American Indian Health Equity: Impact of Historical Trauma and ACEs on Health Disparities

University on New Mexico
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North Dakota State University
Pine Ridge Reservation
Kyle, S.D.
Traditional View of Public Health
American Indians and Alaska Natives as a Share of the Total Population, by State, 2009-2011

Total: 2.5 million = 1% of U.S. Population

Less than 1% (36 states)
1-3% (8 states)
More than 3% (7 states)

American Indian and Alaska Native includes people of Hispanic origin.
SOURCE: KCMU analysis of 2009 - 2011 ACS.
Historical Context

1492
Historical Context

1830
Historical Context
State Ticket.

For Governor.............Stephen Miller, of Stearns.
For Lieut. Governor...Chas. D. Sherwood, of Millelau.
Secretary of State.......David Blakely, of Ollistad.
Auditor of State...........Alas. McIlrath, of Nicollet.
State Treasurer...........Chas. Schuyler, of Washington.
Attorney General...........Gordon E. Cole, of Rice.
Clerk Supreme Court...Geo. F. Potter, of Houston.

County Ticket.

For State Senator............Thomas Simpson.
For Representatives........Earle S. Youmans.
                       Thomas P. Dixon.
For Sheriff.................Lynch J. King.
For Treasurer..............Mathew J. Norton.
For Surveyor..............N. Felix Hildert.
For Coroner..................Edward S. C. L. T.

The State reward for dead Indians has been increased to $200 for every red-skin sent to Purgatory. This sum is more than the dead bodies of all the Indians east of the Red River are worth.
AI/AN Population by County

Source: U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171) Summary File, Table P1.
AI/AN Population Decline and Recovery, 1492 – 2010

The graph shows a significant decline in the AI/AN population from 1492 to 1980, with a notable recovery by 2010.
Inter-Generational Basis for Chronic Disease Disparities
Among American Indians and Alaska Natives

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Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives

Historical Trauma

Gestational Stressors

Birth

Chronic Disease Disparities

Genocide

Boarding School Experiences
- Abuse (physical, sexual)
- Neglect
- Abandonment
- Forced Removal
- Loss of culture & language
- Forced Christianity
- Lost traditional parenting & family structure

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Historical trauma is the collective emotional wounding across generations that results from massive cataclysmic events – Historically Traumatic Events (HTE) *

- The trauma is held personally and transmitted over generations. Thus, even family members who have not directly experienced the trauma can feel the effects of the event generations later
Epigenetics refers to the study of changes in the regulation of gene activity and expression that are not dependent on DNA sequence.
Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives

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Gestational Stressors
- Birth

Childhood Stressors
- WIC
- FDPIR

Chronic Disease Disparities

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Chronic Disease Disparities

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Adverse Childhood Experiences
- Abuse (physical, sexual)
- Neglect
- Substance Abuse in home
- Mental Health Dx in home
- Witnessing violence
- Divorce
- Food insecurity
- Family member in prison

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ACE Study Pyramid

- Adverse Childhood Experiences
- Social, Emotional, & Cognitive Impairment
- Adoption of Health-risk Behaviors
- Disease, Disability, and Social Problems
- Early Death
- Death
Impact of ACEs on Health

ACES can have lasting effects on:

- **Health** (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)
- **Behaviors** (smoking, alcoholism, drug use)
- **Life Potential** (graduation rates, academic achievement, lost time from work)

ACEs have been found to have a graded dose-response relationship with 40+ outcomes to date.

