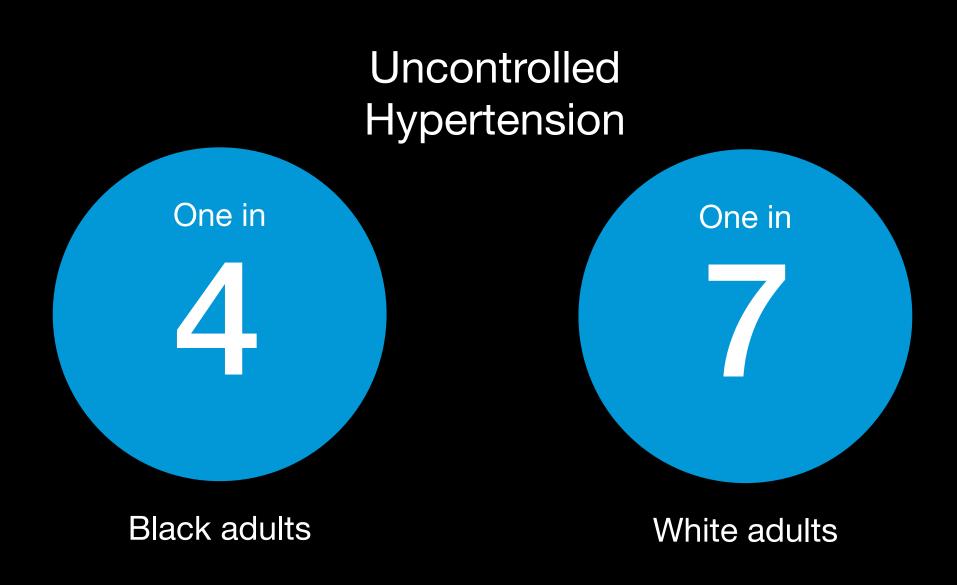
# Social Determinants in Hypertension Control

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### **Blood Pressure Control**

Improved BP control can save more lives on a population basis than any other clinical intervention



#### VIEWPOINT

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+Multimedia +Supplemental content

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vices launched the Million Hearts initiative. led by the Centers for Disease Control and Prevention (CDC) and Centers for Medicare & Medicaid Services (CMS) with participation from a wide range of federal agencies, state governments, clinical consortia, community and professional organizations, and other partners. The goal of the initiative was to prevent 1 million myocardial infarctions and strokes over 5 years.<sup>1</sup>

In 2011, the US Department of Health and Human Ser-

National Initiatives to Prevent Myocardial Infarction and Stroke

To achieve this goal, community-wide preventive interventions were to reduce tobacco use and sodium consumption and eliminate artificial *trans* fats from the food supply. In clinical care, the initiative focused on improving the "ABCS": aspirin use, blood pressure control, cholesterol management, and smoking cessation treatment. A second phase. Million Hearts 2022, aims to reduce tobacco use, sodium intake, and physical inactivity by 20%; achieve 80% performance on the ABCS and 70% participation in cardiac rehabilitation: and focus on priority populations.

Specific funding for the Million Hearts Initiative was approximately \$4 million annually starting in the second year of the first phase from 2012 to 2016, plus \$490 million from 2012-2018 for an antitobacco educational campaign known as "Tips From Former Smokers." and \$6.7 million plus administrative and evaluation costs for a CMS assessment of a prevention model. Although direct funding other than for anti-tobacco ads was modest, the major initiatives required political rather than financial capital, and there was strong commitment at the launch and in follow-up, with support from multiple agencies, including CDC, CMS, the Food and Drug Administration (FDA), the Health Resources and Services Administration, and others.

Over the 5 years from 2012-2016, projections were that there would be more than 10 million myocardial infarctions and strokes in the US, and that a 10% reduction (ie, preventing 1 million cardiovascular events) was possible. Although the Million Hearts initiative has been estimated to have helped prevent 135 000 cardiovascular events and saved an estimated \$5.6 billion in averted direct medical costs related to cardiovascular disease from 2012 to 2016, the initiative missed its target.<sup>2</sup> In 2011, the age-standardized rate of cardiovascular events per 100 000 population was 1304 among men and 1048 among women: in 2016 there were 1339 cardiovascular events per 100 000 men and 1014 per 100 000 women.<sup>2</sup>

Million Hearts. After increasing from 31.8% in 1999rate of cardiovascular deaths, which had resulted in most worsening trend in blood pressure control. of the US life expectancy increase over the previous 40 years, stalled and the rate began to increase.

