

Research Article

# Baseline characteristics of African Americans in the Systolic Blood Pressure Intervention Trial



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## Abstract

The Systolic Blood Pressure Intervention Trial (SPRINT) will compare treatment to a systolic blood pressure goal of <120 mm Hg to treatment to the currently recommended goal of <140 mm Hg for effects on incident cardiovascular, renal, and neurologic outcomes including cognitive decline. The objectives of this analysis are to compare baseline characteristics of African American (AA) and non-AA SPRINT participants and explore factors associated with uncontrolled blood pressure (BP) by race. SPRINT enrolled 9361 hypertensive participants aged older than 50 years. This cross-sectional analysis examines sociodemographics, baseline characteristics, and study measures among AAs compared with non-AAs. AAs made up 31% of participants. AAs (compared with non-AAs) were younger and less frequently male, had less education, and were more likely uninsured or covered by Medicaid. In addition, AAs scored lower on the cognitive screening test when compared with non-AAs. Multivariate logistic regression analysis found BP control rates to <140/90 mm Hg were higher for AAs who

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were male, had higher number of chronic diseases, were on diuretic treatment, and had better medication adherence. SPRINT is well poised to examine the effects of systolic blood pressure targets on clinical outcomes as well as predictors influencing BP control in AAs. *J Am Soc Hypertens* 2015;9(9):670–679. © 2015 American Society of Hypertension. All rights reserved. *Keywords:* Cardiovascular disease; blacks; clinical trials; hypertension; SPRINT.

## Introduction

Hypertension remains an important public health concern that affects millions in the United States.<sup>1,2</sup> The prevalence of hypertension among US adults is 29.1% and is estimated to affect 68 million individuals.<sup>1</sup> Hypertension is more prevalent in African Americans (AAs) (42.1%) than non-AAs (28.0%).<sup>1</sup> Moreover, hypertension in AAs begins earlier, is more severe, and more frequently associated with premature morbidity and mortality from its complications including coronary heart disease, heart failure (HF), stroke, and end-stage renal disease.<sup>2–6</sup> Racial/ethnic disparities in hypertension and related outcomes continue to pose immense challenges for affected individuals and the health care system.

## Background

Substantial data are available on the treatment and management of hypertension, with marked improvement in recent years in blood pressure (BP) control rates, including incorporation in several guidelines.<sup>3,5,7–14</sup> Despite recommendations on prescription of antihypertensive therapies, achieving BP control remains problematic and data on optimal BP targets remain controversial.<sup>1,2,6</sup> The 2011–2012 National Health and Examination Survey III data suggested that 76% of US adults with hypertension were taking antihypertensives, with a higher percentage of AAs (79.7%) than European Americans (76.6%).<sup>1</sup> Despite antihypertensive treatment, nearly 50% of US adults with hypertension were not controlled to the currently recommended target of <140/90 mm Hg.<sup>1,4,6</sup> Among treated hypertensive AAs, 49.5% achieved BP control compared with 53.9% of European Americans.<sup>1</sup>

Several large-scale clinical trials demonstrated that lowering BP using antihypertensive agents reduces the risk of cardiovascular morbidity and mortality, including in AAs.<sup>6,15–18</sup> However, findings have been reported to differ by racial/ethnic groups, and AAs were often underrepresented in clinical trials.<sup>18,19</sup> Some have advocated for lower BP targets and lower thresholds for initiating BP medications for AAs compared with the rest of the population.<sup>20</sup> Clinical outcome trial data examining antihypertensive therapies and their ability to lower risk of cardiovascular morbidity and mortality, especially in AAs, are desperately needed. In addition, detailed description of the AA cohort in large multiethnic studies is often lost in the description of the larger study population.

Systolic Blood Pressure Intervention Trial (SPRINT) successfully recruited a large cohort of ethnically diverse

participants, including a large number of AAs.<sup>21</sup> This manuscript expands on information presented in the SPRINT baseline article by providing a more detailed description of the data by race and compares baseline characteristics of AA participants to non-AAs in this cohort.<sup>21</sup> The major objectives of this manuscript are

1. Provide a detailed description of the baseline characteristics of AAs in the SPRINT.
2. Compare the baseline characteristics of AA and non-AA participants within SPRINT.
3. Explore factors associated with poor BP control (>140/90 mm Hg) at study entry among AAs and non-AAs.

## Methods

### Design

The design and rationale of SPRINT have been reported previously and are summarized briefly.<sup>21</sup> SPRINT is a two-armed, multicenter, randomized, open label, clinical trial designed to test whether a strategy to treat systolic blood pressure (SBP) to <120 mm Hg will reduce cardiovascular disease (CVD) outcomes among nondiabetic hypertensive participants compared with treating to the currently recommended SBP target of <140 mm Hg. In addition, the SPRINT Memory and cognition IN Decreased hypertension (SPRINT MIND) substudy will test whether the lower SBP goal influences the rate of incident dementia and mild cognitive impairment, global and domain-specific cognitive function, and cerebral small vessel ischemic disease. Analysis by race (AAs vs. non-AAs) is prespecified in the protocol.

The primary end point is incident CVD events defined by the first onstudy occurrence of a myocardial infarction, acute coronary syndrome, stroke, HF, or CVD death. Secondary outcomes include all-cause mortality,  $\geq 50\%$  decline in kidney function (from baseline estimated glomerular filtration rate [eGFR]) or development of end-stage renal disease among participants with baseline eGFR 20–59 mL/min/1.73 m<sup>2</sup>, dementia, decline in cognitive function, and small vessel cerebral ischemic disease on magnetic resonance imaging.<sup>21</sup>

### Study Population

Participants are men and women aged  $\geq 50$  years with SBP between 130 and 180 mm Hg on 0–4 antihypertensive medications with at least one additional CVD risk factor. The SPRINT recruitment target was 9250, including

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