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## Training the Next Generation of Primary-Care Physicians: Are Student-Run Free Clinics (SRFCs) the Way to Go?

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## **Training the Next Generation of Primary-Care Physicians: Are Student-Run Free Clinics (SRFCs) the Way to Go?**

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*Background:* The consensus over the last 20 years is that increased availability of primary care reduces the overall cost of healthcare and improves mortality and morbidity rates by as much as 1.44 fewer deaths per 10,000 people (American College of Physicians, 2008; Shi, Starfield, Kennedy, & Kawachi, 1999). However, not enough physicians are going into primary care to meet the need for improved and increased access. By 2020, the expanded Title VII program goal is to produce a physician workforce that is at least 40 percent primary care (Jackson et al., 2014). Estimates show that 74% of U.S. medical school graduates go into non-primary care specialties (Pugno, McGaha, Schmittling, DeVilbiss, & Kahn, 2007), but a shortage of 45,000 primary care physicians remains (U.S. Department of Health and Human Services, 2013). *Purpose:* In light of this dire forecast, this paper builds upon a proposal by Campos-Outcalt and Senf (1999) (where a student-run clinic affected a minority of students' residency choices) to see if the use of student-run free clinics among students at a state academic medical center would build medical students' interest in primary care and influence their choice of residency. *Methods:* A retrospective analysis of volunteers at the Jackson Free Clinic from 2012 to 2017 in Jackson, Mississippi, was carried out. *Results:* Results indicated a statistical correlation between the fourth-year medical students' frequency of volunteering at JFC and their choice of primary care in residency. However, for first-, second-, and third-year medical students, there was no significant correlation between volunteer time at JFC and choosing a primary care residency.

*Keywords:* free clinic, primary care, underserved

## Introduction

Student-run free clinics (SRFCs) have been in operation since 1965, when David Smith started the Haight Ashbury Free Clinics near the University of California, San Francisco (Smith et al., 2014; Xu, 2013). This has since morphed into 207 entities, sponsored by students and faculty from 111 different U.S. university medical schools (Simpson & Long, 2007). These are led by students, staffed by licensed physicians, and supported by the local community. It is an archetype of clinical outreach to the uninsured that enables poor and indigent individuals to see a physician and obtain some of their medications for free.

The Jackson Free Clinic (JFC) in Jackson, Mississippi, is the only SRFC in the state. It has been pursuing the delivery of high-quality health services to individuals with inadequate access in Jackson since its opening in 1999. It sees an average of 1,150 patients a year (A. M. Mercier, personal communication, August 14, 2017), and more than 80% of University of Mississippi Medical Center (UMMC) students volunteer their time on a weekly basis. It is community-supported through various fund-raising efforts. Physicians and residents from the UMMC Psychiatry, Family Medicine, and Internal Medicine departments coordinate care and provide medical coverage for patients.

UMMC is the state of Mississippi's only academic medical center and trains more than 70% of all physicians (primary care and non-primary care) educated in the state (Wolfe, 2017). As the state with the lowest number of primary care physicians per capita (8.3 physicians per 10,000 Mississippians, compared to 12.7 physicians per 10,000 patients nationally; Krause, 2015), Mississippi needs to add at least 1,300 primary-care physicians over the next 8 years to reach the national average.

## Method

### Participants

The student volunteers are from all 4 years (M1–M4) of the UMMC medical school. In December 2016, JFC stopped receiving dental student or faculty volunteers. Volunteers from the occupational therapy, physical therapy, nutrition, and pharmacy schools do participate. The average number of student volunteers per week is between 20 and 30, while physician volunteers number between three and five weekly.

### Procedure

This study was conducted at the Jackson Free Clinic (JFC) in Jackson, Mississippi. Institutional Review Board (IRB) approval was not required as no human specimens were involved in this study. At the time of the study, JFC was staffed by volunteer faculty and residents from the UMMC Departments of Psychiatry, Internal Medicine, and Family Medicine who alternated

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Saturdays supervising the clinical aspect of JFC’s care. The clinic is open only on Saturdays from 11:30 a.m. to 4 p.m. and has an average of approximately 20 patients per week. The students and volunteer physicians document their names and departments in a log book at the SRFC administrative office before commencing their activities for the day.

