

NORTHWEST PORTLAND AREA INDIAN HEALTH BOARD

**NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR  
SURVEILLANCE SYSTEM (BRFSS) PROJECT**

**AGGREGATE FINAL REPORT**

**DECEMBER 2003**



A collaborative project between

Confederated Tribes of the Umatilla Indian Reservation

Klamath Tribes

Lummi Nation

Makah Tribe

Nez Perce Tribe

Nisqually Tribe

Shoshone-Bannock Tribes

Centers for Disease Control and Prevention

Northwest Portland Area Indian Health Board



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## **Suggested Citation**

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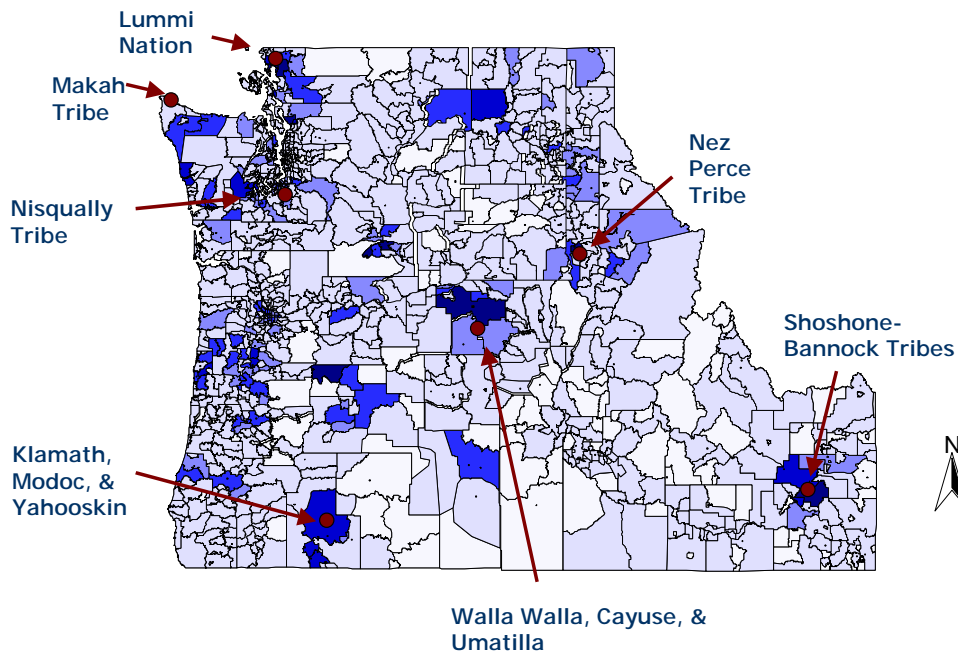
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Oregon Health and Science University  
Northwest Portland Area Indian Health Board



## Participating Tribes, Location, and Project Site Coordinators

<p>Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon</p> <p>Klamath Tribes, Klamath Falls, Oregon</p> <p>Lummi Nation, Bellingham, Washington</p> <p>Makah Tribe, Neah Bay, Washington</p> <p>Nez Perce Tribe, Lapwai, Idaho</p> <p>Nisqually Tribe, Olympia, Washington</p> <p>Shoshone-Bannock Tribes, Ft. Hall, Idaho</p>	<p>Fawn Hasty, RN and Brian Boltz, BS</p> <p>Rich Rose, BA</p> <p>Kathleen Charles, RN, MPH</p> <p>Christine Jimmicum, RN and Andrew Winck</p> <p>Leroy Seth</p> <p>Tom Jones, MS</p> <p>Shirley Alvarez, BS</p>
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### Map of Portland Area (Washington, Oregon, and Idaho) and Participating BRFSS Tribes



## Project Staff Members and Technical Advisors

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*The authors would like to thank L. Dee Robertson, Paul Stehr-Green, Jim Fry, Brian Moss, Terri Caldwell, Mary Brickell, Mylen Shenker, Bobbi Treat, Michael Feroglia, Virginia Winters, Karen Harvey, Lila LaDue, Ginger Clapp, and Chandra Wilson for their expert technical assistance.*

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<sup>2</sup> Centers for Disease Control and Prevention, Atlanta, GA.

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## **NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT**

### **PREFACE**

The Northwest tribes have long recognized the need to exercise control over the design and development of health care delivery systems in their local communities. To this end, in 1972 they formed the Northwest Portland Area Indian Health Board (NPAIHB). The NPAIHB is a nonprofit tribal advisory organization that represents the tribes of Washington, Oregon, and Idaho on health-related matters and provides health-related technical assistance. The NPAIHB represents 43 federally recognized tribes throughout the Pacific Northwest. Tribes become members of the Board through Public Law 93-638 authorizing resolutions passed by the governing body for the tribe. Each tribal government appoints a delegate to represent them on the Board of Directors of the NPAIHB.

The Board of Directors meets quarterly to review Indian Health Service (IHS) policies and activities and to advise the Portland Area IHS from the perspectives of the tribal governments and Indian health care consumers. The mission of the NPAIHB is to assist Northwest tribes to improve the health status and quality of life of member tribes and Indian people in their delivery of culturally appropriate and holistic health care.

Approximately 170,000 American Indians/Alaska Natives (AI/AN) reside in Oregon, Washington, and Idaho, representing 6.8 percent of the nation's American Indian population. Indian reservations are dispersed across immense distances in the Northwest, usually in isolated areas with sparse populations. The tribes of the Northwest vary in population size, culture, and geographic location. Indian health care delivery faces many unique challenges.

Over the last ten years, health care delivery for Northwest Indians has evolved from a centralized system maintained by the IHS to a diverse environment. Currently, many Indian health care programs are operated by tribes under contracts (Title I) or compacts (Title III). This transfer of administration and management responsibilities to the tribes has had many positive results for tribal communities, including the opportunity to more directly impact reduction of morbidity and mortality of disease.

This publication provides more detailed information about the behavioral risk factors of American Indian and Alaska Native (AI/AN) people in the Pacific Northwest than is currently available in other publications. Specifically, this publication provides behavioral risk data from the seven participating tribes. This report can assist the tribes by facilitating access to information that may be helpful in preparing grant proposals, developing intervention programs which are culturally acceptable in Indian communities, and identifying issues which may be worthy of attention in their own community. Throughout this publication, the figures graphically show distributions and the tables provide detailed data.



# NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT

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## **NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT**

### **PURPOSE AND DESCRIPTION**

The purpose of this report is to provide behavioral risk factor data for American Indians residing in the seven participating tribes. A total of 2,428 community members participated in the Northwest Tribal Behavioral Risk Factor Surveillance System (BRFSS) Project. The data are presented in figures and tables and include reported counts and percents. Comparisons are made with the appropriate state BRFSS data with all races combined. The tables provide detailed data while the figures graphically display the data. This report represents one aspect of our efforts to provide tribal staff and members with information about American Indian and Alaska Native (AI/AN) people in the Portland Area (Oregon, Idaho, and Washington).

Since 1984, the Centers for Disease Control and Prevention's BRFSS has been invaluable in providing population based behavioral risk factor data for chronic diseases including heart disease, diabetes, and cancer. In the last few years, the Northwest Portland Area Indian Health Board (NPAIHB) has been conducting the Northwest Tribal BRFSS Project in order to assess behavioral risk factors among northwest tribal peoples by using a slightly modified 2001 national BRFSS questionnaire.

The Confederated Tribes of the Umatilla Indian Reservation (Walla Walla, Cayuse, and Umatilla), the Klamath Tribes (Klamath, Modoc, and Yahooskin), the Shoshone-Bannock Tribes, the Nez Perce Tribe, the Makah Tribe, the Lummi Nation, and the Nisqually Tribe all signed tribal resolutions to quantify, understand, and intervene on the occurrence of chronic diseases within their respective tribal communities.

Although previous BRFSS-type surveys have been completed in tribal communities, including the Northwest, there have not been sufficient resources to assist tribes in utilizing the BRFSS data for disease prevention and health promotion-based decision-making. Through a cooperative agreement with the Indian Health Service, the Centers for Disease Control and Prevention (CDC) Division for Reproductive Health has conducted most of the BRFSS surveys completed in Indian Country. Most of CDC's work in tribal communities has ended with the delivery of the statistical report (Jay Friedman, personal communication, 2001). Although some tribes have taken the initiative to design disease interventions, many tribes have not utilized their BRFSS data to its potential (S. Alvarez, personal communication, 2001).

To promote the use of BRFSS data for disease prevention and health promotion, the NPAIHB BRFSS Project incorporated training specific to CDC's Data for Decision Making model, data management (storage and confidentiality), SPSS data analysis and results interpretation, measuring changes in behavior over time, Healthy People 2010, and data sharing agreements.



## NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT

### ORGANIZATION OF THE REPORT

The report is organized into five sections profiling behavioral risk factors for the seven participating tribes: (1) background on the tribes participating in the Behavioral Risk Factor Surveillance System (BRFSS); (2) background on chronic diseases affecting American Indian and Alaska Native (AI/AN) populations; (3) methods of the BRFSS Project; (4) BRFSS results; and (5) tables in appendices.

The aggregate behavioral risk factors are presented based on face-to-face interviews of 2,428 community members. The data are presented in several formats. Within the body of the report, we have provided a summary highlighting the count and percent of select behaviors and have inserted bar graphs and bullets to depict the distribution of select variables, in some instances by age and sex.

More detailed information is in the form of tables. The tables provide information on select variables by age, sex, marital status, education, and household income as percentage of the federal poverty level. All data tables are placed in the appendix of the report. The tables include two distinct types of information: (1) 1998-2001 BRFSS data for the state of Washington, Oregon and Idaho; and (2) aggregated BRFSS data for tribes with the two types of sampling methods i.e., tribal enrollment sampling and service user sampling. For each type of information, three columns of information are presented: numerators, percents, and 95% confidence intervals.

### SOURCES AND LIMITATIONS

#### SOURCES

Information on behavioral risks can provide an important perspective on health status. However, results are based on the 2,428 individuals who agreed to be interviewed between April 20, 2001 and October 24, 2002. Although every attempt was made to randomly select community members, it is possible that the information presented in this report does not represent behavioral risks for all tribal members of the northwest.

In this report, the number of individuals participating in the interview is used as the denominator for calculation of reported behaviors. The percent is the number of reported behaviors divided by the total number of participants. For some questions, only individuals of specific gender, within certain age categories, or responding affirmatively to a filter question were included in the denominator. For example, only women aged 40 years of age and older were asked whether they had had a mammogram in the last two years (data shown in Table 36). The estimates presented in this report have been compared to the Washington, Oregon and Idaho states all races BRFSS data for years 1998-2001. Any exceptions to this format are described in footnotes.

The state BRFSS data were acquired from the Centers for Disease Control and Prevention (CDC) and include respondent information for the years 1998-2001. On an annual basis, each state within the U.S. conducts *telephone-based* interviews with randomly selected state residents. AI/AN have been largely underrepresented in these surveys. Multiple years of the Washington, Oregon and Idaho states BRFSS data were combined to include a larger AI/AN sample. The state-based BRFSS data included in our report are for all races in the state of Washington, Oregon and Idaho. The state-



based BRFSS data were cleaned and recoded in SAS<sup>5</sup> and percents and 95% confidence intervals were calculated using SUDAAN 8<sup>6</sup> software. All analyses for the Washington, Oregon and Idaho states BRFSS data were conducted at CDC, Atlanta, GA.

## LIMITATIONS

The information from this report may provide an important perspective to plan initiatives to improve the health status of American Indians in the northwest. Before considering the findings of the study, it is important to acknowledge a number of limitations of the data used in this report.

### *Small numbers*

The small numbers of respondents who reported certain behaviors make some of the results in this report considerably susceptible to random variation; therefore, considerable caution should be used in arriving at conclusions regarding either the statistical significance or the public health significance of results. In small populations, even one or two individuals with a reported behavior might result in a very high estimated percent for that behavior. Assistance with interpretation is available from the BRFSS Project staff members, 1-877-664-0604.

### *Bias*

In our analyses, only community members who could be reached and were in agreement to be interviewed were included. It is possible that the individuals included in our analyses are different in some way from the general population due to different rate of response.

### *Response Rate*

At each tribe, an initial list of approximately 500 individuals was obtained from either the tribal enrollment office or the local health care facility using the Resource and Patient Management System (RPMS). As expected, not all individuals on the list completed an interview because individuals refused an interview, were away at school, had moved away from the reservation, were unapproachable, were incarcerated, were unable to locate, were deceased, or were mentally incompetent.

Response rates are a measure of the number of completed interviews divided by the total number eligible. Individuals who were physically away from the reservation, incarcerated, deceased, or mentally incompetent were not included in the denominator of our calculation.

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<sup>5</sup> Copyright (c) 1999-2001 by SAS Institute Inc., Cary, NC, USA. SAS (r) Proprietary Software Release 8.2 (TS2M0)

<sup>6</sup> SAS-Callable Single-User SUDAAN

## NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT

### BACKGROUND ON THE PARTICIPATING BRFSS TRIBES

The following background information on the participating BRFSS tribes was taken directly from the Northwest Portland Area Indian Health Board (NPAIHB) web pages. The tribal information can be accessed at [http://www.npaihb.org/profiles/tribal\\_profiles/interface.htm](http://www.npaihb.org/profiles/tribal_profiles/interface.htm)

A total of seven Northwest tribes participated in the Behavioral Risk Factor Surveillance System (BRFSS) Project. Below are brief background descriptions of the BRFSS tribes, including tribal leadership and tribal BRFSS project staff members.

#### *Confederated Tribes of the Umatilla Indian Reservation*

The homeland of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) originally comprised 6.4 million acres in northeastern Oregon and southeastern Washington. As a result of the 1855 Treaty with the U.S. Government and subsequent federal legislation, the present-day reservation consists of 172,000 acres. Despite ceding millions of acres, CTUIR reserved their sovereign authority. They also reserved rights to harvest fish, wildlife and other natural resources in their traditional homeland.

Once numbering over 8,000 strong (prior to European contact), the Confederated Tribes of the Umatilla Indian Reservation now have 2,314 enrolled members, of which two-thirds live on or near the Umatilla Reservation. Located just outside of Pendleton, Oregon, the reservation is also home to another 1000 Indians from other tribes such as the Yakama, Warm Springs, and Nez Perce, as well as to nearly 1700 non-Indians.

The modern-day Constitution and By-Laws were adopted in 1949. A nine-member Board of Trustees governs Tribal affairs. The Board of Trustees is elected by the General Council, which consists of all tribal members age 18 and older. The General Council also elects its own officers and its Chairman serves to represent the General Council on the Board.

After years of struggle and limited opportunity, CTUIR today are rapidly moving toward economic self-sufficiency by diversifying their Reservation economy. An economy once based strongly on agriculture and natural resources has grown to include commercial development such as a trailer court, grain elevator, and the Wildhorse Casino Resort, which includes a casino, hotel, RV park, golf course, and the Tamastlikt Cultural Institute. The tribe is the second largest employer in Umatilla County.

We gratefully acknowledge the contributions of each of these individuals:



#### **Confederated Tribes of the Umatilla Indian Reservation**

##### **2001 Board of Trustees**

Antone Minthorn, Chair

Rob Burnside, Vice-Chair

Les Minthorn, Treasurer

Rosemary Narcisse, Secretary



Thomas Morning Owl, General Council Chair  
Armand Minthorn, Member at Large  
Jay Minthorn, Member at Large  
William Quaempts, Member at Large  
Kathryn Brigham, Member at Large



### **The Confederated Tribes of the Umatilla Indian Reservation**

**2001 Tribal Health Director**  
Elwood Patawa, Tribal Health Director

#### **Project Staff Members**

Fawn Hasty, Site Coordinator  
Brian Boltz, Site Coordinator  
Stanley Fetterhoff, Interviewer<sup>7</sup>  
Joey Simpson, Interviewer  
Dave Riker, Interviewer  
Carmen Wilson, Interviewer  
Rhonda Scott, Interviewer & Data Entry Staff Member

#### **BRFSS Trainees**

Fawn Hasty, Site Coordinator  
Brian Boltz, Site Coordinator  
Elwood Patawa, Tribal Health Director

#### **CTUIR BRFSS Project Staff Members**



LEFT TO RIGHT: Fawn Hasty, Stanley Fetterhoff, Rhonda Scott, Carmen Wilson, Joey Simpson, and Dave Riker. Not Pictured: Brian Boltz.

<sup>7</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.





LEFT: Fawn Hasty, CTUIR BRFSS Site Coordinator, receiving an award of recognition from Ed Fox, NPAIHB Executive Director  
 BOTTOM: Dave Riker receives a BRFSS jacket in recognition of completing over 100 surveys.



### *Klamath Tribes*

The Klamath Tribes are composed of the Klamaths, the Modocs, and the Yahooskin. The tribes have lived in the Klamath Basin of Oregon from time beyond memory. The tribes of the Klamaths lived along the Klamath Marsh, on the banks of Agency Lake, near the mouth of the Lower Williamson River, on Pelican Bay, beside the Link River, and in the uplands of the Sprague River Valley.

Because of the widespread trade networks established by the Tribes long before the settlers arrived, freighting was an economic enterprise that turned out to be extremely successful during the reservation period. In August of 1889, there were 20 Tribal teams working year-round to supply the private and commercial needs of the rapidly growing county. A Klamath Tribal Agency - sponsored sawmill was completed in 1870 for the purpose of constructing the Agency. By 1873, Tribal members were selling lumber to Fort Klamath and to many other private parties, and by 1896 annual sales to parties outside of the reservation were estimated at a quarter of a million board feet. With the arrival of the railroad in 1911, reservation timber became extremely valuable. The economy of Klamath County was sustained by it for decades.

By the 1950's the Klamath Tribes were one of the wealthiest Tribes in the United States. They owned and judiciously managed for long term yield, the largest remaining stand of Ponderosa pine in the west. In 1954, the Klamath Tribes were terminated from federal recognition as a tribe by an act of congress. Not only did they see the end of federal recognition and supplemental human services, but also tragically the reservation land base of approximately 1.8 million acres was taken by condemnation. This single act of Congress had devastating effects on the Klamath Tribes and several other tribes across the country.

In 1986, the Klamath Tribes were successful in regaining Restoration of Federal Recognition. Although their land base was not returned, they were directed to compose a plan to regain economic self-sufficiency. Our Economic Self-Sufficiency Plan (ESSP) reflects the Klamath Tribes' continued commitment to playing a pivotal role in the local economy. In 1997, the Klamath Tribes opened the Kla-Mo-Ya Casino.



During the BRFSS project, the tribe actively participated in meeting project objectives and goals in an efficient and timely manner. With honor and respect, we acknowledge the tribal leadership that was in place when the project first began — for it was the support of the tribal leadership that made our project possible.



### **Klamath Tribes**

#### **2001 Tribal Council**

Allen Foreman, Chairman  
 Joe Hobbs, Vice-Chairman  
 Torina Case, Secretary  
 Gail Hatcher, Treasurer  
 Corrine Hicks, Tribal Council  
 Brandy Snoozy, Tribal Council  
 Helen Crume-Smith, Tribal Council  
 Rosemary Treetop, Tribal Council  
 Moe Jimenez, Tribal Council  
 Philip Jackson, Tribal Council

Once Klamath tribal approval was received, Mr. Rich Rose was identified as the site coordinator to be responsible for the day-to-day oversight of the project. We gratefully acknowledge the time and dedication of the Klamath project staff members. Mr. Rose was responsible for the hire and management of local field interviewers, data entry personnel, and trainees who attended the BRFSS workshops on CDC's Data for Decision Making curriculum, Statistical Package for Social Scientists (SPSS), and Healthy People 2010. Following is a list of the Klamath project staff members.



### **The Klamath Tribes**

#### **2001 Tribal Health Director**

Bill LaRoque, Tribal Health Director

#### **Project Staff Members**

Rich Rose, Site Coordinator  
 Calvin Hill, Interviewer  
 Bucky Hobbs, Interviewer  
 Alana Lang, Interviewer  
 Beverly Lang, Interviewer  
 Candi Kirk, Interviewer  
 Orin Kirk, Interviewer  
 Debra Quijada, Interviewer<sup>8</sup>  
 Joelene Mortensen, Data Entry Staff Member

#### **BRFSS Trainees**

Rich Rose, Site Coordinator  
 Carol Grant, Mental Health Services Director  
 Angie Pool, Administrative Officer

### **Klamath Tribes BRFSS Project Staff Members**

<sup>8</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.





BACK TO FRONT, LEFT TO RIGHT: Calvin Hill, Bucky Hobbs, Alana Lang, Candi Kirk, Orin Kirk, Joelene Mortensen, Rich Rose, Debra Quijada, and Beverly Lang



Rich Rose, Klamath BRFSS Site Coordinator, presenting at the NPAIHB Quarterly Board Meeting, Upper Skagit, January 2002



Door prize winners at the Klamath Tribes BRFSS community open forum. Open Forums were held in order to share findings of the BRFSS study with the community.

### *Lummi Nation*

The Lummi Reservation is seven miles northwest of Bellingham, Washington, in the western portion of Whatcom County, 95 miles north of Seattle. The reservation is a five mile long peninsula which forms Lummi Bay on the west, Bellingham Bay on the east, with a smaller peninsula of Sandy Point, Portage Island, and the associated tidelands. The Lummi Nation signed the treaty of Point Elliot in 1855 ceding much of their aboriginal lands in western Washington. In return they received a reservation that originally covered 15,000 acres. Today, approximately 12,000 acres remain in Indian control. In 1948 the Lummi Nation adopted a Tribal Constitution, amended and ratified in 1970, which created the present government structure. The Lummi Reservation is governed by an 11 member tribal council. All tribal members are members of the General Council, which meets at least once a year at which time one-third of the Tribal Council is elected.

The Lummi people traditionally lived near the sea and in mountain areas and returned seasonally to their longhouses located at a number of sites on the present reservation and on the San Juan Islands.



Smoke-dried seafood, camas bulbs, sun-dried berries and all species of shellfish, crab, salmon, trout, elk, deer, and other land and sea mammals made up the traditional Lummi diet. The Lummi people are working to revive the traditional Salishan language. They express their language and religious traditions through elaborate carvings on totems and ceremonies.

The Lummi Nation operates an ambulatory direct care facility under a P.L. 93-638, Title III Self-Governance Compact with the IHS. The center offers general comprehensive medical and dental, WIC, family planning, community health outreach (CHR) and health education. The health program employs three doctors, two dentists, three public health nurses, one pharmacist, two pharmacy techs, one licensed practical nurses, three certified mental health counselors, three registered nurses, a dental hygienist, a nutritionist, and an environmental health specialist. Two psychiatrists and a pediatric dentist are on contract as consultants. Primary care is provided to all direct care eligible Indians who have no other resources. The active health clinic user population is 3,927. The leading causes of death are heart disease, malignant neoplasm, cerebrovascular disease, motor vehicle accidents, and digestive diseases.

We gratefully acknowledge the contributions of each of these individuals:



### **Lummi Nation**

#### **2001 Tribal Council**

Willie Jones, Chairman  
 Gordon Adams, Member  
 Penny Carol Hillaire, Member  
 Darrell Hillaire, Member  
 Perry Adams, Member  
 Larry Kinley, Member  
 Cheryl Johnson, Member  
 James Wilson, Member  
 Ray Morris, Member  
 Leroy Deardorff, Member



### **Lummi Nation**

#### **2001 Tribal Health Director**

Barbara Finkbonner, Lummi Tribal Clinic Director

#### **Project Staff Members**

Kathleen Charles, Site Coordinator  
 Jean Cultee, Interviewer<sup>9</sup>  
 Judy Charles Hottowe, Interviewer  
 Regina James, Interviewer  
 William John, Interviewer  
 Vivian Castro, Interviewer  
 Cassandra Misanes, Interviewer  
 Alvira Gambler, Interviewer  
 Robert Finkbonner, Interviewer  
 Ardith Tom, Interviewer & Data Entry Staff Member

<sup>9</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.

**BRFSS Trainees**

Kathleen Charles, Site Coordinator

Barbara Finkbonner, Tribal Health Director

Laverne Lane-Oriero, LIFE Center Director

**Lummi Nation BRFSS Project Staff Members**

First Team, LEFT TO RIGHT: Jean Cultee, Judy Charles Hottowe, Regina James, William John, and Kathy Charles



Jean Cultee receives recognition for completing over 100 surveys.



Second Team, LEFT TO RIGHT: Jean Cultee, Vivian Castro, Alvira Gambler, Cassandra Misanes, Ardith Tom, and Robert Finkbonner. Not pictured: Kathy Charles.



## *Makah Tribe*

The Makah Indian Reservation is located on the northwest continental tip of the Olympic Peninsula in Clallam County, Washington. The total land area of forty-seven square miles is bounded on the west by the Pacific Ocean and on the north by the Strait of Juan de Fuca. Rocky headlands and sandy beaches typify the shoreline of the Reservation. There is one large harbor protected by a breakwater at Neah Bay proper, the central village of the Reservation. Mainly rugged mountains dominate the Reservation acreage, with elevations typically between 500 and 1,000 feet and reaching nearly 2,000 feet at Sooes Peak. There are four major watersheds that drain the main Reservation areas through the following rivers: The Sail, Waatch, Hoko, and Sooes Rivers. The flood plains of the Waatch and Sooes Rivers contain the only flat land within the Reservation and are used for livestock grazing. Over 1,000 acres of the land bordering the Pacific Ocean have been reserved as a Wilderness Area. Today, Neah Bay is a commercial fishing and timber community as well as a tourist and sport-fishing destination. Many visitors come to Neah Bay to tour the Museum and Cultural Resource Center (MCRC) and hike to the most northwestern point of the United States.

The Makah Tribe is part of the Nootkan culture group; the two other tribes in the group are the Westcoast and Nitinaht tribes of Western Vancouver Island, British Columbia. The Makah is the only tribe in the United States to speak a Wakashan language. The Makah had a highly developed representational art style, a stratified social order, and a specialized labor force. There were five major permanent villages in early time; one of them (Ozette) was destroyed in a mudslide, and its excavation has produced much knowledge about the culture. A museum curating and displaying artifacts from Ozette opened in 1979. The Makah were a maritime people who used fish and shellfish and hunted whale. The people used cedar for clothing, basketry, and boxes.

An Indian Health Service (IHS) affiliated clinic provides comprehensive primary and dental health services (Joint Committee on Accreditation Healthcare Organizations (JCAHO) accredited facility located in Neah Bay, Washington). The facility was built in 1971 and remodeled in 1986. The Health Center employs: three physicians, one dentist and two other practitioners who are Nurse Practitioners (NPs), Registered Nurses (RNs), or Public Health Nurses (PHNs). The Clinic serves approximately 13,061 patients. The leading causes of death are heart disease, cerebrovascular disease, cirrhosis of the liver, malignant neoplasm, and motor vehicle and other accidents.

We gratefully acknowledge the contributions of each of these individuals:



### **Makah Tribe**

#### **2001 Tribal Council**

Greg Arnold, Chairman  
 Gordan Smith, Vice-Chairman  
 Debbie Wachendorf, Treasurer  
 Jodean Haupt-Richards, Secretary  
 Michael Lawrence, Member  
 Nathan Tyler, Member

### **The Makah Tribe**

#### **2001 Tribal Health Manager**

Christine Jimmicum, Tribal Health Manager

### **Project Staff Members**

Christine Jimmicum, Site Coordinator  
Andrew Winck, Interviewer and Site Coordinator  
Y. Marie Butterfield, Interviewer<sup>10</sup>  
Ryland Bowchop, Interviewer  
Evelyn Greene, Interviewer  
Colleen Pendleton, Interviewer  
Rosina DePoe, Interviewer & Data Entry Staff Member  
Rikki Walkendorf, Data Entry Staff Member  
Trish DePoe, Data Entry Staff Member

### **BRFSS Trainees**

Christine Jimmicum, Site Coordinator  
Fran Tyler, Community Health

### **Makah BRFSS Project Staff Members**



LEFT TO RIGHT, BACK TO FRONT: Chris Jimmicum, Y. Marie Butterfield, Andrew Winck, Rosina DePoe, Colleen Pendleton, Ryland Bowchop, Evelyn Greene. Not pictured Rikki Walkendorf and Trish DePoe.



Deb Walkendorf, Makah Tribal Council member and tribal delegate to NPAIHB, presenting at the Quarterly Board Meeting, Upper Skagit, January 2002

<sup>10</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.



### *Nez Perce Tribe*

The Nez Perce people belong to the Sahaptin linguistic group of the Northwest Plateau Region. At one time, they occupied an area that covered North Central Idaho, Northeastern Oregon, and Southeastern Washington. The 1855 Treaty reserved most of their ancestral homelands. However, the discovery of gold in the 1860's led to the Treaty Council of 1863, and the adjustment of the boundaries of the Reservation. Some of the Nez Perce (the "Non-Treaty Nez Perce") refused to sign this treaty. The U.S. federal government attempted to force their compliance in 1877. A war resulted ending in a surrender at Bear Paw, Montana, following a 1,700 mile, four-month fighting retreat by these Nez Perce toward Canada. The Dawes General Allotment Act of 1877 followed, whereby the remaining land was distributed within the tribe. Then in 1893, the Nez Perce were pressured into signing an agreement in which all unallotted land was declared "surplus" and sold to the Government for homesteading. The result of the Dawes Act was a Nez Perce Reservation reduced to about 86,500 acres, less than 12% of the 1863 Treaty lands.

In 1948, the Nez Perce Tribe became a self-governing body under an approved constitution and by-laws. The Nez Perce Tribal Executive Committee is composed of nine members distributed geographically throughout the reservation. The Reservation is 88,314 square acres along US 12 east of Lewiston, Idaho; the tribal population is 3,250. Tribal headquarters are in the city of Lapwai. Principal industries include forest products, agriculture, sand, and gravel.

The Northern Idaho Indian Health Center is a 527 square meter outpatient clinic in Lapwai, Idaho. The clinic is 32 years old and was operated by the DHHS until recently, when the Tribe took over its management under a 638 contract. The Tribe now hires health professionals directly, formerly through the Indian Health Service. The Health Center employs 3 physicians, 1 nurse practitioner, 2 public health nurses, 3 registered nurses, 2 mental health social workers, a health educator, 2 dentists, and 2 dental assistants. The total patient population is 4500.

We gratefully acknowledge the contributions of each of these individuals:



**The Nez Perce Tribe  
2001 Executive Committee**

Sam Penney, Chairman  
Wilford Scott, Vice-Chairman  
Arthur M. Taylor, Secretary  
Anthony D. Johnson, Treasurer  
Carla Higheagle, Assistant Secretary/Treasurer  
Julia A. Davis-Wheeler, Chaplain  
Jake Whiteplume, Member  
Justin Gould, Member  
Jennifer Oatman-Brisbois, Member



**The Nez Perce Tribe**

**2001 Tribal Health Director**  
Karen Carter, Tribal Health Director

**Project Staff Members**

Leroy Seth, Site Coordinator  
Tanya Egger, Interviewer

Freida Ellenwood, Interviewer & Data Entry Staff Member  
Virginia Feeley, Interviewer  
Frank Henry, Interviewer  
Lorena Rogers, Interviewer  
Pete Wilson, Interviewer<sup>11</sup>  
Richard Zender, Interviewer

**BRFSS Trainees**

Leroy Seth, Site Coordinator  
Kris Smith Holmes, Diabetes Coordinator  
Valerie Albert, WIC Tech

**Nez Perce BRFSS Project Staff Members**



LEFT TO RIGHT, BACK TO FRONT: Virginia Feeley, Lorena Rogers, Frank Henry, Leroy Seth, Freida Ellenwood, Pete Wilson, Richard Zender, and Laura Lozon



Leroy Seth, Nez Perce BRFSS Site Coordinator, receiving an award of recognition from Joe Finkbonner, NPAIHB EpiCenter Director

<sup>11</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.



### *Nisqually Tribe*

The Nisqually Indians occupied the interior woodlands and coastal waters from Mt. Rainier to Puget Sound, WA. Their lifestyle and ceremonies revolved around different species of salmon and the red cedar. In 1853 Governor Isaac Stevens abolished Indian land rights, leaving only the designated reservation land, which was collectively owned by extended families. Under duress, the Nisqually, Puyallup, and other bands ceded most of Puget Sound and the Olympia Peninsula (approximately 2,240,000 acres) to the government by the Treaty of Medicine Creek. The Nisqually reservation included 5,105 acres, most of it east of the Nisqually River in Pierce County. Allotment of the land to individual tribal families began in 1884. In 1917 the US military, through condemnation proceedings, took 3,370 acres for the Fort Lewis Military Reserve. The Tribe adopted a constitution in 1946 according to the 1934 Indian Reorganization Act. An elected business council carries on most of the Tribe's government affairs. The reservation is small and on lower Nisqually River east of Olympia adjacent to Fort Lewis Military Reservation. Principal industries include tribal government, wood products, fishing, and agriculture.

The Nisqually Tribe offers full time primary care services five days a week from a physician and three day health care services from a nurse practitioner. The Tribe also employs two part-time dentists. The clinic is new and was constructed in 1999 as a 7,000 square foot tribal building. The enrolled tribal population is just over 500, and the Indian population living on or near the reservation is 3,500. The leading causes of death are heart disease, malignant neoplasm, cirrhosis of the liver, accidents other than motor vehicle, and cerebrovascular disease. Increasingly, diabetes is a major cause of morbidity among the Nisqually.

We gratefully acknowledge the contributions of each of these individuals:

#### **The Nisqually Tribe**



#### **2001 Tribal Health Board Members**

Frankie McCloud  
 Josie McCloud  
 Mary Ann Squally  
 Jamie Sanchez  
 Zelma McCloud

#### **The Nisqually Tribe**



#### **2001 Tribal Health Director**

Rena Wells, Tribal Health Director

#### **Project Staff Members**

Tom Jones, Site Coordinator  
 Kitten Leschi, Interviewer  
 Raymond Sanchez Jr., Interviewer<sup>12</sup>  
 Lisa Sanders, Interviewer  
 Jack Simmons, Interviewer  
 Marian Smith, Interviewer

<sup>12</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.





Patricia McCloud, Interviewer & Data Entry Staff Member  
 Lila Lopeman, Interviewer & Data Entry Staff Member<sup>10</sup>

**BRFSS Trainees**

Tom Jones, Site Coordinator  
 Kitten Leschi, Interviewer  
 Lila Lopeman, Interviewer  
 Beverly LaMonte, Tobacco Project

**Nisqually BRFSS Project Staff Members**



LEFT TO RIGHT, BACK TO FRONT: Tom Jones, Jack Simmons, Lila Lopeman, Raymond Sanchez, Jr, Marian Smith, Lisa Sanders, Kitten Leschi, and Patricia McCloud



BRFSS Tribal Presentations, January 2002  
 NPAIHB QBM. Waiting to present are Jean  
 Cultee, Lummi Nation; Tom Jones, Nisqually;  
 Shirley Alvarez, Shoshone-Bannock; and, Fawn  
 Hasty, CTUIR.



Tom Jones during the MS PowerPoint  
 training for BRFSS Site Coordinators.



*Shoshone-Bannock Tribes*

The Shoshone-Bannock Reservation was established by the Treaty of July 2, 1863, at Fort Bridger, Utah. A later treaty of July 30, 1883, defined the reservation further as the land area bordered on the East by the Portneuf Mountains and on the West by Raft River. An Executive Order, July 14, 1867, set apart the Reservation for the Boise and Bruneau Bands of the Shoshone and Bannock Indian Tribes. The original 1,800,000 acres were reduced to 1,336,000 acres in 1869, and in 1900 additional land was ceded to the government, leaving the existing 540,764 acres within the Reservation. The aboriginal lands included large areas of Idaho and surrounding states. Included were the Salmon and Snake River country spanning into what is now southern Idaho. The Shoshone-Bannock Tribes, Inc., became a federally chartered corporation under the Indian Re-organization Act on April 17, 1937. The Shoshone-Bannock Tribal Constitution and By-laws were adopted by the Tribes and approved by the Secretary of the Interior on April 30, 1936. The Fort Hall Business Council is the official governing body of the Shoshone-Bannock Tribes, Inc.

The Reservation occupies 524,557 acres adjacent to Interstate 86 and Interstate 15 in southeast Idaho. The tribe is known for the Sun Dance held during late July and the Annual Shoshone-Bannock Indian Festival held in early August. The Town of Fort Hall is small and unincorporated with an elevation of 4,754 ft. It was one of the first permanent Europe-American settlements in Idaho, established in 1834 as a trading post. A military post was established in 1849. The original Fort was on the bank of the Snake River, 11 miles west of the present site.

The Not-So-Gah-Nee Health Clinic is a 28,915 square foot outpatient clinic, which opened October 9, 1990. Clinic offices include: Outpatient Clinic, Dental, Pharmacy, Lab, X-ray, Optometry, Podiatry, Audiology and Contract Health Services. Over 50,000 patients are seen yearly. The Health Center employs 4 Physicians, 1 Physician Assistants, 3 Nurse Practitioners, 4 Licensed Practical Nurses, 6 Registered Nurses, 1 Clinical Social Worker, 2 Master of Social Work, 2 Bachelor of Social Work, 1 Nutritionist, 2 Health Educators, 3 Dentists, 1 Dental Hygienist, Lab technicians, Optometrist and technician, 2 Psychologists, and a Mental Health technician.

We gratefully acknowledge the contributions of each of these individuals:

**The Shoshone-Bannock Tribes****2001 Business Council**

Lionel Boyer, Chairman  
 Claude Broncho, Vice Chairman  
 Michael Dann, Secretary  
 Alonzo Coby, Treasurer  
 Nancy Murillo, Member  
 Larry Bagley, Member  
 Fredrick Auck, Member

**The Shoshone-Bannock Tribes****2001 Tribal Health Director**

Angela Mendez, Tribal Health Director



### **Project Staff Members**

Shirley Alvarez, Site Coordinator  
 Nellie Bronco, Interviewer  
 Burdett Osborne, Interviewer  
 Sheryl Slim, Interviewer  
 Sheila Taggart, Interviewer  
 Inez Wenee, Interviewer<sup>13</sup>  
 Candace Yokoyama, Interviewer  
 Jackie Yokoyama, Data Entry Staff Member

### **BRFSS Trainees**

Shirley Alvarez, Site Coordinator  
 Rowana Stump, CHR Director  
 Christine Waterhouse, Information Technology Director  
 Jackie Yokoyama, Information Technology Assistant

### **Shoshone-Bannock BRFSS Project Staff Members**



LEFT TO RIGHT, BACK TO FRONT: Shirley Alvarez, Inez Wenee, Candace Yokoyama, Sheryl Slim, Jim Cutler, Nellie Broncho, Sheila Taggart, Burdett Osborne



Shirley Alvarez, Shoshone-Bannock BRFSS Site Coordinator, receiving an award of recognition from Ed Fox, NPAIHB Executive Director

<sup>13</sup> Completed over 100 face-to-face interviews with each interview lasting approximately 30 minutes.



