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# Patient experience of care in a student-faculty collaborative practice

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## **Cover Page Footnote**

The authors would like to thank Marya Cohen MD, MPH, Susan Edgman Levitan P-AC, Subha Ramani MD and all of the student volunteers at the Crimson Care Collaborative

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### Abstract

Student Run Clinics (SRCs) are a popular means of caring for the underserved while providing valuable medical education opportunities. Reports of patient experience surveys are rare in this setting. This is troublesome because it is possible that underserved patients, who are more likely to receive care at SRCs, are not receiving the same level of care as at more traditional medical practices. The purpose of this research was to measure patient experience in a student-led medical clinic. The method included the use of patient experience surveys, which were self-administered pre-visit and self- and interviewer administered post-visit. The key results, 100% of patients felt treated with respect. 81.4% of patients would “definitely” and 16.3% would “somewhat” refer their family and friends to the clinic. 87% reported being seen within 15 minutes of their appointment time; 60% reported that they knew they would be seen by medical students and a doctor. This data has been useful to our student-led clinic in streamlining clinic flow, reducing wait times and building awareness of our structure. Our hope is this study will encourage others SRCs to adopt similar student-faculty collaborative research based practices to enhance care for SRC patients while teaching students to use patient feedback to improve quality of care.

### Keywords

Student run clinic, patient experience of care survey, underserved, primary care, medical education, student research

### Note

The authors would like to thank Marya Cohen MD, MPH, Susan Edgman Levitan P-AC, Subha Ramani MD and all of the student volunteers at the Crimson Care Collaborative

### Introduction

Student-run clinics (SRCs) strive to address the needs of our nation's underserved citizens and provide valuable medical education opportunities<sup>1</sup>. The increasing popularity of these clinics reflects the enthusiasm of students and health organizations for the concept—the number of medical schools with SRCs doubled from 49 to approximately 100 between 2005 and 2011<sup>1,2</sup>. Despite the growing popularity of these clinics, studies assessing patient care needs and experiences in SRCs are rare. This is troublesome because it is possible that underserved patients, who are more likely to receive care at SRCs, are not receiving the same level of care as at more traditional medical practices.

To provide the highest quality care, it is critical that SRCs obtain meaningful patient experience of care data. One recently published study of patient experience of care in a SRC utilized an exit survey and found high patient satisfaction at their clinic<sup>3</sup>. While exit surveys are convenient to administer and make it easier to achieve high response rates, research in patient survey methods has long shown a positive social desirability bias associated with exit surveys<sup>4,5</sup>. Exit surveys also fail to include the patient's entire clinical experience because they do not include whether appropriate follow-up appointments, tests and medications have been incorporated into care plans.

The more standard approach to patient experience surveys is to contact patients following their appointments. This allows patients to respond to experience surveys in the privacy of their home after they have had time to reflect on their visit and follow-up care. Surveys may be done on paper or by telephone administration, and those sent to underserved and low literacy populations may require persistent follow-up and flexible modes of administration<sup>6-8</sup>. While these methods are common in many health organizations, to our knowledge, post-visit surveys have not previously been reported in the context of a SRC. Training students in these methods may enhance their learning about the patient experience of care and allow them to hear from patients from outside the clinical context. In addition, this form of survey administration will limit positive social desirability bias and will enable more honest and complete patient reports of experience of care.

The Crimson Care Collaborative (CCC) is Harvard Medical School's student-faculty collaborative practice. Here we describe the evolution of CCC's patient experience of care survey and the method—novel within the context of a SRC—of its implementation. We also report preliminary survey results and illustrate how we were able to apply these results to quality improvement initiatives at our clinic.

## Methods

### Setting

The Crimson Care Collaborative (CCC), founded in 2010 at Harvard Medical School, is comprised of five student-faculty collaborative clinics, each of which serves populations that are traditionally medically underserved (racial, ethnic or linguistic minorities of low socioeconomic status). The Internal Medical Associates (IMA) branch of the CCC operates at the Massachusetts General Hospital (MGH), and serves two groups of patients: Bridge-to-Care (BTC) patients, who are individuals without a stable primary care physician and Urgent Care (UC) patients, who are individuals that have a normal primary care doctor at MGH but use CCC services as an after-hours clinic and as an alternative to visiting an emergency department. Since the clinic's beginning, a research team of students (initially medical students and now including undergraduate students and nurse practitioner students) has collected data on patient needs and clinic experiences. The CCC assessed patient experience of care through the design of a survey based off of previously published consumer assessment surveys, and the development of a mixed-modality (paper mailings and telephone follow-ups) survey administration model that utilizes trained student researchers to obtain post-clinic assessments.