Statistical analysis was done on the 123 and 133 students from the UMMC medical school 2016 and 2017 graduating classes, respectively, to see if there was a correlation between participation in JFC during their medical school years and matching into a primary-care residency program as part of the annual MATCH program by Electronic Residency Application Service (see Table 1). Data from the 2016 and 2017 MATCH programs was compared to the frequency of volunteering at JFC using the statistical program SPSS 22.0. It analyzed the frequency of volunteerism and residency choice using Pearson’s chi-squared values (Table 2). The chi-squared analysis was then used to determine the correlation between volunteer status and choice of residency.

Table 1  
*Percentage of Medical Students Who Went into Primary Care*

<b>1-Primary care: 0-Not primary care</b>					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	0	106	41.4	41.4	41.4
	1	150	58.6	58.6	100.0
	Total	256	100.0	100.0	

Table 2  
*Attendance of Medical Students at Jackson Free Clinic (2012–2017)*

<b>Statistics</b>					
		M1	M2	M3	M4
N	Valid	256	256	256	256
	Missing	0	0	0	0
Mean		.58	.77	1.65	.71
Minimum		0	0	0	0
Maximum		38	13	13	13

## Results

All categorical data, including demographic information, is represented in numbers and percentages, and a *P value* of less than 0.05 was considered statistically significant. Our data collection rate was 100%, as, between 2012 and 2017, every JFC clinical activity, including names of student volunteers, was documented in an easily retrievable log book.

The sample was then analyzed in regards to the percentage of students who matched in primary care versus those who matched in non-primary care residencies. Table 1 shows that the majority of UMMC medical students (58.6%) in the 2016 and 2017 MATCH programs went into primary care, with 41.2% going into non-primary-care residencies and other specialties.

The mean number of times students volunteered at JFC was highest in the third year of medical school (Table 2). When JFC student volunteers were analyzed for their choice of specialty, the correlation between going into a primary care residency (or not) and the total times volunteered in the 4 years of medical school were non-significant ( $r = .042$ , and  $p = .502$ ; Table 3). There was a significant correlation between time volunteered in the M4 year ( $r = .142$ ,  $p < 0.023$ ) and choosing primary care (obstetrics/gynecology, internal medicine, family medicine, pediatrics, and med-pediatrics) as a residency.

Other results indicated internal medicine (28%), pediatrics (10.9%), family medicine (10.8%), and emergency medicine (8.6%) were the most popular residencies chosen by UMMC medical students in 2016 and 2017 (Table 4). There was no positive correlation between volunteering at the JFC and a MATCH into emergency medicine or pediatrics, as was seen in earlier studies (Weinreich, Kafer, Tahara, & Frishman, 2005).

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Table 3

*Correlation Between Going into Primary Care Residency (or Not) and Total Times Volunteered at Jackson Free Clinic*

<b>Correlations</b>		
		1-Primary care: 0-Not primary care
Total	Pearson correlation	.042
	Sig. (2-tailed)	.502
	N	256
M1	Pearson correlation	-.045
	Sig. (2-tailed)	.475
	N	256
M2	Pearson correlation	.037
	Sig. (2-tailed)	.561
	N	256
M3	Pearson correlation	.041
	Sig. (2-tailed)	.518
	N	256
M4	Pearson correlation	.142*
	Sig. (2-tailed)	.023
	N	256
Year	Pearson correlation	-.062
	Sig. (2-tailed)	.320
	N	256
*Correlation is significant at the 0.05 level (2-tailed).		