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## **NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT**

### **BACKGROUND ON CHRONIC DISEASES AFFECTING AI/AN POPULATIONS**

The Northwest Tribal Behavioral Risk Factor Surveillance System (BRFSS) Project provides valuable baseline data to the participating northwest tribes. We know that despite broad advances in health care and disease prevention nationally, the existing health data on American Indians and Alaska Natives (AI/AN) show substantial disparities between their overall health status and that of the general U.S. population (Becker, 1990; IHS Regional Differences in Indian Health, 2001; Young, 1994). These disparities are particularly apparent for common chronic diseases, such as cardiovascular disease, diabetes, and cancer. In the following paragraphs we provide background on cardiovascular disease, diabetes, and cancer—chronic diseases affecting AI/AN.

### **CARDIOVASCULAR DISEASE**

Cardiovascular diseases pose major challenges in Indian health. Cardiovascular diseases, including myocardial infarction and stroke, are the leading cause of death among AI/AN in the Northwest and nationwide (IHS, 2001). Our understanding of cardiovascular disease in American Indian (AI) people and its relationship to diabetes and other risk factors is increasing among some tribes due primarily to recently published data from the Strong Heart Study (SHS). Rates of ischemic heart disease have changed markedly among AI/AN people in the past 25 years, and both the rates and the relative contribution of known risk factors appear to vary markedly among tribes—from low rates in New Mexico to very high rates among Northern Plains and Alaska tribes (Welty et al., 1993, 1995; Rhoades, 2000).

Although early studies of coronary artery disease (CAD) among AI/AN people suggested low prevalence and incidence of CAD, acute myocardial infarctions have increased dramatically in some tribes over recent decades. Mortality from CAD, similarly, has been on the increase in many tribes (IHS, 2001). The SHS found that age- and sex-specific prevalence for CAD in Oklahoma varied from 15.9% among AI women aged 45-54 years to 44.7 % among AI men aged 65-74 (Welty et al, 1995). This and other SHS studies have also suggested that mortality from CAD is higher among Indians than non-Indians in the US (Lee et al, 1998). In the Northwest, no formal assessments of CAD incidence or mortality have been conducted similar to the SHS.



## DIABETES

Type 2 diabetes was historically infrequently diagnosed among AI/AN, but is now found in increasingly higher proportions among most AI/AN populations (Hall, 1991, Gohdes, 1995, Lee, 1995). In 1997, the age-adjusted prevalence of type 2 diabetes among AI/AN nationwide was 2.5 times greater than among the all races population, and the rate of complications was two to six times higher depending on the tribe and the complication (IHS Regional Differences, 2001).

Indian Health Service (IHS) data indicate that type 2 diabetes in Northwest AI/AN populations is disproportionately higher than in the general population. The age-adjusted prevalence of diabetes increased dramatically from 4.3% in 1996 to 7.8% in 2001 for the user population of IHS clinics in the Northwest (personal communication, Kelly Gonzales, 2001).

Diabetes mellitus is clearly a priority health concern for AI/AN people in the Northwest and nationwide. Lifestyle risk factors, including obesity, high caloric diet, and physical inactivity can increase the risk of type 2 diabetes.

The increasing prevalence of obesity has been measured in many AI/AN communities. In Pima Indians in the Southwest, 95% of people with diabetes were overweight (NIDDK, 1999). In the Northwest, some of the tribes have demonstrated an 80% prevalence of overweight or obesity among the type 2 diabetic population.

Both diet and physical activity have changed for many members of AI/AN groups over the past several decades so that they are now more “Western.” Western diets are higher in fat and calories than traditional diets. Physical activity has also decreased among AI/AN populations over the past several decades. Changes in diet and physical activity are associated with the increased prevalence of overweight and of type 2 diabetes. In addition, individuals with impaired glucose tolerance, impaired fasting glucose, or insulin resistance are at higher risk of progressing to diabetes (Gohdes, 1995).

## CANCER

Many published reports on cancer incidence in AI in the US have been based on Surveillance, Epidemiology, and End Results (SEER) Program data collected by the New Mexico Tumor Registry (NMTR), although earlier reports of cancer incidence among Alaska Natives and one study from western Washington provide some comparative data. The NMTR data have indicated low overall cancer incidence rates among AI compared to non-Indians in New Mexico (Key, 1981). For cancers of the cervix, gallbladder, and stomach, however, rates are high compared to non-Hispanic whites (Becker et al, 1992; Key, 1981). Alaska Natives have shown elevated incidence rates for cancers of the lung, cervix, nasopharynx, colon and rectum, especially compared to whites and to AI in New Mexico (Lanier et al, 1989). Unfortunately, misclassification of AI ethnicity in western Washington has resulted in underestimated rates for overall cancer rates and for many site-specific cancers (Becker et al, 2002, Frost et al, 1992, Sugarman et al, 1996).

The two most comprehensive summaries of cancer mortality among AI/AN are based on data from IHS records collected from 1984-1988 (Valway et al, 1992), and from 1989-1993 (Cobb and Paisano, 1998). These data indicate substantially different cancer mortality rates for all sites combined and for specific sites. In Idaho, Oregon, and Washington, the cancer mortality rate was slightly lower than the US white rate, although racial misclassification and known undercounting of cases suggest that the low rate (compared to whites) may be spuriously low. IHS data for 1993 indicate that the leading causes of cancer death by site in the Northwest for American Indian males



were lung, prostate, and colon-rectum, and for American Indian females were lung, breast, and colon-rectum. The fourth leading cause of cancer death for each gender group was ill defined/unknown cancer. The high rates for ill-defined or unknown primary site suggest poor access to care and inadequate diagnostic work-ups (Becker et al, 1990).

Behavioral risk factor data for tribal peoples in the Northwest, until now, were nearly non-existent, as the numbers of Indian people who have participated in the three states' BRFSS activities have been extremely small. Prior to our study, only six tribes in the Northwest had undertaken risk factor surveys over the past 10 years. Having accurate descriptive information about cancer among tribes is a critical first step in planning intervention studies and prevention programs. This will also pave the way for implementation of comprehensive cancer control strategies for the 43 tribes in the Northwest.



## NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT

### METHODS OF THE BRFSS PROJECT

The seven participating tribes were randomly selected to participate in the Northwest Tribal Behavioral Risk Factor Surveillance System (BRFSS) Project. These tribes were selected from among all tribes in the Portland Area with at least 1,000 tribal members. A tribe's agreement to participate in the survey was comprised of formal approval from the respective tribal health directors, health boards, and tribal councils or business councils. The project protocol and questionnaire were reviewed and approved by the Institutional Review Boards (IRBs) of the Indian Health Service (IHS) and Centers for Disease Control and Prevention (CDC).

Table A. An overview of the approval date and tribal resolution number for the seven participating BRFSS tribes and applicable IRBs.

<u>Tribe/IRB</u>	<u>Tribal Resolution Number</u>	<u>Approval Date</u>
CTUIR <sup>14</sup>	00-78	August 14, 2000
Klamath	2001-44	July 12, 2001
Lummi	2001-057	May 24, 2001
Makah	61-01	June 11, 2001
Nez Perce	General Council	July 31, 2001
Nisqually	49-2001	May 24, 2001
Shoshone-Bannock	HTWF-95-0103	January 30, 2001
IHS IRB	---- <sup>15</sup>	January 22, 2001
CDC IRB	---- <sup>15</sup>	February 12, 2001

In order to ensure a high level of acceptance of the survey and to maximize participation rates, a significant effort was expended in each participating tribal community to alert the community of the occurrence, purpose, and timing of the survey. Each of the participating tribes distributed a series of public announcements in print and through community organizations.

### ORGANIZATION AND TRAINING

Northwest Portland Area Indian Health Board (NPAIHB) provided financial support to each participating tribe to support the hire and training of a tribal project site coordinator and tribal interviewers. The financial support also included reimbursement of mileage for local travel by survey staff; the compensation of respondents (\$10 per interview); and the implementation of strategies to promote participation in the survey. Each participating tribe also received a Dell Pentium IV personal computer, a Hewlett Packard laser printer, an Iomega CD read/writer, and software (MS Office Professional, SPSS v11.0 and SPSS v11.5, and SURVEY).

<sup>14</sup> Confederated Tribes of the Umatilla Indian Reservation.

<sup>15</sup> Not Applicable.



A site coordinator was responsible for all the day-to-day oversight of the project including the interview schedule and interview and data entry staff. The tribes had the option to utilize existing staff members as site coordinators and interviewers. Each BRFSS tribe elected to utilize existing staff members as site coordinators and hired community members to conduct the interviews. The site coordinators performed the duties of the BRFSS project in addition to their various responsibilities: tribal health director, administrative officer, community public health nurse, tribal planner, health promotion director, compliance administrator, and patient advocate. The site coordinator was available throughout the duration of the project to answer questions from survey respondents and the general public.

The interview staff was trained in interviewing techniques and was provided with printed materials on heart disease, cancer, tobacco use, weight management, sexually transmitted diseases, and exercise to distribute to participants after completion of the interview. Dr. Howie Goldberg, Mr. Jay Friedman, and Ms. Wyndy Amerson of the CDC/Division of Reproductive Health assisted with interviewer training and data entry training through a cooperative agreement with the IHS at no cost to either the tribes or NPAIHB. Both Dr. Goldberg and Mr. Friedman have a strong record of successfully completing surveys in tribal communities, including some in the Portland Area of the IHS. Mr. Friedman played an integral role in the development of the questionnaire and methodology.

During the entire project period, extensive time and energy were devoted to developing training manuals, conducting trainings, and developing reference documentation. In total, the 2001 Northwest Tribal BRFSS Project collaborated with and trained 9 site coordinators, 49 interviewers, 12 data entry personnel, 5 biostatisticians, 7 research assistants, 4 epidemiologists, 15 tribal community health personnel—including a chief executive officer—three tribal health directors, three registered nurses, two administrative officers, one mental health services director, one director of Community Health Representatives (CHR), one Diabetes Program director, one compliance administrator, one health planner, one patient advocate, one Women, Infants and Children (WIC) technician, one Tobacco Project assistant, and four community members. Of all the individuals involved with the BRFSS Project, 82% were American Indian or Alaska Native.

## SAMPLE SELECTION

Within each tribe, we selected a simple random sample of up to 500 tribal community members, 18 years of age and older, from tribal enrollment lists or tribal health service user population lists. The lists included name, address, and telephone number. We completed a minimum of 300 interviews per community. The initial sample of 500 names was drawn to take into account refusals, those who had moved, those who had died, and those temporarily away from the reservation. The resulting sample size of 300 enabled us to estimate parameters for the entire tribal community. Each of the potential respondents was contacted by an interviewer and invited to participate in the survey.

## PRETEST OF THE QUESTIONNAIRE

After we received approval from the tribes and the applicable IRBs, we pre-tested the questionnaire to assure comprehension and flow and to identify any problems. Once these problems were addressed, the questionnaire was revised and finalized before implementation. The questionnaire used in the conduct of these surveys was constructed using standard, field-tested modules in common use in the BRFSS system and in small-scale surveys among American Indian populations.

## QUESTIONNAIRE HEALTH MODULES

The questionnaire consisted of 23 health modules, including general demographic and health status questions; disease-specific issues; use of preventive and curative health care services; risk behaviors;





and risk-reduction activities. A total of seven different site-specific questionnaires were developed and implemented. Each site-specific questionnaire included the name of the tribe, the name of the local health care facility, and names of local health care facilities for emergency and non-clinic hour visits—place names that would make the questionnaire more appropriate and accurate. Each questionnaire was assigned a unique number. Please contact project staff at 1-877-664-0604 for a copy of the BRFSS project questionnaire.

Table B. The 23-health modules on the BRFSS Project questionnaire.

2001 Northwest Tribal BRFSS Project, Questionnaire Modules

1. Basic Demographics	13. Contraceptive Use
2. Health Status and Health Care Utilization	14. Prostate Cancer Screening
3. Exercise and Physical Activity	15. Colorectal Cancer Screening
4. Hypertension Awareness	16. Breast and Cervical Cancer Screening
5. Cholesterol Awareness	17. Oral Health
6. Asthma	18. Cardiovascular Disease
7. Diabetes	19. Diet and Nutrition
8. Arthritis	20. Mental Health
9. Tobacco Use	21. Household Income Level
10. Alcohol Consumption	22. Drinking Water <sup>16</sup>
11. Demographics	23. Drug Use <sup>16</sup>
12. Disability	

Most of the tribal BRFSS questions were also asked on the Washington, Oregon and Idaho states BRFSS questionnaires used in our comparative analyses. If a particular question asked on the tribal BRFSS questionnaire was not asked in a comparable way or was not asked at all on the Washington, Oregon and Idaho states BRFSS questionnaires, a footnote within the applicable tables indicate the status.

#### INFORMED CONSENT AND INTERVIEW

Each potential respondent was provided with an explanation of the purpose, general content, and time commitment involved in participating in the survey, and an assurance of confidentiality. At the time of the interview, each prospective respondent was provided an opportunity to ask any questions and was given the name and telephone number of the local site coordinator who could answer questions regarding the project. Each potential respondent was free to decline participation or refuse to answer any specific question or questions without loss of health care benefits or services. No personally identifying information was collected during the conduct of the interviews.

Each respondent signed an informed consent form prior to the interview, which lasted approximately thirty minutes. All interviews were conducted face-to-face. In total, seven different site-specific informed consent forms were developed. Each site-specific informed consent included the name of the tribe and local contact information for each respective site coordinator.

<sup>16</sup> Was not included in all tribe-specific questionnaires.



## DATA COLLECTION

Data collection from all seven BRFSS tribes took over 18 months to complete. Tribal approval was received at different times, resulting in staggered interviewer training and data collection. The goal of each tribe was to complete a minimum of 300 face-to-face interviews.

Table C. The field dates and sample size for each tribal BRFSS site.

<u>Tribe</u>	<u>Field Dates (Beginning Date, End Date)</u>		<u>Sample Size</u>
CTUIR <sup>17</sup>	April 20, 2001	June 25, 2001	363
Klamath Tribes	August 31, 2001	May 15, 2002	320
Lummi Nation	August 3, 2001	January 31, 2002	321
Makah Tribe	July 13, 2001	February 1, 2002	374
Nez Perce Tribe	September 7, 2001	April 12, 2002	413
Nisqually Tribe	November 2, 2001	October 24, 2002	308
Shoshone-Bannock Tribes	June 22, 2001	January 8, 2002	<u>329</u>
Total			2,428

At the completion of each interview, the participants were asked if they would like to receive a copy of our final report. Each participant who responded in the affirmative provided the interviewer with his/her name and mailing address. These names and addresses were kept in a separate secure file. An abbreviated final report on select variables was sent to these individuals in December 2002.

Table D. Northwest Tribal BRFSS Project, Community Open Forum Schedule.

<u>Tribe</u>	<u>Community Open Forum Dates (First and Second Forum)</u>	
CTUIR	June 27, 2002	January 28, 2003
Klamath Tribes	September 14, 2002	September 28, 2002
Lummi Nation	December 13, 2001	December 14, 2002
Makah Tribe	October 28, 2002	October 29, 2002
Nez Perce Tribe	November 15, 2002	---- <sup>18</sup>
Nisqually Tribe	December 6, 2002	----
Shoshone-Bannock Tribes	TBA <sup>19</sup>	TBA

All participants were informed that two public community open forums would be held to share the results of the BRFSS survey. Preliminary results have been shared with almost all participating BRFSS tribes. See Table D for a schedule of completed BRFSS community open forums.

## DATA PROCESSING

The collected data were entered at each tribal site on a regular basis. All electronic files of the data were then transmitted via e-mail to the Principal Investigator (PI) after every data entry session. Several of the data entry personnel had not used e-mail before and did not possess e-mail accounts. Publicly available e-mail accounts were set up for each individual. These individuals were trained

<sup>17</sup> Confederated Tribes of the Umatilla Indian Reservation.

<sup>18</sup> No other community open forums are expected or scheduled.

<sup>19</sup> To Be Announced.

in how to use e-mail and how to attach files. All data entry personnel were taught to make back-up copies of all data files after each data entry session and to keep the copies in a locked file cabinet.

Each participating tribe received a copy of public domain SURVEY data entry software, which was installed on their respective computer systems and copied to a disk for their files. Copies of the SURVEY training manual and user guide developed by the CDC were available to each site coordinator and all data entry personnel. SURVEY will remain in the possession of tribes for use in any subsequent surveys.

After the final data set was received at NPAIHB, the SURVEY files were checked for consistency and then imported into SPSS. Back-ups were made of the SURVEY data files and will be kept on file for five years (per NPAIHB Federal Wide Assurance procedures). The biostatisticians were responsible for cleaning, editing, recoding, and analyzing the data using SPSS (v. 11 and then v. 11.5). A codebook, including both original variables and recoded variables, was developed for each tribe. The biostatisticians created syntax files for each site-specific data set and wrote instructions for use.

SPSS was used to count all of the groups of respondents in our analyses. These numbers appear in the “Number” columns of tables 1 through 43. We wished to know (a) the number of individuals reporting each risk behavior or disease, then (b) what percent that number represented, and (c) a confidence interval (or margin of error) for that percent. SPSS can calculate counts and percents, but it cannot produce confidence intervals around percents. For this reason, we used Excel for our calculations.

We used the same method to calculate percents and confidence intervals for all tables except tables 1 (demographics) and 28 (advised to quit tobacco use). These differences will be described below. In the rest of the tables, we used the “Number” column as our numerator (top number) of the percent. To calculate the denominator (bottom number), we counted the total number of respondents in each category — for example, all of the men. From that number, we subtracted the respondents who answered “don't know,” “not sure,” or “refused” to the question or questions we were reporting. The percent is the numerator divided by the denominator, multiplied by 100. The percents are slightly higher than they would be if we used all respondents in the denominator. However, for most questions, very few people answered “don't know,” “not sure,” or “refused.”

Some readers may not be familiar with confidence intervals<sup>20</sup>. A 95% confidence interval is a measure of the precision of an estimate. It is sometimes called a “margin of error.” Because a sample is a subset of a population, the value obtained for the sample studied may not be same as the value if the entire population was studied. The 95% CI is the range of values within which we can be 95% sure that the true value lies for the whole population from whom the survey respondents were selected. Increasing the number of participants narrows the confidence intervals. The confidence intervals in these tables are calculated using a technique described in detail by Agresti & Caffo (2000).

For tables 1 and 28, we used different denominators than in the other tables. In table 1, the percent is the number column divided by the total number of respondents, multiplied by 100. This shows what percent of all respondents fell into which demographic categories. In table 28, we used current tobacco users as denominators. The result shows what percent of current tobacco users in each demographic category have been advised to quit.

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<sup>20</sup> <http://www.musc.edu/dc/icrebm/statisticalsignificance.html>



## COMMUNITY CAPACITY BUILDING

### *Data for Decision Making*

Over the course of the year, tribal representatives were trained to analyze, interpret, and evaluate their own BRFSS data as part of the effort to build data analytic capacity among Northwest tribes. Following a model developed by CDC, Data for Decision Making (DDM) (see Table E), tribal representatives were trained to work with SPSS (v. 11 and v11.5), run frequencies and cross-tabulations, interpret tables and graphs, understand the basics of numerators and denominators, interpret results, calculate changes in behavior over time, and use Healthy People 2010 objectives



to help prioritize community health goals and objectives. Our intention was to develop the capacity for each tribe to address its own chronic disease-related risks. Toward this goal, we provided outreach support, baseline data, and tools to measure progress toward the reduction of incidence, prevalence, and complications associated with chronic diseases.

In the Northwest, where the majority of tribes are responsible for the delivery of their own health care services, the tribes are fully aware of the importance of community-specific data in assessing resource allocations and health priorities. For tribes to truly “own” their data, however, the tribes need to be comfortable with the analysis and interpretation of data. In order for our community based training program to be truly successful, several factors had to be considered. First, tribal communities are sovereign nations and all training programs should not only be culturally appropriate, but also respectful. All BRFSS project activities were administered with the community in mind. Second, tribal councils and tribal health programs have many competing and pressing duties and responsibilities. Although busy, all seven BRFSS tribes took time to plan,



develop, and implement the BRFSS project within their communities.

NPAIHB assumed the responsibility of ensuring all project objectives were as effective, timely, and as useful as possible. Third, any training curriculum needs to be flexible to accommodate the background of trainees. The project staff members, therefore,

made no assumptions about the knowledge base of tribal trainees, and all lessons provided a foundation on which to build subsequent lessons. Fourth, tribal participation in a training program should include community-specific benefits. All lessons incorporated community specific data, interpretations, and health plans.

DDM proved to be a useful guide because it uses a comprehensive, step-by-step approach to developing prevention strategies. For example, DDM specifies that culturally competent prevention strategies should include prioritization of chronic diseases, defining the target audience, garnering financial support, establishing policy, defining indicators to monitor, assigning trained personnel, tracking data, and providing feedback. All of these are defined tasks within the steps of DDM and were expanded upon during the training sessions.



### *Epi101, SPSS, Healthy People 2010 Trainings*

In total, the Northwest Tribal BRFSS Project staff members conducted eight training sessions devoted to basic epidemiology, SPSS<sup>21</sup>, and Healthy People 2010<sup>22</sup>. The schedule of sessions occurred over the course of a year and a half and each training session built on concepts learned in previous training sessions. At the beginning of each training session, the project staff members reviewed lessons from the previous training session.

The project staff members developed a Basic Epidemiology Training Manual, an SPSS (v. 11) Training Manual, and a Healthy People 2010 User Guide. The Basic Epidemiology training manual covered literature review, research design, development of goals, objectives and questions, types of data, data collection, bias, Federal Privacy Act of 1974, Institutional Review Boards, protocol



checklist, and basic data analysis. The SPSS training manuals included sections on exporting data from SURVEY data entry software, importing data into SPSS, assigning value labels, descriptive statistics (frequencies, cross-tabulations, ranges, measures of central tendency), back-ups, and data interpretation. The Healthy People 2010 user

guide supplemented the CD-ROMs that were distributed to each tribal trainee. The user guide highlighted major diseases, target rates, data tables, and calculation of percent change over time using actual site-specific BRFSS data.

<sup>21</sup> Statistical Package for Social Scientists, versions 11.0 and 11.5.

<sup>22</sup> Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services, <http://www.healthypeople.gov>



Table E. Data for Decision Making (DDM) Steps and Tasks.

DDM STEPS	DDM TASKS
(1) Assessment of Health Needs	<ul style="list-style-type: none"> <li>• Gather information</li> <li>• Examine, analyze, and interpret surveillance data</li> <li>• Examine, analyze, and interpret other information</li> <li>• Investigate unexpected changes or differences</li> </ul>
(2) Prioritize Health Problems	<ul style="list-style-type: none"> <li>• Establish criteria for prioritization</li> <li>• Measure magnitude and severity of health problems</li> <li>• Measure costs of health problems</li> <li>• Define methods for ranking priorities</li> <li>• Rank priorities</li> </ul>
(3) Advocate for Priorities	<ul style="list-style-type: none"> <li>• Define target audience</li> <li>• Tailor message, strategies, media, tools</li> <li>• Implementation</li> </ul>
(4) Conduct Problem Analysis	<ul style="list-style-type: none"> <li>• Choose method(s) (focus group, cohort, case-control)</li> <li>• Gather secondary information</li> <li>• Design and conduct studies</li> <li>• Conduct problem analysis</li> </ul>
(5) Choosing Interventions	<ul style="list-style-type: none"> <li>• Identify alternative interventions</li> <li>• Rank alternatives</li> <li>• Choose interventions</li> <li>• Test interventions</li> </ul>
(6) Implement Interventions	<ul style="list-style-type: none"> <li>• Plan</li> <li>• Define roles and responsibilities</li> <li>• Garner financial support</li> <li>• Allocate resources</li> <li>• Establish policy and strategies</li> <li>• Disseminate policy and strategies</li> <li>• Advocate for intervention</li> <li>• Build constituencies</li> <li>• Educate and inform</li> <li>• Implement change</li> </ul>
(7) Monitor, Evaluate and Adapt	<ul style="list-style-type: none"> <li>• Define indicators</li> <li>• Collect indicator elements</li> <li>• Interpret results</li> <li>• Adapt programs</li> </ul>
(8) Training	<ul style="list-style-type: none"> <li>• Assess training needs</li> <li>• Match and adapt content and methods to defined needs</li> <li>• Follow-up and supervision</li> <li>• Evaluate training</li> </ul>
(9) Data Management	<ul style="list-style-type: none"> <li>• Record tracking and management</li> <li>• Ensure quality control</li> <li>• Provide feedback</li> <li>• Improve quality of routine data</li> <li>• Know your client(s)</li> <li>• Evaluate surveillance system</li> <li>• Use of hardware and software</li> </ul>
(10) Advise and Assist Lower Levels	<ul style="list-style-type: none"> <li>• Provide training and technical assistance</li> <li>• Supervision</li> <li>• Allocate resources</li> <li>• Review plans</li> </ul>

### *Tribal Trainees*

All the classes were conducted at the Northwest Portland Area Indian Health Board in Portland, Oregon; a total of 24 tribal representatives from seven different Northwest tribal communities were in attendance. The demands of the 2001 Northwest Tribal BRFS Project on the site coordinators and their colleagues were not trivial. An investment was made by each of the tribal communities to increase the analytic skills of their staff members. Based on anonymous evaluations of the project training sessions, only half (50%) of the tribal trainees had ever participated in a research project before, and for all but three of them the research experience had occurred more than three years before the BRFS. A majority of the tribal trainees had never used SURVEY (67%), SPSS (83%), Microsoft PowerPoint (58%), or Healthy People 2010 (83%) before the BRFS Project.



At the conclusion of our training, 100% of the participants said they would be more inclined to participate in a research project as a result of their experiences with BRFS. An overwhelming majority said they would be more likely to set health-related goals for their community (91%) and to



be more inclined to work with Healthy People 2010 objectives (90%). When asked to name the single most important experience regarding the BRFS project, the trainees identified data ownership, tribal involvement in the process, tribe-specific data, working as a team, community open forums, learning how to manipulate and extract data, data sharing agreements, connecting useful information from survey to consumer, data results, meeting health

professionals who are sincere and learning from them, and pride and ownership in bringing home the data for use in writing grants and proposals.

In addition to data management, data analysis, and data interpretation, the project staff members provided training on both RPMS queries and Microsoft (MS) PowerPoint, and invited several guest speakers. Each of these different components was incorporated at various points in the trainings.

### *Health Education Campaign*

Apart from tribal trainee initiatives, a health education campaign was undertaken in each of the seven tribal communities. The health education campaign included messages on men's health, women's health, tobacco use, weight management, heart disease, and sexually transmitted diseases. Within each tribal community, the health messages were given to each individual survey participant at the end of their interview, and the health messages were placed in the local tribal or health newsletter. The community-wide health education campaign was begun only after the completion of data collection so as not to bias results, and included one health message being placed in the local newspaper or newsletter per month over the course of six months.



*Model Data Sharing Agreement*

The project staff members created the model data sharing agreement with assistance from Dr. L. Dee Robertson, Medical Epidemiologist, and Ms. Emily Puukka, NPAIHB Registry Manager. The model data sharing agreement is important because it specifically outlines the terms of understanding and agreement between the tribe and any entity that has requested use of, or access to, the tribe-specific BRFSS data. The model data sharing agreement outlines the role of both the researcher or investigator and the tribe in coming to an understanding and agreeing on all aspects of the use of the BRFSS data.





## **NORTHWEST TRIBAL BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT**

### **BRFSS RESULTS**

#### **PRIVACY AND CONFIDENTIALITY**

In adherence to issues of privacy and confidentiality, the project staff members have not identified any individuals, nor are individuals identifiable in any report that has or will be prepared based on the data collected as part of these surveys. Project staff members have held data collected during the conduct of these surveys in the strictest confidence at all times. All datasets are stored on secure, password-protected computers accessible only by authorized staff members. All hard copy data, including the Microsoft (MS) PowerPoint and MS Publisher presentations and reports, are stored in locked file cabinets.

To further protect confidentiality and identifiability of individuals, project staff members have used “<5” in the tables to denote instances where fewer than five individuals responded affirmatively.

#### **PRELIMINARY DATA RESULTS**

In order to share preliminary findings with each community, the NPAIHB BRFSS project staff members and site coordinators completed several tasks. First, preliminary results were organized into an MS PowerPoint presentation. Background literature searches were conducted on major diseases such as cancer, heart disease, and diabetes. For each disease, the current medical definitions, risk factors, prevention, and treatment information were gathered. All this information was organized into an MS PowerPoint presentation for each tribe. The presentation included background information on the project, highlights on dates for tribal approval, data collection, recognition of tribal leadership, field interviewers, and preliminary results on heart disease, diabetes, cancer, and other miscellaneous disease conditions such as mental and oral health. Information on major risk factors and screenings for each disease, along with prevention and treatment, were included.

Second, those preliminary results were made available to tribes for use at their community open forums. The preparations made by each tribe varied from elaborate marketing plans to poster presentations at tribal community health fairs. Each community open forum to date has been done in conjunction with other tribal health activities and has ranged in duration from two hours to four hours. Several of the tribes presented the preliminary findings to the tribal leadership before dissemination to the general public; other tribes presented to health staff members during their regularly scheduled staff meetings. The community open forums have drawn between 50 to over 150 tribal members per open forum in different tribal communities. For each of the community open forums, the MS PowerPoint presentation was projected using an LCD projector. In order to provide the audience with more time to review the preliminary results, the presentation was also placed on poster boards and positioned within the room. Project staff members were available to answer any questions on design, methods, analyses, and results. The poster boards were left with each respective site coordinator for use in any subsequent meetings or community gatherings.

Third, the preliminary results were mailed to all participants who had requested information on our study. At the end of each interview, individuals were asked if they would like information on our findings. If individuals were interested, their name and mailing address were obtained and entered into a database. Project staff members created a four-page MS Publisher document of select



preliminary findings, including basic demographics, heart disease, high blood cholesterol, high blood pressure, diabetes, overweight and obesity, exercise, consumption of fruits and vegetables, cancer, sigmoidoscopy/colonoscopy, mammograms, Papanicolaou (Pap) smear tests, and smoking. The MS Publisher reports were sent to interested BRFSS participants in December 2002.

## BRFSS DATA RESULTS

For selected variables, tribe-specific information is presented for six of the seven participating tribes. Tribes are not named, and for each figure the tribes have been randomly assigned to a letter A-F. A tribe is not assigned the same letter for all figures, so trends across figures cannot be inferred. For tribe-specific information, readers should contact each respective BRFSS tribe directly.

### *Demographics*

To provide a more comprehensive profile of people in the Northwest, we analyzed state-specific BRFSS data for Idaho, Oregon, and Washington, and compared these results to the Northwest Tribal BRFSS Project results. Following is an overview of basic demographics for all race population in Idaho, Oregon, and Washington, and AI/AN specific BRFSS results based on two sampling schemes<sup>23</sup>.

In Idaho state, a total of 19,697 individuals of all races responded to the state BRFSS, 1998-2001. An almost equal proportion of men and women participated in the survey, 49.0% men and 51.0% women. All age categories have comparable levels of representation, with fewer respondents age 60-69 years. Over two-thirds (67.2%) of respondents reported being married. Most respondents (57.5%) reported being post-secondary educated, while 42.5% reported being high school educated or less. The majority of respondents were employed (64.5%). For state BRFSS respondents, household income is reported in dollar amounts per year, without direct reference to the total number of individuals living in the household. Nearly six percent (5.7%) of respondents reported earning less than \$10,000 per year, while 9.8% reported earning over \$75,000 per year. The highest proportion of respondents (22.3%) reported earning between \$35,000-\$49,900 per year. Almost all of respondents, 99.7%, reported having a working telephone in their homes. Because the state BRFSS is a telephone-based survey, a high proportion of respondents with telephones at home is expected (Table 1).

In Oregon state, a total of 9,908 individuals of all races responded to the state BRFSS, 1998-2001. An almost equal proportion of men and women participated in the survey, 48.5% men and 51.5% women. All age categories have comparable levels of representation, with fewer respondents age 60-69 years. Nearly sixty percent (59.8%) of respondents reported being married. Most respondents (58.3%) reported being post-secondary educated, while 41.6% reported being high school educated or less. The majority of respondents were employed (62.4%). For state BRFSS respondents, household income is reported in dollar amounts per year, without direct reference to the total number of individuals living in the household. Nearly five percent (4.9%) of respondents reported earning less than \$10,000 per year, while 12.3% reported earning over \$75,000 per year. The highest proportion of respondents (18.9%) reported earning between \$35,000-\$49,900 per year. Almost all of respondents, 99.8%, reported having a working telephone in their homes. Because the state BRFSS is a telephone-based survey, a high proportion of respondents with telephones at home is expected (Table 1).

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<sup>23</sup> Sampling included three tribes using RPMS and three tribes using tribal enrollment rosters to select adults 18 years of age and older.

In Washington state, a total of 15,003 individuals of all races responded to the state BRFSS, 1998-2001. An almost equal proportion of men and women participated in the survey, 48.9% men and 51.1% women. All age categories have comparable levels of representation, with fewer respondents age 60-69 years. Sixty percent (60.1%) of respondents reported being married. Most respondents (64.8%) reported being post-secondary educated, while 35.0% reported being high school educated or less. The majority of respondents were employed (64.4%). For state BRFSS respondents, household income is reported in dollar amounts per year, without direct reference to the total number of individuals living in the household. Four percent (4.0%) of respondents reported earning less than \$10,000 per year, while 15.7% reported earning over \$75,000 per year. The highest proportion of respondents (19.5%) reported earning between \$35,000-\$49,900 per year. Almost all of respondents, 99.2%, reported having a working telephone in their homes. Because the state BRFSS is a telephone-based survey, a high proportion of respondents with telephones at home is expected (Table 1).

Among tribes that based their participant sample using RPMS,<sup>24</sup> a total of 1107 individuals from three tribes participated in the Northwest Tribal BRFSS Project. Almost all of the respondents (96.3%, 97.1% of men and 95.8% of women) reported living on a reservation, and reported being an enrolled member or direct descendent of their respective tribe (90.5%). The majority of respondents were women (62.7% women and 37.3% men). Approximately two-thirds (65.2%) of respondents reported being unmarried. Most respondents (56.2%) reported having a high school education or less while 43.8% reported having a post-secondary education. The majority of respondents reported being employed (57.4%). For tribal BRFSS respondents, household income was reported as percentage of federal poverty level. Families and persons were classified as below poverty level if their total family income was less than the poverty threshold specified for the applicable family size as designated in Table F. For example, if a respondent reported that three individuals lived in the household with a yearly income of \$15,000, the respondent would be classified as being between 100% and 149% of the 2001 federal poverty level. Nearly one-third of respondents (31.1%) reported a household income below federal poverty level. Seventeen percent of respondents, (17.3%), reported a household income between 101%-150% of federal poverty, 13.3% reported an income between 151%-200% of federal poverty, and 25.6% reported an income greater than 200% of federal poverty. Thirteen percent of respondents (12.8%) declined reporting an annual household income. The majority of respondents, 87.2%, reported having a working telephone in their homes<sup>25</sup> (Table 1).

Among tribes based their participant sample using tribal enrollment,<sup>26</sup> a total of 1013 individuals from three tribes participated in the Northwest Tribal BRFSS Project. Almost all of the respondents (90.5%, 90.0% of men and 90.9% of women) reported living on a reservation. The majority of respondents were women (55.3% women and 44.7% men). Approximately two-thirds (66.0%) of respondents reported being unmarried. Most respondents (56.5%) reported having a high school education or less while 43.3% reported having a post-secondary education. The majority of respondents reported being employed (63.1%). For tribal BRFSS respondents, household income was reported as percentage of federal poverty level. Families and persons were classified as below poverty level if their total family income was less than the poverty threshold specified for the applicable family size as designated in Table F. For example, if a respondent reported that three individuals lived in the household with a yearly income of \$15,000, the respondent would be classified as being between 100% and 149% of the 2001 federal poverty level. Over one-quarter of respondents (26.0%) reported a household income below federal poverty level. Sixteen percent of

<sup>24</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>25</sup> The Northwest Tribal BRFSS Project was administered person-to-person.

<sup>26</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



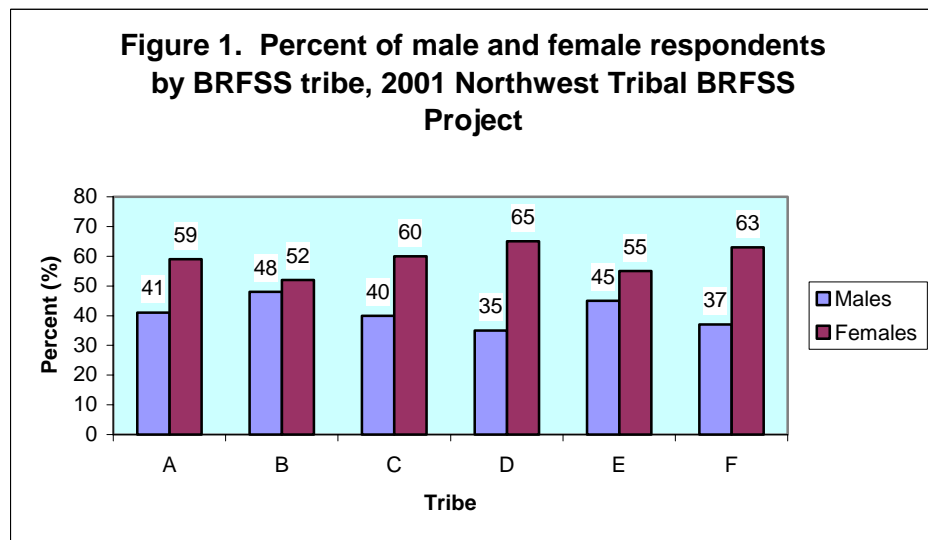
respondents reported a household income between 101%-150% of federal poverty, 12.3% reported an income between 151%-200% of federal poverty, and 28.3% reported an income greater than 200% of federal poverty. Seventeen percent of respondents (17.4%) declined reporting an annual household income. The majority of respondents, 86.5%, reported having a working telephone in their homes<sup>25</sup> (Table 1).

