



Evaluating the Financial Impact of a Student-Run Free Clinic in Alabama

Sarika K Mullapudi¹; Eric Chen¹; John S Laue¹; Andrew Van, MS¹; Caroline Harada, MD¹; Natasha Mehra, MD¹; Carlie S Somerville, MD¹

¹Department of Internal Medicine, University of Alabama at Birmingham Heersink School of Medicine, Birmingham, Alabama, USA

Corresponding Author: Sarika K Mullapudi; email: sarika.mullapudi@gmail.com

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Abstract

Background: Given significant existing barriers to healthcare, student-run free clinics (SRFCs) play a critical role in serving their community by reducing the burden of healthcare costs for the patients they serve. The objective of this study was to characterize the financial impact of free services provided by our SRFC in 2023 and understand its role and significance in community health.

Methods: The annual expenditure was calculated based on our SRFC's spending on supplies, laboratory tests, medications, patient transportation, interpretation, and security costs. Free services provided by the clinic to patients included clinical appointments, medications, and laboratory tests. The value of primary and specialty care appointments was calculated based on 2023 Medicare reimbursement rates. The value of laboratory tests was based on the laboratory's standard self-pay rates, and the value of free medications was calculated using the lowest out-of-pocket GoodRx price in the Birmingham area. The primary measure was financial impact of SRFC services in one calendar year, reported as descriptive statistics.

Results: The SRFC provided a total of 744 clinic visits in 2023. The clinic's operating expenditure was \$59,683. The total value of free services from the SRFC included \$99,207 in clinic visits, \$92,848 in laboratory tests, and \$25,205 in free medications. After subtracting the operating expenditures from the value of free services, the SRFC saved the community \$157,370 in healthcare services.

Conclusions: Descriptions of an SRFC's financial impact are a powerful tool that can be used to advocate for the expansion and development of health professions school's SRFCs. Quantifying the financial impact of SRFCs provides a reproducible framework for demonstrating their essential role in reducing healthcare costs and advancing equitable access, gaining insights that can guide and strengthen free clinics nationwide.

Introduction

Evaluating the impact of student-run free clinics (SRFCs) is a growing area of research, as they are present at over 75% of Association of American Medical Colleges member institutions¹. The benefits of SRFCs are numerous for both student volunteers and patients alike. Participating in SRFCs improves students' interprofessional attitudes and skills, fosters the development of more favorable attitudes towards medically underserved populations, and allows students to explore social determinants of health outside the formal medical school curriculum²⁻⁴. In addition, SRFCs have also been shown to improve patient outcomes by decreasing uninsured patients' hospital readmission rates and emergency department visits while also successfully managing chronic diseases in patients with adverse social determinants of health⁵⁻⁶.

Nevertheless, as SRFCs increase in number and popularity at medical schools across the nation, evaluating their outcomes through the lens of their financial impact on their community becomes important in demonstrating their role and significance in community health care. While some

Table 1. Local and national reimbursement rates for clinic visits

Visit Type	Primary Care New	Primary Care Return	Psychiatry New	Psychiatry Return	OB/GYN Return	Dermatology Return	Total
Quantity, n	214	414	30	66	12	9	744
CPT Code	99204	99214	99204	99214	99214 G0101 Q0091	99214	-
Local Reimbursement Rate, \$	156.72	120.00	157.00	120.00	187.00	120.00	-
Total Local Reimbursement*, \$	33,538	49,713	4,702	7,925	2,249	1,081.00	99,208.00
National Reimbursement Rate, \$	167.00	128.43	167.00	128.00	208.00	128.00	-
Total National Reimbursement†, \$	35,823.00	53,170.00	5,022.00	8,476.00	2,498.00	1,156.00	106,145.00

*Local Medicare 2023 reimbursement rate calculated using locality code 10112

OB/GYN: obstetrics/gynecology; CPT: current procedural terminology

cost-analyses of SRFCs exist, our analysis seeks to build upon the existing literature by providing a complete picture of one SRFC's holistic financial impact, including both the value of all medical services and the medication dispensary program⁷⁻⁸. Equal Access Birmingham (EAB) is a SRFC sponsored by the University of Alabama at Birmingham (UAB) Heersink School of Medicine and primarily serves vulnerable patient populations in Central Alabama who may not otherwise have access to healthcare. The clinic's internal management, workflow, and fundraising is organized by students under the oversight of faculty leadership; all clinic visits are staffed and supervised by faculty physicians at the university.

