

## ORIGINAL RESEARCH &amp; CONTRIBUTIONS

## Population Care Management and Team-Based Approach to Reduce Racial Disparities among African Americans/Blacks with Hypertension

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Perm J 2016 Winter;20(1):53-59

<http://dx.doi.org/10.7812/TPP/15-052>

## ABSTRACT

**Objectives:** At Kaiser Permanente, national Equitable Care Health Outcomes (ECHO) Reports with a baseline measurement of 16 Healthcare Effectiveness Data and Information Set measures stratified by race and ethnicity showed a disparity of 8.1 percentage points in blood pressure (BP) control rates between African-American/black (black) and white members. The aims of this study were to describe a population care management team-based approach to improve BP control for large populations and to explain how a culturally tailored, patient-centered approach can address this racial disparity.

**Methods:** These strategies were implemented through: 1) physician-led educational programs on treatment intensification, medication adherence, and consistent use of clinical practice guidelines; 2) building strong care teams by defining individual roles and responsibilities in hypertension management; 3) redesign of the care delivery system to expand access; and 4) programs on culturally tailored communication tools and self-management.

**Results:** At a physician practice level where 65% of patients with hypertension were black, BP control rates (< 140/90 mmHg) for blacks improved from 76.6% to 81.4%, and control rates for whites increased from 82.9% to 84.2%. The racial gap narrowed from 6.3% to 2.8%. As these successful practices continue to spread throughout the program, the health disparity gap in BP control has decreased by 50%, from 8.1% to 3.9%.

**Conclusion:** A sustainable program to collect self-reported race, ethnicity, and language preference data integrated with successful population care management programs provided the foundation for addressing health disparities. Cultural tailoring of a multilevel team-based approach closed the gap for blacks with hypertension.

## INTRODUCTION

Nearly 67 million adults in the US (30.4%) have hypertension, and less than half (46.5%) have their hypertension controlled.<sup>1</sup> The American Heart Association projects that the direct medical costs for hypertension will increase from \$69.9 billion in 2010 to \$200.3 billion in 2030.<sup>2</sup> With rising health care costs and an aging population, it is critical to identify opportunities to improve hypertension outcomes.

Differences in hypertension prevalence and hypertension control by race and Hispanic ethnicity are reasons to focus our attention on reducing disparities in hypertension control.

According to the National Health and Nutrition Examination Survey 2011-2012, the prevalence of hypertension was highest among non-Hispanic African-American/black (black) adults (42.1%), compared with non-Hispanic white (28.0%), Hispanic (26.0%), and

non-Hispanic Asian adults (24.7%).<sup>3</sup>

The rate of controlled hypertension, defined as blood pressure (BP) less than 140/90 mmHg, was highest for non-Hispanic white adults (53.9%), compared with non-Hispanic black (49.5%), Hispanic (46.5%), and non-Hispanic Asian (46.0%) adults with hypertension.<sup>3</sup> In the National Health and Nutrition Examination Survey 2009-2010, disparities in hypertension control by race/ethnicity were larger, with the rate for non-Hispanic white adults (56.3%) significantly higher than the rates for non-Hispanic black (47.9%) and Hispanic (40.7%) adults.<sup>4</sup> Compared with white Americans, black Americans receive a diagnosis of high BP earlier in life and their average BP levels are higher. As a result, black Americans have a “1.3-times greater rate of non-fatal stroke, a 1.8-times greater rate of fatal stroke, a 1.5-times greater rate of death attributable to heart disease, and a 4.2-times greater rate of end-stage kidney disease.”<sup>5</sup>

A review of the evidence on practice-based approaches to improve BP control focused on studies in African Americans.<sup>6</sup> The authors concluded that emphasis should be on patient education, including culturally appropriate storytelling, home BP monitoring, behavioral counseling, computerized clinical decision support systems, and a team-based approach to BP control, even though “studies that have shown positive results did not focus specifically on African Americans.”<sup>6</sup>

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In this article, we describe a population care management and team-based approach, using cultural tailoring to address disparities in hypertension control. Strategies were implemented in an integrated health care delivery system, and we will report results for the period 2011 to 2014. According to the policy activities that constitute research at Kaiser Permanente (KP), this work met criteria for operational improvement activities exempt from ethics review.

