Journal of Urban Health: Bulletin of the New York Academy of Medicine, Vol. 86, No. 5
doi:10.1007/s11524-009-9386-z

The Columbia-Harlem Homeless Medical Partnership: A New Model for Learning in the Service of Those in Medical Need

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ABSTRACT *Though altruism and patient advocacy are promoted in medical education curricula, students are given few opportunities to develop these skills. Student-run clinics focusing on the health needs of the underserved can provide important health services to needy patients while providing students with career-influencing primary care experiences. The Columbia-Harlem Homeless Medical Partnership (CHHMP)—a project initiated by medical students to provide primary care to Northern Manhattan's homeless population—serves as a new model of service learning in medical education. Unlike many other student-run clinics, CHHMP has developed direct patient outreach, continuous care (stable "student–patient teams" and a weekly commitment for all volunteers), and regular internal data review. Chart review data presented demonstrate the project's success in providing care to the clinic's target population of homeless and unstably housed patients. Targeted outreach efforts among clients have increased rates of patient follow-up at each subsequent review period. Additionally, CHHMP has used review data to develop services concordant with identified patient needs (psychiatric care and social services). CHHMP has recruited a committed group of volunteers and continues to engender an interest in the health needs of the underserved among students. Not only does CHHMP provide a "medical home" for homeless patients, it also provides a space in which students can develop skills unaddressed in large teaching hospitals. This project, a "win–win" for patients and students, serves as a unique model for community health-based service learning in medical education.*

KEYWORDS *Homelessness, Medical education, Service learning, Housing, Clinical services*

INTRODUCTION

> Physicians must be altruistic...and must be advocates for improving access to care for everyone, especially those who are members of traditionally underserved populations. They must understand the economic, psychological, occupational, social, and cultural factors that contribute to the development and/or perpetuation of conditions that impair health.[1]

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This statement, which articulates a set of ideals toward which physicians should aspire, is taken directly from the AAMC guidelines for medical education. Unfortunately, students and faculty alike can attest to the fact that there is limited room for altruism, advocacy, or consideration of the social context of disease in our current model of largely inpatient medical education. In recent years, dissatisfaction with the limitations of biomedical curricula has led to (often student-driven) movements seeking to supplement conventional educational models and open the medical classroom to encompass more of the community at large. Service learning—where learners develop skills while providing a community service—has gained wide currency in the field of public health and medical education.[2] This paper describes the Columbia-Harlem Homeless Medical Partnership (CHHMP), a student-run free clinic providing primary care and a "medical home" to Northern Manhattan's homeless population while educating medical students in a service-based and outreach-oriented context. It also presents results of the clinic's first three biannual chart reviews to describe the clinic's population, trends in patient characteristics, and clinic volunteer reflections.

For many underserved clients, free student-run clinics are an important part of the medical safety net.[3] In these educational–clinical settings, the desires of medical students and needy patients intersect at the goal of quality medical care. Working with disadvantaged patients often requires a degree of time, flexibility, and continuity not feasible in our current health care system. The chaotic social situation of the homeless patient "creates a need for community outreach and a period of courting between patient and doctor that can be quite extensive, just to establish a relationship."[4] This special need for a close provider–patient relationship is difficult for residents and faculty at large teaching hospitals to meet, but may be uniquely met by students in a service-learning setting. Clinics serving needy populations put a human face on public health issues such as homelessness and can provide students with outreach skills and strategies to engage difficult-to-treat patients.[5] Students also learn practical lessons about non-hospital community health resources (i.e., housing services, insurance enrollment, HIV testing, and mental health services).

