

The Safety Net's Safety Net: Understanding the Crucial Role of Free Clinics in Cardiovascular Care

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Free clinics are overlooked but important components of the United States' safety-net health care system. Unlike traditional safety-net hospitals and clinics, free clinics are predominantly volunteer run and rely on inconsistent funding streams, including time-limited grants and community-based donations. Despite these challenges, free clinics are tasked with addressing both upstream and downstream determinants of chronic disease care.

Meanwhile, the clinical and economic burdens of cardiovascular disease continue to be staggering, despite significant therapeutic advancements in acute and chronic care management. There are ongoing disparities affecting access to appropriate care at the appropriate time, and recent literature underlines the fundamental concept that addressing patients' social needs directly impacts cardiovascular disease outcomes.

The purpose of this commentary is threefold: to briefly describe current disparities in

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cardiovascular care, to discuss the role of free clinics in addressing social determinants of cardiovascular disease, and to highlight one free clinic's approach to comprehensive chronic disease management.

further outlined the importance of addressing SDoH for patients with heart failure. This call to action encouraged working towards a better understanding of the impact of SDoH, emphasizing data collection, implementing interpro-

Free clinics are currently an underrepresented component of the health care safety net and have great potential for future cardiovascular research – especially quality improvement interventions.

Social Determinants of Cardiovascular Disease

Social determinants of health (SDoH) are the conditions in which people are born, grow, work, live, and age and the wider set of forces and systems shaping the conditions of daily life.¹ These factors are often the primary drivers of the tangible social needs faced by patients, such as housing, food, and education.

SDoH directly affect health outcomes; roughly 80% of health outcomes are attributed to factors beyond direct clinical care.² To this end, numerous professional groups and societies have published statements regarding social needs screening, intervention, and financing. In 2015, the American Heart Association (AHA) proposed the consideration of SDoH to improve population-level cardiovascular health and reduce associated deaths.³ An updated 2020 Scientific Statement released by the AHA

professional care teams to bolster cross-sector navigation, and conducting research aimed at addressing SDoH.³

Cardiovascular disease is a leading cause of morbidity and mortality in the US, with roughly 1 in every 5 deaths attributed to heart disease. Modifiable risk factors for developing cardiovascular disease include hypertension, hyperlipidemia, diabetes, and other lifestyle factors. Significant disparities exist within the population distribution regarding control of these risk factors; this is directly affected by access to preventive cardiovascular care. Recent data suggest that housing insecurity,⁴ lower socioeconomic status, and being Black⁵ are associated with a greater risk of both developing cardiovascular disease and poorer clinical outcomes.

Uncontrolled hypertension is a leading risk factor for cardiovascular disease development. Certain social factors, including living environ-

ment, supportive relationships, and access to quality education and health care, continue to drive the disparity in clinical outcomes among patients with hypertension. For example, an increased risk of hypertension among individuals with low socioeconomic status has been described,⁶ with decreased access to health care associated with poorer blood pressure control.⁷ Moreover, racial/ethnic variations become apparent; nearly 32% of non-Hispanic White adults with hypertension have well-controlled blood pressure compared to 25% of both non-Hispanic Black adults and Hispanic adults.⁸ The presence of these disparities necessitates an in-depth look into drivers of cardiovascular disease outcomes in underserved populations.

Free Clinics in the US – A Safety Net for the Safety Net

There are roughly 1400 free and charitable clinics in the US tasked with providing care for over 30 million uninsured individuals.⁹ Despite low operating budgets—most commonly less than \$500,000 per year—free clinics are charged with providing quality care to uninsured or underinsured patients. These clinics fill a significant gap in care for the uninsured by providing medications to manage acute and chronic diseases, as well as subsequent disease monitoring.⁹ Historically, free clinics offer chronic disease management and primary care for the nation's most underserved patients; however, challenges with funding, staffing, and overall research infrastructure challenge the critical evaluation and dissemination of free clinic interventions.

Emphasizing Research and Community to Improve Cardiovascular Care

Opportunities to improve cardiovascular care should begin with the most vulnerable patients. Patients enrolled in large, practice-changing randomized clinical trials often fail to represent the collective diversity of patients seen in safety-net health care settings.¹⁰ Coupled with the burden of adverse social needs in underserved populations, a discrepancy exists in the ability to generalize findings from large clinical trials to the cardiovascular care of patients receiving care at free clinics. In contrast to traditional research

studies that often do not engage underserved communities, quality improvement (QI) methodologies can assess disease disparities through root cause analysis, revealing many patient-level SDoH factors and nonmedical barriers to care. Previous QI initiatives have revealed SDoH factors, such as lack of transportation, lack of social support, and self-management strategies, as causes for poor blood pressure control among patients seen in safety-net clinics.¹¹ Given limited staffing and resources in free clinics, QI can highlight care gaps and provide streamlined workflows that integrate SDoH screenings into clinic visits, thereby providing clinicians important information on the real-life social burdens that affect cardiovascular disease risk—information that is vital to help modify and reduce cardiovascular disease risk in this population.