The demographic profile of AI/AN based on results from the 2001 Northwest Tribal BRFSS Project illustrates that participants tended to be younger, unmarried, and high school educated or less compared to all-race BRFSS respondents from the state of Idaho, Oregon, and Washington, 1998-2001.

Table F. Poverty Level Classification<sup>27,28</sup> is the total number of people in respondent’s household by corresponding total yearly income of everyone in the household.

HOUSEHOLD SIZE	<100%	100%-149%	150%-199%	200%+
1	<\$8,501	\$8,501 – \$12,751	\$12,752 – \$17,002	\$17,003+
2	<\$10,869	\$10,869 – \$16,303	\$16,304 – \$21,738	\$21,739+
3	<\$13,290	\$13,290 – \$19,935	\$19,936 – \$26,580	\$26,581+
4	<\$17,029	\$17,029 – \$25,543	\$25,544 – \$34,058	\$34,059+
5	<\$20,127	\$20,127 – \$30,190	\$30,191 – \$40,254	\$40,255+
6	<\$22,727	\$22,727 – \$34,090	\$34,091 – \$45,454	\$45,455+
7	<\$25,912	\$25,912 – \$38,868	\$38,869 – \$51,824	\$51,825+
8 +	<\$28,967	\$28,967 – \$43,450	\$43,451 – \$57,934	\$57,935+

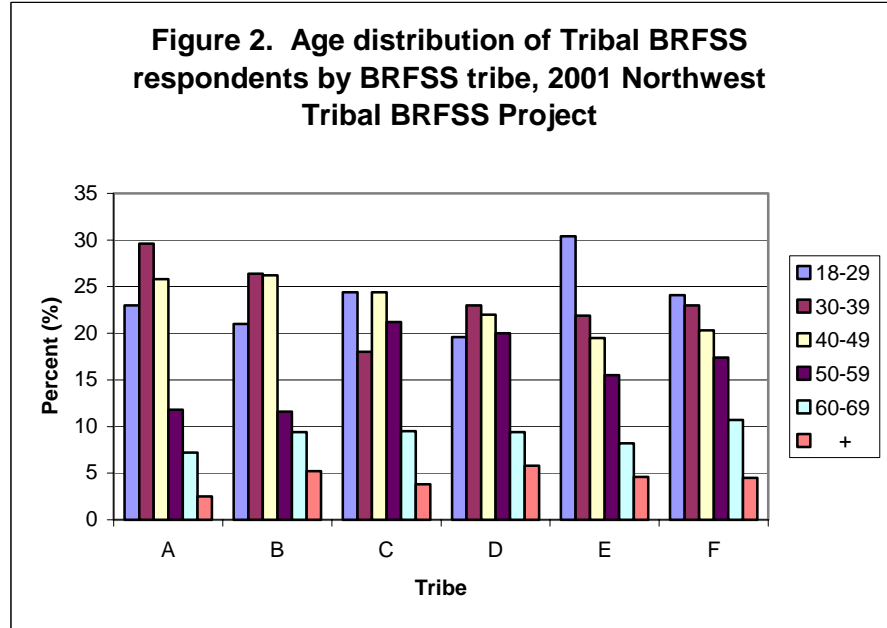
- The distribution of participants by sex was similar across tribes (Figure 1).
- Each tribe had a greater number of female participants than male participants.



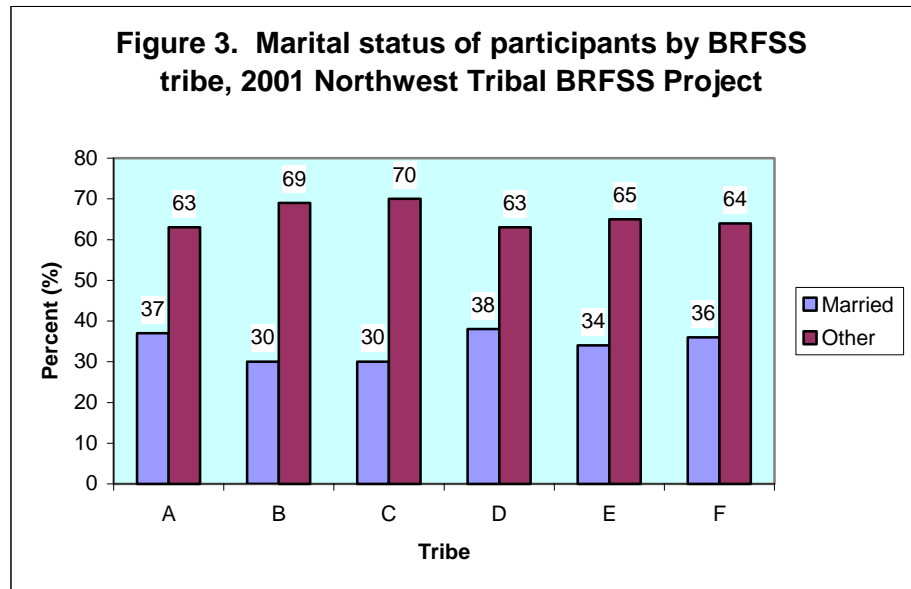
<sup>27</sup> 2001 Federal Poverty Levels. *Federal Register* Vol. 66, No. 33, February 16, 2001, pp. 10695-10697.

<sup>28</sup> Interviewers were instructed to circle the reported dollar amount once household size was provided.

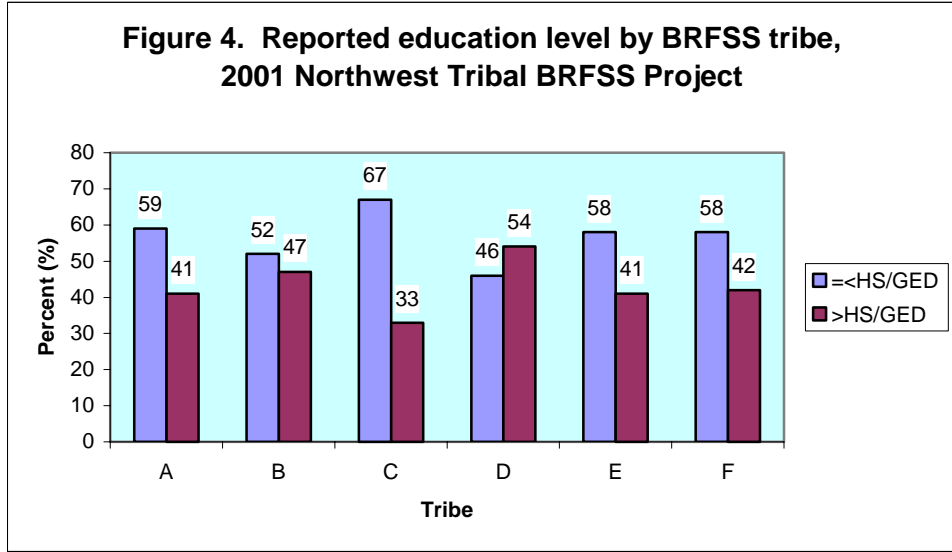
- A greater number of participants ages 18-49 years old participated in the BRFSS project compared to respondents in older age categories (Figure 2).
- The age distribution of participants was similar between tribes.



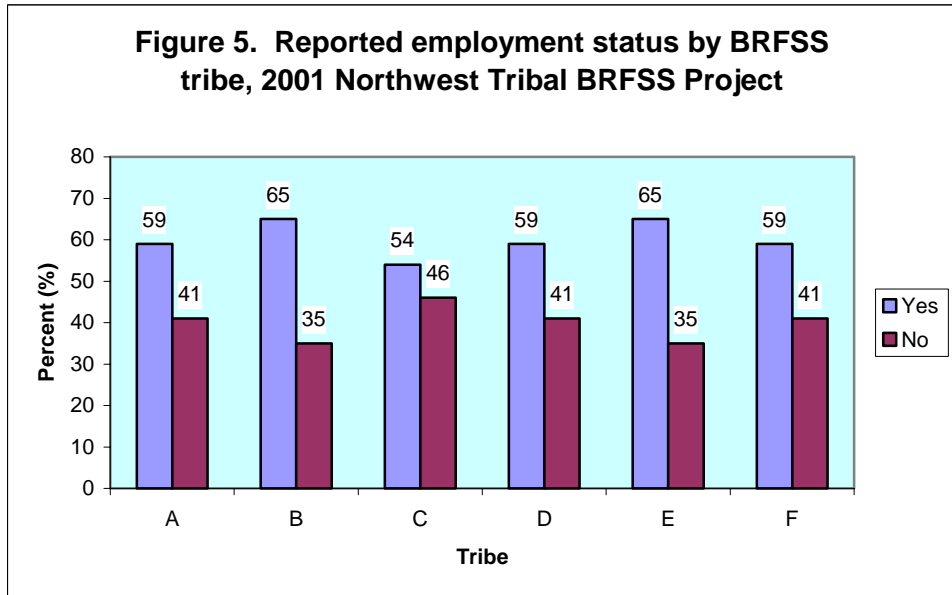
- The majority of individuals in our sample were not married. This includes respondents who reported being a member of an unmarried couple, separated, divorced, widowed, or never married (Figure 3).
- Reported marital status was similar across tribes.



- The majority of individuals in our sample were either high school educated, including GED<sup>29</sup>, or less (Figure 4).
- Across tribes, the percentage of respondents who reported greater than a high school education ranged from 33% to 54%.

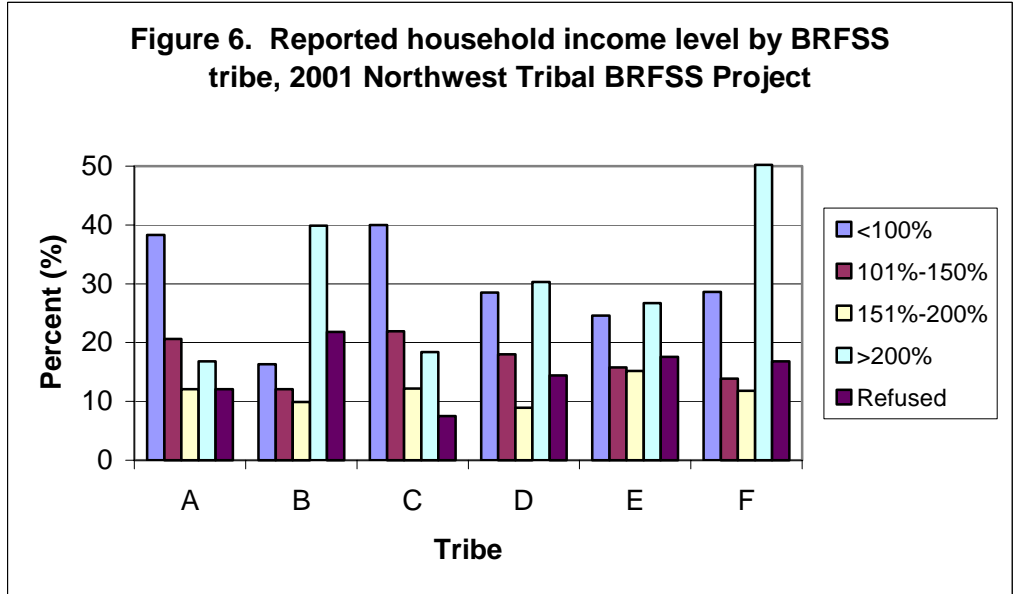


- The majority of individuals in our sample were employed. (Figure 5).
- Across tribes, the percentage of respondents who reported current employment ranged from 54% to 65%.

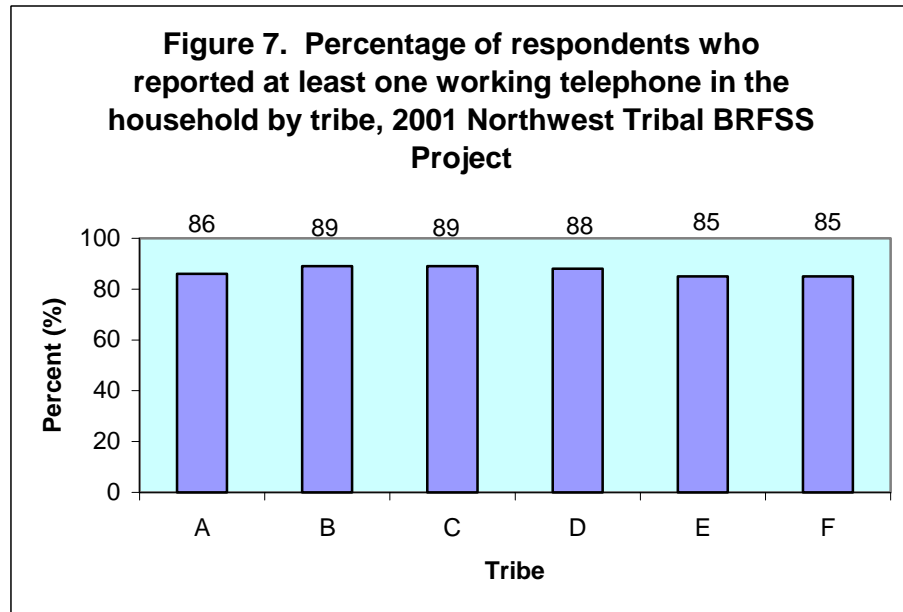


<sup>29</sup> General Education Diploma.

- The percentage of respondents who reported a household income below poverty ranged from 16% to 40% by tribe (Figure 6)
- The percentage of respondents who declined reporting household income ranged from 7% to 22% by tribe.



- The majority of individuals in our sample reported having at least one working telephone in their household (Figure 7).
- Across tribes, between 85% and 89% of respondents reported having a working telephone.



The BRFSS tribes recognized the importance of continuity in education for the successful completion of school and included a question about the number of times respondents switched schools during their primary and secondary education. Among tribes that based their participant sample using RPMS,<sup>30</sup> 53.6% of respondents reported that they had changed schools at least once because of a family event. Men and women were equally likely to report changing schools, with

<sup>30</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).



54.1% of men and 53.3% of women reporting changing schools. Nineteen percent (19.3%) of respondents reported changing schools four or more times during their first twelve years of school.

Among tribes based their participant sample using tribal enrollment,<sup>31</sup> 46.0% of respondents reported that they had changed schools at least once because of a family event. Men and women were equally likely to report changing schools, with 45.6% of men and 46.2% of women reporting changing schools. Twenty-nine percent (29.2%) of respondents reported changing schools four or more times during their first twelve years of school.

### *General Health*

Among respondents to the Idaho state BRFSS, 1998-2001, 12.8% reported their health status as either fair or poor (11.9% of males and 13.7% of females). The frequency of fair or poor health among Idaho state respondents was greatest among adults aged 60 years and older (24.3%), who were unmarried (16.1%), had some high school or were high school graduates (18.3%), and were unemployed (23.1%) (Table 2).

Among respondents to the Oregon state BRFSS, 1998-2001, 14.7% reported their health status as either fair or poor (13.9% of males and 15.5% of females). The frequency of fair or poor health among Oregon state respondents was greatest among adults aged 60 years and older (22.8%), who were unmarried (17.6%), had some high school or were high school graduates (22.2%), and were unemployed (22.9%) (Table 2).

Among respondents to the Washington state BRFSS, 1998-2001, 11.9% reported their health status as either fair or poor (11.6% of males and 12.3% of females). The frequency of fair or poor health among Washington state respondents was greatest among adults aged 60 years and older (22.7%), who were unmarried (14.1%), had some high school or were high school graduates (17.6%), and were unemployed (21.3%) (Table 2).

Among tribes that based their participant sample using RPMS,<sup>32</sup> 27.5% of respondents reported their health status as either fair or poor (27.6% of males and 27.4% of females). The frequency of fair or poor health among tribal BRFSS respondents was greatest among adults aged 60 years and older (36.4%), who were unmarried (28.3%), had some high school or were high school graduates (31.7%), were unemployed (39.8%), and had a household income below federal poverty level (35.5%) (Table 2).

Among tribes that based their participant sample using tribal enrollment, 27.7% of respondents reported their health status as either fair or poor (26.8% of males and 28.4% of females). The frequency of fair or poor health among tribal BRFSS respondents was greatest among adults aged 60 years and older (39.0%), who were unmarried (29.1%), had some high school or were high school graduates (30.8%), were unemployed, (35.9%), and had a household income below federal poverty level (36.9%) (Table 2).

Compared to the three state populations, the two tribal populations were twice as likely to report their health status as either fair or poor. For the two tribal populations, men and women were almost equally likely to report their general health status as fair or poor. For the state populations, women were more likely than men to report their general health as fair or poor. For all five populations, the

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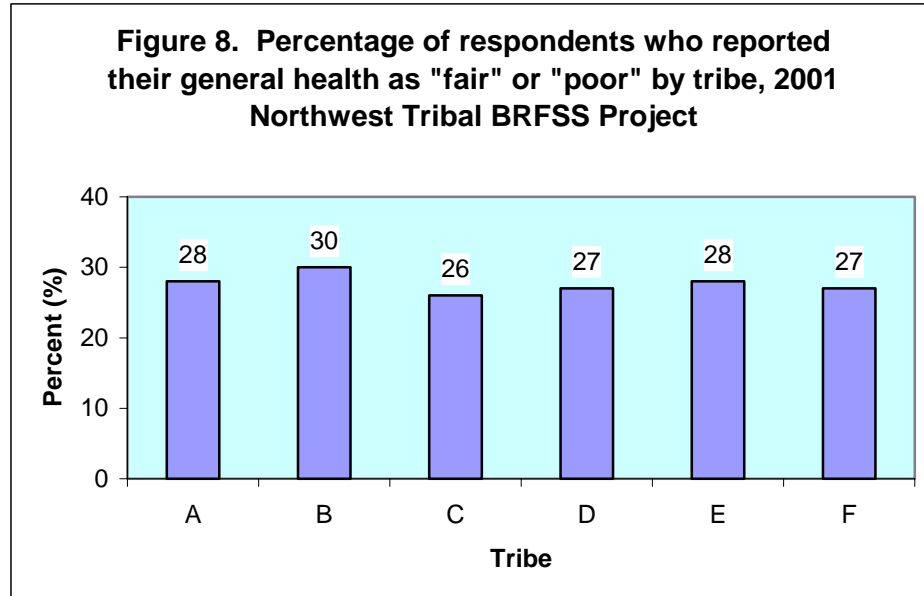
<sup>31</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>32</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).



percentage of respondents who reported their general health status as fair or poor tended to increase with increasing age.

- The distribution of responses was similar across tribes, with between 26% and 30% of respondents reporting their general health as “fair” or “poor” (Figure 8).



In an effort to assess awareness of behaviors to increase health status, participants were asked several questions. Participants were asked if they would participate in health programs if their work allowed time off. Participants were also asked if they were trying to lose weight by either changing their eating habits and/or increasing physical activity.

For tribes that based their participant sample using RPMS,<sup>33</sup> 90.1% of employed respondents said they would participate in health programs if their work allowed time off. Women were more likely to express an interest in participating in health programs, with 92.7% of employed women and 86.1% of employed men reporting that they would participate if their work allowed time off. When individuals were asked if they were currently trying to lose weight, 42.7% of men said yes, compared to 54.6% of women. Across age groups, men age 30 years and older tended to report trying to lose weight more than men 18-29 years of age, while women in younger age categories reported trying to lose weight more than women in older age categories. Of respondents who reported currently trying to lose weight, 81.6% (77.0% of men, 84.1% of women) reported changing their eating habits to lose weight.

For tribes that based their participant sample using tribal enrollment,<sup>34</sup> 83.8% of employed respondents said they would participate in health programs if their work allowed time off. Women were more likely to express an interest in participating in health programs, with 88.5% of employed women and 78.7% of employed men reporting that they would participate if their work allowed time off. When individuals were asked if they were currently trying to lose weight, 40.8% of men said yes, compared to 54.0% of women. Across age groups, men of all ages were equally likely to report trying to lose weight, while women in younger age categories reported trying to lose weight more than women in older age categories. Of respondents who reported currently trying to lose weight, 81.6% (79.4% of men, 82.8% of women) reported changing their eating habits to lose weight.

<sup>33</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>34</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



### *Clinic Services*

Respondents were asked if they had received medical services at their respective Tribal medical clinic in the past year. For tribes that based their participant sample using RPMS<sup>35</sup>, over four-fifths (83.0%) of female and 69.5% of male respondents reported receiving medical services at a Tribal or Indian Health Service Clinic in the past year. If a respondent reported that he or she had not used clinic services at their Tribal medical clinic in the past year, he or she was asked why not. Of those individuals who responded to the question, the highest proportion (54.7%) had not used clinic services because they “had not needed medical services.” Other responses included: “felt the clinic was not easily accessible” (17.3%), “have own private doctor” (16.5%), “don’t use medical services” (2.9%), and “felt the waiting time was too long” (2.5%).

For tribes that based their participant sample using tribal enrollment<sup>36</sup>, over ninety-percent (91.4%) of female and 75.7% of male respondents reported receiving medical services at a Tribal or Indian Health Service Clinic in the past year. If a respondent reported that he or she had not used clinic services at their Tribal medical clinic in the past year, he or she was asked why not. Of those individuals who responded to the question, the highest proportion (68.8%) had not used clinic services because they “had not needed medical services.” Other responses included: “poor quality of care” (8.4%), “felt the waiting time was too long” (5.8%), and “have own private doctor” (5.8%), “don’t use medical services” (2.9%), and “felt the clinic was not easily accessible” (3.9%). Individuals were asked if they had any kind of health insurance, including private insurance through work or government plans such as Medicare. In Idaho, over four-fifths (83.8%) of Idaho state all races BRFSS respondents (1998-2001) reported having health insurance. Women were more likely to report having health care insurance (84.7%) compared to men (82.8%). The proportion of reported insurance increased with increasing age, with 98% of respondents age 65 years and older reporting health care coverage. Respondents with health care insurance tended to be married (87.8%), postsecondary educated (88.5%), and unemployed (85.7%) (Table 3).

In Oregon, over four-fifths (85.5%) of Oregon state all races BRFSS respondents (1998-2001) reported having health insurance. Women were more likely to report having health care insurance (87.0%) compared to men (83.7%). The proportion of reported insurance increased with increasing age, with 98.7% of respondents age 70 years and older reporting health care coverage. Respondents with health care insurance tended to be married (90.3%), postsecondary educated (91.0%), and unemployed (86.6%) (Table 3).

In Washington, eighty-nine percent (89.1%) of Washington state all races BRFSS respondents (1998-2001) reported having health insurance. Women were more likely to report having health care insurance (90.2%) compared to men (87.9%). The proportion of reported insurance increased with increasing age, with over 98% of respondents age 65 years and older reporting health care coverage. Respondents with health care insurance tended to be married (94.3%), and postsecondary educated (92.6%) (Table 3).

Tribal BRFSS respondents were asked if they had any kind of health insurance besides the Indian health care system, including private insurance through work or government plans such as Medicare. Among tribes that based their participant sample using RPMS, 59.1% of respondents reported having health care insurance. Women were more likely to report having health care insurance (60.6%) compared to men (56.6%). The proportion of reported insurance increased with increasing

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<sup>35</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>36</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

age, with 96.0% of tribal respondents age 65-69 years reporting health care coverage. Respondents with health care insurance tended to be married (66.1%), postsecondary educated (65.1%), employed (63.0%), and have a household income >200% of federal poverty level (77.7%) (Table 3).

For tribes that based their participant sample using tribal enrollment,<sup>37</sup> 49.0% of respondents reported having health care insurance. Women were more likely to report having health care insurance (53.0%) compared to men (43.9%). The proportion of reported insurance increased with increasing age, with 77.3% of tribal respondents age 65-69 years reporting health care coverage. Respondents with health care insurance tended to be married (52.9%), postsecondary educated (57.3%), employed (54.0%), and have a household income >200% of federal poverty level (65.2%) (Table 3).

Overall, respondents to the Idaho, Oregon and Washington state BRFSS reported having insurance more frequently than respondents to the tribal BRFSS. The proportion of respondents with insurance was higher in every age group and demographic category for state all-races respondents. While state all-races respondents with insurance tended to be unemployed, tribal BRFSS respondents with insurance tended to be employed. Tribes that based their participant sample using RPMS<sup>38</sup> had a higher proportion of respondents with health care insurance compared to tribes that based their participant sample using tribal enrollment (Table 3).

### *Heart Disease*

Heart disease refers to a condition that arises from a narrowing or blockage of the coronary arteries. The coronary arteries are the main source of blood for the heart muscle. When the heart does not get the blood and oxygen that it needs, consequences such as chest pain on exertion or heart attack may follow.<sup>39</sup>

Heart disease is the leading cause of death for AI/AN and for the U.S. all races (see Table G). In 1994-1996, 21.7% of all deaths in the IHS service area were caused by diseases of the heart (IHS, 2001). In comparison, 31.9% of all deaths in the U.S. in 1995 and 18.5% of all deaths in the Portland Area in 1994-1996 were caused by diseases of the heart (IHS, 2001).

Table G. Leading Causes of Death for All IHS Areas, 1994-1996, and the U.S., All Races, 1995, and Percent of Total Deaths (IHS, 2001).

ALL IHS AREAS, 1994-1996		U.S. ALL RACES, 1995	
Cause of Death	Percent	Cause of Death	Percent
Diseases of the Heart	21.7	Diseases of the Heart	31.9
Malignant Neoplasms	15.3	Malignant Neoplasms	23.3
Accidents & Adverse Effects	14.1	Cerebrovascular Diseases	6.8
Diabetes Mellitus	5.9	Chronic Obstructive Pulmonary Diseases	4.5
Chronic Liver Disease & Cirrhosis	4.7	Accidents & Adverse Effects	4.0

For tribes that sampled using RPMS, among tribal males and females over the age of 40 years who participated in the Northwest Tribal BRFSS Project:

<sup>37</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>38</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>39</sup> National Heart, Lung and Blood Institute, <http://www.nhlbi.gov/health/public/heart/other/chdfacts.htm>



- 8.7% (54 respondents) reported ever having heart disease
- 10.0% (62 respondents) reported ever having a heart attack
- 6.8% (42 respondents) reported ever having a stroke

For tribes that based their participant sample using tribal enrollment<sup>40</sup>, among tribal males and females over the age of 40 years who participated in the Northwest Tribal BRFSS Project:

- 4.6% (23 respondents) reported ever having heart disease
- 6.3% (31 respondents) reported ever having a heart attack
- 3.8% (19 respondents) reported ever having a stroke

The best ways to prevent heart disease are to control blood pressure and control cholesterol. Regular monitoring of blood pressure and cholesterol is helpful in assessing the risk of heart disease as well as detecting the development of heart disease early. Other important ways to reduce the risk of heart disease are to maintain a healthy weight and a physically active lifestyle as well as to avoid tobacco smoke. By far the best ways to treat heart disease are to control the risk factors listed above. Treatment may also involve medications and surgery.

### *High Blood Pressure*

Blood pumping from the heart through the arteries puts pressure or tension on artery walls. High blood pressure (or hypertension) occurs when the pressure on artery walls remains elevated over time. Hypertension puts a strain on the entire circulatory system and can lead to serious complications such as stroke, heart disease, or kidney failure.<sup>41,42</sup>

Hypertension is often referred to as a “silent killer” because it usually does not cause any symptoms until serious damage to the body has already occurred. Therefore it is extremely important to get blood pressure checks frequently in order to detect hypertension early. Systolic blood pressure is the pressure on the artery walls when the heart forces blood into them. Diastolic blood pressure is the pressure on the artery walls when the heart is filling with blood. Hypertension is defined by a systolic pressure (top number) of 140 or higher, or a diastolic pressure (bottom number) of 90 or higher. Optimal blood pressure is less than 120 systolic and less than 90 diastolic.<sup>43,44</sup>

Among all races respondents to the Idaho state BRFSS, 1998-2001, 80.3% reported getting their blood pressure checked in the past 12 months. Women were more likely than men to report having their blood pressure checked, 85.6% compared to 74.7%. The proportion of respondents who reported having their blood pressure checked tended to increase with increasing age. Respondents who had their blood pressure checked in the past year tended to be married (81.2%), postsecondary educated (82.3%), and unemployed (85.2%) (Table 4).

Among all races respondents to the Oregon state BRFSS, 1998-2001, 83.7% reported getting their blood pressure checked in the past 12 months. Women were more likely than men to report having their blood pressure checked, 90.6% compared to 76.4%. The proportion of respondents who reported having their blood pressure checked tended to increase with increasing age. Respondents

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<sup>40</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>41</sup> JAMA Vol. 287 No.8, February 27, 2002, <http://www.ama-assn.org/public/journals/patient/archive/pat0227.htm>

<sup>42</sup> National Heart, Lung and Blood Institute, <http://www.nhlbi.nih.gov/hbp/index/html>

<sup>43</sup> JAMA Vol. 287 No.8, February 27, 2002, <http://www.ama-assn.org/public/journals/patient/archive/pat0227.htm>

<sup>44</sup> National Heart, Lung and Blood Institute, <http://www.nhlbi.nih.gov/hbp/index/html>

who had their blood pressure checked in the past year tended to be married (87.2%), postsecondary educated (86.3%), and unemployed (88.5%) (Table 4).

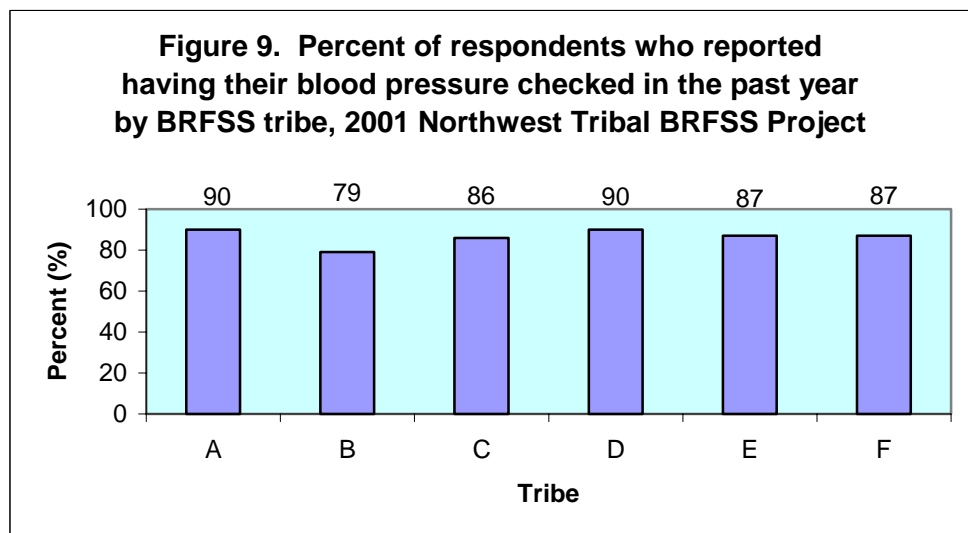
Among all races respondents to the Washington state BRFSS, 1998-2001, 83.8% reported getting their blood pressure checked in the past 12 months. Women were more likely than men to report having their blood pressure checked, 89.9% compared to 78.4%. The proportion of respondents who reported having their blood pressure checked tended to increase with increasing age. Respondents who had their blood pressure checked in the past year tended to be married (87.0%), and unemployed (88.0%) (Table 4).

Among tribes that sampled using RPMS,<sup>45</sup> 88.9% of respondents reported getting their blood pressure checked in the past 12 months. Women were more likely than men to report having their blood pressure checked, 92.2% compared to 83.5%. The proportion of respondents who reported having their blood pressure checked was highest for respondents age 50-64 years, with upwards of 94.7% of respondents getting checked in the past year. Respondents who had their blood pressure checked in the past year tended to be married (92.4%), postsecondary educated (93.4%), and have a household income above federal poverty level (> 90.1%) (Table 4).

Among tribes that sampled using tribal enrollment,<sup>46</sup> 83.9% of respondents reported getting their blood pressure checked in the past 12 months. Women were more likely than men to report having their blood pressure checked, 87.1% compared to 80.0%. The proportion of respondents who reported having their blood pressure checked was highest for respondents age 60-64 years, with 97.5% of respondents getting checked in the past year. Respondents who had their blood pressure checked in the past year tended to be married (89.2%), postsecondary educated (88.8%), and have a household income > 200% of federal poverty level (87.4%) (Table 4).

Respondents to the Idaho, Oregon, and Washington state BRFSS 1998-2001, and respondents to the Tribal BRFSS that were selected from tribal enrollment lists all reported similar frequencies of having blood pressure checked in the past year. A higher proportion of Tribal BRFSS respondents that were selected using RPMS reported having their blood pressure checked in the past year compared to the three states all races respondents, and to the tribes that sampled using enrollment.

- The percentage of respondents who reported having their blood pressure checked in the past year ranged from 79% to 90% by tribe (Figure 9).



<sup>45</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>46</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



Respondents were asked if a health care provider had ever told them that they had high blood pressure, and of all races respondents to the Idaho state BRFSS, 1998-2001, 23.0% responded affirmatively. Twenty-three percent (23.0%) of both male and female respondents reported ever being told by a health care provider that they had high blood pressure. The proportion of Idaho state BRFSS respondents who reported ever being told by a health care provider that they had high blood pressure tended to be higher among those who were 60+ years of age (43.6%), married (23.6%), high school educated or less (24.2%), and unemployed (32.7%) (Table 5).

Of all races respondents to the Oregon state BRFSS, 1998-2001, 22.1% responded affirmatively when asked if they had ever been told by a health care professional that they had high blood pressure. Twenty-one percent (21.2%) of male and 23.0% of female respondents reported ever being told by a health care provider that they had high blood pressure. The proportion of Oregon state BRFSS respondents who reported ever being told by a health care provider that they had high blood pressure tended to be higher among those who were 60+ years of age (39.9%), married (22.9%), high school educated or less (22.5%), and unemployed (30.8%) (Table 5).

Of all races respondents to the Washington state BRFSS, 1998-2001, 21.9% responded affirmatively when asked if they had ever been told by a health care professional that they had high blood pressure. Twenty-one percent (20.8%) of male and 23.0% of female respondents reported ever being told by a health care provider that they had high blood pressure. The proportion of Washington state BRFSS respondents who reported ever being told by a health care provider that they had high blood pressure tended to be higher among those who were 60+ years of age (43.9%), married (22.9%), high school educated or less (25.4%), and unemployed (31.9%) (Table 5).

Among tribes that sampled using RPMS,<sup>47</sup> 28.6% responded affirmatively when asked if they had ever been told by a health care professional that they had high blood pressure. Thirty percent (30.3%) of male and 27.7% of female respondents reported ever being told by a health care provider that they had high blood pressure. The proportion of Tribal BRFSS respondents who reported ever being told by a health care provider that they had high blood pressure tended to be higher among those who were 60+ years of age (57.5%), married (32.7%), high school educated or less (29.3%), unemployed (33.5%), and household income between 101%-150% of federal poverty level (35.6%) (Table 5).

Among tribes that sampled using tribal enrollment,<sup>48</sup> 26.6% responded affirmatively when asked if they had ever been told by a health care professional that they had high blood pressure. Twenty-nine percent (29.0%) of male and 24.7% of female respondents reported ever being told by a health care provider that they had high blood pressure. The proportion of Tribal BRFSS respondents who reported ever being told by a health care provider that they had high blood pressure tended to be higher among those who were 60+ years of age (49.6%), married (27.6%), high school educated or less (27.2%), unemployed (31.5%), and household income either below federal poverty level (27.9%) or >200% of federal poverty level (27.5%) (Table 5).

A higher proportion of respondents to the 2001 Northwest Tribal BRFSS Project reported being told by a health care professional that their blood pressure was high compared to all races respondents to the Idaho, Oregon, and Washington state BRFSS, 1998-2001. Tribal BRFSS respondents with high blood pressure were more likely to be men, while all races state respondents tended to be women.

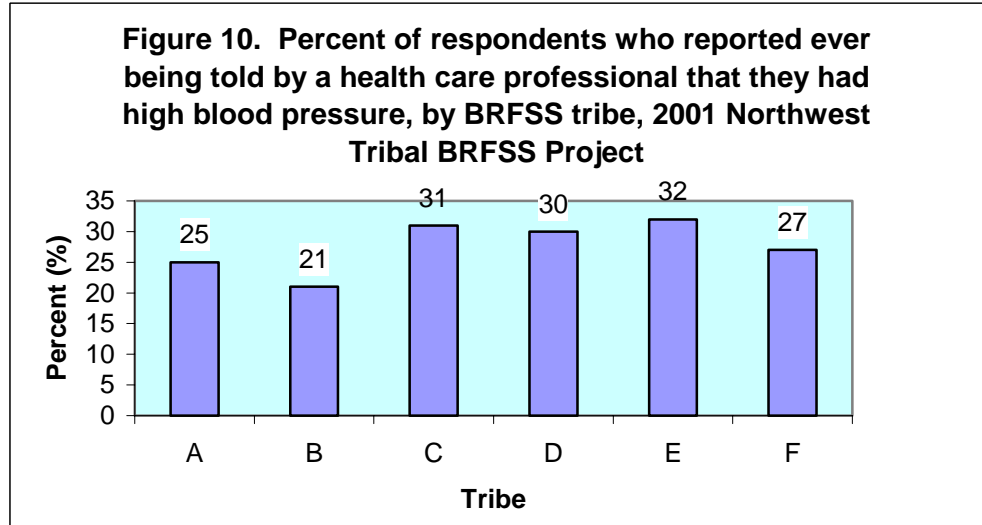
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<sup>47</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

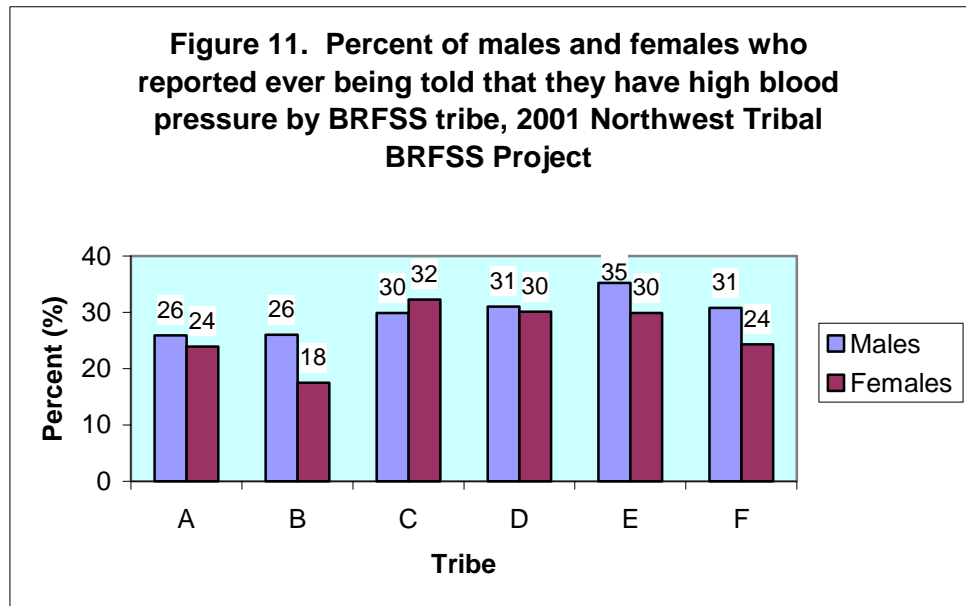
<sup>48</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

High blood pressure can be avoided by maintaining a healthy weight, being physically active, eating a healthy diet, maintaining low sodium intake, avoiding smoking, and drinking alcohol in moderation. The treatment for hypertension involves implementing all of these preventive strategies. If lifestyle changes alone are not enough to normalize blood pressure, blood pressure lowering medications may also be used.<sup>49,50</sup>

- The percentage of respondents who reported ever being told by a health care professional that they had high blood pressure ranged from 21% to 32% by tribe (Figure 10).



