Research Prioritization Topic Brief

Topic 5: “Heart attacks among racial and ethnic minorities”

Compare the effectiveness of health center interventions to enhance the "Million Hearts" program and reduce major vascular events among the economically disadvantaged, including racial and ethnic minorities and rural populations.

PCORI Scientific Program Area: Addressing Health Disparities

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Introduction
In 2011, the US Department of Health and Human Services launched the Million Hearts Initiative to prevent one million heart attacks and strokes by 2017. The goal is to reduce the number of people who need treatment and also to improve care for those who get treatment. To achieve this goal, the initiative aligns programs, policies, and campaigns targeting patients, providers, and communities. Community strategies may include interventions focused on tobacco use prevention or reducing sodium in foods. Clinical strategies focus specifically on promoting the “ABCS” of clinical prevention (appropriate Aspirin therapy, Blood pressure control, Cholesterol management, and Smoking cessation).

The ABCS strategies have been proven to reduce death and disease burden from heart disease. Innovative approaches to clinical care include using teams to coordinate and improve the quality of patient care and using health information technology to measure and improve ABCS.1,3 For this brief, “health centers” include healthcare institutions, such as hospitals, clinics, health maintenance organizations, and community health centers, where organizational-level interventions can be developed to implement the initiative.

Burden on Society
Heart disease is currently the leading cause of death in the United States.4 Heart disease is part of a group of diseases called cardiovascular disease (CVD) that involves plaque buildup in the blood vessels supplying the heart. Strokes are related to cerebrovascular disease, which affects blood vessels in the
brain. In 2006, the overall annual CVD death rate (per 100,000) was 262.5. Death rates were highest for African American males (422.8) compared to white males (306.6), African American females (298.2), and white females (215.5).  

The number of CVD cases and death rates for residents of rural areas are higher compared to those in urban areas of the United States, particularly for African American women. Racial disparities in rural areas are amplified by factors such as limited access to quality healthcare services, socioeconomic burden, dwindling resources, underdeveloped health infrastructure, and lack of transportation. Over the past several decades, the risk of death from heart attack in the United States has fallen by 50%, but this condition remains a major issue, especially for low-income individuals and racial and ethnic minorities. In spite of these successes, less than half of the patients who could benefit from these clinical interventions receive adequate treatment. Extending these treatments to those not receiving them could prevent as many as 100,000 deaths a year. Strokes are a major source of adult disability, and both heart disease and stroke can negatively affect quality of life. The financial costs to society are extremely high, with total costs estimated at $312.6 billion in 2009, which includes healthcare expenses and lost productivity. Overall societal burden will likely increase as the number of affected people is expected to rise as the United States population ages. By 2030, over 40% of US adults, or 116 million people, are projected to have some form of CVD.  

Options for Addressing the Issue
We do not know of any studies that address all components of the Million Hearts Initiative and long-term outcomes such as heart attacks, strokes, or CVD-related deaths. The Million Hearts Initiative is new, and its collective approach has not been evaluated. Therefore, this brief focuses on systematic reviews and randomized controlled trials (RCTs) examining components of the Million Hearts Initiative (e.g., organizational-level CVD prevention strategies to reduce risk for high blood pressure; smoking; increasing prescribed cholesterol or blood pressure treatments). We use the term “mixed evidence” when some studies have positive outcomes and some show no effect, and we use “limited evidence” when there are relatively few studies.  

Mixed evidence for blood pressure reduction strategies. There is mixed evidence that organizational-level interventions improve high blood pressure control. A Cochrane review of nine RCTs found that appointment reminders by mail, phone, or computer increased follow-up appointment attendance but had inconsistent effects on controlling blood pressure. A large trial, the Hypertension Detection and Follow-Up Program, found that a systematic program to increase high blood pressure medication use at clinics significantly reduced blood pressure and five-year mortality from all causes by 17% compared to a group receiving usual care. The Community Preventive Services Task Force found strong evidence from 77 studies to support multidisciplinary team–based care to improve the quality of patient care for high blood pressure. A team-based approach involves patients, primary care providers, and other healthcare professionals, such as nurses, pharmacists, dietitians, social workers, or community health workers that cooperatively manage medications, follow up with patients, and provide education and self-management support. A subset of the reviewed articles focused on low-income populations and showed mixed results in blood pressure outcomes in three studies for low-income groups and improved blood pressure outcomes in 11 studies of low-income, public insurance (Medicaid/Medicare), or no insurance groups.
Mixed evidence for interventions to quit smoking. There is mixed evidence on whether interventions in health centers to help people quit smoking are effective for low-income and minority groups. Intervention outcomes and measures were not comparable across all studies. For example, some studies investigated self-reporting of smoking status, while others examined frequency of provider-based counseling or referrals. Among women receiving maternal and child health services at health centers, there is mixed evidence that they could maintain their ability to avoid smoking following pregnancy. Of three studies, one found no difference in smoking quit rates, but there was a significant increase in smoking cessation medication use after one year; one found decreased smoking at two and six months post intervention, and one found decreased smoking in African American and white study participants, but not in Hispanic participants.