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Table 4

*Residency Choices by UMMC Medical Students*

<b>Residency</b>				
		Frequency	Percent	Cumulative Percent
Valid	Anesthes	13	5.1	5.1
	Derm	5	2.0	7.0
	EM	22	8.6	15.6
	ENT	4	1.6	17.2
	FM	26	10.2	27.3
	Gen Sx	17	6.6	34.0
	IM	72	28.1	62.1
	Med Peds	2	0.8	62.9
	MedPeds	11	4.3	67.2
	NeuroSx	2	0.8	68.0
	ObGyn	9	3.5	71.5
	OMFS	1	0.4	71.9
	Opth	1	0.4	72.3
	Opth	3	1.2	73.4
	OPTH	1	0.4	73.8
	Ortho	7	2.7	76.6
	Ortho Sx	1	0.4	77.0
	Pathology	5	2.0	78.9
	PedGenetics	1	0.4	79.3
	Peds	28	10.9	90.2
	PEds	2	0.8	91.0
	Plastic Sx	2	0.8	91.8
	Psych	7	2.7	94.5
	Radiation	1	0.4	94.9
	Radiolo	1	0.4	95.3
	Radiology	8	3.1	98.4
	RadOnco	1	0.4	98.8
	Transition	2	0.8	99.6
	Urology	1	0.4	100.0
	Total	256	100.0	

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**Discussion**

The JFC data indicate that those who participated actively in JFC during their fourth year of medical school were more willing to choose primary-care residencies at a statistically significant rate. The confounding variable, however, was that the choice of a medical residency is typically decided at the beginning of medical students' fourth year when applications and letters of recommendation are being uploaded to the ERAS system by the M4 students. This study corroborates the importance of JFC among those who volunteered in their fourth year of medical school and eventually went into primary-care residencies, but it does not show that JFC volunteerism influenced choices between M1 and M3 years.

This study suggests greater emphasis must be paid to M4 medical students who volunteer at SRFCs in their fourth year. They are a potential recruitment pool for future primary-care residents. Any institution, therefore, without an SRFC structure may be at a disadvantage during interviews. For example, a program with an SRFC in place will showcase its availability to those interviewing and prioritize M4 SRFC volunteers for the ERAS MATCH.

Even though UMMC mandates that third-year medical students volunteer at least one week in the year for JFC, there is no evidence from this study that this policy has increased recruitment into primary care. UMMC has consistently produced more primary-care physicians than specialists, compared with the national average, and this has been a result of innovative programs such as the Mississippi Rural Physicians Scholarship Program (MRPSP; Helseth, 2014) and the Office of Mississippi Physician Workforce (OMPW; Morris, 2015).

The MRPSP, which was authorized by the Mississippi Legislature in 2007, sponsors up to 64 medical students (\$2.1 million) annually with the requirement that they return to a rural area in Mississippi to practice primary care post-residency for at least 4 years. OMPW, on the other hand, was authorized by the Mississippi Legislature in 2012 with the mandate to create more family residency programs and increase physician workforce availability in Mississippi. These two programs have helped to maintain a steadily growing number of primary-care physicians in Mississippi.

However, the number of primary-care physicians UMMC produces is skewed when those who enter non-primary-care internal-medicine residencies are taken into consideration. In a recent graduation ceremony of the UMMC internal medicine program, the chair of the department confirmed that less than 10% of graduates were continuing as primary-care physicians (Dr. T. Tonore, personal communication, June 2017). The unequal distribution of primary-care physicians and internal-medicine-produced sub-specialists has been attributed to the widening influence of specialists in major academic centers like UMMC (Kirch & Patel, 2017).



## Student-Run Free Clinics

Medicine is currently at a crossroads. SRFCs have been proposed by several authors as a tool to rekindle medical students' interest in primary care (Starfield, Shi, & Macinko, 2005). With decreased reimbursement, longer hours, and an aging workforce (50% of primary-care physicians are above 50 years of age; Council on Graduate Medical Education, 2010), medical students' interest in primary care is at an all-time low.

SRFCs are not overwhelmed with the insurance bureaucracy and financial problems that primary-care physicians tend to be. They, thus, afford medical students an opportunity to see primary care in its ideal manifestation—a relationship between the physician and his or her patients. SRFCs could be an opportunity to showcase primary-care medicine to the coming generations of medical students. How well SRFCs are implemented may determine how many choose to go into primary-care medicine.

This study shows that SRFCs are a selling point to fourth-year medical students interested in primary care. They also provide an opportunity to identify those with a genuine interest in primary-care medicine, and give medical students hands-on learning experiences outside their traditional learning environment.

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