- Between 26% to 35% of male respondents reported being told by a health care professional that they had high blood pressure, compared to between 18% to 32% of women by tribe (Figure 11).

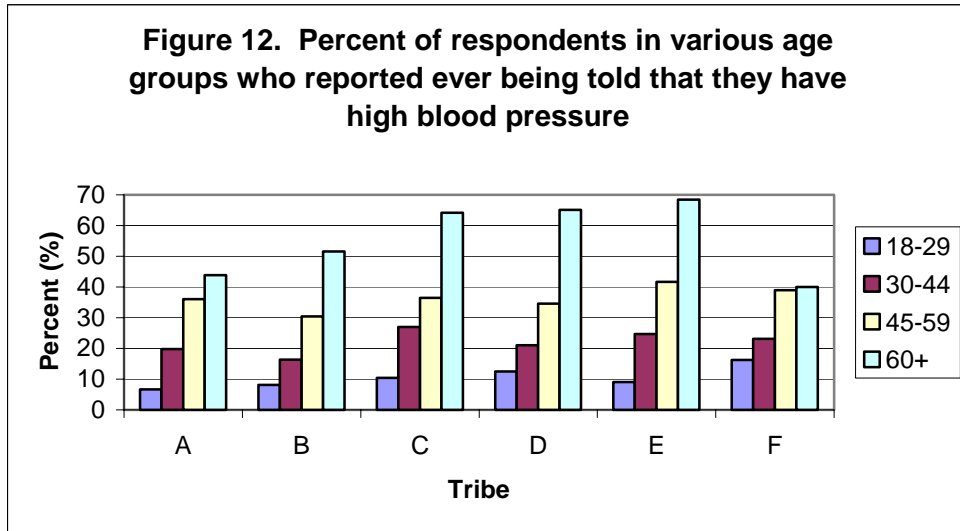


<sup>49</sup> JAMA Vol. 287 No.8, February 27, 2002, <http://www.ama-assn.org/public/journals/patient/archive/pat0227.htm>

<sup>50</sup> National Heart, Lung and Blood Institute, <http://www.nhlbi.nih.gov/hbp/index/html>



- The percentage of respondents who reported ever being told by a health care professional that they have high blood pressure increased with increasing age for all tribes (Figure 12).



*Serum Cholesterol*

Cholesterol is a waxy substance found in the blood stream and inside the cells of the body. Cholesterol is produced by our livers and also comes directly from the foods we eat — foods from animal sources only. Cholesterol is an important part of a healthy body because it is essential for cell membranes and for the production of some hormones. However, cholesterol cannot dissolve in the blood, and if too much cholesterol is present, it can accumulate and form thick plaques that can clog arteries.<sup>51,52</sup>

Cholesterol relies on special carriers called lipoproteins for its transport through the blood. Low density lipoprotein (LDL) is the major carrier of cholesterol in the blood. Too much LDL cholesterol (greater than or equal to 160 mg/dL) is a major risk factor for heart disease. High density lipoprotein (HDL) carries cholesterol away from arteries and is therefore considered “good cholesterol.” High levels of HDL seem to protect against heart disease and stroke.

Sixty-three percent (62.6%) of Idaho state all races BRFSS respondents, 1998-2001, reported having their blood cholesterol checked in the past five years. A higher percentage of women reported having their cholesterol checked in the past five years, 64.5% of women compared to 60.7% of men. The proportion of respondents who reported having their cholesterol checked increased with increasing age, with 81.8% of respondents age 50 and older reporting being checked in the past five years. Those who had their cholesterol checked tended to be married (67.3%), postsecondary educated (67.6%), and unemployed (68.8%) (Table 6).

Approximately two-thirds (66.3%) of Oregon state all races BRFSS respondents, 1998-2001, reported having their blood cholesterol checked in the past five years. A higher percentage of women reported having their cholesterol checked in the past five years, 69.7% of women compared to 62.8% of men. The proportion of respondents who reported having their cholesterol checked increased with increasing age, with 85.0% of respondents age 50 and older reporting being checked in the past five years. Those who had their cholesterol checked tended to be married (72.8%), postsecondary educated (72.7%), and unemployed (71.3%) (Table 6).

<sup>51</sup> American Heart Association, <http://www.americanheart.org/presenter.jhtml?identifier=512>

<sup>52</sup> National Heart, Lung and Blood Institute, <http://www.nhlbisupport.com/chd1/why2.htm>



Over two-thirds (67.1%) of Washington state all races BRFSS respondents, 1998-2001, reported having their blood cholesterol checked in the past five years. A higher percentage of women reported having their cholesterol checked in the past five years, 70.0% of women compared to 64.1% of men. The proportion of respondents who reported having their cholesterol checked increased with increasing age, with 86.3% of respondents age 50 and older reporting being checked in the past five years. Those who had their cholesterol checked tended to be married (74.2%), postsecondary educated (71.6%), and unemployed (71.0%) (Table 6).

Among tribes that sampled using RPMS,<sup>53</sup> over two-thirds (67.3%) of Tribal BRFSS respondents, reported having their blood cholesterol checked in the past five years. A higher percentage of women reported having their cholesterol checked in the past five years, 69.7% of women compared to 63.1% of men. The proportion of respondents who reported having their cholesterol checked increased with increasing age, with 84.7% of respondents age 50 years and older reporting being checked in the past five years. Those who had their cholesterol checked tended to be married (71.0%), postsecondary educated (72.8%), employed (68.0%), and have a household income > 200% of federal poverty level (75.2%) (Table 6).

Among tribes that sampled using tribal enrollment,<sup>54</sup> sixty-four percent (64.0%) of Tribal BRFSS respondents, reported having their blood cholesterol checked in the past five years. A higher percentage of women reported having their cholesterol checked in the past five years, 66.1% of women compared to 61.5% of men. The proportion of respondents who reported having their cholesterol checked increased with increasing age, with 79.6% of respondents age 50 and older reporting being checked in the past five years. Those who had their cholesterol checked tended to be married (68.3%), postsecondary educated (71.4%), employed (66.7%), and have a household income > 200% of federal poverty level (74.8%) (Table 6).

Idaho state BRFSS respondents were the least likely to report having their blood cholesterol checked in the past five years, while tribal participants selected using RPMS were the most likely to report having their cholesterol checked in the past five years. Idaho, Oregon, and Washington state all races BRFSS respondents who reported having their cholesterol checked tended to be unemployed, while tribal BRFSS respondents who reported having their cholesterol checked tended to be employed.

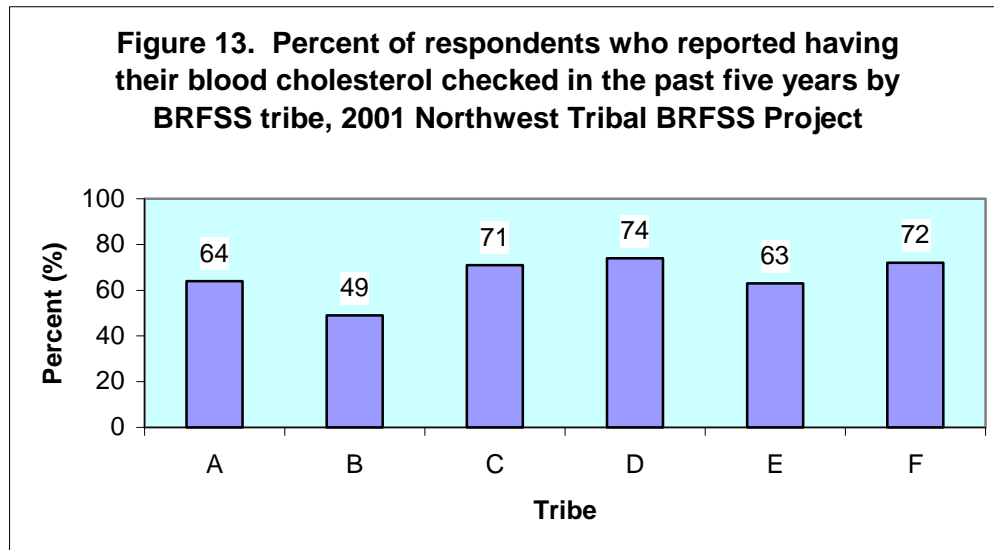
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<sup>53</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>54</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



- The percentage of respondents who reported having their blood cholesterol checked in the past five years ranged from 49% to 74% by tribe (Figure 13).



Thirty percent (30.2%) of Idaho state all races BRFSS respondents, 1998-2001, reported ever being told by a health care professional that their blood cholesterol was high. A higher percentage of men reported ever having high cholesterol, 31.7% of men compared to 28.8% of women. The proportion of respondents who reported having high cholesterol increased with increasing age, with 40.8% of respondents age 50 years and older reporting ever being told their cholesterol was high. Respondents who reported ever having high cholesterol tended to be married (31.1%), high school educated or less (32.5%), and unemployed (36.6%) (Table 7).

Thirty percent (30.4%) of Oregon state all races BRFSS respondents, 1998-2001, reported ever being told by a health care professional that their blood cholesterol was high. Men and women were equally likely to report ever having high cholesterol, 30.6% of men and 30.3% of women. The proportion of respondents who reported having high cholesterol increased with increasing age, with 40.9% of respondents age 50 years and older reporting ever being told their cholesterol was high. Respondents who reported ever having high cholesterol tended to be married (31.6%), high school educated or less (34.3%), and unemployed (35.6%) (Table 7).

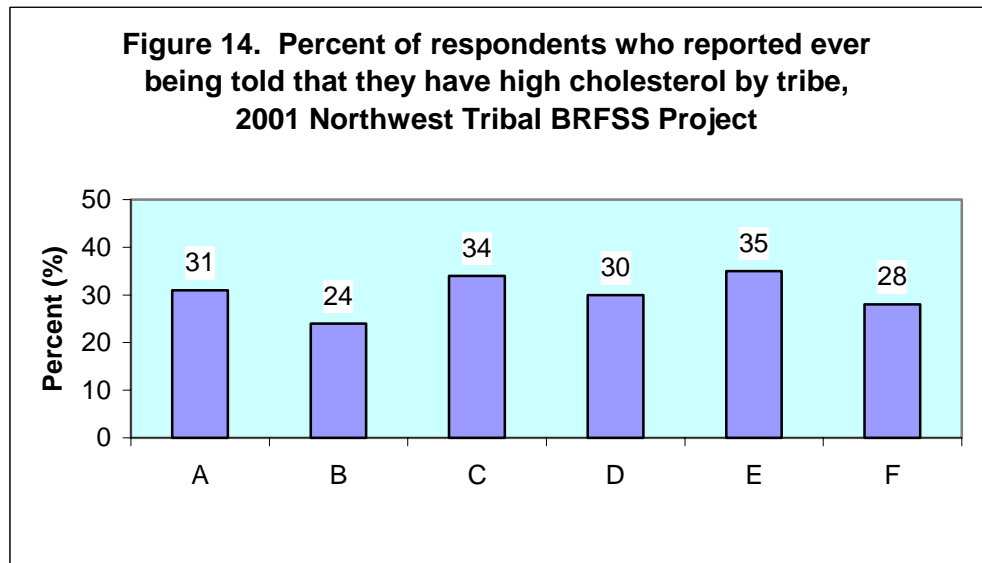
Twenty-nine percent (28.5%) of Washington state all races BRFSS respondents, 1998-2001, reported ever being told by a health care professional that their blood cholesterol was high. A higher percentage of men reported ever having high cholesterol, 29.9% of men compared to 27.7% of women. The proportion of respondents who reported having high cholesterol increased with increasing age, with 38.6% of respondents age 50 years and older reporting ever being told their cholesterol was high. Respondents who reported ever having high cholesterol tended to be high school educated or less (33.2%), and unemployed (35.5%) (Table 7).

Among tribes that selected BRFSS participants using RPMS,<sup>55</sup> thirty-two percent (31.7%) of respondents reported ever being told by a health care professional that their blood cholesterol was high. A higher percentage of men reported ever having high cholesterol, 34.7% of men compared to 30.1% of women. The proportion of respondents who reported having high cholesterol increased with increasing age, with 39.1% of respondents age 50 years and older reporting ever being told their cholesterol was high. Respondents who reported ever having high cholesterol tended to be high school educated or less (33.2%), unemployed (38.9%), and have a household income between 150%-200% of federal poverty level (36.7%) (Table 7).

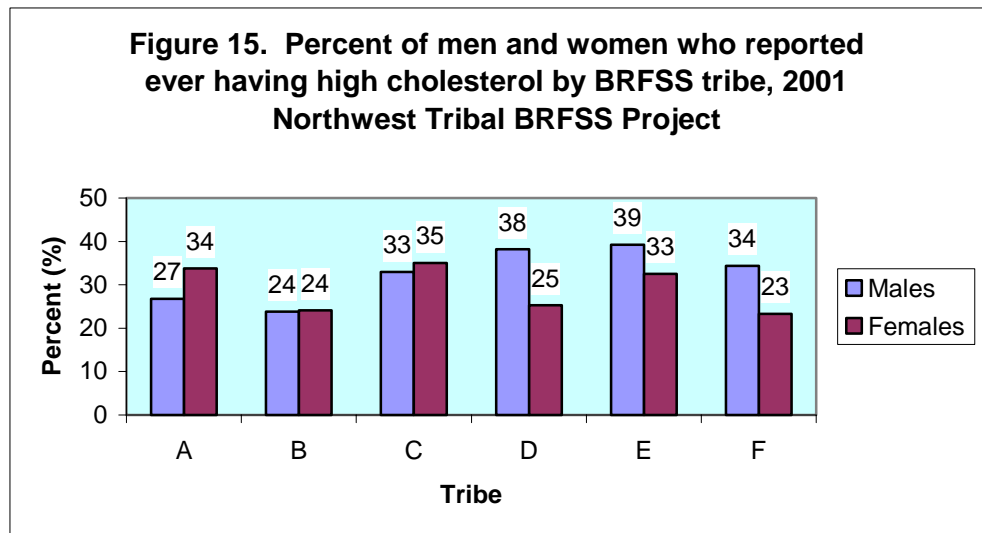
<sup>55</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>56</sup> twenty-nine percent (29.0%) of respondents reported ever being told by a health care professional that their blood cholesterol was high. A higher percentage of men reported ever having high cholesterol, 30.8% of men compared to 27.6% of women. The proportion of respondents who reported having high cholesterol increased with increasing age, with 42.1% of respondents age 50 years and older reporting ever being told their cholesterol was high. Respondents who reported ever having high cholesterol tended to be married (32.0%), employed (29.7%), and have a household income between 150%-200% of federal poverty level (33.3%) (Table 7).

- The percentage of respondents who reported ever being told by a health care professional that their blood cholesterol was high ranged from 24% to 35% by tribe (Figure 14).



- The percentage of men who reported having high cholesterol ranged from 24% to 39% by tribe, while the percentage of women ranged from 23% to 35% by tribe (Figure 15).



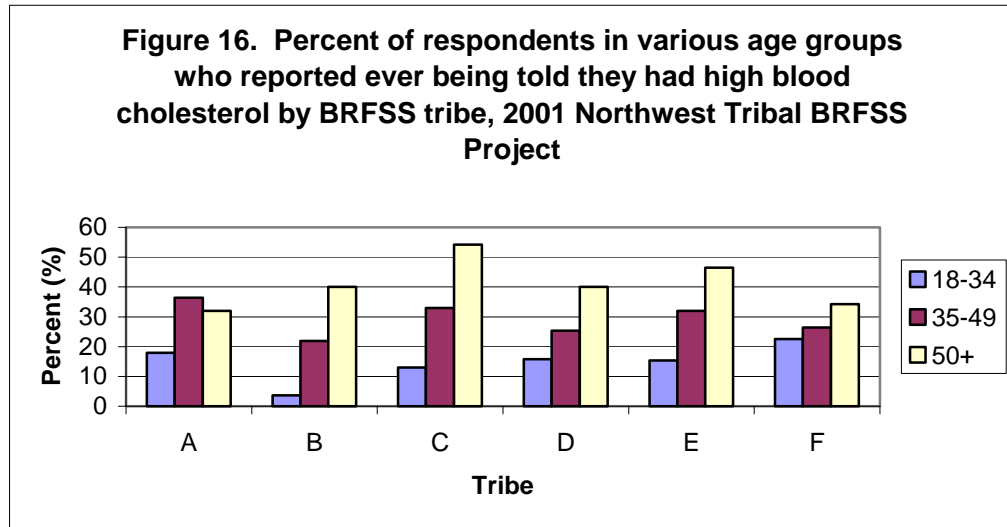
Idaho, Oregon, and Washington all races BRFSS respondents and both samples of tribal BRFSS respondents had similar proportions and trends of reported high blood cholesterol. Avoiding diets

<sup>56</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



high in saturated fats and cholesterol, maintaining a healthy weight, and staying physically active can prevent high cholesterol. Treatments for high cholesterol involve making healthy lifestyle choices, including the ones listed above. Cholesterol lowering medications may also be incorporated into treatment if necessary.

- The percentage of respondents who reported ever having high blood cholesterol tended to increase with age for each tribe (Figure 16).



Among tribes that selected BRFSS participants using RPMS<sup>57</sup>, twenty-two percent (21.7%) of respondents reported being advised by a health care professional to eat fewer high fat or high cholesterol foods in the past 12 months. A higher percentage of women reported being advised to reduce their fat or cholesterol consumption, 24.2% of women compared to 17.7% of men. Respondents age 45-59 years were more likely to report being advised to eat fewer high fat or high cholesterol foods, with 30.6% reporting receiving this advice. Respondents who reported being advised to eat fewer high fat or high cholesterol foods tended to be married (25.0%), postsecondary educated (25.2%), unemployed (22.6%), and have a household income between 101%-150% of federal poverty level (27.2%) (Table 8).

Among tribes that selected BRFSS participants using tribal enrollment<sup>58</sup>, nineteen percent (19.1%; 18.2% of males, 19.9% of females) of all respondents answered affirmatively to the question “Within the past 12 months, has a health care professional told you to eat fewer high cholesterol or high fat foods?” The proportion of respondents who reported being advised to eat fewer high fat or high cholesterol foods increased with increasing age, with 31.1% of respondents age 60+ years reporting receiving this advice. Respondents who reported being advised to eat fewer high fat or high cholesterol foods tended to be married (20.8%), postsecondary educated (22.4%), employed (20.3%), and have a household income > 200% of federal poverty level (23.7%) (Table 8).

The question of being advised by a health care professional to eat fewer high fat or high cholesterol foods was not asked on the Idaho, Oregon, or Washington state BRFSS, 1998-2001.

<sup>57</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>58</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

### *Fruits and Vegetables*

Five to nine servings per day of fruits and vegetables are recommended to reduce the risk of heart disease, diabetes, and certain types of cancers.<sup>59,60,61,62</sup> Our definition of fruits and vegetables includes fruit, green salad, potatoes (not fries and potato chips), carrots, and vegetables (other than potatoes, salad, or carrots). We provide data on fruit and vegetable consumption as follows:

- Respondents who reported average fruit and vegetable consumption of less than one serving per day (<1 per day) (see Table 9).
- Respondents who reported average fruit and vegetable consumption of at least one and less than three servings per day (1 to <3 per day) (see Table 10).
- Respondents who reported average fruit and vegetable consumption of at least three and less than five servings per day (3 to <5 per day) (see Table 11).
- Respondents who reported average fruit and vegetable consumption of five or more servings per day (5+ per day) (see Table 12).

Five percent (5.3%; 7.1% of male, 3.5% of female) of all races respondents to the Idaho state BRFSS, 1998-2001, reported consuming less than one serving of fruits and vegetables per day. Respondents who reported consuming less than one serving of fruits and vegetables per day tended to be age 18-29 years (10.3%), unmarried (8.3%), high school educated or less (7.2%), and employed (5.9%) (Table 9). Approximately forty-nine percent (48.8%; 54.4% of male, 43.4% of female) of all races respondents to the Idaho state BRFSS reported an average fruit and vegetable consumption of between one and less than three servings per day. Respondents in this range tended to be age 18-29 years (58.7%), unmarried (52.6%), high school educated or less (53.0%), and employed (52.1%) (Table 10). Almost thirty-three percent (32.5%; 29.2% of male, 35.7% of female) of all races respondents to the Idaho state BRFSS reported consuming between three and less than five servings of fruits and vegetables per day. Respondents in this consumption range tended to be age 60+ (39.0%), married (35.3%), postsecondary educated (34.7%), and unemployed (35.6%) (Table 11). Thirteen percent (13.4%; 9.3% of male, 17.3% of female) of all races respondents to the Idaho state BRFSS reported an average fruit and vegetable consumption of five or more servings per day. Respondents in this consumption range tended to be age 60+ years (20.8%), married (14.0%), postsecondary educated (15.8%), and unemployed (17.8%) (Table 12).

Approximately six percent (5.5%; 6.8% of male, 4.3% of female) of all races respondents to the Oregon state BRFSS, 1998-2001, reported consuming less than one serving of fruits and vegetables per day. Respondents who reported consuming less than one serving of fruits and vegetables per day tended to be age 18-29 years (11.2%), unmarried (8.4%), high school educated or less (7.9%), and employed (6.7%) (Table 9). Almost forty-three percent (42.9%; 49.0% of male, 37.1% of female) of all races respondents to the Oregon state BRFSS reported an average fruit and vegetable consumption of between one and less than three servings per day. Respondents in this range tended to be age 18-29 years (49.2%), unmarried (45.2%), high school educated or less (46.3%), and employed (46.5%) (Table 10). Thirty-six percent (35.8%; 32.7% of male, 38.8% of female) of all races respondents to the Oregon state BRFSS reported consuming between three and less than five servings of fruits and vegetables per day. Respondents in this consumption range tended to be age 60+ years (45.6%), married (39.0%), postsecondary educated (38.0%), and unemployed (38.9%) (Table 11). Sixteen percent (15.8%; 11.5% of male, 19.7% of female) of all races respondents to the

<sup>59</sup> American Cancer Society, [http://www.cancer.org/docroot/PED/ped\\_3.asp?sitearea=PED&level=1](http://www.cancer.org/docroot/PED/ped_3.asp?sitearea=PED&level=1)

<sup>60</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/nccdphp/dnpa/>

<sup>61</sup> American Diabetes Association, [http://www.diabetes.org/main/application/commercewf?origin=\\*.jsp&event=link\(F\)](http://www.diabetes.org/main/application/commercewf?origin=*.jsp&event=link(F))

<sup>62</sup> American Heart Association, <http://www.americanheart.org/presenter.jhtml?identifier=1200009>



Oregon state BRFSS reported an average fruit and vegetable consumption of five or more servings per day. Respondents in this consumption range tended to be age 60+ years (23.2%), married (16.2%), postsecondary educated (17.8%), and unemployed (21.0%) (Table 12).

Six percent (5.7%; 7.3% of male, 4.2% of female) of all races respondents to the Washington state BRFSS, 1998-2001, reported consuming less than one serving of fruits and vegetables per day. Respondents who reported consuming less than one serving of fruits and vegetables per day tended to be age 18-29 years (11.9%), unmarried (9.5%), and high school educated or less (9.6%) (Table 9). Forty-five percent (45.3%; 53.1% of male, 37.8% of female) of all races respondents to the Washington state BRFSS reported an average fruit and vegetable consumption of between one and less than three servings per day. Respondents in this range tended to be unmarried (46.4%), high school educated or less (49.7%), and employed (48.8%) (Table 10). Thirty-four percent (34.2%; 29.5% of male, 38.8% of female) of all races respondents to the Washington state BRFSS reported consuming between three and less than five servings of fruits and vegetables per day. Respondents in this consumption range tended to be age 60+ years (42.9%), married (36.6%), postsecondary educated (36.6%), and unemployed (37.3%) (Table 11). Fifteen percent (14.8%; 10.1% of male, 19.3% of female) of all races respondents to the Washington state BRFSS reported an average fruit and vegetable consumption of five or more servings per day. Respondents in this consumption range tended to be age 60+ (19.6%) years, married (15.6%), postsecondary educated (16.9%), and unemployed (18.2%) (Table 12).

Among tribes that selected BRFSS participants using RPMS,<sup>63</sup> thirteen percent (12.6%; 14.5% of male, 11.4% of female) of respondents reported consuming less than one serving of fruits and vegetables per day. Respondents who reported consuming less than one serving of fruits and vegetables per day tended to be age 18-29 years (19.4%), unmarried (14.2%), high school educated or less (15.7%), and have a household income below federal poverty level (13.8%) (Table 9). Fifty-seven percent (57.4%; 59.0% of male, 56.5% of female) of tribal BRFSS respondents reported an average fruit and vegetable consumption of between one and less than three servings per day. Respondents in this range tended to be age 30-44 years (63.0%), postsecondary educated (59.8%), employed (59.8%), and have a household income between 101%-150% of federal poverty level (57.2%) (Table 10). Twenty-three percent (23.1%; 21.3% of male, 24.2% of female) tribal BRFSS respondents reported consuming between three and less than five servings of fruits and vegetables per day. Respondents in this consumption range tended to be age 60+ years (38.7%), married (25.7%), postsecondary educated (24.9%), and unemployed (24.7%) (Table 11). Seven percent (6.9%; 5.2% of male, 7.9% of female) of tribal BRFSS respondents reported an average fruit and vegetable consumption of five or more servings per day. Respondents in this consumption range tended to be age 45-59 years (8.5%), unemployed (7.8%), and have a household income between 101%-150% of federal poverty level (9.4%) (Table 12).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>64</sup> fifteen percent (14.9%; 18.4% of male, 12.1% of female) of respondents reported consuming less than one serving of fruits and vegetables per day. Respondents who reported consuming less than one serving of fruits and vegetables per day tended to be age 18-44 years (upwards of 17.2%), unmarried (15.6%), high school educated or less (18.1%), and unemployed (16.8%) (Table 9). Sixty percent (60.0%; 60.6% of male, 59.6% of female) of tribal BRFSS respondents reported an average fruit and vegetable consumption of between one and less than three servings per day. Respondents in this range tended to be age 30-44 years (62.3%), married (64.9%), and have a household income > 200% of federal poverty level (62.7%) (Table 10). Nineteen percent (18.8%; 15.7% of male, 21.4% of female) tribal

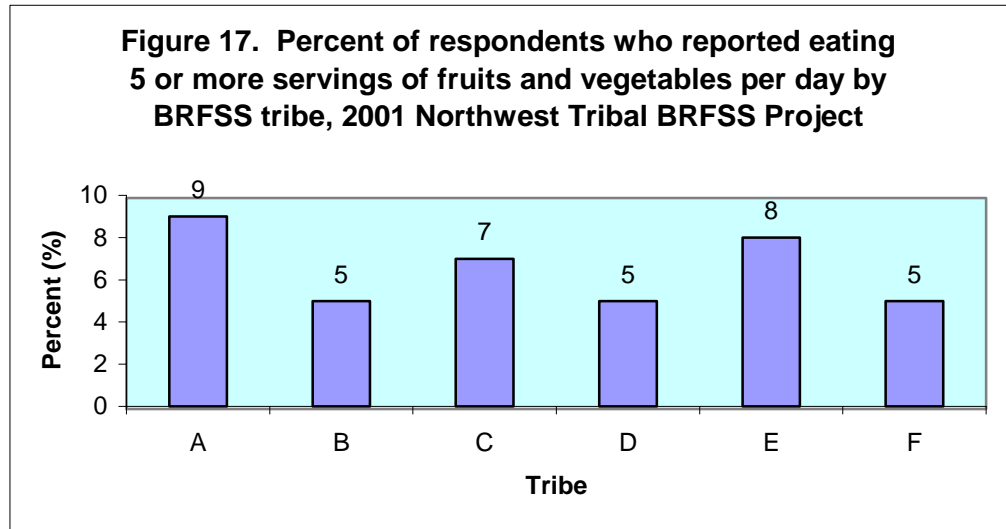
<sup>63</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>64</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

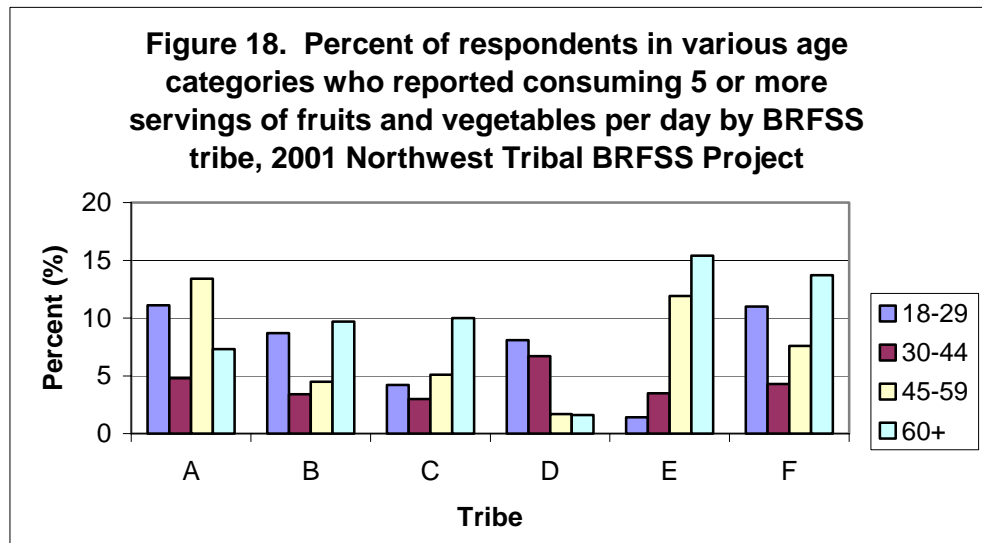
BRFSS respondents reported consuming between three and less than five servings of fruits and vegetables per day. Respondents in this consumption range tended to be age 60+ years (27.1%), unmarried (20.7%), postsecondary educated (22.2%), employed (19.4%), and have a household income below federal poverty level (20.5%) (Table 11). Six percent (6.1%; 4.8% of male, 7.1% of female) of tribal BRFSS respondents reported an average fruit and vegetable consumption of five or more servings per day. Respondents in this consumption range tended to be age 60+ years (10.5%), postsecondary educated (7.8%), and have a household income > 200% of federal poverty level (7.9%) (Table 12).

Overall, Idaho, Oregon, and Washington all races state BRFSS respondents reported a higher average fruit and vegetable consumption than the two tribal BRFSS samples. For all five groups, the greatest proportion of respondents reported consuming between one and less than three servings of fruits and vegetables per day. For all five groups, women reported a higher average fruit and vegetable consumption than men, and fruit and vegetable consumption tended to increase with age. Information on serving sizes was not obtained in our survey.

- Across tribes, between 5% and 9% of respondents reported consuming 5 or more servings of fruits and vegetables per day, by tribe (Figure 17).



- Overall, respondents age 60 years or older reported eating 5 or more fruits and vegetables per day more frequently than younger respondents. (Figure 18).



### *Vitamins and Supplements*

Among tribes that selected BRFSS participants using RPMS,<sup>65</sup> forty-seven percent (46.8%, 35.7% of men, 53.5% of women) of respondents reported taking vitamins or supplements. Across all age categories, upwards of 39.6% of tribal BRFSS respondents reported taking vitamins or supplements. A higher frequency of individuals who were married (49.5%), postsecondary educated (52.6%), and employed (47.7%) reported taking vitamins or supplements (Table 13).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>66</sup> thirty-six percent (35.7%, 27.2% of men, 42.5% of women) of respondents reported taking vitamins or supplements. Across all age categories, upwards of 25.8% of tribal BRFSS respondents reported taking vitamins or supplements. A higher frequency of individuals who were postsecondary educated (42.7%), and employed (37.5%), and have household income > 200% of federal poverty level (43.4%) reported taking vitamins or supplements (Table 13).

Tribal BRFSS participants that were sampled from RPMS<sup>67</sup> were more likely to report current vitamin or supplement use than participants sampled from tribal enrollment<sup>68</sup>. A question on vitamin and supplement use was not asked on the Idaho, Oregon, or Washington state BRFSS respondents, 1998-2001.

### *Water Consumption*

Health and nutrition experts recommend consuming eight, 8-ounce servings of water per day, and even more in warm weather to replace fluid lost from perspiration.<sup>69</sup> Water works to moisten lungs, convert food to energy, carry nutrients and oxygen into the body, lubricate joints, protect and cushion tissues and vital organs, regulate body temperature, metabolize fat, and carry away body wastes.<sup>70</sup>

- 48.0% of tribal BRFSS respondents selected from RPMS said they drink at least 60 ounces of water per day.
- The highest proportion of RPMS respondents (48.2%) reported that they drink mostly tap water.
- 50.0% of tribal BRFSS respondents selected from tribal enrollment lists said they drink at least 60 ounces of water per day.
- The highest proportion of tribal BRFSS respondents selected from tribal enrollment lists (49.0%) reported that they drink mostly tap water.

### *Alcohol Use*

American Indians have the highest rates of mortality related to alcohol in the United States and also have the highest rates of treatment for alcohol problems (Abbott, 1998; Beauvais, 1998; Grossman

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<sup>65</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>66</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>67</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>68</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>69</sup> [http://www.water.com/learn\\_about\\_water/swg1120\\_stu.asp](http://www.water.com/learn_about_water/swg1120_stu.asp)

<sup>70</sup> [http://www.avсандs.com/Health/Advice/benefitsdrink\\_avj\\_av.htm](http://www.avсандs.com/Health/Advice/benefitsdrink_avj_av.htm)



et al., 1997; James et al., 1993; Rhoades et al., 1987). Alcohol use was asked of both state and tribal BRFSS respondents.

Fifteen percent (14.8%) of all races respondents to the Idaho state BRFSS, 1998-2001, reported acute alcohol consumption in the past month. Acute drinking is defined as having five or more drinks on an occasion. Among men and women, acute drinking was reported by 21.9% and 8.0% respectively. Idaho state respondents between the ages of 18 and 29 years of age were more likely to report acute drinking (26.8%). A higher frequency of individuals reported acute drinking among those who were not married (22.7%), were high school educated or less (16.0%), and were employed (17.8%) (Table 14).

Five percent (4.9%) of all races respondents to the Oregon state BRFSS, 1998-2001, reported acute alcohol consumption in the past month. Acute drinking is defined as having five or more drinks on an occasion. Among men and women, acute drinking was reported by 7.2% and 2.7% respectively. Oregon state respondents between the ages of 18 and 29 years of age were more likely to report acute drinking (10.4%). A higher frequency of individuals reported acute drinking among those who were not married (6.6%), were high school educated or less (5.3%), and were employed (6.2%) (Table 14).

Five percent (4.8%) of all races respondents to the Washington state BRFSS, 1998-2001, reported acute alcohol consumption in the past month. Acute drinking is defined as having five or more drinks on an occasion. Among men and women, acute drinking was reported by 7.1% and 2.5% respectively. Washington state respondents between the ages of 18 and 29 years of age were more likely to report acute drinking (9.1%). A higher frequency of individuals reported acute drinking among those who were not married (6.9%), were high school educated or less (5.1%), and were employed (5.8%) (Table 14).

Among tribes that selected BRFSS participants using RPMS,<sup>71</sup> twenty-seven percent (27.3%) reported acute alcohol consumption in the past month. Acute drinking is defined as having five or more drinks on an occasion. Among men and women, acute drinking was reported by 37.1% and 21.4% respectively. Respondents between the ages of 18 and 29 years of age were more likely to report acute drinking (38.7%). A higher frequency of individuals reported acute drinking among those who were not married (33.7%), were high school educated or less (29.3%), and had a household income below federal poverty level (34.1%) (Table 14).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>72</sup> thirty-four percent (34.2%) reported acute alcohol consumption in the past month. Acute drinking is defined as having five or more drinks on an occasion. Among men and women, acute drinking was reported by 43.7% and 26.5% respectively. Respondents between the ages of 30 and 39 years of age were more likely to report acute drinking (45.2%). A higher frequency of individuals reported acute drinking among those who were not married (39.4%), were high school educated or less (35.6%), were employed (35.9%), and had a household income below federal poverty level (37.8%) (Table 14).

