Blood Pressure Guidelines: Using Science for Integrated Public Health and Clinical Care Systems

National Forum and ASTHO Webinar Series
April 11, 2014

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American Heart Association

American Heart Association | American Stroke Association

2010 Leading Causes of Death in the United States

1. Heart disease
2. Cancer
3. Lower respiratory diseases
4. Stroke and related diseases
5. Accidents
6. Alzheimer's disease
7. Diabetes
8. Kidney diseases
9. Influenza, pneumonia
10. Suicide
11. Septicemia
12. Chronic liver disease and cirrhosis
13. Hypertension and related renal disease
14. Parkinson's disease
15. Pneumonitis

CDC

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Shorter Lives, Poorer Health

- **Heart disease:** The US death rate from ischemic heart disease is the second highest among peer countries. Americans reach age 50 with a less favorable cardiovascular risk profile than their peers in Europe, and adults over age 50 are more likely to develop and die from cardiovascular disease than are older adults in other high-income countries.
- **Obesity and diabetes:** The US has the highest obesity rate among high-income countries. U.S. adults have among the highest prevalence rates of diabetes (and high plasma glucose levels) among peer countries.

NRC and IOM, January, 2013

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Top 10 risk factors for health loss in 2010 and the number of deaths attributable to each

1.	Dietary risks	678,282
2.	Smoking	465,651
3.	High blood pressure	442,656
4.	High body mass index	363,991
5.	Physical inactivity	234,022
6.	High blood sugar	213,669
7.	High total cholesterol	158,431
8.	Ambient air pollution	103,027
9.	Alcohol use	88,587
10.	Drug use	25,430

Institute for Health Metrics and Evaluation (IHME),2013

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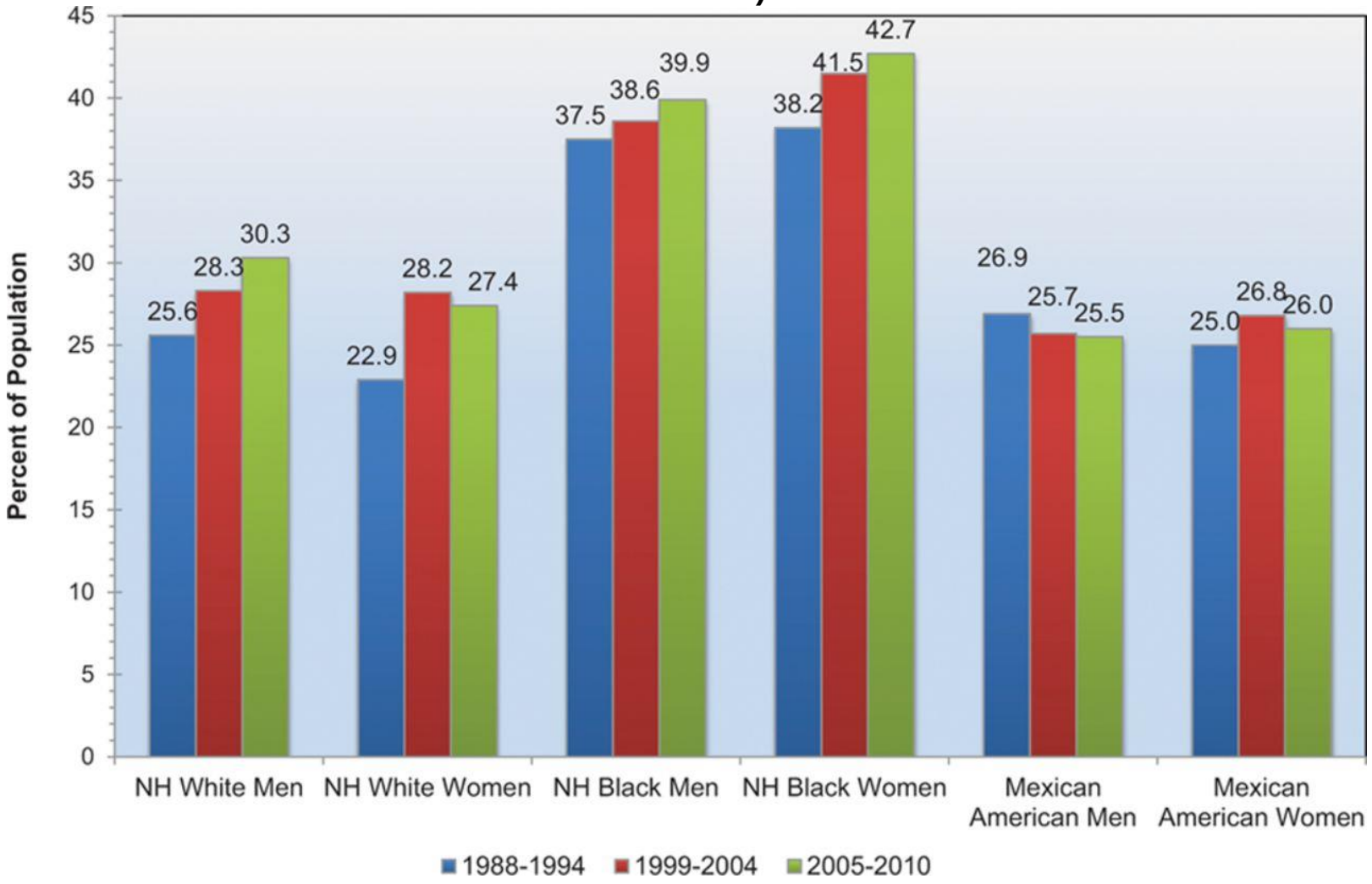
Age-adjusted prevalence trends for high blood pressure in adults ≥20 years of age by race/ethnicity, sex, and survey (National Health and Nutrition Examination Survey: 1988–1994, 1999–2004, and 2005–2010).



