Cardiovascular disease (CVD), including heart disease and stroke, is the leading cause of death in Baltimore. Approximately 2,000 people die each year in the city due to cardiovascular disease; these deaths strike inequitably, with African Americans suffering disproportionately. Health disparities from CVD are a key factor in the racial discrepancy in life expectancy in Baltimore City: African-American men die 6.7 years earlier and African-American women die 4.2 years earlier, than white men and white women.

CVD is also a leading cause of the 6-year gap in life expectancy between the City and the state of Maryland and a key reason for the 20-year difference in life expectancy between the wealthiest and poorest neighborhoods in Baltimore City. Furthermore, significant suffering from CVD precedes many deaths and can be prevented.

When compared to cardiovascular death rates across Maryland among African Americans and Whites, rates for Baltimore City residents by race are significantly higher than in the rest of the state and the nation. Disparities, though, may appear less severe than in other locales, only due to the poor health outcomes of many low-income White Baltimore City residents.

Compounding these disparities are differences in access to health care. African Americans in Baltimore are twice as likely to report they could not afford to see a doctor in the past year compared to Whites.

Improving the cardiovascular health of African Americans in Baltimore City requires a multi-dimensional approach. The poor cardiovascular health outcomes that African Americans experience in Baltimore is not a sudden phenomenon that is one-dimensional in its root causes. The current situation has taken generations to evolve, and many different factors have influenced the disparities that exist.

Numerous initiatives have been implemented in the city with varying results. The major drawback of many of these has been their limited scope and the isolated nature of their implementation. Prevention and outreach efforts must be coordinated with treatment programs; programs targeting individuals must consider the physical and social environmental context in which these individuals live, and long-term changes in public policy must be considered in light of the current inequities that perpetuate health disparities. Most of all, however, all of this must be seen as part of a comprehensive plan and not as stand-alone strategies.
Sensitivity. Deficiencies in these key micronutrients are often further exacerbated when patients' diets don't include adequate amounts of fresh fruits and vegetables, good sources of these same micronutrients.

Taking these factors into account, and being mindful of the challenges to follow healthy dietary practices in low-income, underserved environments, Project 3 is a clinical trial intended to identify best strategies to gain blood pressure lowering effects and reverse micronutrient deficiencies in hypertensive African-American adults. This study will compare a dietitian-delivered intervention (tailored to neighborhood stores used by individual participants), to self-directed dietary advice and to the consumption of a mineral supplement (containing potassium, magnesium and vitamin C). The study will take place at East Baltimore Medical Center. A total of 180 African American patients with controlled hypertension will participate in the study. The Research Team will work with “Baltimarket,” the Baltimore City Health Department’s Virtual Supermarket, to provide access to fresh fruits and vegetables to randomized participants for the duration of the study.

Elevated blood pressure, as has been noted elsewhere in this newsletter, is an extraordinarily common and important risk factor for cardiovascular disease and stroke, especially among African American adults. Thiazide diuretics, widely used anti-hypertensive medications for African Americans, while effective in reducing hypertension, are also known to contribute to the loss of some key micronutrients (namely potassium, magnesium and vitamin C) that might otherwise help to lower blood pressure. Even moderate potassium deficiencies are associated with increased blood pressure and salt sensitivity. Deficiencies in these key micronutrients are often further exacerbated when patients’ diets don't include adequate amounts of fresh fruits and vegetables, good sources of these same micronutrients.

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Patient, Family, Community Study  

L. Ebony Boulware, MD, MPH

The goal of this study is to develop and rigorously test the effectiveness of an intervention that simultaneously engages patient, family and community-level strengths to improve African American hypertensive patients’ blood pressure by enhancing their sustained performance of hypertension self-management behaviors. We are conducting the study at East Baltimore Medical Center (EBMC) in Baltimore.