### Addressing Disparities in Hypertension Control

Founded in 1945, KP is one of the nation's largest not-for-profit, integrated health care delivery systems, caring for 10.1 million members in 8 states and the District of Columbia. Care for members and patients is focused on their total health and guided by personal physicians, specialists, and a team of caregivers.<sup>7</sup> The organization has long focused on the use of evidence-based guidelines<sup>8</sup> and performance metrics to implement models of care to improve health care quality, service, and access. For example, elements of the KP Northern California hypertension program included the development of an evidence-based guideline for initial therapy, treatment intensification, and performance reports for each Medical Center as well as a comprehensive hypertension registry, medical assistant visits for BP measurement, and single-pill combination pharmacotherapy.<sup>9</sup>

KP is committed to being a leader in eliminating health and health care disparities. In 2009, national and regional equitable care reports with 16 Healthcare Effectiveness Data and Information Set (HEDIS)<sup>10</sup> measures, stratified by race and ethnicity, were developed to help quality leaders throughout KP initiate strategies and programs to reduce disparities.<sup>11</sup> At that point, we had self-reported race and ethnicity data in our electronic health record for 31% of members. As of December 31, 2014, we have self-reported race and ethnicity for more than 86% of members. Analyses of disparities are made possible by the KP Geographically

Enriched Socio-demographics (GEMS) datamart, which provides member-level reported and imputed race/ethnicity and population demographic data. The imputed race/ethnicity probability distribution for every member with a geocodable address is produced using the Bayesian Improved Surname and Geocoding method (developed by researchers at the RAND Corporation, Santa Monica, CA).

National quality leaders began the implementation of the Equitable Care Health Outcomes (ECHO) Program in 2010. One of the first priorities was to address the disparity in hypertension control for black members. Performance measurement was based on administrative data for all members eligible for inclusion in the HEDIS Controlling High Blood Pressure measure, not random samples of eligible members. The measure is the percentage of adults aged 18 to 85 years with a diagnosis of hypertension whose BP was adequately controlled (< 140/90 mmHg) during the measurement year. For the baseline measurement period ending December 31, 2009, the rate for white members was 78.4% (n = 487,421) and the rate for black members was 70.3% (n = 147,425); the difference in rates was 8.1 percentage points.<sup>11</sup>

The Southern California Region has 3.7 million members.<sup>7</sup> As of October 2014, a total of 729,301 members were identified in the regional hypertension registry, of which 13.7% self-report as black or African American.<sup>12</sup> Health information technologies, such as electronic health records, patient disease registries, and population health tools, have been used effectively for many years in the Region and have the potential to be used as tools to address racial and ethnic disparities in health care.<sup>13</sup>

The Permanente Online Interactive Network Tool (POINT) gives real-time and actionable measures on performance for members in various registries of patients with chronic conditions. In collaboration with KP's Care Management Institute, regional leaders and clinical and subject matter experts in disease management developed the Hypertension Population Care Management

Program, by building on the principles of the Chronic Care Model. This model aims to improve functional and clinical outcomes through collaborative work between empowered individuals and proactive health care teams prepared to provide education, care coordination, and coaching.<sup>14</sup>

Using this model, the Institute for Healthcare Improvement developed and tested a new reliable care delivery design that encourages every patient to have a plan for his/her care. They called for changes in 4 key elements of the service delivery system: the care team, patient activation, clinical information system, and leadership.<sup>15</sup> The KP Care Management Institute and the 21st Century Care Innovation Project adopted various components of these models and developed concepts of planned care and panel management.<sup>16,17</sup>

