

IMPROVING CHRONIC DISEASE MANAGEMENT IN UNDERSERVED MINORITY GROUPS: STARTING FROM GROUND LEVEL

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IT IS TRULY AN HONOR TO BE
SELECTED AS RECIPIENT OF THE
FREDERICK GREENWOOD AWARD

IT IS TRULY A PLEASURE TO BE HERE
WITH ALL OF YOU!

Racial and ethnic disparities in chronic disease care

What evidence exists?

What can we do about it?

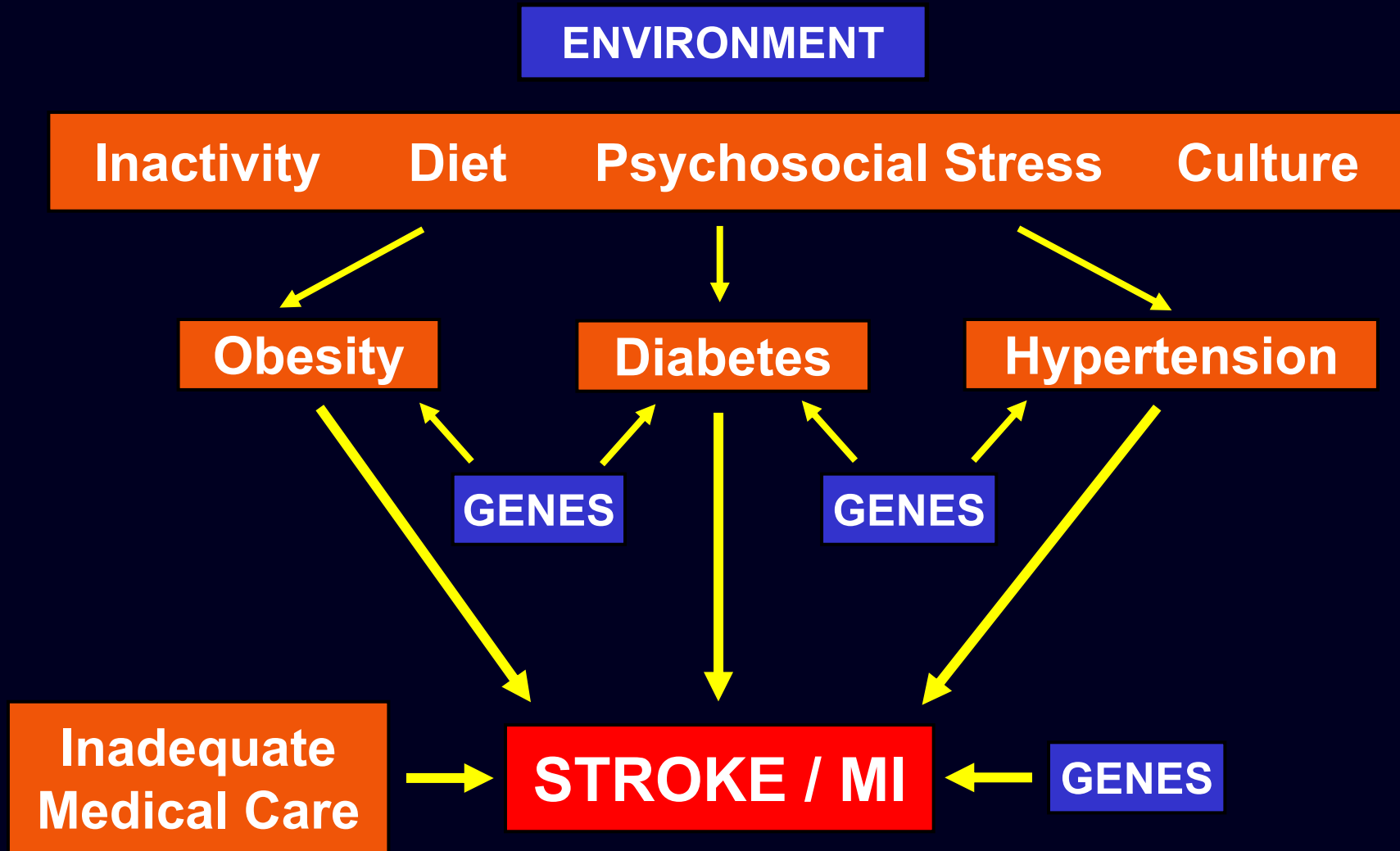


A presentation prepared by The Henry J. Kaiser Family Foundation and The Robert Wood Johnson Foundation

WHAT NEEDS TO HAPPEN AT “GROUND LEVEL” TO CHANGE TRENDS AND OUTCOMES?

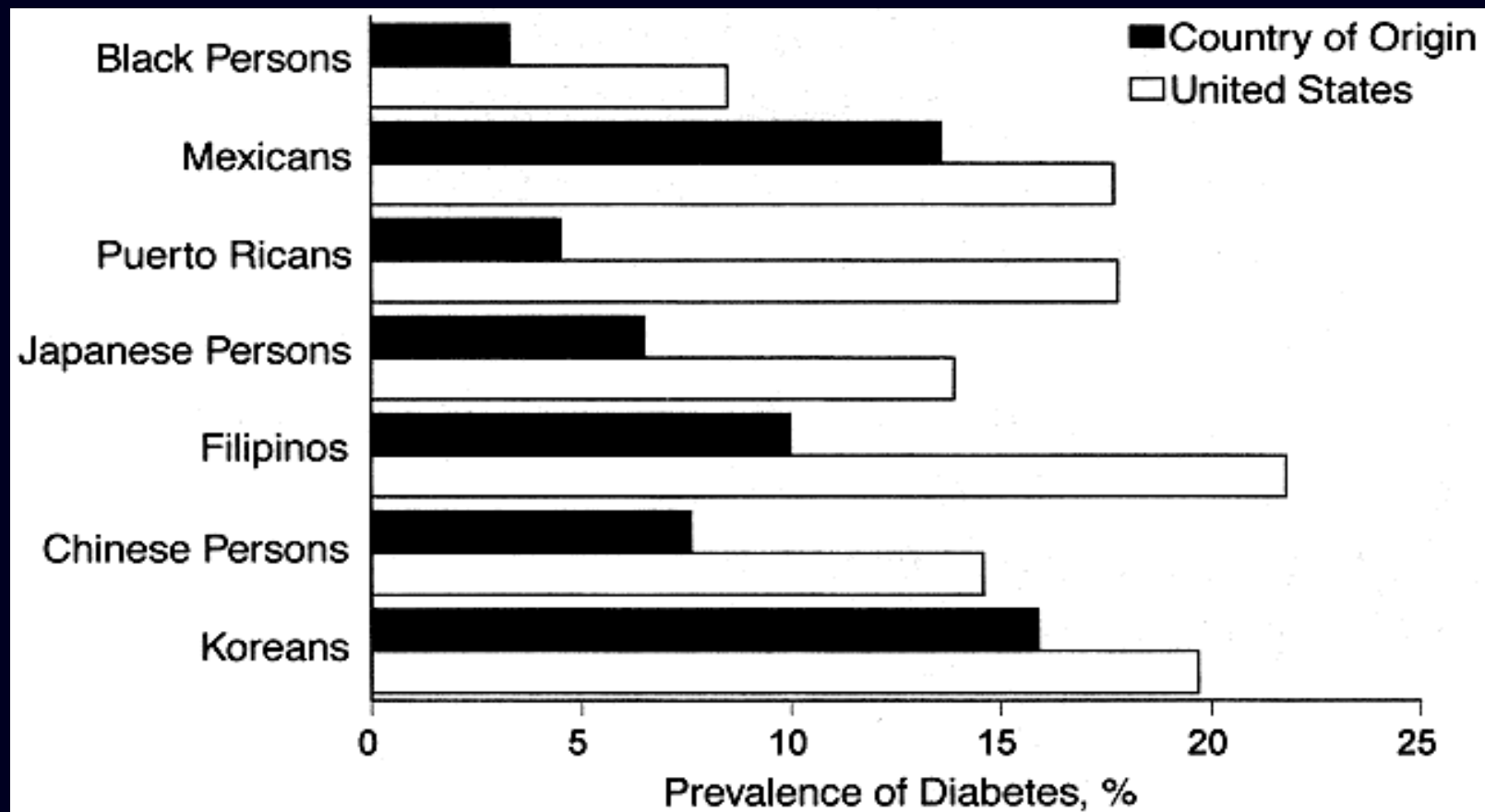
- Do we need more epidemiologic/socioenvironmental info?
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- Do we need more “good people” working on these issues?

Genetics augment effects of environmental risk factors: We Cannot Change Our Genes!

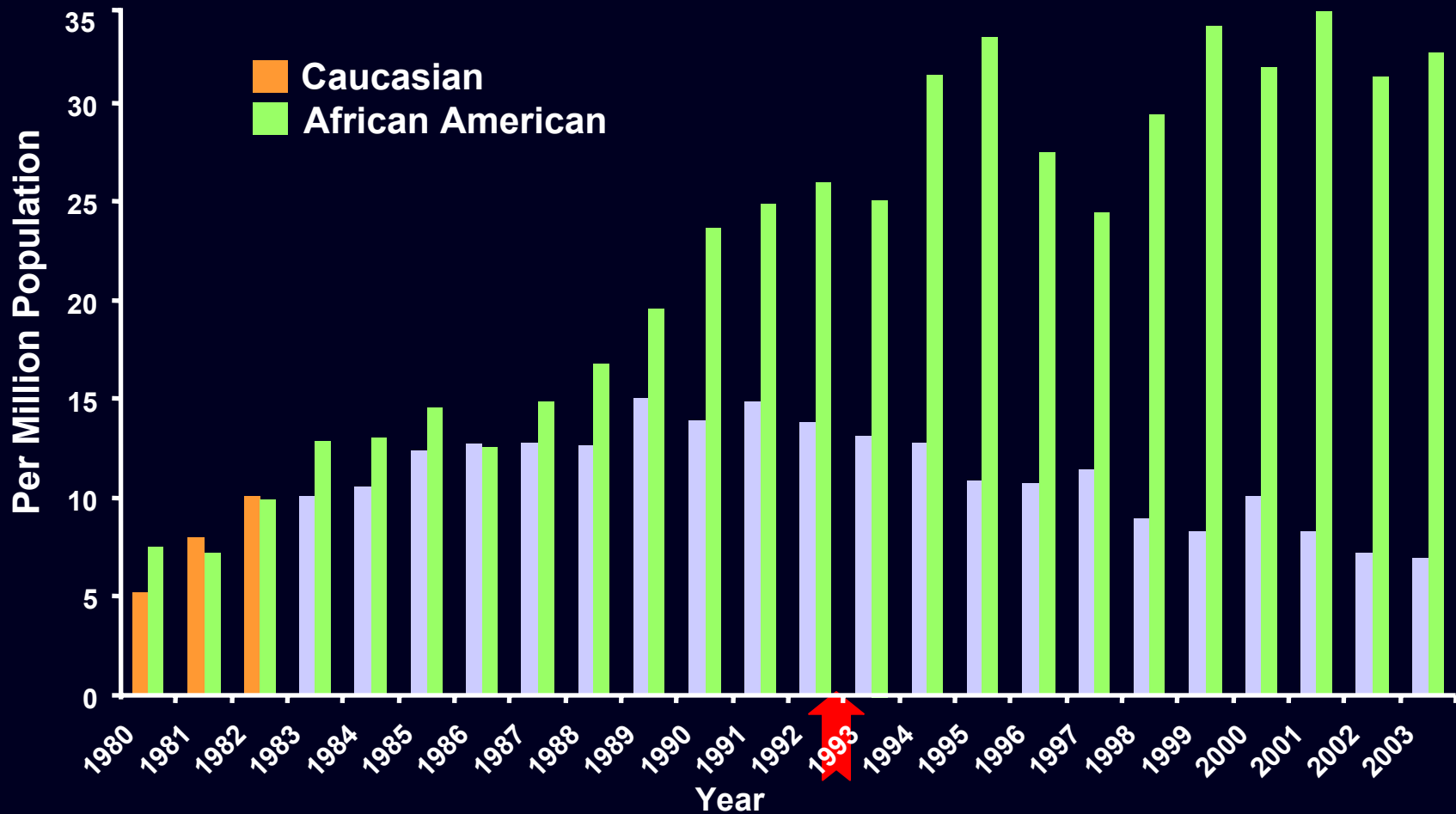


Prevalence of Diabetes in Minority Populations

Rate in country of origin compared with rate in the U.S.