Methods

Data was collected from a retrospective review of clinic data and patient charts. The study's methods were exempted under the UAB's Institutional Review Board-approved protocol.

The annual expenditure of our SRFC from January 1, 2023 to December 31, 2023 was calculated using costs associated with medical and clinic supplies, laboratory testing (subsidized through a partnership with a local outpatient clinic), medication purchased for the dispensary, rideshare services for patient transportation, interpretation services, and clinic security. The free services provided by the SRFC that were analyzed as part of this study include a variety of essential healthcare services such as primary care visits, specialty care visits (including psychiatry, dermatology, and obstetrics/gynecology [OB/GYN]), laboratory tests, and access to free medications. These services play a crucial role in meeting the healthcare needs of underserved populations. Medicare reimbursement rates were used to estimate the value of the clinic visits for an accurate financial approximation of the clinic's impact in providing healthcare services free of charge.

For this analysis, specific Current Procedural Terminology (CPT) codes were employed to represent the different types of patient appointments within the SRFC. These codes were selected based on the type of visit, whether new or returning, and the specialty of care. The CPT codes used in the study included: new patient primary care visit (99204), established primary care visit (99214), new patient psychiatry visit (99204), established psychiatry visit (99214), established OB/GYN visit with testing (99214, G0101, Q0091), and established dermatology office visit (99214). Multiple CPT codes were used to calculate the value of our SRFC's OB/GYN visits as they included cervical cancer screenings and breast/pelvic examinations (G0101) and Papanicolaou (Pap) smear collection (Q0091). Our calculations are based on the 2023 Medicare reimbursement rates for locality 10112 per our SRFC's location.

Table 2. Laboratory test rates

Laboratory Test	N	Subsidized Self-Pay Rate, \$	Total Subsidized Self-Pay Rate, \$	Non-Subsidized Outpatient Rate, \$	Total Non-Subsidized Outpatient Rate, \$
Basic Laboratory Panel					
Basic Metabolic Panel	74	45.50	3,367.00	130.00	9,620.00
Comprehensive Metabolic Panel	78	61.25	4,777.50	175.00	13,650.00
Hepatic Function Panel	9	31.15	280.35	89.00	801.00
Lipid Panel	95	25.20	2,394.00	72.00	6,840.00
Renal Function Panel	5	33.25	166.25	95.00	475.00
CHEMISTRY					
B-Type Natriuretic Peptide	5	60.90	304.50	174.00	870.00
C-Reactive Protein	4	21.00	84.00	7.35	29.40
Cortisol Serum	2	36.40	72.80	104.00	208.00
Creatinine Clearance	3	10.50	31.50	30.00	90.00
HCG Quantitative Serum	2	41.65	83.30	119.00	238.00
Hemoglobin A1C	128	25.90	3,315.20	74.00	9,472.00
Iron Serum	8	46.20	369.60	132.00	1,056.00
Iron Binding Capacity Total	1	20.30	20.30	58.00	58.00
Plasma Folate RBC	5	23.45	117.25	67.00	335.00
Vitamin B12	13	31.15	404.95	89.00	1,157.00
Prostate-Specific Antigen	8	48.65	389.20	139.00	1,112.00
Thyroxine Free Serum	28	42.00	1,176.00	120.00	3,360.00
Thyroid Stimulating Hormone	69	43.75	3,018.75	125.00	8,625.00
Triiodothyronine Free	22	37.10	816.20	106.00	2,332.00
Magnesium	4	26.95	107.80	77.00	308.00
Uric Acid Serum	1	33.25	33.25	95.00	95.00
Vitamin D 25-OH Level	4	60.55	242.20	173.00	692.00
CHEMISTRY – URINES					
Microalbumin Urine	3	20.30	60.90	58.00	174.00
Creatinine Urine	3	21.35	64.05	61.00	183.00
Protein Total Urine	3	11.20	33.60	32.00	96.00
HEMATOLOGY					
CBC without Differential	3	17.50	52.50	50.00	150.00
CBC with Differential	89	25.55	2,273.95	73.00	6,497.00
Sedimentation Rate Auto	8	24.15	193.20	69.00	552.00
Urinalysis	45	20.65	929.25	59.00	2,655.00
COAGULATION					
Prothrombin Time	4	51.80	207.20	148.00	592.00
Partial Thromboplastin Time	2	36.75	73.50	105.00	210.00
D-Dimer	1	88.90	88.90	254.00	254.00
Fibrinogen	1	160.65	160.65	459.00	459.00
Anti-Xa Heparin Monitoring	1	51.80	51.80	148.00	148.00
Lupus Anticoagulant	1	20.65	20.65	59.00	59.00
IMMUNOLOGY					
Chlamydia by LCR, Swab	11	32.20	354.20	92.00	1,012.00
Gonorrhea Antigen by LCR, Swab	11	32.20	354.20	92.00	1,012.00
Trichomonas amplification	9	32.20	289.80	92.00	828.00
Hepatitis C Antibody	9	46.90	422.10	134.00	1,206.00
HIV 1 HIV 2 Antibody	23	33.60	772.80	96.00	2,208.00
HIV Viral Load	15	114.80	1,722.00	328.00	4,920.00
Rapid Plasma Reagin Serum	13	28.00	364.00	80.00	1,040.00
Hepatitis B Surface Antibody	8	35.70	285.60	102.00	816.00
Hepatitis B Surface Antigen	8	37.80	302.40	108.00	864.00
Hepatitis B Surface Antigen Neut	8	26.25	210.00	75.00	600.00
MICROBIOLOGY					
Colony Count Urine	1	29.40	29.40	84.00	84.00
MISCELLANEOUS ¹					
Venipuncture	267	6.30	1,682.10	18.00	4,806.00
TOTAL			32,570.65		92,848.40