Go A S et al. *Circulation*. 2014;129:e28-e292

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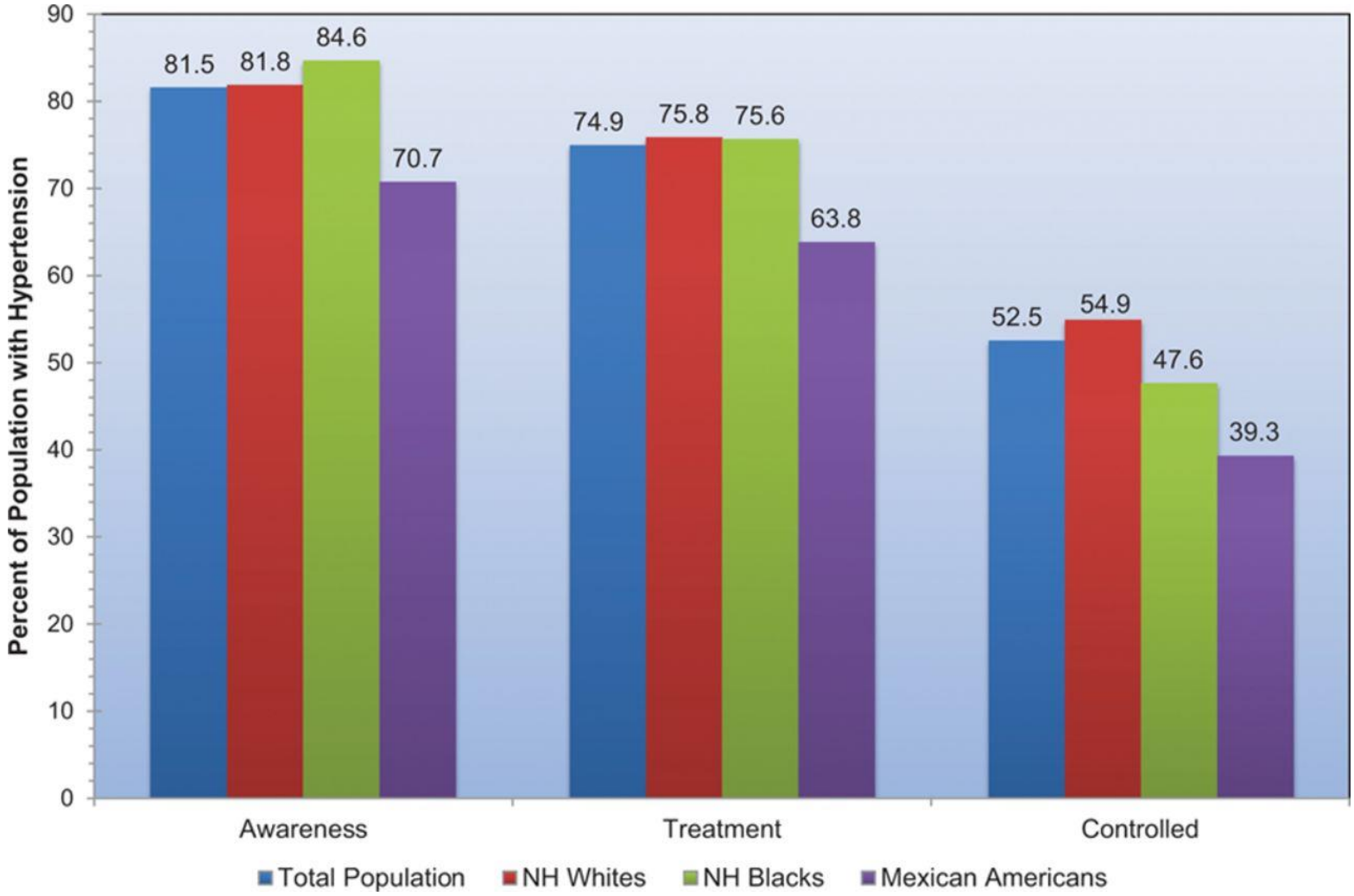
Extent of awareness, treatment, and control of high blood pressure by race/ethnicity (National Health and Nutrition Examination Survey: 2007–2010).