Tribes that selected BRFSS participants using tribal enrollment had the highest percentage of respondents report acute drinking in the past month. Enrollment tribes were 2.3 times more likely to report acute drinking compared to Idaho state respondents, and 7.0 times more likely to report acute drinking compared to Oregon or Washington state respondents. Tribes that selected BRFSS participants using RPMS were 1.8 times more likely to report acute drinking compared to Idaho

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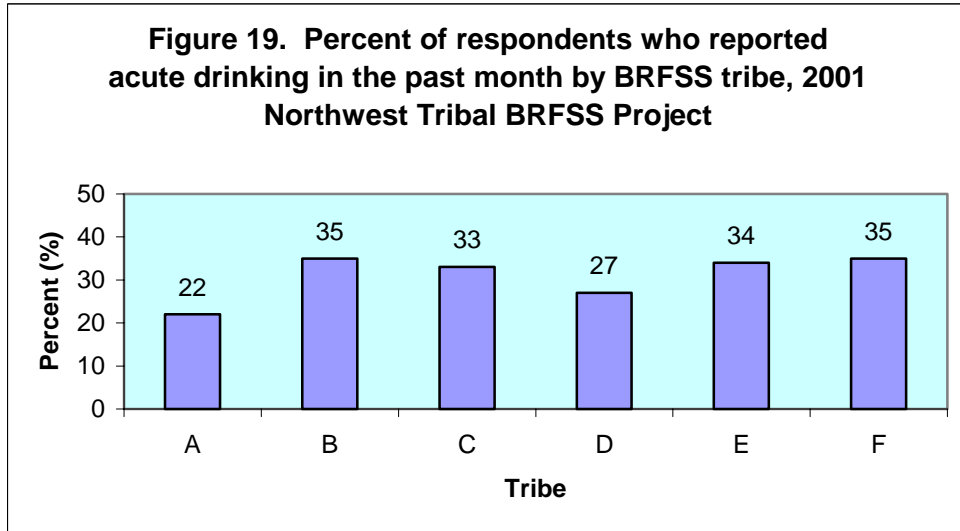
<sup>71</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>72</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

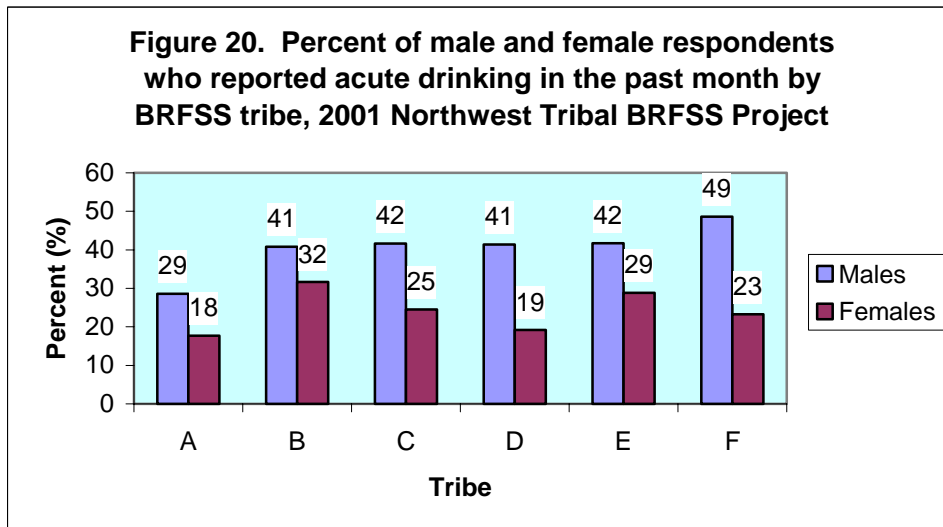


state respondents, and 5.6 times more likely to report acute drinking compared to Oregon or Washington state respondents.

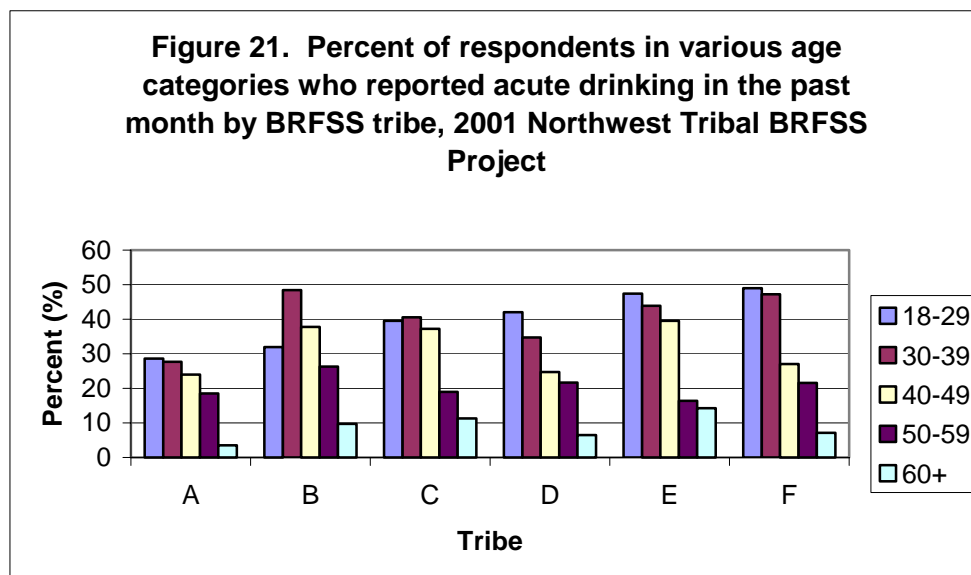
- Overall, 30.6% of respondents reported having five or more drinks containing alcohol on one occasion in the past month.
- Acute drinking ranged from 22% to 35% by tribe (Figure 19).



- Acute drinking among men ranged from 29% to 49% by tribe, and acute drinking among women ranged from 18% to 32% by tribe. (Figure 20).



- Reported acute drinking decreased with increasing age (Figure 21).
- Respondents age 18-39 years were more likely to report acute drinking compared to respondents in older age groups.



Chronic drinkers are defined as individuals who consume on average two or more drinks per day. Among Idaho state all races BRFSS respondents, 1998-2001, four percent (3.8%) reported having an average of two or more drinks per day when asked about typical alcohol consumption. Individuals reporting chronic drinking were more likely to be men (6.4%), between ages 18-34 years (5.2%), unmarried (6.3%), high school educated or less (4.3%), and employed (4.1%) (Table 15).

Among Oregon state all races BRFSS respondents, 1998-2001, one percent (1.2%) reported having an average of two or more drinks per day when asked about typical alcohol consumption. Individuals reporting chronic drinking were more likely to be men (1.9%), between ages 18-34 years (1.6%), and unmarried (1.9%) (Table 15).

Among Washington state all races BRFSS respondents, 1998-2001, less than one percent (0.6%) reported having an average of two or more drinks per day when asked about typical alcohol consumption. Individuals reporting chronic drinking were more likely to be men (2.0%), between ages 18-34 years (1.4%), and unmarried (1.7%) (Table 15).

Among tribes that selected BRFSS participants using RPMS,<sup>73</sup> four percent (4.2%) reported having an average of two or more drinks per day when asked about typical alcohol consumption. Individuals reporting chronic drinking were more likely to be men (9.4%), between ages 18-34 years (5.9%), unmarried (7.3%), high school educated or less (6.6%), unemployed (6.5%), and have a household income below federal poverty level (7.2%) (Table 15).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>74</sup> six percent (5.7%) reported having an average of two or more drinks per day when asked about typical alcohol consumption. Individuals reporting chronic drinking were more likely to be men (8.3%), between ages 35-49 years (7.6%), unmarried (7.5%), high school educated or less (6.7%), unemployed (7.0%), and have a household income below federal poverty level (6.3%) (Table 15).

<sup>73</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>74</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



Tribes that selected BRFSS participants using tribal enrollment had the highest percentage of respondents report chronic drinking. Enrollment tribes were 1.5 times more likely to report acute drinking compared to Idaho state respondents, 4.8 times more likely to report acute drinking compared to Oregon state respondents, and 9.5 times more likely to report acute drinking compared to Washington state respondents. Tribes that selected BRFSS participants using RPMS almost equally likely to report acute drinking as Idaho state respondents, 3.5 times more likely to report acute drinking compared to Oregon state respondents, and 7.0 times more likely to report acute drinking compared to Washington state respondents.

Four percent (4.2%; 6.8 for males and 2.6% for females) of RPMS respondents reported they usually drink enough alcohol to “be drunk” or to “not remember or black out”(Table 16). Individuals who reported drinking enough alcohol to “be drunk” or to “not remember or black out”were more likely to be men (6.8%), between ages 35-49 years (6.9%), unmarried (4.9%), high school educated or less (6.0%), unemployed (5.3%), and have a household income below federal poverty level (5.2%). Six percent (6.4%; 8.8% of males and 4.5% of females) of enrollment respondents reported they usually drink enough alcohol to “be drunk” or to “not remember or black out.” Individuals who reported drinking enough alcohol to “be drunk” or to “not remember or black out”were more likely to be men (8.8%), between ages 35-49 years (6.9%), unmarried (7.8%), high school educated or less (8.6%), unemployed (8.0%), and have a household income below federal poverty level (9.5%) (Table 16).

Tribes that selected BRFSS participants using tribal enrollment had the highest percentage of respondents who reported they usually drink enough alcohol to “be drunk” or to “not remember or black out.”

Two percent (1.9%; 2.9% of men, 1.0% of women) of respondents from the all races Idaho state BRFSS, 1998-2001, reported driving after having “perhaps too much (alcohol) to drink” during the previous month (Table 17). Less than one percent (0.6%; 1.0% of men, 0.4% of women) of respondents from the all races Oregon state BRFSS, 1998-2001, reported driving after having “perhaps too much (alcohol) to drink” during the previous month. Less than one percent (0.6%; 0.9% of men, 0.3% of women) of respondents from the all races Washington state BRFSS, 1998-2001, reported driving after having “perhaps too much (alcohol) to drink” during the previous month. Five percent (5.0%; 7.8% of men, 3.3% of women) of respondents from tribes that sampled using RPMS reported driving after having “perhaps too much (alcohol) to drink” during the previous month. Ten percent (9.8%; 11.1% of men, 8.8% of women) of respondents from tribes that sampled using tribal enrollment reported driving after having “perhaps too much (alcohol) to drink” during the previous month (Table 17).

Tribes that selected BRFSS participants using tribal enrollment had the highest percentage of respondents report drinking and driving. Enrollment tribes were 5.2 times more likely to report drinking and driving compared to Idaho state respondents, and 16.3 times more likely to report drinking compared to Oregon and Washington state respondents. Tribes that selected BRFSS participants using RPMS were 2.6 times more likely to report drinking and driving than Idaho state respondents, and 8.3 times more likely to report drinking and driving compared to Oregon and Washington state respondents.

Additional information about drinking behavior indicated that:

- 88.3% of current drinkers from tribes that sampled using RPMS reported that they started drinking before age 20.
- 86.2% of current drinkers from tribes that sampled using tribal enrollment reported that they started drinking before age 20.
- 4.2% of respondents from tribes that sampled using RPMS, 6.8% of men and 2.6% of women, reported drinking enough alcohol to “be drunk” or to “not remember or black out” (Table 16).

- 6.4% of respondents from tribes that sampled using tribal enrollment, 8.8% of men and 4.5% of women, reported drinking enough alcohol to “be drunk” or to “not remember or black out” (Table 16).

Individuals were asked if they had tried to hurt themselves while drinking or if they had tried to hurt others while drinking. Among tribes that sampled using RPMS,<sup>75</sup> fifteen individuals (1.4%) reported they tried to hurt themselves while drinking. Because of small numbers, no additional information on these individuals is provided. Thirty-nine individuals (3.5%) reported they tried to hurt others while they were drinking. The majority of individuals who reported they tried to hurt others while drinking were men less than 30 years of age.

Among tribes that sampled using tribal enrollment,<sup>76</sup> 16 individuals (1.6%) reported that they had tried to hurt themselves while drinking. Because of small numbers, no additional information on these individuals is provided. Thirty-four individuals (3.4%) reported they tried to hurt others while they were drinking. The majority of individuals who reported they tried to hurt others while drinking were men less than 30 years of age.

### *Diabetes*

There are two main types of diabetes. Type 1 diabetes typically begins in childhood or young adulthood. It occurs when the body does not make sufficient insulin. All individuals with Type 1 diabetes require insulin injections or insulin pumps in order to survive. Type 2 diabetes, which is now diagnosed in youths as well as adults, occurs when the body becomes resistant to its own insulin or it cannot use its insulin as well as it should. People with Type 2 diabetes may be able to control their blood sugar by monitoring their level of dietary intake and increasing their level of physical activity. Others may need prescription medications or insulin injections in order to maintain normal blood sugar levels. Diabetes can lead to serious health complications, including heart disease, blindness, kidney failure, and amputations.<sup>77,78</sup>

The most effective ways to prevent or delay the onset of diabetes are to consume a healthy, well balanced diet and to participate in regular physical activity. Treatment of diabetes involves careful monitoring and regulation of blood sugar levels, and frequently requires the use of prescription medications or insulin to improve the body’s utilization of insulin. The complications that arise from diabetes can be avoided or delayed by tight regulation of blood sugars, close self-monitoring, and regular visits to a health care provider.<sup>79</sup>

Among tribes that sampled using RPMS<sup>80</sup>, 60.9% of respondents reported being tested for diabetes in the past five years. Women were more likely than men to report being tested for diabetes in the past five years, 65.6% compared to 52.9%. The proportion of respondents who reported being tested for diabetes in the past five years was highest for respondents age 65-69 years, with 84.0% reporting being tested in the past five years. Respondents who had their diabetes checked in the past

<sup>75</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>76</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>77</sup> American Diabetes Association, [http://www.diabetes.org/main/application/commercewf?origin=\\*.jsp&event=link\(B\)](http://www.diabetes.org/main/application/commercewf?origin=*.jsp&event=link(B))

<sup>78</sup> National Institute of Diabetes & Digestive & Kidney Diseases, <http://www.niddk.nih.gov/>

<sup>79</sup> Center for Disease Control and Prevention. National Diabetes Fact Sheet: National estimates and general information on diabetes in the United States. Atlanta,GA :US Department of Health & Human Services, Center for Disease Control and Prevention 1998.

<sup>80</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).



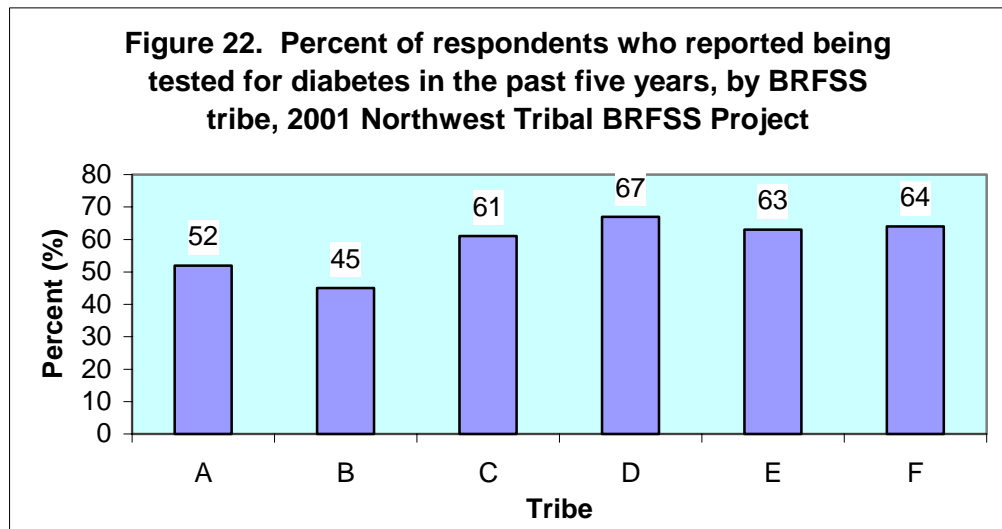
five years tended to be married (67.9%), postsecondary educated (69.5%), unemployed (63.2%) and have a household income > 200% of federal poverty level (64.1%) (Table 18).

Among tribes that sampled using tribal enrollment,<sup>81</sup> 57.0% of respondents reported being tested for diabetes in the past five years. Women were more likely than men to report having being tested for diabetes, 63.9% compared to 48.4%. The proportion of respondents who reported being tested for diabetes was highest for respondents aged 70 years or older, with 87.2% reporting being tested in the past five years. Respondents who were checked for diabetes in the past five years tended to be married (62.8%), postsecondary educated (63.9%), employed (58.8%), and have a household income > 200% of federal poverty level (65.3%) (Table 18).

Both tribal samples had similar proportions of respondents who reported being tested for diabetes in the past five years. The two tribal samples also illustrated similar demographic trends for those who reported recent diabetes testing.

Questions on diabetes testing were not asked of Idaho, Oregon, or Washington state BRFSS respondents, 1998-2001.

- The percentage of respondents who reported being tested for diabetes in the past five years ranged from 45% to 67% by tribe (Figure 22).



Among all race respondents to the Idaho state BRFSS, 1998-2001, 4.9% reported being diagnosed with diabetes. A similar proportion of men and women reported having diabetes, 4.8% and 4.9% respectively. The proportion of respondents who reported being diagnosed with diabetes tended to increase with age. For individuals aged 60 years or older, the frequency of diagnosed with diabetes was 11.8%. Respondents who reported being diagnosed with diabetes tended to be high school educated or less (5.8%) and unemployed (8.8%) (Table 19).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 5.4% reported ever being diagnosed with diabetes. A similar proportion of men and women reported having diabetes, 5.5% and 5.3% respectively. The proportion of respondents who reported ever being diagnosed with diabetes tended to increase with age. For individuals aged 60 years or older, 12.4% reported having a diabetes diagnosis. Respondents who reported being diagnosed with diabetes tended to be high school educated or less (6.5%) and unemployed (9.3%) (Table 19).

<sup>81</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

Among all race respondents to the Washington state BRFSS, 1998-2001, 5.3% reported ever being diagnosed with diabetes. A similar proportion of men and women reported having diabetes, 5.3% and 5.4% respectively. The proportion of respondents who reported ever being diagnosed with diabetes tended to increase with age with 13.3% of individuals aged 60 years or older reportedly having diabetes. Respondents who reported ever being diagnosed with diabetes tended to be high school educated or less (6.2%) and unemployed (9.3%) (Table 19).

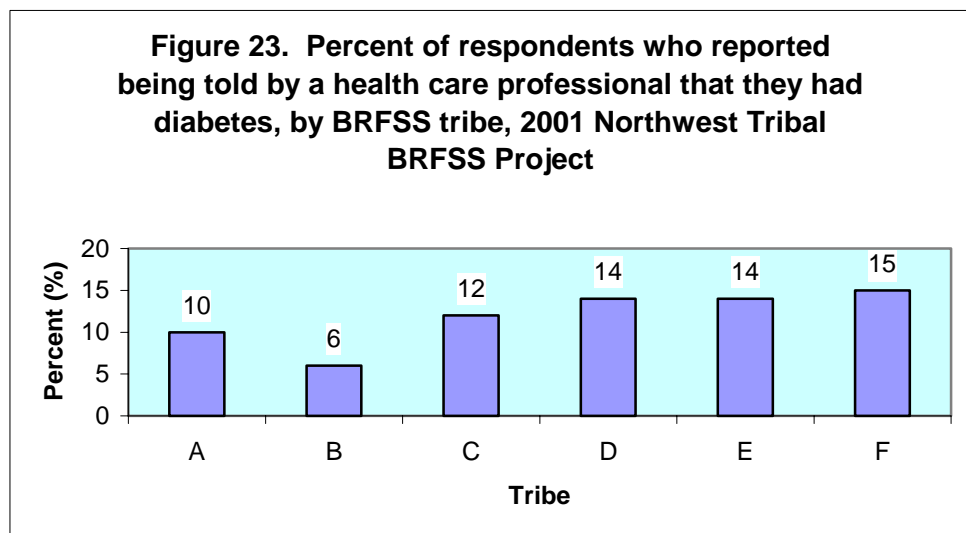
Among tribes that sampled using RPMS,<sup>82</sup> 12.6% of respondents reported ever being diagnosed with diabetes. A similar proportion of men and women reported having diabetes, 12.9% and 12.4% respectively. The proportion of respondents who reported being diagnosed with diabetes was highest for respondents age 60 years or older (31.5%). Respondents who reported being diagnosed with diabetes tended to be married (15.6%), postsecondary educated (14.0%), and unemployed (17.0%) (Table 19).

Among tribes that sampled using tribal enrollment,<sup>83</sup> 11.2% of respondents reported ever been diagnosed with diabetes. Women were more likely than men to report ever being diagnosed with diabetes, 12.5% compared to 9.5%. The proportion of respondents who reported having diabetes was highest for respondents age 60 years or older (31.5%). Respondents who reported being diagnosed with diabetes tended to be high school educated or less (11.7%) and unemployed (13.4%) (Table 19).

Respondents to the Idaho, Oregon, and Washington state BRFSS 1998-2001 reported similar frequencies of diabetes and similar demographic trends for those with diabetes. Respondents to the Tribal BRFSS were more than twice as likely to report having diabetes compared to the three state all-races populations. All five samples had a significant increase in reported diabetes with increasing age.

Over two-thirds (68.6%) of respondents selected using RPMS reported having a family member with diabetes. Seventy-one percent (70.9%) of respondents selected using tribal enrollment reported having a family member with diabetes.

- The percentage of respondents who reported having a diabetes diagnosis ranged from 6% to 15% by tribe (Figure 23).

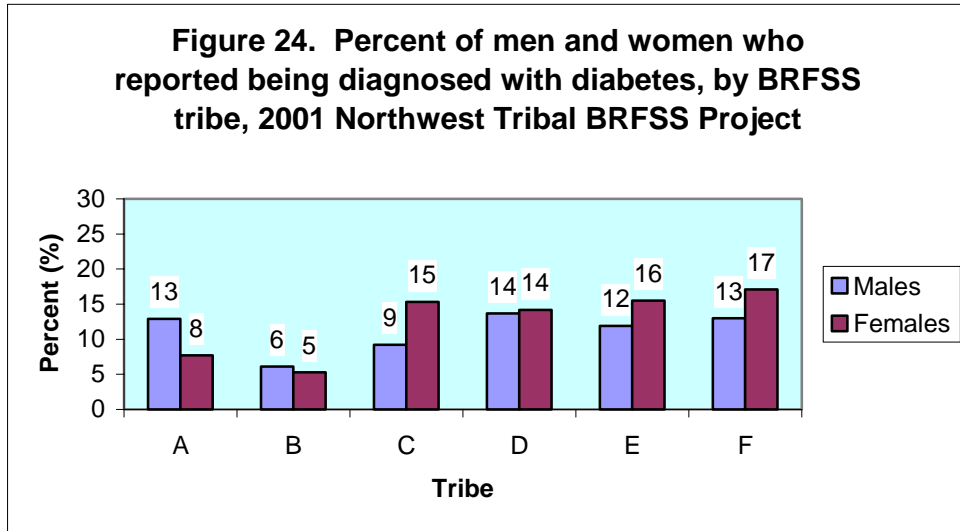


<sup>82</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

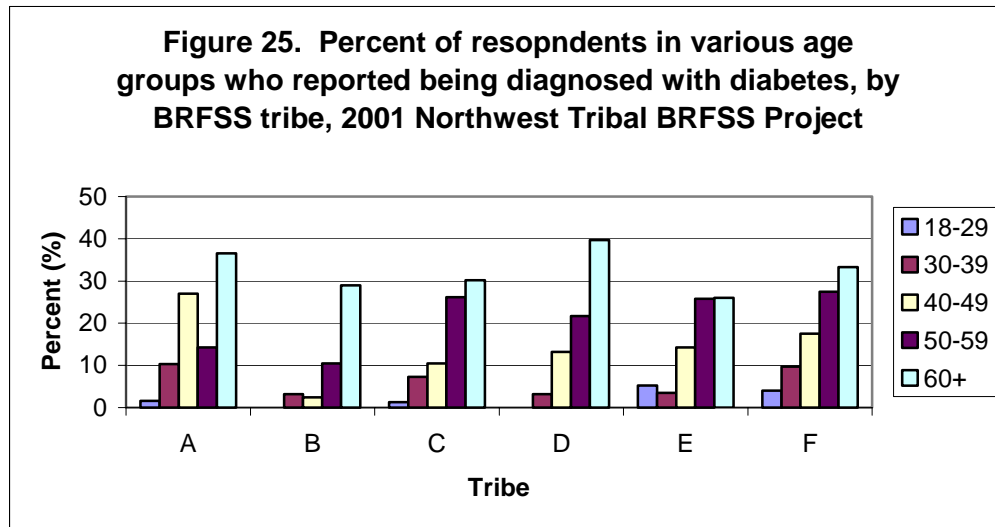
<sup>83</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



- The percentage of male respondents who reported having diabetes ranged from 6% to 14% by tribe; women ranged from 5% to 17% by tribe (Figure 24).



- For all tribes, the percentage of respondents who reported having diabetes increased with age (Figure 25).



*Body Weight*

Body Mass Index or BMI (kilograms/meters<sup>2</sup>), based on an individual’s height and weight, is an indicator of overweight, obesity, and underweight in adults. An individual is overweight if his/her BMI is at least 25 and no greater than 29.9. An individual is obese if their BMI is 30 or higher. If the BMI is less than 18.5, the individual is considered underweight.

*Obesity*

Among all race respondents to the Idaho state BRFSS, 1998-2001, 17.6% were obese based on body mass index (BMI<sup>84</sup>). Obesity was more common among men than women, 18.8% compared to 16.4%. Obesity was more common among respondents age 45-69 years, with upwards of 20.8% of

<sup>84</sup> BMI = weight in kilograms/height in meters squared. Calculated from reported height and weight. Obesity defined as BMI greater than or equal to 30



individuals in these age categories being obese. Respondents who were obese tended to be married (18.5%) and to be high school educated or less (19.1%) (Table 20).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 18.8% were obese based on body mass index (BMI). Obesity was more common among men than women, 19.2% compared to 18.4%. Obesity was more common among respondents age 45-64 years, with upwards of 23.6% of individuals in these age categories being obese. Respondents who were obese tended to be married (20.1%) and high school educated or less (19.1%) (Table 20).

Among all race respondents to the Washington state BRFSS, 1998-2001, 17.2% were obese based on body mass index (BMI). Obesity was more common among men than women, 19.0% compared to 15.5%. Obesity was more common among respondents age 45-69 years, with upwards of 20.7% of individuals in these age categories being obese. Respondents who were obese tended to be married (18.5%), high school educated or less (19.4%), and employed (17.7%) (Table 20).

Among tribes that sampled using RPMS,<sup>85</sup> 46.5% of respondents were obese based on body mass index (BMI). Obesity was more common among men than women, 47.7% compared to 45.8%. The proportion of respondents who were obese was highest for respondents age 50-64 years, with upwards of 51.8% of individuals in these age categories being obese. Respondents who were obese tended to be married (47.7%), high school educated or less (47.8%), and employed (49.4%) (Table 20).

Among tribes that sampled using tribal enrollment,<sup>86</sup> 47.4% of respondents were obese based on body mass index (BMI<sup>87</sup>). Obesity was more common among women than men, 48.4% compared to 46.2%. The proportion of respondents who were obese was highest for respondents age 50-54 years, with 62.8% of individuals in this age category being obese. Respondents who were obese tended to be married (53.2%), postsecondary educated (50.5%), employed (50.7%) and have a household income > 200% of federal poverty level (54.1%) (Table 20).

Idaho, Oregon, and Washington all-races BRFSS respondents, 1998-2001, reported similar frequencies and demographic trends in obesity. In comparison, Tribal BRFSS respondents were over 2.5 times more likely to be obese compared to the all-races respondents to the Idaho, Oregon, and Washington state BRFSS. The two tribal samples reported similar frequencies and demographic trends in obesity.

### *Overweight*

Among all race respondents to the Idaho state BRFSS, 1998-2001, 53.1% of respondents were overweight or obese based on body mass index (BMI). Men were more likely than women to be overweight or obese, 63.1% compared to 43.6%. Overweight or obesity was more common among respondents age 45-69 years, with upward of 60.8% of individuals in this age range being overweight or obese. Respondents who were overweight or obese tend to be married (56.9%) and employed (54.3%) (Table 21).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 53.5% of respondents were overweight or obese based on body mass index (BMI). Men were more likely than women to be overweight or obese based, 62.9% compared to 44.6%. Overweight or obesity was more common

<sup>85</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>86</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>87</sup> BMI = weight in kilograms/height in meters squared. Calculated from reported height and weight. Obesity defined as BMI greater than or equal to 30



among respondents age 50-69 years, with upward of 62.2% of individuals in this age range being overweight or obese. Respondents who were overweight or obese tended to be married (56.5%), high school educated or less (54.2%), and unemployed (54.0%) (Table 21).

Among all race respondents to the Washington state BRFSS, 1998-2001, 52.3% of respondents were overweight or obese based on body mass index (BMI). Men were more likely than women to be overweight, 63.3% compared to 41.7%. Overweight or obesity was more common among respondents age 55-69 years, with upward of 61.9% of individuals in this age range being overweight or obese. Respondents who were overweight or obese tended to be married (56.3%), high school educated or less (55.9%), and employed (53.7%) (Table 21).

Among tribes that sampled using RPMS,<sup>88</sup> 83.6% of respondents were overweight or obese based on body mass index (BMI). Men were more likely than women to be overweight or obese based on body mass index, 88.1% compared to 80.8%. Overweight or obesity was more common among respondents age 50-59 years, with upward of 90.4% of individuals in this age range being overweight or obese. Respondents who were overweight or obese tended to be unmarried (82.1%), employed (85.5%), and have a household income > 200% of federal poverty level (87.3%) (Table 21).

Among tribes that sampled using tribal enrollment,<sup>89</sup> 80.6% of respondents were overweight or obese based on body mass index (BMI<sup>90</sup>). Men were more likely than women to be overweight or obese, 81.8% compared to 79.0%. Overweight or obesity was more common among respondents ages 30-39 years and 45-54 years, with upward of 87.1% of individuals in these age categories being overweight or obese. Respondents who were overweight or obese tended to be married (88.9%), postsecondary educated (84.8%), employed (83.1%), and have a household income 151%-200% of federal poverty level (85.1%) (Table 21).

All races respondents to the Idaho, Oregon, and Washington state BRFSS 1998-2001, reported similar frequencies and demographic trends of overweight or obesity. In comparison, Tribal BRFSS respondents were 1.5 times more likely to be overweight or obese compared to the state all-races populations. Among all five samples, overweight or obesity was most common among middle-aged respondents and respondents who were employed.

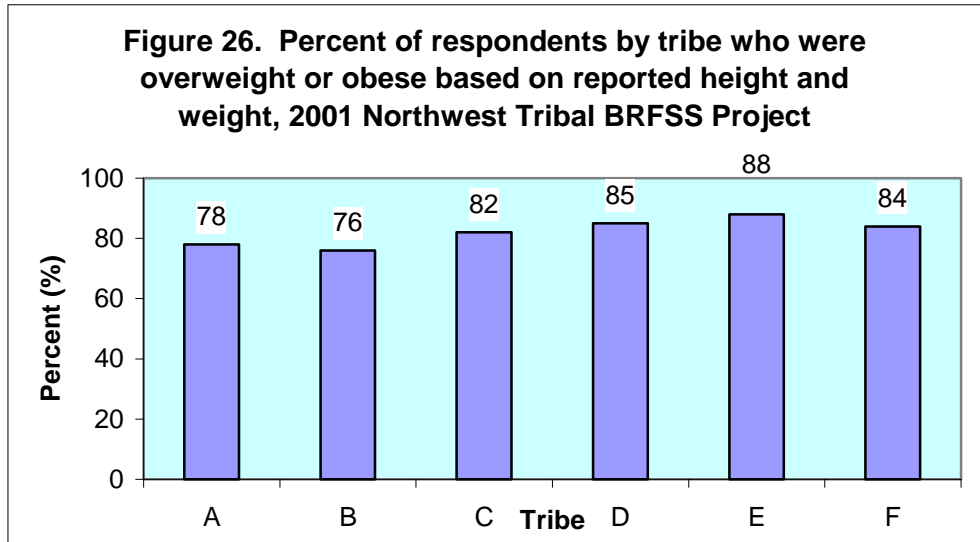
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<sup>88</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

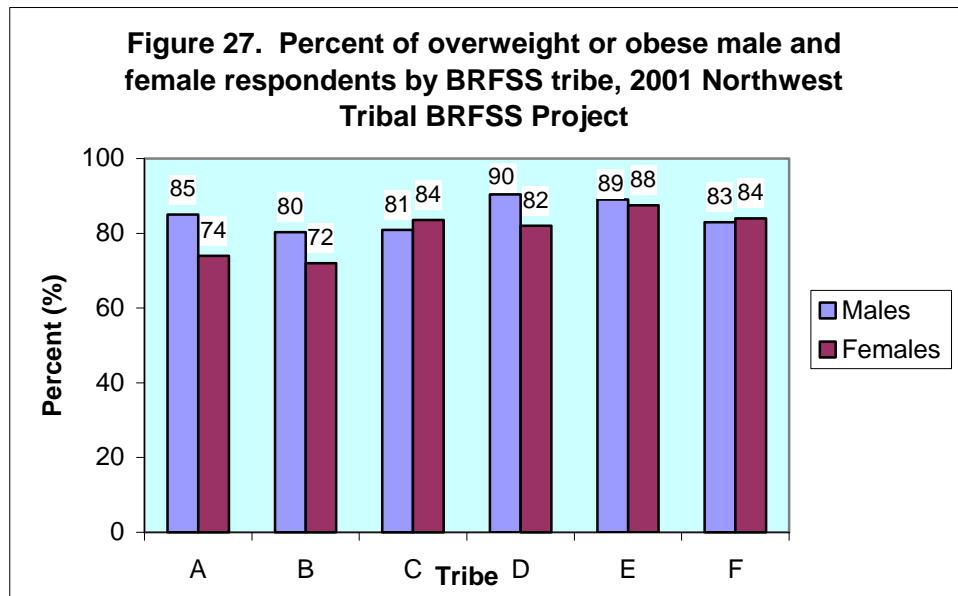
<sup>89</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>90</sup> BMI = weight in kilograms/height in meters squared. Calculated from reported height and weight. Overweight defined as BMI greater than or equal to 25

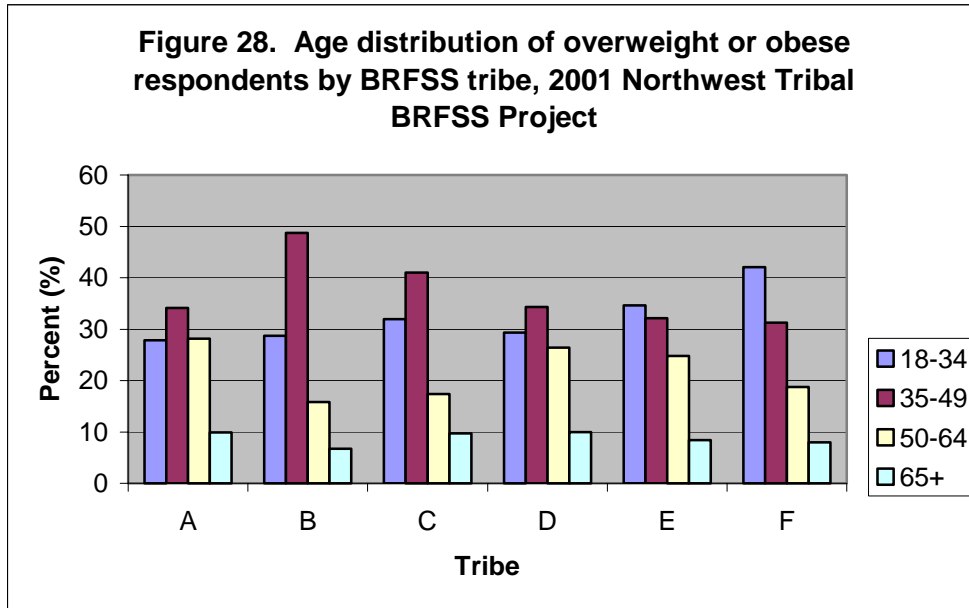
- Based on reported weight and height, the majority of individuals in our study were overweight or obese (Figure 26).
- Overweight or obesity ranged from 76% to 88% by tribe.



- A similar proportion of male and female respondents were either overweight or obese (Figure 27).
- Overweight or obesity ranged from 80% to 90% for men, and for women, ranged from 72% to 88% by tribe.



- Most overweight or obese respondents were between ages 18-49 years old (Figure 28).
- Across tribes, between 7% and 10% of overweight or obese respondents were aged 65 years or older.



*Physical Activity*

The CDC and the American College of Sports Medicine recommend that adults accumulate at least 30 minutes of moderate physical activity on at least five days per week or at least 20 minutes of vigorous activity on at least three days per week.<sup>91,92</sup>

Among tribes that sampled using RPMS,<sup>93</sup> 44.2% of respondents reported a physical activity level that meets recommendations. Men were more likely than women to report a physical activity level that meets recommendations, 52.6% compared to 39.3%. The proportion of respondents who reported a physical activity level that meets recommendations was highest for respondents age 18-29 years (52.7%), and decreased with increasing age. Respondents who had a physical activity level that meets recommendations tended to be unmarried (45.9%), postsecondary educated (46.2%), unemployed (46.2%), and have a household income below federal poverty level (48.5%) (Table 22a).

Among tribes that sampled using tribal enrollment,<sup>94</sup> 35.3% of respondents reported a physical activity level that meets recommendations. Men were more likely than women to report having a physical activity level that meets recommendations, 40.4% compared to 31.1%. The proportion of respondents who reported a physical activity level that meets recommendations was highest for respondents age 18-29 years (43.8%) and tended to decrease with increasing age. Respondents who met physical activity recommendations tended to be unmarried (38.0%), unemployed (36.0%), and have a household income > 200% of federal poverty level (37.5%) (Table 22a).

