

Hearing-related health among Northwest American Indians: A risk factor survey

by

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A THESIS

Presented to the Department of Public Health and Preventive Medicine
and the Oregon Health & Science University
School of Medicine
in partial fulfillment of
the requirements for the degree of
Master of Public Health

May 2007

School of Medicine

Oregon Health & Science University

CERTIFICATE OF APPROVAL

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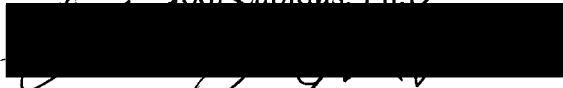
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Acknowledgements

I would like to thank my thesis committee for their patient guidance throughout my thesis. I am appreciative for Tom Becker's commitment to improving the health among American Indians in the Northwest. Tom Becker has been dedicated to my success in public health research since I first began conducting health research in the Native Hawaiian community. After attending the Native Researchers Cancer Control Training Program (NRCCTP) in 2002, Tom continued to guide me. Leslie Wosnig, tribal health coordinator has been helpful at all stages of this project and she was the one who requested Tom's assistance in conducting a survey to assess health risk factors within the tribe for which she serves. I am thankful to the tribal council and all tribal members for their support and sharing of their cultural values with me throughout this thesis. I extend my thanks to all of the tribal members and Oregon Health & Science University (OHSU) staff who conducted interviews gathering the BRFSS information. Jodi Lapidus, statistical member of my thesis committee, has been extremely helpful in developing my biostatistics skills since I attended the NRCCTP and during my two years at OHSU, and throughout the data management and analysis sections of my thesis. She provided clear explanation of conducting statistical analyses using logistic regression modeling. I have acquired statistical skills that will help me to serve my Hawaiian community after I complete my MPH degree in epidemiology and biostatistics before I return home. Billy Martin, thesis committee member and neurophysiologist at the OHSU tinnitus clinic, has spent several hours explaining complex aspects of hearing loss and tinnitus. He was even able to use models of hair cells to help me to understand how hearing loss is affected by noise exposure. This new knowledge will also help me to provide information to the

Hawaiian community when I return home and begin developing relevant public health intervention programs.

I am deeply thankful to my family for showing me that I can achieve my goals in public health and epidemiology. They have provided me direction throughout the development of my career. I thank my Hawaiian community for providing me the opportunity to serve my community to decrease the health disparities that affect Native Hawaiians.

Abstract

Background: Within the United States, hearing loss is a common condition affecting about one in three adults over 60 years of age. Tinnitus, ringing in the ears, affects about 15% of the general United States population. Few data have addressed the prevalence of and risk factors for hearing loss and tinnitus among tribal people. However, otitis media and significant noise exposure, which have been identified as risk factors for hearing loss and tinnitus in other populations, are commonly reported among American Indians and Alaska Natives (AI/AN's). Descriptive information on prevalence and risk factors for hearing loss and tinnitus may assist in planning of public health interventions for tribal members.

Methods: We conducted a cross-sectional study designed to address self-reported provider-diagnosed hearing loss and tinnitus. Our convenience sample included 217 adult members from one Pacific Northwest tribe. During community forums and by mailing letters to tribal members, tribal leaders encouraged adult tribal members to participate in our study based on its potential benefit for the tribe. After survey data were collected, we conducted univariate logistic regression analyses to assess crude and age-adjusted odds ratios of each of the predictor variables with the two outcome variables of interest to our study--hearing loss and tinnitus. Through backward selection, predictor variables were removed to develop a multiple logistic regression model for hearing loss and one for tinnitus. Frequency measures were conducted for the other hearing-related health questions not included in the regression analysis, such as difficulty hearing sounds under various conditions and hearing aid use.

Results: Among all participants, 18% reported hearing loss (males: 24% vs. females: 13%). Prevalence of hearing loss predictably increased with advancing age. After adjusting for age, history of significant noise exposure was a risk factor for hearing loss (Odds Ratio (OR): 8.30, 95% Confidence Interval (CI): 1.84, 37.52). The overall prevalence of tinnitus was 33% (comparable between males and females). The strongest risk factors for tinnitus after adjusting for age were history of significant noise exposure (OR: 2.24, 95% CI: 1.28, 6.73) and otitis media history (OR: 2.82, CI: 1.26, 6.30). A larger percentage of women compared to men reported difficulty hearing sounds under various conditions. Only 8% of study participants reported hearing aid use.

Conclusion: Increasing age and history of significant noise exposure were strong predictors of self-reported physician-diagnosed hearing loss in this tribe after adjusting for sex. For tinnitus, our data indicated that history of significant noise exposure and history of otitis media were the strongest predictors of this condition, even after age adjustment. We recommend that tribal members limit prolonged significant noise exposures, wear hearing protection in risky environments, and provide tribal children with the appropriate vaccines to help protect against otitis media infections caused by specific bacteria, which may protect against hearing loss and tinnitus later in life.

Introduction

Background

A. Hearing Loss

Hearing loss is a common condition in the United States. Among those older than 60 years of age, one in three has hearing loss (NIDCD, 1996). About half of the US population over 85 years of age has hearing loss (NIDCD, 1996). Furthermore, approximately 10% of the general US population experience hearing loss (NIDCD, 1996). As humans age, they commonly experience hearing loss (also known as presbycusis), which is characterized by loss of threshold sensitivity, especially at high frequencies, and difficulty understanding speech in noisy environments (Kujawa & Liberman, 2006).

Kujawa and Liberman concluded that early significant noise exposure renders the inner ears more vulnerable to premature aging (2006). The damage caused by significant noise exposure is a function of intensity of the sound combined with duration of sound exposure. Extremely loud sounds, especially with high intensity, cause damage in a brief period of time. For example, exposure to 130 dBA (sound pressure level) causes instant damage. Moderate sounds such as those of 85 dBA cause damage over longer periods of time (Dangerous Decibels, 2007). Age-related and noise-induced hearing losses are multifactorial with contributions from and potential interactions among numerous variables (Gates, 2000). Hearing loss may be due to genetic factors, history of exposure to significant noise, sensitivity to drugs or medications, and viral or bacterial infections (Martin, Sobel, Greist, Howarth, & Yongbing, 2006).

Other potential risk factors for hearing loss may include past military service and history of diabetes. Tay and co-workers conducted a prospective hearing survey in a sample of 102 diabetic patients and found a significant difference in the average hearing thresholds among diabetic patients and the three control populations (1995). Diabetic patients showed worse hearing threshold levels, especially at low and mid frequencies ($p < 0.001$) (Tay, Ray, Ohri, & Frootko, 1995). These authors also found a correlation between the duration of diabetes and hearing loss (Tay et al., 1995).

Noise-induced hearing loss can increase over time with continuous significant noise exposure. This exposure can be occupational, recreational or associated with previous military service. The effects of noise-induced hearing loss include sounds becoming distorted or muffled, and difficulty understanding speech (NIDCD, 1996).

An additional risk factor for hearing loss may be history of otitis media. The National Institute on Deafness and Other Communication Disorders (NIDCD) reported that untreated otitis media can travel from the middle ear to the adjacent structures, including the brain (1996). Although the hearing loss caused by otitis media is usually temporary, untreated otitis media may lead to permanent hearing impairment. Persistent fluid in the middle ear and chronic otitis media can reduce a child's hearing at a time that is critical for speech and language development. Children who have early hearing impairment from frequent ear infections are likely to have speech and language disabilities (NIDCD, 1996).

In general, bacterial infection does not usually cause hearing loss, except for meningitis. There are several types of otitis media from different causes. All types of otitis media can potentially cause conductive hearing loss by interfering with sound

transduction through the middle ear. Chronic otitis media may leave long term residual hearing loss. Fortunately, conductive hearing loss, if not correctable through surgical treatments, responds well to the use of hearing aids (Y.B. Shi, personal communication, January 24, 2007).

Sensorineural hearing loss, which results when damage occurs to the inner ear or the nerve pathways from the inner ear to the brain, can occur in a small proportion of patients with repeated or chronic otitis media caused by bacterial infection. This is due to bacterial toxin damage to the inner ear, which is separated from the middle ear only by a thin membrane. Sensorineural hearing loss involves not only a reduction in sound level and the ability to hear faint sounds but it also affects understanding speech and the ability to hear clearly. This type of hearing loss is permanent and cannot be corrected by surgical or medical treatment. Patients with sensorineural hearing loss can still benefit from using hearing aids, but the outcomes are sometimes not as good as for pure conductive loss (Y.B. Shi, personal communication January 24, 2007).

Hearing-related problems among American Indian tribal members have not been extensively studied. The authors of the 2005 Centers for Disease Control and Prevention Advance Data report on the health characteristics of the American Indian and Alaska Native population found that American Indian or Alaska Native adults nationwide (6.4%) were nearly twice as likely as white adults (3.5%) and four times as likely as Asian adults (1.8%) or black adults (1.6%) to report moderate to severe hearing problems (Barnes, Adams, & Powell-Griner, 2005).

Previous researchers have reported higher rates of otitis media among American Indian and Alaska Native children than predominantly white populations (Homoe,

Christensen & Bretlau, 1996). Nelson and co-workers reported that chronic otitis media infection prevalence is 10 to 20 times higher in school-age American Indian children than that of the general population (Nelson, Daly, Davey, & Goetz, 2005). To assess this potential relationship between otitis media and hearing loss in American Indians, we evaluated otitis media as a potential risk factor for hearing loss in our tribal survey.

B. Tinnitus

Tinnitus is the perception of sound that does not have an external source, which can be constant or intermittent and perceived as ringing, buzzing, hissing, sizzling, roaring, chirping or other sounds (Brown, 1990). Abnormal nerve firing in the auditory system is the most likely cause of tinnitus. Exposure to excessively loud sounds including gunfire, power tools, machinery, or music is the most common cause of tinnitus. A cure for tinnitus is not currently available, but patients can obtain relief from the symptom through tinnitus management strategies offered by clinicians (Brown, 1990).

In the United States, approximately 45 million people (15% of the general population) suffer from tinnitus (Seidman & Jacobson, 1996). Tinnitus prevalence increases with age: 27% of males and 15% of females 45 years and older experience the symptom (Adams, Hendershot, & Marano, 1999). Severe tinnitus is prevalent among 4.5% of the general population and among 12.3% of those 55 years and older (Brown 1990). More males than females experience tinnitus because men traditionally have had a greater amount of significant noise exposure in military service, in the workplace and during recreational activities. Tinnitus has not been documented in Indian populations, or

prevalence of this condition nor its risk factors for occurrence.

C. Rationale for this study

Members of many Northwest tribes work in occupations that result in regular and continuous exposure to significant noise. Tribal health leaders have reported that tribal members work in fishing, agriculture, construction, and logging industries, which are sources of chronic significant noise exposure. Currently, there is not a program in place for tribal members to address these significant noise issues as they relate to hearing loss and tinnitus. Therefore, it is important to determine whether there is a high prevalence of hearing loss or tinnitus among tribal members, and whether preventable exposures or conditions can be identified. Since this population appears to be at higher risk for hearing-related health problems, resources need to be focused on this population. Current intervention programs are lacking on hearing loss and tinnitus targeted at American Indians. Given the lifestyle differences and common exposures to occupational and recreational significant noise among Pacific Northwest American Indians, we undertook this survey to assess the prevalence of and risk factors for hearing loss and tinnitus. We hypothesized that the frequency of these conditions in Indian populations would be at least as high if not higher, among Indian people compared to non-Indians.

Methods

Our survey was based on the Behavioral Risk Factor Surveillance System (BRFSS) survey that was established in 1984 by the Centers for Disease Control and Prevention to monitor health risk behaviors (National Center for Chronic Disease Prevention and Health Promotion, 2006). The BRFSS program is aimed at collecting data on health-related behaviors that would be useful in planning, initiating, monitoring and evaluating health promotion and disease prevention programs. All BRFSS questions are based on self-report and are not verified through medical chart review.