At the Riverside service area in Southern California, the concept was implemented in 2003 within the ambulatory practice setting through Pro-Active Health Management's health care team concept (Figure 1).<sup>18,19</sup> The goal was to provide an integrated, systematic approach to population management in the primary care setting.<sup>20</sup> The redesign of the care delivery system established physician-led health care teams<sup>21</sup> with clearly defined roles and responsibilities to maximize the care they are able to provide by the scope of practice.<sup>22</sup> The team used practical decision support tools in the electronic health record and population management registries to identify gaps in care and coordinate interventions for preventive screening and the management of chronic conditions.<sup>18</sup> The model included risk stratification of populations, and through panel management, members of the health care team provided the necessary intervention. The model became the foundation for the Patient-Centered Medical Home<sup>23</sup> and was shared widely throughout the enterprise in 2007 through the spread of effective practices and regional collaboration.<sup>24</sup> The successful program was expanded to develop the Proactive Office Encounter and the Complete Care Program in the Southern California Region.<sup>25</sup>

### Addressing Disparities at the Local Level

Gardena Medical Offices is a group practice in Southern California with 21 primary care physicians. Of the 9058 Gardena members in the hypertension registry in February 2014, approximately 65.0% were black (n = 5887) and 10.3% were white (n = 939) according to self-reported race and ethnicity data. The prevalence of hypertension for black members was higher than that for white members (43.9% vs 34.8%, respectively).<sup>12</sup>

Baseline measurement of hypertension control indicated that black members in the hypertension registry had the lowest control rate, compared with other racial and ethnic groups. In June 2011, the percentage of members in the hypertension registry with a BP below 140/90 mmHg was 76.6% for blacks compared with 82.9% for whites, a gap of 6.3 percentage points.<sup>12</sup>

To eliminate health disparities, Gardena Medical Offices strengthened the model of care by integrating culturally tailored communication tools to build trust and improve culturally responsive care. Promoting cross-cultural awareness among clinicians and staff created ongoing, continuous healing relationships between the patients, their primary care physicians, and the health care team.

### METHODS

#### Key Implementation Strategies

Leadership support and engagement of key stakeholders have presented major challenges in bringing strategies to reduce health care disparities into mainstream quality programs.<sup>26</sup> Senior leaders in KP have determined that “diversity and inclusion” should be intertwined with the organizational strategy, mission, and goals. The commitment to eliminate disparities and create equity was communicated to regional and area leaders.

For many years, physician and administrative leaders at Gardena Medical Offices have been implementing the KP regional and national recommendations to improve overall hypertension control rates, but the demographic composition of the membership at the facility presented unique challenges. The first step to strengthening hypertension care management was to implement clinician and staff educational programs, an effective strategy to improve BP control.<sup>27,28</sup> Physician champions focused on academic detailing related to treatment intensification, medication adherence, and the consistent use of the evidence-based adult hypertension clinical practice guidelines.<sup>8</sup>

Treatment intensification for hypertension occurs when clinicians initiate and intensify therapy for patients with elevated BP. Treatment intensification has been linked to improved BP control; it is accomplished through clinician-patient communication and addresses patients’ experience of the process of care, including perception of discrimination.<sup>29</sup>

Evidence-based adult hypertension clinical practice guidelines were widely disseminated and implemented at Gardena Medical Offices. The guidelines are appropriate for all ages, races, and ethnicities, and are inclusive for both diabetes and chronic kidney disease Stages 1 through 3. Treatment guidelines include maximizing thiazide to hydrochlorothiazide, 50 mg, or chlorthalidone, 25 mg, in patients with uncontrolled hypertension. Treatment intensification required maximizing lisinopril/hydrochlorothiazide by prescribing 2 tablets of 20 mg and 25 mg, respectively, together in the morning. Spironolactone is the preferred fourth drug for patients with uncontrolled BP receiving thiazide who fulfill the candidacy requirements because low-dose spironolactone provides significant BP reduction in black patients and in white patients with resistant hypertension.<sup>30</sup> Also included in the treatment guidelines is sodium restriction of 2400 mg/day.<sup>31</sup>