Using principles of community-based participatory research, we are developing a patient-centered intervention to address predisposing factors that pose barriers to patients’ performance of self-management behaviors. The intervention will:

1. Enable patients’ self-management behaviors by providing patients skills in self-management and problem-solving to help them overcome barriers to self-management behaviors.
2. Reinforce patients’ self-management behaviors by training family members in self-management and problem-solving and by encouraging families to support and reinforce patients’ self-management behaviors. Likewise, community health workers who are integrated into the clinical team at EBMC will reinforce patients’ self-management and problem-solving skills and enable barrier resolution by providing patients with access and information regarding readily available community resources.

“...We are developing patient-centered interventions to address predisposing factors.”

Our activities to date have focused on performing an environmental assessment using the Practical, Robust Implementation and Sustainability Model (PRISM) to inform development of the intervention:

- System and Provider Assessments: We are conducting directed interviews and focus groups of health care funders, clinical administrators, and health care providers at East Baltimore Medical Center (EBMC) to inform development of our intervention and identify factors that will increase the likelihood that it will be feasible and sustainable over the long term.
- Patient and Family Assessments: We are conducting focus groups with patients who have controlled and uncontrolled high blood pressure to identify their self-identified barriers and facilitators to blood pressure care.
- Community Involvement: We have engaged several community stakeholders in our research team, including patients, civic leaders, and health care providers.

Training Update  

Sherita Hill Golden, MD, MHS

One of the primary achievements of the Training Core during its initial year has been the establishment of a monthly seminar series in collaboration with three other health disparities centers on campus: the Center to Eliminate Cancer Disparities, the Center for Excellence in Cardiovascular Health, and the Center for Health Disparities Solutions. The seminars occur on the second Monday of the month at noon, and among the presenters in the fall are Secretary of Health and Mental Hygiene Dr. Josh Sharfstein, and Dr. David Williams from the Harvard School of Public Health.

The Center’s Training Core awarded three fellowships during its first year:

- Brooke Cunningham, MD, is a postdoctoral fellow in Internal Medicine who is mentored by Dr. Lisa Cooper. Brooke is focusing her work on Clinical Quality Improvement, cultural competency and their impact on blood pressure management.
- Tam Nguyen, RN, is seeking her PhD from the School of Nursing. Tam is studying hypertension health literacy among Vietnamese Americans and is being mentored by Dr. Miyong Kim.

- Tanjala Purnell, MPH, is being mentored Dr. Ebony Boulware and is a doctoral student at the Bloomberg School of Public Health. Her fellowship focuses on CVD Risk Factors among NHANES participants who would be potential organ donors.

The Training Core is currently planning for its second year of implementation, which will see an expanse in scope. Along with a new group of pre-doctoral and post-doctoral fellows, the Core is preparing to announce its first faculty awards in cardiovascular health disparities this summer.

Additionally, a six-week summer program is being established for undergraduate students majoring in health-related disciplines. The current curriculum plans are that undergraduate trainees will participate in six weekly rotations, including ones at a local health department, a clinical site, and a federally qualified health center.

Finally, the Center is initiating a summer program for health profession students. Students will work within one of the Center’s projects to learn about participant recruitment, data collection, intervention strategies, and data analysis. The summer program for the undergraduates and the health profession students is scheduled to begin on June 20th.
The Hopkins Center to Eliminate Cardiovascular Health Disparities is one of 10 NIH-funded Centers for Population Health and Health Disparities. The Hopkins Center’s mission is to improve health and eliminate cardiovascular health disparities among Baltimoreans through innovations in research and training, clinical practice, and patient/community education. The Center includes 23 faculty from the Schools of Medicine, Nursing, and Public Health, who are working in collaboration with Johns Hopkins Community Physicians and focusing initially on improving control of hypertension in African Americans, who are disproportionately affected. A 30-member advisory board composed of community members representing patients, faith-based and community-based organizations, neighborhood associations, historically black colleges, practicing clinicians, and local public health agencies, helps guide the Center to achieve its research, training and dissemination objectives.

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