Questionnaires with identical questions are available to all states and federally recognized tribes. For our cross-sectional study, we added a module specifically designed to address acquired hearing loss and tinnitus to the basic BRFSS questionnaire. Input was requested from tribal members during the development of our surveys and the surveys were pilot tested before being administered to tribal members. During the early stages of survey development, tribal members expressed the need to collect additional information from the surveys on military status and interest among the tribe for access to exercise facilities and walking paths. The hearing module added 11 questions to the already included 190 questions. The sequence of questions in our survey was modeled after the BRFSS surveys administered by the Northwest Portland Area Indian Health Board (NPAIHB, 2006).

Participants

We selected a convenience sample of study participants from one Pacific Northwest tribe. Tribal health officials agreed to inform the community about the BRFSS interviews during community meetings, community events and in the community newsletter. During these forums, information was provided on the project's purpose, methods, and timing. Tribal members were also alerted before they were contacted by telephone to arrange appointments to participate in the interviews. Eligible adult participants over 18 years of age were informed about the study. Those under 18 years old were not included.

Five hundred (500) tribal adult members are enrolled in the participating tribe. A letter informing tribal members about the study was sent to all eligible participants several months before interviews began. This letter was signed by the tribal chairman encouraging all to participate. We made follow-up telephone calls to all potential study participants who had telephones to further our recruitment efforts and to set up appointments for face-to-face interviews. Three hundred and fifty (350) potential participants were contacted and we were able to recruit 217 participants (62%). Difficulties in contacting potential participants were due to unlisted phone numbers or unavailable physical residence addresses.

Interviewers were hired from within the tribal community and from Oregon Health & Science University (OHSU). Although only the hearing module questions will be reported for this study, each interview included questions on: demographics, health status and health care utilization, exercise and physical activity, hypertension awareness, cholesterol awareness, asthma, diabetes, disability, arthritis, tobacco use, alcohol

consumption, sexual behavior, prostate cancer screening, colorectal cancer screening, breast and cervical cancer screening, oral health, cardiovascular disease, diet and nutrition, mental health, and household income level. The other information will be used by the tribe for planning, initiating, monitoring and evaluating health promotion and disease prevention programs.

Interviews

All interviewers were trained by one experienced investigator and were monitored for quality control. Questionnaires were pre-tested by interviewers before implementation.

Following the interviews, all interview forms were reviewed on-site for data clean up. Face-to-face interviews were conducted at locations convenient to the study participants. All interviews conducted were culturally-sensitive and took up to 45 minutes. Interviews were conducted over a 6-month period. Study participants received ten dollars for their participation upon completion of the interview.

Assessment of outcomes

For the purpose of this study, hearing loss and tinnitus conditions were obtained through self-reported interview questions. Participants were asked if they had ever been diagnosed with hearing loss by a doctor, nurse, or other health care provider. Tinnitus was assessed through asking participants if they have ringing (or hissing, buzzing, roaring or clicking) in their head or ears.

Assessment of risk factors

Potential risk factors were evaluated based on previous documentation in the literature. Other researchers have hypothesized that several factors influence hearing loss and tinnitus including: past otitis media infections, diabetes mellitus, history of military service, history of recreational significant noise exposure, history of occupational significant noise exposure, age, and male gender. These risk factors were assessed through self-report interview questionnaires.

Data Management

After completion of the interviews, all original surveys were reviewed on site to check for errors so that these could be addressed before beginning the data entry. Personal identifiers were removed from the surveys by the tribal staff members before the OHSU staff began to enter data. All data were entered into a data program compatible with SPSS version 14.0, which was the statistical package used for all analyses (SPSS, 2005). Tribal health leaders were informed through regular updates by email and phone throughout all steps of the data entry and analysis processes.

The 11 questions of the hearing module section of the BRFSS survey were focused on questions asking about ringing in the ears (yes, no, and don't know/not sure), frequency of ringing in the ears (never, rarely, sometimes, usually, always, and don't know/not sure), difficulty hearing at work, school, or during other required activities (never, rarely, sometimes, usually, always, and don't know/not sure), difficulty hearing sounds at home (never, rarely, sometimes, usually, always, and don't know/not sure), difficulty hearing voices during family time (never, rarely, sometimes, usually, always, and don't know/not sure), history of occupational loud noise exposure (yes, no, and don't

know/not sure), history of recreational significant noise exposure (yes, no, and don't know/not sure), lifetime history of ear infections (never had an ear infection, 1-2, 3-4, more than 4, and don't know/not sure) past year history of ear infections (never had an ear infection, 1-2, 3-4, more than 4, and don't know/not sure), hearing loss diagnosis by a health professional (yes, no, and don't know/not sure), and use of a hearing aid (yes, no, and don't know/not sure) (see appendix).

Nearly all missing data were from participants answering the option of not sure/don't know rather than participants not answering the specific question. After the data were entered, we cleaned the data through range checks of each of the variables. All of the variables included in our analyses were structured as categorical except for age which was continuous.

We also calculated new variables for some of the outcome and predictor variables by recoding the original data. The outcome variables, hearing loss and tinnitus were transformed to be dichotomous variables (yes=1, no=0). Sex (male=1, female=2), history of occupational significant noise and recreational significant noise exposure, military history and diabetes mellitus status were set as dichotomous variables also (yes=1, no=2). Since there was a correlation between history of occupational and recreational significant noise exposure, and since the effects of significant noise exposure are not expected to be different among the two types of exposures, we developed a predictor variable to capture history of any type of significant noise exposure including recreational and/or occupational significant noise exposure. The new variable was called "history of any type of significant noise exposure." Otitis media was defined as ever having an ear infection (yes=1, no=2). In the questionnaire, otitis media infections were also

categorized into 4 categories: (0=never had an ear infection, 1=1-2 ear infections, 2=3-4 ear infections, and 4=more than 4 ear infections). Associations between otitis media (both variables) were assessed in the multiple logistic regression models.

Data Analysis

We calculated frequency measures on the demographic variables to better characterize our sample population. This strategy allowed us to look at these characteristics as they relate to hearing loss and tinnitus among the participants. These measures assessed specific tribal membership (affiliation with reservation tribe or another tribe), sex, age, marital status, education, employment, working household telephone, and working household vehicle. Then, we developed contingency tables to assess correlations between all variables. We looked at the age distribution of each of the variables. From here, we categorized age into five 10-year age groups to describe the prevalence of hearing loss and tinnitus across the adult life span.

Next, we fit logistic regression models to estimate odds ratios associating each of the predictor variables with hearing loss and with tinnitus separately as the dependent variables. We computed both crude (unadjusted) and age-adjusted odds ratios in this manner.

After completing the univariable analyses, we built multiple logistic regression models following the recommendations proposed by Hosmer and Lemeshow (2000). Independent risk factors included in the crude or age-adjusted analyses that had an association with the outcome variables at a significance level less than or equal to 0.1 or those considered to be potential confounders in previous literature (sex and age) were included in multiple logistic regression modeling as candidate predictors of hearing loss

and tinnitus. We chose a significance level of 0.1 to select candidate variables for inclusion in the multiple logistic regression models to allow for the effects of confounding related to having multiple risk factors in a multiple logistic regression model. By having a less stringent criteria for inclusion within the multiple logistic regression model, variables with weak associations in univariate analyses are allowed the possibility of becoming important predictors of the outcome when included in a model with the other predictor variables. This method of choosing a higher level of significance has been advocated by Hosmer and Lemeshow for exploratory model building. Although Hosmer and Lemeshow recommend a significance level of 0.25, we chose a significance level of 0.1 since we had a small sample size ($n=217$). All candidate variables that met the 0.1 level of significance or confounder criteria were placed in a multiple logistic regression model together. Then, through backward elimination, variables were removed individually. The variable with the least significance based on the Wald test was removed first and successive variables were removed based on the least level of significance until all variables in the model had a significance level less than or equal to 0.05.

Frequency measures were conducted for the other hearing questions that were not included in the regression analyses-difficulty hearing sounds under various conditions and hearing aid use. These variables were also looked at stratified for age and sex.

Human Subjects Considerations

Northwest Portland Area Indian Health Board and OHSU Institutional Review Boards (IRB) both gave IRB approval for this study. This tribe gave its permission for data analysis and publication of the hearing module results. Before submitting this thesis for publication, findings were presented to the tribe and the final draft was provided for review and approval.

Results

Demographic data showing tribal membership, sex, age, marital status, education level, employment status, working household telephone working household car and poverty level classification are given in table 1. Most of our sample included members of the specific tribe of interest (92%). There were more females (55%) than males (45%) included in our sample. A large percentage (61%) of study participants had at least 12 years of education. Approximately 60% of our study sample was employed. Most study participants had a household telephone (92%) and a household car (90%).

Prevalence of hearing loss predictably increased with advancing age (see figure 1). Over all ages and both sexes, 18% reported provider-diagnosed hearing loss, with a higher proportion of men than women (23.7% vs. 12.5%) reporting hearing loss (see figure 2). Table 2 shows odds ratio estimates associated with hearing loss. For both sexes combined, history of occupational significant noise exposure was a risk factor for hearing loss (OR: 3.47, 95% CI: 1.42-8.50) after adjustment for age.

The prevalence of tinnitus was highest among the 46-59 year age group and lowest among the 18-35 year age group (see figure 4). Among all participants, the prevalence of tinnitus was 32.7% (comparable for males and females) (see figure 5).

The strongest risk factors for tinnitus were history of recreational significant noise exposure (OR: 2.64, 95% CI: 1.27-5.51) after adjustment for age, and history of otitis media (OR: 2.82, CI: 1.26-6.30), after adjustment for age. Table 3 shows odds ratio estimates for tinnitus.

The multiple logistic regression model for hearing loss is shown in table 4 and included history of any type of significant noise exposure, sex, and age. After adjusting for age and sex, the odds ratio associating history of any type of significant noise exposure to hearing loss was 6.58 (95% CI: 1.39, 31.10).

For tinnitus, the multiple logistic regression model included the following predictor variables: otitis media, history of any type of significant noise exposure, age and sex. After adjusting for otitis media, age and sex, the odds ratio associating history of any type of significant noise exposure and tinnitus was 3.98 (95%CI: 1.55, 10.24). The larger sample of tinnitus participants allowed us to look at three otitis media categories (0=never had an ear infection, 1=1-4 ear infections and 2=more than 4 ear infections) in the multiple logistic regression models. Through this alternative model, after adjusting for otitis media (three categories), age and sex, the odds ratio associating history of any type of significant noise exposure and tinnitus was 3.71 (95%CI: 1.41, 9.75). Within this model, comparing those with more than four ear infections to those who never had an ear infection, the odds ratio was 4.77 (95% CI: 1.89, 12.02). The multiple logistic regression model for tinnitus is summarized in table 5.

Participants who experienced the other hearing-related characteristics not included as risk factors or outcomes in the regression analyses for this thesis had similar mean ages except for those who reported hearing aid use. These results are summarized

in table 6. Participants reporting difficulty hearing significant noise at work or school, at home and while people were talking had a mean age between 41-42 years old. The percentage of females who reported having difficulties hearing under all three of these circumstances was greater than that for males. A larger percentage of females reported having difficulty hearing significant noise at school or work compared to males (42% vs. 58%). This sex comparison was also true for the reporting of difficulty hearing sounds at home with 59% of women reporting this difficulty compared to only 41% of male respondents. The percentage of women reporting difficulty hearing people talk was 67% compared to 33% of males. Eight participants reported using a hearing aid: 3 (38%) were female and 5 (63%) were male. The mean age of those using hearing aids was 69 years.

Discussion

Increasing age and history of significant noise exposure were strong predictors of hearing loss in this tribe after sex adjustment. Our findings showing the relationship between history of significant noise exposure and hearing loss among our tribal study participants are consistent with the findings of Kujawa and co-workers for non-tribal participants (2006).