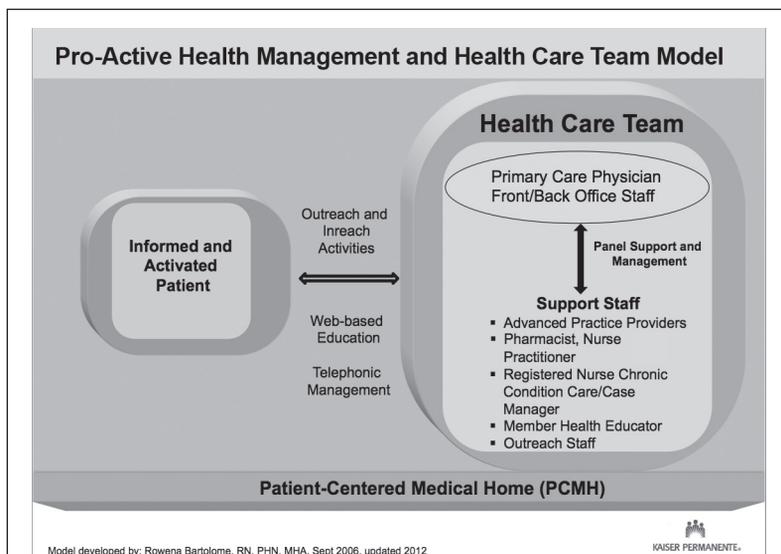


Figure 1. Pro-Active Health Management and Health Care Team Model.<sup>1</sup>

1. Bartolome R. Equitable Care Health Outcomes: ECHO. ECHO toolkit. Hypertension management for African Americans [Internet]. Oakland, CA: Kaiser Permanente; 2012 [cited 2015 DEC 24]. Available from: <https://wiki.kp.org/wiki/download/attachments/181409536/ECHO+Toolkit+020813+v7.pdf?version=3&modificationDate=1406054044814>.

### Building Stronger Health Care Teams

The creation of high-functioning primary care teams with nonphysician team members providing clinical interventions needed by patients provides answers to the growing burden of chronic disease management.<sup>32</sup> Team-based care using clinicians such as nurses, pharmacists, and physician assistants has the greatest impact on improving BP control when they function at the highest level of their scope of practice.<sup>33</sup> In addition to registered nurses (RNs) and advanced practice providers (APPs), Gardena Medical Offices included medical assistants and licensed vocational nurses (LVNs) and defined their roles and responsibilities in hypertension management. Educational programs include team-building activities to improve staff motivation and engagement. Physicians and the team members developed team

agreements on the process for timely follow-up of patients with elevated BP. Physician-level performance metrics were published, and high-performing teams were rewarded and recognized for improved outcomes.

### Redesign of Health Care Delivery System

Evidence suggests that redesigning work processes to support primary care practices can increase the capacity to care for a growing number of patients with chronic conditions.<sup>34</sup> Nurse-led interventions provided beyond the physician office visit expand patient access to care and provide patient-centered, culturally tailored approaches.<sup>35</sup>

Gardena Medical Offices developed systems of care delivery to maximize the role of health care team members in hypertension follow-up and patient education. Training was provided to ensure productive interactions<sup>34</sup> that emphasized patient education strategies on lifestyle modification, self-management, and behavior change. Care delivery systems included the following:

1. *Medical Assistants/Licensed Vocational Nurses Two-Week Blood Pressure Follow-Up Program*: During primary care visits, physicians initiate or intensify medications for patients with elevated BP. Patients are automatically scheduled for a two-week follow-up with a medical assistant or LVN for a BP recheck, and primary care physicians provide real-time adjustment of medications as appropriate. Staff was trained on proper techniques for BP measurements, and the importance of recording second BPs was included in the workflow to ensure accuracy that BP readings were accurate.
2. *Hypertension Group Appointments and Blood Pressure Clinics*: Group appointments for 40 to 50 patients who had uncontrolled BP or had no recorded BP reading within the year are scheduled weekly for a BP clinic. Medical assistants or LVNs perform BP measurements and provide member education materials. Clinical pharmacists or physicians perform medication

titration as needed. Patients are then scheduled for follow-up BP checks with the medical assistant or LVN.