*This pattern holds for the 40+ outcomes, but the exact risk values vary depending on the outcome.*
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- Food insecurity
- Family member in prison

Adverse Adulthood Experiences
- Alcoholism & SA
- Suicide rates / death rates
- Poverty / Poor nutrition
- Racism / Toxic Stress
- Role models
  - Few positive
  - Many negative
  - Parenting

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Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives

Historical Trauma
- Boarding School Experiences
  - Abuse (physical, sexual)
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  - Loss of culture & language
  - Forced Christianity
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Adulthood Stressors
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  - Mental Health Dx in home
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  - Divorce
  - Food insecurity
  - Family member in prison

Chronic Disease Disparities

Next generation

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AI/AN Health Disparities

Average age at death in ND (2005 – 2010):

75.7 Years in the White Population

54.7 Years in the AI Population
Death rates from preventable diseases among AI/ANs are significantly higher than among non-Indians:

- Diabetes 208% greater
- Alcoholism 526% greater
- Accidents 150% greater
- Suicide 60% greater
### State Suicide Mortality Rates by Race, 1990-2002

<table>
<thead>
<tr>
<th>State</th>
<th>Race</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Dakota</td>
<td>White</td>
<td>11.3</td>
</tr>
<tr>
<td></td>
<td>American Indian</td>
<td>26.0</td>
</tr>
<tr>
<td>South Dakota</td>
<td>White</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>American Indian</td>
<td>27.0</td>
</tr>
</tbody>
</table>

Underlying mortality data provided by NCHS (www.cdc.gov/nchs). Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups, Census P25-1130) standard.
South Dakota Health Survey

The survey included questions on:

- Basic information, including age, sex, race;
- Self-reported health status, including chronic diseases, depression, and other health issues;
- Mental Health Screening;
- Access to services, including cost, distance, and other access issues; and
- Adverse Childhood Experiences.
South Dakota Health Survey
### Demographic Characteristics for AI and Non-AI Respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>American Indian (n = 516)</th>
<th>Non-American Indian (n = 7078)</th>
<th>Total (n = 7593)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18–34</td>
<td>36.63%</td>
<td>29.69%</td>
<td>30.34%</td>
<td>.0002</td>
</tr>
<tr>
<td>35–64</td>
<td>57.62%</td>
<td>49.94%</td>
<td>50.65%</td>
<td></td>
</tr>
<tr>
<td>65 and older</td>
<td>5.75%</td>
<td>20.37%</td>
<td>19.01%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>American Indian (n = 516)</th>
<th>Non-American Indian (n = 7078)</th>
<th>Total (n = 7593)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>37.16%</td>
<td>43.08%</td>
<td>42.53%</td>
<td>.21</td>
</tr>
<tr>
<td>Female</td>
<td>62.84%</td>
<td>56.92%</td>
<td>57.47%</td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>AI</td>
<td>Non-AI</td>
<td>Total</td>
<td>p-value</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------</td>
<td>-----------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Not employed</td>
<td>31.60%</td>
<td>7.58%</td>
<td>9.64%</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Employed part time</td>
<td>11.91%</td>
<td>19.63%</td>
<td>18.97%</td>
<td></td>
</tr>
<tr>
<td>Employed full time</td>
<td>49.59%</td>
<td>54.47%</td>
<td>54.05%</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>6.89%</td>
<td>18.31%</td>
<td>17.34%</td>
<td></td>
</tr>
<tr>
<td>Income (%FPL)</td>
<td></td>
<td></td>
<td></td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>&lt;50% FPL</td>
<td>38.90%</td>
<td>12.73%</td>
<td>15.17%</td>
<td></td>
</tr>
<tr>
<td>50–138% FPL</td>
<td>22.48%</td>
<td>10.18%</td>
<td>11.33%</td>
<td></td>
</tr>
<tr>
<td>138–250% FPL</td>
<td>17.29%</td>
<td>22.46%</td>
<td>21.98%</td>
<td></td>
</tr>
<tr>
<td>250–400% FPL</td>
<td>11.13%</td>
<td>28.75%</td>
<td>27.11%</td>
<td></td>
</tr>
<tr>
<td>&gt;400% FPL</td>
<td>10.20%</td>
<td>25.88%</td>
<td>24.42%</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Less than high school</td>
<td>9.95%</td>
<td>3.23%</td>
<td>3.85%</td>
<td></td>
</tr>
<tr>
<td>High school diploma or GED</td>
<td>39.29%</td>
<td>32.40%</td>
<td>33.05%</td>
<td></td>
</tr>
<tr>
<td>Vocational or 2-yr. degree</td>
<td>24.86%</td>
<td>23.87%</td>
<td>23.96%</td>
<td></td>
</tr>
<tr>
<td>4-year college degree</td>
<td>22.47%</td>
<td>25.69%</td>
<td>25.39%</td>
<td></td>
</tr>
<tr>
<td>Advanced or graduate degree</td>
<td>3.44%</td>
<td>14.81%</td>
<td>13.75%</td>
<td></td>
</tr>
<tr>
<td>Adverse Childhood Experiences Domains</td>
<td>American Indian (n = 516)</td>
<td>Non-American Indian (n = 7078)</td>
<td>Significance</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td><strong>Abuse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>30.10%</td>
<td>17.41%</td>
<td>.0008*</td>
<td></td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>24.51%</td>
<td>12.31%</td>
<td>.0002*</td>
<td></td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>15.53%</td>
<td>9.60%</td>
<td>.0263*</td>
<td></td>
</tr>
<tr>
<td><strong>Neglect</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Neglect</td>
<td>25.87%</td>
<td>14.00%</td>
<td>.0005*</td>
<td></td>
</tr>
<tr>
<td>Physical Neglect</td>
<td>15.89%</td>
<td>2.78%</td>
<td>&lt;.0001*</td>
<td></td>
</tr>
<tr>
<td><strong>Household Dysfunction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother Treated Violently</td>
<td>23.76%</td>
<td>5.31%</td>
<td>&lt;.0001*</td>
<td></td>
</tr>
<tr>
<td>Household Substance Abuse</td>
<td>50.04%</td>
<td>21.49%</td>
<td>&lt;.0001*</td>
<td></td>
</tr>
<tr>
<td>Household Mental Illness</td>
<td>24.36%</td>
<td>13.89%</td>
<td>.0032*</td>
<td></td>
</tr>
<tr>
<td>Parental Separation or Divorce</td>
<td>39.34%</td>
<td>20.17%</td>
<td>&lt;.0001*</td>
<td></td>
</tr>
<tr>
<td>Incarcerated Household Member</td>
<td>22.57%</td>
<td>3.73%</td>
<td>&lt;.0001*</td>
<td></td>
</tr>
</tbody>
</table>
Prevalence: Mental Health Screens