The prevalence of hearing loss among the tribe (18%) was higher than that (10%) among the US population (NIDCD, 1996). The prevalence of hearing loss among the US population also comes from questionnaire data, but we are not able to verify that the same questions were asked in our survey as in the US survey.

For tinnitus, our data indicated that history of recreational significant noise exposure and history of otitis media were the strongest predictors of this disorder, even after adjustment for age and sex.

The prevalence of tinnitus among tribal members (33%) surveyed in our study appear to be higher than that (15%) among the general US population (NIDCS, 1996). This figure for the US was also acquired from questionnaire data and we cannot verify that our question to assess tinnitus was the same as the US survey question to assess tinnitus. These prevalence comparisons cannot be statistically compared since we did not do hearing tests among all participants and included measures of hearing loss and tinnitus as self-report.

Since the effects of noise-induced hearing loss and tinnitus can be prevented, we recommend that tribal members protect against significant noise exposures by wearing hearing protection in risky environments. Although our data do not specifically address this issue, we also recommend that tribal children receive appropriate vaccines to help protect against otitis media infections that are caused by specific bacteria. Such a strategy may protect against hearing loss and tinnitus later in life.

The following conclusions were drawn from the other hearing module questions. Difficulty hearing sounds in certain situations affected between 12% and 15% of the study participants. Only eight (4%) of the study participants reported using a hearing aid. Previous studies demonstrate that many patients postpone getting hearing aids and may have had hearing loss for up to 10 years before seeking medical attention for this condition (Kochkin, 2007). Therefore, although only a small proportion of our sample actually used hearing aids, many of the study participants may need hearing aids.

We were surprised to observe that women reported greater difficulty hearing different sounds under various conditions. In fact, when asked about difficulty hearing people talk, 22 (67%) of the women reported difficulty compared to only 11 (33%) of the men. Based on our data, we cannot explain this finding. Our tribal partners were also unable to suggest reasonable explanations for this finding. Thus, we would prioritize these findings in hearing health efforts among this tribe.

Limitations

This study has limitations that must be recognized. First, our survey represents a convenience sample of tribal members who were willing to participate in a BRFSS survey. We attempted to contact and enroll all 500 adult members who were living in one county in a Northwest state. We were unable to contact 30% of all adult tribal members, and 38% refused study entry invitations. Thus, selection bias from non-response could potentially affect the representativeness of our data to the entire adult population of this tribe. Second, all of the study participants were from a single tribe, affecting generalizability of our results to other Indian tribes in the Northwest and beyond. Third, all data were from self-report and no attempt was made to validate responses through medical record review. However, the study participants were informed that we would keep all of their responses confidential and personal identifiers would be removed prior to data entry and analysis.

Public Health Interventions

American Indians have an oral tradition for passing on cultural values and beliefs. Therefore, having difficulty hearing can lead to not only physical and medical barriers but also cultural barriers. Since hearing loss affected 18% of the tribe including those within elder ages and tinnitus affected 33% of the tribe, these conditions may contribute to a loss of tribal traditions from being passed to future generations.

Potential public health interventions should focus on improving hearing-related health among this tribe through primary, secondary and tertiary prevention. Primary prevention should include providing hearing education for all tribal members on how to avoid significant noise exposure and to wear hearing protection when avoidance is not possible. Hearing protection could be provided at boat docks, casinos, shooting ranges and other places known for increased levels of loud noise. The tribe could be encouraged to provide hearing protection education along with already required hunter safety courses. The Dangerous Decibels® program, which is a primary prevention type public health campaign aimed at reducing the incidence and prevalence of noise-induced hearing loss and tinnitus, could be involved in several aspects of potential public health interventions. Collaborators on the Dangerous Decibels® program include OHSU, Oregon Museum and Science and Industry (OMSI), and other universities and organizations. One potential Dangerous Decibels intervention could include a mannequin that has a sound meter attached to it so that people can connect their personal stereo system to the mannequin to test the noise levels of their devices. Such an intervention could be made readily available to tribal people, especially students, as a monitoring system that can also influence behavior related to volume controls on iPods or similar devices.

Secondary prevention should focus on conducting hearing screening tests among the tribe at community health fairs and other community forums. Providing hearing aids to tribal members with hearing loss could be implemented as a tertiary prevention effort to reduce the consequences of hearing loss.

Future studies

Our results suggest that hearing loss prevention programs could be of utility to tribal members in this and possibly other tribal communities. Since noise-induced hearing loss and tinnitus are preventable, education efforts directed at youth and young adults should be considered. A noise-induced hearing loss prevention program such as Dangerous Decibels® could be modified to meet the needs of Northwest tribal people. In addition, other public health education programs sponsored by the tribe to reduce modifiable risks for hearing loss could be implemented, such as incorporating hearing education programs during firework season. We also recommend determining significant noise exposures in American Indian communities and studying obstacles to hearing health in American Indian communities. Another suggestion would be disseminating these results to other tribes and offering assistance with noise-induced hearing loss prevention education

Conclusion

Our data suggest that several risk factors affect hearing loss and tinnitus among this Pacific Northwest tribe. Despite the potential limitations of our study, we have shown that adult members of at least one Pacific Northwest tribe have relatively high prevalence of significant hearing loss and tinnitus compared to the general US population. Because lifestyles and living situations are similar among the Northwest

tribal communities, it is reasonable to suspect other tribal populations in the region to be similarly affected. Since those reporting hearing loss and tinnitus were more likely to have a history of exposure to recreational and/ or occupational significant noise, education programs may be able to prevent noise-induced hearing loss. Our findings have shown that more women compared to men from this tribe experience difficulty hearing sounds under various conditions. We have already secured additional grant funding to further explore hearing loss in this tribe and expect to put public health measures into place to improve hearing health in this and other Pacific Northwest tribes.

References

- Adams, P. F., Hendershot G. E., & Marano MA. (1999). Current estimates from the National Health Interview Survey, 1996. Hyattsville, Md: National Center for Health Statistics, 1999.
- American Speech-Language-Hearing Association. (n.d.) Retrieved April 24, 2007, from <http://www.asha.org/default.htm>
- Barnes P, Adams PF & Powell-Griner, E. (2005). Health Characteristics of the American Indian and Alaska Native Adult Population: United States, 1999-2003. *Advance Data from Vital & Health Statistics*; no. 356. Retrieved April 24, 2007 from <http://www.cdc.gov/nchs/data/ad/ad356.pdf>
- Brown SC. (1990) Older Americans and Tinnitus: A demographic study and chartbook: (Galludet Research Institute Monograph Series A, Number 2). Washington, DC: Gallaudet University.
- Dangerous Decibels (2007)-A public health partnership for prevention of noise-induced hearing loss. Retrieved April 24, 2007 from <http://www.dangerousdecibels.org/>
- Homoe P, Christensen RB, & Bretlau P. (1996) Prevalence of otitis media in a survey of 591 unselected Greenlandic children. *International Journal of Pediatric Otorhinolaryngology*, 36, 215-230.
- Hosmer DW, & Lemeshow S. (2000) *Applied Logistic Regression*. New York: John Wiley & Sons.
- Kochkin, S. (n.d.) Hearing solutions- The impact of treated hearing loss on quality of life. Retrieved April 24, 2007 from http://www.betterhearing.org/hearing_solutions/qualityOfLifeDetail.cfm

- Kujawa S, & Liberman M. (2006) Acceleration of age-related hearing loss by early noise exposure: evidence of a misspent youth. *The Journal of Neuroscience*, 26 (7), 2115-2123.
- Martin W, Sobel J, Greist S, Howarth L, & Yongbing S. (2006) Noise-induced hearing loss in children: preventing the silent epidemic. *Journal of Otology: 1*(1), 11-21.
- National Center for Chronic Disease Prevention and Health Promotion. (May 1, 2007). Behavioral risk factor surveillance system. Retrieved April 24, 2007 from <http://www.cdc.gov/brfss/index.htm>.
- National Institute on Deafness and Other Communication Disorders (NIDCD). (1996). *National Strategic Research Plan: Hearing and Hearing Impairment*. Bethesda MD: National Institutes of Health.
- Nelson H, Daly K, Davey C, & Goetz S. (2005). Prevalence of risk factors for otitis media in two American Indian cohorts. Proceedings from: *Eighth International Symposium on Recent Advances in Otitis Media*, BC Decker, 71.
- Romero FC, Hasty F, Rose R, Charles K, Jimmicum C, Seth L, Jones T, Alvarez S, Keegan E, Becker T, Ramsey K, Smith N, King J, Romero MD, & McDavid K. (2003). *Northwest Tribal Behavioral Risk Factor Surveillance System (BRFSS) Project, Aggregate Final Project Report*. Retrieved April 24, 2007 from http://www.npaihb.org/programs/project/2001_northwest_tribal_brfss_project/.
- Seidman MD, & Jacobson GP. (1996) Update on tinnitus. *The Otolaryngologic clinics of North America*, 29, 455-465.
- Slepecky, N. (1986). Overview of mechanical damage to the inner ear: noise as a tool to probe cochlear function. *Hearing Research*, 22, 307-321.

SPSS Graduate Pack for Windows. (2005) Release 14.0. Chicago: SPSS, Inc.

Tay HL, Ray N, Ohri R, & Frootko NJ. (1995). Diabetes mellitus and hearing loss. *Clinical Otolaryngology*, 20 (2), 130-134.

Table 1. Demographic data: Survey of hearing-related health among Northwest American Indians, 2006 (n=217)

| | | |
|--------------------------------------|--|-------------|
| Specific tribal Member | | |
| | Yes | 199 (91.7%) |
| | Member of another tribe | 18 (8.3%) |
| Sex | | |
| | Male | 98 (45.2%) |
| | Female | 119 (54.8%) |
| Age (years) | 18-24 | 44 (20.3%) |
| | 25-34 | 40 (18.4%) |
| | 35-44 | 41 (19.0%) |
| | 45-54 | 35 (16.1%) |
| | 55-64 | 27 (12.4%) |
| | 65+ | 30 (13.8%) |
| Marital Status * | | |
| | Married | 69 (32.0%) |
| | Living with someone/ a member of an unmarried couple | 37 (17.1%) |
| | Separated | 14 (6.5%) |
| | Divorced | 47 (21.8%) |
| | Widowed | 7 (3.2%) |
| | Never married or lived with anyone | 42 (19.4%) |
| Education | <12 years | 65 (30.0%) |
| | =12 years | 68 (31.3%) |
| | >12 years | 84 (38.7%) |
| Employment ** | | |
| | Employed | 129 (59.4%) |
| | Self-employed | 16 (7.4%) |
| | Out of work for >1 year | 11 (5.1%) |
| | Out of work for < 1 year | 18 (8.3%) |
| | Homemaker | 4 (1.8%) |
| | Student | 3 (1.4%) |
| | Retired | 22 (10.1%) |
| | Unable to work | 14 (6.5%) |
| Working Household Telephone * | | |
| | Yes | 199 (92.0%) |
| | No | 16 (8.0%) |
| Working Household Car | | |
| | Yes | 196 (90.3%) |
| | No | 21 (9.7%) |

| Poverty level classification | |
|-------------------------------------|-------------|
| <100% | 36 (16.6%) |
| 100%-149% | 21 (9.7%) |
| 150%-199% | 31 (14.3%) |
| 200%+ | 100 (45.6%) |
| Don't know | 26 (12.0%) |
| Refused | 4 (1.8%) |

Poverty level classification is the total number of people in the respondent's household by corresponding total yearly income of everyone in the household.