### Study Population

The data reported here come from a mixed-modality survey of patients who were seen at the IMA branch of the CCC between March 1, 2011 and July 17, 2012. Eligible patients included all clinic patients, both BTC and UC, who spoke English, and who had both a telephone number and mailing address available in our electronic medical records. We excluded non-English speakers for lack of an IRB approved translated survey tool during the above time period. Our total study population contains 215 individuals, including 76 BTC patients.

### Questionnaires

The data presented is drawn from two different questionnaires. Basic demographic information was queried at each patient's first visit using a fifteen-question patient intake survey that was adapted from the Massachusetts Health Reform Survey<sup>9</sup>. The second questionnaire was a seventeen-question patient experience survey that was modified from other patient experience surveys used in the MGH's ambulatory care practices with help from an external Research Advisory Board. Both surveys are IRB approved.

### Pilot Study: Survey Method Development

The patient experience survey was mailed to patients' home addresses within two weeks following their appointment. If the survey was not returned within two weeks, the CCC research team followed-up with phone calls. During each follow-up call, the patient was gently reminded about the survey and was also given the option to complete the survey over the phone.

The CCC first tested this survey design approach during a pilot study conducted between October 2010 and February 2011. The goals of the pilot were to test the accuracy of patient registration data with respect to home address and telephone number, and to assess the timing of mailing and calling in order to optimize response rates. The CCC's research team observed that higher response rates were achieved if the letter was mailed within 2-3 weeks of the appointment. Our pilot protocol allowed for up to 12 call attempts; however, patients who were reached via phone to complete the survey required four call attempts, on average. The raw response rate for the pilot was 28% (13/46), with eight surveys completed by mail and five completed by phone.

As a result of this pilot data collection, the survey administration protocol was modified to conduct weekly mailings so that patients received the survey within two weeks of being seen in our clinic. The research team size was increased to conduct more phone calls per patient and medical student volunteers were encouraged to complete calls in groups to motivate each other and to assist if any problems arose. Furthermore, we added trained undergraduate students to the research team with more

flexible class schedules to increase call attempts and to place phone calls during different times of day.

#### Data Collection:

The data reported here are drawn from surveys conducted with patients between March 1, 2011 and July 17, 2012.

#### Survey Response Rate

The response rate was computed using the American Association for Public Opinion Research's (AAPOR) Response Rate 3 (RR3) method<sup>10</sup>. The rate we used allows for some adjustment for the patients we attempt but with whom we never make contact—the denominator includes all eligible patients, minus those who are unable to complete a survey by mail or phone due to health status, communication problems, limited English proficiency. For people with poor contact information, nonworking phones or undeliverable mail, we keep them in the denominator but use an adjustment that assumes some of them would complete the survey if they had been reached.

#### Statistical Analysis

Fisher's exact tests were used for categorical variables and Mann Whitney U tests were used for continuous variables to test for differences between responders and non-responders and to test for differences in patient experience of care with medical students and attending physicians. Data analyses were done using SAS Version 9.2.

## Results

In the period between March 1, 2011 and July 17, 2012, 215 patients were seen by CCC IMA. All 215 patients completed the patient intake survey and were mailed the patient satisfaction survey. 88 complete or partially complete patient satisfaction surveys were received. Non-patients who refused to fill out the survey by mail or phone (n=10); patients who were reached, and although they never refused, they never returned the survey (n=22); patients who were never reached or never responded (n=77); and patients who were confirmed not eligible due to a language barrier (n=18). This resulted in an overall AAPOR adjusted response rate for the patient experience questionnaire of 46.6%.

Both responders and non-responders were approximately 60% female and had similar percentages of urgent care and bridge-to-care patients (Table 1). Non-responders were younger, less likely to be Caucasian and more likely to be Asian or Pacific Islander. Responders were more likely to have private insurance; non-responders were more likely to have Medicaid or to be self-pay. We considered weighting the respondent data for age, race and ethnicity. Our academic medical center does not routinely make these adjustments. We elected not to weight our data. Data for patients' overall clinic experience is shown in Figure 1. 100% of patients reported that the office staff treated them with courtesy and respect, and 87% reported being seen by a medical student within 15 minutes of their

