

Clinic First: 6 Actions to Transform Ambulatory Residency Training

Reena Gupta, MD

Kathleen Barnes, MD

Thomas Bodenheimer, MD

“So let me begin by stating what some may consider obvious, and others a heresy: patient-centered care and medical education—as currently practiced—cannot coexist,” a medical educator graphically wrote last year.¹ Teaching clinics are often poorly organized, discouraging trainees from choosing primary care or outpatient-based careers.^{2,3} This perspective makes the case that resident teaching clinics can provide patient-centered care and excellent resident education, and that the 2 goals can be in harmony.

Traditionally, most residents spend 1 to 2 half-days per week in clinic. This undermines the foundational principle of continuity for patients, staff, and learners. The priorities in training do not match those in the world beyond residency. In 2010, Americans made 600 million primary care visits compared with 35 million hospital admissions.⁴ Since the advent of the hospitalist, primary care physicians and some medical specialists spend little or no time providing inpatient care.⁵ Yet, in many residency programs, the hospital comes first and the clinic second.

A research team from the Center for Excellence in Primary Care at the University of California, San Francisco, conducted site visits to 18 internal medicine, family medicine, and pediatric residency teaching clinics. We chose the sites using reputational sampling.⁶ Members of our research team asked 17 national experts in graduate medical education to name highly regarded teaching practices. The 17 experts were chosen from professional contacts we personally knew and from authors of publications on residency program issues. Site visits included interviews and observations using a structured site visit guide. Site visit reports were coded and analyzed through an iterative process to identify themes.

Six common themes emerged, which we distilled into a model called “Clinic First” (BOX). The Clinic First model emphasizes that ambulatory training is a top priority, and creating high-performing teaching clinics is paramount. We found that programs embrac-

ing the Clinic First goal have implemented the following 6 actions.

1. Design resident schedules that prioritize continuity of care and eliminate tension between inpatient and outpatient duties

Scheduling residents to be in clinic predictably and without long absences increases continuity of care from both the patient and resident perspectives.⁷ Moreover, residents state that running between the hospital and clinic on the same day is highly stressful: it divides their attention and adulterates learning in both environments. Several programs have implemented alternative scheduling models that focus on outpatient experiences uninterrupted by inpatient responsibilities and prioritize resident clinic schedules over (or rank them equal to) other service obligations. In a recent survey, internal medicine residents reported that separating inpatient and outpatient responsibilities provides safe care, the best learning experience, and enough time to manage patients in both inpatient and ambulatory settings.⁸

For example, in the Tufts-Baystate internal medicine residency program, inpatient and outpatient rotations alternate in 2-week mini-blocks in order to ensure that residents are not away from clinic more than 2 weeks, to preserve continuity. This change resulted in a 35% increase in residents seeing their own patients. Consequently, residents focus entirely on inpatient or ambulatory patient needs, rather than juggling between them.⁹ The University of Cincinnati internal medicine residency program pioneered the ambulatory long block, during which residents spend 12 months with uninterrupted ambulatory training. This redesign resulted in enhanced resident and patient satisfaction, improved quality metrics, and greater continuity of care. During the long block year, 70% to 80% of patient visits are with their own resident physician.¹⁰ For block models to improve continuity of care, schedules need to be created that preserve patient continuity measured from resident and patient perspectives, and continuity metrics must be regularly tracked.

DOI: <http://dx.doi.org/10.4300/JGME-D-15-00398.1>

2. Develop a small core of clinic faculty

When faculty are present in clinic 1 to 2 half-days per week, teaching is fragmented and patient continuity is impaired. Our observations found that a small core of full-time clinic faculty provides day-to-day leadership, improves continuity of care, allows stable teams, and does not tolerate clinic dysfunction because the clinic is their professional life. At the Greater Lawrence Family Health Center, leaders explained that faculty was reduced from 40 part-time physicians to 14 faculty members engaged in teaching and clinical care. Each faculty member has 3 to 5 patient care sessions per week, plus 1 to 2 precepting sessions. In the Tufts-Baystate internal medicine program, 11 core faculty members are scheduled for 6 clinical and 2 teaching sessions per week. In these programs, managing patient panels and teaching primary care are the center of faculty members' professional lives. Clinic leadership report that faculty are more invested in clinic functioning rather than being "visitors" in the clinic, and thus serve as the "glue" of patient care teams.