3. *Hypertension Patient Education and Medication Adjustment Using Approved Protocols for Registered Nurses*: According to scope of practice guidelines, RNs perform medication titrations using approved hypertension protocols for RNs and they provide patient education on self-management and lifestyle modification. Research indicates that nurses working with primary care physicians and hypertension specialists are effective in reducing systolic BP.<sup>36</sup>
4. *“Hypertension Doctor” Program*: Physicians are available by pager to provide timely intervention for medication management and intensification for patients with uncontrolled BP seen at Gardena’s Patient Assessment Center. The “Hypertension Doctor” is also available during the medical assistant/LVN BP clinics and provides further mentoring and guidance to RNs.

### Building Trust among Blacks through Culturally Tailored Communication Models

The Tuskegee syphilis study has become a symbol of government racism, and for many blacks it is difficult to trust the health care system.<sup>37</sup> Among individuals in the community, trust in one’s personal physician is associated with utilization of preventive services.<sup>38</sup> Perceptions of racism and mistrust can be addressed by gaining cultural competence, which includes an awareness of racism and the result of cultural mistrust in interpersonal relationships.<sup>39,40</sup> Several studies have shown that when physicians and other health care team members are culturally competent and exhibit behavior and attitudes that recognize the patients’ culture and health beliefs, patient-centered communications improve and patients gain trust even in the absence of race concordance.<sup>41,42</sup> Physician-patient relationships built on trust promote adherence to the established care plan and improve both health outcomes and patient satisfaction.<sup>43</sup>

In an effort to promote awareness of black culture and improve

communication and build trust among physicians and patients, national program leaders from ECHO conducted an extensive literature review and used evidence-based research to develop culturally tailored communication guides to improve patient satisfaction and service. The communication guides provided techniques and examples of the ways in which culture and health beliefs of blacks can be integrated into daily patient interactions such as office visits, group appointments, and telephone encounters.

The Four Habits for Provider and Staff Patient Communication Model<sup>44,45</sup> emphasizes the vital skills of listening and demonstrating empathy by investing in the beginning, eliciting the patient’s perspective, demonstrating empathy, and investing in the end. This communication model has been widely disseminated and used within the organization to improve service. More recently, the evidence-based AIDET communication model, which includes five steps in a communication framework (Acknowledge, Introduce, Duration, Explanation, and Thank you), was also introduced as an effective model. The five steps help to decrease patient anxiety and to build trust and increase compliance, resulting in improved health outcomes and patient satisfaction.

At Gardena Medical Offices, the culturally tailored guide “Building Trusting Relationships with African American Members/Patients: Using AIDET and Other Communication Models” was implemented to enhance current service improvement programs such as the “Appointment with Success, a clinician-patient communication course designed to assess individual practice behaviors and improve communications with challenging patients.” For practices familiar with the Four Habits Communication Model, the “Building Trusting Relationships with African American Members/Patients: Four Habits Practice Tool” was incorporated into physician-led training programs. The training aims to increase staff awareness of the African-American culture and barriers that patients may face in managing their chronic conditions.

... the importance of engaging the community by implementing community-based activities, which provided patient education on hypertension and self-management.

**Patient-Centered Education and Community Involvement**

Studies have shown that organization-level interventions incorporating the organization and the community can improve health care outcomes.<sup>35</sup> The leadership team recognized the importance of engaging the community by implementing community-based activities, which provided patient education on hypertension and self-management. A total of 1296 black patients were targeted for an outreach campaign to participate in the “DASH [Dietary Approaches to Stop Hypertension] to a Healthy Heart Community Event.” The event included cooking demonstrations by a celebrity chef, BP screening, and medication management by volunteer staff members. Physicians and other members of the health care team provided patient education on smoking cessation, exercise, weight reduction, and medication adherence. Nutrition guidelines for a low-sodium (DASH) diet were included in cooking demonstrations. Follow-up appointments were scheduled with a medical assistant or LVN in the BP Clinic.