***1 missing data record**

****3 missing data records**

Table 2. Risk factors for physician diagnosed hearing loss: Survey of hearing-related health among Northwest American Indians, 2006 (n=39 participants with hearing loss of a total of 217 surveyed).

| Exposure | Total: (n=217) | | | Males: (n=98) | | | Females: (n=119) | | |
|--------------------------------|----------------------------|--|--------------------------|----------------------------|-------------------|--------------------------|----------------------------|-------------------|--------------------------|
| | No. of cases with exposure | Crude OR ^a (95% CI ^b) | Age-Adjusted OR (95% CI) | No. of cases with exposure | Crude OR (95% CI) | Age-Adjusted OR (95% CI) | No. of cases with exposure | Crude OR (95% CI) | Age-Adjusted OR (95% CI) |
| History of military service | 10 ^d | 2.99 (1.26,7.10) | 1.59 (0.61,4.10) | 10 ^e | 3.30 (1.20,9.04) | 0.94 (0.27,3.35) | 0 | NA | NA |
| Diabetes Mellitus | 3 ^f | 1.42 (0.37,5.44) | 0.78 (0.20,3.07) | NA | NA | NA | NA | NA | NA |
| Otitis media | 27 ^g | 1.19 (0.50,2.84) | 1.66 (0.66,4.17) | 16 ^h | 1.35 (0.43,4.22) | 1.88 (0.52,6.84) | 11 ⁱ | 1.14 (0.29,4.44) | 1.34 (0.33,5.51) |
| Exposure to recreational noise | 27 ^d | 1.16 (0.54,2.49) | 2.35 (0.95,5.82) | 17 ^d | 0.39 (0.12,1.26) | 0.56 (0.14,2.28) | 10 | 1.71 (0.55,5.36) | 3.14 (0.80,12.30) |
| Exposure to work-related noise | 31 ^d | 4.14 (1.73,9.89) | 3.47 (1.42,8.50) | 22 ^d | 6.56 (0.82,52.31) | 3.25 (0.38,28.19) | 9 | 2.96 (0.97,8.98) | 2.65 (0.86,8.19) |

^a OR: Odds Ratio

^d 1 missing

^h 13 missing

^b 95% CI: 95% Confidence Interval

^e 2 missing

ⁱ 12 missing

^c age as a continuous variable

^f 3 missing

^c age as a continuous variable

^g 24 missing

Table 3. Risk factors for self-reported tinnitus: Survey of hearing-related health among Northwest American Indians, 2006 (n=71 participants with tinnitus of a total of 217 surveyed).

| Exposure | Total: (n=217) | | | Males: (n=98) | | | Females: (n=119) | | |
|--------------------------------|----------------------------|---|--------------------------|----------------------------|-------------------|--------------------------|----------------------------|-------------------|--------------------------|
| | No. of cases with exposure | Crude OR ^a (95% CI) ^b | Age-Adjusted OR (95% CI) | No. of cases with exposure | Crude OR (95% CI) | Age-Adjusted OR (95% CI) | No. of cases with exposure | Crude OR (95% CI) | Age-Adjusted OR (95% CI) |
| History of Military service | 14 ^d | 1.98 (0.91,4.33) | 1.18 (0.50,2.77) | 11 | 2.23 (0.87,5.76) | 1.19 (0.39,3.64) | 3 ^d | 2.96 (0.47,18.48) | 1.83 (0.27,12.55) |
| Diabetes Mellitus | 8 ^e | 3.59 (1.13,11.41) | 2.22 (0.67,7.33) | NA | NA | NA | NA | NA | NA |
| Otitis media | 55 ^f | 2.08 (0.98,4.41) | 2.82 (1.26,6.30) | 23 ^g | 1.77 (0.61,5.10) | 2.17 (0.72,6.60) | 32 ^h | 2.43 (0.83,7.17) | 3.63 (1.11,11.87) |
| Exposure to recreational noise | 53 ^d | 1.55 (0.82,2.92) | 2.64 (1.27,5.51) | 26 | 1.25 (0.37,4.31) | 1.77 (0.46,6.83) | 27 ^d | 1.98 (0.90,4.34) | 4.61 (1.66,12.79) |
| Exposure to work-related noise | 49 ^d | 2.14 (1.17,3.89) | 1.82 (0.98,3.38) | 27 | 2.55 (0.68,9.57) | 1.74 (0.44,6.91) | 22 ^d | 3.09 (1.40,6.82) | 2.68 (1.19,6.06) |

^a OR: Odds Ratio

^d 1 missing

^g 12 missing

^b 95% CI: 95% Confidence Interval

^e 3 missing

^h 13 missing

^c age as a continuous variable

^f 25 missing

Table 4. Multiple Logistic Regression model for hearing loss: Survey of hearing-related health among Northwest American Indians, 2006 (n=39 with hearing loss).

| Variables | p-value from Wald test⁺ | Adjusted Odds Ratio (OR) | 95% CI for OR |
|------------------------------|---|---------------------------------|----------------------|
| Noise [*] | 0.017 | 6.58 | 1.39, 31.10 |
| Age (10 years) ^{**} | <0.001 | 1.63 | 1.29, 2.07 |
| Sex ^{***} | 0.23 | 1.62 | 0.73, 3.59 |

* history of occupational and/or recreational loud noise exposure, ever vs. never

** age in 10 year age groups

*** male vs. female

+ p-value from Wald test on regression coefficient in the multiple logistic regression model.

Table 5. Multiple Logistic Regression models for tinnitus: Survey of hearing-related health among Northwest American Indians, 2006 (n=71 with tinnitus).

| Variables | p-value from Wald test⁺ | Adjusted Odds Ratio (OR) | 95% CI for OR |
|-------------------------------|---|---------------------------------|----------------------|
| Otitis media [*] | 0.017 | 2.74 | 1.20, 6.27 |
| Noise ^{**} | 0.004 | 3.98 | 1.55, 10.24 |
| Age (10 years) ^{***} | <0.01 | 1.47 | 1.21, 1.80 |
| Sex ^{****} | 0.29 | 0.69 | 0.35, 1.38 |

* ever vs. never

** history of occupational and/or recreational loud noise exposure, ever vs. never

*** age in 10 year age groups

**** male vs. female

+ p-value from Wald test on regression coefficient in the multiple logistic regression model.

Figure 1. Prevalence of hearing loss by age group: Survey of hearing-related health among Northwest American Indians, 2006

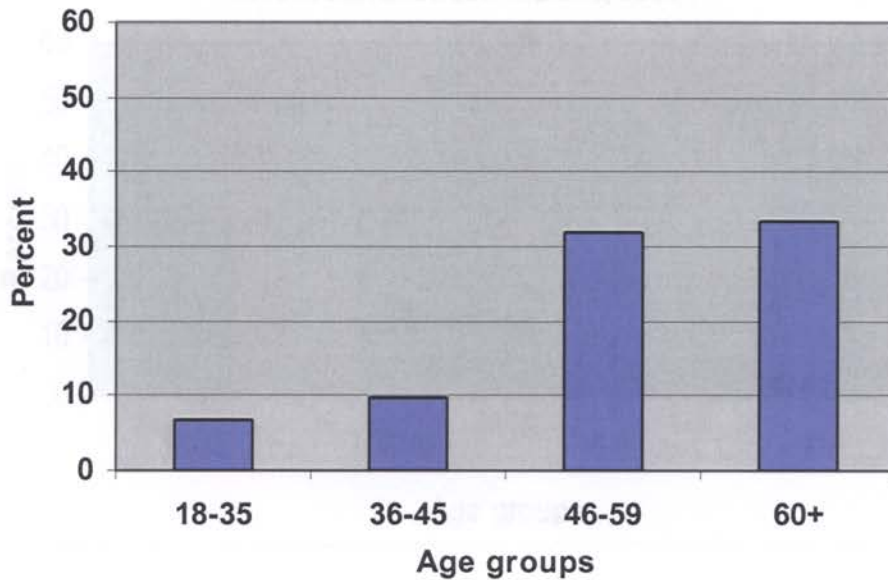


Figure 2. Prevalence of hearing loss among male and female participants by age group: Survey of hearing-related health among Northwest American Indians, 2006

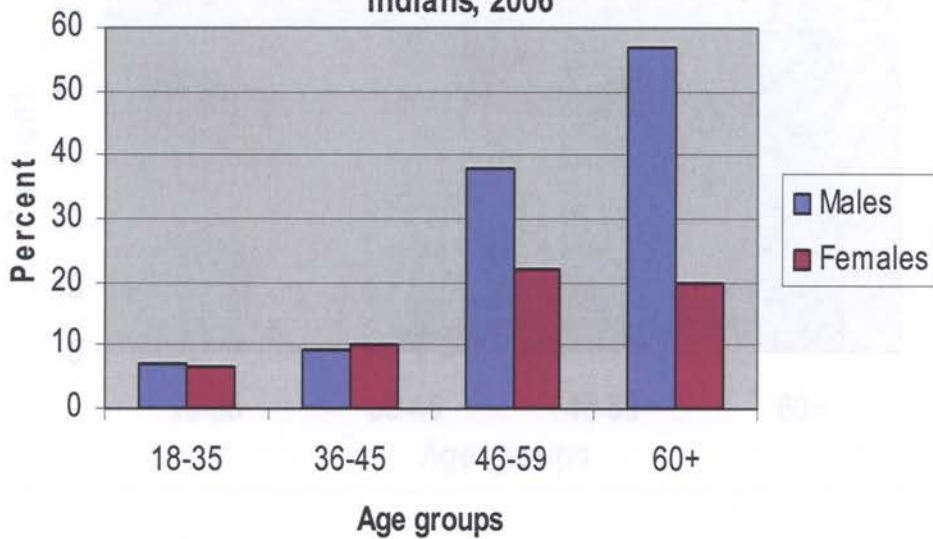


Figure 3. Prevalence of hearing-related difficulties by age group: Survey of hearing-related health among Northwest American Indians, 2006

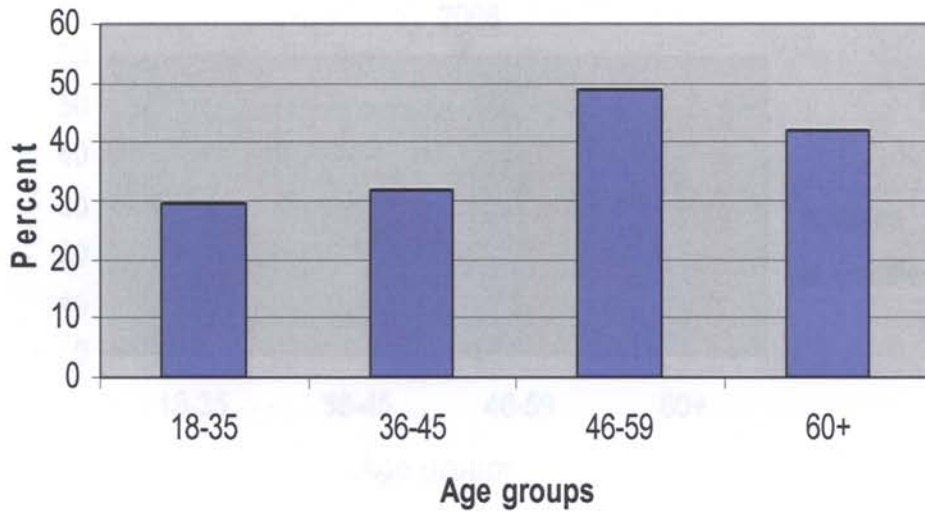


Figure 4. Prevalence of tinnitus by age group: Survey of hearing-related health among Northwest American Indians, 2006

