Health Disparities in Cardiovascular Health and Disease

10th Annual Texas Conference on Health Disparities
June 12, 2015

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Chief Medical Officer for Prevention
American Heart Association
Objectives

By the end of the session, participants will be able to:

1. Discuss Life’s Simple 7, the seven health behaviors and factors that define ideal cardiovascular health
2. Discuss the disparity in childhood obesity prevalence by race and ethnicity in the United States
3. Discuss the disparity in ischemic heart disease and stroke mortality by race and ethnicity in the United States
4. Discuss the disparity in high school graduation rates by race and ethnicity in the United States
Shorter Lives, Poorer Health

- The US has the highest obesity rate among high-income countries.
- US adults have among the highest prevalence rates of diabetes (and high plasma glucose levels) among peer countries.
- 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.

NRC and IOM, January, 2013
Multiple Chronic Conditions (MCC)

- One in four (25%) Americans has multiple chronic conditions (MCC), including one in 15 children.
- Among Americans aged 65 years and older, as many as three out of four persons (75%) have MCC.
- People with MCC are at increased risk for mortality and poorer day-to-day functioning.
- Approximately 66 percent (66%) of total health care spending in the U.S. is associated with care for Americans with MCC.

HHS Initiative on Multiple Chronic Conditions, hhs.gov
2013 Leading Causes (and Numbers) of Death in the United States

1. **Heart disease**: 611,105
2. Cancer: 584,881
3. Chronic lower respiratory diseases: 149,205
4. Accidents (unintentional injuries): 130,557
5. **Stroke (cerebrovascular diseases)**: 128,978
6. Alzheimer's disease: 84,767
7. **Diabetes**: 75,578
8. Influenza and Pneumonia: 56,979
9. Nephritis, nephrotic syndrome, and nephrosis: 47,112
10. Intentional self-harm (suicide): 41,149

CDC.gov
Questions

• Q. Is achieving health equity dependent on having health insurance?

• Q. Is achieving health equity dependent on better delivery of medical care?
  – better clinical prevention?
  – better chronic disease management?

• Q. A more diverse workforce?

• Q. Non-clinical strategies?
Affordable Care Act: The Experience in 4 Largest States

- Of the four, Texas has the highest uninsured rate (NY-12%, CA-17%, FL-21%, TX-30% in 19-64 year-olds)
- Of the 4, Texas has the highest poverty rate among 19-64 year-olds who are uninsured (NY-13%, CA-23%, FL-33%, TX-51%)
- In NY and CA, 18% of residents reported having a medical problem but not going to a doctor or clinic because of cost, versus 29% in FL and 26% in TX.
- Adults in NY and CA reported lower rates of medical bill problems or debt than those in FL and TX

AHA 2020 Impact Goal

“By 2020, to improve the cardiovascular health of all Americans by 20% while reducing deaths from cardiovascular diseases and stroke by 20%.”
## Projected US Population

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Population</strong></td>
<td>309M</td>
<td>336M</td>
<td>364M</td>
<td>392M</td>
<td>420M</td>
</tr>
<tr>
<td>White</td>
<td>65.1%</td>
<td>61.3%</td>
<td>57.5%</td>
<td>53.7%</td>
<td>50.1%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15.5%</td>
<td>17.8%</td>
<td>20.1%</td>
<td>22.3%</td>
<td>24.4%</td>
</tr>
<tr>
<td>Black</td>
<td>13.1%</td>
<td>13.5%</td>
<td>13.9%</td>
<td>14.3%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Asian</td>
<td>4.6%</td>
<td>5.4%</td>
<td>6.2%</td>
<td>7.1%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

Source: Census.gov
The Platform for Heart Health: Life’s Simple 7

- Smoking Status
- Physical Activity
- Healthy Diet
- Healthy Weight
- Blood Pressure
- Cholesterol
- Blood Glucose
## Cardiovascular Health Status Levels