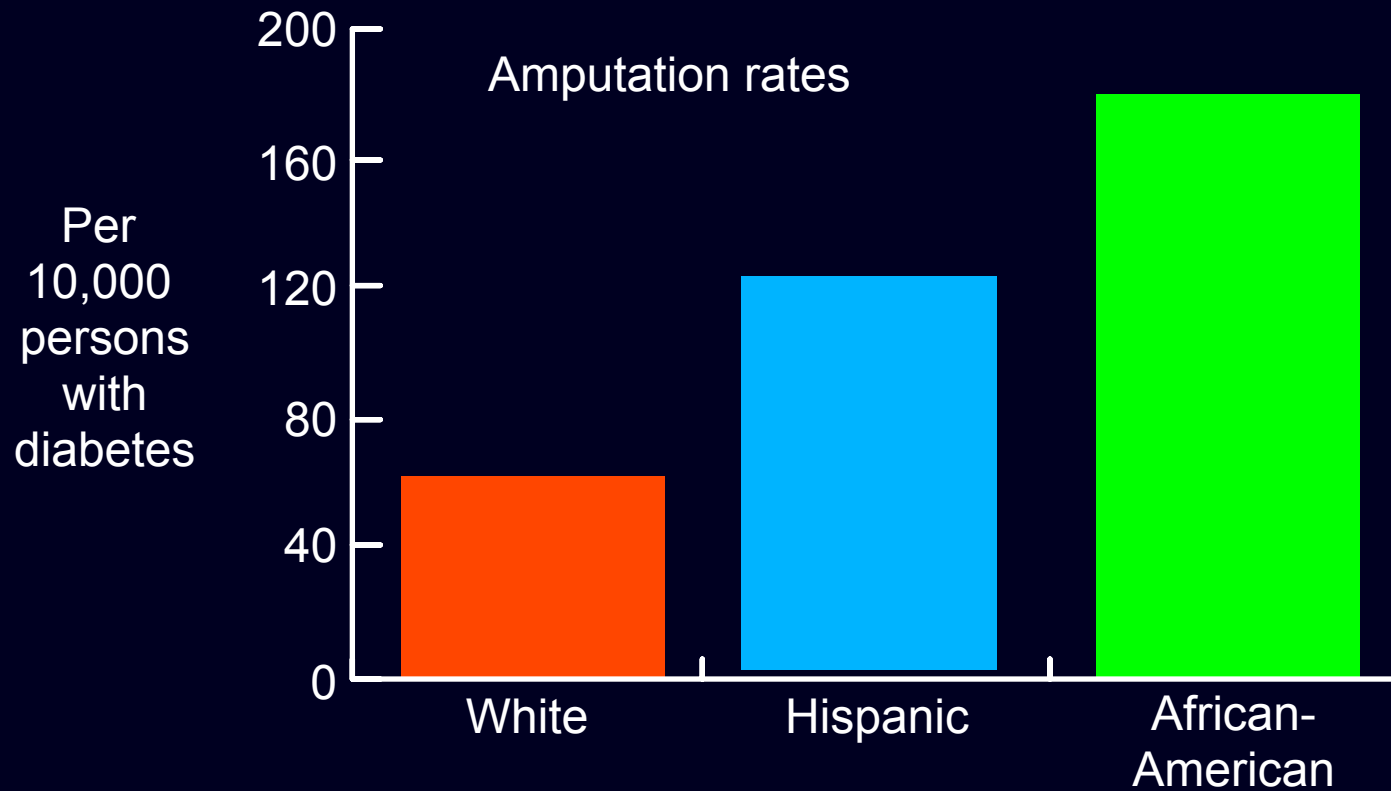
Incidence of Diabetic ESRD: Ages 20–29 Years*



*Rates adjusted for age, gender, race.

U.S. Renal Data System, USRDS 2005 Annual Data Report: Atlas of End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Md, 2005. Available at: <http://www.usrds.org/atlas.htm>. Accessed February 28, 2006.

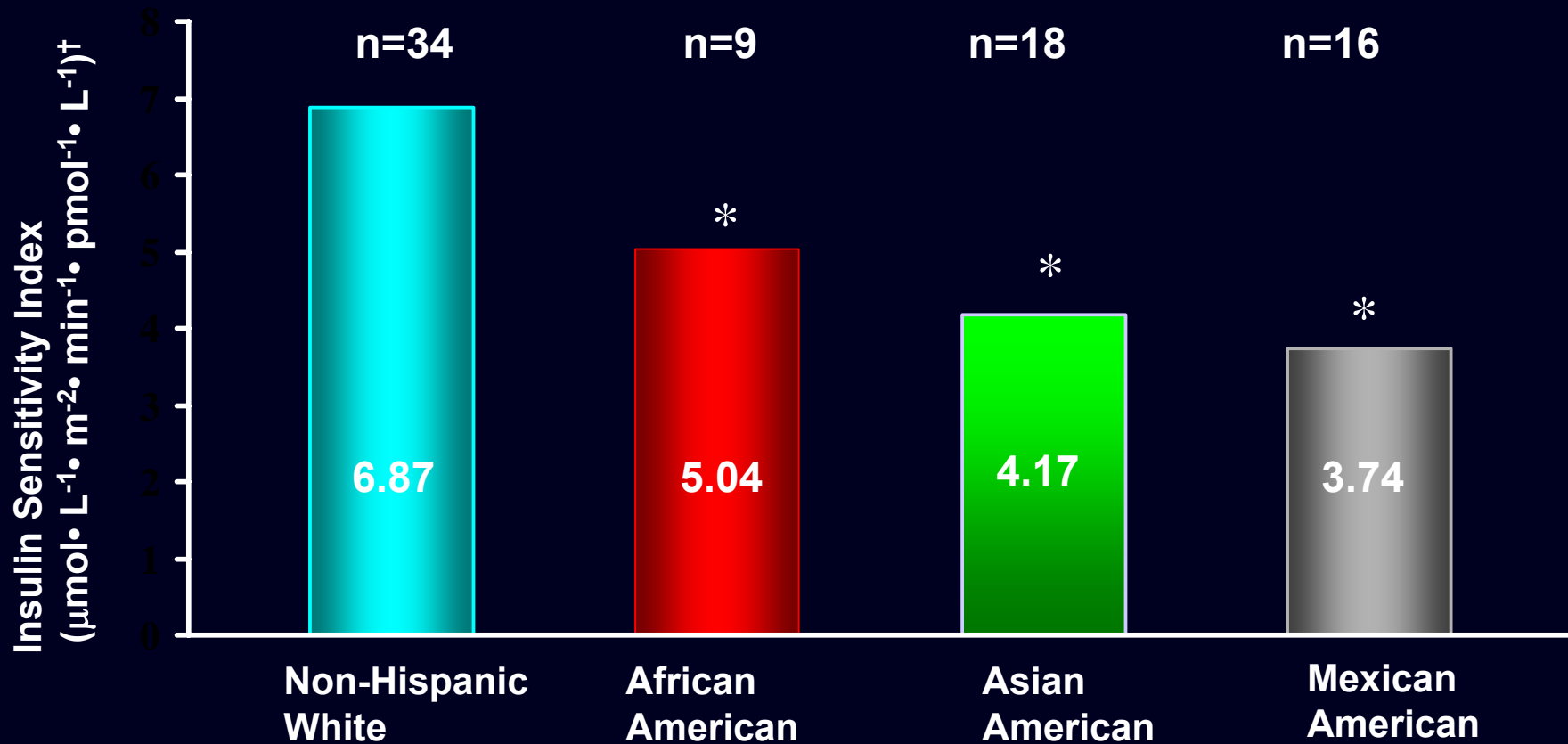
Amputations in People With Diabetes: Three Ethnic Groups



Reiber GE, et al. In: *Diabetes in America*. 2nd ed. 1995;chap 18.

Insulin Sensitivity Differs among Ethnic Groups in Healthy Subjects

Age 23-26
BMI – 23-26.5



* $P=0.002$ vs. Caucasians.

†Data are geometric means.

Adapted from: Chiu KC, et al. *Diabetes Care*. 2000;23:1353-1358.

Racial/Ethnic Differences in Disease

- Clinical trials have demonstrated racial & ethnic differences in the pharmacokinetics of certain drugs
- These differences can also determine the biologic course of certain diseases in the face of active treatment programs
- These are underestimated contributors to differences in outcomes

Johnson JA. Influence of race or ethnicity on pharmacokinetics of certain drugs. J Pharm Sci. 1997;86:1328-33

Kalow W. Interethnic variation of drug metabolism. Trends Pharmacol Sci. 1991;12:102-107

Why is Diversity Important in HTN?

- This 1998 study revealed conclusive data that pretreatment plasma renin activity is not a reliable indicator of anti-hypertensive response to therapy with an ACE inhibitor in AA patients.

Weir MR, et. al. Renin status does no predict the anti-hypertensive response to ACE inhibition in AA's. Trandolapril Multicenter Study Group. J Hum Hypertens. 1998;12:189-94

Why is Diversity Important in Bipolar Disease?

- A 1995 study revealed that African Americans may require lower dosages of lithium carbonate in the treatment of bipolar disease.
- Their data showed that higher plasma concentrations of lithium in AA subjects vs. C led to an increased incidence of adverse effects to the therapy.

Strickland TL, et.al. Comparison of lithium ratio between African-American and Caucasian bipolar patients. Biol Psych. 1995;37:325-330.

Genetics and the Case for Diversity

- Genetic polymorphisms in metabolic enzymes, receptor expression and drug transport
- There are marked polymorphisms between whites, blacks & Asians in adrenergic receptors
- Marked differences in CYP450 (CYP2D6) responsible for metabolizing β -blockers, tricyclics & codeine
- Genetics accounts for up to 95% of drug disposition and effect (*Kalow W, et. al. 1998 Pharmacogenetics*)
- Differences in expression of CYP2C9 responsible for Warfarin metabolism (11% of W vs. 3% of AA)

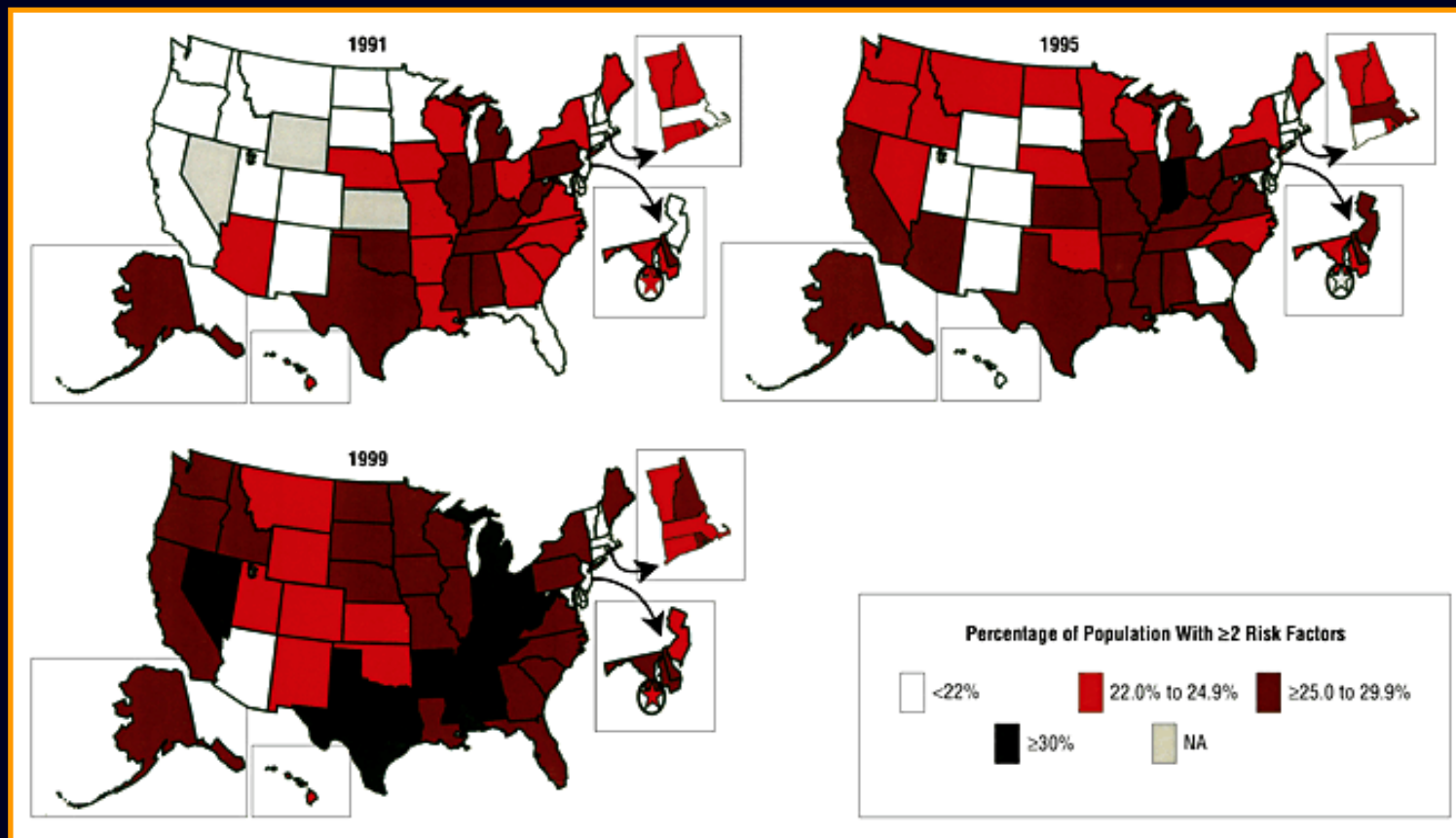
Association of ethnicity with multiple CV risk

