrated decreased emergency department (ED) visits, hospitalizations, and total cost of care.[36]

To train residents in care coordination, FMPs should:

- Establish defined curriculum and training outcomes related to coordination with specialists, including electronic communication and/or teleconsultation.
- Have residents develop competency in formal transitions of care process post-discharge from the hospital.
- Have integrated behavioral health that allows direct coordination between behavioral health provider and continuity physician whether in person or virtual and provides or directly coordinates treatment for substance use disorder.

Cost of Care

A growing obstacle facing health care in the United States is the unsustainable rising cost of care. The United States leads as one of the countries with the highest costs in health care in the world, spending $3.6 trillion per year.[37] High-cost imaging, and ED and hospital utilization are all driving these costs and need to be better managed to contain costs. The Choosing Wisely Campaign is one example of advancing the thinking across specialties to avoid unnecessary tests, treatments, and procedures.[38] Given evidence that residents will have similar cost patterns in their future practice, and very few residents receive feedback on cost or utilization for their panel, it is especially important to ensure their training setting provides cost-conscious care.[9,39]

Cost of care is impacted by many variables including type, location, and coordination of services provided.[40] While there is an RC standard to provide financial performance to residents, the practice management metric does not directly address the financial burden on the patient. In one study, providing imaging utilization data compared to peers there was a decrease from a 4.2-fold variation between the highest and lowest utilizers before the intervention to a 3.3-fold variation afterwards.[41] This suggests providing utilization data may help discourage inappropriate ordering. Curbing costs may be achievable in the future with proper modeling of reviewing utilization costs in residency. To promote cost-conscious care, the FMP should provide:

- Charge data for common laboratory and imaging tests ordered at the FMP to residents and faculty. At a minimum, relative costs should be provided.
- The average cost per patient for a resident's continuity panel and for the practice based on billing data. This can include costs generated in the FMP, plus system-generated costs (eg, hospitalizations, imaging, referrals).
- Ordering rates of high-cost imaging both at the resident and practice level.

Community

Current challenges with widening gaps of health disparities remain rooted in our inability to address the underlying driving systems at the community level.[36,42] Training in community settings that includes public and population health provides the adaptability required to respond to a variety of our patients' needs.[43] Longitudinal and experiential models of training lend themselves to greater appreciation

for cultural competencies and social drivers of health, especially in underresourced settings and areas with significant health care disparities.[44] Patient representation and engagement can also directly influence the practice beyond patient satisfaction scores, to provide a more inclusive, person-centered approach to the experience of care.[45-47] Family medicine residency training must provide opportunities for residents to integrate public and community health into the practice.[48] Additionally, there is a recognized need to improve the curricula and introduce innovative methods to address the social determinants of health.[49] Ultimately, family physician commitment to the societal obligations to prevent disease and promote health of individual patients and communities is highlighted in the shift to value-based payments to improve outcomes.[50] To train in community focused care, FMPs should:

- Define their community served, identify the key attributes of that community, and specify how it correlates to their practice. Recommended considerations include race, ethnicity, primary languages spoken, social characteristics, as well as identified community assessments and partnerships.
- Have patient representation in an advisory role.[51] Options include community advisory boards with a minimum of 50% patient representation or patient advisory boards or councils.
- Assess and mitigate the impact of social determinants of health through use of system and community resources. Improvement metrics in health disparities should be reported as outlined by the ACGME Clinical Learning Environment Review (CLER) process.