Participants who screened positive for a condition using standardized mental health screening tools

- Depression
- Anxiety
- Post Traumatic Stress Disorder (PTSD)

Statewide, Urban, Rural, Isolated, Reservation
STATEWIDE PREVALENCE OF MENTAL HEALTH CONDITIONS, ALCOHOL MISUSE, AND SMOKING STATUS BY AMERICAN INDIAN RACE/ETHNICITY COMPARED WITH NON-AMERICAN INDIAN RESPONDENTS

<table>
<thead>
<tr>
<th>Condition</th>
<th>American Indian (n = 516)</th>
<th>Non-American Indian (n = 7078)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttraumatic stress disorder (PC-PTSD)</td>
<td>13.2%</td>
<td>5.3%</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>35.2%</td>
<td>15.1%</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Depression (PHQ-2)</td>
<td>9.5%</td>
<td>5.1%</td>
<td>.07</td>
</tr>
<tr>
<td>Severe Alcohol Misuse (AUDIT-C 9+)</td>
<td>3.3%</td>
<td>2.4%</td>
<td>.46</td>
</tr>
<tr>
<td>Alcohol Misuse (AUDIT-C)</td>
<td>40.2%</td>
<td>42.6%</td>
<td>.63</td>
</tr>
<tr>
<td>Anxiety (GAD-2)</td>
<td>8.1%</td>
<td>7.4%</td>
<td>.80</td>
</tr>
</tbody>
</table>
Self-Rated Health Status