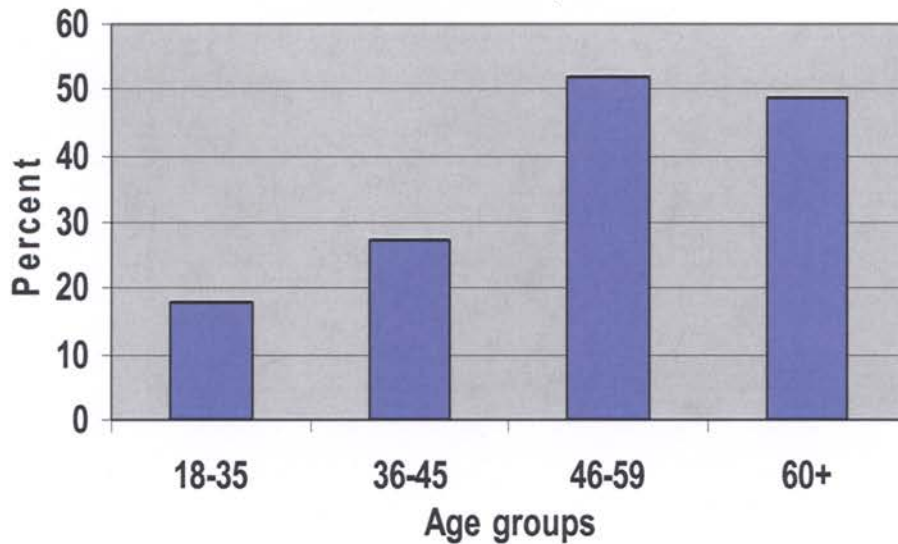
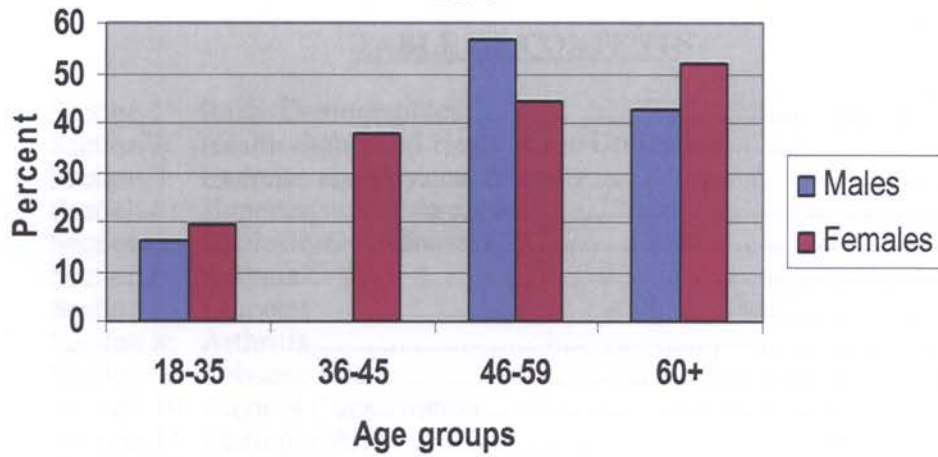


Figure 5. Prevalence of tinnitus among male and female participants by age group: Survey of hearing-related health among Northwest American Indians, 2006



2005 BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS) PROJECT QUESTIONNAIRE

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QUESTIONNAIRE NUMBER _____

VISIT NUMBER

VISIT OF THE 1 2 3 4

INTERVIEWER:

 MONTH DAY MONTH DAY MONTH DAY MONTH
 DAY

DATE / / /
 /

TIME : : :
 :

RESULT* _____

NUMBER OF THE
INTERVIEWER _____

*RESULT CODES:

- 1 COMPLETED INTERVIEW
- 2 NOT AT HOME AT TIME OF VISIT; RE-VISIT NECESSARY
- 3 MOVED WITHIN SURVEY AREA
- 4 TEMPORARILY ABSENT
- 5 PERMANENTLY ABSENT OR DECEASED
- 6 TOTAL REFUSAL
- 7 REFUSAL DURING THE INTERVIEW BY THE RESPONDENT OR OTHER MEMBER OF THE FAMILY
- 8 RESPONDENT NOT COMPETENT
- 9 OTHER (SPECIFY) _____

NAME: _____

ADDRESS: _____

DIRECTIONS TO HOUSE: _____

TELEPHONE NUMBER: _____

THIS PAGE TO BE REMOVED BEFORE DATA ENTRY
QUESTIONNAIRE NUMBER _____ TIME INTERVIEW BEGAN
_____:_____

SECTION 1: BASIC DEMOGRAPHICS

1.1. Are you an enrolled member of an American Indian/Alaskan Native tribe?

- 1 YES
- 2 NO -----> TERMINATE INTERVIEW

1.2. Of which tribe are you a member?

- 1 [SPECIFIED TRIBE NAME]
- 2 OTHER (SPECIFY) _____
- 7 DON'T KNOW/NOT SURE-----> TERMINATE INTERVIEW
- 9 REFUSED-----> TERMINATE INTERVIEW

1.3. What was the month and year of your birth?

MONTH _____ YEAR _____

INTERVIEWER: CALCULATE

1.4. So you are now _____ years old? (CORRECT AS NEEDED)

1.5. **SEX (INTERVIEWER)**

- 1 MALE
- 2 FEMALE

1.6. Is there a working telephone in this household?

- 1 YES
- 2 NO

7 DON'T KNOW/NOT SURE
9 REFUSED

1.7. Is there a working motor vehicle in this household?

1 YES
2 NO
7 DON'T KNOW/NOT SURE
9 REFUSED

1.8. Do you live on or off the reservation?

1 ON RESERVATION
2 OFF RESERVATION
7 DON'T KNOW/NOT SURE
9 REFUSED

SECTION 2: HEALTH STATUS AND HEALTH CARE UTILIZATION

2.1. Would you say that in general your health is:

READ CHOICES

- | | |
|---|-----------|
| 1 | EXCELLENT |
| 2 | VERY GOOD |
| 3 | GOOD |
| 4 | FAIR |
| 5 | POOR |

DO NOT READ THESE RESPONSES

- | | |
|---|---------------------|
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

2.2. Besides the Indian Health benefits through KPS, and the care at the Port Gamble S'Klallam clinic, do you have any kind of health care coverage, including private insurance or government plans such as Medicare?

- | | |
|---|---------------------|
| 1 | YES |
| 2 | NO |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

2.3. Has there ever been an occasion in the past year where you paid for health care out of your own pocket?

- | | |
|---|---------------------|
| 1 | YES |
| 2 | NO |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

2.4. Where do you usually go for health care or when you have an illness that is not an emergency?

- 2 TRIBAL HEALTH CENTER/CLINIC (SPECIFY)
- 3 PRIVATE PHYSICIAN/CLINIC
- 4 PHARMACY
- 5 FAMILY/FRIEND
- 6 TRADITIONAL HEALER / MEDICINE MAN OR WOMAN
- 8 OTHER (SPECIFY) _____
- 10 COMMUNITY HEALTH REPRESENTATIVE
- 0 DON'T NEED HEALTH CARE ADVICE
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 3: EXERCISE AND PHYSICAL ACTIVITY

3.1. During the past month, how often did you get physical exercise, for example, running, aerobics, bicycling, vigorous walking, cutting wood, exercising on machines, playing basketball or any other, separate from your regular job?

1 _____ TIMES PER WEEK

2 _____ TIMES PER MONTH

0 0 0 NONE----->**GO TO Q3.4**
7 7 7 DON'T KNOW/NOT SURE----->**GO TO Q3.2**
9 9 9 REFUSED----->**GO TO Q3.5**

3.2. How long do you usually exercise at one time?

_____ MINUTES **98 = 100 OR MORE MINUTES**

7 7 DON'T KNOW/NOT SURE
9 9 REFUSED

3.3. What type of physical activity or exercise did you spend the most time doing during the past month?

1 RUNNING
2 DANCING
3 BICYCLING
4 VIGOROUS WALKING
5 BASKETBALL
6 BASEBALL/SOFTBALL
7 AEROBICS
8 GARDENING/YARDWORK
10 CUTTING WOOD
9 REFUSED
0 OTHER (SPECIFY) _____

----->**GO TO Q3.5**<-----

3.4. What is the most important reason that you did not exercise in the past month?

- 1 NOT ENOUGH TIME
- 2 NOT MOTIVATED, LAZY
- 3 PHYSICALLY UNABLE
- 4 DO NOT LIKE EXERCISE
- 5 DO NOT BELIEVE IN BENEFITS OF EXERCISE
- 6 GET ADEQUATE EXERCISE ON JOB OR FROM DAILY ACTIVITIES
- 7 LACK OF EXERCISE FACILITIES
- 8 WEATHER
- 9 REFUSED
- 0 OTHER (SPECIFY) _____

3.5. About how much do you weigh?

_____ POUNDS

7 7 7 DON'T KNOW/NOT SURE
9 9 9 REFUSED

3.6. About how tall are you?

_____/_____
FEET / INCHES

7 / 7 7 DON'T KNOW/NOT SURE
9 / 9 9 REFUSED

3.7. Do you now consider yourself to be:

READ CHOICES

- 1 OVERWEIGHT
- 2 ABOUT THE RIGHT WEIGHT
- 3 UNDERWEIGHT----->**GO TO Q3.12**

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSE

3.8. Have you been advised by a doctor or a health care provider to reduce your weight?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

3.9. Are you now trying to lose weight?

- 1 YES
- 2 NO----->**GO TO Q3.12**
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED----->**GO TO Q3.12**

3.10. Have you changed your eating habits (eating less food or changing types of food) in order to lose weight?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

3.11. Have you increased your physical activity to lose weight?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

3.12. How often would you use a health and fitness center if it had low prices and current equipment and programs, were well-maintained, and offered free transportation?

READ CHOICES

- 1 NEVER
- 2 APPROXIMATELY ONCE A MONTH
- 3 APPROXIMATELY ONCE A WEEK
- 4 MORE THAN ONCE A WEEK

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

3.13. How often would you use walking paths if they were scenic and safe?

READ CHOICES

- 1 NEVER
- 2 APPROXIMATELY ONCE A MONTH
- 3 APPROXIMATELY ONCE A WEEK
- 4 MORE THAN ONCE A WEEK

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

3.14. How often would you use biking paths if they were scenic and safe?

READ CHOICES

- 1 NEVER
- 2 APPROXIMATELY ONCE A MONTH
- 3 APPROXIMATELY ONCE A WEEK
- 4 MORE THAN ONCE A WEEK

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 4: HYPERTENSION AWARENESS

4.1. Have you had your blood pressure taken in the past 12 months?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

4.2. Have you ever been told by a health provider that you had high blood pressure?

- 1 YES
- 2 NO----->GO TO Q5.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q5.1
- 9 REFUSED----->GO TO Q5.1

4.3. Have you been told on more than one occasion that your blood pressure was high, or have you been told this only once?

