Toward a Future of Good Health and Wellness: Inequities in American Indian and Alaska Native Health

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www.minority.unc.edu/institute/2011/
Presentation Overview

- What are some prominent inequities in American Indian/Alaska Native health?
- Why do these inequities exist?
- What’s been done, or can be done about them?
Acknowledgements

- Strong Heart Study
- Stop Atherosclerosis in Native Diabetics Study (SANDS)
- National Heart, Lung and Blood Institute
- Dr. Patricia Nez Henderson

No Financial Conflicts
Background

- Long history of AIAN disparities
- Multiple disease states and persistent across changing notions of disease causation
- Prominent social and political causes
Prominent Observational Studies

- Strong Heart Study (1988-present)
- Navajo Health and Nutrition Survey (1991-92)
- Inter-Tribal Heart Project (1992-94)
- Education and Research Towards Health (EARTH) Study (2001-2007)
- BRFSS
Leading Causes of Death, U.S.

CVD & Stroke: 39%
Cancer: 23%
All Other: 38%

AHA, 2005
American Indian Cardiac Mortality
By IHS Area, 1994 - 1996

per 100,000; age-adjusted;  

US All Races 138.3

Regional Differences in Indian Health - 1998-99
Carotid Atherosclerosis in American Indians

ARIC = Atherosclerotic Risk in Communities Study
SHS = Strong Heart Study
CHS = Cardiovascular Health Study

INCIDENCE OF CHD

Strong Heart Study vs. ARIC

CHD includes fatal and nonfatal events plus revascularization.
Fatal and Nonfatal Rates per 1000 person years.

The Rising Tide of CVD in AI: The SHS, Circulation, 1999
Age and Misclassification-adjusted CVD Mortality Rates By Population

State and Contract Health Service Delivery Area (CHSDA) counties by IHS region
## Cancer incidence rates, both sexes combined, CHSDA and all counties

<table>
<thead>
<tr>
<th>Type of Cancer</th>
<th>AIAN</th>
<th>NHW</th>
<th>AIAN:NHW</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHSDA-All sites</td>
<td>368.4</td>
<td>475.9</td>
<td>0.77</td>
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<tr>
<td>Kidney</td>
<td>18.2</td>
<td>12.6</td>
<td>1.45</td>
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<tr>
<td>Stomach</td>
<td>10.8</td>
<td>5.8</td>
<td>1.88</td>
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<tr>
<td>Cervix</td>
<td>9.4</td>
<td>7.4</td>
<td>1.28</td>
</tr>
<tr>
<td>Liver</td>
<td>9.0</td>
<td>4.3</td>
<td>2.11</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>3.3</td>
<td>0.9</td>
<td>3.59</td>
</tr>
<tr>
<td>All Co.-All sites</td>
<td>275.5</td>
<td>479.0</td>
<td>0.58</td>
</tr>
</tbody>
</table>
Incidence rates for AIAN vs. NHW males by IHS region, 1999-2004