Go A S et al. *Circulation*. 2014;129:e28-e292

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US Census data (2012)

Whites	**78.1%**
Non Hispanic Whites	63.4%
Blacks	13.1%
American Indian/Alaska Natives	1.2%
Asians	5.0%
Hawaiian/Pacific Islanders	0.2%
Hispanic or Latino Origin	16.7%

Projected Population

	2000	2010	2020	2030	2040	2050
Total Pop	282 M	309 M	336 M	364 M	392 M	420 M
White	69.4%	65.1%	61.3%	57.5%	53.7%	50.1%
Hispanic	12.6%	15.5%	17.8%	20.1%	22.3%	24.4%
Black	12.7%	13.1%	13.5%	13.9%	14.3%	14.6%
Asian	3.8%	4.6%	5.4%	6.2%	7.1%	8.0%

census.gov

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Healthy Aging is Dependent on a Lifetime of Healthy Living

- Ideal cardiovascular health (defined as the absence of established risk factors at 50) is associated with very low lifetime risk for CVD and markedly longer survival
- These results should promote efforts aimed at preventing development of risk factors in young individuals
- The higher lifetime risks of CVD and lower survival in those with intermediate or high risk factor burden at 50 years of age should be used to in communicate risks and support intensive preventive therapy

Prediction of Lifetime Risk for Cardiovascular Disease by Risk Factor Burden at 50 Years of Age,
Lloyd-Jones, et al, Circulation 2006;113;791-798

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AHA 2020 Strategic Impact Goals

By 2020, to improve the cardiovascular health of all Americans by 20%, while reducing deaths from cardiovascular disease and stroke by 20%.

HEALTH BEHAVIORS	HEALTH FACTORS
• Smoking • Diet • Physical Activity • Body Weight	• Glucose • Cholesterol • Blood Pressure