Conclusion

Reenvisioning the ACGME standards to promote excellence in clinical practice refocuses our attention to the foundational principles of our discipline and centers the practice as the curriculum for training. Family medicine was built upon the idea that we best serve patients through our long-term relationships occurring across multiple settings. The practices in which we train residents are the most significant levers to impact care delivery and education. The better we train residents in an environment of coordinated, comprehensive, and contiguous person-centered care, the more effectively we will imprint key aspects of care delivery toward the triple aim. Furthermore, by adapting our view of the practice to proactively address population health and value-based care through evidence-informed decision making, we not only benefit cost consciousness, but we also improve opportunities to engage the local communities we serve. In the many areas where our data are currently limited, we need to evaluate and determine our current state if we are to establish best practices. We cannot assume we are providing excellent care without first measuring and evaluating it. Thus, several of our recommendations include this as a first step. As we strive to ensure our specialty retains its reverence and relevance, the challenge ahead will rely upon our ability to rapidly adapt to shifting landscapes, and perhaps there is no better place to start but within and beyond the walls of our residency training practices.

DISCLAIMER: The views expressed in this article are the authors' own and not an official position of their respective institutions.

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COMMENTARY

— The Practice Is the Curriculum —

Purposeful Imprinting in Graduate Medical Education:

Opportunities for Partnership

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"Children have never been very good at listening to their elders, but they have never failed to imitate them." —James Baldwin[1,2]

Imprinting in Medical Education

Imprinting is a psychological term for "the process by which an organism develops a tendency to remain in proximity with the first stimuli to which it is exposed."[3] Imprinting stimuli are more or less constant during a very critical period of early development, and unlike associative learning, are not induced by consequences (either rewards or negative feedback). Imprinting comes from stimuli that are early, immersive, and innately comfortable. Similar effects are seen in medical education. Some have referred to imprinting as a "hidden curriculum" that exists in both medical school and graduate medical education (GME), potentially trumping the actual curriculum in terms of lasting impact on practice.[1,4]

Quantifying and assessing imprinting is an emerging science in health professions education, but early studies suggest its effects are significant and enduring. For example, the imprint of health care cost behaviors acquired during residency lasts at least 16-19 years posttraining.[5,6] Medical student cost-related behaviors appear to be similarly influenced by those of their training institution.[7] Educational imprinting also impacts the scope of practice, with both positive and negative effects on value and overall care provided to patients.[8] Other studies further inform this vision, for example: (1) a likely imprint of patient management style and general internists' choices of conservative vs aggressive management options[9]; (2) practice intensity (aggressiveness) is largely predicted by residency affiliation[10]; and (3) Asch et al reported imprinting of quality of care for women treated by obstetricians, specifically maternity care complications.[11] Relatedly, training in rural and safety-net settings has been shown to be a potent predictor in practicing in these settings later.[12] Imprinting can be general (management approach, costs of care) to specific (procedural competence), but both likely benefit from pattern consistency assessment across trainees rather than assessing at the level of the individual trainee.

Ongoing research will continue to deepen our understanding of which outcomes are imprinted, how to modify them in the training environment, and how to modify them in practice.

Harnessing Purposeful Imprinting

The promise of purposeful imprinting is a future consistent with Hafferty's vision for

> reform initiatives… undertaken with an eye to what residents learn, instead of what they are taught.[13]

From the American Board of Family Medicine (Drs Phillips and Bazemore); Accreditation Council for Graduate Medical Education (Dr Holmboe); and University of Michigan Department of Surgery (Dr George).

Some medical educators already propose using this powerful driver of future clinician behavior to align educational and clinical contexts, hoping to

> establish a training environment that supports bridging from clinician to educator, training program to clinical microsystem, and educational outcomes to clinical outcomes that benefit the patient.[14]

Building on the concept that "the clinic is the curriculum," they seek to change the clinical environment to reinforce desirable behaviors by modeling professional behaviors in the clinical learning environment.[15] It is for this reason that the American Board of Family Medicine now requires quality improvement activities during residency, not only to affect resident learning, but to induce modeling behaviors by the faculty and institutions that make it a part of the formal education program and their own practice.