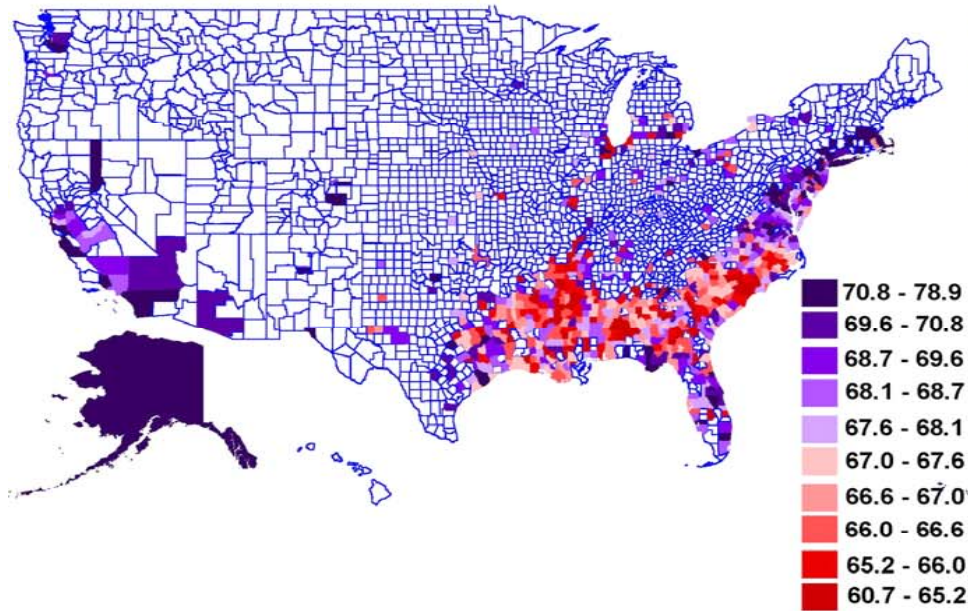
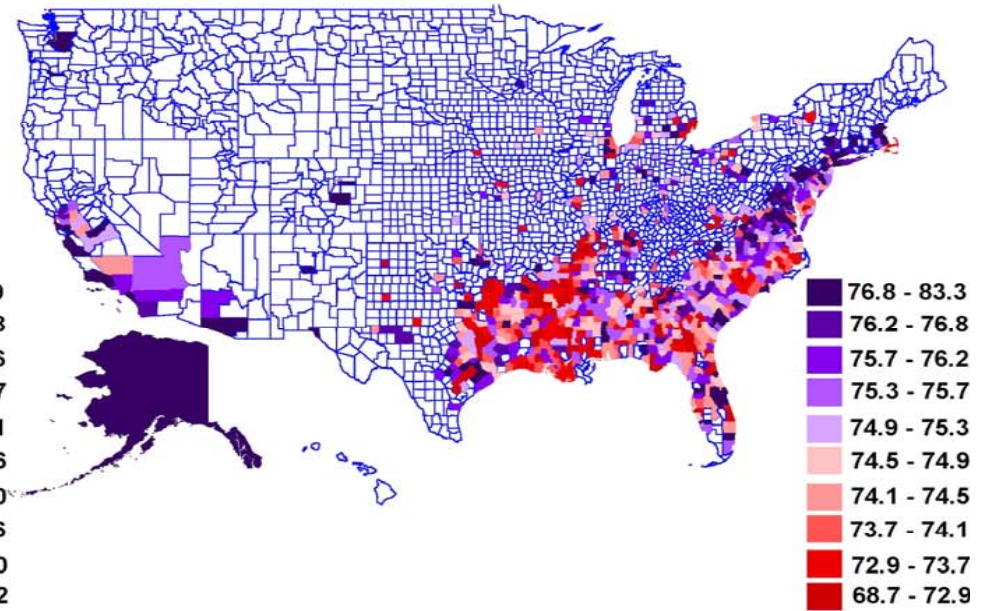
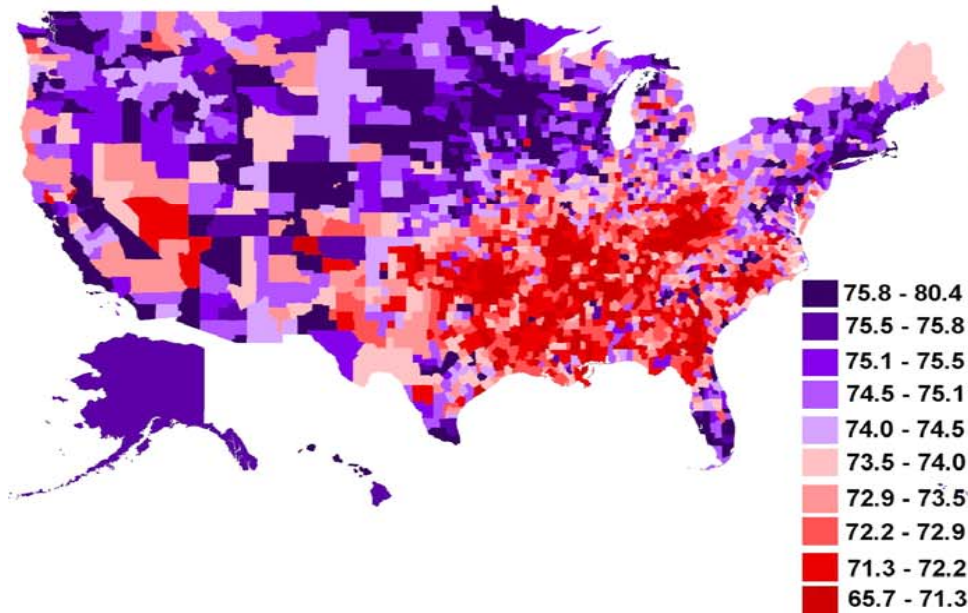
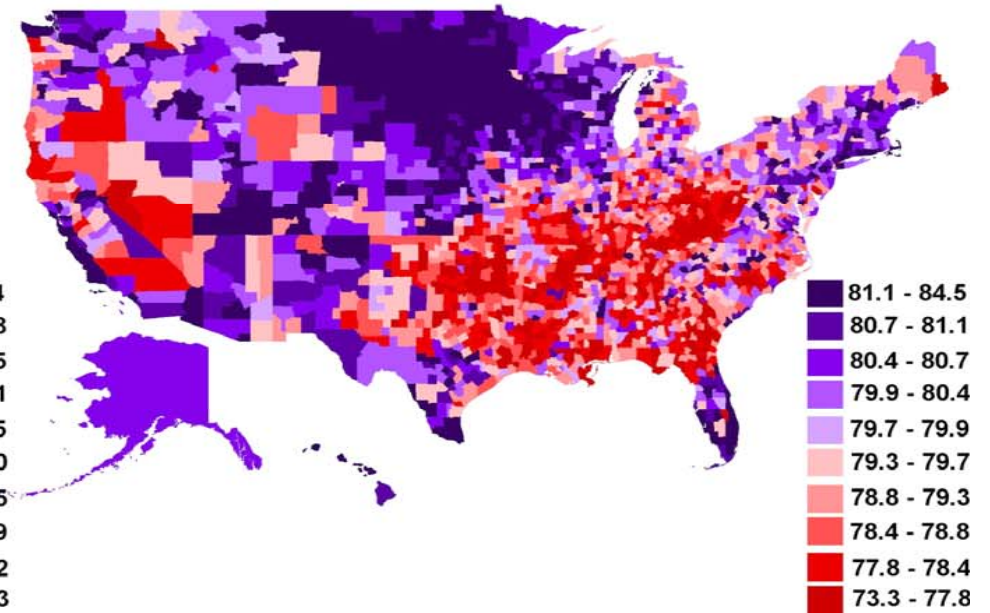
	<u>Hispanics</u>	<u>African Americans</u>	<u>Asian Indians</u>
Adults	Increased risk of metabolic syndrome and diabetes	High prevalence of multiple risk factors vs other ethnic groups	Increased CV risk occurs at lower levels of risk factors than other ethnic groups
Children	1 in 6 girls; 1 in 4 boys are overweight	1 in 5 girls; 1 in 6 boys are overweight	

AHA. *Heart Disease and Stroke Statistics—2005 Update*.
Matthews KA et al. *Am Heart J*. 2005;149:1066-73.
Hedley AA et al. *JAMA*. 2004;291:2847-50.
Bhalodkar NC et al. *Am J Cardiol*. 2005;96:98-100.

Prevalence of multiple CVD risk factors is increasing nationwide

Behavioral Risk Factor Surveillance System 1991–1999

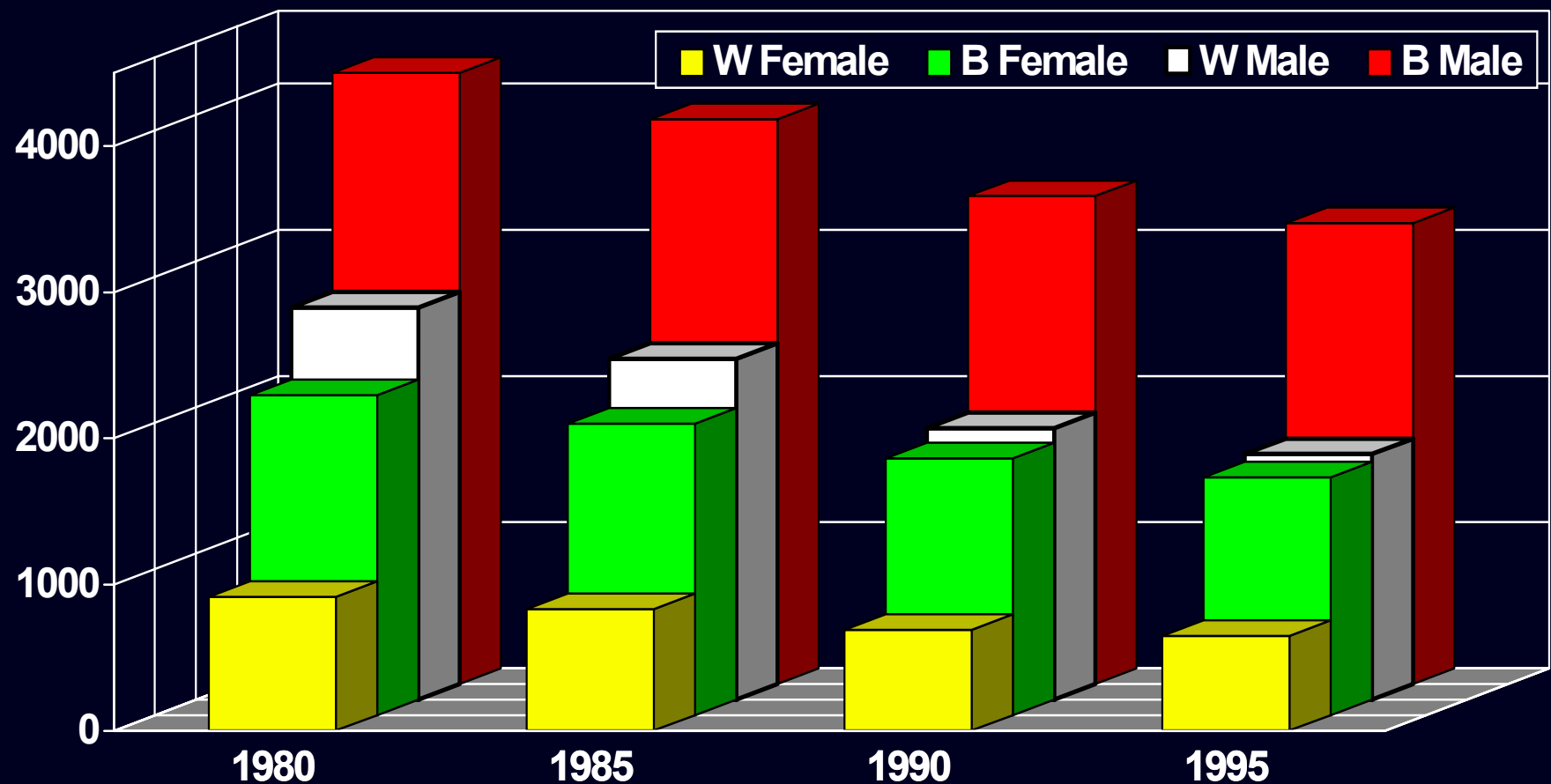


A**Males****Females****B****Males****Females**

THE BITTER LEGACY OF MULTIPLE RISK FACTORS FOR CVD OUTCOMES

- Maynard Jackson
- Luther Van Dros
- Gerald Levert
- Barry White
- Ella Fitzgerald
- Gus Whitaker
- James Thomas Smoke
- Ernest Whitaker
- Georgia Mae Cunningham