**RESULTS**

Gardena Medical Offices used the health care team approach to strengthen programs for hypertension management and integrated culturally tailored communication tools and medication management specific to blacks. From June 2011 to February 2014, the overall BP control rate (< 140/90 mmHg) for all members in the hypertension registry increased from 77.0% to 81.9% (Figure 2). The hypertension control rate for white members increased from 82.9% to 84.2%, whereas the rate for black members increased from 76.6% to 81.4% (Figure 2). The difference between the rates for white and black patients was statistically significant in both June 2011 and February 2014, but the white-black gap narrowed from 6.3% to 2.8% (Figure 2).

Furthermore, physician-led educational programs on using culturally tailored communication guides showed improvements in other HEDIS process of care measures related to chronic conditions, prevention, and screening.

Since 2011, the national ECHO staff has worked to spread best practices and interventions implemented at Gardena Medical Offices through national conferences, equity summits, regional symposia, and national collaborative virtual meetings. The National ECHO

Toolkit, a detailed description of program components and key strategies for closing the disparity for blacks with hypertension, was widely distributed and published in the national ECHO Web site. As successful practices continue to spread, the disparity in hypertension

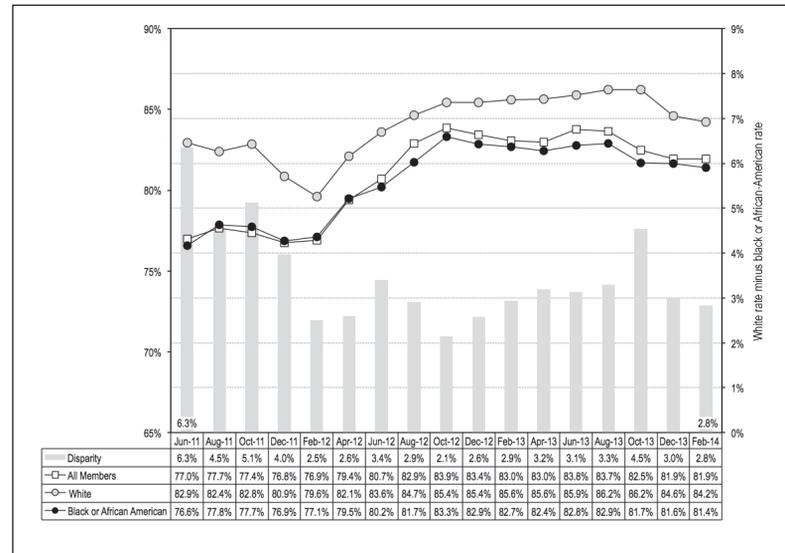


Figure 2. Hypertension control for Gardena Medical Offices.<sup>1</sup>

Percentage of members in hypertension registry with blood pressure below 140/90 mmHg (left x-axis) and disparity between control rates for white and black members (bars), June 2011 through February 2014.

1. Tran-Nguyen J. POINT (Permanente Online Interactive Network Tool) Hypertension Disparity Report (unpublished). Pasadena, CA: Kaiser Permanente Southern California Region Hypertension Team and Pharmacy Analytical Services, 2014. Internal document available on request.

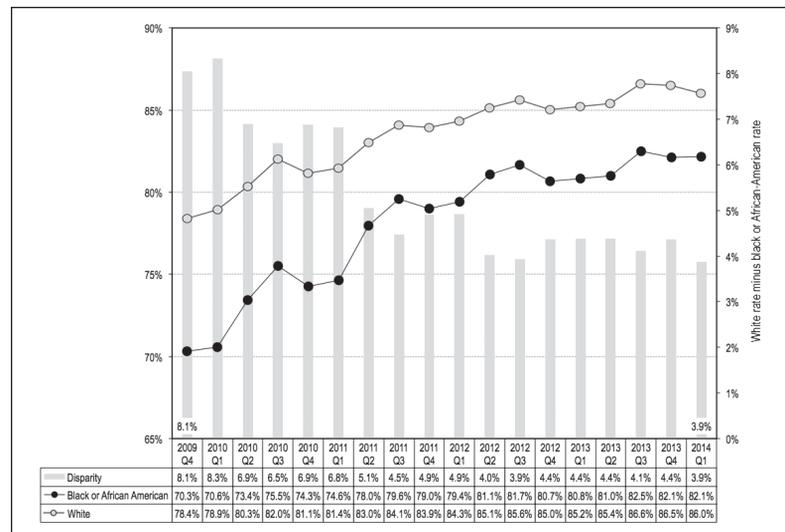


Figure 3. Hypertension control for Kaiser Permanente programwide.<sup>1</sup>

Percentage of members in hypertension registry with blood pressure below 140/90 mmHg (left x-axis) and disparity between control rates for white and black members (bars), 2009 Quarter (Q) 4 through 2014 Q1.