¹Provided labs with unknown price include Antinuclear Antibody (1), Antineutrophil Cytoplasmic Antibodies (1), Anti-Thyroglobulin (2), Fecal Fat (1), Fecal Immunochemical Test (8), Fecal Occult Blood Test (1), H. Pylori (1), IgA (1), Lipase (3), Lithium (1), Other Stool Studies (4) Serum Protein Electrophoresis (1), Stool Ova and Parasite (2), T Spot (3), Transglutaminase (1), Urine Culture (5) Vitamin C (1)

HCG: human chorionic gonadotropin; CBC: complete blood count; LCR: ligase chain reaction; Neut: neutralization

Calculations using the national Medicare reimbursement rates are included in Table 1 to allow for easier comparison with other free clinics across the nation.

Patients requiring laboratory studied from the SRFC were sent to a nearby outpatient laboratory run by the UAB Medicine system. The cost of laboratory tests was calculated using both UAB Medicine's subsidized self-pay rates and the non-subsidized outpatient rates for all laboratory tests for which prices were published (Table 2). The higher non-subsidized outpatient lab rates were used in our analysis, as not all health centers have subsidized self-pay rates. Lastly, the cost of medications provided by the SRFC's dispensary service was calculated using the lowest out-of-pocket price on GoodRx (GoodRx Holdings, Inc., Santa Monica, CA) in the Birmingham area for each free medication that was dispensed.

Results

The SRFC's operating expenditures in 2023 totaled \$59,683 (Table 3). In one calendar year, the SRFC provided 214 primary care visits for new patients and 414 primary care visits for established patients, valued at \$33,538 and \$49,713 respectively. Thirty psychiatry visits for new patients and 66 psychiatry visits for established patients totaled \$4,702 and \$7,925 respectively. Twelve OB/GYN services including a routine breast/pelvic exam and Pap smear totaled \$2,249, and 9 dermatology visits totaled \$1,081. A total of \$92,848 in laboratory test services was provided (Table 3). The value of free medications calculated based on the lowest out-of-pocket GoodRx rates were worth \$25,205 (Table 3). Thus, a total of \$216,889 in health care and medication costs was provided by the SRFC in 2023. After subtracting the clinic's operating expenditures, the total cost-savings of the SRFC was \$157,370. The largest portion of free services provided by the SRFC were the \$92,640 in laboratory tests, totaling 42.7% of the clinic's free services, and the \$49,713 in primary care visits for established patients, totaling 22.88% of the clinic's free services (Figure 1).