Many medical students experience their first "real" patient encounters at student-run clinics, which respond to the desire for clinical experiences expressed by many students early in their training.[6,7] Evaluations of student experiences at such sites consistently reveal high levels of satisfaction, and positive trainee experiences with primary care have been shown to increase rates of retention in this field.[8,9] A cross-sectional study of greater than 1,000 National Health Service Corps alumni revealed that of those providers who continued to practice in underserved areas, experiences in such communities as students or residents were predictive of provider retention.[10] Another report showed that a required experience in a homeless clinic motivated primary care residents to continue volunteering their time in the clinic even after their rotations had ended.[11] Extrapolating from these studies, it seems likely that positive experiences with homeless patients at student-run clinics will encourage the practice of primary care among underserved populations.

"The homeless" describes a larger population than those literally living on the streets and encompasses individuals in a wide range of insecure housing situations.[12] Homeless individuals do not only live outdoors and exposed—they may also dwell periodically in temporary or emergency shelters, foster homes, doubled up with relatives, or as tenuous tenants under notice to vacate.[12] Insecure housing status is as important a risk factor for poor health as family history or diet: the average homeless adult has eight to nine concurrent medical illnesses.[4] The relationship

between poor health and homelessness is bidirectional: homelessness increases the risk of poor physical and mental health, and physical or mental illness can contribute to an individual or family becoming homeless.[13] Homeless patients are disproportionately hospitalized and remain on the wards for a longer time than their stably housed counterparts, escalating public health care costs.[13] Despite New York City Mayor Michael Bloomberg's ambitious effort to end homelessness in NYC by 2009, the problem continues to grow: from 2006 to 2007, the number of all shelter-dwelling individuals increased by 11.1% to 35,113 people, and the number of homeless families rose to an all-time high of 9,190.[14] The problem is especially acute in Harlem, which has been experiencing rapid gentrification.

METHODS: PROJECT CONCEPT, DESIGN, AND IMPLEMENTATION

CHHMP was founded in November 2004 by a small group of first and second year medical students interested in starting a clinic for the homeless in Northern Manhattan. It was decided that clinical services would be initiated only after a thorough site search and needs assessment. From the start, a faculty supervisor (J.S.) was identified from the Center for Family and Community Medicine to provide advice and feedback during the planning stages and to eventually supervise clinical care as described below. The site search began in December 2004, during which approximately 40 clinic spaces were evaluated for appropriateness both of patient population and potential clinic space. Potential sites, including food pantries, churches, and outreach stations, were identified through online databases, manuals of homeless services providers, direct calls to known service organizations, and word-of-mouth. Each potential site was visited in person by at least one CHHMP student. If a site warranted further consideration, meetings with all major organizational stakeholders were organized. Thus, site selection took several months. Sites up to four miles away from the Columbia University Medical Center (CUMC) were evaluated.

The first site, a transitional housing center in central Harlem, was selected in March 2005, and a needs assessment was begun. However, despite successful completion of the needs assessment and purchasing of basic supplies, the start date was postponed several times, and the site was eventually abandoned due to logistical constraints. The second site, St. Mary's Episcopal Church in West Harlem, was chosen in July 2006 after a second 6-month site search. The particular strengths of this site included a community involved in public service; a large, clean basement with bathrooms; and, most importantly, a daytime drop-in center for the chronically homeless operated by the Center for Urban Community Services (CUCS). This site was a "safe space" for the local homeless community, and both the church and CUCS were enthusiastic and supportive. Legal negotiations regarding liability and institutional relationships, logistical planning, and a second needs assessment took an additional 10 months, and the clinic opened its doors on May 1, 2007.

CHHMP was to develop in three stages. In stage 1, the "pilot phase," the goals were to finalize the finer points of the clinical model and operating procedures, build trust within the local community, and begin to deliver basic care. A comprehensive chart review was carried out and a plan for outreach was developed and finalized during this phase. The second phase of clinical operations, the "implementation phase," consisted of implementing chart review findings and expanding services given project resources. This phase was anticipated to last 12 to 18 months and is

the current phase of operations. The third phase of clinic operations was termed "expansion." The overriding goal of this phase will be to firmly establish continuous and comprehensive care by meeting additional needs, monitoring health outcomes, and potentially establishing a satellite location.