### LIFE’S SIMPLE 7

<table>
<thead>
<tr>
<th>Smoking Status</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt;20 years of age</td>
<td>Current Smoker</td>
<td>Former ≤ 12 mos</td>
<td>Never /quit ≥ 12 mos</td>
</tr>
<tr>
<td>Children (12–19)</td>
<td>Tried prior 30 days</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Activity</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt; 20 years of age</td>
<td>None</td>
<td>1-149 min/wk mod or 174 min/wk vig or 1-149 min/wk mod + vig</td>
<td>150+ min/wk mod or 75+ min/wk vig or 150+ min/wk mod + vig</td>
</tr>
<tr>
<td>Children 12-19 years of age</td>
<td>None</td>
<td>&gt;0 and &lt;60 min of mod or vig every day</td>
<td>60+ min of mod or vig every day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthy Diet</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt; 20 years of age</td>
<td>0-1 components</td>
<td>2-3 components</td>
<td>4-5 components</td>
</tr>
<tr>
<td>Children 5-19 years of age</td>
<td>0-1 components</td>
<td>2-3 components</td>
<td>4-5 components</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthy Weight</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt; 20 years of age</td>
<td>≥30 kg/m²</td>
<td>25-29.9 kg/m²</td>
<td>&lt;25 kg/m²</td>
</tr>
<tr>
<td>Children 2-19 years of age</td>
<td>&gt;95th percentile</td>
<td>85th-95th percentile</td>
<td>&lt;85th percentile</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blood Glucose</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt;20 years of age</td>
<td>126 mg/dL or more</td>
<td>100-125 mg/dL or treated to goal</td>
<td>Less than 100 mg/dL</td>
</tr>
<tr>
<td>Children 12-19 years of age</td>
<td>126 mg/dL or more</td>
<td>100-125 mg/dL</td>
<td>Less than 100 mg/dL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cholesterol</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt;20 years of age</td>
<td>≥240 mg/dL</td>
<td>200-239 mg/dL or treated to goal</td>
<td>&lt;170 mg/dL</td>
</tr>
<tr>
<td>Children 6-19 years of age</td>
<td>≥200 mg/dL</td>
<td>170-199 mg/dL</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blood Pressure</th>
<th>POOR</th>
<th>INTERMEDIATE</th>
<th>IDEAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt;20 years of age</td>
<td>SBP ≥140 or DBP ≥90 mm Hg</td>
<td>SBP120-139 or DBP 80-89 mm Hg or treated to goal</td>
<td>&lt;120/&lt;80 mm Hg</td>
</tr>
<tr>
<td>Children 8-19 years of age</td>
<td>&gt;95th percentile</td>
<td>90th-95th percentile or SBP ≥120 or DBP ≥80 mm Hg</td>
<td>&lt;90th percentile</td>
</tr>
</tbody>
</table>
Why focus on Simple 7?

Number of Ideal Heart Health Behaviors or Factors and Mortality

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.

# Prevalence of BMI > 85% in Girls in US 2009-2010

<table>
<thead>
<tr>
<th>Age Range (in years)</th>
<th>Whites</th>
<th>Blacks</th>
<th>Latinas</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5</td>
<td>21.3</td>
<td>27.0</td>
<td>32.1</td>
</tr>
<tr>
<td>6-11</td>
<td>25.2</td>
<td>44.2</td>
<td>39.6</td>
</tr>
<tr>
<td>12-19</td>
<td>27.6</td>
<td>45.1</td>
<td>41.9</td>
</tr>
</tbody>
</table>

Prevalence of BMI > 85% in Boys in US 2009-2010

<table>
<thead>
<tr>
<th>Age Range (in years)</th>
<th>Whites</th>
<th>Blacks</th>
<th>Latinos</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5</td>
<td>26.0</td>
<td>30.5</td>
<td>34.1</td>
</tr>
<tr>
<td>6-11</td>
<td>29.7</td>
<td>40.9</td>
<td>39.7</td>
</tr>
<tr>
<td>12-19</td>
<td>32.2</td>
<td>37.4</td>
<td>42.9</td>
</tr>
</tbody>
</table>


Prevalence of Diabetes and Prediabetes in the United States

• 29.1 million adults in the US with diabetes (9.3% of the population) – 21 million are diagnosed

• An estimated 86 million adults in US with prediabetes

National Diabetes Statistics Report, CDC.gov
Prevalence of Diabetes by Race/Ethnicity

• Whites 7.6%
• Asians 9.0%
• Hispanics 12.8%
• Blacks 13.2%
• AI/AN* 15.9%

*American Indian/Alaska Natives

National Diabetes Statistics Report, CDC.gov
Prevalence of Diabetes Among Hispanics