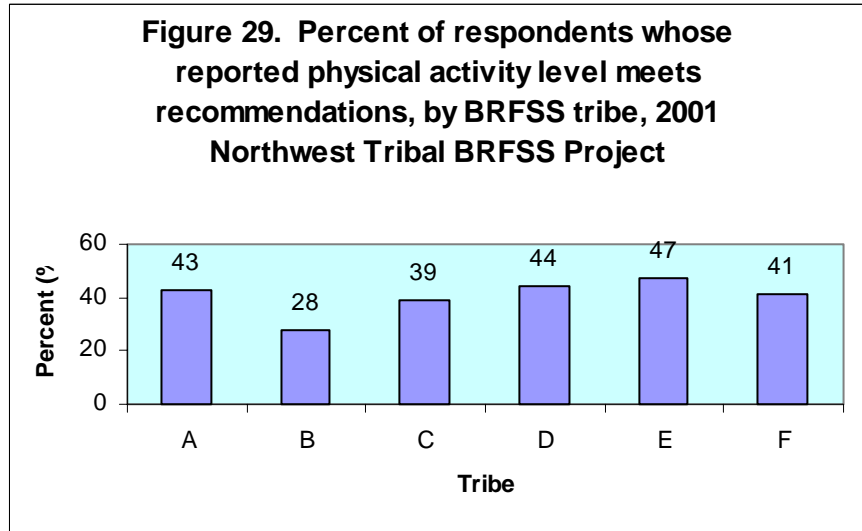
<sup>91</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/nccdphp/sgr/contents.htm>

<sup>92</sup> American College of Sports Medicine, <http://www.acsm.org/index.asp>

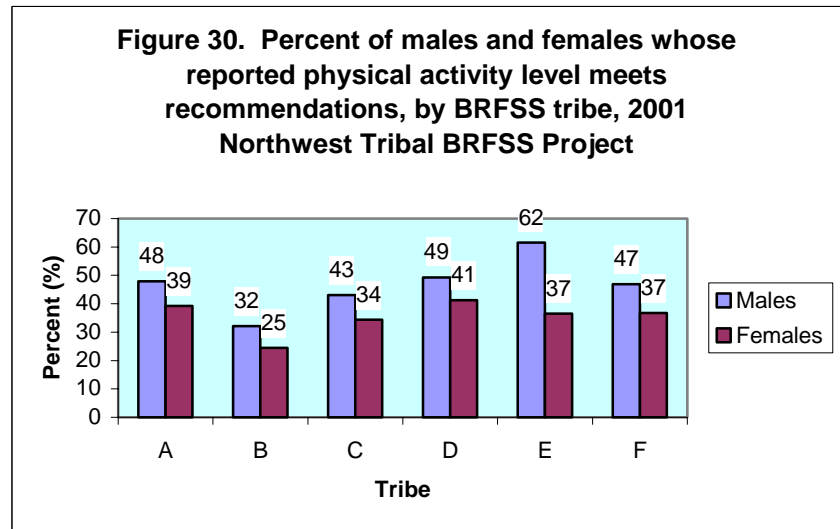
<sup>93</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>94</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

- The proportion of individuals meeting physical activity recommendations<sup>95</sup> ranged from 28% to 47% by tribe. (Figure 29). Less than half of all respondents reported a physical activity level that meets national recommendations.



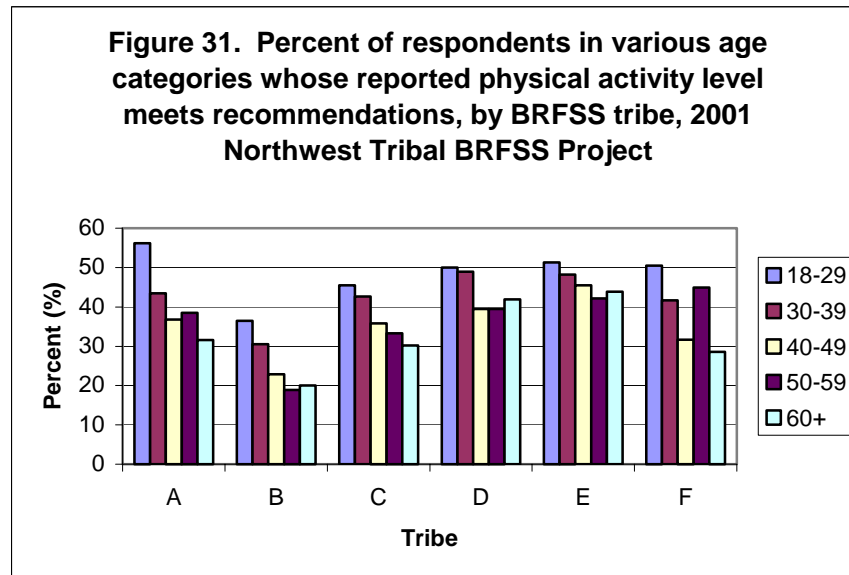
- Across all tribes, a higher proportion of men reported a physical activity level that meets recommendations compared to women (Figure 30). The proportion of individuals meeting physical activity recommendations ranged from 32% and 62% for men and between 25% and 41% for women by tribe.



<sup>95</sup> Physical activity level that meets recommendations is defined as at least 30 minutes of moderate physical activity on at least 5 days per week or at least 20 minutes of vigorous activity on at least three days per week.



- The proportion of individuals meeting physical activity recommendations<sup>96</sup> decreased with increasing age. (Figure 31). For every tribe, respondents age 18-29 years old reported physical activity levels that meet recommendations more frequently than respondents of other ages.



Among tribes that sampled using RPMS,<sup>97</sup> 26.5% of respondents reported getting some physical activity, but failed to meet recommendations. Women were more likely than men to report getting some physical activity, but not enough to meet recommendations, 27.2% compared to 25.2%. Respondents who reported some physical activity, but not enough to meet recommendations tended to be married (29.4%), postsecondary educated (29.2%), employed (30.0%), and have a household income > 200% of federal poverty level (31.7%) (Table 22b).

Among tribes that sampled using tribal enrollment,<sup>98</sup> 30.6% of respondents reported getting some physical activity, but failed to meet recommendations. Men and women were equally likely to report getting some physical activity, but not enough to meet recommendations. The proportion of respondents who reported getting some physical activity, but did not meet recommendations was highest among those age 18-29 years old (34.7%). Respondents who reported some physical activity, but failed to meet recommendations tended to be unmarried (31.1%), postsecondary educated (33.6%), employed (32.4%), and have a household income 151%-200% of federal poverty level (37.1%) (Table 22b).

Among tribes that sampled using RPMS, 54.6% of respondents reported nonactivity or irregular activity<sup>99</sup>. Women were more likely than men to report nonactivity or irregular activity, 59.3% compared to 46.7%. The proportion of respondents who reported nonactivity or irregular activity was highest for respondents age 60+ years (60.6%). Respondents who reported nonactivity or irregular activity tended to be married (57.8%), high school educated or less (56.5%), and employed (56.1%) (Table 23).

Among tribes that sampled using tribal enrollment, 61.4% of respondents reported nonactivity or irregular activity. Women were more likely than men to report nonactivity or irregular activity,

<sup>96</sup> Physical activity level that meets recommendations is defined as at least 30 minutes of moderate physical activity on at least 5 days per week or at least 20 minutes of vigorous activity on at least three days per week.

<sup>97</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>98</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>99</sup> Respondents who reported doing any physical activity or pair of activities for less than 20 minutes or less than three times per week.

66.4% compared to 55.1%. The proportion of respondents who reported nonactivity or irregular activity was highest for respondents age 60+ years (68.3%). Respondents who reported nonactivity or irregular activity tended to be married (65.8%) and have a household income 151%-200% of federal poverty level (66.9%) (Table 23).

Among tribes that sampled using RPMS,<sup>100</sup> 33.2% of respondents reported being advised by a health care professional to increase physical activity. Women were more likely than men to be advised by a health care professional to increase physical activity, 36.4% compared to 27.9%. The proportion of respondents who reported being advised by a health care professional to increase physical activity was highest for respondents age 50-59 years (43.9%). Respondents who had been advised by a health care professional to increase physical activity tended to be married (35.2%) and have a household income 101%-150% of federal poverty level (36.6%) (Table 24).

Among tribes that sampled using tribal enrollment,<sup>101</sup> 29.3% of respondents reported being advised by a health care professional to increase physical activity. Women were more likely than men to report being advised by a health care professional to increase physical activity, 33.8% compared to 23.8%. The proportion of respondents who reported being advised by a health care professional to increase physical activity was highest for respondents age 50 years and older (>39.5%). Respondents who had been advised by a health care professional to increase physical activity tended to be married (33.1%), postsecondary educated (31.7%), employed (31.0%), and have a household income > 200% of federal poverty level (36.7%) (Table 24).

A higher proportion of Tribal BRFSS respondents that were selected using RPMS reported at least 30 minutes of moderate physical activity on at least five days per week or at least 20 minutes of vigorous activity on at least three days per week compared to the tribes that sampled using enrollment. RPMS tribes also had a greater proportion of respondents report being advised by a health care professional to increase their physical activity. For both samples, men were more likely to report participating in physical activity compared to women. Younger respondents were more likely to be physically active, and physical activity tended to decrease with increasing age for both tribal samples.

Questions on reported physical activity for all race Idaho, Oregon, and Washington state BRFSS respondents, 1998-2001, were not comparable to the Tribal BRFSS.

### *Cancer*

Cancer is a group of diseases in which cells lose their normal growth control. The balance between new cell growth and old cell death is disrupted. A mass of tissue called a tumor or neoplasm develops as a result of the increase in the number of dividing cells.

Tumors are divided into two classes, benign or malignant. Benign tumors do not spread. Malignant tumors can spread in the body either by direct invasion or metastasis. Invasion refers to the ability of cancer cells to spread into neighboring tissue. Metastasis is the ability of cancer cells to penetrate the blood vessels and circulate in the blood stream in order to invade tissues in other parts of the body. There are many different sites where cancer occurs. Some of the most common cancer sites include lung, breast, prostate, colon, and cervix.<sup>102,103,104</sup>

<sup>100</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>101</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

<sup>102</sup> National Cancer Institute, <http://www.newscenter.cancer.gov/sciencebehind/cancer/cancer01.htm>

<sup>103</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/health/cancer.htm>

<sup>104</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>



Cancer can develop as a result of many different factors. One of the best ways to prevent cancer is to avoid carcinogens (substances that are known to cause cancer). Common carcinogens include tobacco, ultraviolet light, and environmental and occupational carcinogens. In addition, maintaining a physically active lifestyle and good nutrition can reduce the risk of developing some cancers. The most common types of cancer treatment include surgery, radiation therapy, and chemotherapy. The treatment options vary greatly depending on the cancer site.<sup>105</sup>

### *Lung Cancer*

The primary risk factor for the development of lung cancer is cigarette smoking.<sup>106,107</sup> Exposure to arsenic, occupational or environmental exposure to radon and asbestos, radiation exposure, and diets low in fruits and vegetables may also increase the risk for the development of lung cancer. Currently there is no screening test available that is proven to reduce mortality from lung cancer.<sup>108,109,110,111</sup>

### *Tobacco Use*

Among all race respondents to the Idaho state BRFSS, 1998-2001, 45.5% reported smoking at least 100 cigarettes in their lifetime. Men were more likely than women to report smoking at least 100 cigarettes in their lifetime, 51.4% compared to 39.9%. A greater proportion of those ages 50-69 years reported smoking at least 100 cigarettes in their lifetime (>51.8%). Respondents who had reported smoking at least 100 cigarettes in their lifetime tended to be unmarried (50.8%), high school educated or less (54.8%), and unemployed (47.9%) (Table 25).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 49.0% reported smoking at least 100 cigarettes in their lifetime. Men were more likely than women to report smoking at least 100 cigarettes in their lifetime, 53.9% compared to 44.4%. The proportion of respondents who smoked at least 100 cigarettes in their lifetime was highest for respondents age 60-64 years old (63.3%). Respondents who reported smoking at least 100 cigarettes in their lifetime tended to be unmarried (52.1%), high school educated or less (54.7%), and unemployed (51.7%) (Table 25).

Among all race respondents to the Washington state BRFSS, 1998-2001, 49.3% reported smoking at least 100 cigarettes in their lifetime. Men were more likely than women to report reported smoking at least 100 cigarettes in their lifetime, 54.3% compared to 44.5%. The proportion of respondents who reported smoking at least 100 cigarettes in their lifetime was highest for respondents age 60-64 years old (62.2%). Respondents who reported smoking at least 100 cigarettes in their lifetime tended to be unmarried (52.8%), high school educated or less (59.9%), and unemployed (52.3%) (Table 25).

Among tribes that sampled using RPMS,<sup>112</sup> 66.4% of respondents reported smoking at least 100 cigarettes in their lifetime. Men were more likely than women to report smoking at least 100 cigarettes in their lifetime, 68.1% compared to 65.3%. The proportion of respondents who reported

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<sup>105</sup> American Cancer Society, [http://www.cancer.org/eprise/main/docroot/eto/eto\\_1](http://www.cancer.org/eprise/main/docroot/eto/eto_1)  
[http://www.cancer.org/eprise/main/docroot/ped/ped\\_0](http://www.cancer.org/eprise/main/docroot/ped/ped_0)

<sup>106</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/health/tobacco.htm>

<sup>107</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>

<sup>108</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>

<sup>109</sup> American Lung Association, <http://www.lungusa.org/>

<sup>110</sup> National Heart, Lung, and Blood Institute, <http://www.nhlbi.nih.gov/>

<sup>111</sup> National Cancer Institute, <http://www.cancer.gov/>

<sup>112</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).



smoking at least 100 cigarettes in their lifetime was highest for respondents age 60-64 years (80.7%). Respondents who reported smoking at least 100 cigarettes in their lifetime tended to be unmarried (68.7%), high school educated or less (70.5%), unemployed (72.3%), and have a household income below federal poverty level (72.3%) (Table 25).

Among tribes that sampled using tribal enrollment,<sup>113</sup> 69.0% of respondents reported smoking at least 100 cigarettes in their lifetime. Men were more likely than women to report smoking at least 100 cigarettes in their lifetime, 72.6% compared to 66.1%. The proportion of respondents who reported smoking at least 100 cigarettes in their lifetime was highest for respondents age 50-54 years, 90.0%. Respondents who had reported smoking at least 100 cigarettes in their lifetime tended to be married (69.8%), high school educated or less (71.3%), unemployed (72.8%), and have a household income < 100% of federal poverty level (76.3%) (Table 25).

Respondents to the Idaho state BRFSS, 1998-2001, were the least likely to report smoking at least 100 cigarettes in their lifetime, while respondents to the Tribal BRFSS that were selected from tribal enrollment lists were the most likely to report smoking at least 100 cigarettes in their lifetime. Tribal BRFSS respondents were at least 1.35 times more likely to report smoking 100 cigarettes in their lifetime compared to the three state all race BRFSS respondents. For all five samples, men were more likely to have smoked than women. Those who reported smoking at least 100 cigarettes in their lifetime tended to be unmarried, high school educated or less, and unemployed, for all five samples.

Among all race respondents to the Idaho state BRFSS, 1998-2001, 20.9% reported current smoking. Men were more likely than women to report current smoking, 22.0% compared to 19.9%. The proportion of respondents who reported current smoking was highest for those age 18-29 years old (26.4%). Respondents who reported current smoking tended to be unmarried (29.9%), high school educated or less (28.4%), and employed (22.4%) (Table 26).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 20.9% reported current smoking. Men were more likely than women to report current smoking, 22.0% compared to 19.9%. The proportion of respondents who reported current smoking was highest for those age 18-29 years old (28.4%). Respondents who reported current smoking tended to be unmarried (28.4%), high school educated or less (27.7%), and employed (23.0%) (Table 26).

Among all race respondents to the Washington state BRFSS, 1998-2001, 21.7% reported current smoking. Men were more likely than women to report current smoking, 23.2% compared to 20.4%. The proportion of respondents who reported current smoking was highest for those age 18-29 years old (29.7%). Respondents who reported current smoking tended to be unmarried (30.4%), high school educated or less (31.4%), and employed (23.0%) (Table 26).

Among tribes that sampled using RPMS,<sup>114</sup> 32.6% of respondents reported current smoking. Women were more likely than men to report current smoking, 33.1% compared to 31.9%. The proportion of respondents who reported current smoking was highest for respondents aged 18-29 years old (36.3%). Respondents who reported current smoking tended to be unmarried (37.4%), high school educated or less (36.2%), unemployed (36.7%), and have a household income <100% below federal poverty level (41.1%) (Table 26).

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<sup>113</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

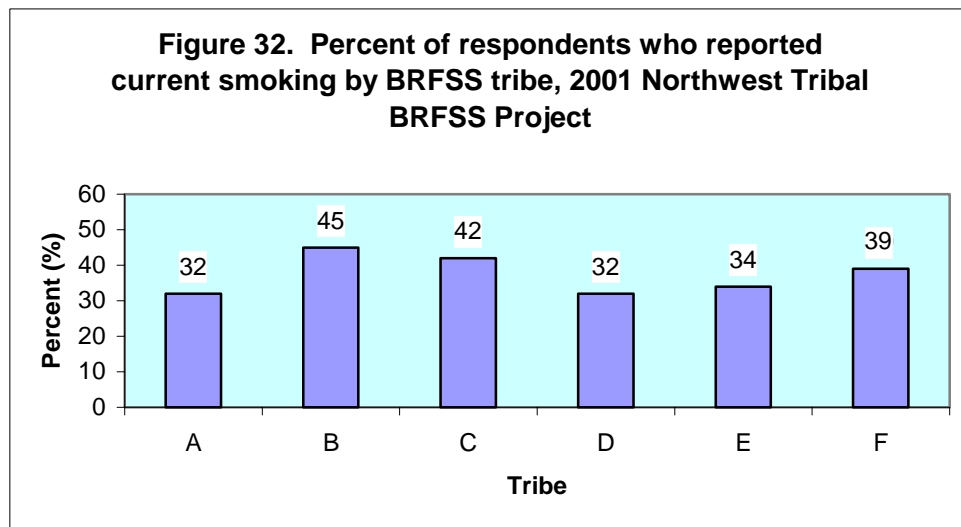
<sup>114</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).



Among tribes that sampled using tribal enrollment,<sup>115</sup> 41.8% of respondents reported current smoking. The proportion of respondents who reported current smoking was highest for respondents aged 40-49 years old, (47.1%). Respondents who reported current smoking tended to be unmarried (45.5%), high school educated or less (45.6%), unemployed (44.9%), and have a household income <100% of federal poverty level (51.9%) (Table 26).

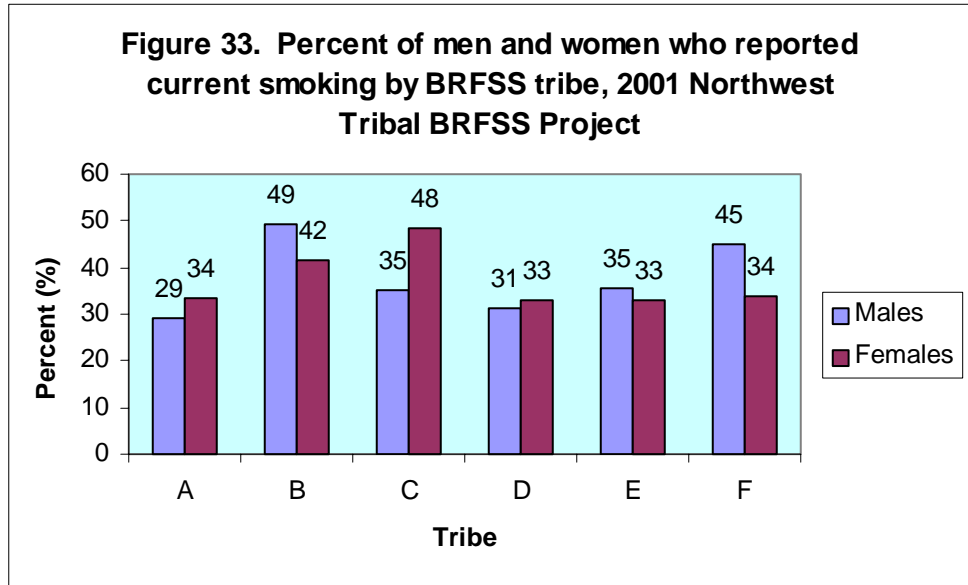
Respondents to the Idaho, Oregon, and Washington state BRFSS, 1998-2001, all reported similar frequencies of current smoking. Respondents to the Tribal BRFSS that were selected from RPMS were 1.5 times more likely to report current smoking compared to the general state populations. Respondents to the Tribal BRFSS that were selected from tribal enrollment lists had the highest frequency of current smoking, and were 1.9 times more likely to report current smoking compared to the state all races populations. Current smokers from all five samples tended to be unmarried and to have a high school education or less. While current smokers from the state populations tended to be employed, current smokers from the two tribal samples tended to be unemployed.

- The percentage of respondents who reported current smoking ranged from 32% to 45% by tribe (Figure 32).

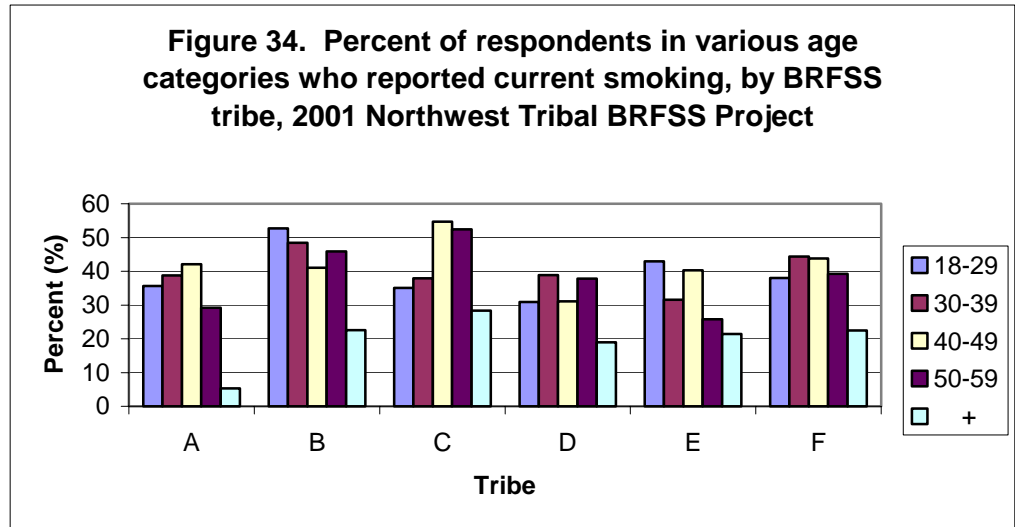


<sup>115</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

- Between 31% and 49% of men reported current smoking, and between 33% and 48% of women reported current smoking, depending on tribe. (Figure 33).



- Respondents aged 60 years old and older had the lowest frequency of current smoking across all tribes (Figure 34).



Individuals who reported current smoking or tobacco chewing were examined to provide a more comprehensive overview of risk for heart disease and cancer. Among tribes that sampled using RPMS,<sup>116</sup> 36.5% of respondents reported current smoking or tobacco chewing. Men were more likely than women to report current smoking or tobacco chewing, 41.5% compared to 33.6%. Respondents who reported current smoking or tobacco chewing tended to be unmarried (40.9%), high school educated or less (40.6%), unemployed (39.2%), and have a household income <100% of federal poverty level (43.8%) (Table 27).

Among tribes that sampled using tribal enrollment,<sup>117</sup> 46.4% of respondents reported current smoking or tobacco chewing. Men were more likely than women to report current smoking or tobacco chewing, 51.9% compared to 42.0%. The proportion of respondents who reported current

<sup>116</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>117</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



smoking or tobacco chewing was highest for respondents age 30-39 years old (52.3%). Respondents who had reported current smoking or tobacco chewing tended to be unmarried (49.9%), high school educated or less (50.2%), and have a household income <100% of federal poverty level (53.9%) (Table 27).

Respondents to the Tribal BRFSS that were selected from tribal enrollment lists were 1.3 times more likely to report current smoking or tobacco chewing compared to Tribal BRFSS respondents selected using RPMS. Both tribal samples exhibited similar demographic trends for current smoking or tobacco chewing.

A question on tobacco chewing was not asked on the Idaho, Oregon, or Washington state BRFSS, 1998-2001.

Current smokers and chewers were asked if they had ever been advised by a health care professional to quit smoking or chewing tobacco. Among tribes that sampled using RPMS, 45.7% of current smokers or tobacco users reported being advised by a health care professional to quit smoking or chewing tobacco. Women were more likely than men to report being advised by a health care professional to quit smoking or chewing tobacco, 50.2% compared to 39.3%. The proportion of respondents who reported being advised by a health care professional to quit smoking or chewing tobacco was highest for respondents age 60 years or older (57.7%). Respondents who reported being advised by a health care professional to quit smoking or chewing tobacco tended to be married (50.9%), high school educated or less (46.8%), unemployed (50.3%), and have a household income 151%-200% of federal poverty level (56.9%) (Table 28).

Among tribes that sampled using tribal enrollment,<sup>118</sup> 48.7% of current smokers or tobacco users reported being advised by a health care professional to quit smoking or chewing tobacco. Women were more likely than men to report being advised by a health care professional to quit smoking or chewing tobacco, 51.9% compared to 45.4%. The proportion of respondents who reported being advised by a health care professional to quit smoking or chewing tobacco was highest for respondents age 40-49 years (51.7%). Respondents who reported being advised by a health care professional to quit smoking or chewing tobacco tended to be married (55.3%), postsecondary educated (49.7%), unemployed (49.4%), and have a household income 101%-150% of federal poverty level (60.5%) (Table 28).

Respondents to the Tribal BRFSS that were selected from tribal enrollment lists and from RPMS reported similar frequencies of being advised by a health care professional to quit smoking or chewing tobacco. Women were more often counseled than men, as were respondents who were married.

Questions on whether current tobacco users have ever been advised by a health care professional to quit smoking or chewing tobacco were not asked of Idaho, Oregon, or Washington state BRFSS respondents, 1998-2001.

### *Colorectal Cancer*

Major modifiable risk factors for colorectal cancer include diet (red meat consumption), physical inactivity, alcohol consumption, obesity, and smoking. Colorectal cancer is often linked to a family history of colon cancer or adenomatous polyps, or to a personal history of colorectal cancer.

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<sup>118</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

Screening tests for colorectal cancer include sigmoidoscopy, colonoscopy, and a blood stool test.<sup>119,120</sup>

A flexible sigmoidoscope is a flexible speculum (or tube) with a camera on the end, which is used to look inside the large intestine. The procedure is called a sigmoidoscopy. The sigmoidoscope is useful for finding early cancers and finding polyps that could later become cancers so that these can be removed. Most physicians advise patients to have some type of screening test for colon cancer after age 50 years. Flexible sigmoidoscopy once every five years is one way to have this screening done.<sup>121,122</sup>

Among all race respondents to the Idaho state BRFSS, 1998-2001, 30.8% of respondents age 50 years and older reported having a sigmoidoscopy in the past five years. Of respondents 50 years and older, men were more likely than women to report having a sigmoidoscopy in the past five years, 32.4% compared to 29.5%. Respondents who reported having a sigmoidoscopy in the past five years tended to be married (31.5%), postsecondary educated (32.5%), and unemployed (36.7%) (Table 29).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 35.8% of respondents age 50 years and older reported having a sigmoidoscopy in the past five years. Men and women were equally likely to report having a sigmoidoscopy in the past five years, 36.0% and 35.7% respectively. The proportion of respondents who reported having a sigmoidoscopy in the past five years was higher among those 60-69 years old (43.6%). Respondents who reported having a sigmoidoscopy in the past five years tended to be married (37.4%), postsecondary educated (37.6%), and unemployed (40.8%) (Table 29).

Among all race respondents to the Washington state BRFSS, 1998-2001, 37.5% of respondents age 50 years and older reported having a sigmoidoscopy in the past five years. Men were more likely than women to report having a sigmoidoscopy in the past five years, 40.0% compared to 35.4%. The proportion of respondents who reported having a sigmoidoscopy in the past five years was higher for those 70 years old or older (43.2%). Respondents who reported having a sigmoidoscopy in the past five years tended to be married (39.2%), postsecondary educated (38.1%), and unemployed (42.1%) (Table 29).

Among tribes that sampled using RPMS,<sup>123</sup> 30.7% of respondents age 50 years and older reported having a sigmoidoscopy in the past five years. Women were more likely than men to report having a sigmoidoscopy in the past five years, 32.9% compared to 26.6%. The proportion of respondents who reported having a sigmoidoscopy in the past five years was highest for respondents 70 years of age or older (47.1%). Respondents who reported having a sigmoidoscopy in the last five years tended to be unmarried (33.6%), postsecondary educated (33.3%), unemployed (34.2%), and have a household income 101%-150% of the federal poverty level (34.4%) (Table 29).

Among tribes that sampled using tribal enrollment,<sup>124</sup> 27.5% of respondents age 50 years and older reported having a sigmoidoscopy in the past five years. Women were more likely than men to report having a sigmoidoscopy in the past five years, 29.3% compared to 25.2%. The proportion of respondents who reported having a sigmoidoscopy in the past five years was highest for respondents

<sup>119</sup> American Cancer Society, [http://www.cancer.org/docroot/CRI/CRI\\_2x.asp?sitearea=LRN&dt=10](http://www.cancer.org/docroot/CRI/CRI_2x.asp?sitearea=LRN&dt=10)

<sup>120</sup> National Cancer Institute, <http://www.cancer.gov/>

<sup>121</sup> Harvard Medical School, <http://www.health.harvard.edu/fhg/diagnostics/sigmoid/sigmoidWhat.shtml>

<sup>122</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/cancer/colorctl/colorect.htm#screening>

<sup>123</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

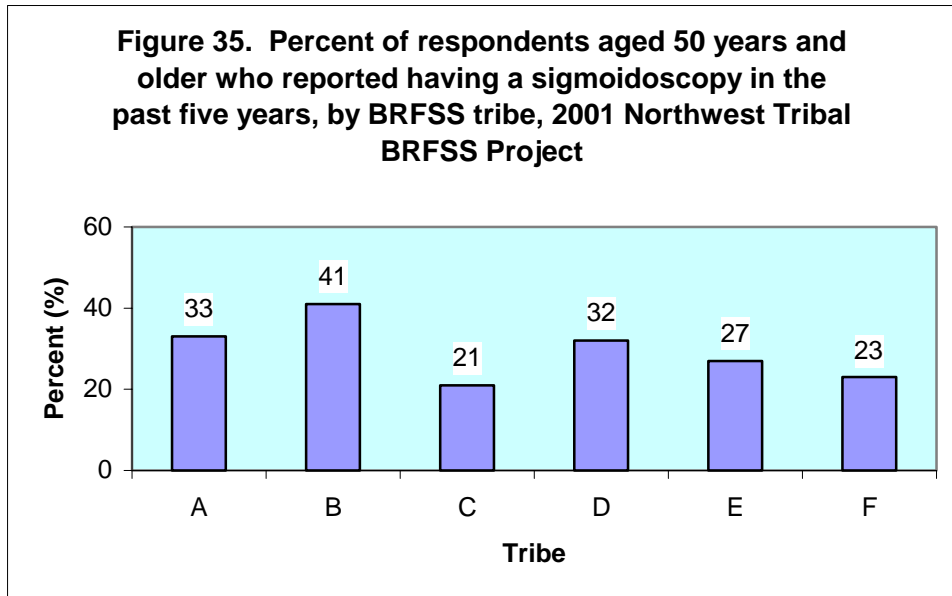
<sup>124</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



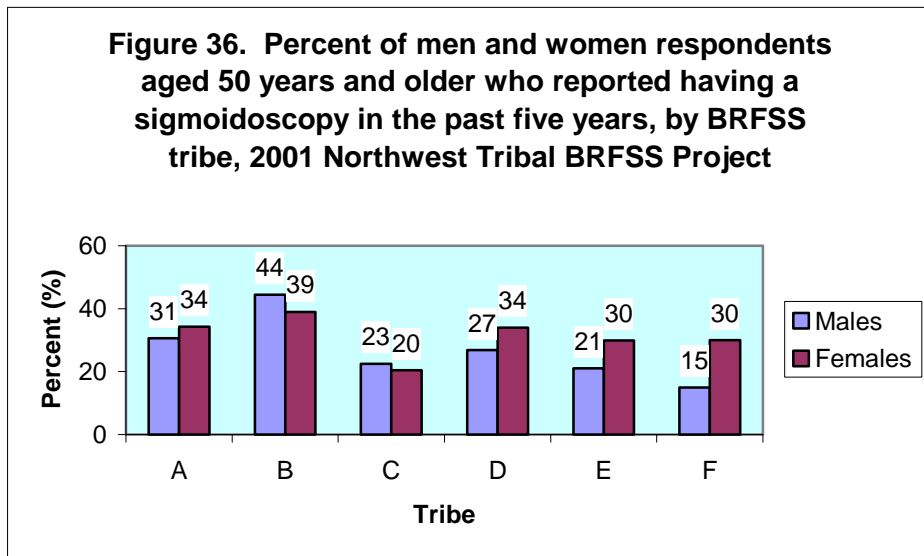
age 60-69 years, (32.1%). Respondents who reported having a sigmoidoscopy in the past five years tended to be married (31.9%), postsecondary educated (28.2%), employed (29.4%), and have a household income 101%-150% of the federal poverty level (33.3%) (Table 29).

Respondents to the Oregon and Washington state BRFSS, 1998-2001, were the most likely to report having a sigmoidoscopy in the past five years. Respondents to the Tribal BRFSS that were selected using RPMS and respondents to the Idaho state BRFSS reported similar frequencies of being screened. Tribal BRFSS respondents selected from tribal enrollment lists were the least likely to have a sigmoidoscopy in the past five years. For the three state BRFSS populations, men were more likely to have a recent sigmoidoscopy, while in the tribal populations, women were more likely to be recently screened. For all five samples, respondents aged 50-59 years were the least likely to have a recent sigmoidoscopy.

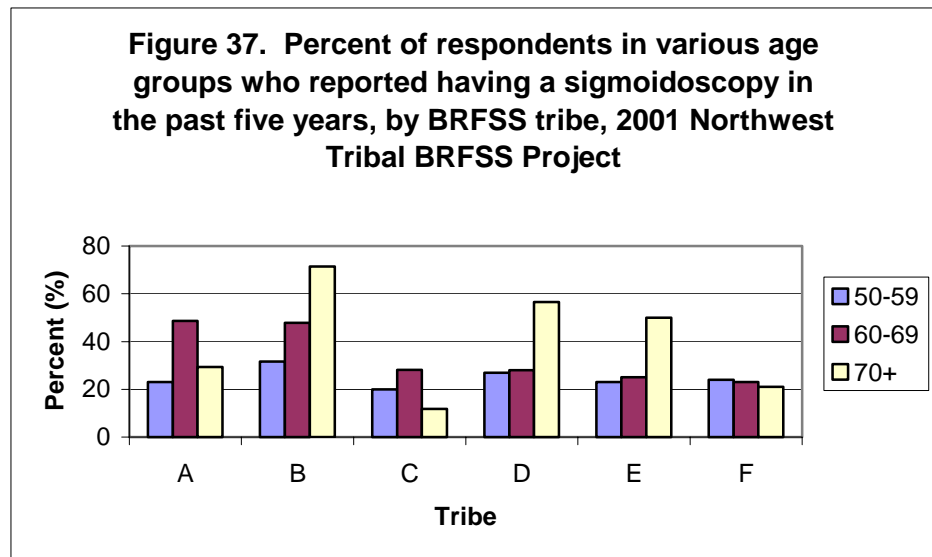
- The percentage of respondents aged 50 years and older who reported having had a sigmoidoscopy in the past five years ranged from 21% to 41% by tribe (Figure 35).



- The percentage of male respondents aged 50 years and older who reported having had a sigmoidoscopy in the past five years ranged from 15% to 44% by tribe. For women, the percents ranged from 20% to 39% by tribe (Figure 36).



- By tribe, the frequencies of sigmoidoscopy varied by age. In half of the tribes, adults aged 70+ years reported having had a sigmoidoscopy in the past five years more frequently (Figure 37).



The home blood stool test, or Fecal Occult Blood Test, is used to find small amounts of hidden (occult) blood in the stool that cannot normally be seen. A sample of stool is tested for traces of blood. People having this test receive a kit with instructions that explain how to take a stool sample at home. The kit is then sent to a lab for testing. If this test is positive, the individual will need to have further tests to pinpoint the exact cause of the bleeding.<sup>125,126</sup> Doctors or other clinicians sometimes perform this test in association with other screening tests, such as digital rectal examinations.

Among all race respondents to the Idaho state BRFSS, 1998-2001, 16.7% of respondents 50 years and older reported having a blood stool test in the past year. Women were more likely than men to report having a blood stool test in the last year, 20.2% compared to 12.7%. The proportion of respondents who reported having a blood stool test in the past year was highest for those 70 years of age or older (20.2%). Respondents who reported having a blood stool test in the past year tended to be married (17.3%), postsecondary educated (17.8%), and unemployed (19.9%) (Table 30).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 24.6% of respondents 50 years and older reported having a blood stool test in the past year. Women were more likely than men to report having a blood stool test in the last year, 28.1% compared to 20.4%. The proportion of respondents who reported having a blood stool test in the past year was highest among those 70 years of age and older (32.0%). Respondents who reported having a blood stool test in the past year tended to be married (26.1%) and unemployed (28.1%) (Table 30).

Among all race respondents to the Washington state BRFSS, 1998-2001, 27.6% of respondents 50 years and older reported having a blood stool test in the past year. Women were more likely than men to report having a blood stool test in the last year, 30.0% compared to 24.9%. The proportion of respondents who reported having a blood stool test in the past year was highest for those 70 years of age and older (32.3%). Respondents who reported having a blood stool test in the past

<sup>125</sup> American Cancer Society,

[http://www.cancer.org/docroot/CRI/content/CRI\\_2\\_2\\_3X\\_How\\_is\\_colorectal\\_cancer\\_found.asp?sitearea=](http://www.cancer.org/docroot/CRI/content/CRI_2_2_3X_How_is_colorectal_cancer_found.asp?sitearea=)

<sup>126</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/cancer/colorct/colorct.htm#screening>



year tended to be married (28.8%), postsecondary educated (28.1%), and unemployed (30.2%) (Table 30).