While the potential impact of aligning the clinical and educational contexts are clear, effective implementation poses challenges. For example, while Asch et al found evidence of procedural quality imprinting, Phillips et al did not find evidence of imprinting for chronic disease quality measures.[5,11] Perhaps obstetrical procedures are imprinted through repeated modeling whereas there is less opportunity for recurrent modeling of chronic care management or instruction on disease quality assessment and improvement. The Institute for Healthcare Improvement and others have implementation models for clinical improvement that might support clinical quality imprinting, and educators have recently drawn parallels between quality improvement and medical education (experiencing, reflecting, thinking, and acting in continuous cycles).[16] It may be useful for faculty to decide on the behaviors or traits that they most wish to imprint (and those they don't) and then focus on how to make the training practice an immersive experience—how the things they do every day in practice specifically reinforce those behaviors.

Partnership Opportunities for Accreditation, Certification, and Training Funding

Jordan Cohen, MD, former president of the Association of American Medical Colleges, once noted, "the residency experience inevitably brands all physicians with an indelible imprint of medicine's lived values."[17] While there is evidence that imprinting starts in medical school, there are clear opportunities for the Accreditation Council on Graduate Medical Education (ACGME), certifying boards, and training funding to work in concert to promote the imprinting of desirable behaviors. Regulators have begun to recognize their role in shaping the environments in which physicians train, ensuring the imprint of behaviors desired by patients and communities. Regulation may be particularly valuable where health systems interests risk imprinting undesirable behaviors. Regulation can help shape a clinical training built environment that aligns intrinsic and extrinsic drivers of behavior so that physicians are nudged toward the right choice because it is the easy choice.[18] Accreditation and certification requirements could focus on built environment features that must be present because they demonstrate desirable practice behavior imprinting. For primary care this could be empanelment and continuity threshold requirements, for example.

In 2004, ACGME Executive Director David Leach called for changes in residency education accreditation that offered

> more emphasis on educational outcomes and less on process, more external and fewer internal measures, greater recognition of the continuum of medical education, more links between the quality of education and the quality of patient care.

He went on to forecast,

> (i)n the future, accreditation will be much more selective in its process measures and will probe educational outcome measures in depth.

That shift has begun. For the past decade, the ACGME outcome focus has been on competence, quality, and safety, best encompassed by the introduction of competency Milestones and the Clinical Learning Environment Review (CLER) program (quality and safety).[19] CLER has particular relevance to imprinting, as it grew out of concerns about the supervision and quality of care provided by institutions and their subsequent effects on learner outcomes.[11] CLER might be leveraged to more deliberately harness institution-level capacity for positive imprinting, while Milestones could focus more on individual competencies that might be a signal for imprinting improvement (see the Asch example for obstetrics).

New approaches to measurement will also be important. Dr Leach proposed regular surveys of graduated residents and existing trainees. Family medicine has implemented this idea and is the only specialty that requires training programs to survey graduates. The American Board of Family Medicine (ABFM) systematized this, surveying all graduating residents about their preparation, plans for practice, and burnout. It is a mandatory survey for initial certification and has been used extensively to assess practice vs training scope of practice.[8] The ABFM resurveys graduates 3 years later asking related questions.[20] These two surveys now populate annual reports to training programs, but could be a more robust part of the accreditation feedback loops, aiming to improve the training environment. Other certifying boards are collaborating with the ACGME, particularly around understanding Milestones and associated outcomes, and there is opportunity to support assessments of imprinted training outcomes.

The mounting evidence of imprinted cost-related and quality behaviors suggest several meaningful measures that may be assessed after training that reflect on the training environment. For example, efforts to translate the dimensions that explain primary care's beneficial effects on health—first contact, cost, continuity, and comprehensiveness—into measures are not only applicable to value-based physician payment, but also may prove important in evaluating training programs.[21-23] The time is ripening for relating practice behaviors and competencies back to programs to look for opportunities to improve training.