Years of Potential Life Lost to CHD by Race and Gender

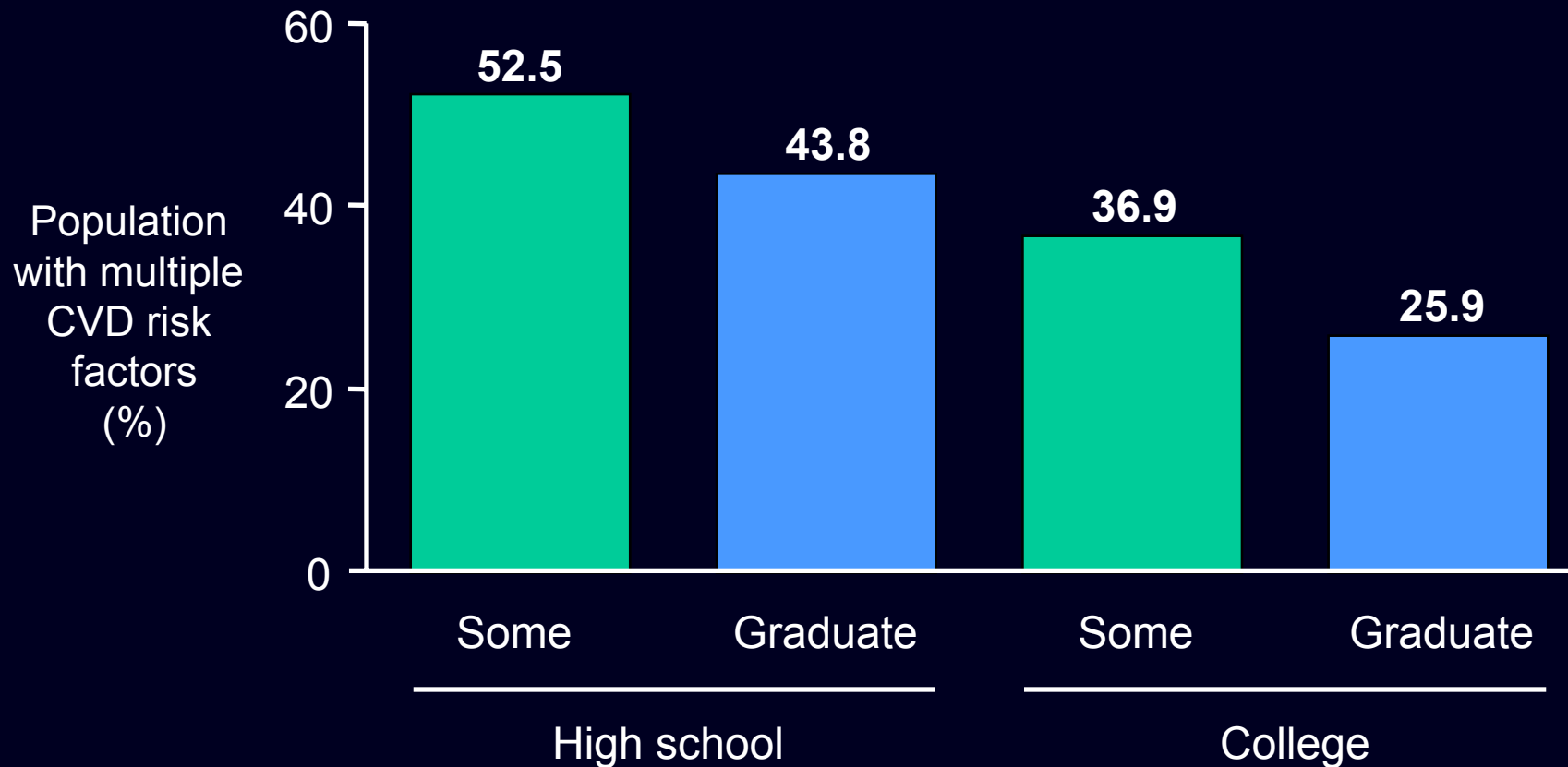


There is clear evidence for diverse behavior of diseases across ethnic groups, often driven by documented biological differences---there is a credible science that underpins differences.....

Thus, we need the benefit of broader participation of diverse groups in basic and clinical research to evaluate treatment boundaries and natural histories, but there are challenges beyond biology-----

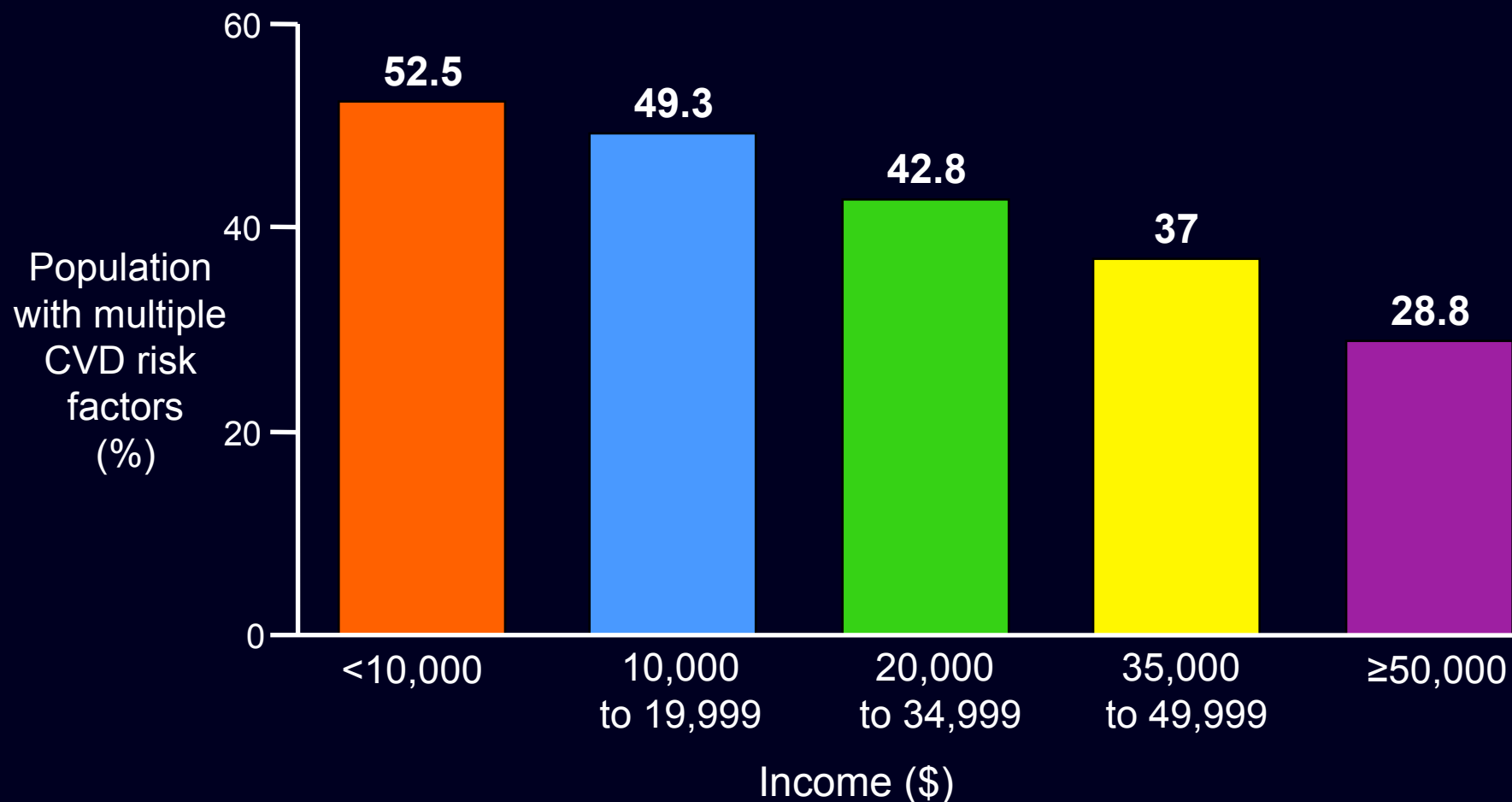
Association of education level to multiple risk

Behavioral Risk Factor Surveillance System, N = 103,191



Association of income level to multiple risk

Behavioral Risk Factor Surveillance System, N = 103,191



Hayes DK et al. *MMWR*. 2005;54:113-7.

WHAT NEEDS TO HAPPEN AT “GROUND LEVEL” TO CHANGE TRENDS AND OUTCOMES?

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- *Do we need better priority setting in our policies?*
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Social and Cultural Dimensions of Health

How do social and cultural factors affect development, dissemination, and accessibility of new therapies, technologies and services, and what impact do they have on services and treatment?

How do social, cultural, economic, and policy mechanisms influence equitable access to health care and the quality of care received?

Black and White Differences in Specialty Procedure Utilization Among Medicare Beneficiaries Age 65 and Older, 1993

	Black	White	Black-to-White Ratio
Angioplasty (procedures per 1,000 beneficiaries per year)	2.5	5.4	<u>0.46</u>
Coronary Artery Bypass Graft Surgery (procedures per 1,000 beneficiaries per year)	1.9	4.7	<u>0.40</u>
Mammography (procedures per 100 women per year)	17.1	26.0	0.66
Hip Fracture Repair (procedures per 100 women per year)	2.9	7.0	<u>0.42</u>
Amputation of All or Part of Limb (procedures per 1,000 beneficiaries per year)	6.7	1.9	3.64
Bilateral Orchiectomy (procedures per 1,000 beneficiaries per year)	2.0	0.8	2.45

Source: Gornick et al., 1996

The Effect of Racial and Ethnic Discrimination/Bias on Health Care Delivery

Provider attitudes, beliefs and behaviors that influence recommendations, referral patterns and care

Patient experiences and perception of biased health care

- trust of health care providers
- influence on compliance
- delays in seeking care
- continuity in care

Provider communication styles and patient perception of biased care *(It is critical to understand these issues if improved management of chronic diseases is to occur)*

The Effect of Racial and Ethnic Discrimination/Bias on Health Care Delivery

Role of healthcare systems and policies in health disparities (e.g., utilization of health services and receipt of appropriate care by members of minority populations)

Interventions to overcome provider bias and/or patient perception of discrimination to ensure quality medical care

The Effect of Racial and Ethnic Discrimination/Bias on Health Care Delivery

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Potential Sources of Disparities in Care

Patient-Level

- Patient preferences
- Treatment refusal
- Care seeking behaviors and attitudes
- Clinical appropriateness of care

Health Care Systems-Level

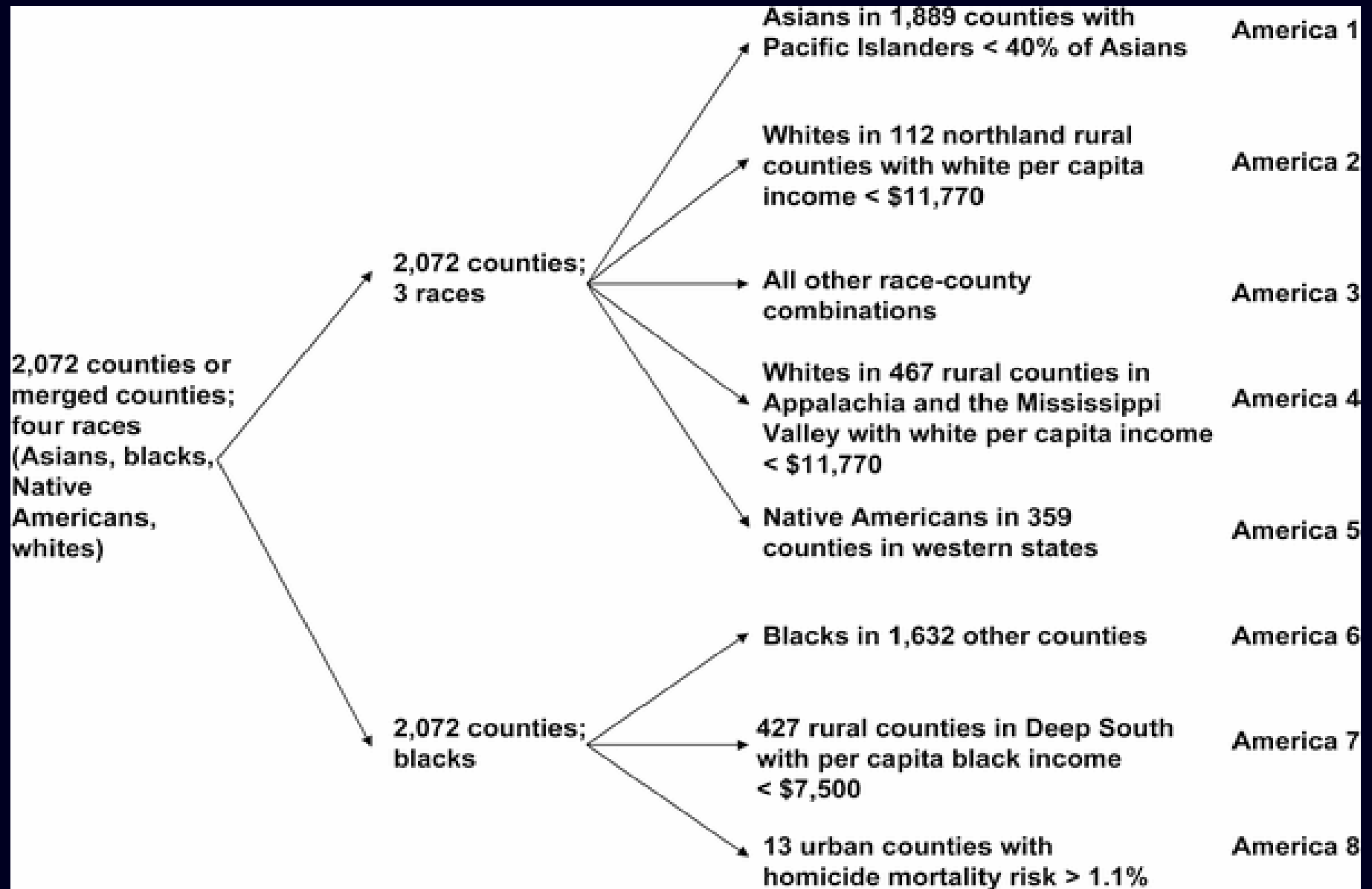
- Lack of interpretation and translation services
- Time pressures on physicians
- Geographic availability of health care institutions
- Changes in the financing and delivery of health care services