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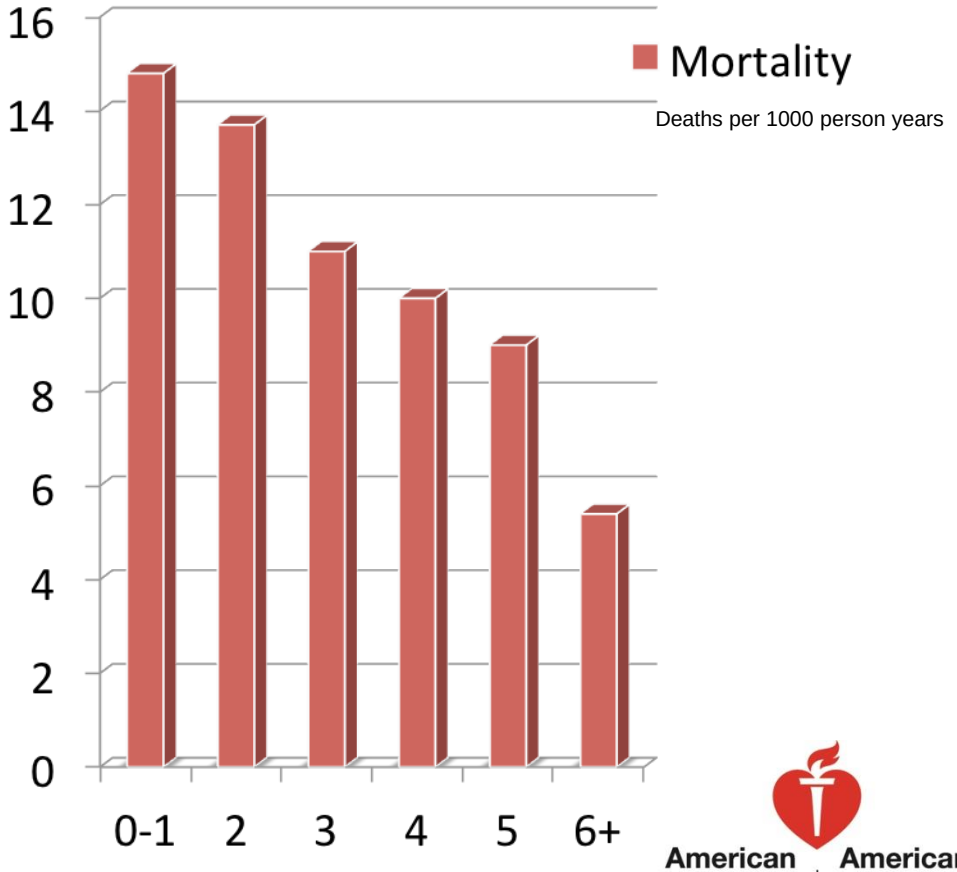
Ideal Cardiovascular Health -AHA

LIFE'S SIMPLE 7	POOR	INTERMEDIATE	IDEAL
 **Smoking Status** Adults >20 years of age Children (12–19)	Current Smoker Tried prior 30 days	Former ≤ 12 mos	Never /quit ≥ 12 mos
 **Physical Activity** Adults > 20 years of age Children 12-19 years of age	None None	1-149 min/wk mod or 1-74 min/wk vig or 1-149 min/wk mod + vig >0 and <60 min of mod or vig every day	150+ min/wk mod or 75+ min/wk vig or 150+ min/wk mod + vig 60+ min of mod or vig every day
 **Healthy Diet** Adults >20 years of age Children 5-19 years of age	0-1 components 0-1 components	2-3 components 2-3 components	4-5 components 4-5 components
 **Healthy Weight** Adults > 20 years of age Children 2-19 years of age	≥30 kg/m^2 >95th percentile	25-29.9 kg/m2 85th-95th percentile	<25 kg/m^2 <85th percentile
 **Blood Glucose** Adults >20 years of age Children 12-19 years of age	126 mg/dL or more 126 mg/dL or more	100-125 mg/dL or treated to goal 100-125 mg/dL	Less than 100 mg/dL Less than 100 mg/dL
 **Cholesterol** Adults >20 years of age Children 6-19 years of age	≥240 mg/dL ≥200 mg/dL	200-239 mg/dL or treated to goal 170-199 mg/dL	<170 mg/dL
 **Blood Pressure** Adults >20 years of age Children 8-19 years of age	SBP ≥140 or DBP ≥90 mm Hg >95th percentile	SBP120-139 or DBP 80-89 mm Hg or treated to goal 90th-95th percentile or SBP ≥120 or DBP ≥80 mm Hg	<120/<80 mm Hg <90th percentile

Simple 7 ™ Heart Health Factors that Reduce Mortality

- No Tobacco use
- Physical activity
- Healthy eating
- Healthy Weight
- Normal Blood pressure
- Normal Cholesterol
- Normal Hemoglobin A1c (normal blood glucose levels)