3. Create operationally excellent clinics

In too many teaching clinics, dysfunction leads to professional burnout, patient dissatisfaction, and residents poorly equipped to care for their complex patients.^{2,11} Learners need to practice in well-functioning, efficient ambulatory settings that deliver high-quality care if they are to leave training enthusiastic about primary care.^{12,13} High-performing clinics offer improved access and continuity of care, population management, data-driven improvement processes, and coordination of care with their medical neighborhood.¹⁴

For example, Group Health Cooperative's family medicine residency trains residents in an integrated delivery system centered on an advanced primary care model that is nationally regarded for its operational excellence.¹⁵ The clinic tracks physician-level performance data, including for residents, and has achieved high continuity of care, patient access, and patient satisfaction targets. Clinical work is shared with team members working to their highest level of training; such sharing of responsibility can improve outcomes and reduce physician stress.^{16,17} This advanced care model provides a learning environment that allows residents to experience firsthand the essential elements of high-functioning primary care.¹⁵

4. Build stable clinic teams that give residents, staff, and patients a sense of belonging

Robust team care models prioritize consistency, whereby the same staff, residents, and faculty work

BOX 6 Action Steps to Fix Primary Care Residency Training

1. Design resident schedules that prioritize continuity of care and eliminate tension between inpatient and outpatient duties
2. Develop a small core of clinic faculty
3. Create operationally excellent clinics
4. Build stable clinic teams that give residents, staff, and patients a sense of belonging
5. Increase resident time spent in primary care clinic to enhance ambulatory learning and patient access
6. Engage residents as coleaders of practice transformation

together whenever they are in clinic. Patients nearly always receive care within their team, which turns large, impersonal clinics into smaller friendly units. Studies have found that stable teams are associated with higher patient and resident satisfaction and improved resident learning opportunities.¹⁸⁻²⁰

For example, at Tufts-Baystate, internal medicine residents remain on the same team throughout residency and work with the same medical assistant nearly 80% of the time. When not in clinic, residents rely on their team nurse to address patients' needs. Teams are co-located into common spaces called pods, optimizing side-by-side teamwork. At the University of Utah's family medicine program, medical assistants served as scribes during the patient visit, entering documentation into the electronic health record for residents and attending physicians to sign. Clinical outcomes, patient satisfaction, and physician satisfaction increased.²¹ At the Greater Lawrence Family Health Center, residents stay on the same team their entire residency, turning a large impersonal clinic into a small comfortable home. Faculty and residents work with the same medical assistant 75% to 80% of the time, and at graduation residents may give specific thanks to the medical assistant they worked with throughout their training.

5. Increase resident time spent in primary care clinic to enhance ambulatory learning and patient access

Currently, resident graduates in ambulatory practice will spend more time in clinic in the first 3 months of an outpatient practice than they spend during the entire 3 years of residency.²² Increasing resident time in clinic is associated with improved continuity of care for patients and residents, increased quality of care, and increased resident satisfaction.^{10,23,24} At Tufts University Family Medicine Residency Program at Cambridge Health Alliance, second-year residents

spend 46% and third-year residents spend 63% of training time in primary care clinic. At Group Health Cooperative, Family Medicine Residency of Idaho, and Greater Lawrence Family Health Center, residents spend 30% of time in primary care clinic, well beyond the approximate 15% minimum required by the Accreditation Council for Graduate Medical Education.