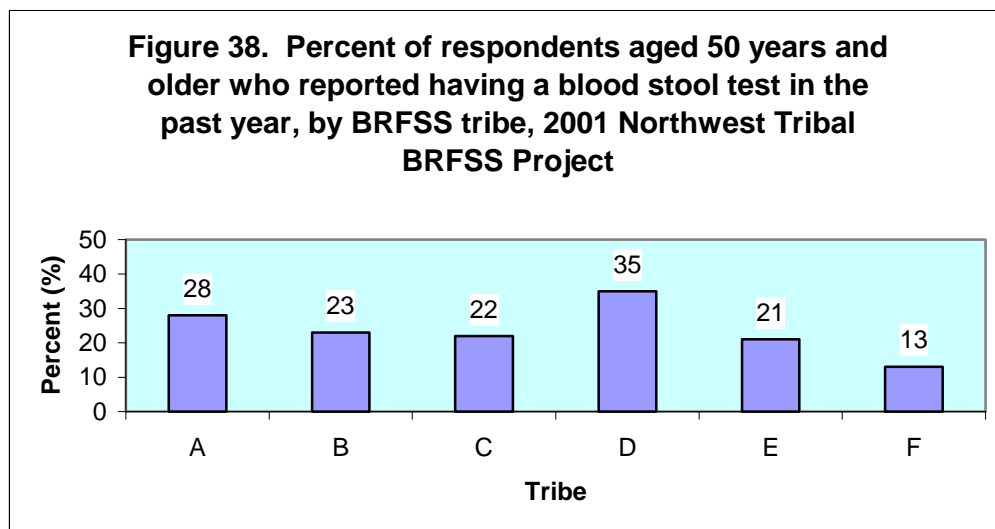
Among tribes that sampled using RPMS,<sup>127</sup> 28.6% of respondents 50 years and older reported having a blood stool test in the past year. Women were more likely than men to report having a blood stool test in the past year, 32.6% compared to 21.2%. The proportion of respondents who reported having had a blood stool test in the past year was highest for respondents 70 years of age and older (41.5%). Respondents who reported having a blood stool test in the past year tended to be married (34.7%), high school educated or less (29.1%), unemployed (30.6%), and have a household income >200% of federal poverty level (34.1%) (Table 30).

Among tribes that sampled using tribal enrollment,<sup>128</sup> 19.0% of respondents 50 years and older reported having a blood stool test in the past year. Women were more likely than men to report having a blood stool test in the past year, 22.3% compared to 14.8%. The proportion of respondents who reported having a blood stool test in the past year was highest for respondents 70 years of age and older (39.5%). Respondents who reported having a blood stool test in the past year tended to be unmarried (20.9%), high school educated or less (21.4%), unemployed (22.5%), and have a household income 101%-150% of federal poverty level (23.3%) (Table 30).

Washington state BRFSS respondents, 1998-2001, and respondents to the Tribal BRFSS that were selected using RPMS were the most likely to report having a blood stool test in the past year, followed by Oregon state BRFSS respondents, then Tribal BRFSS respondents selected using tribal enrollment lists. Idaho state BRFSS respondents were the least likely to report having a blood stool test in the past year. For all five populations, women were more likely than men to report having a blood stool test in the past year.

Among RPMS tribal elders, age 50 years and older, 0.5% reported having received a colorectal cancer diagnosis. Among enrollment tribal elders, age 50 years and older, 1.0% reported having received a colorectal cancer diagnosis.

- The percentage of respondents aged 50 years and older who reported having had a blood stool test in the past year ranged from 13% to 35% by tribe (Figure 38).

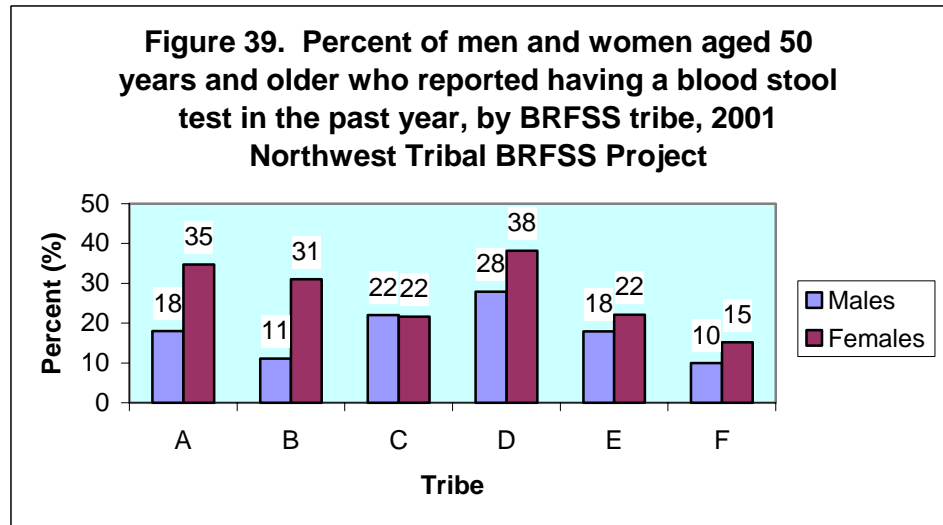


<sup>127</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

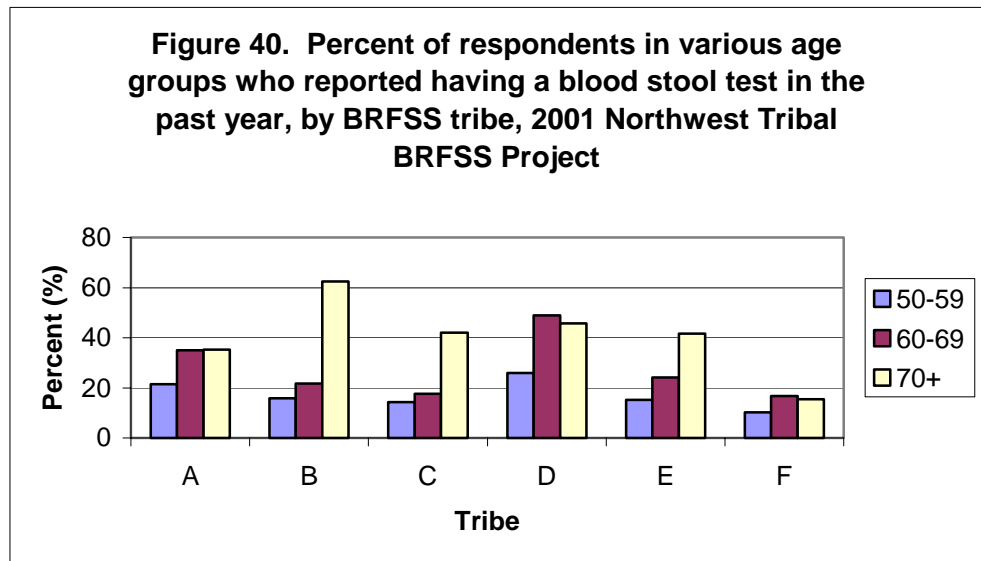
<sup>128</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



- Overall, a higher proportion of women reported having had a blood stool test in the past year compared to men. Men ranged from 11% to 28% by tribe; women ranged from 15% to 38% by tribe (Figure 39).



- Across tribes, the percentage of respondents aged 50 years and older who reported having had a blood stool test in the past tended to increase with age (Figure 40).



*Prostate Cancer*

Prostate cancer typically develops in men over the age of 50 years and is more common among African Americans than men of other races and in men with a family history of prostate cancer. The two most common tests used by doctors that help in diagnosing prostate cancer are the digital rectal exam and the prostate specific antigen test. Currently there is no screening test available that is proven to reduce mortality from prostate cancer.<sup>129,130,131</sup>

The Prostate-Specific Antigen (PSA) test is a blood test that measures the PSA enzyme. The PSA test is limited in its ability to distinguish between a benign and cancerous tumor and other conditions, e.g., prostatitis (inflammation of the prostate).

<sup>129</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>

<sup>130</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/cancer/prostate/prostate.htm>

<sup>131</sup> National Cancer Institute, <http://www.cancer.gov/>



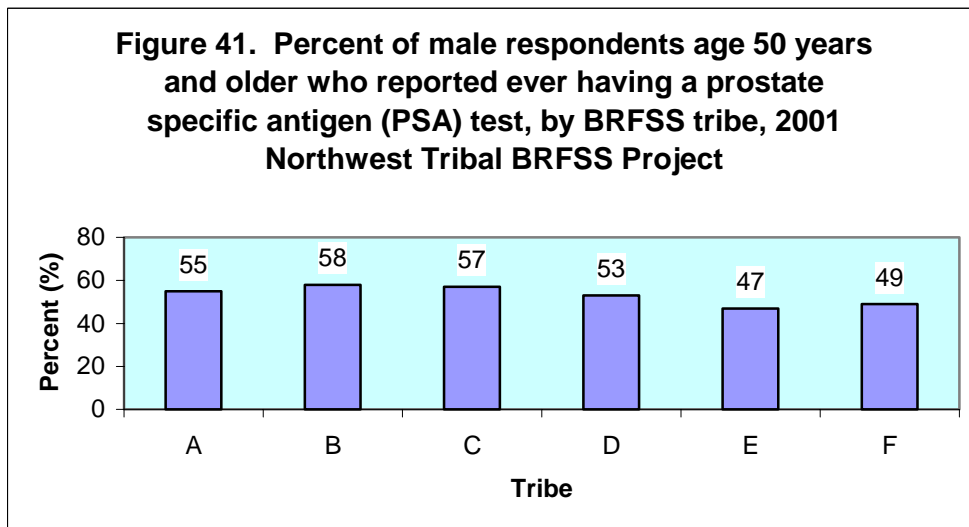
Among tribes that sampled using RPMS,<sup>132</sup> 52.0% of male respondents 50 years and older reported ever having had a prostate-specific antigen (PSA) test. The proportion of respondents who reported ever having a PSA test was highest for those 70 years of age and older (69.2%). Respondents who reported ever having a PSA test tended to be married (58.2%), unemployed (52.8%), and have a household income 151%-200% of federal poverty level (85.7%) (Table 31).

Among tribes that sampled using tribal enrollment,<sup>133</sup> 54.2% of respondents 50 years and older reported ever having a PSA test. The proportion of respondents who reported ever having a PSA test was highest for those 70 years of age or older (75.0%). Respondents who reported ever having a PSA test tended to be married (58.6%), postsecondary educated (55.6%), employed (55.8%), and have a household income 151%-200% of federal poverty level (61.1%) (Table 31).

Respondents to the Tribal BRFSS that were selected using RPMS and those selected from tribal enrollment lists reported similar frequencies of ever having a PSA test. Both populations exhibited similar demographic trends for men 50 years and older who had ever been screened with a PSA test.

Questions on the PSA test were not asked of Idaho, Oregon, or Washington state BRFSS respondents, 1998-2001.

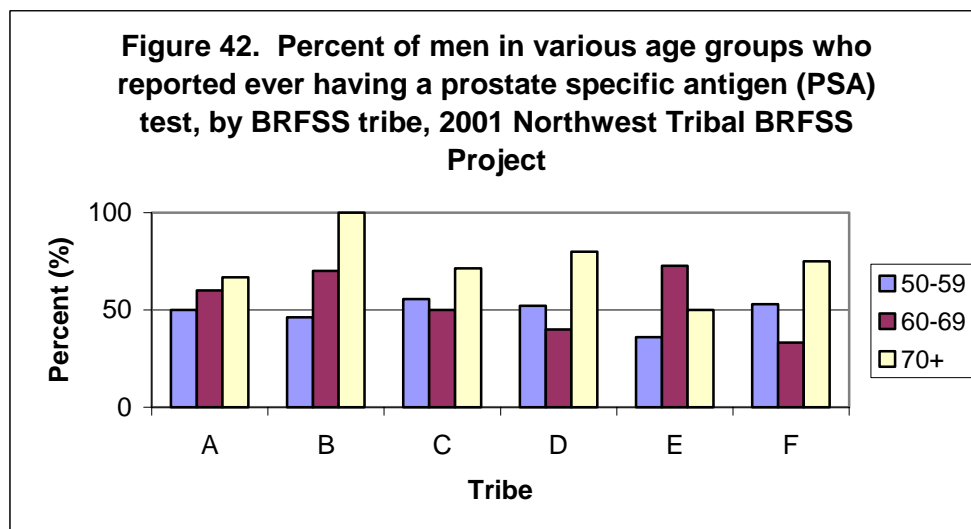
- Among males age 50 years and older, the percentage who reported ever being screened by a prostate specific antigen (PSA) test ranged from 47% to 58% by tribe (Figure 41).



<sup>132</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>133</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

- Among males age 50 and older, the percentage who reported ever being screened by a prostate specific antigen (PSA) test tended to increase with increasing age (Figure 42).



The Digital Rectal Exam (DRE) has been recommended for years by some organizations as a screening test for prostate cancer, yet it is limited in its ability to detect prostate cancer, or to distinguish a cancer from something else.<sup>134,135</sup> Male respondents 50 years of age and older were asked if they had ever had a DRE.

Among tribes that sampled using RPMS,<sup>136</sup> 72.9% of male respondents 50 years and older reported ever having a digital rectal exam (DRE). A higher proportion of respondents aged 60-69 years old reported ever having a DRE (94.7%). Respondents who reported ever having a DRE tended to be married (79.3%), postsecondary educated (80.4%), unemployed (75.3%), and have a household income >200% of federal poverty level (82.5%) (Table 32).

Among tribes that sampled using tribal enrollment,<sup>137</sup> 74.8% of respondents 50 years and older reported ever having a DRE. The proportion of respondents who reported ever having a DRE was highest among those aged 60-69 years old (80.6%). Respondents who reported ever having a digital rectal exam tended to be married (78.5%), postsecondary educated (82.5%), employed (81.0%), and have a household income >200% of federal poverty level (84.6%) (Table 32).

Respondents to the Tribal BRFSS that were selected using RPMS and those selected from tribal enrollment lists reported similar frequencies of ever having a digital rectal exam. Both populations exhibited similar demographic trends for men 50 years and older who had ever been screened with a DRE.

Questions on DRE were not asked of Idaho, Oregon, or Washington state BRFSS respondents, 1998-2001.

Among tribal males 50 years of age or older selected using RPMS, 0.9% reported having been diagnosed with prostate cancer. Among tribal males 50 years of age or older selected from tribal enrollment lists, 2.3% reported having been diagnosed with prostate cancer.

<sup>134</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>

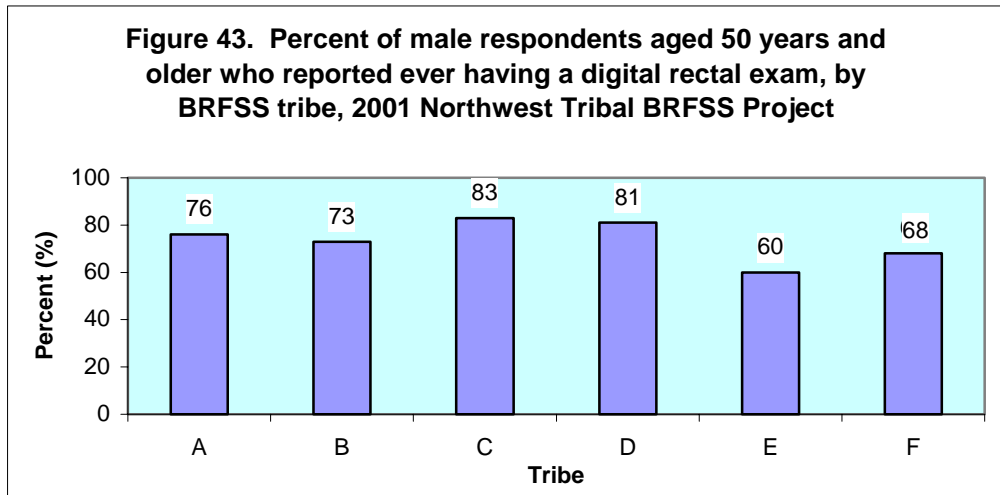
<sup>135</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/cancer/prostate/prostate.htm>

<sup>136</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

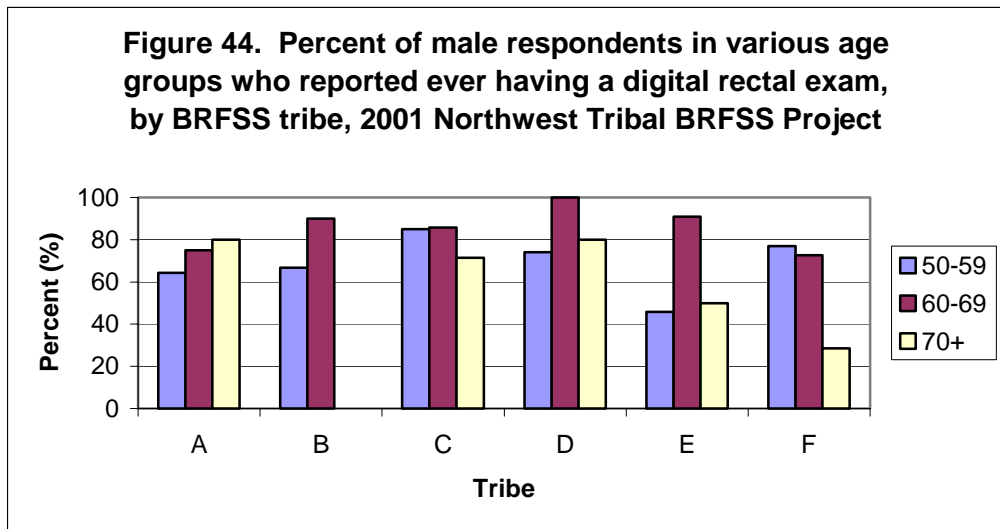
<sup>137</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



- Among males aged 50 and older, the percentage who reported ever being screened by a digital rectal exam ranged from 60% to 83% by tribe (Figure 43).



- By tribe, the percentage of male respondents who reported ever having had a DRE tended to be highest among those aged 60-69 years (Figure 44).



*Cervical Cancer*

Cervical cancer develops more frequently in women aged 50 to 55 years than in women of different ages. The development of cervical cancer is tightly linked to infection with human papillomavirus (HPV). HPV infection develops more frequently in women who have first intercourse at an early age, have had multiple sexual partners, or have had unprotected sexual intercourse. Other factors which may contribute to the development of cervical cancer include smoking, human immunodeficiency virus (HIV), oral contraceptive use, and certain dietary deficiencies.<sup>138,139,140,141</sup>

The Papanicolaou test (Pap test) is used to screen for and is proven to decrease incidence of mortality due to cervical cancer. Female respondents were asked if they had had a Pap test in the

<sup>138</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/cancer/nbccedp/index.htm>

<sup>139</sup> National Cancer Institute, <http://www.cancer.gov/>

<sup>140</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>

<sup>141</sup> American Cancer Society, <http://www.cancer.org/cancerinfo>

past three years. Among all races respondents to the Idaho state BRFSS, 1998-2001, 81.7% of female respondents reported having had a Pap smear within the past three years. The proportion of female respondents who reported having a recent Pap smear was highest for those age 25-29 years old (92.5%) and tended to decrease with increasing age. Female respondents who reported having a Pap smear within the past three years tended to be married (85.6%), postsecondary educated (84.9%), and employed (83.8%) (Table 33).

Among all races respondents to the Oregon state BRFSS, 1998-2001, 86.4% of female respondents reported having a Pap smear within the past three years. The proportion of female respondents who reported having a recent Pap smear was highest among those 25-29 years old (90.0%) and tended to decrease with increasing age. Female respondents who reported having a Pap smear within the past three years tended to be married (89.6%), postsecondary educated (90.9%), and employed (88.8%) (Table 33).

Among all races respondents to the Washington state BRFSS, 1998-2001, 86.2% of female respondents reported having a Pap smear within the past three years. The proportion of female respondents who reported having a recent Pap smear was highest among those age 30-34 years old (92.8%) and tended to decrease with increasing age. Female respondents who reported having a Pap smear within the past three years tended to be married (90.7%), postsecondary educated (88.6%), and employed (88.9%) (Table 33).

Among tribes that sampled using RPMS,<sup>142</sup> 89.3% of female respondents reported having a Pap smear within the past three years. The proportion female respondents who reported having a recent Pap smear was highest for respondents aged 25-29 years old (97.1%) and tended to decrease with increasing age. Female respondents who reported having a Pap smear within the past three years tended to be married (94.9%), postsecondary educated (93.7%), employed (91.0%), and have a household income >200% of federal poverty level (94.9%) (Table 33).

Among tribes that sampled using tribal enrollment,<sup>143</sup> 80.0% of female respondents reported having a Pap smear within the last three years. Reported Pap tests tended to decrease with increasing age. Female respondents who reported having a recent Pap smear tended to be married (84.6%), postsecondary educated (87.7%), employed (85.7%), and have a household income 101%-150% of federal poverty level (87.5%) (Table 33).

Respondents to the Tribal BRFSS that were selected using RPMS had the highest proportion of women who reported having a Pap smear in the past three years, followed by Oregon and Washington state BRFSS respondents. Idaho state BRFSS respondents and respondents to the Tribal BRFSS that were selected from tribal enrollment lists were the least likely to have a Pap test in the past three years. All five populations exhibited a decrease in the proportion having recent Pap smear with increasing age. For all five groups, married women, employed women, and those with a postsecondary education were more likely to have a recent Pap smear.

Among tribal women selected using RPMS, 6.7% reported having been diagnosed with cervical cancer. Among tribal women selected from tribal enrollment lists, 5.7% reported having been diagnosed with cervical cancer.

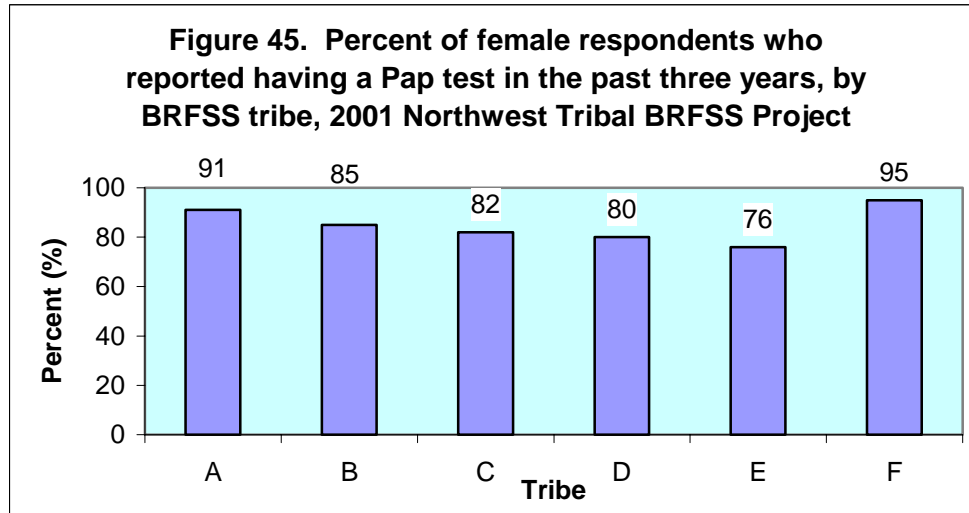
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<sup>142</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

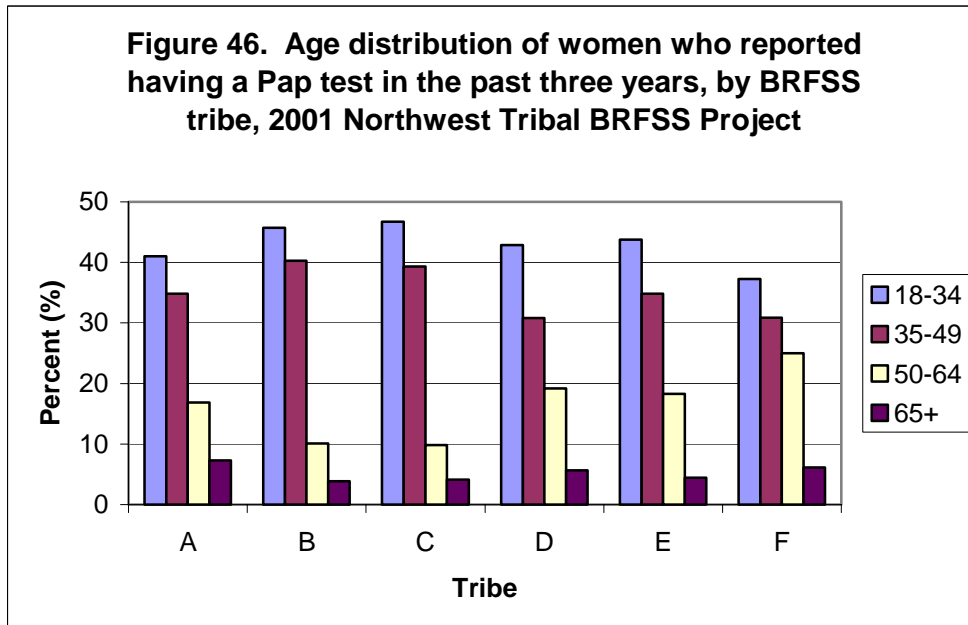
<sup>143</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



- The percentage of women who reported having a Pap test in the past three years ranged from 76% to 95% by tribe (Figure 45).



- For every tribe, most of the women who reported having a Pap test in the past three years were ages 18-49 (Figure 46).
- Of women who had a recent Pap test, between 4% and 7% were aged 65 years or older.



*Breast Cancer*

The development of breast cancer is much more likely in the female gender and typically (but not always) develops in the aging population. Breast cancer is one of the types of cancer that is linked to genetic risk factors and is more likely to develop in those with a family or personal history of breast cancer. Research shows that some types of breast cancer are related to the level of estrogens in the body. As a result, early age at first menstruation, not having children, not breastfeeding, oral contraceptive use, and hormone replacement therapy may increase the risk of developing breast cancer. Additional risk factors such as obesity, physical inactivity, and consumption of a high fat diet may contribute to the development of breast cancer. There is a screening test available that is proven to reduce mortality from breast cancer.<sup>144,145,146</sup>

<sup>144</sup> The Centers for Disease Control and Prevention, <http://www.cdc.gov/cancer/nbccedp/index.htm>

<sup>145</sup> National Cancer Institute, <http://www.cancer.gov/>

<sup>146</sup> American Cancer Society, <http://www.cancer.org/docroot/home/index.asp>

Tests for screening and early detection of breast cancer include breast self-exams, clinical breast exams, and mammography. Mammography has been shown to decrease the mortality due to breast cancer.

Female respondents were asked if they had performed a breast self-exam within the previous year. Among tribes that sampled using RPMS,<sup>147</sup> 68.5% of female respondents reported performing breast self exam(s) (BSE) within the past year. The proportion of female respondents who reported performing BSE(s) within the past year was highest for respondents aged 45-59 years old (76.9%). Female respondents who reported performing BSE(s) within the past year tended to be married (72.2%), postsecondary educated (71.6%), employed (70.9%), and have a household income >200% of federal poverty level (80.5%) (Table 34).

Among tribes that sampled using tribal enrollment,<sup>148</sup> 70.6% of female respondents reported performing BSE(s) within the past year. The proportion of female respondents who reported performing BSE(s) within the past year was highest among those age 45-59 years old (77.2%). Female respondents who reported performing BSE(s) within the past year tended to be married (74.6%), postsecondary educated (80.7%), employed (74.4%) and have a household income >200% of federal poverty level (82.4%) (Table 34).

Respondents to the Tribal BRFSS that were selected using RPMS and those selected from tribal enrollment lists reported similar frequencies of performing breast self exams in the past year. For both samples, women who reported performing BSE(s) in the past year exhibited similar demographic profiles.

Questions on breast self-exams were not asked of respondents to the Idaho, Oregon, and Washington state BRFSS, 1998-2001.

Among all race respondents to the Idaho state BRFSS, 1998-2001, 74.5% of female respondents reported having a clinical breast exam (CBE) within the past two years. The proportion of female respondents who reported having a CBE within the past two years was highest among women age 25-29 years old (81.8%) and tended to decrease with increasing age. Female respondents who reported having a CBE within the past two years tended to be married (78.5%), postsecondary educated (79.1%), and employed (76.8%) (Table 35).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 77.2% of female respondents reported having a CBE within the past two years. The proportion of female respondents who reported having a CBE within the past two years was highest among those age 50-54 years old (83.6%). Female respondents who reported having a CBE within the past two years tended to be married (80.8%), postsecondary educated (82.4%), and employed (81.7%) (Table 35).

Among all race respondents to the Washington state BRFSS, 1998-2001, 77.3% of female respondents reported having a CBE within the past two years. The proportion of female respondents who reported having a CBE within the past two years was highest among those age 30-34 years old (85.5%). Female respondents who reported having a CBE within the past two years tended to be married (83.1%), postsecondary educated (82.0%), and employed (80.9%) (Table 35).

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<sup>147</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>148</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

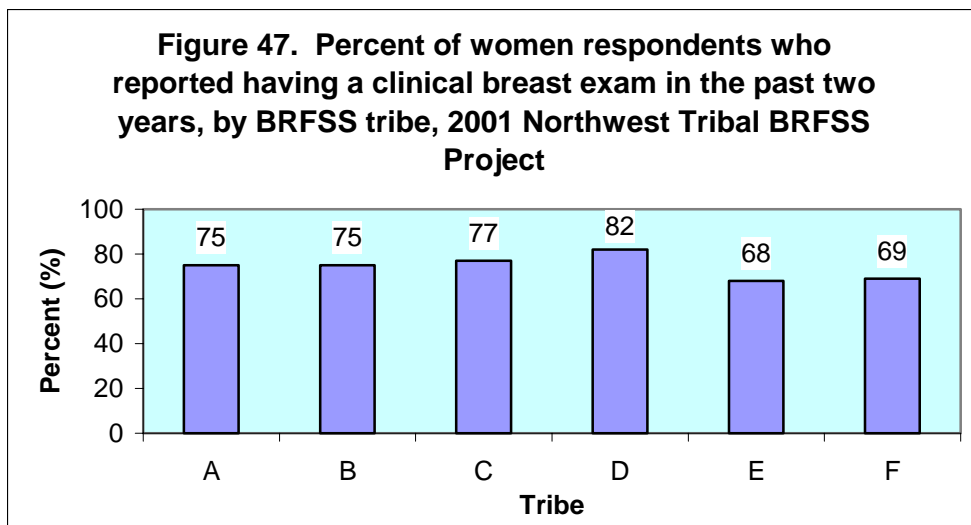


Among tribes that sampled using RPMS,<sup>149</sup> 75.9% of female respondents reported having a CBE within the past two years. The proportion female respondents who reported having a CBE within the past two years was highest for respondents aged 40-44 years old (84.7%). Female respondents who reported having a CBE within the past two years tended to be married (79.0%), postsecondary educated (81.3%), employed (79.1%), and have a household income >200% of federal poverty level (83.3%) (Table 35).

Among tribes that sampled using tribal enrollment,<sup>150</sup> 73.3% of female respondents reported having a CBE within the past two years. The proportion female respondents who reported having a CBE within the past two years was highest for respondents aged 25-29 years old (87.0%). Female respondents who reported having a CBE within the past two years tended to be married (77.4%), postsecondary educated (79.5%), employed (78.4%), and have a household income >200% of federal poverty level (82.1%) (Table 35).

Respondents to the Oregon and Washington state BRFSS 1998-2001, and respondents to the Tribal BRFSS that were selected using RPMS all reported similar frequencies of having a clinical breast exam in the past two years. A slightly lower percentage of respondents to the Idaho state BRFSS and to the enrollment Tribal BRFSS reported having a recent CBE. Respondents from all five populations who reported having a recent CBE had a similar demographic profile.

- The percentage of women respondents who reported having a clinical breast exam in the past two years ranged from 68% to 82% by tribe (Figure 47).

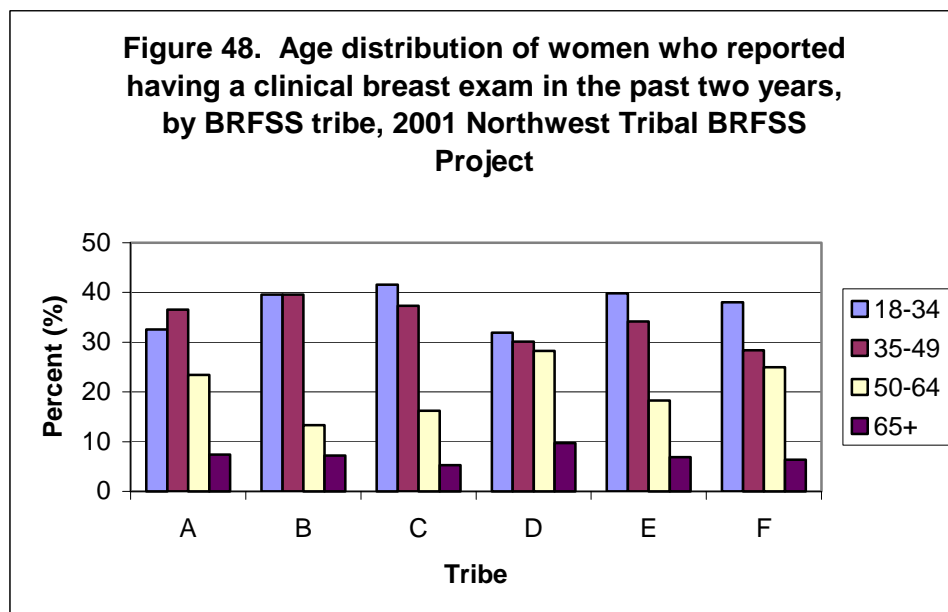


<sup>149</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>150</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



- For every tribe, most of the women who reported having a clinical breast exam in the past two years were ages 18-49 years old (Figure 48).
- Of women who had a recent CBE, between 5% and 10% were age 65 years or older.



Among all race respondents to the Idaho state BRFSS, 1998-2001, 64.8% of female respondents age 40 years and older reported having a mammogram within the past two years. A higher proportion of women age 55-59 years old reported having a mammogram within the past two years (73.5%). Female respondents age 40 years and older who reported having a mammogram within the past two years tended to be married (66.6%), postsecondary educated (67.8%), and unemployed (66.9%) (Table 36).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 75.1% of female respondents age 40 years and older reported having a mammogram within the past two years. A higher proportion of women age 55-59 years old reported having a mammogram within the past two years (85.1%). Female respondents 40 years and older who reported having a mammogram within the past two years tended to be married (78.6%) and postsecondary educated (78.9%) (Table 36).

Among all race respondents to the Washington state BRFSS, 1998-2001, 73.2% of female respondents age 40 years and older reported having a mammogram within the past two years. A higher proportion of women age 55-59 years old reported having a mammogram within the past two years (82.4%). Female respondents 40 years and older who reported having a mammogram within the past two years tended to be married (76.7%), postsecondary educated (75.0%), and employed (73.9%) (Table 36).

Among tribes that sampled using RPMS,<sup>151</sup> 71.6% of female respondents age 40 years and older reported having a mammogram within the past two years. A higher proportion of women age 60-64 years old reported having a mammogram within the past two years (93.5%). Female respondents 40 years and older who reported having a mammogram within the past two years tended to be married (78.2%), postsecondary educated (78.8%), employed (75.7%), and have a household income >200% of federal poverty level (83.5%) (Table 36).

<sup>151</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

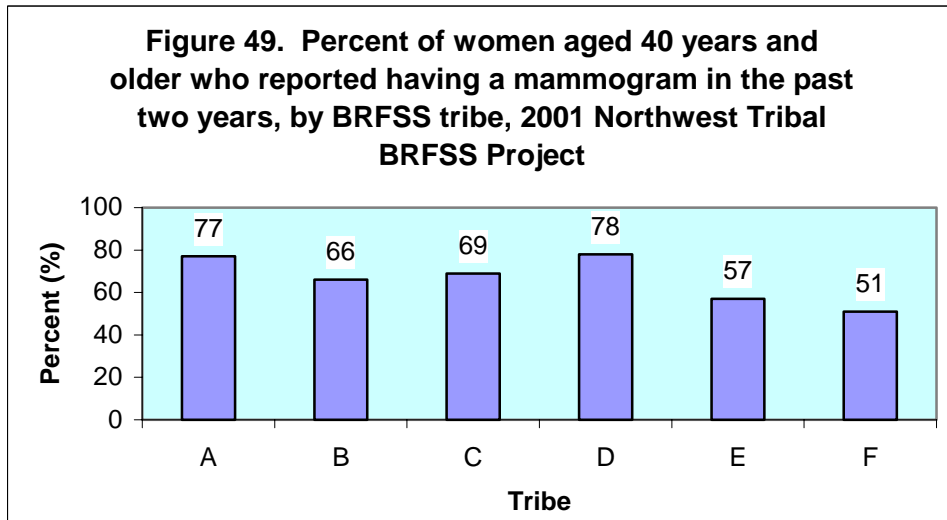


Among tribes that sampled using tribal enrollment,<sup>152</sup> 62.1% of female respondents age 40 years and older reported having a mammogram within the past two years. A higher proportion of women age 55-59 years old reported having a mammogram within the past two years (78.6%). Female respondents 40 years and older who reported having a mammogram within the past two years tended to be married (63.0%), postsecondary educated (63.7%), employed (68.8%), and have a household income >200% of federal poverty level (72.9%) (Table 36).

Respondents to the Oregon state BRFSS had the highest proportion of women age 40 years and older report having a recent mammogram, followed by respondents to the Washington state BRFSS, then respondents to the Tribal BRFSS who were selected using RPMS. A significantly lower percentage of respondents to the Idaho state BRFSS and respondents to the Tribal BRFSS who were selected from tribal enrollment lists reported having a mammogram within the past two years. For all five populations, women who were married and postsecondary educated were more likely to have recent mammograms than women who were unmarried and high school educated or less

Of tribal women selected using RPMS, 2.9% reported having been diagnosed with breast cancer. Of tribal women selected from tribal enrollment lists, 2.9% reported having been diagnosed with breast cancer.

- Among tribes, the percentage of women aged 40 years and older who reported having had a mammogram in the past two years ranged from 51% to 78% (Figure 49).



<sup>152</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

- Across tribes, most women who reported having had a mammogram in the past two years were age 40-59 years old (Figure 50).
- Of women who had a recent mammogram, between 6% and 11% were 70 years old or older.