Yang, et al, JAMA, Vol 307, No.12, March 28, 2012

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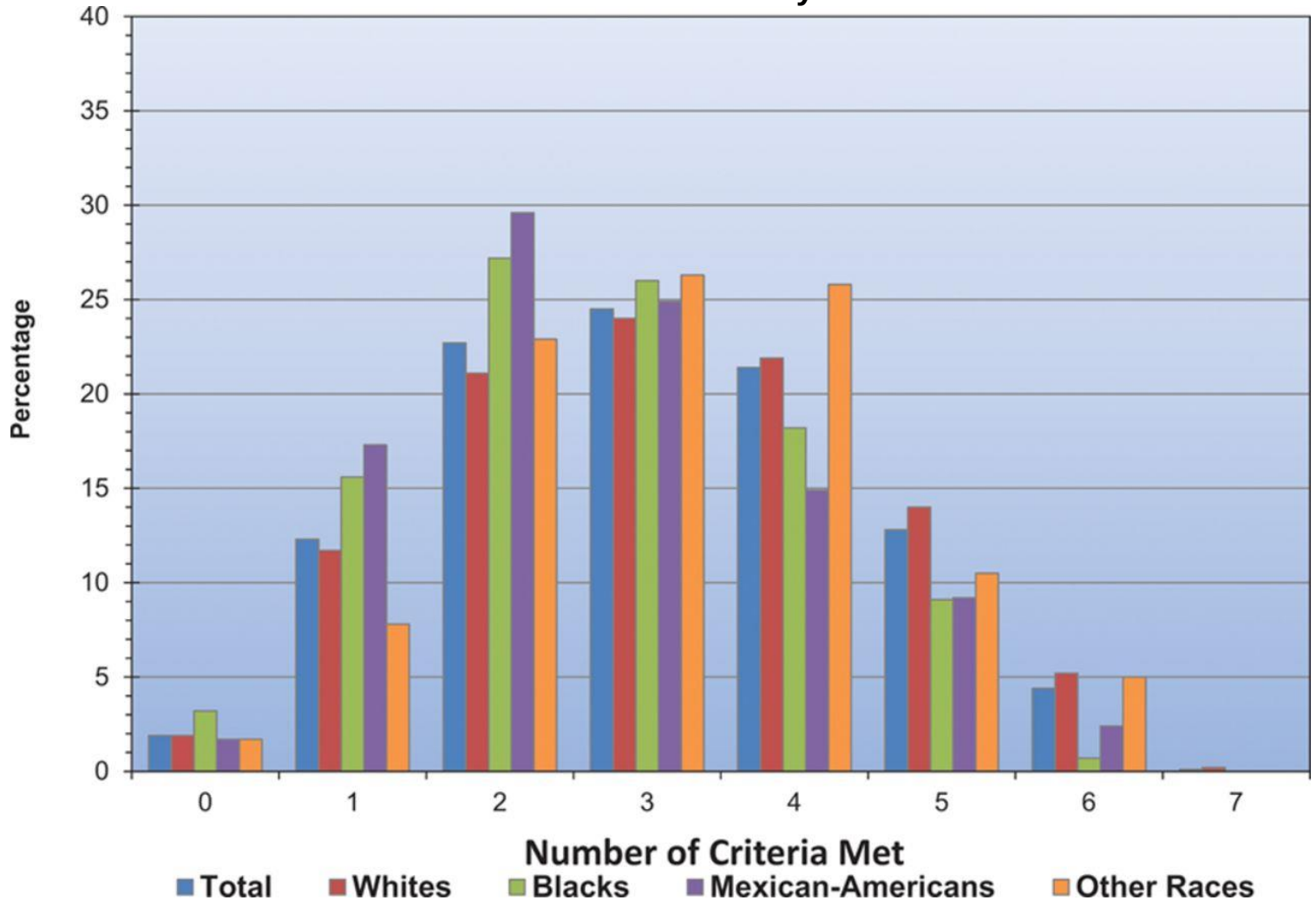
Age-standardized prevalence estimates of US adults aged ≥20 years meeting different numbers of criteria for ideal cardiovascular health, overall and in selected race subgroups from National Health and Nutrition Examination Survey 2009 to 2010.