6. Engage residents as coleaders of practice transformation

Academic health centers are being asked to train residents as drivers of health system improvement.²⁵ At Tufts-Cambridge Health Alliance, the residency goal of “developing leaders in the health care revolution” is actualized by residents coleading the multidisciplinary practice improvement team. At Erie Family Health Center in Chicago, all residents serve as assistant medical director for 3 months during the third year of residency. At Family Medicine Residency of Idaho, residents are empowered as change agents in their practice and in state-level health policy. One resident affirmed that “being a physician is not just about providing patient care, but also about being a leader and advocate.”

In conclusion, the Clinic First model, observed during visits to highly regarded internal medicine, family medicine, and pediatric residency programs, has the potential to transform our teaching clinics and restructure residency training to prioritize ambulatory practice. To improve both patient care and resident training, and to attract more medical students and residents to ambulatory care careers, the Clinic First model holds great promise.

References

- Weber EJ. Practicing what we teach: in order to teach patient-centered care, we need to deliver it. *Acad Med*. 2015;90(1):14–15.
- Keirns CC, Bosk CL. Perspective: the unintended consequences of training residents in dysfunctional outpatient settings. *Acad Med*. 2008;83(5):498–502.
- Nadkarni M, Reddy S, Bates CK, et al. Ambulatory-based education in internal medicine: current organization and implications for transformation. Results of a national survey of resident continuity clinic directors. *J Gen Intern Med*. 2010;26(1):16–20.
- National Center for Health Statistics. Health, United States, 2013. <http://www.cdc.gov/nchs/data/abus/abus13.pdf>. Accessed June 13, 2016.
- Meltzer DO. Hospitalists and primary care. *J Gen Intern Med*. 2015;30(5):541–542.
- Blaikie N. *Designing Social Research*. 2nd ed. Malden, MA: Polity Press; 2010:179.
- Francis MD, Wieland ML, Drake S, et al. Clinic design and continuity in internal medicine resident clinics. *J Grad Med Educ*. 2015;7(1):36–41.
- Francis MD, Thomas K, Langan M, et al. Clinic design, key practice metrics, and resident satisfaction in internal medicine continuity clinics. *J Grad Med Educ*. 2014;6(2):249–255.
- Rosenblum MJ, Hinchey KT. Rapid resident cycling: the 14 day mini-block. *Acad Intern Med Insight*. 2009;7(4):10–11.
- Warm EJ, Schauer DP, Diers T, et al. The ambulatory long-block: an Accreditation Council for Graduate Medical Education (ACGME) educational innovations project (EIP). *J Gen Intern Med*. 2008;23(7):921–926.
- Weinberger SE, Smith LG, Collier VU, et al. Redesigning training for internal medicine. *Ann Intern Med*. 2006;144(12):927–932.
- Wagner EH. Academia, chronic care, and the future of primary care. *J Gen Intern Med*. 2010;25(suppl 4):636–638.
- Bowen JL, Salerno SM, Chamberlain JK, et al. Changing habits of practice. Transforming internal medicine residency education in ambulatory settings. *J Gen Intern Med*. 2005;20(12):1181–1187.
- Bodenheimer T, Ghorob A, Willard-Grace R, et al. The 10 building blocks of high-performing primary care. *Ann Fam Med*. 2014;12(2):166–171.
- Barnes K, Morris CG. Clinic first: prioritizing primary care outpatient training for family medicine residents at Group Health Cooperative. *J Gen Intern Med*. 2015;30(10):1557–1560.
- Willard-Grace R, Hessler D, Rogers E, et al. Team structure and culture are associated with lower burnout in primary care. *J Am Board Fam Med*. 2014;27(2):229–238.
- Ghorob A, Bodenheimer T. Building teams in primary care: a practical guide. *Fam Syst Health*. 2015;33(3):182–192.
- Hochman ME, Asch S, Jibilian A, et al. Patient-centered medical home intervention at an internal medicine resident safety-net clinic. *JAMA Intern Med*. 2013;173(18):1694–1701.
- Roth LM, Markova T, Monsur JC, et al. Effects of implementation of a team model on physician and staff perceptions of a clinic’s organizational and learning environments. *Fam Med*. 2009;41(6):434–439.
- Gupta R, Davis E, Horton C. Interval examination: building primary care teams in an urban academic teaching clinic. *J Gen Intern Med*. 2013;28(11):1517–1521.
- Blash L, Dower C, Chapman S. University of Utah community clinics—medical assistant teams enhance patient-centered, physician-efficient care. http://healthforce.ucsf.edu/sites/healthforce.ucsf.edu/files/publication-pdf/3.1%202011_04_University_of_Utah_Community_Clinics-Medical_Assistant_Teams_

