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

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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

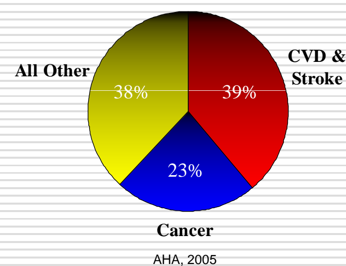
Background

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

Prominent Observational Studies

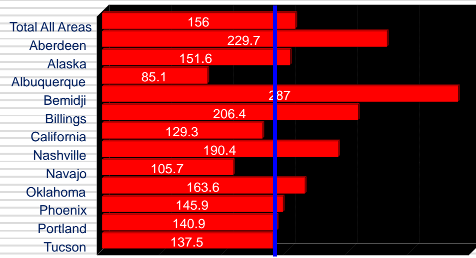
- Strong Heart Study (1988-present)
- Navajo Health and Nutrition Survey (1991-92)
- Inter-Tribal Heart Project (1992-94)
- Education and Research Towards Health (EARTH) Study (2001-2007)
- BRFSS

Leading Causes of Death, U.S.



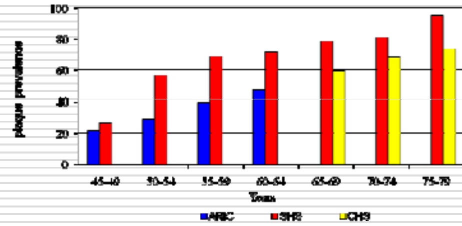
AHA, 2005

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

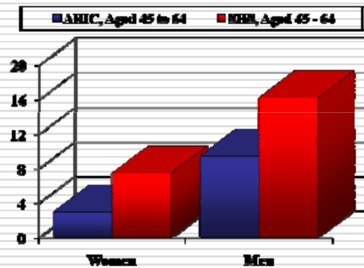
Carotid Atherosclerosis in American Indians



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

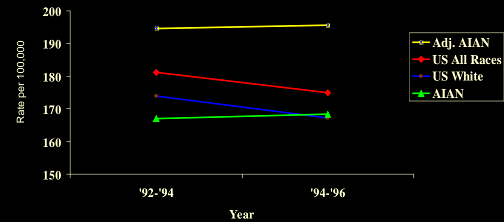
Roman MJ, et al. Circulation 1998;98

INCIDENCE OF CHD
Strong Heart Study vs. ARIC



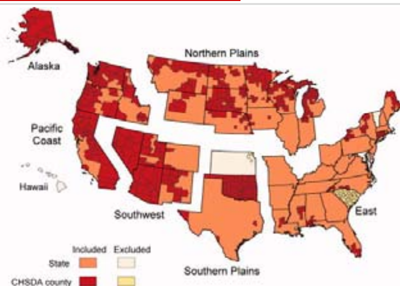
CHD includes fatal and nonfatal events plus revascularization
Fatal and Nonfatal Rates per 1000 person years.
The Rising Tide of CVD in AI: The SHS, Circulation, 1999

Age and Misclassification-adjusted CVD Mortality Rates By Population



D. Rhoades. Circulation 2005;111:1250-1256

State and Contract Health Service Delivery Area (CHSDA) counties by IHS region



Cancer incidence rates, both sexes combined, CHSDA and all counties

Type of Cancer	AIAN	NHW	AIAN:NHW
CHSDA-All sites	368.4	475.9	0.77
Kidney	18.2	12.6	1.45
Stomach	10.8	5.8	1.88
Cervix	9.4	7.4	1.28
Liver	9.0	4.3	2.11
Gallbladder	3.3	0.9	3.59
All Co.-All sites	275.5	479.0	0.58

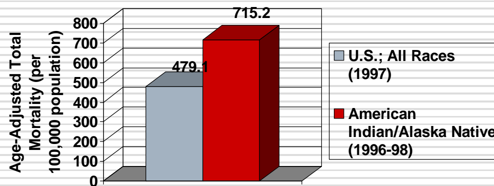
Incidence rates for AIAN vs. NHW *males* by IHS region, 1999-2004

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

Incidence rates for AIAN vs. NHW *females* by IHS region, 1999-2004

Type	AIAN	NHW	NP	AL	SP	PC	East	SW
All sit	337.6	424.0	471.1	500.7	440.9	295.1	272.0	218.3
Breas	85.3	134.4	115.9	134.9	115.7	74.7	71.4	50.8
Lung	48.5	58.6	93.8	75.4	69.9	48.0	43.5	10.4
CRC	41.6	43.6	59.8	106.2	53.8	35.0	39.7	17.3
Uteru	18.1	23.6	19.5	13.6	22.4	16.7	15.2	16.7
Renal	14.2	8.7	19.3	12.0	18.1	10.2	14.0	12.4
NHL	13.1	16.4	18.0	9.9	18.5	12.5	8.8	8.8
Ovary	11.5	14.4	11.0	7.3	14.7	10.0	5.9	12.5
Pancr	9.8	9.4	12.5	11.9	10.1	11.1	7.0	7.7

AIAN Total Mortality



NEJM 353;18 Nov 3 2005

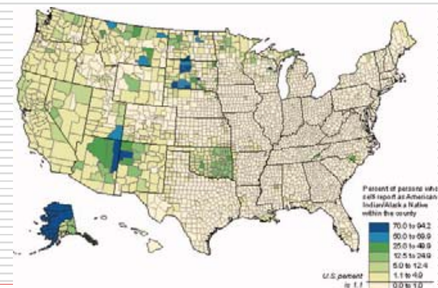
Why do these inequities exist?

A multilevel model of disease causation

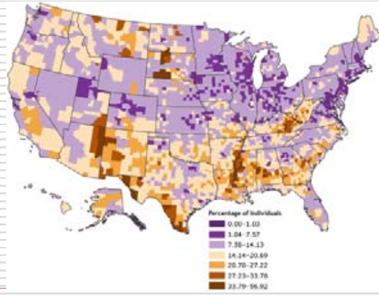
Figure 1 - Multilevel Model of Disease Causation.

Kaplan GA, Upstream approaches to reducing socioeconomic inequalities in health, *Rev Bras Epidemiol* 2002; 5(Supl 1):18-27.

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

County	Income
Buffalo Co., SD	$5213
Shannon Co., SD	$6286
Starr Co., TX	$7069
Ziebach Co., SD	$7463
Todd Co., SD	$7714
Sioux Co., ND	$7731
Corson Co., SD	$8615
Wade Hampton, AK	$8717
Maverick Co., TX	$8758
Apache Co., AZ	$8986

United States mean - $21,587

Association between household income and risk of death

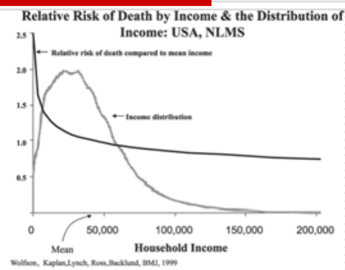
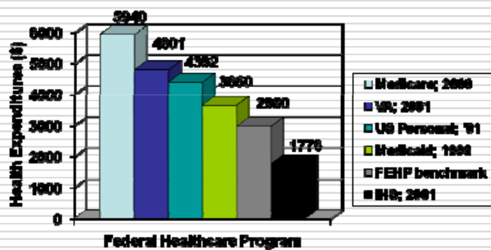


Figure 2 - Association between Household Income and Risk of Death.

AIAN Health Behaviors

Healthcare Expenditures

Access



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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

Black Hills Center for American Indian Health

Research Portfolio

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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