<table>
<thead>
<tr>
<th>Type</th>
<th>AIAN</th>
<th>NHW</th>
<th>NP</th>
<th>AL</th>
<th>SP</th>
<th>PC</th>
<th>East</th>
<th>SW</th>
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<tbody>
<tr>
<td>All sit</td>
<td>414.6</td>
<td>549.2</td>
<td>636.1</td>
<td>538.7</td>
<td>573.4</td>
<td>338.0</td>
<td>308.9</td>
<td>256.2</td>
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<tr>
<td>Prost</td>
<td>105.6</td>
<td>154.4</td>
<td>174.6</td>
<td>78.3</td>
<td>156.7</td>
<td>83.2</td>
<td>83.9</td>
<td>65.7</td>
</tr>
<tr>
<td>Lung</td>
<td>69.6</td>
<td>85.9</td>
<td>119.8</td>
<td>115.3</td>
<td>111.0</td>
<td>57.7</td>
<td>51.0</td>
<td>21.2</td>
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<tr>
<td>CRC</td>
<td>52.6</td>
<td>59.8</td>
<td>88.9</td>
<td>98.5</td>
<td>70.3</td>
<td>44.0</td>
<td>31.1</td>
<td>25.7</td>
</tr>
<tr>
<td>Renal</td>
<td>23.2</td>
<td>17.2</td>
<td>29.2</td>
<td>28.6</td>
<td>25.1</td>
<td>15.2</td>
<td>15.3</td>
<td>25.2</td>
</tr>
<tr>
<td>Blad</td>
<td>16.5</td>
<td>41.5</td>
<td>26.8</td>
<td>23.0</td>
<td>25.0</td>
<td>14.1</td>
<td>22.8</td>
<td>5.7</td>
</tr>
<tr>
<td>NHL</td>
<td>15.2</td>
<td>23.1</td>
<td>19.2</td>
<td>13.2</td>
<td>24.2</td>
<td>12.5</td>
<td>5.5</td>
<td>10.9</td>
</tr>
<tr>
<td>Stom</td>
<td>14.7</td>
<td>8.5</td>
<td>18.7</td>
<td>34.6</td>
<td>10.5</td>
<td>12.2</td>
<td>7.9</td>
<td>15.3</td>
</tr>
<tr>
<td>Oral</td>
<td>13.1</td>
<td>16.4</td>
<td>22.6</td>
<td>20.5</td>
<td>18.4</td>
<td>12.2</td>
<td>11.3</td>
<td>4.7</td>
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</tbody>
</table>
Incidence rates for AIAN vs. NHW females by IHS region, 1999-2004

<table>
<thead>
<tr>
<th>Type</th>
<th>AIAN</th>
<th>NHW</th>
<th>NP</th>
<th>AL</th>
<th>SP</th>
<th>PC</th>
<th>East</th>
<th>SW</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sit</td>
<td>337.6</td>
<td>424.0</td>
<td>471.1</td>
<td>500.7</td>
<td>440.9</td>
<td>295.1</td>
<td>272.0</td>
<td>218.3</td>
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<tr>
<td>Breas</td>
<td>85.3</td>
<td>134.4</td>
<td>115.9</td>
<td>134.9</td>
<td>115.7</td>
<td>74.7</td>
<td>71.4</td>
<td>50.8</td>
</tr>
<tr>
<td>Lung</td>
<td>48.5</td>
<td>58.6</td>
<td>93.8</td>
<td>75.4</td>
<td>69.9</td>
<td>48.0</td>
<td>43.5</td>
<td>10.4</td>
</tr>
<tr>
<td>CRC</td>
<td>41.6</td>
<td>43.6</td>
<td>59.8</td>
<td>106.2</td>
<td>53.8</td>
<td>35.0</td>
<td>39.7</td>
<td>17.3</td>
</tr>
<tr>
<td>Uteru</td>
<td>18.1</td>
<td>23.6</td>
<td>19.5</td>
<td>13.6</td>
<td>22.4</td>
<td>16.7</td>
<td>15.2</td>
<td>16.7</td>
</tr>
<tr>
<td>Renal</td>
<td>14.2</td>
<td>8.7</td>
<td>19.3</td>
<td>12.0</td>
<td>18.1</td>
<td>10.2</td>
<td>14.0</td>
<td>12.4</td>
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<tr>
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<td>16.4</td>
<td>18.0</td>
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<td>18.5</td>
<td>12.5</td>
<td>8.8</td>
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<tr>
<td>Ovary</td>
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<td>14.4</td>
<td>11.0</td>
<td>7.3</td>
<td>14.7</td>
<td>10.0</td>
<td>5.9</td>
<td>12.5</td>
</tr>
<tr>
<td>Pancr</td>
<td>9.8</td>
<td>9.4</td>
<td>12.5</td>
<td>11.9</td>
<td>10.1</td>
<td>11.1</td>
<td>7.0</td>
<td>7.7</td>
</tr>
</tbody>
</table>
AIAN Total Mortality

Age-Adjusted Total Mortality (per 100,000 population)