- Enhance_Patient-Centered_Physician-Efficient%20Care.pdf. Accessed June 13, 2016.
22. Holmboe ES, Bowen JL, Green M, et al. Reforming internal medicine residency training. A report from the Society of General Internal Medicine's task force for residency reform. *J Gen Intern Med.* 2005;20(12):1165–1172.
 23. McBurney PG, Moran CM, Ector WL, et al. Time in continuity clinic as a predictor of continuity of care for pediatric residents. *Pediatrics.* 2004;114(4):1023–1027.
 24. Francis MD, Zahnd WE, Varney A, et al. Effect of number of clinics and panel size on patient continuity for medical residents. *J Grad Med Educ.* 2009;1(2):310–315.
 25. Grumbach K, Lucey CR, Johnston SC. Transforming from centers of learning to learning health systems: the challenge for academic health centers. *JAMA.* 2014;311(11):1109–1110.
-
- 
- Reena Gupta, MD**, is Assistant Clinical Professor of Medicine, Division of General Internal Medicine, University of California, San Francisco; **Kathleen Barnes, MD**, is a Resident, Family Medicine, Group Health Cooperative; and **Thomas Bodenheimer, MD**, is Professor Emeritus, Center for Excellence in Primary Care, University of California, San Francisco.
- Corresponding author: Thomas Bodenheimer, MD, San Francisco General Hospital, Building 80-83, 995 Potrero Avenue, San Francisco, CA 94110, 415.269.5021, tbodenheimer@fcm.ucsf.edu

The Road to Excellence for Primary Care Resident Teaching Clinics

Reena Gupta, MD, Kate Dubé, and Thomas Bodenheimer, MD

Abstract

Primary care residency programs and their associated primary care clinics face challenges in their goal to simultaneously provide a good education for tomorrow's doctors and excellent care for today's patients. A team from the Center for Excellence in Primary Care at the University of California, San Francisco, conducted site visits to

23 family medicine, internal medicine, and pediatric residency teaching clinics. The authors found that a number of programs have transformed themselves with respect to engaged leadership, resident scheduling, continuity of care for patients and residents, team-based care, and resident engagement in practice improvement. In this

Commentary, the authors highlight the features of transforming programs that are melding inspiring resident education with excellent patient care. The authors propose a model, the 10 + 3 Building Blocks of Primary Care Teaching Clinics, to illustrate the themes that characterize transforming primary care residency programs.

In this era of primary care turmoil, we are assaulted by woe-filled tales published in leading journals of dysfunctional teaching clinics with frustrated patients and unhappy residents.^{1,2} In primary care residency settings, teaching practices face daunting obstacles as faculty and trainees navigate daily challenges.

Yet all is not bleak. Shining examples of outstanding teaching practices are beginning to illuminate the landscape. This Commentary offers a glimpse into the features of primary care teaching clinics undergoing this transformation.