Provider-Level

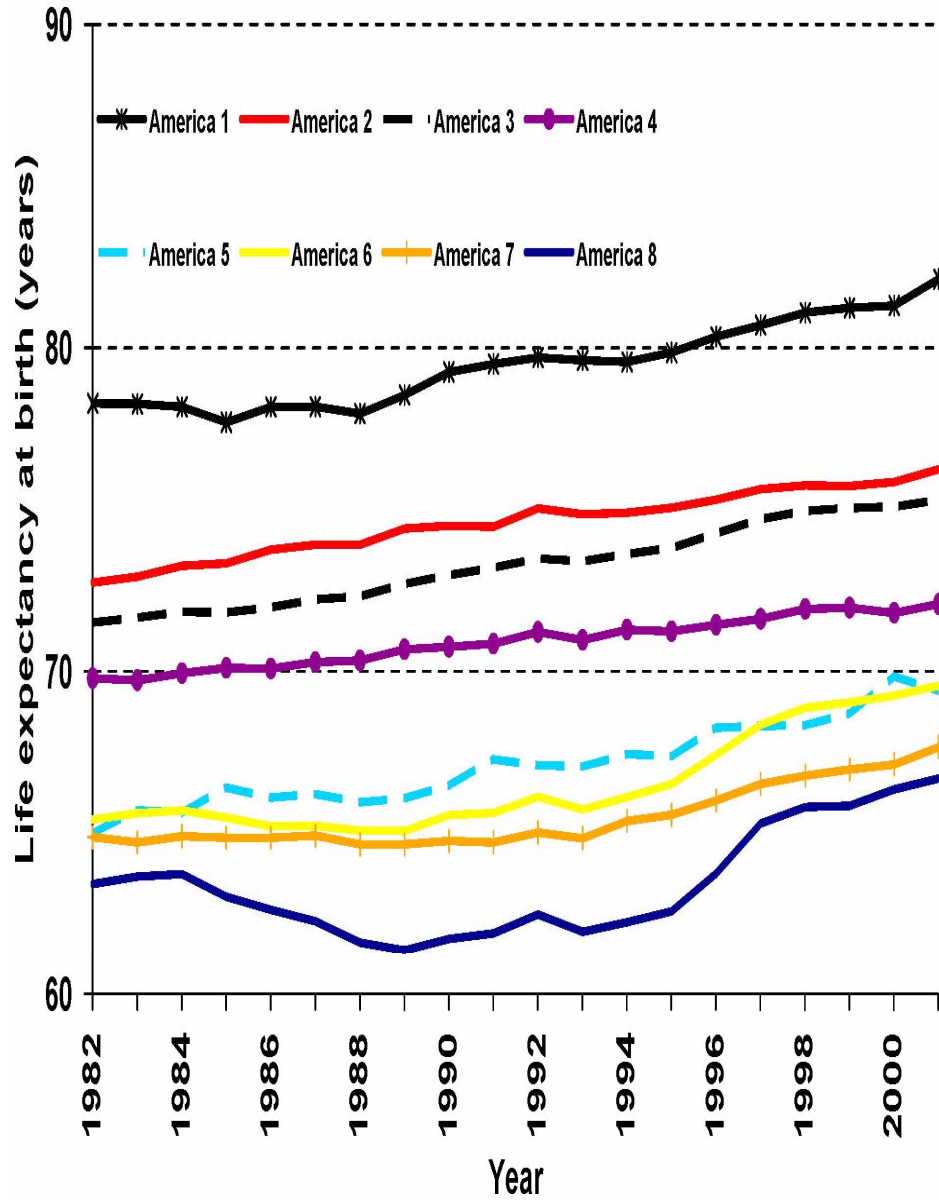
- Bias
- Clinical uncertainty
- Beliefs/stereotypes about the behavior or health of minority patients

Eight Americas...and we need to understand them!

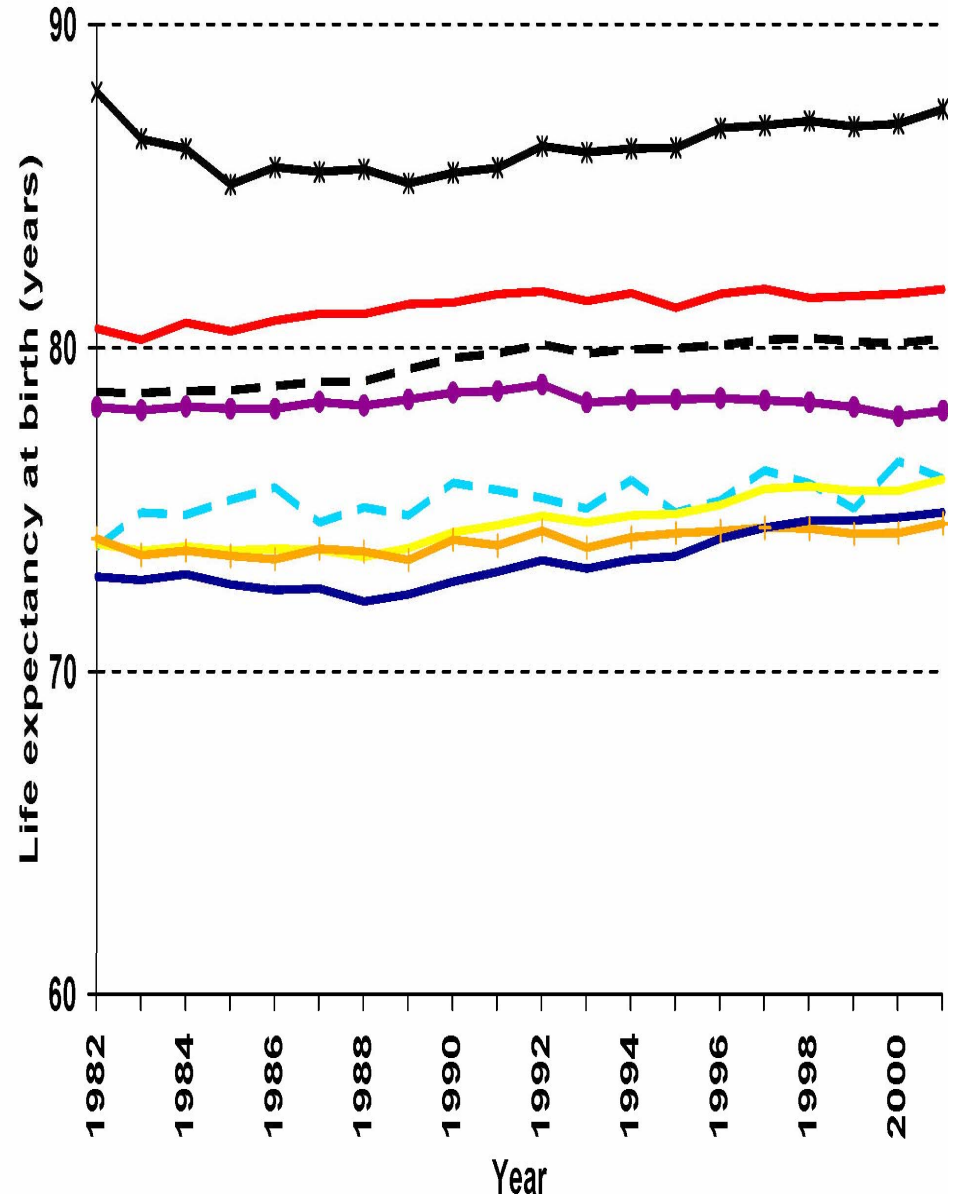
Murray et al. PLoS Medicine, 2006, vol3 (9), e260



Males



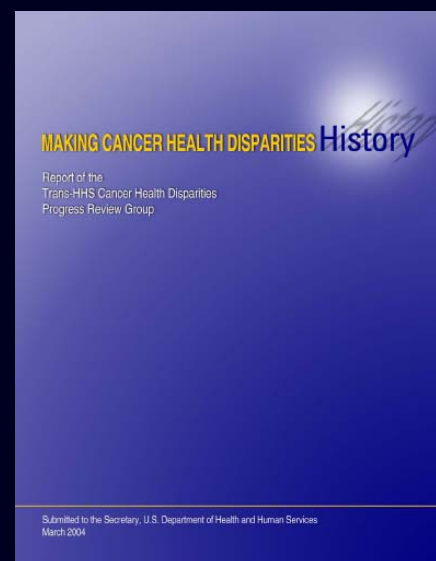
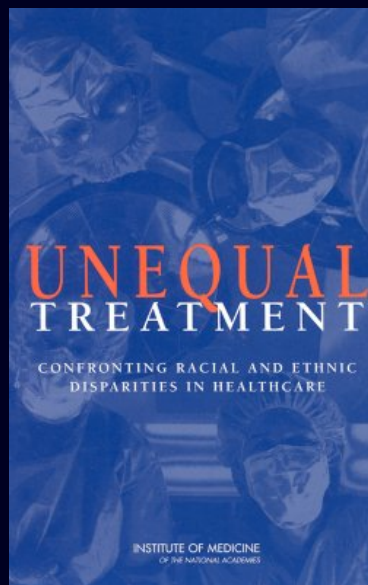
Females



The Effect of Racial and Ethnic Discrimination/Bias on Health Care Delivery

*Unequal Treatment: Confronting Racial and Ethnic
Disparities in Health Care*
Institute of Medicine (2002)

Making Cancer Health Disparities History
U.S. Department of Health and Human Services (2004)