While the target population of the clinic was the homeless population of West and Central Harlem, the decision was made to open the clinic to all patients seeking health services. However, we expected the bulk of our patients to be homeless and felt our focus on this population called for a clinical model that maximally promoted continuous, trusted care. To ensure continuity, the same medical students are required to commit to working at CHHMP on a weekly basis throughout the duration of medical school. Based on our review of published reports of student-run medical clinics and conversations with student leaders around the country, we believe that this model of care with a weekly student commitment is unique. While we conceived of CHHMP as primarily an extracurricular volunteer activity for only the most committed students, we have been able to secure limited course credit for participants—it counts as a "clinical clerkship" for volunteer preclinical students, and fourth year students can sign up for a 1-month "CHHMP elective."

As a "medical home" for clients, CHHMP provides comprehensive primary care services: history and physical exam, point of care testing (i.e., blood glucose, pregnancy tests, urine dipstick, fecal occult blood), written prescriptions, disbursement of some medications free of charge, counseling on lifestyle and health care maintenance, psychiatric screening, and a system for direct referrals to physicians at CUMC for further care. Medical students also began outreach projects to promote CHHMP to our target homeless population. These included weekly trips with church volunteers to deliver food parcels and announcements at local soup kitchens and food pantries.

At a typical weekly session, teams of one clinical student and one preclinical student obtain histories and conduct physical exams. Repeat patients are matched to their original care team whenever possible. An attending physician from the Center for Family and Community Medicine (J.S.) and family medicine residents (when available) provide direct student supervision at all clinic session. Students present clinical assessments to the attending physician (or an occasional substitute from his department) who reviews all cases, sees patients, signs off on treatment plans, writes prescriptions, and provides instruction in caring for this unique population. A record of participating students is kept and annual written reflections are collected from students.

Relevant patient chart data gathered for internal clinic review were entered into a standard Excel spreadsheet. Patient data was then de-identified and imported into SAS, version 9.1 for descriptive analyses.[15] The Columbia University Institutional Review Board granted this investigation exempted status because it uses previously gathered, de-identified chart data.

RESULTS

CHHMP Patient Data

Tables 1 and 2 summarize patient numbers, follow-up rates, and demographic characteristics of patients during the first 18 months of CHHMP clinic operation. All tables are organized to describe all patients and/or patient encounters at CHHMP over the entire 18 months in the first column, with a breakdown of

TABLE 1 Patient numbers and follow-up rates

	Total patients		Months 0–6		Months 7–12		Months 13–18	
	N (%)	Missing	*N* (%)	Missing	*N* (%)	Missing	*N* (%)	Missing
Number of patients	189 (100)	0	74 (100)	0	66 (100)	0	81 (100)	0
Number of visits	359	–	105	–	101	–	153	–
Followed up at least once	64 (33.9)	0	27 (36.5)	0	29 (43.9)	0	40 (49.4)	0

patients seen during each 6-month period in the following columns. Because some patients returned for repeat visits during multiple 6-month periods, the sum of patients during each period exceeds the total number of patients. The number of patients and patient encounters decreased between the first and second 6-month periods, but was highest during the third 6-month period. The proportion of patients who returned to the clinic at least once increased consistently and substantially during the 18 months of clinic operation (Table 1). While the clinic served patients of all ages (from infancy to 80 years of age), the mean patient age remained relatively stable. Overall, fewer CHHMP patients were female, and the proportion of female patients decreased after the first 6 months (Table 2).

Table 3 summarizes the housing status of CHHMP patients. Most CHHMP patients reported being either homeless or unstably housed. The proportion of CHHMP patients reporting some form of homelessness increased between the first and second 6-month periods and decreased during the third 6-month period.

Table 4 describes client insurance status. Most CHHMP patients were uninsured and most insured patients reported having Medicaid. Between the first and second 6-month periods, the proportion of uninsured patients decreased while the proportion of patients with Medicaid increased. By the third 6-month period, the majority of patients were again reporting that they lacked health insurance.