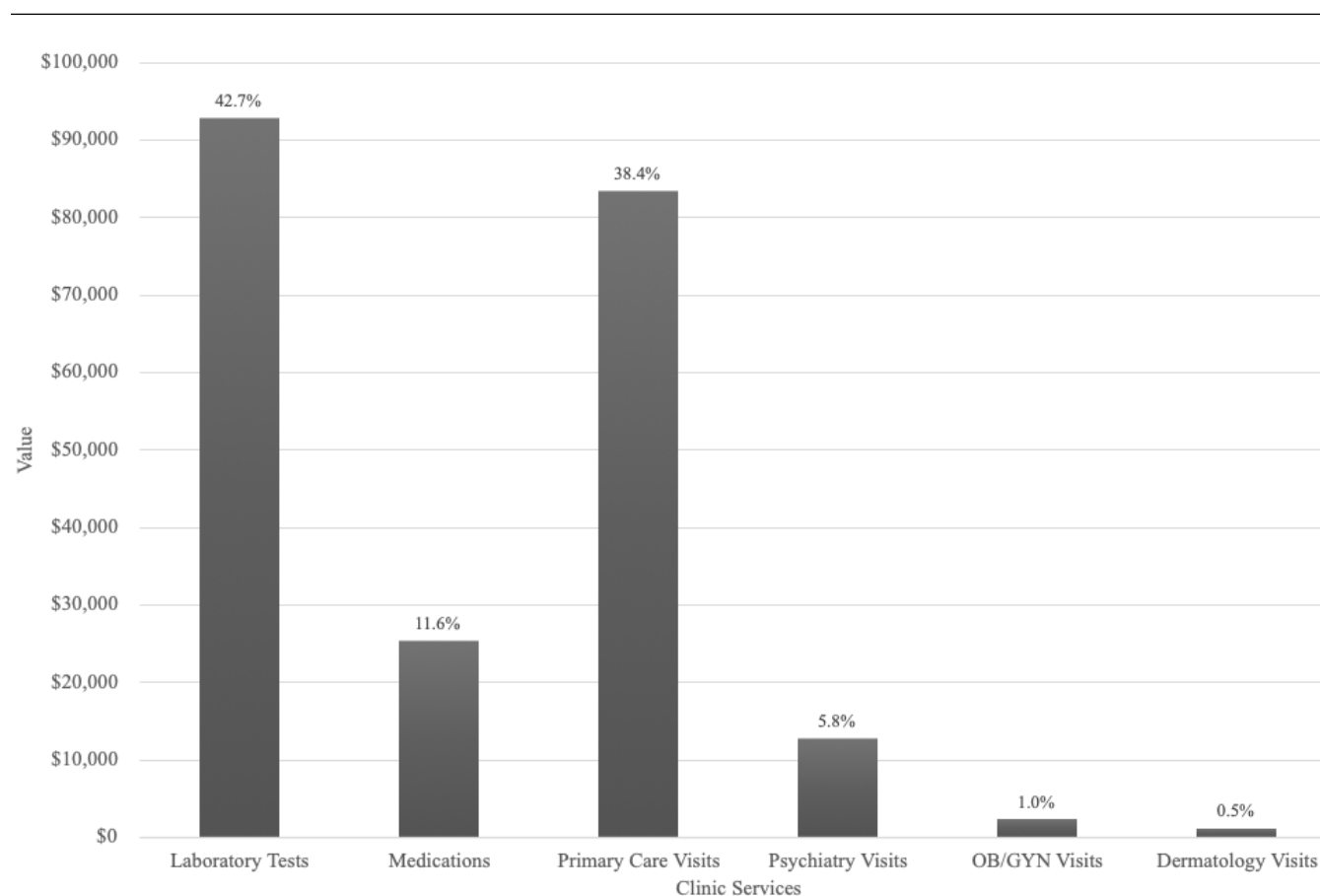
Discussion

Our analysis highlights the financial impact of an SRFC in providing care for uninsured and under-insured patients. The value of EAB's clinic visits and laboratory services is similar to what has been reported by another SRFC cost-analysis and further expands the cost-saving analysis over a full