Self-assessment of general health status

- Excellent
- Very Good
- Good
- Fair or Poor

Statewide
Urban
Rural
Isolated
Reservation
## AI ACE Disparities in South Dakota

<table>
<thead>
<tr>
<th>Number of ACEs (Score)</th>
<th>AI</th>
<th>Non-AI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>16.84%</td>
<td>50.02%</td>
<td>&lt;.0001*</td>
</tr>
<tr>
<td>1</td>
<td>21.59%</td>
<td>23.02%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16.20%</td>
<td>9.60%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>12.99%</td>
<td>6.09%</td>
<td></td>
</tr>
<tr>
<td>4–5</td>
<td>13.10%</td>
<td>7.38%</td>
<td></td>
</tr>
<tr>
<td>≥6</td>
<td>19.28%</td>
<td>3.89%</td>
<td></td>
</tr>
</tbody>
</table>

### Note
* statistically significant
Significant Challenges

Social Determinants
- Poverty
- Trauma
- Politics
- Inattention/Neglect
- Racism
- Inequity

Outcomes
- Health Disparities
- Education Inequality
- Generational Poverty
- Ongoing Racism
- Worsening Inequity
- Suffering and Death
### Significant Challenges

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<th>Outcomes</th>
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<tr>
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<td>Health Disparities</td>
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<tr>
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<td>Generational Poverty</td>
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<tr>
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<td>Ongoing Racism</td>
</tr>
<tr>
<td>Racism</td>
<td>Worsening Inequity</td>
</tr>
<tr>
<td>Inequity</td>
<td>Suffering and Death</td>
</tr>
</tbody>
</table>

Need to address **equity** in a comprehensive manner—medical, behavioral, public health...
Equality, Equity, Systemic Barriers
Research and Programming Needs

• Improve understanding of Historical Trauma
Research and Programming Needs

• Improve understanding of Historical Trauma
• How do we prevent ACEs?
  – Home visiting, parenting skills, community engagement
Research and Programming Needs

- Improve understanding of Historical Trauma
- How do we prevent ACEs?
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- How do we mitigate the impact of HT and ACEs?
Research and Programming Needs

• Improve understanding of Historical Trauma
• How do we prevent ACEs?
  – Home visiting, parenting skills, community engagement
• How do we mitigate the impact of HT and ACEs?
• Develop a Diverse Workforce
Research and Programming Needs

• Improve understanding of Historical Trauma

• How do we prevent ACEs?
  – Home visiting, parenting skills, community engagement

• How do we mitigate the impact of HT and ACEs?

• Develop a Diverse Workforce

• American Indian School of Health Sciences

• NDSU MPH Program
Public Health Programming in a Cultural Context

Assess the effectiveness of new approaches to health promotion and disease prevention
NDSU MPH Program Mission

The program’s mission is to promote health and well-being in diverse populations with an emphasis on American Indian and other underserved populations by providing educational, practical, and research opportunities for public health professionals.
Specializations/Tracks

American Indian Public Health

• Required Courses
  – American Indian Health Policy
  – American Indian Health Disparities
  – Cultural Competence in Indian Health
  – Research Issues in Tribal Communities
  – Case Studies in Indian Health
Next Steps

Indigenous Health PhD

Build competencies in:

- Research Methods
- Evaluation Frameworks
- Policy Development and Analysis
- Leadership
Indigenous Health PhD

- 60 Credits, post-Masters
- 3-Years, full-time
- 42 credits—coursework
- 6 credits—Indigenous Health Seminar Series
- 12 credits—Dissertation / Portfolio
  - Dissertation—“Academic Track”
  - Portfolio—“Applied Track”
    - Community Health Assessment, Grant Proposal, Published Manuscript, Strategic Plan, Policy Brief, etc.
Indigenous Health PhD

- Principles of Indigenous Health—1 & 2
- Applied Biostatistics
- Applied Epidemiology
- Quantitative Methods
- Qualitative Methods
- Mixed Methods
- CBPR & Tribally-Driven Research Frameworks
- Indigenous Research Methods
- American Indian Health Policy—1 & 2
- Public Health Program Evaluation
- Indigenous Evaluation Frameworks
- Indigenous Leadership
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- American Indian Health Policy—1 & 2
- Public Health Program Evaluation
- Indigenous Evaluation Frameworks
- Indigenous Leadership
A child is sacred. And when that child comes into the home, the family must welcome it. And if the child is happy and feels the want, he will come into this world very, very strong. And not to know this is to know nothing.