- 1 MORE THAN ONCE
- 2 ONLY ONCE
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

4.4. What remedy are you using to treat your high blood pressure?

| <u>NO</u> | <u>READ CHOICES</u> | <u>YES</u> | |
|-----------|-----------------------------|------------|---|
| A. | ORAL MEDICINE | 1 | 2 |
| B. | TRADITIONAL HERBAL MEDICINE | 1 | 2 |
| C. | DIET | 1 | 2 |
| D. | EXERCISE | 1 | 2 |
| E. | OTHER (SPECIFY)_____ | 1 | 2 |

SECTION 5: CHOLESTEROL AWARENESS

5.1. About how long has it been, if ever, since you had your blood cholesterol checked?

- 1 WITHIN THE PAST YEAR
- 2 WITHIN THE PAST TWO YEARS
- 3 WITHIN THE PAST FIVE YEARS
- 4 AT LEAST FIVE YEARS AGO
- 5 NEVER----->GO TO Q6.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q6.1
- 9 REFUSED----->GO TO Q6.1

5.2. Have you ever been told by a doctor, nurse, or other health provider that your blood cholesterol is high?

- 1 YES
- 2 NO----->GO TO Q6.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q6.1
- 9 REFUSED----->GO TO Q6.1

5.3. What remedy are you using to treat your high cholesterol level?

| | <u>READ CHOICES</u> | <u>YES</u> | |
|-----------|-----------------------------|------------|---|
| <u>NO</u> | | | |
| A. | ORAL MEDICINE | 1 | 2 |
| B. | TRADITIONAL HERBAL MEDICINE | 1 | 2 |
| C. | DIET | 1 | 2 |
| D. | EXERCISE | 1 | 2 |
| E. | OTHER (SPECIFY) _____ | 1 | 2 |

SECTION 6: ASTHMA

6.1. Have you ever been told by a doctor, nurse, or other health provider that you had asthma?

- 1 YES
- 2 NO----->GO TO Q7.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q7.1
- 9 REFUSED----->GO TO Q7.1

6.2. How old were you when you were first told by a doctor, nurse, or other health provider that you had asthma?

__ __ AGE IN YEARS [96 = 96 AND OLDER]

- 1 1 11 OR OLDER
- 2 2 AGE 10 OR YOUNGER
- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

6.3. Do you still have asthma?

- 1 YES
- 2 NO----->GO TO Q7.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q7.1
- 9 REFUSED----->GO TO Q7.1

6.4. During the past 12 months, have you received any treatment for your asthma?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 7: DIABETES

7.1. Have you been tested in the past 5 years for diabetes?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

7.2. Has your mother or father, or have any brothers, sisters or grandparents ever had diabetes?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

7.3. How do you think a person can reduce the risk of becoming diabetic?

| | | <u>YES</u> | NOT |
|----|---|------------|-----|
| | <u>DO NOT READ THESE RESPONSES</u> | | |
| | <u>STATED</u> | | |
| A. | EXERCISING | 1 | 2 |
| B. | AVOIDING SUGAR | 1 | 2 |
| C. | DIETING/EATING LOW CALORIE FOODS | 1 | 2 |
| D. | NOT BEING OVERWEIGHT/LOSING WEIGHT | 1 | 2 |
| E. | AVOIDING SMOKING OR DRUGS | 1 | 2 |
| F. | CAN'T REDUCE RISK | 1 | 2 |
| G. | OTHER (SPECIFY)_____ | 1 | 2 |

7.4. Have you ever been told by a doctor or health provider that you have diabetes?

- 1 YES
- 2 NO----->**GO TO Q8.1**

7.5. How old were you when you were told you had diabetes? [96 = 96 AND OLDER]

_____ AGE

7 7 DON'T KNOW/NOT SURE
9 9 REFUSED

7.6. What remedy are you using to treat your diabetes?

| <u>NO</u> | <u>READ CHOICES</u> | <u>YES</u> | |
|-----------|-----------------------------|------------|---|
| A. | TAKING INSULIN | 1 | 2 |
| B. | ORAL MEDICINE | 1 | 2 |
| C. | TRADITIONAL HERBAL MEDICINE | 1 | 2 |
| D. | DIET | 1 | 2 |
| E. | EXERCISE | 1 | 2 |
| F. | OTHER (SPECIFY) _____ | 1 | 2 |

7.7. How often do you, or does a family member or friend, check your blood for glucose?

1 ___ TIMES PER DAY
2 ___ TIMES PER WEEK
3 ___ TIMES PER MONTH
4 ___ TIMES PER YEAR
8 8 8 NEVER
7 7 7 DON'T KNOW/NOT SURE
9 9 9 REFUSED

7.8. How often do you, or does a family member or friend, check your feet for any sores or irritations?

- 1 ___ TIMES PER DAY
- 2 ___ TIMES PER WEEK
- 3 ___ TIMES PER MONTH
- 4 ___ TIMES PER YEAR
- 5 5 5 NO FEET----->**GO TO Q7.11**
- 8 8 8 NEVER
- 7 7 7 DON'T KNOW/NOT SURE
- 9 9 9 REFUSED

7.9. Have you ever had any sores or irritations on your feet that took more than four weeks to heal?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

7.10. About how many times in the past 12 months has a health provider checked your feet for any sores or irritations?

- ___ NUMBER OF TIMES
- 8 8 NONE
- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

7.11. About how many times in the past 12 months have you seen a doctor, nurse, or other health provider for your diabetes?

- ___ NUMBER OF TIMES
- 8 8 NONE
- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

7.12. Would you be interested in a course or class in how to manage your diabetes?

- 1 YES
- 2 NO
- 3 ALREADY TAKEN A CLASS ON DIABETES
MANAGEMENT
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 8: ARTHRITIS

8.1. Have you ever been told by a doctor that you have arthritis?

- 1 YES
- 2 NO -----> **GO TO Q9.1**
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

8.2. Are you currently receiving treatment for arthritis?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

8.3. Are you now limited in any way because of arthritis?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 9: TOBACCO USE

9.1. During your lifetime have you smoked at least 100 cigarettes?

(100 CIGARETTES = 5 PACKS)

- 1 YES
- 2 NO----->GO TO Q9.7
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED----->GO TO Q9.7

9.2. How old were you when you began smoking cigarettes?

___ AGE

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

9.3. Do you smoke cigarettes now?

- 1 YES----->GO TO Q9.5
- 2 NO
- 9 REFUSED----->GO TO Q9.7

9.4. How old were you the last time you quit smoking cigarettes?

___ AGE

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

----->GO TO Q9.7<-----

9.5. On the average, about how many cigarettes do you smoke a day?

(1 PACK = 20 CIGARETTES, IF LESS THAN 1 CIGARETTE PER DAY, CODE AS 01)

_____ NUMBER OF CIGARETTES

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED----->**GO TO Q9.6**
- 8 8 DON'T SMOKE REGULARLY

9.6. Have you quit smoking for a week or more sometime during the past year?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

The next questions are about chewing tobacco.

9.7. Have you ever used chewing tobacco, such as Skoal or Copenhagen, on a regular basis?

- 1 YES
- 2 NO----->**GO TO Q9.12**
- 7 DON'T KNOW/NOT SURE ---->**GO TO Q9.12**
- 9 REFUSED---->**GO TO Q9.12**

9.8. Do you use chewing tobacco now?

- 1 YES (INCLUDES OCCASIONAL USE)
- 2 NO----->**GO TO Q9.12**
- 7 DON'T KNOW/NOT SURE ---->**GO TO Q9.12**
- 9 REFUSED---->**GO TO Q9.12**

9.9. How many cans (pouches) of chewing tobacco do you use per week?

IF LESS THAN 1 PER WEEK, CODE AS 01

_____ CANS

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

9.10. Have you quit using chewing tobacco for a week or more sometime during the past year?

- 1 YES

- 2 NO
- 3 OCCASIONAL USE ONLY
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

9.11. How old were you when you began using chewing tobacco or skoal?

_____ AGE

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

9.12. Do you think that chewing tobacco or skoal is harmful to the body?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

9.13. Has a health provider ever talked to you about the risks of tobacco use?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

9.14. Has a health provider ever asked you to stop smoking or chewing tobacco?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 10: ALCOHOL CONSUMPTION

10.1. During your whole life, have you consumed, in total, at least 12 drinks that contain alcohol?

(A DRINK IS 1 CAN OR BOTTLE OF BEER, 1 GLASS OF WINE, 1 SHOT OF LIQUOR, 1 MIXED DRINK OR 1 COCKTAIL)

- 1 YES
- 2 NO----->GO TO Q10.11
- 7 DON'T KNOW/NOT SURE----->GO TO Q10.11
- 9 REFUSED----->GO TO Q10.11

10.2. At what age did you first begin consuming alcohol?

_____ YEARS

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

10.3. The last time you had a drink was

READ CHOICES

- 1 TODAY OR YESTERDAY
- 2 IN THE LAST WEEK
- 3 IN THE LAST MONTH
- 4 LONGER----->GO TO Q10.5

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

10.4. How many times during the past month did you have 5 or more drinks on an occasion?

_____ NUMBER OF TIMES

- 0 0 NONE
- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

10.5. How many drinks of beverages containing alcohol do you have in a typical week?

(A DRINK IS 1 CAN OR BOTTLE OF BEER, 1 GLASS OF WINE, 1 SHOT OF LIQUOR, 1 MIXED DRINK OR 1 COCKTAIL)

_____ DRINKS PER WEEK (ESTIMATE)

- | | | |
|---|---|---------------------|
| 0 | 0 | NONE |
| 6 | 6 | OCCASIONALLY |
| 7 | 7 | DON'T KNOW/NOT SURE |
| 9 | 9 | REFUSED |

10.6. When you drink, do you usually drink enough to:

READ CHOICES

- | | |
|---|-----------------------------|
| 1 | FEEL HIGH OR FEEL GOOD |
| 2 | BE DRUNK |
| 3 | NOT REMEMBER OR BLACKOUT |
| 4 | NOT AS MUCH AS ANY OF THESE |

DO NOT READ THESE RESPONSES

- | | |
|---|---|
| 5 | DOES NOT DRINK-----> <u>GO TO Q10.11</u> |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

10.7. During the past 12 months when you were drinking, have you ever thought about hurting yourself?

- | | |
|---|---------------------|
| 1 | YES |
| 2 | NO |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

10.8. During the past 12 months when you were drinking, have you ever tried to hurt yourself?

- | | |
|---|---------------------|
| 1 | YES |
| 2 | NO |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

10.9. During the past 12 months when you were drinking, have you ever tried to hurt others?

- | | |
|---|---------------------|
| 1 | YES |
| 2 | NO |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

10.10. During the past month, how many times have you driven when you have had perhaps too much to drink?

- _____ NUMBER OF TIMES
- | | | |
|---|---|---------------------|
| 0 | 0 | NONE |
| 7 | 7 | DON'T KNOW/NOT SURE |
| 9 | 9 | REFUSED |

10.11. During the past month, how many times did you ride in a vehicle when the driver had perhaps had too much alcohol to drink?

- _____ NUMBER OF TIMES
- | | | |
|---|---|---------------------|
| 0 | 0 | NONE |
| 7 | 7 | DON'T KNOW/NOT SURE |
| 9 | 9 | REFUSED |

SECTION 11: DEMOGRAPHICS

11.1. What is your current marital status?

READ CHOICES

- | | |
|---|---|
| 1 | MARRIED |
| 2 | LIVING WITH SOMEONE/A MEMBER OF AN UNMARRIED COUPLE |
| 3 | SEPARATED |
| 4 | DIVORCED |
| 5 | WIDOW |
| 6 | NEVER MARRIED OR LIVED WITH SOMEONE |

DO NOT READ

- | | |
|---|---------|
| 9 | REFUSED |
|---|---------|

11.2. How many years did you attend school?

_____ NUMBER OF YEARS

- | | | |
|---|---|---------------------|
| 0 | 0 | NONE |
| 7 | 7 | DON'T KNOW/NOT SURE |
| 9 | 9 | REFUSED |

11.3. During your first twelve years of school [**IF LESS THAN HIGH SCHOOL, USE THE ANSWER GIVEN IN Q11.2**], how many times did you switch schools because of a family problem or event?

_____ NUMBER OF TIMES

- | | | |
|---|---|---------------------|
| 0 | 0 | NONE |
| 7 | 7 | DON'T KNOW/NOT SURE |
| 9 | 9 | REFUSED |

11.4. Are you currently:

READ CHOICES

- 1 EMPLOYED
- 2 SELF-EMPLOYED
- 3 OUT OF WORK FOR MORE THAN 1 YEAR----->**GO TO Q11.6**
- 4 OUT OF WORK FOR LESS THAN 1 YEAR----->**GO TO Q11.6**
- 5 A HOMEMAKER----->**GO TO Q11.6**
- 6 A STUDENT----->**GO TO Q11.6**
- 7 RETIRED----->**GO TO Q11.6**
- 8 UNABLE TO WORK----->**GO TO Q11.6**

DO NOT READ

- 9 REFUSED

11.5. Is your work:

READ CHOICES

- 1 FULL-TIME
- 2 PART-TIME
- 3 SEASONAL

DO NOT READ THESE CHOICES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

11.6. Have you ever served in the U.S. military?

- 1 YES
- 2 NO----->**GO TO Q12.1**
- 7 DON'T KNOW/NOT SURE----->**GO TO Q12.1**
- 9 REFUSED----->**GO TO Q12.1**

11.7. In which military branches have you served?

11.8. Are you currently serving in the U.S. military?

- 1 YES
- 2 NO----->GO TO Q11.11
- 7 DON'T KNOW/NOT SURE----->GO TO Q11.12
- 9 REFUSED----->GO TO Q11.12

11.9. In which branch do you currently serve? _____

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

11.10. Are you on active duty?

- 1 YES ---GO TO Q12.1
- 2 NO
- 7 DON'T KNOW/NOT SURE---GO TO Q12.1
- 9 REFUSED---GO TO Q12.1

11.11. In what month and year were you discharged? ____ / ____

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

11.12. Are you a U.S. Veteran of foreign military operations?

- 1 YES
- 2 NO ----->GO TO Q12.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q12.1
- 9 REFUSED----->GO TO Q12.1

11.13. In which wars or conflicts did you serve? _____

SECTION 12: DISABILITY

The following questions are about health problems or impairments you may have.