Table 3. Operating expenditures and value of services

Operating Expenditure			Value of Free Services		
Item	Cost (\$)	%	Item	Cost (\$)	%
Medications	21,217	35.55	Laboratory Tests	92,848	42.74
Security Services	16,086	26.95	Medications	25,205	11.60
Laboratory Test Fees	14,735	24.69	Primary Care Appointments		
Clinic Supplies	2,363	3.96	New Patient Visit	33,538	15.44
Medical Supplies	3,317	5.56	Return Visit	49,713	22.88
Patient Transport	1,470	2.46	Psychiatry Appointments		
Interpreter	495	0.83	New Patient Visit	4,702	2.16
			Return Visit	7,925	3.65
			OB/GYN Appointments		
			Return Visit	2,249	1.04
			Dermatology Appointments		
			Return Visit	1,081	0.50
TOTAL	59,683	100	TOTAL	217,053	100

OB/GYN: obstetrics and gynecology

Figure 1. Distribution of clinic free services

OB/GYN: obstetrics/gynecology

calendar year, standardizing future efforts to characterize and compare the financial impact of SRFCs nationally⁷. The results of this analysis can be used to advocate for the value that SRFCs provide to their community through eliminating burdensome costs of clinic visits, laboratory tests, and medications for uninsured and under-insured patients. As healthcare costs soar, arguments can be made that larger healthcare systems should provide resources and support to allow clinics like these to expand utilizing similar cost analyses. These results can be shared with health system leaders, community partners, and donors to grow SRFC resources and close gaps in areas such as psychiatry, OB/GYN, dermatology, and preventative health screening.

An important part of SRFCs' services that our analysis aimed to highlight was the clinic's medication dispensary. A large proportion of SRFC patients struggle to afford their medications. Although many rely on financial assistance programs, limited resources often prevent them from receiving the support they need.⁹ There were 235 stand-alone medication pick-up encounters at our SRFC in 2023. While having an in-house dispensary allows patients to leave their clinic visits with at least a 30-day supply of medication, purchasing medications for the dispensary was our SRFC's largest expenditure. Nevertheless, the total medication expenditure may still be lower than that of a smaller dispensary due to economies of scale; EAB purchases its medications through the university's medical system, allowing for the clinic to pay the same price for medication that the larger health system pays. Other SRFCs have demonstrated success in utilizing pharmaceutical patient assistance programs to increase patients' access to expensive medications.¹⁰ Increased utilization of such assistance programs was shown to have an overall increase in cost-savings¹¹. Recognizing both the importance of providing free medications and the task of minimizing clinic expenditures in a resource-limited setting, our

future directions will include analyzing ways to reduce clinic expenditure on medications. Potential avenues include partnering with social work teams and surveying options in connecting patients with patient assistance programs to increase patients' access to newer, more expensive medications that neither the clinic nor patients can afford.

With a total financial impact of greater than \$157,370 in no-cost health care services in one calendar year, our SRFC provided a vital source of free services to uninsured and under-insured patients in the surrounding community. For institutions with SRFCs, we hope to provide a framework to evaluate their own cost-saving analysis by using a nationally validated system of Medicare reimbursement rates. For institutions without SRFCs in place, our analysis serves as a 1-year metric of the economical and health impact that can be used for to advocate for funding and partnerships in their own communities. This would contribute to creating a more equitable healthcare system while optimizing resource allocation and maximizing community impact in a financially sustainable practice.

It is important to note that this analysis is impacted by limitations related to the calculation of additional services provided by our SRFC. The calculated financial impact is likely an underestimation of the true financial impact as assigning financial value of services such as social work, care coordination, and educational activities may vary. In addition, our SRFC provides educational opportunities to trainees including but not limited to undergraduate students, medical students, pharmacy students, and optometry students. The benefit-cost ratio of educational value compared to operational costs has been reported as high as 8.13.¹² It is also difficult to estimate how much additional healthcare spending was avoided due to reductions in emergency department use, as our SRFC provides both preventive care and a place for patients to present for an acute complaint. Furthermore, dermatologic procedures at other SRFCs have previously been shown to provide over \$4,000 in free services annually¹³, and we believe that varying procedural documentation practices may have undervalued our dermatology clinic's financial impact. Furthermore, other SRFCs aiming to replicate this analysis may notice discrepancies due to inflationary or regional cost variations further limiting the comparability.

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Disclosures

The authors have no conflicts of interest to disclose.

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