

The Crimson Care Collaborative: A Student-Faculty Initiative to Increase Medical Students' Early Exposure to Primary Care

Rebecca Berman, MD, Camille Powe, MD, Julia Carnevale, MD, Andrew Chao, MD, Janine Knudsen, Anthony Nguyen, and Susan Edgman-Levitan

Abstract

The current shortage of primary care physicians (PCPs), particularly as more individuals obtain health insurance and seek primary care services, is a growing national concern. The Crimson Care Collaborative (CCC) is a joint student-faculty initiative in post-health-care-reform Massachusetts that was started with the explicit goal of attracting medical students to primary care careers. It fills a niche for student-run clinics, providing evening access to primary care services for patients without a PCP and

urgent care services for patients of a Massachusetts General Hospital-affiliated internal medicine clinic, with the aim of decreasing emergency department use in both groups. Unlike other student-run clinics, CCC is integrated into the mainstream health care structure of an existing primary care clinic and, because of universal health insurance coverage in Massachusetts, can bill for its services. In addition to the clinical services offered, the student-run research team evaluates the quality of care and the patients'

experiences at the clinic. This article describes the creation and development of CCC, including a brief overview of clinic operations, social services, research, laboratory services, student and patient education programs, and finance. In the wake of the Patient Protection and Affordable Care Act of 2010, CCC is an example of how students can aid the transition to universal health care in the United States and how medical schools can expose students early in their training to primary care and clinic operations.

I plan to train and practice in primary care. Crimson Care Collaborative has reminded me how much I enjoy seeing a wide variety of patients with diverse problems and has bolstered my decision to pursue this field.

—Student participant, Crimson Care Collaborative

Like many states, Massachusetts is faced with a profound shortage of primary care providers. In 2006, the Massachusetts health care insurance reform bill passed, and although subsequent studies have shown that 97% of state residents are now insured, access to primary care remains a major barrier for these newly insured individuals. Residents with MassHealth or Commonwealth Care, the state's two publicly subsidized insurance plans, are more likely to report difficulty obtaining a primary care physician (PCP) than those with traditional commercial health insurance.¹ In addition, wait times for an appointment with a PCP have tripled

compared with those for specialists since the health care reform legislation passed in 2006, and many internal medicine and family medicine physicians are closing their panels entirely to new patients.²

The Crisis in Primary Care

These changes to the health care delivery system, along with a decrease in the number of trainees pursuing primary care careers, have contributed to the developing primary care crisis in Massachusetts.³ Although many students plan for careers in primary care when they enroll in medical school, their interest wanes during training—very few students pursue primary care residencies, and fewer still become primary care providers.⁴ Applications to primary care residencies have decreased in number since the mid-90s when primary care was at the height of its popularity.² Inspiring a new generation of primary care leaders, then, is critical—both to replace those practitioners who are retiring or closing their panels to new patients and to reinvigorate and reinvent primary care in the new health care landscape.

Unfortunately, research has shown that it is difficult to predict which medical students will pursue careers in primary care. Some studies have focused on the personal traits of students (e.g., age,

marital status, rural hometown) and others on the overall medical school characteristics (e.g., public schools, family medicine departments) that lead students to choose primary care careers.⁵ Yet, these characteristics are often not factors that students or faculty are in a position to change. Other studies, however, have shown that early mentorship, longitudinal patient relationships, and participation in community-based programs increase the likelihood that students will pursue careers in primary care.^{6–8}

Although we have found no definitive recipe for educational programs that are sure to steer medical students into primary care, we have collected anecdotal evidence from our primary care residents who cited their experiences in a student-run clinic as a major factor in their choice of careers in primary care. Such student-run clinics have become a popular means to provide hands-on medical experience to health professional students while also offering access to health care services for patients who do not have health insurance. As of 2005, 49 different U.S. medical schools had student-run clinics—some boasting up to five clinics.⁹ A national team from the Society of Student-Run Free Clinics is in the process of tabulating current statistics on the student-run clinics in the United States today; their preliminary data,

Please see the end of this article for information about the authors.