To realize any of these changes, it is critical that GME funders recognize their strong incentive to measure training outcomes and for joining accreditation and certification bodies in influencing training environments. Among federal stakeholders, the Health Resources and Services Administration (HRSA) has capitalized on the imprinting effects of training in safety net and rural settings in support of its Teaching Health Center and rural training programs. HRSA is also first among GME funders to pilot value-based payment for training institutions, through its Childrens Hospital Graduate Medical Education Quality Bonus System.[24] While HRSA continues to assess the general effectiveness of its programs, it could develop site-level training outcome measures for desirable behavior imprinting to focus its investments and guide training site improvements.[25] The Veterans Health Administration spends upwards of $2 billion on GME with very little assessment of training outcomes, imprinted or otherwise. The Centers for Medicare & Medicaid Services put $12 billion annually into GME, but lack authority to assess or direct training outcomes.[26] The data and methods for evaluating training outcomes, some of which are clearly imprinted, are available.[27] The primary funders of GME may need both more information and more authority to be effective partners in this work.

Conclusion

Educational imprinting in residency education has significant effects on practice, and hence, on the health of our society. Imprinting can be positively harnessed by implementing changes in educational clinical settings. There are clear and important partnerships available to work on this important driver and outcome of medical education.

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COMMENTARY

— The Practice Is the Curriculum —

The Patient Voice:

Participation and Engagement in Family Medicine Practice and Residency Education

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We joined the Patient Advisory Council (PAC) in 2014 and have worked together on issues and initiatives that have had a positive impact on the University of North Carolina (UNC) Family Medicine Center (FMC) and its patients. We, like other PAC members, bring our professional and life experiences to this council. Charlie was a senior executive with several advertising agencies and consumer products companies before starting an agency in New York City. Winston is a retired public health epidemiologist with a career that included teaching, research, and practice. We joined the PAC to contribute to something important that leverages the skills we acquired over our professional careers. We both responded to an article in the *Family Medicine Patient Newsletter* soliciting new members for the PAC and have been active on the council for the last 7 years.

The UNC FMC PAC

The PAC was created to ensure that patients have a voice within the practice and that the patient voice would lead to the continued improvement of patient care.[1] This has been achieved by creating an environment in which there are ongoing opportunities for PAC engagement on substantive issues and the patient voice is valued. In addition, FMC fosters an environment in which initiatives generated by the PAC are encouraged and supported.

The PAC includes members of FMC's leadership team and other FMC staff. We work together as equal partners to achieve common goals. There are 8-12 patient members who typically serve two 3-year terms. Candidates are solicited through articles in the *Patient Newsletter* and from providers' recommendations. Interested patients are asked to complete an application and are interviewed by PAC members. Two to four new members are selected annually.

The Patient Voice: What It Is and Why It Is Important

When you think about the patient voice, think about a person, not a patient. This is important because today's patients are fundamentally different from patients 10–20 years ago. Some are better informed; some are stubbornly misinformed. Others have less respect for authority and are less likely to be swayed by science or experts. Some are from minority and marginalized groups that historically have not been treated equitably, in part because they have not been valued as persons. Unless residents learn to view patients from all populations as individuals with needs, hopes, fears and expectations, it is unlikely that they will be able to treat them as effectively as they could or to develop long-term relationships with them. Patient dissatisfaction, discontinuation of care, and even patient loss may occur, thus possibly affecting the practice's standing and financial status.

What Is the Relationship Between PACs and the Patient Voice?

One particularly good way to foster an understanding of patients as persons is to work with patients to achieve a common goal. PACs are particularly suited to this since they provide ongoing opportunities for patients to interact with providers enabling both groups to move from a patient-physician relationship to a person-to-person one focused on improving patient care and patient satisfaction. It is a win-win situation.

Accomplishments: Some Examples

The presence of a PAC member positively impacts the dynamics of every meeting that we

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have attended at FMC. In addition to this attitudinal impact, there are numerous instances in which the PAC has made concrete contributions to the FMC, including the redesign and renovation of the clinic to facilitate patient-centered care[2]; improved communications with patients through a relaunch of the *Patient Newsletter*; ongoing participation in the steering committee; Clinical Systems Improvement, a committee that focuses on quality improvement (QI); and peer teaching in an FMC chronic disease management program. The PAC also regularly reviews a wide range of communications and policies impacting patients.