U.S.; All Races (1997)

American Indian/Alaska Native (1996-98)

NEJM 353;18 Nov 3 2005
Why do these inequities exist?
A multilevel model of disease causation

Percent of persons who self-report as AIAN within counties
Percent of persons within counties living in poverty
## Top 10 poorest counties in America, 2000 US Census

<table>
<thead>
<tr>
<th>County</th>
<th>Mean Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo Co., SD</td>
<td>$5213</td>
</tr>
<tr>
<td>Shannon Co., SD</td>
<td>$6286</td>
</tr>
<tr>
<td>Starr Co., TX</td>
<td>$7069</td>
</tr>
<tr>
<td>Ziebach Co., SD</td>
<td>$7463</td>
</tr>
<tr>
<td>Todd Co., SD</td>
<td>$7714</td>
</tr>
<tr>
<td>Sioux Co., ND</td>
<td>$7731</td>
</tr>
<tr>
<td>Corson Co., SD</td>
<td>$8615</td>
</tr>
<tr>
<td>Wade Hampton, AK</td>
<td>$8717</td>
</tr>
<tr>
<td>Maverick Co., TX</td>
<td>$8758</td>
</tr>
<tr>
<td>Apache Co., AZ</td>
<td>$8986</td>
</tr>
</tbody>
</table>

United States mean - $21,587
Association between household income and risk of death

Figure 2 - Association between Household Income and Risk of Death.
AIAN Health Behaviors
Healthcare Expenditures

Access

Federal Healthcare Program

- Medicare: 2000
- VA: 2001
- US Personal: '01
- Medicaid: 1998
- FEHP benchmark
- IHS: 2001
What’s been/being done?

☐ Varied BHCAIH Efforts
Black Hills Center for American Indian Health

- Community-based 501 (c)(3) organization
- Founded in 1998
- To conduct activities that will lead to the enhanced wellness of American Indian peoples, communities, and tribes
- Research, Service, Education, and Philanthropy
Black Hills Center for American Indian Health

Research Portfolio

- Currently home to 6 peer-reviewed health research grants and contracts totaling $9 million (historical: 32 and over $20 million)

1. Collaborative to Improve Native Cancer Outcomes (CINCO) CPHHD P50 – NIH/NCI
2. Native People for Cancer Control Community Networks Program – NIH/NCI
3. Native American Research Centers for Health: Lakota Center for Health Research – NIH/NIGMS/IHS
4. Southwest Navajo Tobacco Education and Prevention Project (SNTEPP) – CDC/RWJ/ARNF/AZ
5. Lakota Oyate Wicozani Pi Kte RCT – NIH/NHLBI
6. The experience of chest pain among the Lakota pilot project – NIH/NCMHD
Black Hills Center for American Indian Health

Research Portfolio - Results

- BHCAIH has consented more than 8,000 American Indians into its various studies in the past 8 years
- Injected more than $5 million directly into impoverished Native communities
- Directly or indirectly hired more than 40 tribal members to work on our varied projects
- 36 scientific publications and 4 book chapters
What’s been/being done?

- Varied BHCAIH Efforts
- SHS CVD Risk Prediction Model
- Stop Atherosclerosis in Native Diabetics Study (SANDS)
- Special Diabetes Program for Indians Competitive Grant Program
What’s been/being done?

- Community-based interventions to lower CVD risk among AIANs (NHLBI)
- Economic Development
- Casino gaming
- Increasing # of interventions
- Fitful advances in tribal sovereignty
CONCLUSIONS

- American Indians and Alaska Natives experience a number of health inequities
- These inequities often have long-established histories
- Social inequities have a profound impact on health status
- It is likely that improvements in social condition, more than anything else, will begin to alleviate inequities in health
CONCLUSIONS

- Tribal/community, clinical, and national leadership and governmental financial support are essential
- Further research is needed to determine effective preventive interventions
- Successful interventions need to be replicated and/or scaled up
- Ongoing surveillance of behaviors and conditions is essential to gauge progress
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