- Central/South Americans 8.5%
- Cubans 9.3%
- Mexican Americans 13.9%
- Puerto Ricans 14.8%

National Diabetes Statistics Report, CDC.gov
Prevalence of Diabetes Among Asian Americans

- Chinese: 4.4%
- Filipino: 11.3%
- Asian Indians: 13%
- Other: 8.8%

National Diabetes Statistics Report, CDC.gov
Prevalence of Diabetes among American Indian/Alaska Natives

• From 7.6% in Alaska Natives to 24.1% among American Indians in Southern Arizona

National Diabetes Statistics Report, CDC.gov
First acute decompensated heart failure annual event rates per 1000 (from ARIC Community Surveillance 2005–2010).

Go A et al. Circulation 2014;129:e28-e292
Creating a culture of Health

Global, Federal Legislative/Regulatory and Industry Environments

State Legislative/Regulatory and Industry Environments

Community (Work, School, Religious, Neighborhood)

Family, Friends, Social Networks

Individual
Building a Culture of Health in My Community

**Tobacco**
Increase percentage of Americans who live in environments that support smoke-free air and smoking cessation.

**Nutrition**
Improve environments that support healthy eating and improve quality of foods available.

**Physical Activity**
Increase percentage of Americans who live in environments that support active lifestyles.

**Health Factors**
Improve environments that support healthy weight, blood pressure, glucose and cholesterol.

**CPR/Chain of Survival**
Increase percentage of Americans who live in environments that support emergency response for cardiac arrest.

**Acute Care & Emergency Response**
Increase percentage of Americans who live in environments that support decreased cardiovascular disease mortality and improved quality of life.

**Post-Event Care**
Increase percentage of Americans who receive the support and education needed after acute events.

**Social Determinants**
Ensure safe places to work, play, and get care are available for all Americans.
## Example: Tobacco

<table>
<thead>
<tr>
<th>Reduce Tobacco</th>
<th>Outcome</th>
<th>Good</th>
<th>Intermediate</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increase percentage of Americans who live in environments that support smoke-free air and smoking cessation.</td>
<td>• 100% of community covered by clean indoor air legislation in all restaurants/bars/ workplaces</td>
<td>• 100% of community covered by clean indoor air legislation in all restaurants/bars</td>
<td>• Community covered by clean indoor air legislation below intermediate level</td>
</tr>
<tr>
<td></td>
<td>• Excise tax=$1.85 or &gt; per pack</td>
<td>• Excise tax=$1 or &gt; per pack</td>
<td>• Excise tax= &lt;$1 per pack</td>
<td>• Access to smoking cessation and prevention campaign</td>
</tr>
</tbody>
</table>
Consider taking the stairs!

Climbing stairs contributes to the 30 minutes of exercise we all need each day to be healthy.

Climbing stairs can help you:
- Reduce stress
- Lose weight (up to six pounds per year)
- Firm your leg muscles
- Increase bone density
- Reduce bad cholesterol

Texas Health Presbyterian Hospital Dallas
TexasHealth.org
Relationship Between Social Determinants and Mortality (2000)

National High School Graduation Rates, 2003-04

- Native American: 49.3%
- Black: 53.4%
- Latino: 57.8%
- White: 76.2%
- Asian: 80.2%

Cities in Crisis, EPE Research Center, 2008
## SY2011-12 Adjusted Cohort Graduation Rates (by race/ethnicity)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Graduation rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native</td>
<td>67%</td>
</tr>
<tr>
<td>Black</td>
<td>69%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>73%</td>
</tr>
<tr>
<td>White</td>
<td>86%</td>
</tr>
<tr>
<td>Asian</td>
<td>88%</td>
</tr>
</tbody>
</table>

Remaining Years of Life for U.S. Adults at Age 25 by Educational Attainment, 2005

Percent of Working Families Below 200% Poverty (by race/ethnicity)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percent Below 200% Poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native</td>
<td>48%</td>
</tr>
<tr>
<td>Black</td>
<td>49%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>55%</td>
</tr>
<tr>
<td>White</td>
<td>23%</td>
</tr>
<tr>
<td>Asian</td>
<td>24%</td>
</tr>
</tbody>
</table>

www.workingpoorfamilies.org
Bridging Community and Clinical Care
# Diabetes Prevention Program (DPP)