In addition to these activities, the PAC led the development of a preventative medicine campaign that features a different QI metric each month (eg, mammography, flu vaccination, etc). The campaign includes monthly articles in the *Patient Newsletter* related to the specific QI metric, posters prominently displayed at the patient check area, and announcements at monthly "All FMC" meetings. This program is in its third year and has helped FMC meet its quality goals.

How to Start a PAC

Creating a patient advisory council within a primary care setting[1,3] is one of the easier and more cost-effective ways to access the patient voice. The two essential requirements are:

- A sincere commitment from the practice leadership to interact with patients on issues that are important to the patient experience, to implement policies and programs generated from PAC meeting discussions, and to find meaningful ways to maintain this engagement.
- The recruitment of patients from diverse populations that includes but is not limited to individuals who have some background in health care as well as some who are experienced in navigating organizations.

Implications for Family Medicine Practice and Residency Education

Providing family medicine providers and residents with an increased appreciation for the importance of the linkage between recognizing patients as persons and better patient care, will help them better meet the needs of the patients they serve. It will also lead to increased patient satisfaction, an important building block in the development of long-term relationships that are one of the cornerstones of a successful primary care practice.

We believe this can be accomplished, in part, by providing opportunities for residents to interact with patients, including patients from disadvantaged and minority populations outside of the examining room. This could include attendance at regular PAC meetings.

Understanding the patient voice (ie, recognizing patients as persons) will be an ongoing challenge that family physicians will need to be cognizant of throughout their professional lives. It should become part of the continuing medical education curriculum. Likewise, awareness of social determinants that underlie many disease diagnoses and treatments, access to care, and implementing preventive and community health measures,[4] should be another major component of the primary care provider's education.

By viewing the primary care environment within a larger context, the resident can obtain additional knowledge and experience. This includes being informed about the role of public policy in guiding and regulating family medicine, which ultimately affect their practices as primary care providers. A provider with updated clinical skills and health care-related information is one expected by patients.

We have interacted with numerous faculty, staff, residents, and medical students during our tenure with the UNC FMC PAC. We have advised them on QI projects and reviewed presentations that they prepared for medical conferences. We have seen how our engagement with them has contributed to their awareness of us as more than patients. These encounters with patients outside of a medical appointment will help family physicians and residents of the future understand and value the patient voice.

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COMMENTARY

— The Practice Is the Curriculum —

A Wealth of Data, a Paucity of Outcomes:

What Can We Learn From the ACGME Accreditation Data System?

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Clinical experiences in residency have a powerful impact on preparation for autonomous practice. Future practice patterns and scope of practice are both heavily influenced by the clinical training environment to which a resident is exposed.[1] Several years ago, the Review Committee for Family Medicine influenced the residency practice environment by requiring that family medicine residencies ensure their programs place additional emphasis on the role modeling and volume of exposure for pediatric, hospital, and maternity care, among other things.[2] What has been the impact of those requirements on residency practice?

The Accreditation Council for Graduate Medical Education (ACGME) collects specialty-specific data each year on all programs through the Accreditation Data System (ADS). These data are tied to key clinical educational experiences required for residency training. As this is required for accreditation, the data set is a robust and consistent representation of the entire family medicine GME community. Data required from family medicine programs includes resident continuity visits, family medicine practice (FMP) demographics, delivery numbers for total vaginal and continuity deliveries per graduate, the most common diagnoses seen by residents in the ambulatory and adult inpatient and pediatric inpatient settings, as well as the average daily inpatient load for residents in those settings. The most commonly performed and required procedures are also listed. The corresponding trends for this data in family medicine residency practices over the last 10 years will be critical in informing the writing of future program requirements. It should be noted that national FM ADS data dating back to 2008 are available online in the ACGME data book archives, or upon request from the ACGME ADS data analytics division.