**Table 1. Patient Characteristics (Survey Responders and Non-Responders)**

	Total n=215	Responders n= 88	Non-Responders n= 127	P-Value
Mean Age	50.2	53.5	48	0.020
Sex				
Female	103 (47.9%)	51 (58.0%)	75 (59.1%)	0.89
Type of Visit				
Urgent Care	134 (62.3%)	54 (61.4%)	80 (63.0%)	0.89
Bridge to Care	81 (37.7%)	34 (38.6%)	47 (37.0%)	
Race/Ethnicity				
African American or Black	23 (10.7%)	9 (10.2%)	14 (11.0%)	0.0079
Asian or Pacific Islander	19 (8.8%)	2 (2.3%)	17 (13.4%)	
Caucasian	125 (58.1%)	57 (64.8%)	68 (53.5%)	
Hispanic/Latino	27 (12.6%)	10 (11.4%)	17 (13.4%)	
Multiple/Other	10 (4.7%)	2 (2.3%)	8 (6.3%)	
Not Reported	11 (5.1%)	8 (9.1%)	3 (2.4%)	
Insurance Status				
Medicare	35 (16.3%)	23 (26.1%)	12 (9.4%)	0.0094
Medicaid/Safety Net	34 (15.8%)	10 (11.4%)	24 (18.9%)	
Private	133 (61.9%)	51 (58.0%)	82 (64.6%)	
No Insurance	13 (6.0%)	4 (4.5%)	9 (7.1%)	

appointment time. 87% of patients reported that the office staff were as helpful as they thought they should be, while only 60% of patients reported that they knew before coming into clinic that they would be seen by medical students and a doctor rather than just a doctor alone. Regarding care team size, 83.9% of patients reported that their care team had, “enough people” and 14.9% reported that their care team had “too many people.”

When asked if their provider (both medical students and attending physicians) showed respect for what they had to say, 97.7% of patients responded, “Yes, Definitely,” for both medical students and attending physicians (Figure 2). Attending physicians, compared to medical students, were more likely to explain things to patients in a way that was easy to understand ( $p=0.0097$ ). Out of all questions asked, medical students received the lowest percentage of “Yes, Definitely” (77.6%) responses when patients were asked if their provider seemed to know the important information about their medical history. When asked if they would refer the clinic to their family and friends, 81.4% of patient’s responded, “Yes, Definitely,” 16.3% responded, “Yes, Somewhat,” and 2.3% responded, “No.”

Medical students were more often reported as spending “too much time” with patients compared to attending physicians, whereas attending physicians were more often reported as spending “not enough time” with patients ( $p=0.024$ ). Patients, overall, rated the care provided by

attending physicians as higher than that of the care provided by medical students (9.15/10 vs. 8.70/10,  $p=0.023$ ) (Table 2); however, both groups were rated very highly on the ten-point scale.

### Conclusion

It is important for clinicians and students practicing in SRCs to receive accurate patient feedback in order to provide effective medical care. Implementing high quality research protocols can be challenging in the setting of a SRC, especially for students with busy and inflexible schedules. Here, we present a method that has provided us with patient experience of care data that has helped us to initiate patient-centered quality improvement projects in our practice. Our work demonstrates the success of a student-faculty collaborative research effort to administer a mixed-modality experience survey and to collect meaningful constructive feedback in order to improve care in the context of a SRC.

A common criticism of SRCs is that the team of medical students, nurse practitioner students and attending physicians is too large. Additionally, there is concern that medical students may not provide adequate care. Our findings, however, indicate that the majority of CCC’s patients are satisfied with their care-team and are pleased with the care that they receive from medical students.