Correspondence should be addressed to Dr. Berman, John D. Stoeckle Center for Primary Care Innovation, General Medicine Division, 50 Staniford St., Ninth Floor, Boston, MA 02114; telephone: (617) 726-7930; e-mail: raberman@partners.org.

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however, indicate that the number of medical schools with a student-run clinic has almost doubled since 2005.¹⁰ We believe that student–faculty collaborative practices, where students help to create and administer a primary care practice for patients who lack a PCP or insurance, can inspire students to choose primary care careers.

Unlike most other student-run clinics, we started Crimson Care Collaborative (CCC) specifically to recruit Harvard Medical School (HMS) students into primary care careers. In addition, as the first student–faculty collaborative practice started in post-health-care-reform Massachusetts, CCC provides a model for weaving a student-run clinic into the mainstream health care structure of the existing primary care clinics.

The Development Process

In the fall of 2009, the founding attending physician (R.B.) met with a small group of fourth-year medical students (C.P., J.C., A.C.) to develop a student-run clinic at HMS. For two weeks, they recruited interested students through lunchtime information sessions in the medical education center, 40 of whom became founding members of the initiative. These 40 students then created several subcommittees that focused on designing and implementing different aspects of the practice, including patient/practice needs assessment, operational design, social services, research about the impact of the practice, and financial services for patients. A fourth-year medical student (C.P., J.C., A.C.) chaired each committee, which the attending physician (R.B.) then oversaw.

Prior attempts to develop a student–faculty collaborative practice at HMS were unsuccessful because of concerns from the medical school’s leadership that such practices would draw patients away from the existing community health centers and would give the impression that the institution was providing subpar care to an already-vulnerable population.^{11,12} Because of these past failures, the needs assessment committee researched the Massachusetts primary care crisis and patients’ overuse of the emergency department (ED) for nonurgent issues due to a lack of access to PCPs,¹ and the operations committee focused on how to provide quality care to patients. The founding members also developed

plans for patient recruitment, clinic flow, social services, and research, presenting their work to the group in two town hall meetings over the next six months.

We also held meetings with the medical director of the Internal Medicine Associates (IMA), the flagship internal medicine practice at Massachusetts General Hospital (Mass General), which had agreed to host our clinic, as well as with other key hospital personnel. Once these key figures had pledged their support for our clinic, the dean of students at HMS signed on to the project. We performed an eight-week pilot test with urgent care patients in the spring of 2010 to ensure that we were providing quality care and to improve clinic operations; on the basis of this pilot program, we refined our clinic procedures over the summer and formally opened our doors in October 2010. As part of their mission to increase medical student interest in primary care careers, the John D. Stoeckle Center for Primary Care Innovation and the IMA provided funding for our founding attending physician and for an assistant during this development phase.

An Overview of CCC

CCC is an innovative, student-designed clinic created to expand the pipeline of PCPs. The needs assessment drove us to add “improving patient access to care in the post-health-care-reform era” to our goals.

Our clinic differs from other student-run clinics in several ways. First, rather than offering only urgent care or attempting to offer long-term primary care, which can be complicated by frequent student turnover, our clinic provides “bridge-to-care” (BTC) primary care for up to one year while helping patients obtain a long-term PCP by using community services. In addition, by offering evening, urgent care to IMA patients, we have integrated our clinic into the structure of the IMA’s daytime practice. Also, because the vast majority of our patients have some form of insurance, we can bill for our services. Next, we developed the term “student–faculty collaborative practice” to highlight the role that faculty play in overseeing all the student-led initiatives regarding the clinic’s design and our delivery of clinical care. Finally, our innovative student-led research committee, which conducts prospective evaluations of

the quality of the care and the patients’ experiences with the care that we provide, is embedded into the clinic’s design.