Mixed evidence for interventions to increase medication use. Aspirin, statins, and other medications can reduce heart attacks and strokes in those at high risk, but there is mixed evidence on the effectiveness of health center interventions to increase medication use. An observational study by Kaiser Permanente found that its CVD prevention program increased first prescriptions for at least one of three recommended CVD medications (aspirin, statins, or ACE inhibitors) among 1,125 community clinic patients in Southern California and 1,120 patients in Northern California. A longitudinal study found increased adherence to guidelines published by the American Heart Association for aspirin and beta blocker use among hospitalized coronary artery disease patients. A retrospective review of 499 medical records found that Denver Health’s team-based program increased use of a four-drug regimen (aspirin, statins, beta blockers, and ACE inhibitors) among hospitalized patients from 18% in 1998–1999 to 72% in 2002. Another trial found that automated telephone reminders to purchase prescriptions significantly increased statin use (42.3% vs. 26% for controls). Tailored interventions, such as interactive voice recognition calls and mailed guides, increased statin use, while computerized decision aids and mailed reminders increased aspirin use. Adding a flag to a registry database for high-risk patients intensified blood pressure and cholesterol medication use at three months, but these differences disappeared after six months.

Limited and mixed evidence for community health center settings. There is limited and somewhat mixed evidence showing that federally funded community health centers (CHC) are effective environments for CVD prevention interventions. A trial with African American patients diagnosed with heart disease, type 2 diabetes, high cholesterol, or high blood pressure compared a risk reduction program led by a nurse practitioner or community health worker with a usual care group. After a year, the intervention group significantly improved total cholesterol levels, low-density lipoprotein (LDL) cholesterol, and systolic and diastolic blood pressure. A second trial with African American patients from primary care practices showed no significant blood pressure changes, but the intervention group showed higher rates of medication compliance. A third study was an evaluation of a federal collaborative program in 44 CHCs intended to reduce health disparities, which showed little effect on changing racial/ethnic disparities in quality of care measures for high blood pressure. There was limited information on interventions in CHCs in rural settings. A trial of a telehealth educational program compared to usual care in three rural health centers primarily targeting African Americans with diabetes (sample size of 165 individuals), found that the 85 participants in the program had lower LDL cholesterol levels after 12 months.
Potential for New Information to Improve Care and Patient-Centered Outcomes Rapidly

Bundled interventions can improve cardiovascular outcomes at multiple levels. Although these interventions are not novel, the focus on these specific items as a “bundle” of interventions is new. These bundled interventions require systems for identifying provider teams and eligible patients, including health information systems such as disease registries, resources for provider training, and new policies and procedures in health centers. They may also require changes to established provider communication patterns and feedback mechanisms within health centers. Assessing the organizational context of the practice or clinic will be important to determine factors that facilitate or discourage successful adoption of the interventions, including cost implications.

To better understand the impact of health center interventions on racial/ethnic, economic, and rural CVD disparities, more comparative effectiveness studies that include multiple health systems with bundled interventions targeted specifically to address these disparities and use short- and long-term clinical outcomes are needed. Dissemination and implementation studies could help assess where to allocate resources to have the greatest effect on reducing CVD disparities. Many clinics will likely be implementing components of the Million Hearts Initiative, and assessing the comprehensiveness of the interventions is an important evaluation design issue. Due to the limited number of large-scale CVD prevention studies involving multiple health center systems with attention to enrolling low-income, minority, and rural participants, information gained from this type of design would remain relevant for several years.
References


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