The ACGME publishes the aggregated data for all family medicine programs each year in a national report, made available to program directors and designated institutional officials.[3] Surprisingly, these robust data sets have not been routinely analyzed or tracked for trends or graduate outcomes. In fact, very few references can be found that cite these national ADS reports. The upcoming major revision process has spurred a more thorough review of the last 10 years of ADS data, and trends in citations issued by ACGME Review Committee for Family Medicine (ACGME RC-FM) and some of the more notable trends have been published in the briefs leading up to the national summit on the major program revisions.[4,5]

Data Analysis

Data trends for mean FMP continuity visits by graduating residents showed declines over the last decade, from a peak of 1,864, to 1,717

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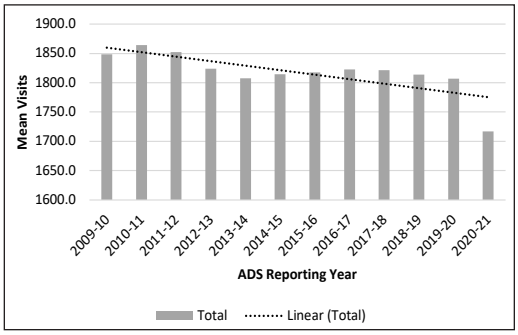
most recently (-7.8%) during a time when ambulatory training emphasis has been advocated (Figure 1). The most precipitous drop in the last year is due to the impact of the pandemic on in-person care. Decreases in resident FMC pediatric visits (defined as age <10 years, based on current program requirements), down 3.3% over 10 years from a peak of 15.6% to 12.3%, mirror national trends. In order to correlate with American Board of Family Medicine (ABFM) graduate survey data that asks for percentage of patients seen under age 5 years and under age 18 years, the percentage of visits in FMC by residents up to age 19 years was also reviewed and showed a decline of 5.1% over the last 10 years (25.4% to 20.3%).

The mean percentage of resident FMC visit with elders (defined as age 60 years) has correspondingly increased over the same time period by 6.4%, from a nadir of 16.9% to a peak of 23.3% most recently, which may reflect our aging population and shrinking pool of general internists. The mean number of vaginal deliveries by graduating residents has declined by 30%, from mean of 55.6 to 38.8, over the last 10 years, driven in large part by declines in the mean number of continuity deliveries by graduates over that same span, from 12.8 to 8.8 (down 31%; Figure 2). This may be tied to changes in program requirements that eliminated numerical requirements for deliveries in 2013 and decline in US birth rate. However, scatterplot analysis indicates there are a significant number of programs that can achieve numbers that are above the declining national average. The type of procedural training experiences remained fairly consistent over the last 10 years and mirrored scope of practice data provided by ABFM graduate survey respondents. The case mix of most common diagnoses seen in FMPs was also fairly consistent over time, with some modest increases in the frequency of chronic conditions seen and modest declines in prenatal care over the last decade.