The Biden-Harris administration has an opportunity to learn lessons from past efforts and ensure success. There is an urgent need to address cardiovascular disease because it is the leading cause of premature death, a leading contributor to changes in life expectancy, the leading cause of Black-White disparities in health, and represents one of the most expensive health conditions in the US.<sup>4</sup> Nearly 1 of 4 Black adults aged 18 years or older has uncontrolled hypertension, compared with the still-concerning but much lower proportion of 1 in 7 White adults aged 18 years or older with uncontrolled hypertension. Improvement in cardiovascular health can strengthen population resilience to infectious diseases, including COVID-19 and future health threats. Much of what is needed could be led by the Biden-Harris administration and implemented by departments and agencies of the executive branch of government (eTable in the Supplement).

Opinior

Failure to implement interventions with the great est potential to reduce cardiovascular disease at the popu lation level-tobacco control and sodium reduction-has been related to political issues: the past 2 administrations have encountered competing priorities, industry opposition, and court challenges. Moving forward, the FDA has the authority to implement 2 prevention interventions that could each save millions of lives: regulating nicotine in combustible tobacco products to nonaddictive levels<sup>5</sup> and taking actions to reduce sodium intake, including setting mandatory targets for sodium reduction in packaged and prepared foods.<sup>6</sup> Together, these measures could reduce cardiovascular morbidity and mortality substantially. Administrative action to reduce exposure to fine particulate matter, reduce alcohol consumption, improve nutrition, and promote physical activity could further improve cardiovascular health.

In addition to interventions at the population level, improving clinical management of hypertension is critical. Reasons for lack of progress in hypertension control are not fully understood; changes to clinical systems will need to be implemented quickly and assessed rigorously. Blood pressure control decreased while health insurance coverage increased. Nearly 90% of those with uncontrolled hypertension have insurance, which suggests that health care system performance rather than insurance is a more important underlying reason for the failure to improve hypertension control rates. Factors such as competing demands Because improved blood pressure control can on the health care system, weak incentives for prevention. save more lives on a population basis than any other clini- and confusion about optimal blood pressure treatment cal intervention, this was the primary clinical focus of goals may have contributed. Although obesity has been suggested as a contributing factor, the decrease in blood 2000 to 53.8% in 2013-2014, blood pressure control pressure control occurred in just a few years, after years decreased to 43.7% in 2017-2018.<sup>3</sup> Several years after of improvement, suggesting that obesity, which increased Million Hearts launched, the decades-long decline in the steadily for many years, is not the primary reason for the

> Despite the decrease in blood pressure control nationally, many clinical systems have shown that it is