It is well known that faculty physicians and resident learners often spend only one to two half-days per week in traditional teaching clinics, undermining

continuity of care for patients and learners. Creating stable teams is difficult as physicians are mostly away from the clinic. Access to care is difficult for patients, who may not be able to reach anyone who knows them and who is able to address their issues. Medical students rotating through primary care teaching clinics may experience daily dysfunction, causing many to abandon thoughts of a primary care career. Moreover, a "training gap" exists between the inpatient focus of traditional residency programs and the reality that most health care occurs in the outpatient setting.³

We heard from a faculty preceptor during a recent site visit:

When I started in the clinic, there was chaos. There were too many patients and we couldn't take good care of them. The culture of leadership was, "Clinic it is what it is and there's nothing we can do about it".... [The residents] always had someone sicker in hospital they needed to go back to.... Clinic was leftovers—the action was in the hospital.

To understand the journey toward transformation in residency programs, our research team at the Center for Excellence in Primary Care at the University of California, San Francisco conducted site visits between March 2013 and May 2015 to 23 family medicine, internal medicine, and pediatrics primary care teaching clinics and their associated residency programs across the United States. We found a number of residency programs demonstrating that *good education for tomorrow's doctors requires excellent care for today's patients.*

The framework for analyzing the information collected during the site visits is based on the 10 Building Blocks of High-Performing Primary Care.⁴ We used a detailed site visit guide including interviews with residency and clinic leaders and observations of clinic staff and clinicians, including residents. Site visit reports were analyzed to identify themes, leading us to add 3 additional resident-related Building Blocks and to propose a 10 + 3 Building Blocks of Primary Care Teaching Clinics model (Figure 1).

In this Commentary we focus on the five Building Blocks that most clearly illuminate the difference between traditional and transforming programs.

Engaged Leadership

Some residency programs visited were found to have a top-down leadership culture with little engagement of frontline clinicians, residents, or staff. Mission statements are written, but residents and staff do not see or discuss them. Residency program leadership and clinic leadership work in silos, often creating tension between resident training and patient care.

Transforming programs have engaged leadership with the residency director and clinic medical director working as inseparable partners, meeting and jointly agreeing on concrete goals—for example, "80% of patient visits to residents will be with that resident's patient rather than another resident's patient." One clinic created a leadership body with the clinic management

R. Gupta is assistant clinical professor of medicine, Division of General Internal Medicine, and associate medical director, General Medical Clinic, San Francisco General Hospital, University of California, San Francisco, San Francisco, California.

K. Dubé is research associate, Center for Excellence in Primary Care, Department of Family and Community Medicine, University of California, San Francisco, San Francisco, California.

T. Bodenheimer is professor emeritus, Center for Excellence in Primary Care, Department of Family and Community Medicine, University of California, San Francisco, San Francisco, California.

Correspondence should be addressed to Thomas Bodenheimer, Center for Excellence in Primary Care, University of California at San Francisco, Building 80-83, SF General Hospital, 995 Potrero Ave., San Francisco, CA 94110; telephone: (415) 206-6348; e-mail: TBodenheimer@fcm.ucsf.edu.

Acad Med. 2016;91:00-00.