Table 5 summarizes the substance use patterns of CHHMP patients. CHHMP patients reported current or historical use of substances at consistently high rates over the 18 months of clinic operation. Tobacco was the most commonly reported substance of abuse, followed by heavy alcohol use (more than four standard drinks daily), cocaine (crack and intranasal), marijuana, and heroin, in descending order of frequency.

TABLE 2 Demographics

	Total patients		Months 0–6		Months 7–12		Months 13–18	
	N (%)	Missing	*N* (%)	Missing	*N* (%)	Missing	*N* (%)	Missing
Mean age (years)	43.8	6	45.1	6	44.5	1	43.8	0
Females	68 (36.0)	0	33 (44.6)	0	19 (28.8)	0	28 (34.6)	0
Males	121 (64.0)	0	41 (55.4)	0	47 (71.2)	0	53 (65.4)	0

TABLE 3 Housing status

	Total patients		Months 0–6		Months 7–12		Months 13–18	
	N (%)	Missing	*N* (%)	Missing	*N* (%)	Missing	*N* (%)	Missing
Street homeless	47 (25.8)	7	16 (23.2)	5	22 (33.3)	0	17 (21.5)	2
Shelter homeless	21 (11.5)	7	4 (5.8)	5	13 (19.7)	0	8 (10.1)	2
Transitionally housed	20 (11.0)	7	7 (10.1)	5	7 (10.6)	0	13 (16.5)	2
Doubled up	36 (19.8)	7	20 (29.0)	5	10 (15.2)	0	11 (13.9)	2
Stably housed	58 (31.9)	7	22 (31.9)	5	14 (21.2)	0	30 (38.0)	2

TABLE 4 Insurance status

	Total patients		Months 0–6		Months 7–12		Months 13–18	
	N (%)	Missing	*N* (%)	Missing	*N* (%)	Missing	*N* (%)	Missing
Uninsured	98 (53.6)	6	42 (59.2)	3	25 (39.1)	2	41 (51.3)	1
Medicaid	70 (38.3)	6	21 (29.6)	3	36 (56.3)	2	31 (38.8)	1
Medicare	6 (3.3)	6	3 (4.2)	3	1 (1.6)	2	4 (5.0)	1
Private	9 (4.9)	6	5 (7.0)	3	2 (3.1)	2	4 (5.0)	1

TABLE 5 Substance use

	Total patients		Months 0–6		Months 7–12		Months 13–18	
	N (%)	Missing	*N* (%)	Missing	*N* (%)	Missing	*N* (%)	Missing
Tobacco current	74 (48.7)	37	33 (54.1)	13	30 (57.7)	14	27 (40.3)	14
Tobacco history	19 (12.5)	37	7 (11.5)	13	6 (11.5)	14	12 (17.9)	14
Heavy alcohol current	34 (21.9)	34	15 (25.0)	14	14 (25.9)	12	14 (20.3)	12
Heavy alcohol history	20 (12.9)	34	6 (10.0)	14	11 (20.4)	12	8 (11.6)	12
Cocaine current	22 (14.7)	39	13 (22.8)	17	12 (22.6)	13	4 (6.0)	14
Cocaine history	28 (18.7)	39	6 (10.5)	17	16 (30.2)	13	12 (17.9)	14
Heroin current	8 (5.3)	38	3 (5.3)	17	5 (9.3)	12	3 (4.5)	14
Heroin history	8 (5.3)	38	2 (3.5)	17	5 (9.3)	12	4 (6.0)	14
Marijuana current	17 (11.3)	39	8 (14.0)	17	8 (15.1)	13	5 (7.5)	14
Marijuana history	14 (9.3)	39	4 (7.0)	17	5 (9.4)	13	5 (7.5)	14