> > JAMA April 13, 2021 Volume 325, Number 14 1391

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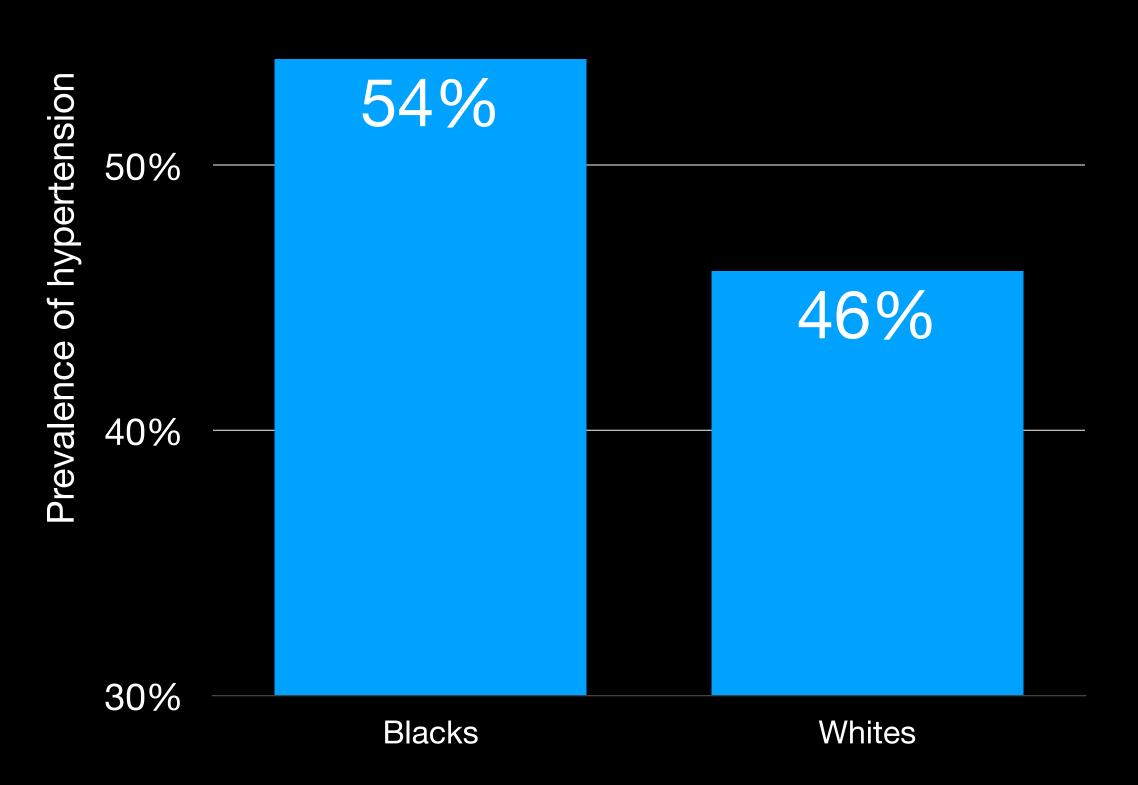