Figure 1: Resident Graduate Continuity Visits



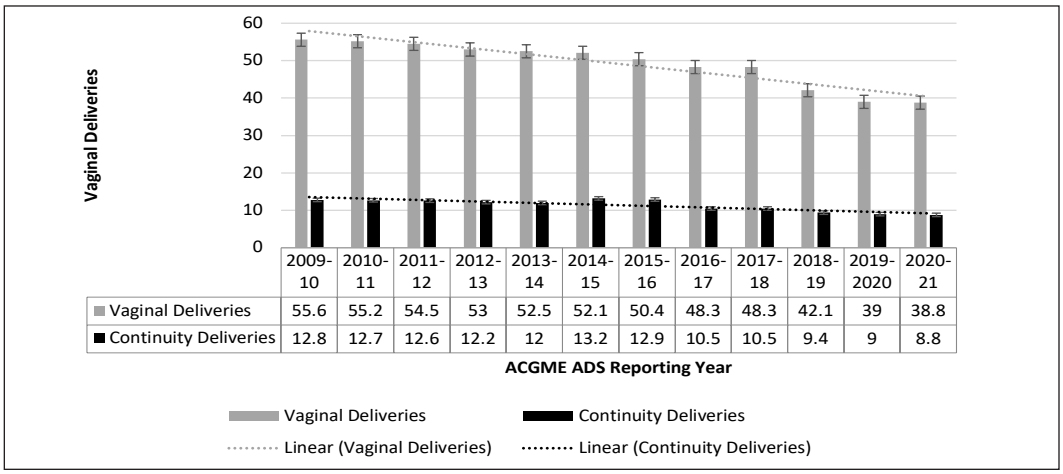
Hospital diagnoses seen by residents for adults and children remained consistent over the last decade with some minor variations in rank order of frequency.

We include histograms for the resident visit and vaginal delivery data (Figures 1 and 2), these include the most recent data from 2020, which were heavily influenced by the pandemic in the last quarter of the academic year. The modest decline in resident continuity visits prior to the pandemic translates into roughly 150,000 lost continuity visits annually for the entire graduating cohort of FM residents. The clinical significance of these lost visits is unclear.

Discussion

So, what does all this data tell us? In many respects, it conveys that the adage "the clinic is the curriculum" holds true, in that the ambulatory, continuity experiences of residents in FMPs is consistent with the practice patterns seen amongst practicing physicians.[6] Declining maternity care, pediatric visits, and increasing multimorbidity elder care are trends seen nationally outside of residencies.[7,8] While there is some correlation with the decline in reported deliveries in residencies and the removal of requirements for total deliveries by graduates, the other trends indicate that forces outside of the requirements have just as much, if not more influence on residency practice patterns. Competency is often a result of repetition in many situations, and in this instance the repetition is the clinical experience, whether a continuity visit or a delivery. What constitutes the minimum range to achieve such competency is difficult to say from these data. However, comfort with scope of practice after graduation may be a surrogate marker, and ABFM graduate surveys do hint that scope is shrinking in those areas where we see volumes declining, such as pediatrics and maternity care.[9] The key question here is: does the known imprint of training more strongly influence the practice of the graduate, or have the changing demographics of the practice environment influenced the clinical experience of residents? We suspect it is an entanglement of both. For example, a graduate of a program located in a community with a high density of pediatric clinicians and specialists may not feel competent or confident to care for children due to a low volume of continuity pediatric clinical experience seen in their training or lack of such role modeling by the core faculty of the program. These issues must be addressed through

Figure 2: Mean Graduate Obstetric Experience



systematic, regular analysis of the clinical experiences of residents by the program, with the determination to improve areas of clinical opportunity to achieve competence.

Yet, the data set also reveals that residency practice sites are islands of broader scope, often in a surrounding sea of more uniform ambulatory primary care dictated by health systems and physician lifestyle choices. Residencies continue to showcase practices where maternity care, hospital care, and procedural care are required elements of the FMP. Residencies are incubators of new innovative practice areas such as the use of point-of-care ultrasound in procedural care. Trends in citations issued by ACGME RC-FM provide another source of insight into resident patient experiences. What we do not know from these data sources are what patient or community outcomes result from this ongoing role modeling. As we begin to embark on the process of major program revisions, the primary end goal is to achieve better health outcomes for our population through the rigorous training of competent family physicians. Can we find a way to wed the power of national data collected in ADS with these desired outcomes of residency training? If we can, it may pave the way for a powerful message on the value of training more residents in family medicine to improve the health of our nation.

DISCLOSURES: Drs Hoekzema and Cagno are the chair and vice-chair of the ACGME Review Committee for Family Medicine, however, the views and opinions expressed in this commentary should not be construed as official statements or policy of the ACGME Review Committee for Family Medicine.

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