1. Platt ST. Kaiser Permanente Programwide Quarterly ECHO (Equitable Care Health Outcomes) Report (unpublished). Oakland, CA: Center for Healthcare Analytics, Hospitals, Quality and Care Delivery Excellence; 2014.

control rates has decreased across regions. Between December 31, 2009, and March 31, 2014, the programwide BP control rate for black members rose from 70.3% to 82.1%, whereas the rate for white members increased from 78.4% to 86.0%. The white-black disparity in hypertension control rates was statistically significant in both December 2009 and March 2014, but the gap has decreased 50%, from 8.1 to 3.9 percentage points (Figure 3).

In the context of a multifaceted hypertension program designed to improve outcomes for all members, this study describes how the model of care was strengthened by clinician- and patient-focused interventions of trust building and increased competence in culturally responsive care. The study is observational, and the relative contribution of individual interventions and best practices could not be quantified. Furthermore, we did not account for social determinants of health that may contribute to health disparities by race and ethnicity.

## DISCUSSION

Reducing the health disparities gap among blacks with hypertension requires a multilevel approach using effective population management strategies. Leadership vision, focus, and commitment to improve BP control are essential to support quality and performance improvement programs. A systemic plan on redesign of the health care delivery system includes strengthening Pro-Active Health Management's health care team concept by defining key roles and responsibilities in hypertension management and implementing physician-led educational programs to improve adherence to evidence-based clinical practice guidelines, treatment intensification, medication adherence, and patient education on self-management and behavior modification.

The absence of reliable socioeconomic data and the collection of self-reported race/ethnicity data have been a major challenge to implementing programs that address disparities in health care quality.<sup>26</sup> A sustainable program to collect self-reported race, ethnicity, and

language preference data integrated with successful quality and care management programs provides the foundation for developing strategies to promote equitable care and to address health disparities. Meaningful use of health information technology includes the development of population management registries and decision-support tools for clinicians and staff at the point of service. It is necessary to integrate race and ethnicity data into these tools to identify target populations and implement culturally tailored interventions for each population.

Furthermore, educational programs for the health care team on culturally responsive care are vital to increase awareness and to address cultural barriers. Culturally tailored communication tools are useful to build trust and to elicit patient engagement. Physicians as leaders of the health care teams can effectively lead by example as they model the concept in their daily practice.

## CONCLUSION

Lessons learned in addressing health disparities for blacks with hypertension provide a framework for implementing health disparities programs for other chronic conditions, such as diabetes and other cardiovascular conditions. The culturally tailored communication guides have now been developed to better understand the cultural needs of a growing number of Hispanic individuals. Effective communication skills to build trust and promote connections in addition to successful population management strategies of a health care team are sustainable programs to close and possibly eliminate health care disparities. ❖

### Disclosure Statement

*The author(s) have no conflicts of interest to disclose.*

### Acknowledgment

*We would like to acknowledge the leaders and sponsors from Kaiser Permanente South Bay and Riverside Service Areas, Southern California Region, and the Department of Hospitals, Quality and Care Delivery Excellence, National Functions. Special thanks to Anthonia Chugbo, MSN, RN-BC.*

*Kathleen Loudon, ELS, of Loudon Health Communications provided editorial assistance.*

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## Preserve Health

Since, both in importance and in time, health precedes disease, so we ought to consider first how health may be preserved, and then how one may best cure disease.

— Galen of Pergamum, c130 - c200 AD, Roman physician, surgeon, and philosopher of Greek origin