American Indian Elders in the Aberdeen IHS Area: Prevalence of Chronic Disease and Functional Limitations

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National Resource Center on Native American Aging

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Center for Rural Health
University of North Dakota
School of Medicine and Health Sciences

Where: Grand Forks, ND
When: Established over 20 years ago

Focused on Access, Financing and Quality Through:
- Health services research
- Health policy
- Education
- State and community health services development
- Information Resource

How: Through partnerships
Overview

- U.S. Aging and Health Trends
- Native American Aging and Health
- Survey of 1,939 Aberdeen Area Native elders
  - Health Status
  - Health Risk Behaviors
  - Functional limitations
- Focus on Arthritis and Diabetes
- Policy Recommendations

U.S. Aging and Health Trends
Percentage of people age 65 and over who reported having selected chronic conditions, by sex, 2001-2002

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td>37</td>
<td>27</td>
</tr>
<tr>
<td>Hypertension</td>
<td>47</td>
<td>52</td>
</tr>
<tr>
<td>Stroke</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Emphysema</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Asthma</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Chronic bronchitis</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Any cancer</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Diabetes</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Arthritic symptoms</td>
<td>31</td>
<td>39</td>
</tr>
</tbody>
</table>

Note: Data are based on a 2-year average from 2001-2002. Data for arthritic symptoms are from 2000-2001.
Reference population: These data refer to the civilian noninstitutionalized population.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.

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Percentage of people age 65 and over who are current cigarette smokers, by sex, selected years 1965-2002

Reference population: These data refer to the civilian noninstitutionalized population.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.
Native American Aging and Health
INDIAN HEALTH SERVICE REGIONS

Projection is Based on Bridged 2000 Census Data

NRCNAA 11

NRCNAA 12
IHS User Population, 1990 and 2002
Percent of User Population Age 55+, by IHS Area

Life Expectancy at Birth, by IHS Area
Leading Causes of Hospitalization, Aberdeen Area, 2001 (N=9,248)

Leading Causes of Death, Aberdeen Area, 1996-1998 (N=2,113)
National Resource Center on Native American Aging

The only national resource center in the nation focusing on American Indian, Native Hawaiian, and Alaska Native elder issues. Primary focus is health care.

- Research
- Training
- Technical Assistance

Purpose of the Project

- The purpose of this project is to assist tribes in collecting data they can use to build infrastructure in their communities.
- Multiple methods are used throughout the study, but the main method of data collection is the survey instrument (administered face-to-face with the elders).
Population

- Native American elders residing primarily on reservations
- Individuals age 55 and over living on or around Indian areas.
- Age 55 is considered comparable to 65 and over in the general population

Sampling Design

- Get everyone in small populations
- Sample in large populations
- Systematic random sampling
  - Use a list of names or addresses
  - Determine proportion
  - Select every nth name based on the proportion
Data is collected on:

- General health status
- Activities of Daily Living (ADL’s)
- Instrumental Activities of Daily Living (IADL’s)
- Indicators of chronic disease
- Indicators of vision and hearing
- Tobacco and alcohol use
- Diet and exercise
- Weight and weight control
- Social supports

National Resource Center Provides:

- Survey instruments – a standardized tool
- Assistance with sampling
- Training on data collection
- Technical support
- Data entry
- Data analysis
- Statistical profiles of your elders
- Comparisons with national norms
Aberdeen Area Tribal Data (N=1,939) & National Data Source Comparisons

<table>
<thead>
<tr>
<th>Question</th>
<th>Response(s)</th>
<th>Aberdeen Area (55 and over)</th>
<th>94+ NLTCS (65 and over)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Because of a health or physical problem, do you have difficulty —</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Bathing or showering?</td>
<td>14.7%</td>
<td>36.8%</td>
<td></td>
</tr>
<tr>
<td>b. Dressing?</td>
<td>9.6%</td>
<td>15.8%</td>
<td></td>
</tr>
<tr>
<td>c. Eating?</td>
<td>6.9%</td>
<td>8.1%</td>
<td></td>
</tr>
<tr>
<td>d. Getting in or out of bed?</td>
<td>12.6%</td>
<td>22.1%</td>
<td></td>
</tr>
<tr>
<td>e. Walking?</td>
<td>28.7%</td>
<td>33.7%</td>
<td></td>
</tr>
<tr>
<td>f. Using the toilet, including getting to the toilet?</td>
<td>6.1%</td>
<td>22.8%</td>
<td></td>
</tr>
<tr>
<td>5. Because of a health or physical problem, do you have difficulty —</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Preparing your own meals?</td>
<td>14.8%</td>
<td>19.7%</td>
<td></td>
</tr>
<tr>
<td>b. Shopping for personal items (such as toilet items or medicines)?</td>
<td>13.3%</td>
<td>34.8%</td>
<td></td>
</tr>
<tr>
<td>c. Managing your money (such as keeping track of expenses or paying your bills)?</td>
<td>7.4%</td>
<td>17.9%</td>
<td></td>
</tr>
<tr>
<td>d. Using the telephone?</td>
<td>5.9%</td>
<td>9.6%</td>
<td></td>
</tr>
<tr>
<td>e. Doing heavy housework (like scrubbing floors, or washing windows)?</td>
<td>34.3%</td>
<td>51.6%</td>
<td></td>
</tr>
<tr>
<td>f. Doing light housework, (like doing dishes, straightening up, or light cleaning)?</td>
<td>14.0%</td>
<td>17.0%</td>
<td></td>
</tr>
<tr>
<td>g. Getting outside?</td>
<td>13.9%</td>
<td>44.2%</td>
<td></td>
</tr>
</tbody>
</table>