Go A S et al. *Circulation*. 2014;129:e28-e292

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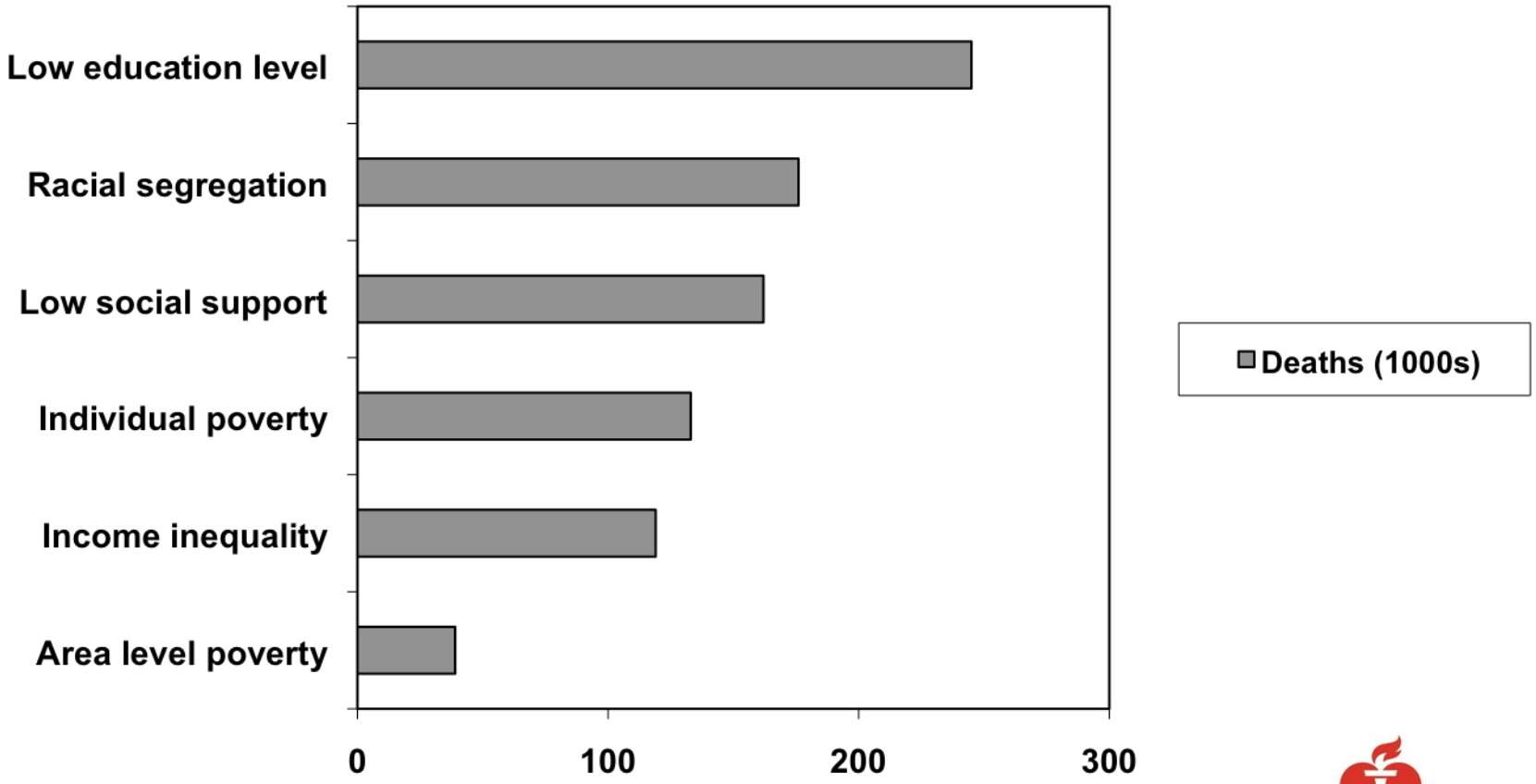
Relationship between Social Determinants and Mortality (2000)



Galea et al, Estimated Deaths Attributable to Social Factors in the United States , AJPH, August 2011, Vol 101, No. 8.