12.1. Are you limited in any way in any activities because of physical, mental, or emotional problems?

- 1 YES
- 2 NO----->GO TO Q13.1
- 7 DON'T KNOW/NOT SURE----->GO TO Q13.1
- 9 REFUSED ----->GO TO Q13.1

12.2. What sort of health problem or disability do you have? Is it...

| <u>NO</u> | <u>READ CHOICES</u> | <u>YES</u> | |
|-----------|-----------------------------------|------------|---|
| A. | ALCOHOL OR DRUG PROBLEMS? | 1 | 2 |
| B. | A PHYSICAL HANDICAP? | 1 | 2 |
| C. | A MENTAL HEALTH PROBLEM? | 1 | 2 |
| D. | A STROKE OR HEART ATTACK? | 1 | 2 |
| E. | BECAUSE OF AN INJURY OR ACCIDENT? | 1 | 2 |
| F. | CANCER? | 1 | 2 |
| G. | PAIN? | 1 | 2 |
| H. | OTHER (SPECIFY) _____ | 1 | 2 |

12.3. For how long have your activities been limited because of your major impairment or health problem?

- 1 ___ DAYS
- 2 ___ WEEKS
- 3 ___ MONTHS
- 4 ___ YEARS
- 7 7 7 DON'T KNOW/NOT SURE
- 9 9 9 REFUSED

12.4. Because of any impairment or health problem, do you need the help of other persons with your routine or personal care needs, such as eating, bathing, dressing, everyday household chores, doing necessary business, shopping or getting around the house?

- 1 YES
- 2 NO -----> **GO TO Q13.1**
- 7 DON'T KNOW/NOT SURE -----> **GO TO Q13.1**
- 9 REFUSED -----> **GO TO Q13.1**

12.5. Who usually helps you most of the time with your routine or personal care needs, such as eating, bathing, dressing, everyday household chores, doing necessary business, shopping or getting around the house?

- 1 RELATIVE
- 2 UNPAID VOLUNTEER/FRIEND/NEIGHBOR
- 3 PAID EMPLOYEE OR HOME HEALTH SERVICE
- 4 OTHER
- 5 NO ONE HELPS ME -----> **GO TO Q13.1**
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

12.6. Is the assistance you receive to meet your routine or personal care needs from all sources:

READ CHOICES

- 1 USUALLY ADEQUATE
- 2 SOMETIMES ADEQUATE
- or
- 3 RARELY ADEQUATE

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 13: SEXUAL BEHAVIOR

We are now going to ask you some questions on your sexual behavior. Some of the questions in this section may make you feel uncomfortable; please feel free to skip any question that you do not wish to answer.

13.0 Are you sexually active now? We will define this term as having had sexual intercourse within the past month.

1. YES
2. NO-----> **GO TO Q14.1**
7. DON'T KNOW/NOT SURE-> **GO TO Q14.1**
9. REFUSED----->**GO TO Q14.1**

13.1. Do you ever use condoms when you have sex?

- 1 YES
- 2 NO----->**GO TO Q13.4**
- 7 DON'T KNOW/NOT SURE----->**GO TO Q13.4**
- 9 REFUSED----->**GO TO Q13.4**
- 4 NEVER HAD SEX ----->**GO TO Q14.1**

13.2. How often do you use condoms?

READ CHOICES

- 1 ALL THE TIME
- 2 ALMOST ALL THE TIME
- 3 SOMETIMES
- 4 RARELY

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

13.3. What is the main reason you use condoms?

READ CHOICES

- 1 TO PREVENT PREGNANCY
- 2 TO PREVENT DISEASE

DO NOT READ THESE RESPONSES

- 3 BOTH
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

IF RESPONDENT IS A MAN OR A WOMAN OVER 50, GO TO SECTION 14

13.4. Are you or your partner(s) currently doing anything to keep you from getting pregnant?

- 1 YES
- 2 NO ----->GO TO Q13.7
- 7 DON'T KNOW/NOT SURE----->GO TO Q13.7
- 9 REFUSED-----> GO TO Q14.1

13.5. What method are you using to avoid pregnancy?

- 1 ORAL CONTRACEPTIVES (PILL)
 - 2 INJECTION
 - 3 DIAPHRAGM
 - 4 IUD (COIL, LOOP)
 - 5 NORPLANT (IMPLANTS)
 - 6 CONDOMS OR RUBBERS
 - 8 FOAM, JELLY, OR VAGINAL TABLETS (SPERMICIDES)
 - 10 RHYTHM (NATURAL METHOD)
 - 11 WITHDRAWAL OR PULLING OUT
 - 12 OTHER METHODS (SPECIFY)
-
- 7 DON'T KNOW/NOT SURE
 - 9 REFUSED

13.6. Where did you get the birth control method that you are currently using?

- 2 TRIBAL HEALTH CENTER
- (SPECIFY) _____
- 3 PRIVATE PHYSICIAN/CLINIC
 - 4 PLANNED PARENTHOOD
 - 5 PHARMACY OR STORE
 - 8 OTHER (SPECIFY) _____
 - 0 DOES NOT APPLY (RHYTHM, WITHDRAWAL, ETC.)
 - 7 DON'T KNOW/NOT SURE
 - 9 REFUSED

----->GO TO SECTION 14>-----

13.7. What is the main reason you or your partner are not currently using anything to keep you from getting pregnant?

- | | | |
|-----------|-------|---|
| | 1 | WANT TO GET PREGNANT |
| | 2 | NOT SEXUALLY ACTIVE |
| | 3 | DOESN'T THINK SHE CAN GET PREGNANT |
| | 4 | RECENT BIRTH/BREAST FEEDING |
| | 5 | PARTNER OBJECTS |
| | 6 | BELIEVE CONTRACEPTION IS WRONG/RELIGIOUS |
| REASONS | 8 | BELIEVES CONTRACEPTION IS DANGEROUS TO HEALTH/SIDE EFFECTS |
| | 10 | LACK OF INFORMATION ON CONTRACEPTION |
| | 11 | CONTRACEPTION MAKES SEX LESS ENJOYABLE |
| | 12 | TOO DIFFICULT TO USE |
| | 13 | OTHER |
| (SPECIFY) | <hr/> | |
| | 7 | DON'T KNOW/NOT SURE |
| | 9 | REFUSED |

SECTION 14: PROSTATE CANCER SCREENING

IF RESPONDENT IS A MAN 39 YEARS OLD OR YOUNGER, OR IS A WOMAN, GO TO SECTION 15

14.1. A Prostate-Specific Antigen test, also called a PSA test, is a blood test used to check men for prostate cancer. Have you ever had a PSA test?

- 1 YES
- 2 NO ----->**GO TO Q14.3**
- 7 DON'T KNOW/NOT SURE ----->**GO TO Q14.3**
- 9 REFUSED ----->**GO TO Q14.3**

14.2. How long has it been since you had your last PSA test?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS)
- 3 WITHIN THE PAST 3 YEARS (2 TO 3 YEARS)
- 4 WITHIN THE PAST 5 YEARS (3 TO 5 YEARS)
- 5 5 OR MORE YEARS AGO
- 7 DON'T KNOW
- 9 REFUSED

14.3. A digital rectal exam is an exam in which a doctor, nurse, or other health provider places a gloved finger into the rectum to feel the size, shape, and hardness of the prostate gland. Have you ever had a digital rectal exam?

- 1 YES
- 2 NO ----->**GO TO Q14.5**
- 7 DON'T KNOW/NOT SURE ----->**GO TO Q14.5**
- 9 REFUSED ----->**GO TO Q14.5**

14.4. How long has it been since your last digital rectal exam?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS)
- 3 WITHIN THE PAST 3 YEARS (2 TO 3 YEARS)
- 4 WITHIN THE PAST 5 YEARS (3 TO 5 YEARS)
- 5 5 OR MORE YEARS AGO

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

14.5. Among your immediate family members, has your father, brother, son or grandfather ever been told by a health provider that he has prostate cancer?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

14.6. Have you ever been told by a health care provider that you have prostate cancer?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 15: COLORECTAL CANCER SCREENING

IF RESPONDENT IS 39 YEARS OLD OR YOUNGER, GO TO SECTION 16

15.1. A blood stool test is a test that you can use at home to determine whether the stool contains blood. How long has it been since you had your last blood stool test using a home kit?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 5 YEARS (2 TO 5 YEARS AGO)
- 4 5 OR MORE YEARS AGO
- 5 NEVER TOOK THE TEST
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

15.2. Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to check the bowel for signs of cancer or other health problems. How long has it been since you had your last sigmoidoscopy or colonoscopy?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 5 YEARS (2 TO 5 YEARS AGO)
- 4 WITHIN THE PAST 10 YEARS (5 TO 10 YEARS AGO)
- 5 10 OR MORE YEARS AGO
- 6 NEVER HAD THE EXAM
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

15.3. Have you ever been told by a health care provider that you have colorectal cancer?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 16: BREAST AND CERVICAL CANCER SCREENING

IF RESPONDENT IS A MAN, GO TO SECTION 17

16.1. A mammogram is an x-ray of each breast to look for breast cancer. Have you ever had a mammogram?

- 1 YES
- 2 NO ----->GO TO Q16.4
- 7 DON'T KNOW/NOT SURE ----->GO TO Q16.4
- 9 REFUSED ----->GO TO Q16.4

16.2. How long has it been since you had your last mammogram?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 3 YEARS (2 TO 3 YEARS AGO)
- 4 WITHIN THE PAST 5 YEARS (3 TO 5 YEARS AGO)
- 5 5 OR MORE YEARS AGO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.3. Was your last mammogram done as part of a routine checkup, because of a breast problem other than cancer, or because you've already had breast cancer?

- 1 ROUTINE CHECKUP
- 2 BREAST PROBLEM OTHER THAN CANCER
- 3 HAD BREAST CANCER
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.4. A clinical breast exam is when a doctor, nurse, or other health provider feels the breast for lumps. Have you ever had a clinical breast exam?

- 1 YES
- 2 NO ----->GO TO Q16.6
- 7 DON'T KNOW/NOT SURE ----->GO TO Q16.6
- 9 REFUSED ----->GO TO Q16.6

16.5. How long has it been since your last clinical breast exam?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 3 YEARS (2 TO 3 YEARS AGO)
- 4 WITHIN THE PAST 5 YEARS (3 TO 5 YEARS AGO)
- 5 5 OR MORE YEARS AGO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.6. Was your last clinical breast exam done as part of a routine checkup, because you've never performed a breast self exam, because of a breast problem other than cancer, or because you've already had breast cancer?

- 1 ROUTINE CHECKUP
- 2 NEVER PERFORMED A BREAST SELF EXAM
- 3 BREAST PROBLEM OTHER THAN CANCER
- 4 HAD BREAST CANCER
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.7. Aside from a clinical breast exam, women are encouraged to perform breast self-exams. How long has it been since you performed your last breast self-exam?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 3 YEARS (2 TO 3 YEARS AGO)
- 4 WITHIN THE PAST 5 YEARS (3 TO 5 YEARS AGO)
- 5 5 OR MORE YEARS AGO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.8. Have you ever been told by a health care provider that you have breast cancer?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.9. A Pap smear is a test for cancer of the cervix. Have you ever had a Pap smear?