Local Communities Provide:

- Locating a list and selecting names for the sample
- Data collection
- Receiving the findings and getting them to the right people
- Local implementation and coordination
- Tribal data warehouse
Reasons for Conducting Needs Assessment

- Grant proposals
  - Meets Title VI Elder Nutrition Grant Renewal Requirements
  - Provides local numbers for the strengthening of state, federal, and foundation grants
- Advocating for resources
  - Tribal level
  - State level
  - Federal level
- Provides direction to long-term care services
  - Specifies the most appropriate long-term care facility or service for your community
  - Determines where resources should be directed in addressing needs

Current Status of the Study

- 132 tribes from 88 different sites are represented in national file
- 9,403 Native elder participants
- Additional tribes are now collecting data for Cycle II
- At least one tribe from 11 of the 12 I.H.S. regional areas are represented
- 9 of the tribes and 1,939 Native elders are from the Aberdeen Area
The Health of American Indian and Alaskan Native Elders

Chronic Diseases – Arthritis (N=1,939)

Aberdeen Area Native elders were 18% more likely to experience arthritis than the U.S. general population.
Chronic Diseases – Congestive Heart Failure (N=1,939)

Aberdeen Area Native elders were 65% more likely to experience congestive heart failure than the general U.S. population.

Chronic Diseases – Stroke (N=1,939)

Aberdeen Area Native elders were 10% more likely to experience a stroke than the general population.
**Chronic Diseases – Asthma (N=1,939)**

- Aberdeen Area Native elders were 29% more likely to experience asthma than the U.S. general population.

**Chronic Diseases – Cataracts (N=1,939)**

- Aberdeen Area Native elders were 29% less likely to experience cataracts than the general population.
Chronic Diseases – Breast Cancer (N=1,939)

Breast Cancer

- Aberdeen Area Native elders were 23% less likely to experience breast cancer than the U.S. general population.

Chronic Diseases – Prostate Cancer (N=1,939)

Prostate Cancer

- Aberdeen Area Native elder men were 30% more likely to experience prostate cancer than the U.S. general population.
Chronic Diseases – Colon/Rectal Cancer (N=1,939)

- Aberdeen Area Native elders were 53% less likely to experience colon/rectal cancer than the U.S. general population.

Chronic Diseases – High Blood Pressure (N=1,939)

- Aberdeen Area Native elders were 9% more likely to experience high blood pressure than the U.S. general population.
Chronic Diseases – Diabetes (N=1,939)

Diabetes

- Aberdeen Area Native elders were 210% more likely to experience diabetes than the U.S. general population.

Vision (N=1,939)

- Blindness in one or both eyes: Aberdeen Area 12%, National Data 3%
- Eyeglasses: Aberdeen Area 82%, National Data 89%
- Trouble seeing (even w/glasses): Aberdeen Area 33%, National Data 19%
Hearing (N=1,939)

- Deafness in one or both ears: Aberdeen Area 16%, National Data 4%
- Hearing Aid needed: Aberdeen Area 11%, National Data 7%
- Trouble hearing even w/hearing aid: Aberdeen Area 23%, National Data 23%

Dental Services Needed (N=1,939)

- Teeth pulled: Aberdeen Area 24%, National Data 18%
- Work to improve appearance: Aberdeen Area 11%, National Data 18%
- Teeth filled/replace: Aberdeen Area 17%, National Data 20%
- Denture work: Aberdeen Area 16%, National Data 4%
- Other: Aberdeen Area 5%, National Data 5%
- Gum treatment: Aberdeen Area 5%, National Data 4%
- Relief of Pain: Aberdeen Area 16%, National Data 7%
- None: Aberdeen Area 25%, National Data 59%