Student Recruitment and Engagement

Student interest in developing and running CCC was overwhelming. Those who were interested applied, and we gave priority to students who planned to pursue primary care careers. One hundred twenty-eight students applied to participate in our inaugural clinic season in 2010—too many for us to accommodate. By scheduling students once a month, expanding the number of nonclinical roles, and involving students in administrative roles, we created positions for 92 students in that first year, including more than 70 preclinical students. In our second year, we opened a second site to increase the number of clinical roles and, therefore, the volume of patients for whom we could care. We also have plans to open additional sites across the HMS-affiliated hospital network.

Designing CCC

Our operations committee used site visits to student-run clinics in our region and phone surveys of participants in several other large, student-run clinics across the United States to inform our initial design. Our students developed a patient-flow model by merging the best practices from these other student-run clinics with the typical patient flow in the IMA. We initially created CCC as a once-a-week, evening clinic, housed in the IMA (which is essentially closed to new patients). CCC provides primary care services for patients who are recruited from the Mass General ED and medical walk-in unit, who present with nonurgent issues and lack a PCP. We enroll these patients in our BTC program while we help them find a PCP in their community. CCC also provides evening urgent care to IMA patients in an effort to decrease their inappropriate use of the ED. Our students designed and participate in all aspects of the running of the clinic, including clinical care, social services, research, laboratory services, student and patient education, and finance.

Clinical care

All CCC patients are evaluated by a pair of medical students (one preclinical and one clinical), who in turn are supervised

Table 1

Patient Characteristics, Massachusetts General Hospital Internal Medicine Associates (IMA) Versus Crimson Care Collaborative Bridge-to-Care (BTC) Initiative, October 2010 to May 2011

Characteristic	IMA patients	BTC patients	P value*
Age, mean (standard deviation)	50.9 (15.58)	41.8 (18.06)	<.005
Income < \$15,000, no. (%)	6/61 (9.8)	17/37 (45.9)	<.005
Full- or part-time employment, no. (%)	48/71 (67.6)	20/52 (38.5)	<.005
College degree or beyond, no. (%)	46/63 (73.0)	20/47 (42.6)	<.005
Requested social services, no. (%)	9/53 (17.0)	17/35 (48.6)	<.005
1+ emergency department visits in the past year, no. (%)	27/62 (43.5)	28/48 (58.3)	.124
MassHealth or Health Safety Net participant, no. (%)	6/92 (6.5)	23/59 (39.0)	<.005

*We considered $P < .05$ to be significant.

by an attending physician. Student pairs rotate through the clinic together; each pair is scheduled at least once a month to provide longitudinal care to their patients and to allow the clinical student to mentor the preclinical student.

Social services

Our students partnered with several local organizations to provide comprehensive social services. Any patient who indicates a social need on his or her intake survey visits our student-staffed resource center after the clinical encounter. The resource center provides information on finding a permanent PCP through the Mayor's Health Line, a governmental organization that matches patients with PCPs in their communities. Both Health Leads (formerly Project Health) and the Online Advocate of Children's Hospital Boston provided us with their databases and trained our students in navigating their systems to offer information to patients on food pantries, jobs, housing, legal assistance services, child care, and assistance with heat and electricity. Our students also provide patients with information on the "four dollar" medication programs that are offered at local pharmacies for those who cannot afford their prescription medications.

Research

Despite the prevalence of student-run clinics today, research regarding patient demographics, outcomes, and patients' experiences of care in these practices is extremely limited. Our research committee developed and incorporated

several research programs into the design of CCC. For example, our research committee uses patient intake surveys to collect demographic data, prior ED use, reasons for lacking a PCP, and social service needs and logs the information in real time into a secure database called REDCaps.¹³ Patient data from the first academic year of our clinic are summarized in Table 1.

In addition, our research committee developed a patients' experiences of care survey, adapted from the Consumer Assessment of Healthcare Providers and Systems survey, to evaluate patients' experiences at CCC. Preliminary feedback included comments on the convenience of the clinic's hours, extremely positive interactions with our students, and a willingness to recommend CCC.