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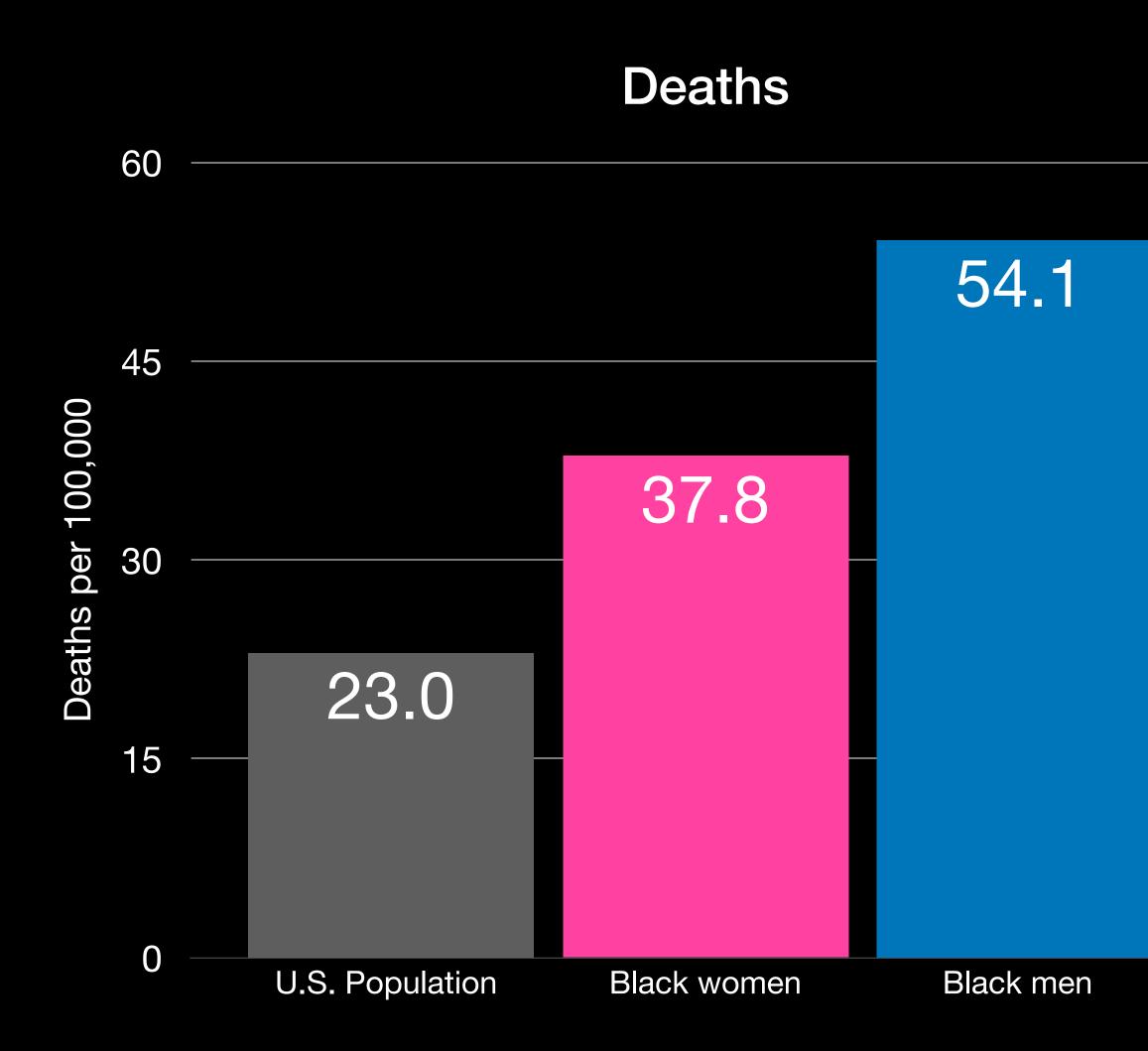
### **Distribution of Hypertension**