First published online

doi: 10.1097/ACM.0000000000001100

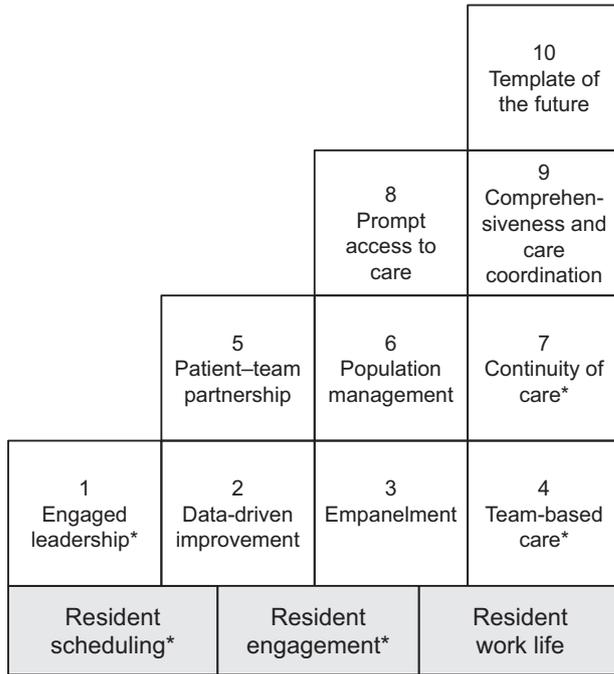


Figure 1 10 + 3 Building Blocks of Primary Care Teaching Clinics. Expanding on the 10 Building Blocks of High-Performing Primary Care,⁴ the authors propose 3 additional Building Blocks (shaded boxes) gleaned from site visits conducted by the University of California, San Francisco Center for Excellence in Primary Care at 23 family medicine, internal medicine, and pediatrics primary care teaching clinics and their associated residency programs across the United States, March 2013 to May 2015. Asterisks indicate the 5 Building Blocks that are the focus of this Commentary.

team and residency leadership team meeting together weekly to iron out the inevitable tensions between the education and patient care missions. For example, “Should residents ever be scheduled to work in both the hospital and the clinic on the same day?”

Several transforming clinics provided leadership training to the entire clinic. One clinic implemented weekly meetings of a practice improvement team, which included one management team representative, two residents, two frontline clinicians, a nurse (RN), a medical assistant (MA), a receptionist, and two patient representatives nominated by clinic staff. The improvement team rotated the meeting chairperson every two months so that every member could be mentored in leadership skills. Improvement team members brought to the agenda issues from their frontline colleagues and went back to tell their colleagues what took place in the meetings.

Resident Scheduling

How residents’ time is scheduled may be the most important factor determining

how well a teaching clinic performs. For some clinics visited, inpatient rotations trump clinic time in the scheduling process. Residents run from morning inpatient work to afternoon clinic, which creates stress and prevents them from focusing fully on either responsibility. One residency director said, “For most residents, forming continuous healing relationships in this setting is a fantasy.”

Transforming clinics offer a variety of scheduling solutions. Some increase resident clinic time to 30% of total residency time. These clinics are moving from “hospital first, clinic second” toward “clinic first,” prioritizing ambulatory teaching and patient care.

One clinic implemented the two-week mini-block, with monthlong blocks divided into two weeks of inpatient time and two weeks of clinic time. During inpatient weeks, residents did not attend clinic, and during ambulatory weeks they were not in the hospital. Resident stress created by running from hospital to clinic was eliminated, and patient continuity had increased by 35% because residents were not away from clinic for more than two weeks.

Another clinic pioneered the “long block,” with residents spending 12 consecutive months exclusively on ambulatory rotations, including three week plus daily responsibility for their patient panels via phone and electronic medical record inbox messages.⁵ Residents experienced an authentic 12-month immersion into primary care. One faculty physician said, “For the first time the clinic was the most important place for the residents.”

At one clinic, second- and third-year residents spent 46% and 63% of total time in clinic, respectively. Scheduling had been elevated to a science, with a “scheduling bible” detailing the rules that schedulers follow. Each year an agreement was made among hospital, primary care, and specialty services on an overall yearlong schedule for each resident and faculty member. The residency operations manager and clinic practice manager then worked out the details, meeting almost every day, prioritizing patient and learner continuity.

Continuity of Care

Continuity of care is associated with improved preventive and chronic care, higher patient and clinician satisfaction, and lower costs.⁶ It is a strong component of the patient–clinician relationship and is key to the educational value of teaching clinics.