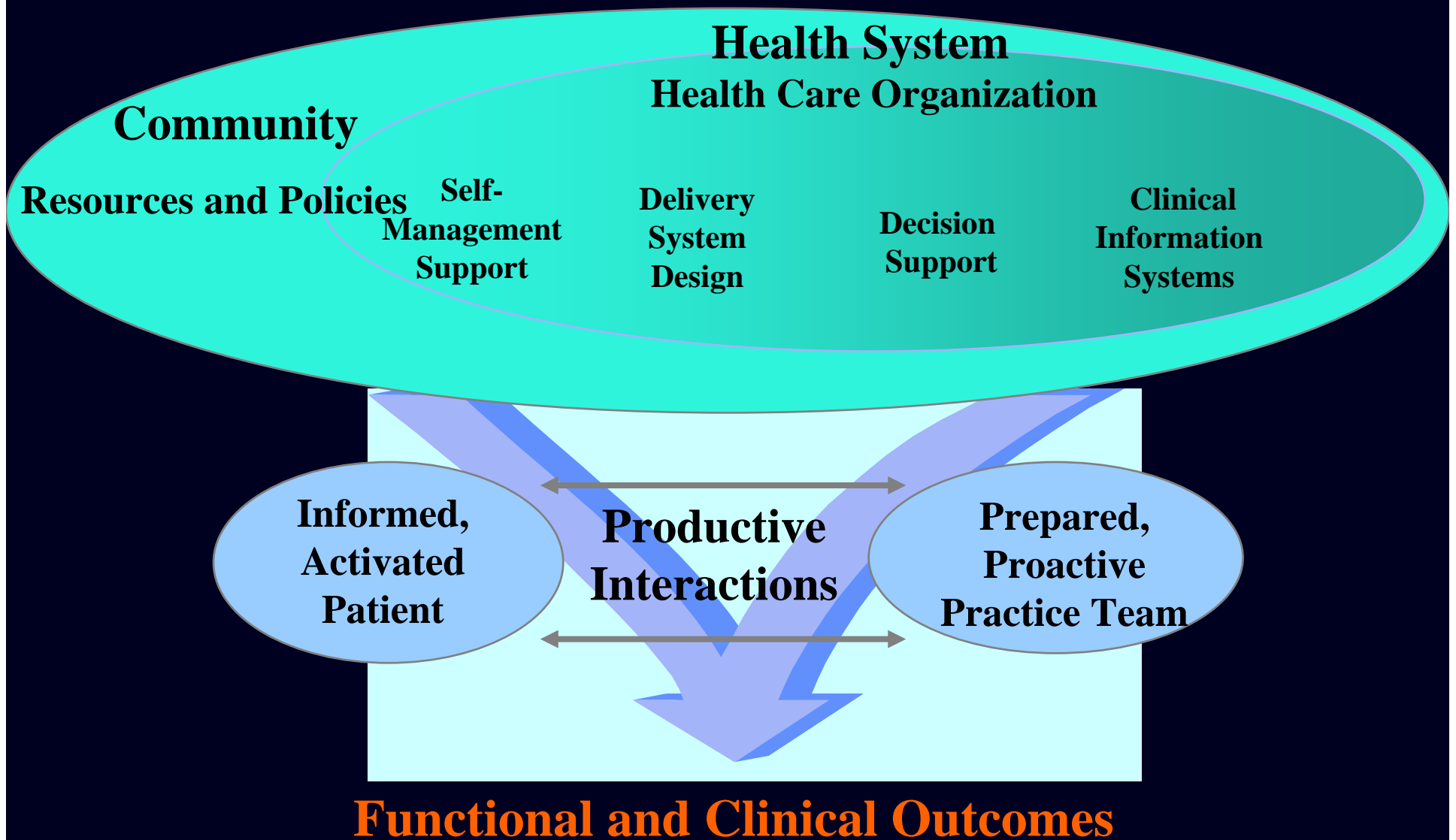
Some Necessary Areas of Focus



Source: ABC Working Group

Chronic Care Model

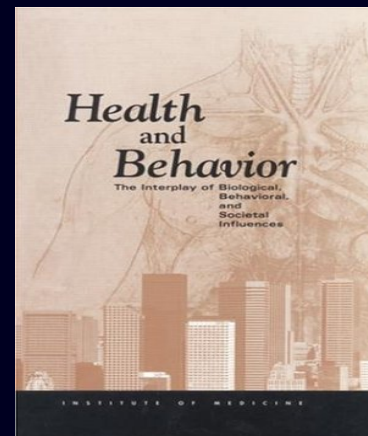
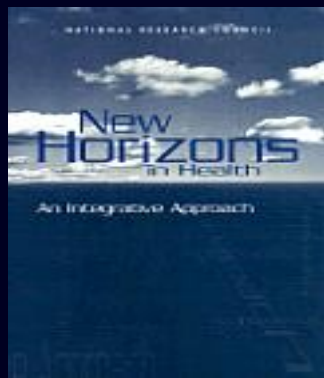
www.chroniccare.org



Methodology & Measurement in the Behavioral and Social Sciences

New Horizons in Health: An Integrative Approach
National Research Council (2001)

Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences
Institute of Medicine (2001)



We clearly must pursue an aggressive agenda of basic and clinical scientific research to assure the greatest depth of understanding of what is the basic biology/ physiology of the system and what are the nuances involved....

We err grievously, however, if we do not understand that a more integrated approach must be used to translate our science into principles and programs of chronic disease treatment....a multidisciplinary team must be at the table, respectful of the science of each discipline and respectful of each other!

Methodology & Measurement in the Behavioral and Social Sciences

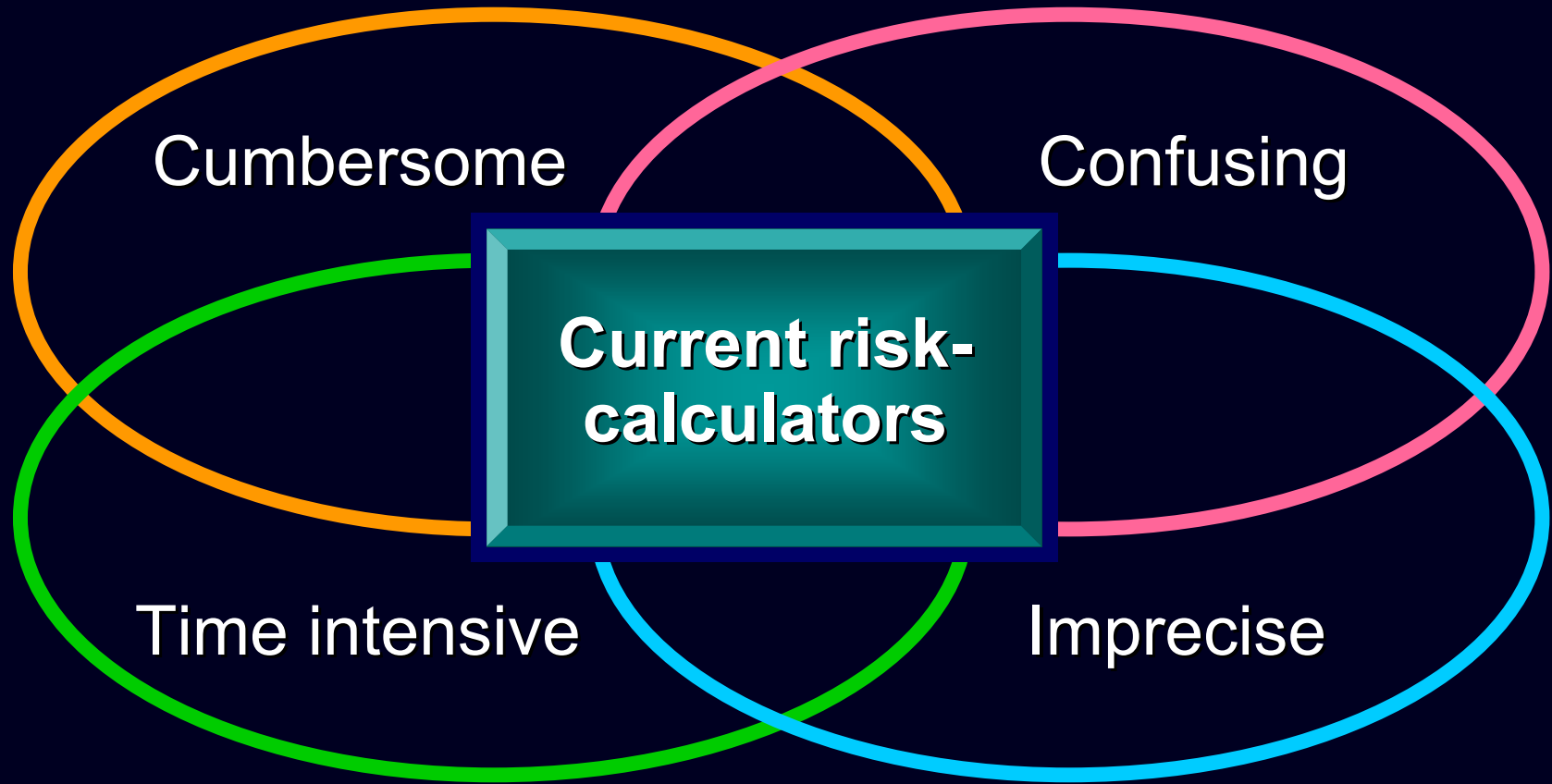
Designs to improve and compare various approaches to economic analysis for improving decision-making in health policy and health care systems.

Methodology to measure fidelity to behavioral interventions to better assess the fidelity of clinical and community-based and multi-site interventions.

Development of behavioral and social science measures that can be used for efficient data collection in clinical practice-based, research networks.

Methodology to capture the behaviors of health care providers in clinical settings.

Important to Assess Who is at Risk: How?



Newer, simpler tools may be needed

Available CVD risk prediction methods

Risk calculators

- Framingham Risk Score
- PROCAM Neural Network calculator
- New Zealand chart
- Sheffield table
- Joint British Societies chart
- UKPDS Risk Engine
- Pocock Risk Score
- SCORE
- Dundee Coronary Risk Score
- British Regional Heart Study Risk Function



Issues

- **Caucasian bias**
 - May not apply to other ethnicities and socioeconomic strata
- **Derived prior to current aggressive risk factor strategies**
 - May not accurately account for baseline medications
- **Complicated/time-consuming**
 - Incompatible with busy practice

Jackson R et al. *Lancet*. 2005;365:434-41.
Padwal R et al. *BMJ*. 2001;322:977-80.

NCEP/Framingham estimate of 10-year CHD risk in women currently without CHD

Age (y)	20-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79								
Points	-7	-3	0	3	6	8	10	12	14	16								
Total cholesterol (mg/dL)	Points Age (y)					HDL-C (mg/dL)		Points										
	20-39	40-49	50-59	60-69	70-79													
	<160	0	0	0	0	≥60	-1											
	160-199	4	3	2	1	50-59	0											
	200-239	8	6	4	2	40-49	1											
	240-279	11	8	5	3	<40	2											
≥280	13	10	7	4	2													
Age (y)	Points					Systolic BP (mm Hg)		Points										
	20-39	40-49	50-59	60-69	70-79	Untreated	Treated											
	Nonsmoker	0	0	0	0	0	0											
Smoker	9	7	4	2	1	120-129	0	3										
						130-139	2	4										
						140-159	3	5										
						>160	4	6										
Point total:	<9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	>25
10-year risk (%):	<1	1	1	1	1	2	2	3	4	5	6	8	11	14	17	22	27	≥30

Expert Panel. NCEP ATP III. *JAMA*. 2001;285:2486-97.

Recommended Approaches to Repair the Gap in Health Disparities Research

- **Increase funding to support health disparities research**
- **Increase minority participation in clinical research on all levels**
- **Increase training of minority investigators**
 - **Academic minority faculty/trainees**
 - **Investigators for clinical trials**
- **Train investigators for projects targeting minority populations to be sensitive to special needs, i.e. for diverse project teams (we need a more robust pipeline in these areas)**

Minority physicians tend to care for minority patients

Author, year	Study population	Main Findings
Keith, 1985	UCLA medical school class of 1975	Minority physicians are more likely to: <ul style="list-style-type: none"> • choose primary care specialties • serve patients of their own ethnic group • serve Medicaid recipients • work in health manpower shortage areas
Moy & Bartman, 1995	Nationally representative sample of 15,000 U.S. adults	Individuals receiving care from minority physicians were more likely to: <ul style="list-style-type: none"> • be ethnic minorities • be low income • have Medicaid or no insurance • report worse health status and more acute service use
Komaromy et al., 1996	Communities in California 718 primary care physicians in California	<ul style="list-style-type: none"> • Communities with high proportions of minority residents more likely to have shortage of physicians • Black and Hispanic physicians care for more black and Hispanic patients and practice in areas where the percentage of black and Hispanic residents is higher than areas where majority physicians practice. • Minority physicians care for more Medicaid and uninsured patients than other physicians
Cantor et al., 1996	Physicians from several states	Minority and women physicians are more likely to serve the following patient populations: <ul style="list-style-type: none"> • minorities • the poor • Medicaid recipients
Xu et al., 1997	1581 generalist physicians from class of 1983 or 1984	<ul style="list-style-type: none"> • Generalist physicians from underrepresented minorities (URMs) more likely to serve medically underserved populations
Brotherton et al., 1996	1044 pediatricians	URM pediatricians more likely to care for: <ul style="list-style-type: none"> • minority patients • Medicaid-insured patients • uninsured patients

Minority physicians tend to care for minority patients

Author, year	Study population	Main Findings
Murray-Garcia et al, 2001	Patients of pediatric residents	<ul style="list-style-type: none">• Minority physicians more likely to serve patients of their own ethnicity regardless of language proficiencies
Rabinowitz, 2000	2955 generalist physicians who graduated in 1983 or 1984	<p>Predictors of providing care to underserved populations include:</p> <ul style="list-style-type: none">• Being URM• Having participated in National Health Services Corps• Having a strong interest in serving underserved prior to medical school• Growing up in an underserved area

Minority patients and their physicians' offices are located in and around urban centers

- 52%: proportion of blacks who live in the central city of a metropolitan area (Congressional Black Caucus)
- ~50%: proportion the nation's Dominicans who live in NYC (US Census)
- ~50%: proportion of the nation's Cubans residing in Miami-Dade County, Fla. (US Census)
- 4.6 million Hispanics live in Los Angeles County, CA (US Census)

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- Do we need more “good people” working on these issues?

* *The clinical trial often helps determine the “state of the art, and often provides a gateway to cutting-edge care--- leading to improved management of chronic diseases*

Most minority physicians are naïve investigators

Total Physicians By Race/Ethnicity- 2004

(total physicians = 884,974)

Race/Ethnicity	Number	Percentage	
White	421,659	47.8	
Black	20,653	2.3	
Hispanic	27,935	3.2	(38,500 per us Census Bureau)
Asian	73,152	8.3	
American Native/ Alaska Native	504	.06	
Other	20,011	2.3	
Unknown	321,060	36	

Note: At year-end 2004, the AMA had race/ethnicity data for over three fifths of all physicians in the US.