Both charts show the distribution of hearing and dental needs among a sample population, comparing Aberdeen Area data to National Data.
Behavioral Risk Factors

Tobacco Usage (N=1,939)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen Area</th>
<th>National Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarettes</td>
<td>32%</td>
<td>34%</td>
</tr>
<tr>
<td>Chewing Tobacco</td>
<td>6%</td>
<td>4%</td>
</tr>
</tbody>
</table>
Cigarettes Smoked a Day (N=1,939)

- 1-5 cigs/day: 31% (Aberdeen Area), 14% (National Data)
- 6-10 cigs/day: 35% (Aberdeen Area), 25% (National Data)
- 11-20 cigs/day: 25% (Aberdeen Area), 25% (National Data)
- 21-30 cigs/day: 5% (Aberdeen Area), 10% (National Data)
- 31 or more cigs/day: 4% (Aberdeen Area), 10% (National Data)

Chewing Tobacco (N=1,939)

- 1 can or less: 37% (Aberdeen Area), 44% (National Data)
- 2 containers: 35% (Aberdeen Area), 19% (National Data)
- 3 or more: 28% (Aberdeen Area), 37% (National Data)
How long since last drink of alcoholic beverage? (N=1,939)

Binge Drinking (N=1,939) (5 or more drinks on one occasion)
Breakfast (N=1,939)

Exercise (N=1,939)
Body Mass Index (N=1,939)

Functional Limitations
Functional Limitations

The majority of definitions concerning functional limitations or disability refer to activities of daily living (ADL’s) and instrumental activities of daily living (IADL’s) as indicators of functionality.

Activities of Daily Living (ADL’s)

- Eating
- Walking
- Using the toilet
- Dressing
- Bathing
- Getting in/out of bed
Instrumental Activities of Daily Living (IADL’s)

- Cooking
- Shopping
- Managing money
- Using a telephone
- Light housework
- Heavy housework
- Getting outside

Functional Limitation Categories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Limitations</th>
<th>Recommended Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or none</td>
<td>No ADL limitations, up to one IADL limitation</td>
<td>No Services Required</td>
</tr>
<tr>
<td>Moderate</td>
<td>One ADL limitation with fewer than IADLs</td>
<td>Home and Community Based Services</td>
</tr>
<tr>
<td>Moderately Severe</td>
<td>2 ADL limitations</td>
<td>Assisted Living</td>
</tr>
<tr>
<td>Severe</td>
<td>3 or more ADL limitations</td>
<td>Skilled Nursing Facility</td>
</tr>
</tbody>
</table>
Rate of Functional Limitation (N=1,939)

- Little or none: 62% (Aberdeen), 59% (U.S. Native), 45% (U.S. General)
- Moderate: 21% (Aberdeen), 21% (U.S. Native), 22% (U.S. General)
- Moderately Severe: 11% (Aberdeen), 13% (U.S. Native), 9% (U.S. General)
- Severe: 4% (Aberdeen), 7% (U.S. Native), 7% (U.S. General)

Rates of Functional Limitation: Aberdeen Area Native Elderly and U.S. by Age

<table>
<thead>
<tr>
<th>Functional Limitation</th>
<th>65-74</th>
<th>75-84</th>
<th>85 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or none</td>
<td>61.5%</td>
<td>61.4%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Moderate</td>
<td>21.2%</td>
<td>16.6%</td>
<td>26.3%</td>
</tr>
<tr>
<td>Moderately Severe</td>
<td>5.9%</td>
<td>6.6%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Severe</td>
<td>11.4%</td>
<td>15.4%</td>
<td>15.8%</td>
</tr>
</tbody>
</table>

U.S. Data Source: 1994 National Long Term Care Study
# Life Expectancy at Birth, ages 55, 65 and 75 by IHS Area