Some clinics we visited attempt to schedule patients with their very part-time resident or faculty physician, but during the frequent times when that physician is not available, patients are scheduled with any clinician on that physician’s team. Because teams may include 10 to 15 clinicians, continuity with the team has little meaning for patients. In clinics without functioning teams, patients report that they see different clinicians and staff almost every time they come to clinic. Often, continuity is not measured and the problem remains hidden. Transforming teaching clinics set goals of 80% for continuity of care from both the patient and resident perspective. These practices achieve high continuity rates by increasing the amount of time residents spend in clinic, minimizing the intervals between resident clinic sessions, and forming smaller teams so that patients are able to see 1 of 2 or 3 clinicians for

nearly all their visits. One transforming clinic had stable teams, each containing 6 clinicians—faculty, residents, and a midlevel provider. If the front desk was not able to schedule patients with their resident or faculty physician, patients were scheduled with the full-time nurse practitioner or physician assistant on the team. Patients saw 1 of 2 providers on their team—their personal physician or the team midlevel—78% of the time. Residents in the “long-block” clinic nearly always saw their own patients during the 12 ambulatory months. Previously, patients saw an average of 7 different clinic providers per year. After this model was implemented, 70% to 80% of residents’ patient visits were with their own resident physician. Moreover, each team had an RN who was a continuity figure; team RNs knew and were trusted by many patients on their team’s panel.

In another transforming clinic, residents—who were in clinic 30% of their residency time—alternated one week on inpatient rotations with one clinic week such that they were not absent from clinic more than seven days at a time. Patients were scheduled with their resident physician or a resident practice partner on the same team. Continuity for first-year residents was approximately 80%, and for second- and third-year residents it was 60% to 80%.

Team-Based Care

Some clinics we visited create teams, but the teams are large and invisible to patients. Residents and staff are often moved to another team for staffing reasons, with team stability a low priority. MAs, working with different clinicians on different days, are underused and frustrated. Nurses spend their days phone-triaging patients or plowing through unending inbox messages. Residents and faculty feel a lack of team support in caring for their complex patients.

The transforming clinics we visited view team-based care as necessary to improve access and quality while reducing clinician stress. These goals are addressed through the mantra “share the care”—training nonclinicians to provide care independently, within their scope of practice, and creating expanded team roles to provide support for clinicians.

Transforming clinics create stable teams. Residents consistently work with their team MA or nurse, allowing them to learn the details of implementing “share the care.” In one transforming clinic, residents stayed on their team during their entire residency, turning a large impersonal clinic into a small comfortable home with two faculty, three residents, one nurse, and two MAs. Faculty and residents worked with the same MA 75% to 80% of the time. One MA added, “We try to keep continuity for the MA and the provider, but also for the patient.”

Crucial to the implementation of stable teams is the creation of a small core faculty with a faculty member leading each team. One clinic formerly had 40 faculty preceptors in clinic one half-day per week; at the time of our site visit, the program had a small core of 14 clinical faculty, each having three to five patient care sessions plus one to two precepting sessions per week. The clinic had become the center of professional life for these faculty, who—in contrast with very part-time faculty—were engaged in making the clinic work well for residents and patients.

In several transforming clinics, teams are colocated in an open space (“pod”) with, for example, three physicians sitting next to their three MA “teamlet” partners and the team nurse instantly available to support the three MA teamlets. Transforming clinics create standing orders empowering nurses and MAs to independently assume responsibility for appropriate clinical functions. Residents coordinate care for their patient panel with empowered team members.

Resident Engagement

In some residency programs we visited, education about how to work in high-performing primary care is didactic and theoretical rather than experiential. Residents are expected to choose quality improvement projects, but these are not integrated within the framework of clinic priorities. Thus, a large number of quality improvement projects are frequently short-lived pilots, not lasting beyond the resident’s tenure in the clinic.

Transforming clinics focus on training residents to become drivers of primary

care transformation. These clinics have implemented many of the Building Blocks (Figure 1), and residents learn to become primary care leaders in three ways: by participating in excellent primary care during their own clinic sessions, through educational curricula on practice transformation, and through active engagement as leaders of clinic improvement.

In one transforming clinic, residents were taught the foundations of practice transformation during a three-year curriculum. First-year residents attended three intensive teaching months including an introduction to the patient-centered medical home. Second-year residents have five to six clinic sessions per week and relate their clinic experience with the academic practice improvement curriculum. Resident quality improvement projects last through their third year, and third-year residents are immersed in a medical home leadership month. By graduation, residents are expected to have strong skills in quality improvement tools, population management, team-based care, the use of registries, coordination of care, and change management.