Figure 1. Patient Satisfaction Questionnaire – Overall Clinic Experience

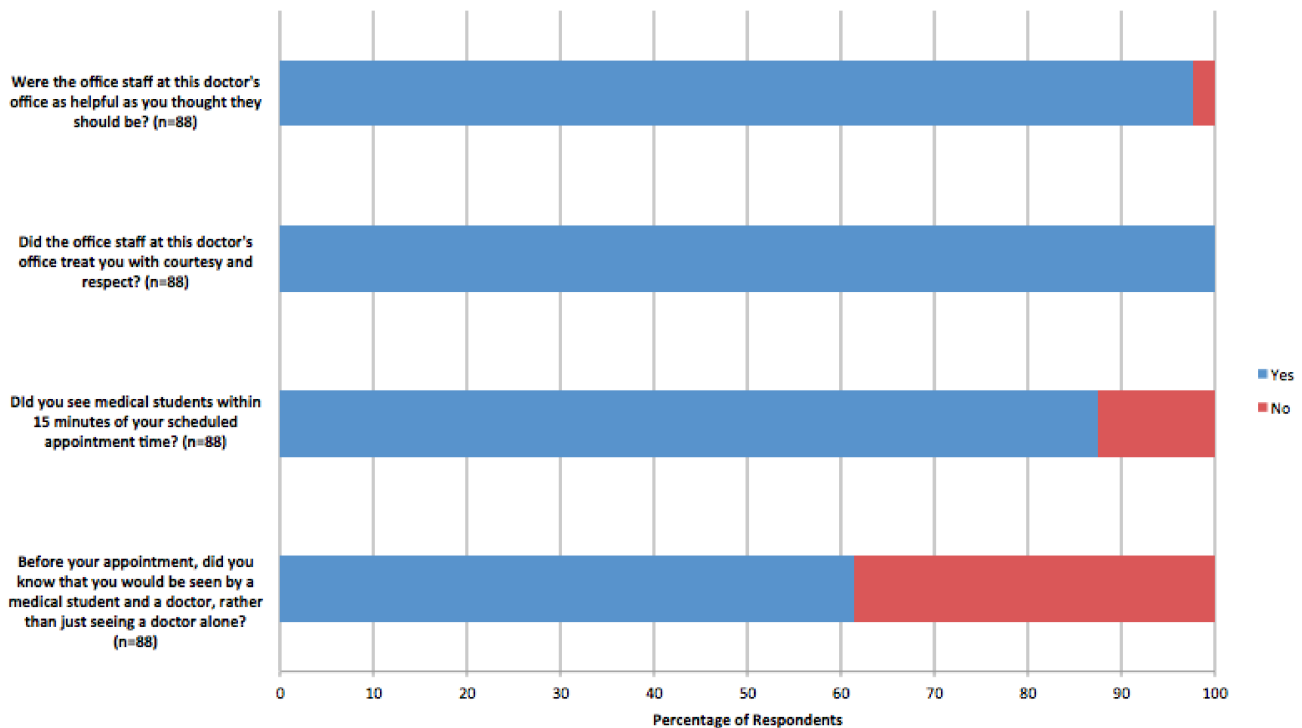
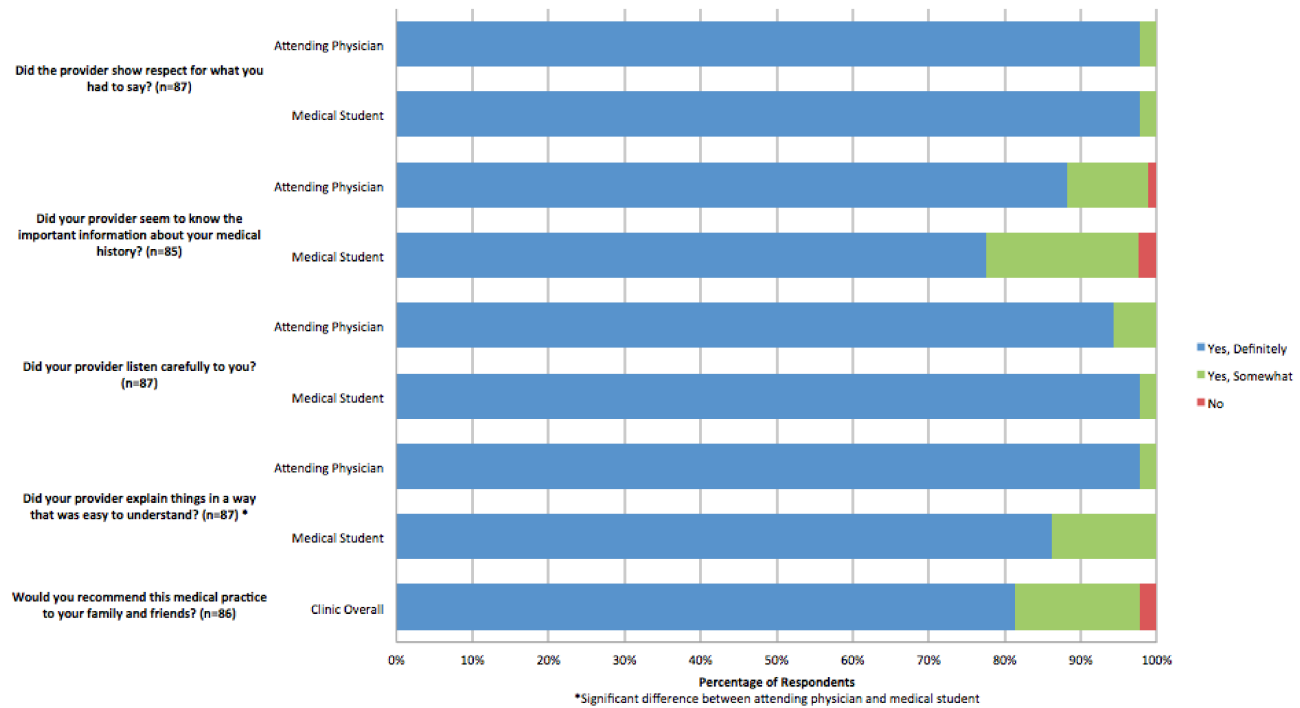