60%

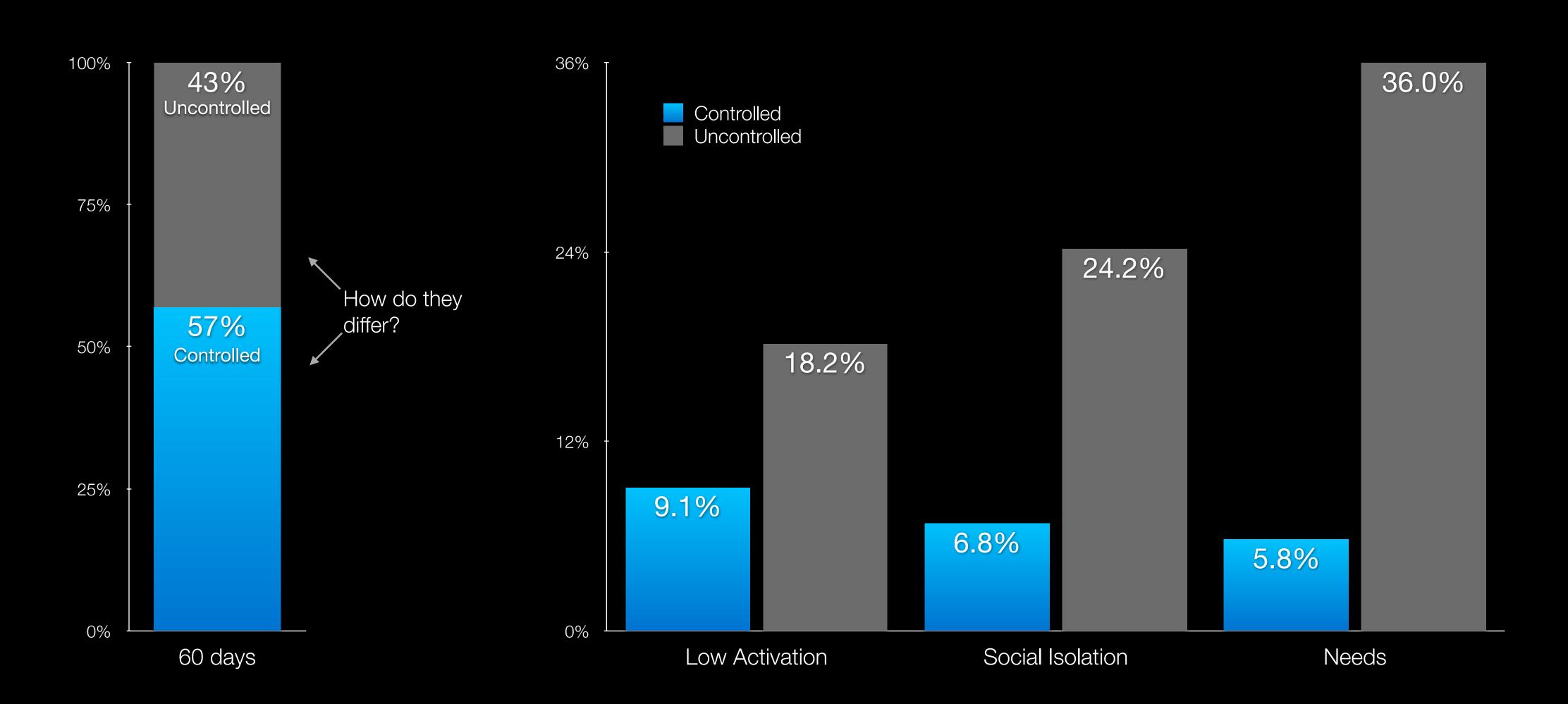


Yoon SS, et al. NCHS Data Brief 2015;220. Deere BP, Ferdinand KC. Cur Opin Cardiol 2020;35:342-350.





### Social & Behavioral Factors in Hypertension Control



## Health Barriers

#### **Health literacy**

Only 12% of U.S. adults have a proficient state of health literacy; 14% below basic proficiency. Associated with more frequent hospitalizations, higher healthcare costs, and poor health outcomes.

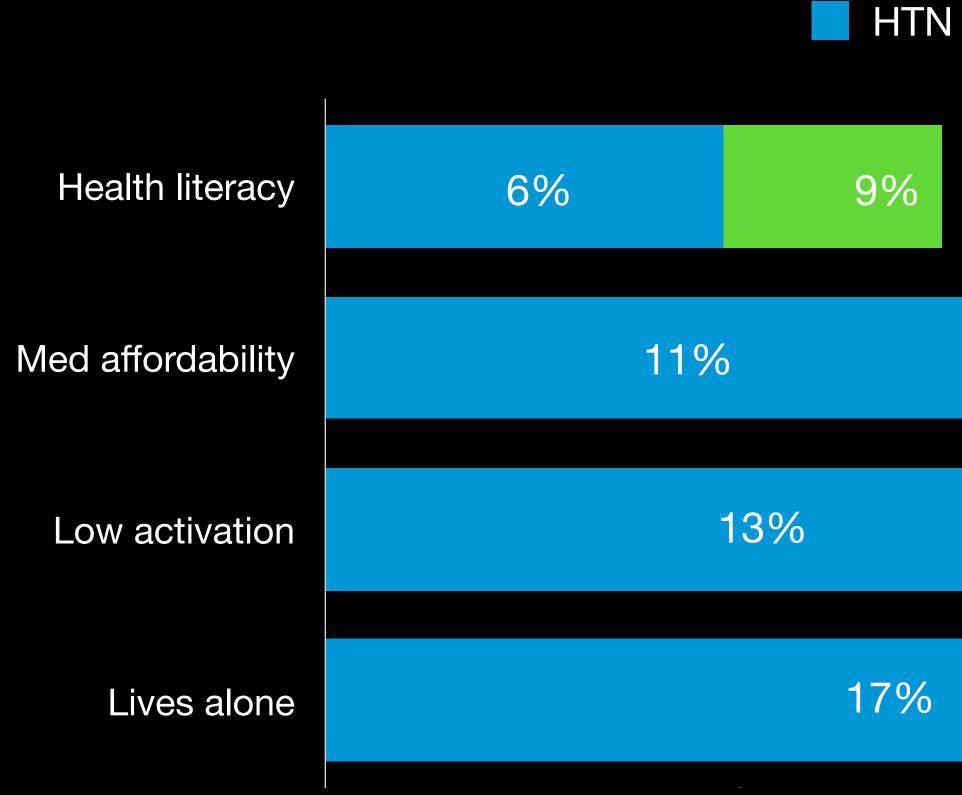
#### **Financial stress - Medications**

Over half of U.S. adults worried they don't have enough money to afford healthcare. Prescription medication costs are rising; accounts for 22% of all healthcare expenditures, but in hypertension it counts for 41%.