The Centers for Disease Control and Prevention and the Community Preventive Services Task Force both support team-based approaches to cardiovascular care.¹² Embracing “ancillary” professionals has shown benefit in addressing determinants of cardiovascular outcomes beyond medications and procedures. Community health workers (CHW) or front-line public health professionals who have a deep understanding of the communities they serve, have proven beneficial in hypertension management of ethnic minority populations.¹³ Interventions by CHW also show a reduction in emergency department visits and subsequent hospital admissions in patients with heart failure.¹⁴ While free clinics are well positioned for community-based interventions, time-limited grants, staffing, and program assessment infrastructure represent barriers to initiation.

Case Example - St. Clare Health Mission

St Clare Health Mission (SCHM) is a volunteer-run free clinic located in La Crosse, Wisconsin. Founded in 1993 by a local Catholic nun, the clinic initially served as a screening clinic for incoming Hmong refugees. In 1997, SCHM broadened its scope to include addressing the general health needs of area low-income, uninsured individuals. This change prompted a significant increase in patient numbers, costs, and disease complexity. Through buy-in from local health systems and relationships with commu-

nity-based organizations, SCHM continues to play an integral role in the care of underserved community members.

The passage of the Affordable Care Act¹⁵ in 2010 ensured access to health insurance for millions of Americans. Despite the state of Wisconsin opting against Medicaid expansion, a significant proportion of SCHM's patient population then was able to receive care from one of two nearby health systems. The resultant decrease in the number of patients prompted a shift in strategy to include community-minded, population-level interventions. To this end, SCHM invested its resources into establishing a CHW program, developing a Community Pathways HUB, and establishing a mobile medical clinic aimed at providing care where patients live, work, and play.

SCHM also identified two specific disease processes that disproportionately affected its patient population: type 2 diabetes and hypertension. After the initiation of simple QI measures aimed at standardizing diabetes care with input from physicians, nurses, clinic management, and community health workers, SCHM saw significant improvement in A1c and appropriate prescribing practices. Additionally, SCHM recently sought to characterize the burden of adverse social needs in patients with hypertension and found significant transportation and food insecurity; these findings will guide further QI interventions.

Conclusions

Effective, equitable cardiovascular care involves clinics, hospitals, and extension into the community. Free clinics are uniquely positioned to impact the most vulnerable patients in the most meaningful way, despite staffing and budget constraints. As highlighted above, free clinics are currently an underrepresented component of the health care safety net and have great potential for future cardiovascular research—especially quality improvement interventions.

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References continued on page 4

reaction: effects on hepatic ethanol metabolism and brain monoamines. *Int J Toxicol.* 2007;26(5):423-432.

3. Daws LC, Montañez S, Munn JL, et al. Ethanol inhibits clearance of brain serotonin by a serotonin transporter-independent mechanism. *J Neurosci.* 2006;26(24):6431-6438. doi:10.1523/JNEUROSCI.4050-05.2006

4. Velez LI, Shepherd G, Roth BA, Benitez FL. Serotonin syndrome with elevated paroxetine concentrations. *Ann Pharmacother.* 2004;38(2):269-272. doi:10.1345/aph.1D352

5. Radomski JW, Dursun SM, Reveley MA, Kutcher SP. An exploratory approach to the serotonin syndrome: an update of clinical phenomenology and revised diagnostic criteria. *Med Hypoth.* 2000;55(3):218-224. doi:10.1054/mehy.2000.1047

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Leprosy in the Upper Midwest: Vigilance Needed for Contacts

Dear Editor,

A case report by Bach et al has brought to attention a case of leprosy in the upper Midwest.¹ Several critical points need emphasis for the management of the patient's contacts and to prevent future complications for the patient. Specifically, the possibility of administering a single dose of rifampicin² or rifapentine³ to the patient's contacts should be explored, as the patient is classified with borderline lepromatous leprosy, which carries a higher risk of transmission due to high bacillary loads.

It is imperative to conduct physical examinations of all the patient's contacts and provide them with a single dose of rifampicin or rifapentine as a preventive measure. A contact is defined as an individual who has had significant, prolonged exposure to a leprosy patient, such as living in close proximity for at least 20 hours per week over a 3-month period annually. This would typically include family members, neighbors, friends, classmates, and coworkers.

The World Health Organization's single-dose

rifampicin recommendations are based on age and weight. For individuals 15 years and older weighing around 60 kg, the prescribed dose is 600 mg; for those aged 10-14 years, it is 450 mg; for those aged 6 to 9 years weighing 20 kg or more, it is 300 mg; and for children aged 2 years or older weighing less than 20 kg, the dose is calculated at 10-15 mg/kg.