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Hypertension

Improved Blood Pressure Control Associated With a Large-Scale Hypertension Program

– Marc G. Jaffe, MD; Grace A. Lee, MD; Joseph D. Young, MD; Stephen Sidney, MD, MPH; Alan S. Go,MD

– Million Hearts® 2013 Hypertension Control Challenge Champions

JAMA. 2013;310(7):699-705. doi:10.1001/jama.2013.108769

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Hypertension

Improved Blood Pressure Control Associated With a Large-Scale Hypertension Program

1. Comprehensive hypertension registry
2. Development and sharing of performance metrics
3. Evidence-based guidelines
4. Medical assistants for blood pressure monitoring
5. Simplified pharmacotherapy – single-pill combination

JAMA. 2013;310(7):699-705. doi:10.1001/jama.2013.108769

Hypertension

An Effective Approach to High Blood Pressure Control: A Science Advisory From the American Heart Association, the American College of Cardiology, and the Centers for Disease Control and Prevention

- Alan S. Go, MaryAnn Bauman, Sallyann M. Coleman King, Gregg C. Fonarow, Willie Lawrence, Kim A. Williams and Eduardo Sanchez

Hypertension. published online November 15, 2013;

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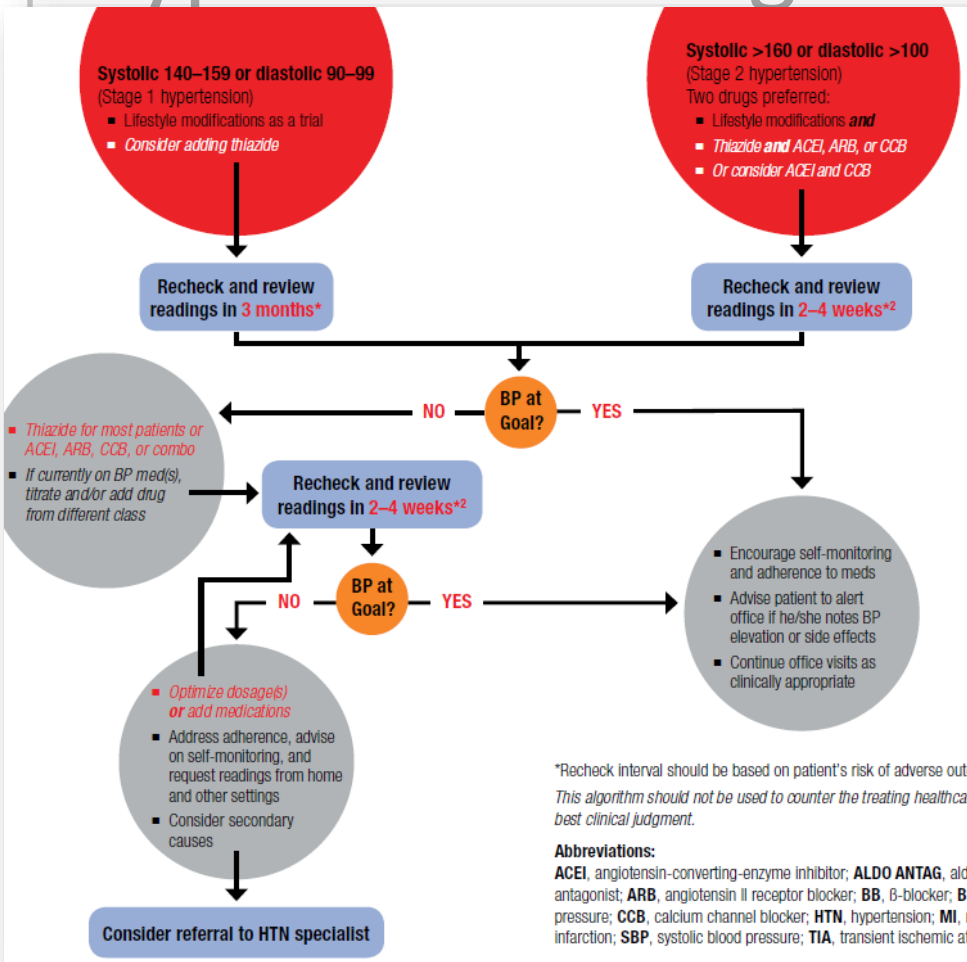
Hypertension Algorithm



*Recheck interval should be based on patient's risk of adverse outcomes.