#### **Patient activation**

Key pillar of recent health policy statements. Improving activation improves medication adherence and health outcomes, and lowers healthcare costs.

# Effect of Multiple Comorbidities



#### N HTN + DM

22%

17%

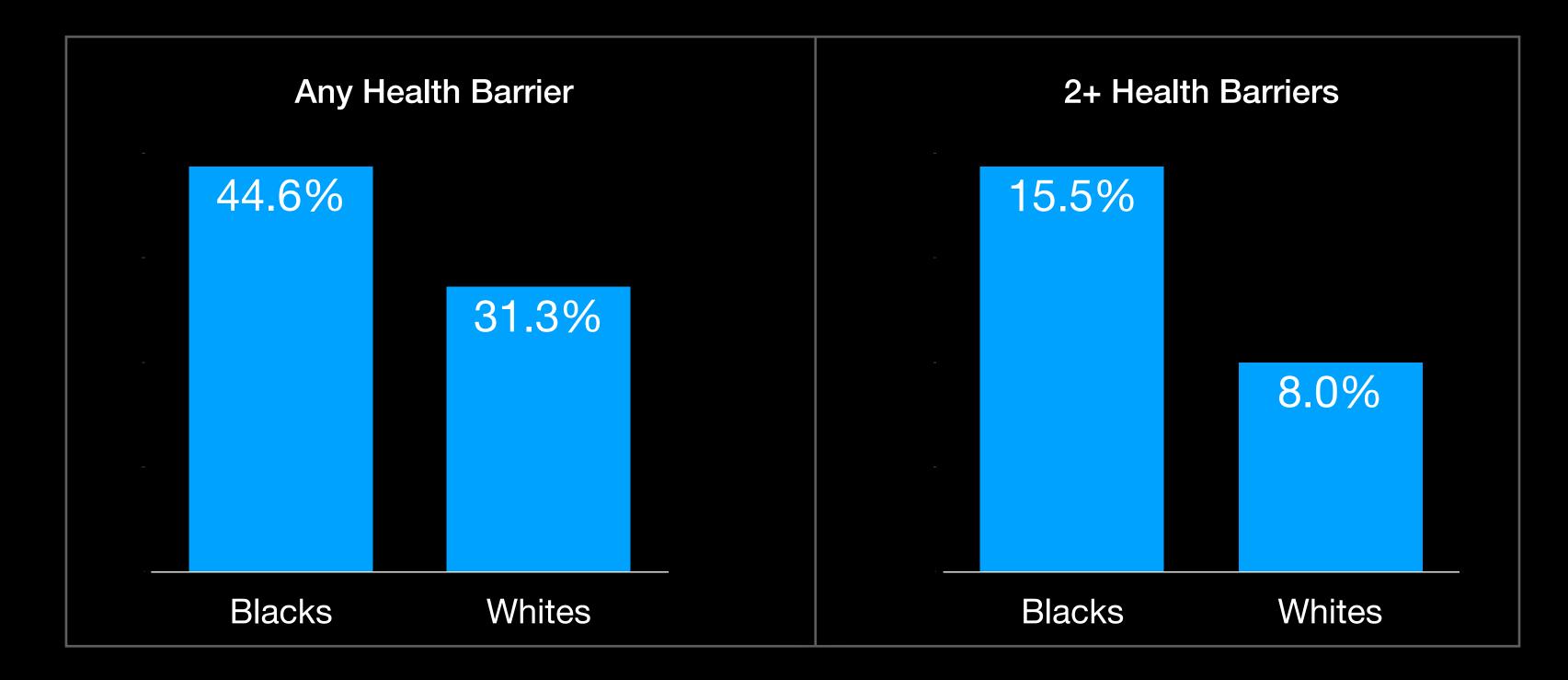
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### Health Barriers - Prevalence

