

Uninsured With Diabetes: How Student-Run Free Medical Clinics Are Filling the Gap

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Two million American adults <65 years of age are reported to have diabetes and no health insurance coverage, a situation with significant public health and economic ramifications (1). Compared to their insured counterparts, uninsured people with diabetes have 60% fewer physician office visits, are prescribed 52% fewer medications, and have 168% more emergency department visits (2).

Role of Student-Run Free Medical Clinics

Within this context, student-run free medical clinics have emerged as a valuable component of the health care safety net for this patient population. Among the Association of American Medical Colleges' member institutions, 106 student-run free clinics (at 75.2% of institutions) have been identified, a number that has more than doubled in the past 10 years (3). More than half of medical students were reported to be involved in these clinics, with diabetes and hypertension being the most commonly treated diseases (3).

MedZou Community Health Clinic Model

The University of Missouri School of Medicine's MedZou Community Health Clinic, located in Columbia, Mo., is a student-run clinic that provides comprehensive primary and specialty care to patients with chronic diseases, while also offering a learning environment promoting patient advocacy and interdisciplinary care.

In Missouri, an alarming 10.8% of the state population has no health insurance and, with the state's lack of Medicaid expansion, MedZou remains one of few options for uninsured individuals to access health care (4). With the mission to provide high-quality, patient-centered care for uninsured residents of Central Missouri, MedZou has seen >1,700 patients since its opening in 2008 and cares for patients spanning 33 zip codes across the state.

The clinic offers both a weekly primary care clinic and monthly specialty clinics, operating with 98% student involvement from the School of Medicine. MedZou relies on the volunteer hours of first- through fourth-year medical students, as well as resident and attending physicians in family medicine, endocrinology, ophthalmology, dermatology, physical medicine and rehabilitation, neurology, and psychiatry. Preclinical medical students make up the majority of the clinic's leadership, with students serving as clinic directors and leading pharmacy and preventive health services, an electronic medical records team, and more. With the goal of providing patients with free to low-cost medications, the pharmacy team works with the University of Missouri pharmacy and pharmaceutical companies' patient assistance programs. MedZou also offers its patients a range of preventive services, including HIV/AIDS testing, influenza vaccines, and smoking cessation counseling. Additionally, the clinic has an out-

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reach program, through which health screening and referral events are organized at local homeless shelters, domestic violence shelters, LGBTQ advocacy centers, and other community partners. In addition to medical students, students in nursing, social work, pharmacy, health management and informatics, and dietetics are integrated into many of MedZou's services, promoting both comprehensive patient care and an interprofessional learning environment. MedZou similarly collaborates with an integrated behavioral health clinic that offers counseling, community resource coordination, psychotherapy, and support groups to its patients.

Diabetes Case Management Program

Specific to diabetes management, MedZou offers a diabetes specialty clinic, which brings together both endocrinologists and ophthalmologists to make MedZou a "one-stop shop" for patients with diabetes. Additionally, dietitians and dietetics students offer individualized counseling and cooking classes adapted to the patient population's dietary and financial needs. The diabetes clinic uniquely operates with a case management program, providing each patient with an assigned preclinical medical student each year. Responsibilities of medical student case managers include coordinating patients' care by attending all appointments, providing patient education, answering questions between appointments, and calling 1 week in advance to remind patients of upcoming appointments. In addition, diabetes case managers may help their patients navigate the health care system outside of the clin-

ic, such as coordinating applications for disability benefits, helping to obtain pharmaceuticals and medical devices, and attending other health care appointments.

Notably, MedZou's diabetes case management program has been demonstrated to significantly improve patient adherence regarding appointments. Given MedZou's high rate of no-show and canceled appointments, the diabetes case management program aims to increase the rate of kept appointments by improving continuity of care. Diabetes case management patients receive reminder phone calls 1 week before appointments from their individualized case managers, whereas general clinic patients receive reminder calls from patient liaisons, with whom they have no existing relationship. Examinations of data on MedZou appointments ($n = 3,801$) collected between January 2014 and December 2016 from the clinic's scheduling database and physical charts showed that diabetes case management patients attend a larger percentage of appointments compared to the general clinic population (63 vs. 52.9%, $P < 0.0001$). In addition, the data showed that patients with diabetes case managers have significantly higher appointment adherence (defined as attending, rescheduling, or canceling appointments) compared to general clinic patients (73.8 vs. 62.6%, $P < 0.0001$).

Conclusion

These findings highlight the value of student-run free clinics and the strong continuity of care that a case management program can provide for a patient population that remains especially vulnerable to diabetes in today's

dynamic health care landscape. With the success of MedZou's chronic care model, the clinic may serve as an example for developing future student-run clinics, as medical students strive to improve health outcomes for disadvantaged patients with diabetes across the United States. Ultimately, in an era of costly health care and limited access, MedZou's impact speaks to the importance of recognizing the role of student-run clinics in addressing the public health issues of uninsured Americans with diabetes.

Duality of Interest

No potential conflicts of interest relevant to this article were reported.

Author Contributions

M.L.A. wrote the manuscript. K.M.L. researched data and wrote the manuscript. N.A.L. reviewed the manuscript and served as K.M.L.'s research mentor. N.A.L. is the guarantor of this work and, as such, had full access to all the data reported and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Previous Presentation

The data reported here were previously presented as a poster at a Health Sciences Research Day at the University of Missouri School of Medicine.

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