Source: *Physician Characteristics and Distribution in the US, 2006 Edition*. American Medical Association.

No accurate estimate of minority investigators

Minority Representation in Clinical Trials of Recently Approved Drugs

- No comprehensive data available!
- Current estimates average substantially less <5% in pivotal trials supporting drug safety and efficacy
- Trend persists although African Americans are disproportionately affected by most major chronic disease categories
- Further shifts in the demographics will make this an increasing rather than *decreasing* problem

Barriers to African-American MD Participation in Clinical Trials

- Lack of clinical trials experience
- Provider compliance issues
- Researcher's beliefs and biases
- Lower MD/patient ratios
- Lack of information about clinical research
- Concern about loss of patients
- Lack of financial (& other) resources

The pipeline for enrichment of the diversity in the Patient population is directly linked to the pipeline of *Providers*_____

A strategic focus on increasing the representation of underrepresented minority investigators must be embraced as the rate-limiting step in assuring the required diversity in clinical research/ clinical trials

Most minority physicians are open to clinical research

Evidence of Demand

- **National Medical Association**
 - 3 year project to determine member interest level and develop best model to offer as a member benefit
 - Resulted in Project IMPACT: Increasing Minority Participation and Awareness of Clinical trials
 - Annual awareness and training program at national convention
- **Association of Black Cardiologists**
 - Newly opened 60,000 sq.ft. research center in Atlanta
 - First annual (?) investigator training session held at new center
- **Pfizer - “Investigator Training Program”**
 - Fully developed curriculum covering 5 modules
 - Full-time staff committed to training
- **AstraZeneca**
 - Early efforts of creating regional lists of minority physicians
 - Decentralized within medical organization

Barriers to Recruitment and Retention: A Pipeline Problem

- Fear and mistrust
- Variability of health priorities
- Negative experiences with the health care system
- Differences in health beliefs
- Economic issues- study requirements interfered with work and family
- Complexity of study procedures- record keeping too complicated

Green BL et al. Ethnicity and Disease. 2000 10(1): 76-86. Janson SL. Et al
Control Clin Trials 2001; 22:236S-243S

Sponsor Initiated Strategies to Improve Recruitment and Retention—Approaches to “fix” the Pipeline

- Cultural Intermediaries
- Minority Investigators
 - Bridge to the Community
 - Well-established and respected
 - Existing ties to social networks
 - Church
 - Social clubs
 - Considered as community ICONs and Spokespersons
- Minority physicians treat minority patients

The “Culturally-Centered” Approach to fix the Pipeline: Sponsor-Initiated Strategies to Improve Recruitment and Retention

Establish ongoing relationships with Cultural Intermediaries

- Physician organizations
 - National Medical Association
 - Association of Black Cardiologist
 - International Society of Hypertension in Blacks
- Historically Black Colleges/Institutions
 - Morehouse
 - Howard
 - Meharry
 - Drew
- Community Based Organizations
 - NAACP
 - Congress of National Black Churches
 - Black Health Network
 - Total Lifestyle Change, Inc

Sponsor-Initiated Strategies to Improve Recruitment



- Use Cultural Intermediaries for:
- Educational Program Development & Delivery
 - Culturally sensitive promotional materials
 - Low-literacy education materials that explain disease process and clinical trial requirements
 - Recruitment videotapes that explain clinical trial along with patient testimonials
 - Targeted messages tailored to the social, cultural and economic concerns of the target population

Building on Success—it can be done!

- AAASPS (the AA Anti-platelet Stroke Prevention Study)
- DASH (Dietary Approaches to Stop Hypertension Collaborative Research Group)
- BCPT (Breast Cancer Prevention Trial)
- AAHPC (AA Hereditary Prostate Cancer Study)
- BHN (The Black Health Network, Inc.)
- AHEFT (no patients lost to follow up)

How can successful models be achieved?

DEVELOPMENT OF AN APPROACH TO “FIX” THE PIPELINE: PROPOSED ROLE FOR “INDUSTRY CHAMPION”

- Commission a thorough study of the issue surrounding minority clinical investigators with the goal of proving a null hypothesis
- Work with a company/group that can develop recommendations and execute
- Identify senior level champion(s) internally

Goal: To “fix” the current gaps in the clinical trials enterprise and thus promote introduction and adoption of improved chronic disease care

What Lessons have we Learned?

- Multiple “ground level” changes and improvements will be required to assure improved care in the underserved
- The physician-patient relationship is critical
- Better(protocols for Clinical Trials should be considered urgent and based on a “foundation” of diversity
- Use the success of others to increase minority participation in clinical trials
- Steering committees and advisory boards must be more inclusive and diverse (better teams at the table!)
- Change starts at the top!!!---the pipeline is fixable

Diabetes Prevention Program (DPP) Findings

Lose 5 to 7 percent of
body weight by:

- Getting 30 minutes of
physical activity,
5 days a week
- Following a low-fat,
low-calorie eating plan



DPP Lifestyle Intervention worked for:

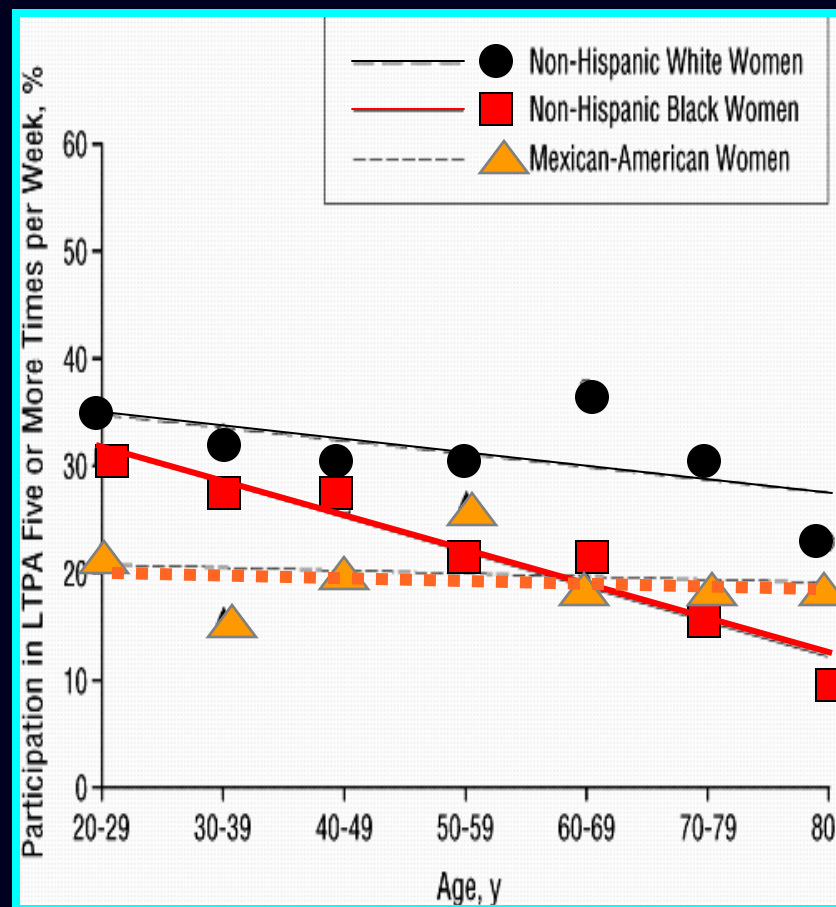
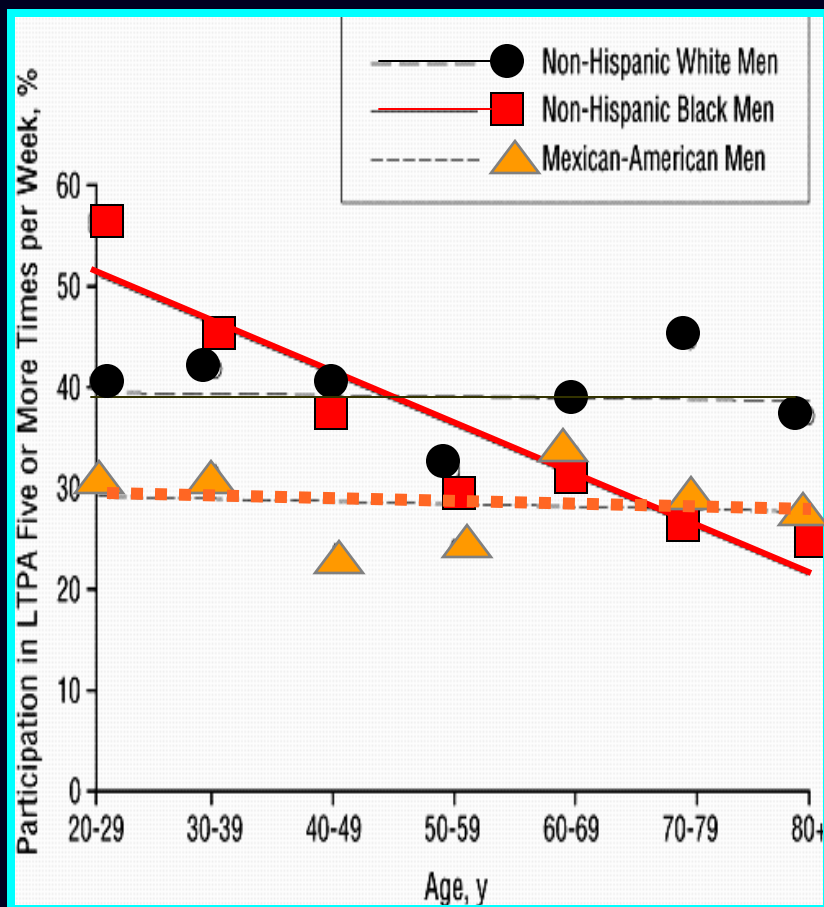
- All ethnic/racial groups
- Men and women, lean, plump or fat
- All adults, especially those over age 60
- There is special urgency for the high-risk!



Lifestyle Changes: Eating Habits

- A series of moderate, maintained changes make a difference
- Prevention of T2DM in DPP associated with **5-7% weight loss** in high-risk persons (average BMI ~34)
- Follow dietary guidelines
 - decrease fat intake (particularly saturated fats)
 - increase proportion of vegetables
 - increase grain intake
- Allow adequate spacing between meals
- “LESS THAN YOU ARE DOING NOW!”

Leisure-Time Physical Activity Among US Adults: Results From NHNES III



More than 50 Ways to Prevent Diabetes




Reduce portion sizes.

- #1 **Less on your plate, Nate.**
- #2 Keep meat, poultry, and fish servings down to 3 ounces (about the size of a deck of cards).
- #3 Drink at least one glass of water before each meal.
- #4 Try not to snack while cooking or clearing the kitchen.
- #5 Try to eat three sensible meals at regular times throughout the day.
- #6 Make sure you **eat breakfast** every day.
- #7 Eat your biggest meal in the middle of the day.
- #8 **Share** your desserts.
- #9 When eating out, have a big salad, then split an entrée with a friend or have the other half wrapped to go.
- #10 Stir fry, broil or bake with non-stick spray or broth and try to cook with less oil and butter.
- #11 Order your favorite sandwich skip the french fries at fast-food restaurants.
- #12 Try your fast-food sandwich faced by removing the top and bottom slices of bread. **Select** the healthiest option at fast-food restaurants (turkey or chicken instead of the chicken).
- #13 Listen to music while you are watching TV (people tend to eat more while watching TV).
- #14 It takes 20 minutes for your stomach to send a signal to your brain that you're full. Eat slowly.
- #15 **Eat a small meal, Lucille.**
- #16 Quench your thirst with water before soda or other sweet beverages.
- #17 You don't have to cut out your favorite foods. Just **cut** your portion size and eat

Add more physical activity to your daily routine.

- #18 **Dance it away, Faye.**
- #19 Show your kids the dances you used to do when you were their age.
- #20 Turn up the music and **jam** while doing household chores.
- #21 Deliver a message in person to a co-worker instead of e-mailing.
- #22 Take the stairs to your office. Or take the stairs as far as you can, and then take the elevator.
- #23 Make a few less phone calls. Talk with friends during a regular scheduled **walk**.
- #24 March in place while you wait for the bus.
- #25 Park as far away as possible from your favorite store at the mall.
- #26 Select an exercise video from the library.
- #27 Get off the bus one stop early and walk the rest of the way home or to work at least two days a week.

More Than 50 Ways to Prevent Diabetes

#1 Less on your plate, Nate
#18 Dance it away, Faye
#28 Snack on a Veggie, Reggie

African Americans who are overweight are at high risk of developing type 2 diabetes. Losing a small amount of weight, by getting 30 minutes of physical activity 5 days a week and eating healthy, will help prevent diabetes.

For more information about diabetes prevention, call 1-800-438-5383 and ask for "More Than 50 Ways to Prevent Diabetes"



A message from the National Diabetes Education Program, sponsored by the National Institutes of Health and the Centers for Disease Control and Prevention.