Next, to document that our clinical outcomes are similar to or better than those of traditional primary care practices, our research committee tracks the clinic's performance on specific Healthcare Effectiveness Data and Information Set criteria, including hypertension. Although our numbers are still small, preliminary data indicate that the percentage of our patients with controlled hypertension is well above the national average from the National Health and Nutrition Examination Survey (76% versus 48.4%)¹⁴ (see Figure 1).

Finally, our students recruited a research advisory board to oversee and advise them in creating high-quality survey instruments and study designs. This advisory board

includes experts in survey design, patients' experiences of care, quality improvement, and health services research. Our students present their research proposals to the advisory board at meetings held twice each year, and the advisory board provides them with feedback and direction. Ongoing discussions between the students and the board continue between meetings via e-mail.

Laboratory services

Our students are certified by Mass General's laboratory services to perform point-of-care testing and EKGs overseen by a medical assistant. Because of medical liability issues, they do not perform phlebotomy, but we are working with the legal department to develop this role for the future.

Student and patient education

Our student education committee developed a training manual and orientation program for our students that review topics in the delivery of medical care and the nuts and bolts of day-to-day clinic functions. The committee also organizes weekly, case-based, resident teaching sessions, during which the students present a case from that day's clinic to a resident who guides them through the clinical problem-solving process and discusses related social service issues. In late fall 2010, we offered a six-week pilot course, entitled "Social Justice in Community Medicine and Primary Care," to students who were interested in learning more about social justice and designing clinical innovations to improve care. Given CCC's explicit goal of increasing medical students' interest in pursuing a career in primary care, our student board members promote other primary-care-related events to the CCC listserv and encourage CCC students to engage with the larger HMS primary care community at town hall meetings and lectures.

Our patient education committee created a series of low-health-literacy patient education materials on prevalent primary care topics (e.g., diabetes, hypertension, headaches, knee pain) and is working with Mass General's online resource database team to have them published online. Many of our patients arrive early for their appointments, so our patient education committee is piloting brief motivational counseling sessions on diet and exercise for patients to attend while they wait.

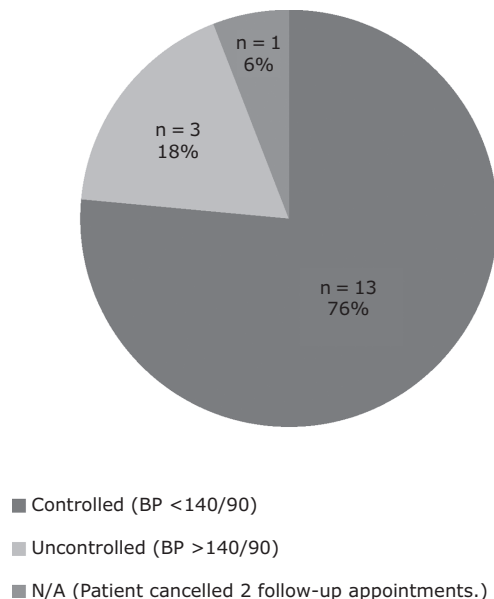


Figure 1 Comparison of the blood pressures (BPs) of 17 Crimson Care Collaborative patients at follow-up appointment when hypertension was noted at the initial appointment or in the patient's record. We defined hypertension as BP > 140/90.

Finance

Unlike other student-run clinics, CCC bills for the services that we provide because the vast majority of our patients are insured. Because we provide urgent care for IMA patients, the IMA shifts the schedules of a medical secretary, a medical assistant, and administrative support so that they are available during CCC hours. In addition, in collaboration with the student resource center, Mass General's patient financial services help all of our prospective patients obtain medical insurance. Through revenue from work relative value units, we reimburse the IMA for utilities, office supplies, the electronic medical record, and administrative support. Being able to reimburse the IMA, our host clinic, for our expenses is unusual for a student-run clinic. Traditionally, such practices have been free to patients and dependent on volunteer faculty, grants, and donations.