This algorithm should not be used to counter the treating healthcare provider's best clinical judgment.

Abbreviations:
ACEI, angiotensin-converting-enzyme inhibitor; **ALDO ANTAG**, aldosterone antagonist; **ARB**, angiotensin II receptor blocker; **BB**, ß-blocker; **BP**, blood pressure; **CCB**, calcium channel blocker; **HTN**, hypertension; **MI**, myocardial infarction; **SBP**, systolic blood pressure; **TIA**, transient ischemic attack

Modification	Recommendation	Approximate SBP Reduction (Range)**
Reduce weight	Maintain normal body weight (body mass index 18.5–24.9 kg/m²)	5–20 mm Hg/10 kg
Adopt DASH*[5] eating plan	Consume a diet rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat	8–14 mm Hg
Lower sodium intake[6]	a. Consume no more than 2,400 mg of sodium/day; b. Further reduction of sodium intake to 1,500 mg/day is desirable, since it is associated with even greater reduction in BP; and c. Reduce sodium intake by at least 1,000 mg/day since that will lower BP, even if the desired daily sodium intake is not achieved	2–8 mm Hg
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30 min per day, most days of the week)	4–9 mm Hg
Moderation of alcohol consumption	Limit consumption to no more than 2 drinks (e.g., 24 oz beer, 10 oz wine, or 3 oz 80-proof whiskey) per day in most men, and to no more than 1 drink per day in women and lighter weight persons	2–4 mm Hg

* DASH, dietary approaches to stop hypertension
** The effects of implementing these modifications are dose and time dependent, and could be greater for some individuals

Available for download at: www.heart.org/HBPtoolkit

The Guide to Community Preventive Services

Community Preventive Services Task Force Recommendations for Cardiovascular Disease CVD) Prevention and Control

- Clinical decision support systems (Apr 2013)
  - Patient data (from EHR) to inform clinical care
- Reducing out-of-pocket costs for patients with high blood pressure and high cholesterol (Nov 2012)
  - For medications and lifestyle management services
- Team-based care to improve blood pressure control (Apr 2012)
  - True care coordination, for example

thecommunityguide.org

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Hypertension

E-care for Heart Wellness: A Feasibility Trial to Decrease Blood Pressure and Cardiovascular Risk

– BB Green, ML Anderson, AJ Cook, S Catz, PA Fishman, JB McClure, RJ Reid

Web-based dietician-led tem care interventions are feasible and resulted in decreased weight, blood pressure, and cardiovascular disease risk

Am J Prev Med 2014; 46(4):368-377.

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Local Community-Based Pilot

Based on Best Practice Models

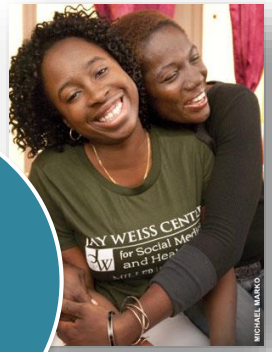
Innovative Approaches Across Top Markets

Multicultural Program Update

More than15,000 participants recruited for the program

Early analysis shows **BPs trending down** among participants with elevated readings at baseline

Volunteers serve as Community Health Mentors



Heart360 as central tool for participant engagement and data collection

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ASTHO Million Hearts Learning Collaborative

Funding and technical support for nine states and the District of Columbia (D.C.)

- Quality improvement across sectors [systems approach] to find and control high blood pressure
- Alabama, D.C., Illinois, Maryland, Minnesota, New Hampshire, New York, Ohio, Oklahoma, Vermont

ASTHO, 10/2013.

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The Guideline Advantage

Program Model

2 Practices submit collective clinical data to Forward Health Group for The Guideline Advantage

THE GUIDELINE ADVANTAGE

American Cancer Society | American Diabetes Association | American Heart Association | American Stroke Association

1 Providers can use several different technology platforms

www.guidelineadvantage.org

3 Data are processed, analyzed and provided back to the practice via a practice portal

4

Performance is measured, Professionals can set measureable goals and chart improvements in performance

- **Relevant AHA Reports, Statements, or Guidelines**
  - Heart Disease and Stroke Statistics—2014 Update
  - AHA/ACC/CDC Science Advisory: An Effective Approach to HBP Control

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QUESTIONS.

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