Nurture your mind, body, and soul.

- #45 **You can exhale, Gall.**
- #46 Don't try to change your entire way of eating and exercising all at once. Try one new activity or food a week.
- #47 Find mellow ways to **relax**—try deep breathing, take an easy paced walk, or enjoy your favorite easy listening music.
- #48 Give yourself daily "pampering time" and honor this time like any other appointment you make... whether it's spending time **reading** a book, taking a long bath, or meditating.
- #49 Try not to eat out of boredom or frustration. If you're not hungry, do something else.
- #50 Honor your health as your most precious gift.



Be creative.

- #51 **Make up your own, Tyrone or Simone.**
- #52 _____
- #53 _____

There are many more ways to prevent type 2 diabetes with healthy eating and physical activity. Discover your own and share it with your family, friends and neighbors.

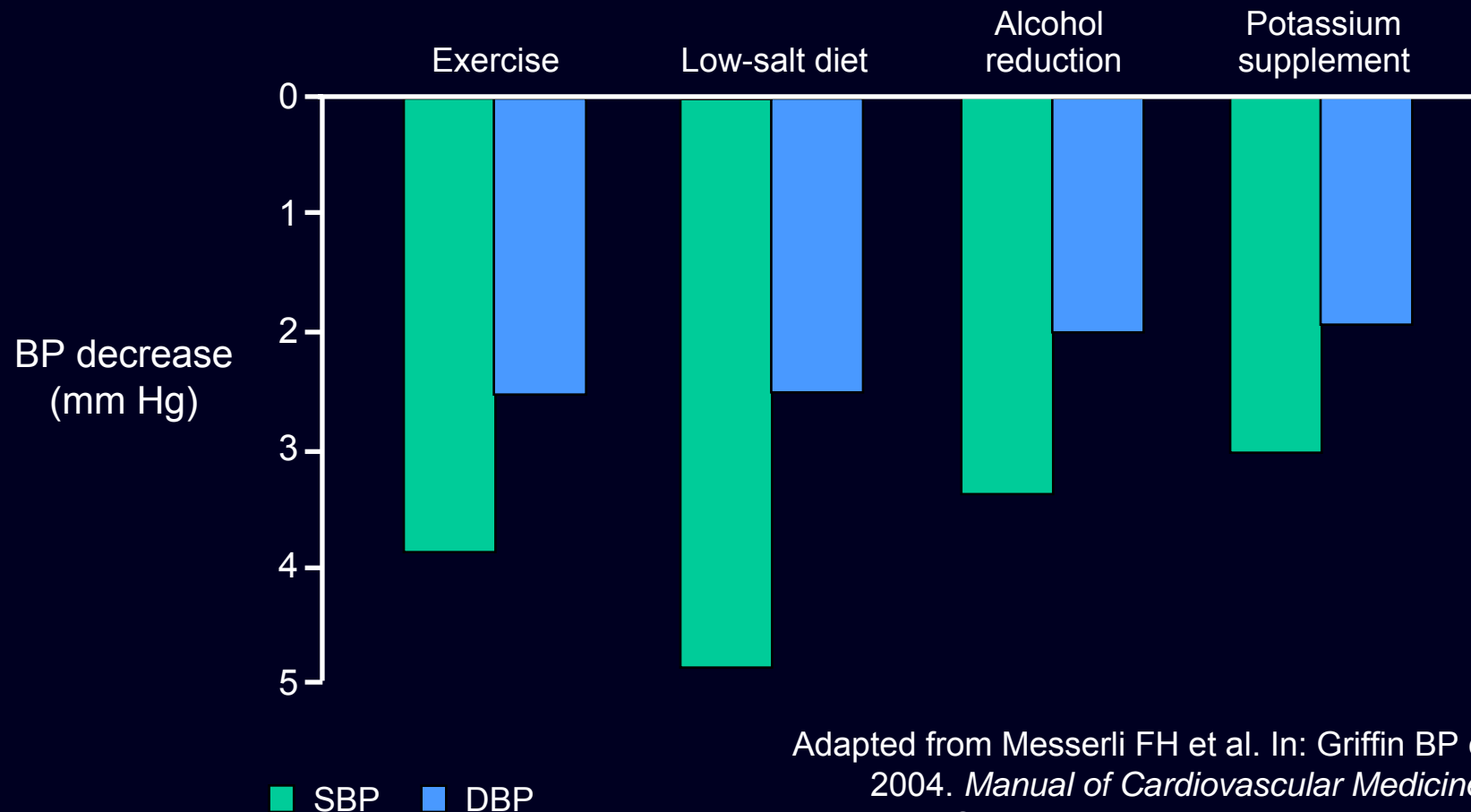


GAME PLAN for patients

The collage features several key components:

- MY DAILY AND WEEKLY GOALS:** A table for tracking goals with columns for 'FEE DATES', 'CALORIES', and 'NUMBER OF ACTIVITY'. It includes sections for 'MY DAILY AND WEEKLY TOTALS' and 'MONDAY FOOD AND DRINK TRACKER'.
- MY GAME PLAN FOOD AND ACTIVITY TRACKER:** A form for tracking food and activity with fields for 'NAME', 'DATE', and 'TIME'. It includes a 'SAMPLE ENTRY' section and a 'MONDAY FOOD TRACKER' table.
- FAT AND CALORIE COUNTER:** A section for tracking fat and calorie intake.
- DAILY PHYSICAL ACTIVITY:** A table for tracking daily physical activity with columns for 'TYPE OF ACTIVITY' and 'NUMBER OF MINUTES'.
- YOUR GAME PLAN FOR PREVENTING TYPE 2 DIABETES:** A central graphic with the 'small steps big rewards' logo and a photo of a diverse group of people.
- Am I at Risk for type 2 Diabetes?** A brochure with the subtitle 'Taking Steps to Lower the Risk of Getting Diabetes' and several photos of diverse individuals.

Non-pharmacologic interventions and BP reduction



Adapted from Messerli FH et al. In: Griffin BP et al, eds. 2004. *Manual of Cardiovascular Medicine*. 2nd ed. Whelton SP et al. *Ann Intern Med*. 2002;136:493-503. Cutler JA et al. *Am J Clin Nutr*. 1997;65(suppl):643S-651S. Xin X et al. *Hypertension*. 2001;38:1112-7. Whelton PK et al. *JAMA*. 1997;277:1624-32.

Lifestyle changes reduce need for drug therapy

N = 3234 with IGT randomized to intensive lifestyle change, metformin 850 mg 2x/d, or placebo

- Lifestyle change goals
 - Weight reduction of $\geq 7\%$ initial body weight via low-fat, low-calorie diet
 - Moderate-intensity physical activity ≥ 150 min/week

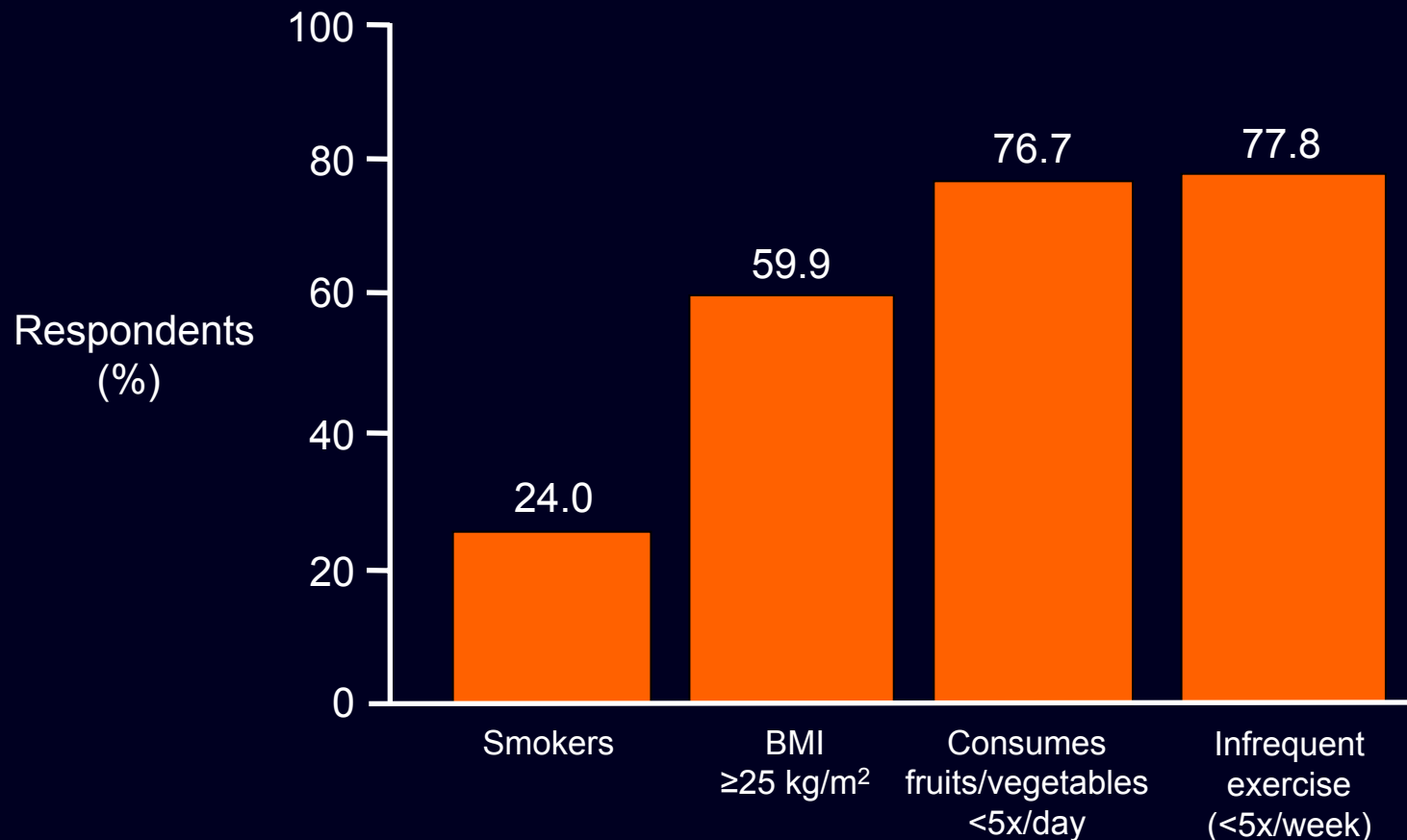
At 3 years	Lifestyle	Metformin	Placebo
BP-lowering agents required	23% *	32%	31%
Lipid-lowering agents required	12% *	16%	16%

*P < 0.001 vs other groups

Diabetes Prevention Program Research Group.
Diabetes Care. 2005;28:888-94.

Majority of Americans do not follow a healthy lifestyle

2000 Behavioral Risk Factor Surveillance System, N = 153,805



Reeves MJ and Rafferty AP. *Arch Intern Med.* 2005;165:854-7.

Targets for Lipids, Blood Pressure, and BMI in Type 2 Diabetes: Should They Differ?

	Target (mg/dL)
• Total cholesterol	<200
• HDL-C	>45
• LDL-C*	acceptable <130; optimal <100
• Triglycerides	acceptable £200; optimal £150
• Blood pressure	<130/80 mm Hg
• Body mass index	<25 kg/m ²

*If other risk factors are present or in presence of previous CVD, optimal levels must be targeted.

Risk stratification

Other risk factors and disease history	Blood pressure (mm Hg)				
	Normal SBP 120–129 or DBP 80–84	High normal SBP 130–139 or DBP 85–89	Grade 1 SBP 140–159 or DBP 90–99	Grade 2 SBP 160–179 or DBP 100–109	Grade 3 SBP \geq 180 or DBP \geq 110
No other risk factors	Average risk	Average risk	Low added risk	Moderate added risk	High added risk
1–2 risk factors	Low added risk	Low added risk	Moderate added risk	Moderate added risk	Very high added risk
\geq 3 risk factors, TOD or diabetes	Moderate added risk	High added risk	High added risk	High added risk	Very high added risk
Associated clinical conditions	Average risk	Very high added risk	Very high added risk	Very high added risk	Very high added risk

TOD = target organ damage
 SBP = systolic blood pressure
 DBP = diastolic blood pressure

Eur Soc Hypertension/ESC. *J Hypertens.* 2003;21:1011-53.


WHAT NEEDS TO HAPPEN AT “GROUND LEVEL” TO CHANGE TRENDS AND OUTCOMES?

- Do we need more epidemiologic/socioenvironmental info?
- Do we need greater scientific insights on differences?
- Do we need better priority setting in our policies?
- Do we need more of the “right” research questions asked?
- Do we need different treatment targets?
- Do we need different treatment pathways/algorithms
- Do we need more “good people” working on these issues?

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"My question is: Are we making an impact?"



Life is filled with golden opportunities,
carefully disguised as irresolvable
problems.

-- John Gardner
former Secretary of Health,
Education & Welfare

NEVER EVER
GIVE UP



Picture supplied by JR Gavin, III, MD, PhD