<table>
<thead>
<tr>
<th>IHS Area</th>
<th>At Birth</th>
<th>At Age 55</th>
<th>At Age 65</th>
<th>At Age 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen</td>
<td>64.3</td>
<td>18.9</td>
<td>13.2</td>
<td>8.5</td>
</tr>
<tr>
<td>Bemidji</td>
<td>65.7</td>
<td>18.7</td>
<td>12.7</td>
<td>10.1</td>
</tr>
<tr>
<td>Billings</td>
<td>67.0</td>
<td>20.2</td>
<td>13.9</td>
<td>8.9</td>
</tr>
<tr>
<td>Alaska</td>
<td>68.0</td>
<td>21.3</td>
<td>14.7</td>
<td>9.2</td>
</tr>
<tr>
<td>Tucson</td>
<td>68.4</td>
<td>22.2</td>
<td>15.8</td>
<td>10.0</td>
</tr>
<tr>
<td>Phoenix</td>
<td>69.8</td>
<td>22.6</td>
<td>16.1</td>
<td>10.6</td>
</tr>
<tr>
<td>Portland</td>
<td>71.7</td>
<td>23.1</td>
<td>16.0</td>
<td>10.1</td>
</tr>
<tr>
<td>Navajo</td>
<td>71.9</td>
<td>24.9</td>
<td>17.7</td>
<td>11.7</td>
</tr>
<tr>
<td>Nashville</td>
<td>72.2</td>
<td>22.8</td>
<td>16.3</td>
<td>10.5</td>
</tr>
<tr>
<td>Albuquerque</td>
<td>72.7</td>
<td>25.4</td>
<td>19.6</td>
<td>12.2</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>74.2</td>
<td>25.7</td>
<td>18.2</td>
<td>13.1</td>
</tr>
<tr>
<td>California</td>
<td>76.3</td>
<td>26.9</td>
<td>19.4</td>
<td>13.3</td>
</tr>
<tr>
<td>All Indians</td>
<td>71.1</td>
<td>23.5</td>
<td>16.7</td>
<td>11.2</td>
</tr>
</tbody>
</table>

# Aberdeen Area Native Elder Population Projections 1990-2020

![Aberdeen Area Native Elder Population Projections 1990-2020](image-url)
Combining Data with Population Projections

- According to our last assessment, 43% of Native Elders in the Aberdeen Area have diabetes

- **2000 Aberdeen Area Native Elders = 8,525**
  \[ .43 \times 8,525 = 3,667 \]

- **2020 Aberdeen Area Native Elders = 14,838**
  \[ .43 \times 14,838 = 6,381 \]

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Functional Limitation Levels Applied to Services and Personnel

<table>
<thead>
<tr>
<th>Level Functional Limitation</th>
<th>Service Goals</th>
<th>Services with best fit</th>
<th>Personnel required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or none (62%)</td>
<td>Health promotion, preventive care, maintaining vitality</td>
<td>No caregiver services required Health Promotion/Prevention</td>
<td>Health educators, physical trainers, therapists</td>
</tr>
<tr>
<td>Moderate (21%)</td>
<td>Supportive services to aid persons in remaining in own domicile. Train and support informal providers and buffer them with respite and contact services for a range of possible tasks.</td>
<td>Informal care – w/supports Chronic Disease Management Home &amp; community based Day/night care* Durable medical* equipment Home health care* Homemaker services* Physical therapy Occupational therapy Medication assistance* Speech therapy Mental health services Transportation services* Nutritional services* Personal care* Respite care*</td>
<td>Family and friends Trainer for skills Facility staff – LPN/CNA Rental source RN, LPN, CNA, PT, OT… Cleaning and chore assts. PT, PT aides, tele-health OT, OT aids, tele-health Medication aide Speech therapist Psychologist, Psychiatrist, Psych. Social Worker, Van driver Dietician, aide Trained attendants Trained respite providers or institutional site</td>
</tr>
</tbody>
</table>

* Require local providers
### Functional Limitation Levels Applied to Services and Personnel Cont...

<table>
<thead>
<tr>
<th>Level Functional Limitation</th>
<th>Service Goals</th>
<th>Services with best fit</th>
<th>Personnel required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderately Severe (7%)</td>
<td>The goal for this level of care is to provide housekeeping and meals along with a modest level of oversight. People may contact for services from the home and community based services in addition to the basic services found in these settings. Assisted living establishes the goal for this cluster in that it seeks to maintain resident control over services.</td>
<td>Institutional staff as required by state regulations</td>
<td>Congregate care Basic care facilities Assisted Living</td>
</tr>
<tr>
<td>Severe (11%)</td>
<td>With 3 or more ADLs, this level tends to become prime candidates for skilled nursing care. They represent care needs with relatively high levels of acuity. Skilled nursing care is the most fully institutional and is reserved for those with medical needs necessitating this level of care.</td>
<td>Institutional staff as required by state regulations</td>
<td>Skilled Nursing Care</td>
</tr>
<tr>
<td>Terminal as special category</td>
<td>End of life care occurs at all points on the above continuum, but is concentrated at the higher levels of limitation. The goal is physical and emotional comfort.</td>
<td>*Hospice volunteers and coordinator</td>
<td>Hospice Care</td>
</tr>
</tbody>
</table>