TABLE 6 Prevalence of health problems

Self-report past medical history items			Problems addressed at clinic		
Top 10 past medical history	*N*	%	Top 10 problems addressed	*N*	%
Substance abuse	69	36.5	Health care maintenance[a]	84	44.4
Musculoskeletal[a]	63	33.3	Social issues[a]	77	40.7
Psychiatric	63	33.3	Musculoskeletal[a]	70	37.0
Hypertension	49	25.9	Hypertension	57	30.2
Neurologic/cerebrovascular	38	20.1	Lifestyle[a]	57	30.2
Serious physical trauma[a]	36	19.1	Dermatologic	52	27.5
Asthma	33	17.5	Psychiatric	44	23.3
Diabetes mellitus	24	12.7	Substance abuse	38	20.1
Gastrointestinal/liver[a]	23	12.2	Gastrointestinal/liver[a]	37	19.6
Hyperlipidemia	17	9.0	Neurologic/cerebrovascular	29	15.3

[a]See text in "Results" for further description of broad categories

Table 6 summarizes the prevalence of common health problems of the CHHMP patient population, showing both self-reported past medical history and problems identified during clinic sessions. Since the list of all health problems reported is quite long, only the ten most common health problems in each category were included in the table. A few categories warrant further explanation. Musculoskeletal problems primarily consisted of osteoarthritis, but also included minor trauma, abdominal/inguinal hernias, and herniated discs. Serious physical trauma included sequelae of serious injuries, such as severe motor vehicle accidents or violence. While this category overlapped with musculoskeletal and neurological problems, we felt that these issues were important enough in this population to be described as a separate category. Gastrointestinal and liver diseases included primarily gastroesophageal reflux disease and infectious hepatitis. The broad category of health care maintenance included various preventive medicine measures such as cancer screening, HIV testing, and finger stick blood glucose testing. Social issues included non-medical concerns relevant to patients' health such as housing, health insurance, and disability applications. Lifestyle concerns included various health-related behaviors such as diet, exercise, and smoking.

CHHMP Student Experiences

In the first year of CHHMP's operation, 22 medical students participated—12 preclinical students and ten clinical students. In the second year, 29 students volunteered (14 preclinical students and 15 clinical students). Retention has been very high; there was a 95.5% student retention rate during the first year of clinic operations (21 of 22 students continuing). Written reflections were collected from student volunteers to assess the impact CHHMP made in supplementing medical school curricula:

> As knowledgeable as I think I am about pathophysiology, at CHHMP I often realize just how clueless I am about the practical aspects of treating conditions. CHHMP makes me take a step back to look at how each patient deals with his or her illness, which then helps me think about small practical solutions that can make a big difference.

Students also conveyed satisfaction derived from practicing clinical skills and applying them to a population in need:

> CHHMP has allowed me to apply the skills I was learning from day one of my medical school education and to learn that these skills need to be shaped to fit the care of each patient. Although technology and facilities aid in diagnosis and treatment, the practice of medicine starts with a fundamental human connection.

Students described attitudinal changes—including a deepening sense of empathy—resulting from continuous exposure to this population:

> Frequent meetings and conversations with the homeless and underserved, both at clinic and through outreach, have made the reality of homelessness more than an academic or political concern for me.

Overall, CHHMP appears to have strengthened student commitment to working with the underserved: "I hope that in the future I will be able to translate and reinvest the valuable lessons gained from volunteering at CHHMP back into the community."

DISCUSSION

The Columbia-Harlem Homeless Medical Partnership illustrates that a student-conceived, student-planned, and student-run initiative can meet the needs of an underserved population while imparting clinical skills and reinforcing humanistic attitudes. CHHMP emphasizes patient advocacy, service, and humanism in medicine—values which are not often integrated in modern medical educational settings.

While there are many successful student-run free clinics throughout the nation, CHHMP is—to our knowledge—the only model combining exceptional long-term student commitment, direct community outreach, and rigorous internal review. CHHMP has been well received and enthusiastically supported by faculty at the medical school—particularly those in the Center for Family and Community Medicine. However, this enthusiastic support did not prevent challenges and delays. From legal concerns that took months to negotiate to logistical barriers at potential sites, students involved have learned as much about project development and community engagement as clinical medicine.