3,305 patients with uncontrolled hypertension

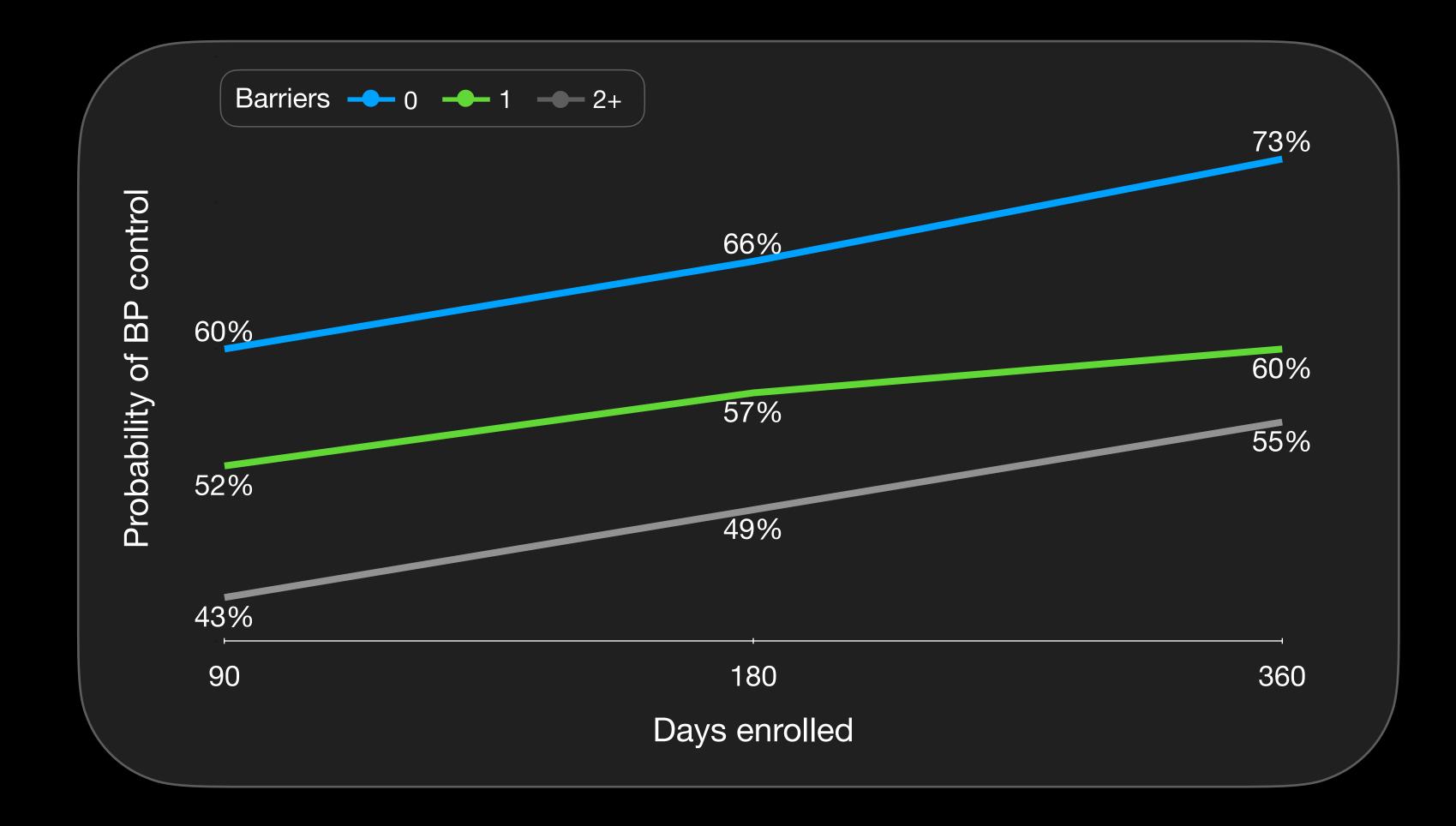
36% with at least 1 health barrier

11% having 2 or more health barriers

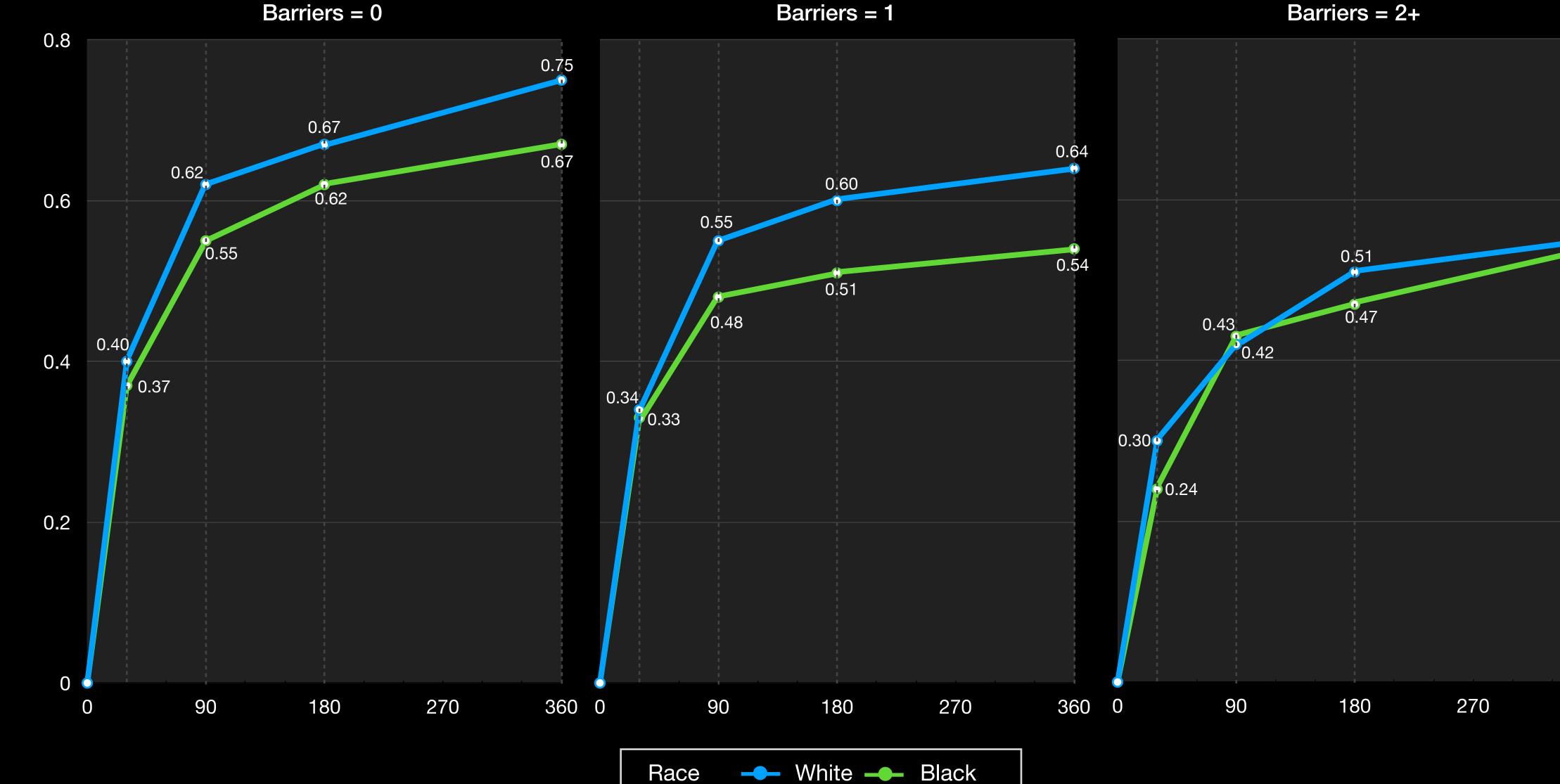


Milani RV, et al. Mayo Clinic Proc. 2022;97(8): 1462-1471.

### Behavioral / SDOH Barriers and Probability of Blood Pressure Control



### Health Barriers within Race and Blood Pressure Control



Estimated Probability

Milani RV, et al. *Mayo Clinic Proc.* 2022;97(8): 1462-1471.

Race

Barriers = 1

Barriers = 2+





### **Control Factors in Blood Pressure Control**

- Social and behavioral health barriers are prevalent, present in over one-third of our patients, and represent an obstacle to effective hypertension management
- Health barriers represent a tangible and discoverable threat to an individuals health
- Health delivery systems should assess for these factors and work towards reducing their impact on disease outcomes