It should be further emphasized that this patient is at a significant risk of developing erythema nodosum leprosum, which is a type 2 reaction, due to the abundant presence of bacilli. It is recommended to manage such cases with steroids, especially considering the neural involvement, but it should be done cautiously due to the associated decreased visual acuity and the increased risk that steroids present. If severe reactions with systemic involvement are not controlled by steroids and methotrexate, thalidomide may be considered as an alternative treatment.⁴ The initial dose of thalidomide is 100 mg 3 times daily, with subsequent dose reduction as appropriate.

—Pugazhenthan Thangaraju, MD, Sajitha Venkatesan, MD

REFERENCES

1. Bach K, Hinshaw MA, Shields BE. Leprosy in the upper Midwest. *WMJ.* 2023;122(3):205-207. PMID:37494653.
2. Wang L, Wang H, Yan L, et al. Single-dose rifapentine in household contacts of patients with leprosy. *N Engl J Med.* 2023;388(20):1843-1852. doi:10.1056/NEJMoa2205487. PMID: 37195940.
3. Scollard DM. A new step in postexposure prophylaxis for leprosy. *N Engl J Med.* 2023;388(20):1904-1905. doi:10.1056/NEJMe2302667.
4. Thangaraju P, Venkatesan S, Gurunthalingam M, Babu S, T T. Rationale use of Thalidomide in erythema nodosum leprosum - a non-systematic critical analysis of published case reports. *Rev Soc Bras Med Trop.* 2020;53:e20190454. doi:10.1590/0037-8682-0454-2019

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REFERENCES

1. World Health Organization. Social determinants of health. Accessed April 5, 2023. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1
2. County Health Rankings & Roadmaps, University of Wisconsin Population Health Institute. County Health Rankings model. Accessed April 5, 2023. <https://www.countyhealthrankings.org/explore-health-rankings/county-health-rankings-model>
3. Powell-Wiley TM, Baumer Y, Baah FO, et al. Social determinants of cardiovascular disease. *Circ Res.* 2022;130:782-799. doi:10.1161/CIRCRESAHA.121.319811
4. Brandt E, Tobb K, Cambron J, et al. Assessing and addressing social determinants of cardiovascular health. *J Am Coll Cardiol.* 2023;81(14):1368-1385. doi:10.1016/j.jacc.2023.01.042
5. Carnethon MR, Pu J, Howard G, et al. Cardiovascular health in African Americans: a scientific statement from the American Heart Association. *Circulation.* 2017;136(21):e393-e423. doi:10.1161/cir.0000000000000534
6. Leng B, Jin Y, Li G, et al. Socioeconomic status and hypertension: a meta-analysis. *J Hypertens.* 2015;33(2):221-229. doi:10.1097/HJH.0000000000000428
7. Gu A, Yue Y, Desai RP, et al. Racial and ethnic differences in antihypertensive medication use and blood pressure control among US adults with hypertension: the National Health and Nutrition Examination Survey, 2003 to 2012. *Circ Cardiovasc Qual Outcomes.* 2017;10(1):e003166. doi:10.1161/CIRCOUTCOMES.116.003166
8. Aggarwal R, Chiu N, Wadhwa RK, et al. Racial/ethnic disparities in hypertension prevalence,

awareness, treatment, and control in the United States, 2013 to 2018. *Hypertension.* 2021;78(6):1719-1726. doi:10.1161/hypertensionaha.121.17570

9. National Association of Free & Charitable Clinics. National Association of Free & Charitable Clinics. Accessed April 5, 2023. <https://nafcclinics.org>

10. Ortega RF, Yancy CW, Mehran R, et al. Overcoming lack of diversity in cardiovascular clinical trials. *Circulation.* 2019;140(21):1690-1692. doi:10.1161/circulationaha.119.041728

11. Pasha M, Brewer LC, Sennhauser S, et al. Health care delivery interventions for hypertension management in underserved populations in the United States: a systematic review. *Hypertension.* 2021;78(4):955-965. doi:10.1161/hypertensionaha.120.15946

12. Centers for Disease Control and Prevention. Team-based care to improve blood pressure control. Updated November 10, 2022. Accessed April 5, 2023. <https://www.cdc.gov/dhdsp/pubs/team-based-care.htm>

13. Brownstein JN, Chowdhury FM, Norris SL, et al. Effectiveness of community health workers in the care of people with hypertension. *American J Prev Med.* 2007;32(5):435-447. doi:10.1016/j.amepre.2007.01.011

14. Vohra AS, Chua RFM, Besser SA, et al. Community health workers reduce rehospitalizations and emergency department visits for low-socioeconomic urban patients with heart failure. *Crit Pathw Cardiol.* 2020;19(3):139-145. doi:10.1097/HPC.0000000000000220.

15. Patient Protection and Affordable Care Act, HR 3590, 111th Congress (2010). Accessed February 1, 2024. <https://www.congress.gov/bill/111th-congress/house-bill/3590>

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