We also reimburse the IMA for the salaries of our attending physicians, equivalent to a half-session of IMA clinical work. Both of our attending physicians supervise three teams of medical students, each of which sees up to 6 patients over the course of a 2.75-hour clinic session, for a total of 12 patients per attending physician per clinic session. Given the small case load, CCC supplements their salaries with stipends from HMS for teaching the students who are completing their primary care

clerkship at the clinic. We believe that paying our attending physicians encourages longitudinal faculty commitment and underscores the message that the care that we provide is equivalent to the care provided at other HMS-affiliated clinics. Our patients recognize that their attending physician remains the same from week to week and can identify her as their physician of record.

The Impact of CCC

CCC is an innovative example of how to harness student enthusiasm for primary care, social justice, and clinical care to improve patients' access to medical care. It demonstrates how a student-driven clinic, in a post-health-care-reform setting, can provide evening urgent care and BTC services while reimbursing its host clinic for the services that it provides. In addition, by providing early, primary care mentorship opportunities and exposure to longitudinal relationships, CCC is addressing the primary care crisis by working to increase the number of students who choose primary care careers.

HMS' total PCP output has traditionally been low, ranking 134 out of 141 U.S. medical schools in a 2010 survey.¹⁵ The 2011 residency match marked the first for CCC students, and HMS saw a spike in internal medicine, family medicine, and primary care applications (from 55 in 2009 and 51 in 2010 to 70 in

2011).¹⁶ Although this increase echoes national trends, it is still a striking improvement for HMS.¹⁷ Although not all of the students who matched into these disciplines are alumni of CCC, over half are founding members. By explicitly framing CCC as an effort to increase medical student exposure to primary care, our students view themselves as advocates for primary care and have taken the initiative to attend and market primary-care-related forums on campus. Although preliminary indications are promising, we will track match data over the next five years to assess whether students who volunteered at CCC are more likely to select primary-care-related residencies.

Because of student enthusiasm for CCC, we are expanding the model to several HMS-affiliated primary care sites. One such site, which focuses on refugee health and postincarceration care, is now open, and others are in development. With the support of the Yawkey Foundation, we created a training manual, which is available online, and offer a workshop for interested sites. Our expansion plans include additional interprofessional training with students across the health professions, including nursing, physician assistant, pharmacy, and social work, along with undergraduate students interested in medicine.

Our original clinic is an example of how students can aid the transition to universal health care in the United States. Our model is easily adaptable to other sites and states as health care reform is implemented across the nation.

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Dr. Berman is founder and executive director, Crimson Care Collaborative, fellow, John D. Stoeckle Center for Primary Care Innovation, internist, Massachusetts General Hospital, and instructor in medicine, Harvard Medical School, Boston, Massachusetts.

Dr. Powe is founder and former student director, Crimson Care Collaborative, Boston, Massachusetts. At the time this article was written, she was a fourth-year medical student, Harvard Medical School, Boston, Massachusetts.

Dr. Carnevale is founder and former student director, Crimson Care Collaborative, Boston, Massachusetts. At the time this article was written, she was a fourth-year medical student, Harvard Medical School, Boston, Massachusetts.

Dr. Chao is founder and former student director, Crimson Care Collaborative, Boston, Massachusetts. At the time this article was written, he was a fourth-year medical student, Harvard Medical School, Boston, Massachusetts.

Ms. Knudsen is student director of research, Crimson Care Collaborative, and a second-year medical student, Harvard Medical School, Boston, Massachusetts.

Mr. Nguyen is a member of the Crimson Care Collaborative research team and a second-year medical student, Harvard Medical School, Boston, Massachusetts.

Ms. Edgman-Levitan is executive director, John D. Stoeckle Center for Primary Care Innovation, Massachusetts General Hospital, Boston, Massachusetts.

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