In another clinic, leadership training was provided through hands-on experience—the clinic is the curriculum. All residents co-led a practice improvement project with their multidisciplinary clinic team, the same team members they worked with side by side every day. Moreover, residents were empowered as change agents at the health system and state levels. Third-year residents were required to serve on a board of directors for the clinic or hospital and were involved in clinic leadership meetings. Residents learned legal patient advocacy skills, wrote resolutions for the state medical association, testified before the state legislature, and wrote several bills that became state law. One resident echoed that the program “teaches us that being a physician is not just about providing patient care, but also about being a leader and advocate.”

Conclusion

Residency programs have traditionally been oriented toward inpatient teaching, with residents learning clinical skills by caring for patients at times of serious acute illness

or chronic illness exacerbation. As little as 10 years ago, the value of ambulatory preventive care and longitudinal management of chronic conditions had not been fully acknowledged in medical education. Thus, it is not surprising that many family medicine, internal medicine, and pediatric residency programs continue their traditional orientation and are only beginning to concretely implement their desire to meld resident teaching and excellent primary care. In 2010, Americans made 600 million primary care visits compared with 35 million hospital admissions.⁷ Yet in traditional primary care residency programs, the hospital is still first, the clinic second.

A powerful movement—reflected in the 10 + 3 Building Blocks (Figure 1)—is under way to transform residency teaching programs and their associated clinics. Inspired by leadership, these programs have created high-functioning teams, consistent resident schedules to prioritize continuity of care, and resident engagement in practice transformation. In addition, learners are increasingly

enjoying their clinic days and becoming enthusiastic about primary care careers.

Of the transforming teaching practices we visited, many are based in the community rather than within academic medical centers. Federal Teaching Health Center and alternative graduate medical education funding sources liberated several of these programs from reliance on resident inpatient obligations, suggesting that graduate medical education payment reform can help to spread primary care teaching clinic transformation.² Though the challenges facing teaching practices are formidable, our site visits demonstrate that some programs are successfully merging excellent patient care with inspiring resident education. To attract medical students and residents to primary care careers will require that many more training programs undertake this transformational journey.

Funding/Support: Funding was provided by the Josiah Macy Jr. Foundation.

Other disclosures: None reported.

Ethical approval: Reported as not applicable.

References

- 1 Keirns CC, Bosk CL. Perspective: The unintended consequences of training residents in dysfunctional outpatient settings. *Acad Med.* 2008;83:498–502.
- 2 Phillips RL Jr, Bitton A. Tectonic shifts are needed in graduate medical education to ensure today's trainees are prepared to practice as tomorrow's physicians. *Acad Med.* 2014;89:1444–1445.
- 3 Wieland JL, Halvorsen AJ, Chaudhry R, Reed DA, McDonald FS, Thomas KG. An evaluation of internal medicine residency continuity clinic redesign to a 50/50 outpatient–inpatient model. *J Gen Intern Med.* 2012;28:1014–1019.
- 4 Bodenheimer T, Ghorob A, Willard-Grace R, Grumbach K. The 10 building blocks of high-performing primary care. *Ann Fam Med.* 2014;12:166–171.
- 5 Warm EJ, Schauer DP, Diers T, et al. The ambulatory long-block: An Accreditation Council for Graduate Medical Education (ACGME) educational innovations project (EIP). *J Gen Intern Med.* 2008;23:921–926.
- 6 Saultz JW, Lochner J. Interpersonal continuity of care and care outcomes: A critical review. *Ann Fam Med.* 2005;3:159–166.
- 7 National Center for Health Statistics. *Health, United States, 2013: With Special Feature on Prescription Drugs.* Hyattsville, Md: National Center for Health Statistics; 2014.