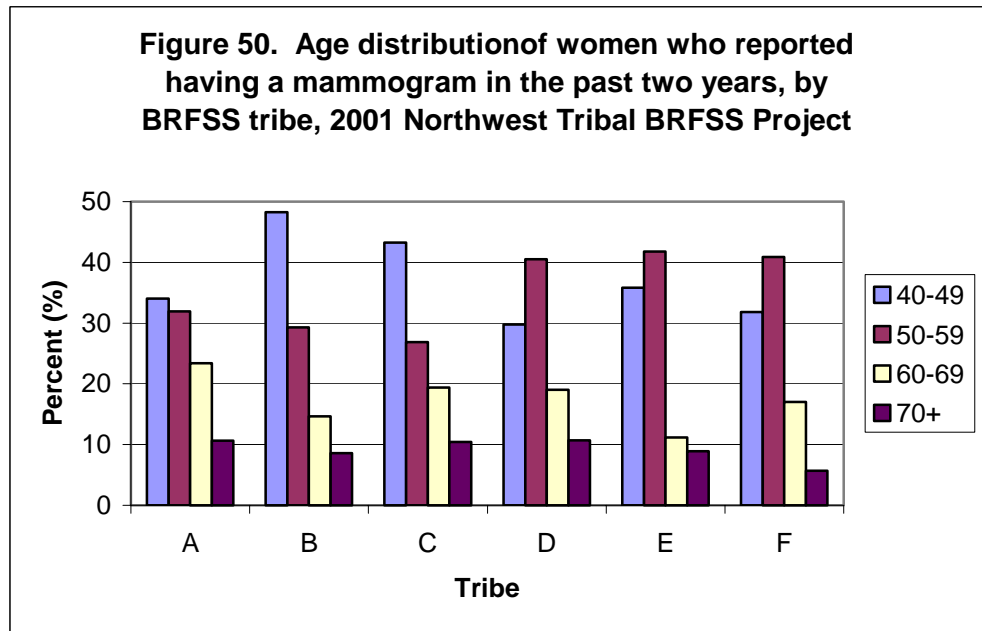


Table H. American Cancer Society Recommendations for the Early Detection of Cancer in Average Risk Asymptomatic People<sup>153</sup>

Cancer Site	Population	Test of Procedure	Frequency
Breast	Women, age 20+	<ul style="list-style-type: none"> <li>Breast Self Examination</li> <li>Clinical Breast Examination</li> <li>Mammography</li> </ul>	<p>Monthly, starting at age 20.</p> <p>Every 3 years, ages 20-39. Annual, starting at age 40<sup>154</sup>.</p> <p>Annual, starting at age 40.</p>
Colorectal	Men & Women, age 50+	<ul style="list-style-type: none"> <li>Fecal occult blood test (FOBT) &amp; flexible sigmoidoscopy<sup>155</sup></li> <li>Flexible sigmoidoscopy</li> <li>FOBT</li> <li>Colonoscopy</li> <li>Double Contrast Barium Enema (DCBE)</li> </ul>	<p>Annual FOBT and flexible sigmoidoscopy every 5 years, starting at age 50.</p> <p>Every 5 years, starting at age 50.</p> <p>Annual, starting at age 50.</p> <p>Colonoscopy every 10 years, starting at age 50.</p> <p>DCBE every 5 years, starting at age 50.</p>
Prostate	Men, age 50+	Digital rectal examination & prostate specific antigen test	<p>The PSA test and the DRE should be offered annually, starting at age 50<sup>156</sup>.</p> <p>Men in high-risk groups, such as those with a strong familial predisposition (i.e. two or more affected first-degree relatives), or African Americans may begin at a younger age (i.e., 45 years).</p>
Cervix	Women, age 18+	Pap test and Pelvic examination	<p>All women who are, or have been, sexually active, or have reached age 18 should have an annual Pap test and pelvic examination. After a woman has had 3 or more consecutive satisfactory normal annual examinations, the Pap test may be performed less frequently at the discretion of the physician.</p>
Cancer-related check-up	Men & Women, age 20+	Examinations every 3 years from ages 20 to 39 years and annually after age 40. The cancer-related check-up should include examination for cancers of the thyroid, testicles, ovaries, lymph nodes, oral cavity, and skin, as well as health counseling about tobacco, sun exposure, diet and nutrition, risk factors, sexual practices, and environmental and occupational exposures.	

<sup>153</sup> American Cancer Society, California Division, and Public Health Institute, California Cancer Registry. California Cancer Facts and Figures 2002. Oakland, CA: American Cancer Society, California Division, September 2001.

<sup>154</sup> Beginning at age 40, annual clinical breast examination should be performed prior to mammography.

<sup>155</sup> Flexible sigmoidoscopy together with FOBT is preferred compared with FOBT or flexible sigmoidoscopy alone.

<sup>156</sup> Information should be provided to men about the benefits and limitations of testing.

Table I. Major Cancer Sites<sup>157</sup>

Core Cancer	Risk Reduction	Early Detection & Warning Signs	Treatment
Lung	Avoid tobacco products in all forms; stop smoking; avoid second-hand smoke; follow workplace safety practices.	Chest x-rays for high-risk persons. Nagging cough, coughing up blood, unresolved pneumonia	Surgery, radiation therapy, and chemotherapy depending on type. In small-cell lung cancer, chemotherapy alone or combined with radiation therapy may be in the first choice.
Colorectal	Removal of polyps; follow the ACS's nutrition guidelines for diets high in fiber and low in fats; recent studies suggests drugs like aspirin may reduce risks.	Flexible sigmoidoscopy; stool blood test or total colon examinations. Rectal bleeding, change in bowel habits, blood in the stools.	Surgery, radiation therapy and/ or chemotherapy, depending on stage in disease.
Prostate	While not certain, prudent action would be to follow ACS's nutrition guidelines.	Digital rectal examination. Prostate Specific Antigen (PSA). Difficulty passing urine; blood in urine. These symptoms can be due to benign (non-cancer) conditions.	Early Stage-surgery or radiation therapy. Advanced Stages-radiation therapy, hormones treatments, or anti-cancer drugs. Radiation therapy can ease painful areas in the bones.
Breast	Follow ACS's nutrition guidelines; maintain normal weight; exercise 3 times per week.	Mammography; breast self-examinations; annual clinical breast examinations. Breast lump or a thickening; bleeding from nipples; skin irritations; retraction.	Early Stage-mastectomy or local removal with radiation therapy. Adjuvant therapy-hormones and/or combination chemotherapy. Later Stage- combination chemotherapy or hormones and radiation therapy for selected clinical problems.
Bladder (Urinary)	Avoid use of tobacco products; use workplace safety precautions if working in high-risk industry.	Health-related checkups may identify early signs and symptoms. Blood in urine.	In situ stage- surgery and possible installations of drugs. Later stage- surgery at times with radiation therapy or chemotherapy. Metastatic disease- radiation therapy and chemotherapy.
Brain	None known	Health-related checkups may identify early signs and symptoms. Headaches, convulsions, personality changes, visual problems, unexplained vomiting.	In Adults- surgery, possible chemotherapy or radiation therapy. In Children- surgery, chemotherapy, and radiation therapy.
Cervix	Safe sex; avoid use of tobacco products.	Pap smear and pelvic examination. Abnormal vaginal bleeding.	Precursor lesions- cryotherapy (kill cells by cold), electrocoagulation (kill cells by heat), surgery. Invasive- surgery or radiation therapy. Localized- surgery or radiation therapy. Metastatic- chemotherapy and radiation therapy.
Endometrium (Uterine Cancer)	When considering estrogen replacement therapy, benefits and risks must be considered by woman and her physician.	Pelvic exam; endometrial tissue sampling at menopause if high risk. Vaginal bleeding after menopause.	For uterine hyperplasia, progestins may be used. Surgery sometimes with radiation therapy. Advanced metastases- progestins/chemotherapy.
Hodgkin's Disease	None Known	Health-related checkups may identify early signs and symptoms. Night sweats, itching, unexplained fever, lymph node enlargement.	Early Stage- radiation therapy sometimes with chemotherapy. Advanced Stage- combination chemotherapy.
Lymphoma (Non-Hodgkin's)	None Known	Health-related checkups may identify early signs and symptoms. Lymph node enlargement, fever.	Usually disseminated at time of diagnosis; chemotherapy is used. At times, autologous bone-marrow transplantation may be used
Leukemia	Reduce exposure to radiation and hazardous chemicals.	Health-related checkups may identify early signs and	Combination chemotherapy; bone marrow transplantation may be used in

<sup>157</sup> American Cancer Society, California Division, and Public Health Institute, California Cancer Registry. California Cancer Facts and Figures 2002. Oakland, CA: American Cancer Society, California Division, September 2001. Printed with permission from the American Cancer Society.



Core Cancer	Risk Reduction	Early Detection & Warning Signs	
		symptoms. Fatigue, pallor, repeated infection, easy bruising, nosebleeds.	some cases.
Melanoma (skin)	Protect against sun exposure, especially in childhood; use protective clothing and sunscreens with SPF 15 or greater when exposed to the sun.	Annual skin examinations by an experienced physician; monthly self-exams. A change in a mole or a sore that does not heal.	Early Stage- surgery Advanced Stages- surgery, radiation therapy, chemotherapy, immunotherapy.
Oral	Avoid tobacco products in all forms and, if you drink alcohol, do so moderation.	Regular oral exams. Sore in mouth that does not heal; color change in an area of the mouth.	Radiation therapy and surgery; chemotherapy is being studied.
Ovary	Following ACS's nutrition guidelines may be helpful. Prophylactic ovarian removal.	Health-related checkups may identify early signs and symptoms. Often "silent"; abdominal symptoms, pain.	Surgery, radiation therapy, and chemotherapy.
Pancreas	Following ACS's nutrition guidelines may be helpful. Avoid use of tobacco products.	Health-related checkups may identify early signs and symptoms. Vague abdominal symptoms, pain.	Surgery, radiation therapy, and chemotherapy may be used. Disease is often advanced at the time of diagnosis.
Stomach	Avoid food high in nitrates; consume foods with selenium, beta-carotene, and vitamin E. Avoid use of tobacco products.	Health-related checkups may identify early signs and symptoms. Indigestion.	Surgery; combination chemotherapy may be helpful.
Testis	None known.	Testicular self-examination in young males has been suggested. Testicular mass or enlargement.	Early Stage- surgery at times with radiation therapy. Advanced Stage- chemotherapy.

### Arthritis

Joints are the places in the body where two or more bones come together. In addition to bones, joints are composed of cartilage, a fibrous envelope called a synovium, ligaments, tendons, and muscles. Arthritis is a condition in which joint inflammation occurs. The results often include swelling, pain and stiffness of the joint.<sup>158,159</sup>

There are many different types of arthritis. Osteoarthritis and rheumatoid arthritis are among the more common types of arthritis. Osteoarthritis occurs as a result of joint injury or overuse. It typically occurs in joints such as the hip, knee, and spine. In osteoarthritis the cartilage covering the bone wears away. Rheumatoid arthritis is an autoimmune condition, which affects the joints as well as many other parts of the body. In rheumatoid arthritis the joint lining swells and produces substances that destroy the joint surface. It typically occurs in the joints of the hands and feet.<sup>160,161</sup>

The best methods to prevent arthritis are to avoid injury to the joints and to maintain a healthy weight and level of physical activity. The treatment of arthritis varies depending on the type of arthritis but typically includes the use of medications, exercises, physical therapy, and sometimes surgery.<sup>162,163</sup>

<sup>158</sup> American Academy of Orthopaedic Surgeons,  
[http://orthoinfo.aaos.org/brochure/thr\\_report.cfm?Thread\\_ID=2&topcategory=Arthritis&all=all](http://orthoinfo.aaos.org/brochure/thr_report.cfm?Thread_ID=2&topcategory=Arthritis&all=all)

<sup>159</sup> <http://www.arthritis.org/>

<sup>160</sup> American Academy of Orthopaedic Surgeons,  
[http://orthoinfo.aaos.org/brochure/thr\\_report.cfm?Thread\\_ID=2&topcategory=Arthritis&all=all](http://orthoinfo.aaos.org/brochure/thr_report.cfm?Thread_ID=2&topcategory=Arthritis&all=all)

<sup>161</sup> <http://www.arthritis.org/>

<sup>162</sup> American Academy of Orthopaedic Surgeons,  
[http://orthoinfo.aaos.org/brochure/thr\\_report.cfm?Thread\\_ID=2&topcategory=Arthritis&all=all](http://orthoinfo.aaos.org/brochure/thr_report.cfm?Thread_ID=2&topcategory=Arthritis&all=all)

<sup>163</sup> <http://www.arthritis.org/>

Over one-fifth (22.2%; 18.4% of men, 25.8% of women) of all races respondents to the Idaho state BRFSS, 1998-2001, reported ever being diagnosed with arthritis. The frequency of Idaho state individuals ever diagnosed with arthritis was greater among adults aged 60 years or older (48.3%), high school educated or less (25.0%), and unemployed (34.9%) (Table 37).

Over one-fifth (22.2%; 17.4% of men, 26.7% of women) of all races respondents to the Oregon state BRFSS, 1998-2001, reported ever being diagnosed with arthritis. The frequency of Oregon state individuals ever diagnosed with arthritis was greater among adults aged 60 years or older (47.1%) and unemployed (35.3%) (Table 37).

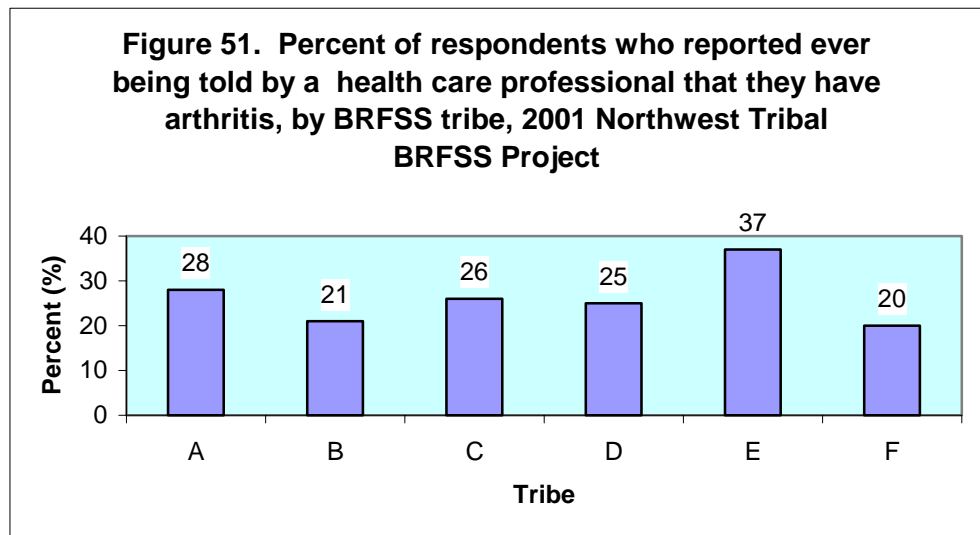
Over one-fifth (20.5%; 15.7% of men, 25.2% of women) of all races respondents to the Washington state BRFSS, 1998-2001, reported ever being diagnosed with arthritis. The frequency of Washington state individuals ever diagnosed with arthritis was greater among adults aged 60 years or older (47.0%), high school educated or less (23.2%), and unemployed (32.5%) (Table 37).

Among tribes that selected BRFSS participants using RPMS,<sup>164</sup> thirty percent (29.5%; 23.1% of men, 33.4% of women) reported ever being diagnosed with arthritis. The frequency of tribal BRFSS individuals ever diagnosed with arthritis was greater among adults aged 45 years and older (≥ 44.5%), married individuals (31.0%), those high school educated or less (31.0%), unemployed (40.3%), and below federal poverty level (34.1%) (Table 37).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>165</sup> over one-fifth (22.3%; 19.2% of men, 24.7% of women) reported ever being diagnosed with arthritis. The frequency of tribal BRFSS individuals ever diagnosed with arthritis was greater among adults aged 45 years and older (≥ 36.0%), married individuals (23.5%), those who were unemployed (28.7%), and below federal poverty level (23.7%) (Table 37).

For both tribal samples and for all three states, a higher proportion of women reported having arthrities compared to men. Idaho, Oregon, Washington, and the enrollment aggregate all illustrated similar proportions of respondents with arthritis. The RPMS aggregate had a higher percentage of respondents report having arthritis, approximately nine percentage points higher than the other populations.

- Across tribes, the percentage of respondents who reported being diagnosed with arthritis ranged from 20% to 37% by tribe (Figure 51).



<sup>164</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>165</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



## Asthma

Asthma is a disease that occurs when the airways of the lungs are hyper-reactive and become blocked or narrowed. This causes shortness of breath or wheezing, sometimes requiring emergency treatment. Individuals with asthma typically have personal triggers, which tend to cause asthma episodes. Triggers are typically things in the environment such as cigarette smoke, cold air, exercise, or factors that cause allergies such as mold, pollen, or animal dander.<sup>166,167,168</sup>

Prevention of asthma involves avoiding the personal triggers, which initiate an asthma episode. Medications are also available, which reduce the irritation and inflammation of the airways, causing airway relaxation and allowing for easier breathing.<sup>169,170,171</sup>

Eleven percent (11.1%;) of all races respondents to the Idaho state BRFSS 1998-2001, reported ever having asthma. The proportion of women with asthma was slightly higher than men, 12.1% and 10.0% respectively. Asthma was more likely to be reported by respondents age 18-29 years (13.9%), unmarried individuals (12.4%), those with a postsecondary education (11.7%), and unemployed respondents (12.0%) (Table 38).

Twelve percent (12.0%;) of all races respondents to the Oregon state BRFSS 1998-2001, reported ever having asthma. The proportion of women with asthma was slightly higher than men, 14.7% and 9.3% respectively. Asthma was more likely to be reported by respondents age 30-59 (13.1%), unmarried individuals (12.8%), and those with a postsecondary education (12.7%) (Table 38).

Twelve percent (11.8%;) of all races respondents to the Washington state BRFSS 1998-2001, reported ever having asthma. The proportion of women with asthma was slightly higher than men, 13.7% and 9.7% respectively. Asthma was more likely to be reported by respondents age 18-29 (13.4%), unmarried individuals (13.6%), and those who were unemployed (12.5%) (Table 38).

Among tribes that selected BRFSS participants using RPMS,<sup>172</sup> sixteen percent (16.3%) of respondents reported ever having asthma. The proportion of women with asthma was higher than men, 19.2% and 11.4% respectively. Asthma was more likely to be reported by respondents age 18-29 years (20.9%), unmarried individuals (16.7%), those who were unemployed (20.4%), and had a household income below federal poverty level (19.0%) (Table 38).

Among tribes that selected BRFSS participants using tribal enrollment,<sup>173</sup> sixteen percent (15.9%) of respondents reported ever having asthma. The proportion of women with asthma was higher than men, 17.6% and 13.7% respectively. Asthma was more likely to be reported by respondents age 45 years and older ( $\geq 16.9\%$ ), those who were unemployed (16.7%), and had a household income  $> 200\%$  of federal poverty level (17.8%) (Table 38).

The two tribal samples exhibited similar proportions of respondents who had ever had asthma, both of which were significantly higher than the three northwest states. The two tribal samples had

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<sup>166</sup> Asthma and Allergy Foundation, <http://www.aafa.org/templ/display.cfm?id=2&sub=25>

<sup>167</sup> American Lung Association, <http://www.lungsusa.org/asthma/aduasmafac99.htm>

<sup>168</sup> Asthma Clinical Research Network, <http://www.acrn.org/>

<sup>169</sup> Asthma and Allergy Foundation, <http://www.aafa.org/templ/display.cfm?id=2&sub=25>

<sup>170</sup> American Lung Association, <http://www.lungsusa.org/asthma/aduasmafac99.htm>

<sup>171</sup> Asthma Clinical Research Network, <http://www.acrn.org/>

<sup>172</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>173</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.



higher proportions of asthma in every age category compared to the three states. For Idaho, Oregon, Washington, and the two tribal samples, a higher percentage of women reported having asthma compared to men. The Idaho, Oregon, Washington, and RPMS tribal sample had younger respondents report asthma more frequently than older respondents, while the tribal enrollment sample had older respondents report asthma more frequently than younger respondents.

Nearly eight percent (7.7%) of Idaho state all races BRFSS respondents, 1998-2001, reported current asthma, 6.5% of men and 9.0% of women. The proportion of Idaho state respondents who reported current asthma was highest for respondents age 18-29 years (8.6%) and ages 60 years and older (8.3%). Current asthma was reported more frequently among respondents who were unmarried (8.6%), postsecondary educated (9.5%), and unemployed (9.5%) (Table 39).

Eight percent (8.4%) of Oregon state all races BRFSS respondents, 1998-2001, reported current asthma, 5.6% of men and 11.1% of women. The proportion of Oregon state respondents who reported current asthma was highest for respondents age 30-59 years ( $\geq 9.4\%$ ). Current asthma was reported more frequently among respondents who were postsecondary educated (8.8%) and unemployed (9.7%) (Table 39).

Eight percent (7.5%) of Washington state all races BRFSS respondents, 1998-2001, reported current asthma, 5.2% of men and 9.7% of women. The proportion of Washington state respondents who reported current asthma was highest for respondents age 45-59 years (8.1%). Current asthma was reported more frequently among respondents who were unmarried (8.8%) and unemployed (8.5%) (Table 39).

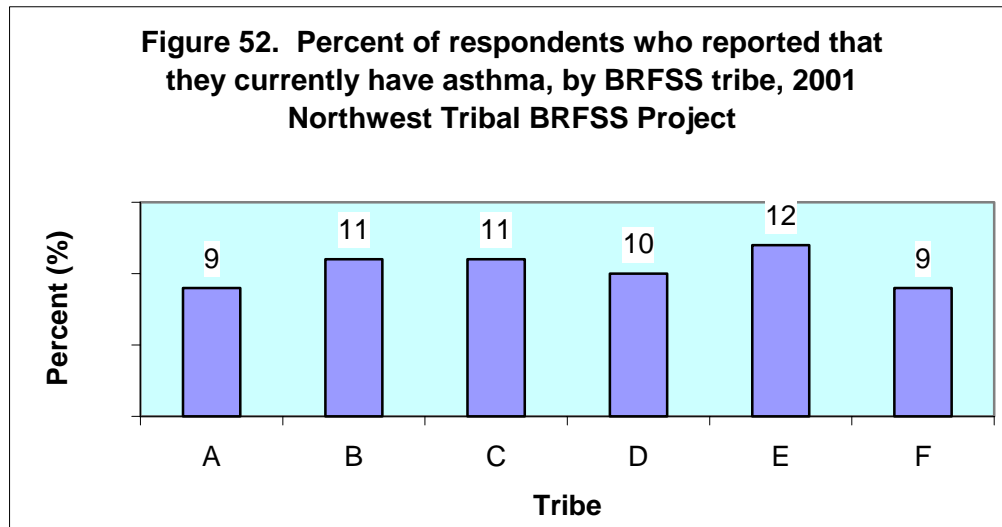
Among tribes that selected BRFSS participants using RPMS, ten percent (10.4%) of respondents reported current asthma, 5.6% of men and 13.2% of women. Current asthma was more likely to be reported by respondents age 18-29 years (11.3%) and age 45 years and older ( $\geq 11.1\%$ ), unmarried individuals (11.5%), those who were unemployed (14.4%), and had a household income below federal poverty level (14.5%) (Table 39).

Among tribes that selected BRFSS participants using tribal enrollment, ten percent (10.3%) of respondents reported current asthma, 6.7% of men and 13.1% of women. Asthma was more likely to be reported by respondents age 60 years and older (8.8%), those who were married (10.9%), postsecondary educated (11.4%), unemployed (12.4%), and had a household income  $> 200\%$  of federal poverty level (11.6%) (Table 39).

The two tribal samples exhibited similar proportions of respondents with current asthma, both of which were significantly higher than the three northwest states. For Idaho, Oregon, Washington, and the two tribal samples, a higher percentage of women reported current asthma compared to men. The age distribution of those reporting current asthma was different for all five samples, and also varied by marital status, education, employment status, and household income, depending on the population.



- Across tribes, the percentage of respondents who reported current asthma ranged from 9% to 12% (Figure 52).



### *Mental Health*

Mental disorders affect people of all ages. Approximately 44 million American adults, and nearly one in five children in the United States, will have a diagnosable mental disorder in 2003. Mental distress can diminish quality of life and disrupt productivity on the job. Although mental disorders are common and can be highly disabling, they also can be identified and diagnosed reliably and can be treated with a high degree of effectiveness.<sup>174,175,176,177,178</sup>

Among tribes that sampled using RPMS,<sup>179</sup> 20.7% of respondents reported seeing a professional to treat mental health concerns in the past five years. Women were more likely than men to report seeing a professional to treat mental health concerns in the past five years, 25.2% compared to 13.1%. A higher proportion of respondents age 45-59 years reported seeing a professional to treat mental health concerns in the past five years (24.8%). Respondents who reported seeing a professional to treat mental health concerns in the past five years tended to be unmarried (23.5%), post secondary educated (22.9%), unemployed (24.7%), and have a household income <100% of federal poverty level (25.1%) (Table 40).

Among tribes that sampled using tribal enrollment,<sup>180</sup> 17.9% of respondents reported seeing a professional to treat mental health concerns in the past five years. Women were more likely than men to report seeing a professional to treat mental health concerns in the past five years, 21.8% compared to 12.9%. A higher proportion of respondents age 18-29 years old reported seeing a professional to treat mental health concerns in the past five years (20.7%). Respondents who reported seeing a professional to treat mental health concerns in the past five years tended to be unmarried (19.2%), post secondary educated (20.8%), unemployed (20.5%), and have a household income 101%-150% of federal poverty level (22.8%)(Table 40).

<sup>174</sup> National Alliance for the Mentally Ill, <http://www.nami.org/history.htm>

<sup>175</sup> National Institute of Mental Health, <http://www.nimh.nih.gov/>

<sup>176</sup> National Alliance for Research on Schizophrenia and Depression, <http://www.narsad.org/>

<sup>177</sup> Reports of the Surgeon General, <http://www.nimh.nih.gov/research/sgreports.cfm>

<sup>178</sup> Substance Abuse and Mental Health Services Administration, <http://www.samhsa.gov/>

<sup>179</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>180</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

A higher proportion of respondents selected using RPMS reported seeing a mental health professional in the past five years compared to respondents selected from tribal enrollment lists. For both samples, a significantly higher proportion of women reported seeking help for mental health concerns than men. For both samples, those who saw a mental health professional in the previous five years tended to be unmarried, postsecondary educated, and unemployed.

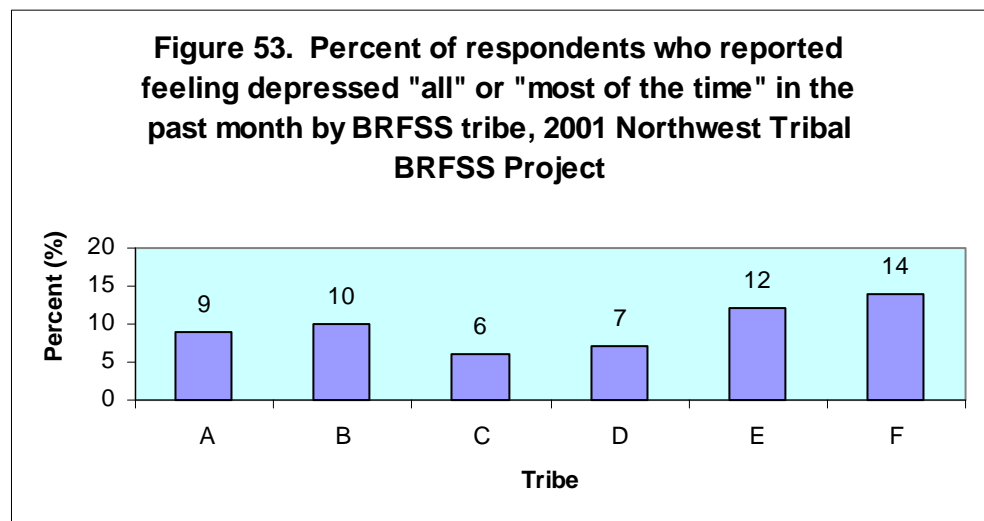
Among tribes that sampled using RPMS,<sup>181</sup> 8.8% of respondents reported feeling depressed “all” or “most of the time” in the past month. Women were more likely than men to report feeling depressed “all” or “most of the time” in the past month, 10.7% compared to 5.6%. A higher proportion of respondents age 35-49 years reported feeling depressed “all” or “most of the time” in the past month (11.5%). Respondents who reported feeling depressed “all” or “most of the time” in the past month tended to be unmarried (10.5%), high school educated or less (9.0%), unemployed (12.7%), and have a household income 101%-150% of federal poverty level (12.0%) (Table 41).

Among tribes that sampled using tribal enrollment, 9.8% of respondents reported feeling depressed “all” or “most of the time” in the past month. Women were more likely than men to report feeling depressed “all” or “most of the time” in the past month, 12.1% compared to 6.8%. A higher proportion of respondents age 35-49 years reported feeling depressed “all” or “most of the time” in the past month (10.5%). Respondents who reported feeling depressed “all” or “most of the time” in the past month tended to be unemployed (15.2%) and have a household income <100% of federal poverty level (12.2%) (Table 41).

Respondents in the two tribal samples were equally likely to report feeling depressed “all” or “most of the time” in the past month. For both groups, women were significantly more likely than men to report feeling depressed recently. For both groups, those who were unmarried and/or unemployed were more likely to report feeling depressed “all” or “most of the time” in the past month compared to those who were married and/or employed.

Questions on mental health were not asked in the Idaho, Oregon, or Washington state BRFSS, 1998-2001.

- The percentage of respondents who reported feeling depressed “all” or “most of the time” in the past month ranged from 6% to 14% by tribe (Figure 53).



<sup>181</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).



### *Assistance with Personal Care or Routine Needs*

An estimated 34 to 43 million people in the United States have chronic disabilities. Traffic accidents, violence, and falls are the leading causes of traumatic brain and spinal cord injuries, which are two of the most severe disabling injury conditions.<sup>182,183,184</sup>

Additional information on types of disabilities reported by BRFSS respondents can be obtained by calling the local tribal health director or the BRFSS principal investigator, 1-877-664-0604. Here we provide information on need for assistance with personal care or routine needs only.

Among tribes that sampled using RPMS,<sup>185</sup> 8.3% of respondents reported needing help to handle personal care or routine needs. Women were more likely than men to report needing help to handle personal care or routine needs, 8.6% compared to 7.8%. A higher proportion of respondents aged 50 years and older reported needing help to handle personal care or routine needs (15.6%). Respondents who reported needing help to handle personal care or routine needs tended to be unmarried (8.6%), high school educated or less (9.6%), unemployed (15.3%), and have a household income <100% of federal poverty level (12.5%) (Table 42).

Among tribes that sampled using tribal enrollment,<sup>186</sup> 8.4% of respondents reported needing help to handle personal care or routine needs. Women were more likely than men to report needing help to handle personal care or routine needs, 9.1% compared to 7.5%. A higher proportion of respondents aged 50 years and older reported needing help to handle personal care or routine needs (19.5%). Respondents who reported needing help to handle personal care or routine needs tended to be married (10.5%), unemployed (16.9%), and have a household income <100% of federal poverty level (11.8%) (Table 42).

For both tribal samples, a higher proportion of women reported needing help to handle personal or routine needs than men. In both groups, most of the respondents who reported needing help for personal or routine needs were age 50 or older, and had a household income below federal poverty level.

Questions on needing help to handle personal care or routine needs were not asked in the Idaho, Oregon, or Washington state BRFSS, 1998-2001.

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<sup>182</sup> Americans with Disabilities Act, <http://www.usdoj.gov/crt/ada/adahom1.htm>

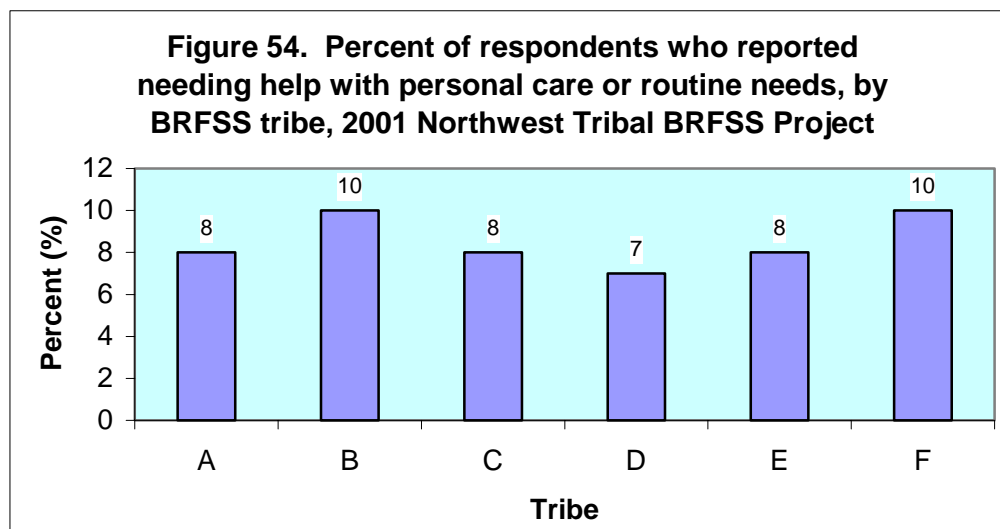
<sup>183</sup> American Association of People with Disabilities, <http://www.aapd.com/>

<sup>184</sup> National Center for Injury Prevention and Control, <http://www.cdc.gov/ncipc/>

<sup>185</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>186</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.

- The percentage of respondents who reported needing help with their personal care or routine needs ranged from 7% to 10% by tribe (Figure 54).



### Dental Visits

At the core of oral health is the maintenance of healthy teeth and gums by preventing gum disease and cavities. Gum disease has been linked to a variety of medical conditions including diabetes, heart disease and adverse pregnancy outcomes.<sup>187,188,189</sup>

Among all race respondents to the Idaho state BRFSS, 1998-2001, 64.2% reported visiting a dentist or dental clinic within the past year. Women were more likely than men to report visiting a dentist or dental clinic within the past year, 66.0% compared to 62.3%. The proportion of respondents who reported visiting a dentist or dental clinic within the past year was highest for respondents aged 50-54 years old (72.6%). Respondents who reported visiting a dentist or dental clinic within the past year tended to be married (66.5%), post secondary educated (71.3%), and employed (66.1%) (Table 43).

Among all race respondents to the Oregon state BRFSS, 1998-2001, 66.6% reported visiting a dentist or dental clinic within the past year. Women were more likely than men to report visiting a dentist or dental clinic within the past year, 68.2% compared to 64.9%. The proportion of respondents who reported visiting a dentist or dental clinic within the past year was highest for respondents aged 45-49 years old, (76.9%). Respondents who reported visiting a dentist or dental clinic within the past year tended to be married (72.2%), post secondary educated (74.2%), and employed (69.4%) (Table 43).

Among all race respondents to the Washington state BRFSS, 1998-2001, 67.4% reported visiting a dentist or dental clinic within the past year. Women were more likely than men to report visiting a dentist or dental clinic within the past year, 70.4% compared to 66.1%. The proportion of respondents who reported visiting a dentist or dental clinic within the past year was highest for respondents aged 50-54 years old, (75.4%). Respondents who reported visiting a dentist or dental clinic within the past year tended to be married (73.0%), post secondary educated (73.9%), and employed (70.4%) (Table 43).

Among tribes that sampled using RPMS,<sup>190</sup> 66.5% of respondents reported visiting a dentist or dental clinic within the past year. Women were more likely than men to report ever visiting a

<sup>187</sup> National Institute of Dental and Craniofacial Research, <http://www.nidcr.nih.gov/>

<sup>188</sup> National Institute of Dental Research, <http://sis.nlm.nih.gov/aids/nidr.html>

<sup>189</sup> Healthy Mouth Healthy Body, <http://www.healthymouthhealthybody.com/>

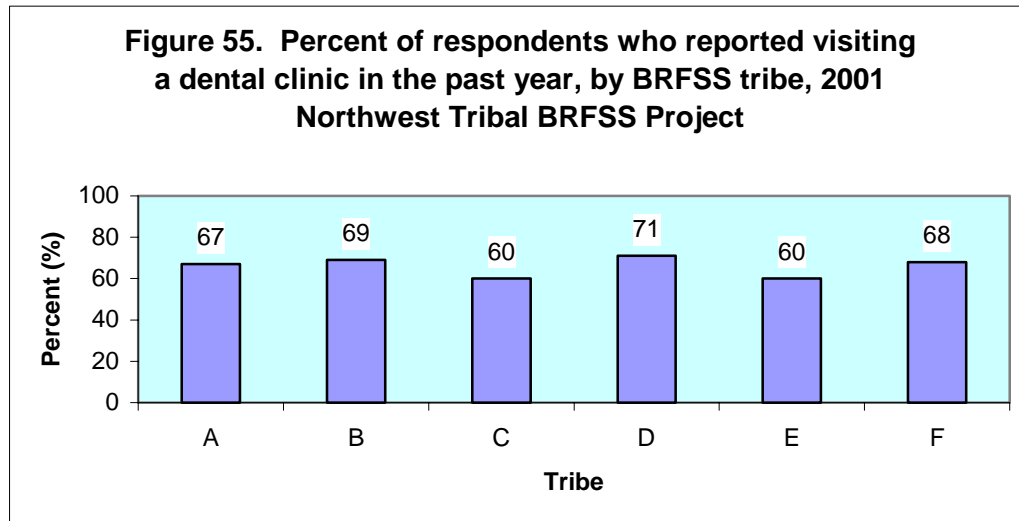


dentist or dental clinic within the past year, 68.4% compared to 63.3%. The proportion of respondents who reported visiting a dentist or dental clinic within the past year was highest for respondents aged 30-34 years old (76.3%). Respondents who reported visiting a dentist or dental clinic within the past year tended to be married (68.5%), postsecondary educated (69.1%), employed (71.5%), and have a household income >200% of federal poverty level (73.2%) (Table 43).

Among tribes that sampled using tribal enrollment,<sup>191</sup> 65.6% of respondents reported visiting a dentist or dental clinic within the past year. Women were more likely than men to report visiting a dentist or dental clinic within the past year, 69.7% compared to 60.5%. The proportion of respondents who reported visiting a dentist or dental clinic within the past year was highest for respondents aged 25-29 years old (76.1%). Respondents who reported visiting a dentist or dental clinic within the past year tended to be unmarried (67.7%), post secondary educated (67.4%), employed (67.2%), and have a household income 101%-150% of federal poverty level (72.2%) (Table 43).

Respondents to the Idaho, Oregon, and Washington state BRFSS 1998-2001, and respondents to the Tribal BRFSS that were selected using both RPMS and tribal enrollment lists all reported similar frequencies of visiting a dentist or dental clinic in the past year. For all five groups, a higher proportion of women reported a recent dental visit compared to men. In all five populations, respondents who were postsecondary educated and/or employed were more likely to report visiting a dentist in the past year compared to those who were high school educated or less and/or unemployed.

- The percentage of respondents who reported visiting a dental clinic in the past year ranged from 60% to 71% by tribe (Figure 55).



<sup>190</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from clinic service users using the Resource and Patient Management System (RPMS).

<sup>191</sup> Combined results based on information from three BRFSS tribes who randomly sampled individuals from tribal enrollment rosters.