<table>
<thead>
<tr>
<th></th>
<th>Placebo</th>
<th>Metformin</th>
<th>Lifestyle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of diabetes (percent per year)</td>
<td>11.0%</td>
<td>7.8%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Reduction in incidence compared with placebo</td>
<td>–</td>
<td>31%</td>
<td>58%</td>
</tr>
<tr>
<td>Number needed to treat to prevent 1 case in 3 years</td>
<td>–</td>
<td>13.9</td>
<td>6.9</td>
</tr>
</tbody>
</table>
High Blood Pressure Control

Improving blood pressure control.

Increase HBP control in clinical settings through the adoption of HBP treatment algorithm.

Increase HBP control in non-traditional settings through community-based partnerships.

Linking Clinical and Community Settings
Barriers that must be overcome for health system-based efforts to contribute to optimized population health

1. Misaligned stakeholder interests and population health investments
2. Inadequate information transfer
3. Inadequate service integration between health care and other sectors
4. Designing and functioning within a sustainable budget
5. Difficulties addressing health disparities

Eggleston & Finkelstein. JAMA 2014;311(8); 2/26/14
Accountable Care as a Strategy for Achieving Population Health Goals

To meet the responsibility to improve health outcomes for those under their care and society at large, health systems will need to:

1. Take responsibility for the health of their patient populations
2. Create and expand partnerships with other entities with the potential to influence health
3. Respond to social demands for equity and value

Eggleston & Finkelstein. JAMA 2014;311(8); 2/26/14
Accountable Health Organizations (AHOs)

- Manages the health “investment portfolio” for a community
  - “Health in All Policies” to produce health
- All services - retail, government, real estate, transportation, other private (the business sector), social, health (including public health, medical, dental, mental health care) services associated with a defined population – that should be held accountable for the health status and outcomes for that population.
- Attribution methodologies for accountability (credit for contribution to health for allocation of resources and charges to fund and sustain the system).
- A system whose performance is measured by progress towards achieving health equity and highest health status
Hospital Community Benefit Programs
Increasing Benefits to Communities

Principles to guide the development of a strategy for leveraging community benefit

1. Defining mutually agreed-on regional geographic boundaries to align both community benefit and AHC initiatives,
2. Ensuring evidence-based “community benefit” funded interventions
3. Increasing the scale and effectiveness of community benefit investments by pooling resources
4. Establishing shared measurement and accountability for regional population health improvement

Corrigan, Fisher, and Heiser. JAMA 2015;313(12); March 24/31, 2015
The Healthcare Imperative: Lowering Costs and Improving Outcomes

Annual US health care waste costs $765 billion

- $210 billion  Unnecessary services (services used too frequently)
- $190 billion  Insurance/bureaucratic costs (unproductive documentation)
- $130 billion  Inefficient services (uncoordinated care, errors)
- $105 billion  Prices that are too high
- $75 billion   Fraud
- $55 billion   Missed prevention opportunities

Workshop Summary, IOM, Feb 24, 2011
Models for governance and finance

- The Wellness Trust
  - A quasi-independent agency with its own Trustees.
  - Funded by consolidation of existing federal insurance and public health spending on prevention and as well as new sources of funding (e.g., alcohol or soda taxes or as part of a broader reform plan).

- HIV Planning Councils

Lambrew and Podesta, Center for American Progress, October 5, 2006
The New Triple Aim

“New designs can and must be developed” whose prime directive is to **produce health by**:

- Addressing and improving social and environmental conditions as well as public health and medical care delivery
- Basing funding and expenditures on evidence (what works most effectively) and tracking clinical, health, and social metrics
- Optimizing the health of the population

NRC and IOM, January, 2013
Real “Health Reform” to Achieve Health Equity

- Healthy, safe, and affordable housing
- Quality education (preschool to high school) – 100% graduation rates
- Employment/Income
- Comprehensive indoor smoking laws/policies including housing units
- Affordable food and physical activity
- Access to health - equitably funded public health and population health
- Access to medical care – health insurance and quality primary care
An Integrated Health System
life is why™
es por la vida™ 全為生命™