Several interesting trends were highlighted by the successive 6-month chart reviews. While it is encouraging that both the number of patients and the number of patient visits increased substantially by the third 6-month period, it is perhaps more important that the follow-up rate increased through each of the 6-month review periods. Since CHHMP's largely homeless/unstably housed, uninsured, and substance-abusing population is quite challenging to reach and engage in care, the project's success with follow-up speaks to the ability of this unique model to build trust and reach the patients most in need.

The proportion of patients reporting some form of homelessness (street and shelter homeless) increased substantially following the clinic's pilot phase. While causal relationships cannot be drawn from our purely descriptive data, this trend correlates with a substantial intensification of outreach efforts (street outreach with food handouts) to the subset of our population consisting of mostly street homeless individuals. This suggests that student investment in outreach can yield noticeable

returns. It is also important to note that the proportion of patients with Medicaid increased and the proportion of female patients decreased during this same time period. This shift likely reflects the mostly male, entitlement-qualifying chronically street homeless population in NYC. Our outreach scheme, which involved direct interactions with potential clients in the street, may have not been optimal for targeting female patients. In an effort to widen our patient population to include more women, families, uninsured patients, and unstably housed individuals, we have broadened outreach efforts to include food pantries and soup kitchens. Our outreach strategy will need to continually evolve to ensure that we reach our target population.

It is clear from our data that substance abuse and psychiatric problems are serious concerns for our patients. CHHMP resources for patients with substance abuse problems were limited to referrals for detoxification, refills of existing prescriptions, and supportive counseling. Similarly, while we made an effort to meet our patients' psychiatric needs through empathic listening, indicated prescriptions, and appropriate referrals, connecting our patients to comprehensive psychiatric care was challenging. To meet these needs, we reached out to a nearby teaching hospital which has provided us with a psychiatric resident liaison. Similarly, our patients have many unmet social needs, including the approximately 40–60% of CHHMP clients who reported being uninsured. As a result, we have begun discussions with the Columbia School of Social Work to have social work students on site. Recognizing that the homeless have chronically unmet dental needs, we have also partnered with the Columbia School of Dentistry and Oral Surgery to provide dental evaluations and oral hygiene education on a weekly basis. We expect that in the next several months, they will have access to a dental van to provide cleanings and simple procedures.

Written reflections illustrate that most students felt that their educations had benefited from challenging encounters with homeless patients. The health problems and social circumstances of CHHMP clients called for creative care solutions (i.e., treating lower back pain in a patient sleeping outside). Students also learned about the challenges of administering the day-to-day operations of a free clinic, including guaranteeing financial sustainability. Students have undertaken grant writing and, to date, have been successful in securing CHHMP funding. CHHMP volunteers have also created a formal administrative structure with clear delineation of administrative responsibilities, such as purchasing supplies, organizing outreach, and maintaining community contacts. While these challenges are very different than the ones posed by a tough exam or complex medical case on the wards, they nonetheless serve to enrich medical education.

The pressures and stresses of medical school are substantial and many, and the incentives during medical training may sometimes oppose altruism, patient advocacy, and a genuine concern for underserved populations. Potential solutions to such problems will undoubtedly include more than a student-run free clinic. However, for the subset of students who enter medical school with a true commitment to the underserved and a real passion to serve and advocate for those most in need, a project like CHHMP can provide a haven in which their altruism can be protected and their ideals can thrive. The resulting symbiosis of education and service provides quality and compassionate health care to those most in need and ensures that several more students each year will devote their careers to similar work.

Funding support. The Houston Family Foundation; The Gold Humanism Society; the Alpha Omega Alpha Honor Society's Grant for Medical Student Service; The Center for Family and Community Medicine, Columbia University; and St. Mary's Church, New York, NY.

Disclosures. The authors have nothing to disclose.

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