Figure 2. Patient Satisfaction Questionnaire – Patient Experience with Providers



Although our patients were satisfied with both the medical students and the attending physician, there were some significant differences in patient ratings of these individuals, many of which may be attributed to the CCC clinic procedures. The clinic’s medical students see each patient first, eliciting a full history and physical exam. The medical students subsequently report to the attending physician, describing the pertinent history and findings, and then the attending physician meets with the patient.

Therefore, it is not surprising that the attending physicians know more details about the history than do the medical students. This also helps to explain why medical students were reported as spending “too much time” while the attending physicians were reported as spending “too little time”.

We were able to make improvements in our clinic procedure based on patient feedback. 13% of our survey

Table 2. Selected Patient Satisfaction Questionnaire Responses (n=88)

	Medical Student	Attending Physician	P-Value
During your most recent visit, did your provider spend enough time with you?			
Too much time	10 (11.4%)	2 (2.3%)	0.024
Enough time	76 (85.4%)	80 (90.9%)	
Not enough time	1 (1.1%)	5 (5.7%)	
Refused	1 (1.1%)	1 (1.1%)	
Using any number from 0-10, where 0 is the worst provider possible and 10 is the best possible, what number would you use to rate this provider?	8.70 (n=84)	9.15 (n=85)	0.028

responders reported not being seen by a medical student within 15 minutes of arrival (Fig. 1), and our average wait time for both responders and non-responders was 19.5 minutes (data not shown). In addition, 11.4% of our patients felt they spent too much time with medical students before seeing the attending. We changed clinic flow to reduce wait times for patients. We added reminders at the beginning of each clinic to students that their interviews with patients prior to obtaining attending input should not last more than twenty minutes. We underlined that if necessary, the attending can perform the physical alongside the students if their interview has run over. In addition, we empowered our overseeing senior student directors to monitor patient appointment length and to interrupt interviews exceeding 20 minutes via a knock on the door. Finally, we have made an effort to explain the overall clinic flow to patients before they enter their rooms. While formal data are not yet available, anecdotally, clinic has been ending more promptly since these changes were initiated. We will continue to monitor patient perceptions of appointment length to determine whether these initiatives have altered patient perceptions.

To address the fact that 40% of our patients had not realized that they would be seeing students at our clinic, we changed our signage and updated our phone script to explicitly remind patients making appointments at CCC that it is a student-faculty collaborative practice and that all patients will be seen by a team of students first and then by an attending.

The data collected from our survey have some limitations. First, the response rate was 46.6%. This response rate, however, exceeds the typical response rates achieved in other outpatient surveys at MGH's primary care practices during the same period. These other surveys, conducted by telephone using interactive voice recognition, achieved response rates on the order of 30-35%. Our response rate is lower than we would like, even taking into consideration the nature of this underserved clinic population. We do have measurable differences between responders and non-responders and are focusing efforts on better follow up. Despite these limitations, this is the first report, to our knowledge, of a patient satisfaction experience at an SRC, which is not based on exit surveys. Given the known bias that is demonstrated in exit surveys, we anticipate that the results of our survey provide the most accurate report of patient satisfaction in the context of a SRC to date.

SRCs provide a service to patients as well as a valuable learning experience to medical students. Scientific assessment of outcomes, including patient-reported outcomes, is essential for evidence-based improvements to overall clinic experience and flow. As a result of our

patient experience of care survey results, the CCC has streamlined its clinic flow to avoid longer patient wait times and to maximize patient interaction with both medical students and attending physicians, and it has increased patient awareness of our SRC structure. We hope that this study will encourage others SRCs to adopt similar research based practices and collaborate in improving care for SRC patients.

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