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### Acceptance of Nursing Homes & Assisted Living (N=1,939)

- **62%** for Assisted Living
- **23%** for Nursing Homes

![Bar Chart](image-url)
Type of Services Utilized (N=1,939)

- Meals Wheels: 29%
- Trans.: 16%
- Dietary: 15%
- Physician Svcs: 14%
- Social Svcs: 10%
- Other: 9%
- Skilled Nursing: 4%
- Personal Care: 4%
- P.T.: 3%
- Respite Care: 2%
- O.T.: 1%
- Speech: 1%

Chronic Disease Model

- Demographics
- Geography
- Chronic Disease
- Health Status & Behavior
- Health Care Access & Utilization
comprising more than one-hundred different diseases and conditions
affects nearly 70 million Americans (1 in 3 adults)
leading cause of disability in the U.S.
Annually, arthritis is associated with 44 million clinic visits, 744,000 hospitalizations, and 4 million days of hospital care (CDC, 2004).
Aberdeen Elders with Arthritis & Co-morbidities (N=762)

- 20.7% have Arthritis Only
- 26.6% have +1 condition
- 25.3% have +2 conditions
- 15.6% have +3 conditions
- 7.9% have +4 conditions
- 3.8% have +5 conditions

Aberdeen Elders with Arthritis & ADL Limitations (N=762)

- 55.5% have None
- 22.2% have One
- 7.9% have Two
- 5.6% have Three
- 2.9% have Four
- 3.3% have Five
- 2.6% have Six
Arthritis among Aberdeen Area Native Elders was most closely associated with:

- Having had a stroke
- Having asthma
- Having cataracts
DIABETES

- More than 18 million Americans have diabetes
- Now the sixth leading cause of death in US
- Afflicts 1 in 5 persons over age 65
- Accounts for approx. 11% of annual U.S. health care expenditures
- Native Americans – 2-3 more likely than whites to have diabetes (CDC, 2004).

Age-Adjusted Diabetes Mellitus Death Rates

<table>
<thead>
<tr>
<th>City</th>
<th>Rate (Per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucson</td>
<td></td>
</tr>
<tr>
<td>Bemidji</td>
<td></td>
</tr>
<tr>
<td>Aberdeen</td>
<td></td>
</tr>
<tr>
<td>Phoenix</td>
<td></td>
</tr>
<tr>
<td>Albuquerque</td>
<td></td>
</tr>
<tr>
<td>Billings</td>
<td></td>
</tr>
<tr>
<td>Nashville</td>
<td></td>
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<tr>
<td>Oklahoma</td>
<td></td>
</tr>
<tr>
<td>Portland</td>
<td></td>
</tr>
<tr>
<td>Navajo</td>
<td></td>
</tr>
<tr>
<td>California</td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td></td>
</tr>
</tbody>
</table>

Per 100,000
Aberdeen Elders with Diabetes & Co-morbidities (N=712)

Aberdeen Elders with Diabetes & ADL Limitations (N=712)
Diabetes among Aberdeen Area Native Elders was most closely associated with:

- Being raised on a Reservation
- Living in a rural area
- Having congestive heart failure
- Having hypertension
- Not a current tobacco user
- Being obese

Policy Recommendations

- increase prevention efforts, including health promotion, screening and wellness programs
- increase disease management programs, including access to services and a focus on preventing co-morbidity
- increase availability of home/community-based long term care services in rural areas
- increase local availability of health care and other services in rural areas
- increase Native elders’ access to health insurance programs, such as Medicare
Arthritis Control and Prevention

- **Increase public awareness** of arthritis as the leading cause of disability and an important public health issue
- **Prevent arthritis** - maintenance of good bone health through **regular exercise and proper nutrition** (calcium and vitamin D)
- **Promote early diagnosis** and **appropriate health care management** of arthritis (including pain control)
- Maintaining an **appropriate body weight** and avoiding joint injuries reduces the risk of developing arthritis and may decrease disease progression
- Ensure that elders with arthritis receive physical, mental, and emotional **support**

Diabetes Control and Prevention

- **Increase public awareness** of diabetes as an important public health issue
- **Prevent diabetes** - **regular exercise**, **proper nutrition** and maintaining an **appropriate body weight**
- **Promote early diagnosis** and **appropriate health care management** of diabetes
- **Preventable complications** of diabetes include: eye disease, kidney disease, amputations, cardiovascular disease, pregnancy complications, flu/pneumonia (CDC, 2004)
- Ensure that elders with diabetes receive physical, mental, and emotional **support**