- 1 YES
- 2 NO ----->GO TO Q16.12
- 7 DON'T KNOW/NOT SURE ----->GO TO Q16.12
- 9 REFUSED ----->GO TO Q16.12

16.10. How long has it been since you had your last Pap smear?

READ ONLY IF NECESSARY

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 3 YEARS (2 TO 3 YEARS AGO)
- 4 WITHIN THE PAST 5 YEARS (3 TO 5 YEARS AGO)
- 5 5 OR MORE YEARS AGO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.11. Was your last Pap smear done as part of a routine exam, or to check a current or previous problem?

- 1 ROUTINE EXAM
- 2 CHECK CURRENT OR PREVIOUS PROBLEM
- 3 OTHER
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.12. Have you ever been told by a health care provider that you have cervical cancer?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

16.13. A hysterectomy is an operation to remove the uterus (womb). Have you had a hysterectomy?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 17: ORAL HEALTH

The next few questions are about oral health.

17.1. How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists.

- 1 WITHIN THE PAST YEAR (1 TO 12 MONTHS AGO)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YEARS AGO)
- 3 WITHIN THE PAST 5 YEARS (2 TO 5 YEARS AGO)
- 4 5 OR MORE YEARS AGO
- 7 DON'T KNOW/NOT SURE --->GO TO Q17.3
- 8 NEVER --->GO TO Q17.3
- 9 REFUSED --->GO TO Q17.3

17.2. How long has it been since you had your teeth cleaned by a dentist or dental hygienist? Include visits to dental specialists, such as orthodontists.

- TO Q18.1
- 1 WITHIN PAST YEAR (1 TO 12 MONTHS AGO) --->GO
 - 2 WITHIN PAST 2 YEARS (1 TO 2 YEARS AGO)
 - 3 WITHIN PAST 5 YEARS (2 TO 5 YEARS AGO)
 - 4 5 OR MORE YEARS AGO
 - 7 DON'T KNOW/NOT SURE
 - 8 NEVER
 - 9 REFUSED

17.3. What is the main reason you have not visited the dentist in the past year?

- 1 FEAR, APPREHENSION, NERVOUSNESS, PAIN, DISLIKE
GOING
- 2 COST
- 3 DO NOT HAVE/KNOW A DENTIST
- 4 OFFICE/CLINIC IS TOO FAR AWAY, NO
TRANSPORTATION
- 5 OFFICE/CLINIC HAS NO APPTS. AVAILABLE
- 6 NO REASON TO GO (NO PROBLEMS, NO TEETH)
- 8 OTHER PRIORITIES
- 10 HAVE NOT THOUGHT OF IT

| | |
|----|---------------------|
| 11 | OTHER |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

SECTION 18: HEARING

The next few questions are about hearing.

18.1. Do you have ringing (or hissing, buzzing, roaring, or clicking) in your head or ears?

- 1 YES
- 2 NO----->**GO TO Q18.3**
- 7 DON'T KNOW/NOT SURE----->**GO TO Q18.3**
- 9 REFUSED----->**GO TO Q18.3**

18.2. How often do you hear the sound?

READ CHOICES

- 1 NEVER
- 2 RARELY
- 3 SOMETIMES
- 4 USUALLY
- 5 ALWAYS

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

18.3. Do you have any difficulty hearing...

- a. When you are listening for sounds that you need to hear at work, school, or other required activities (such as alarms, whistles, or machine noise)?

READ CHOICES

- 1 NEVER
- 2 RARELY
- 3 SOMETIMES
- 4 USUALLY
- 5 ALWAYS

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

- b. Do you have any difficulty hearing when you are listening for sounds that you need to hear at home (such as the doorbell, telephone, timers, kettle boiling, household appliances)?

READ CHOICES

- | | |
|---|-----------|
| 1 | NEVER |
| 2 | RARELY |
| 3 | SOMETIMES |
| 4 | USUALLY |
| 5 | ALWAYS |

DO NOT READ THESE RESPONSES

- | | |
|---|---------------------|
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

- c. Do you have any difficulty hearing when you are listening to things you would like to hear at home (such as children or grandchildren talking, or family time together)?

READ CHOICES

- | | |
|---|-----------|
| 1 | NEVER |
| 2 | RARELY |
| 3 | SOMETIMES |
| 4 | USUALLY |
| 5 | ALWAYS |

DO NOT READ THESE RESPONSES

- | | |
|---|---------------------|
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

- 18.4. Have you ever worked around loud noise (such as shipyards, logging, cannery, construction, timber mills, military, mining, or in other such loud environments)?

- | | |
|---|---------------------|
| 1 | YES |
| 2 | NO |
| 7 | DON'T KNOW/NOT SURE |
| 9 | REFUSED |

18.5. Have you done recreational activities that involve loud noise (such as hunting, riding motorcycles, attending concerts or night clubs)?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

18.6 How many ear infections have you had in your life?

- 1 NEVER HAD AN EAR INFECTION
- 2 1-2
- 3 3-4
- 4 MORE THAN 4
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

18.7 How many ear infections have you had in the last year?

- 1 NEVER HAD AN EAR INFECTION
- 2 1-2
- 3 3-4
- 4 MORE THAN 4
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

18.8 Have you ever been diagnosed with hearing loss by a doctor, nurse, or other health provider?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

18.7 Do you use a hearing aid?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 19: CARDIOVASCULAR DISEASE

19.1. Within the past 12 months, has a doctor, nurse, or other health provider told you to...

a. Eat fewer high fat or high cholesterol foods?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

b. Eat more fruits and vegetables?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

c. Be more physically active?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

19.2. To lower your risk of developing heart disease or stroke, are you....

a. Eating fewer high fat or high cholesterol foods?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

b. Eating more fruits and vegetables?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

c. Being more physically active?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

19.3. Has a doctor, nurse, or other health provider ever told you that you had a heart attack?

- 1 YES
- 2 NO--->GO TO Q19.5
- 7 DON'T KNOW/NOT SURE--->GO TO Q19.5
- 9 REFUSED---->GO TO Q19.5

19.4. At what age did you have your first heart attack?

___ ___ CODE AGE IN YEARS

- 7 7 DON'T KNOW/NOT SURE
- 9 9 REFUSED

19.5. Has a doctor, nurse, or other health provider ever told you that you had heart disease?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

19.6. Has a doctor, nurse, or other health provider ever told you that you had a stroke?

- 1 YES
- 2 NO--->GO TO Q19.8
- 7 DON'T KNOW/NOT SURE--->GO TO Q19.8
- 9 REFUSED--->GO TO Q19.8

19.7. At what age did you have your first stroke?

___ ___ CODE AGE IN YEARS

7 7 DON'T KNOW/NOT SURE
9 9 REFUSED

19.8. Do you take aspirin daily or every other day to reduce your chance of heart attack or stroke?

1 YES
2 NO
7 DON'T KNOW/NOT SURE
9 REFUSED

SECTION 20: DIET AND NUTRITION

These next questions are about the foods you usually eat or drink. Please tell me how often you eat or drink each one—for example, twice a week, three times a month, and so forth. Remember, I am only interested in the foods you eat. Include all foods you eat, both at home and away from home.

How often do you eat.....

| | <u>Per day</u> | <u>Per week</u> | <u>Per month</u> | <u>Never</u> | |
|---|----------------|-----------------|------------------|--------------|---|
| <u>DK/NS</u> | | | | | |
| 20.1. Fruit? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.2. Green salad? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.3. Potatoes, not fries and potato chips? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.4. Carrots? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.5. Vegetables other than potatoes, salad, carrots? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.6. Bacon, sausage, hot dogs, salami, or bologna? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.7. Beef, including steaks, hamburgers, etc.? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.8. Eggs? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.9. Servings of desserts, like cakes or cookies? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.10. Fried foods, like fried bread, potato chips? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.11. Cheese, ice cream, or whole milk? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.12. Fish? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.13. Wild game, like elk, deer, or birds? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.14. Chicken, turkey or other poultry? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |
| 20.15. Soft drinks, not including diet? | 1 _____ | 2 _____ | 3 _____ | 0 | 8 |

20.16. How many times per week do you eat fast food meals, on average?

- TIMES PER WEEK
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

20.17. Do you currently take any vitamin pills or supplements? Include liquid supplements.

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 21: MENTAL HEALTH

21.1. Have you used the mental health services of the [local tribe] Wellness Center in the past year?

- 1 YES--->**GO TO Q21.3**
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

21.2. Why haven't you used the [local tribe] Wellness Center for mental health services?

- 0 HAVE NOT NEEDED MENTAL HEALTH SERVICES
- 1 DON'T USE MENTAL HEALTH SERVICES
- 2 NOT EASILY ACCESSIBLE
- 3 POOR QUALITY OF CARE
- 4 WAITING TIME TOO LONG
- 5 HAVE USED IT, BUT MORE THAN 1 YEAR AGO
- 6 HAVE PRIVATE DOCTOR
- 8 LIMITED SERVICES
- 10 UNAWARE OF SERVICES
- 11 INCONVENIENT HOURS
- 12 PERCEIVED LACK OF CONFIDENTIALITY
- 13 OTHER (SPECIFY) _____
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

21.3. How much of the time during the past few months have you felt depressed or downhearted?

READ CHOICES

- 1 ALL OF THE TIME
- 2 MOST OF THE TIME
- 3 SOME OF THE TIME
- 4 RARELY
- 5 NONE OF THE TIME

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

21.4. In the last year, have you had a serious personal loss or misfortune (such as, divorce/separation, legal action, money problems, death of someone close, serious illness/injury of a loved one, etc.)?

READ CHOICES

- 1 YES, ONE SERIOUS LOSS OR MISFORTUNE
- 2 YES, TWO OR MORE LOSSES OR MISFORTUNES
- 3 NO

DO NOT READ THESE RESPONSES

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

21.5. Do you have someone to turn to for support during times of stress, such as loss or misfortune?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

21.6. Have you seriously considered suicide within the last few months?

- 1 YES
- 2 NO
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 22: HOUSEHOLD INCOME LEVEL

Now I want to conclude the interview by asking you a couple of questions about household income level.

22.1. How many people live in your household? _____

22.2. **INTERVIEWER: GO DOWN THE LEFT-HAND COLUMN TO THE ROW CORRESPONDING TO THE NUMBER OF PEOPLE IN THE HOUSEHOLD. SHOW RESPONDENT THE ROW, THEN ASK:** Which category in this row corresponds to the total yearly income of everyone in your household?

INTERVIEWER: CIRCLE THE AMOUNT.

AMOUNTS IN DOLLARS

| Household Size | (1) | (2) | (3) | (4) | DON'T KNOW (7) | REFUSE (9) |
|----------------|---------|-----------------|-----------------|---------|----------------|------------|
| 1 | <8,501 | 8,501 – 12,751 | 12,752 – 17,002 | 17,003+ | 7 | 9 |
| 2 | <10,869 | 10,869 – 16,303 | 16,304 – 21,738 | 21,739+ | 7 | 9 |
| 3 | <13,290 | 13,290 – 19,935 | 19,936 – 26,580 | 26,581+ | 7 | 9 |
| 4 | <17,029 | 17,029 – 25,543 | 25,544 – 34,058 | 34,059+ | 7 | 9 |
| 5 | <20,127 | 20,127 – 30,190 | 30,191 – 40,254 | 40,255+ | 7 | 9 |
| 6 | <22,727 | 22,727 – 34,090 | 34,091 – 45,454 | 45,455+ | 7 | 9 |
| 7 | <25,912 | 25,912 – 38,868 | 38,869 – 51,824 | 51,825+ | 7 | 9 |
| 8 + | <28,967 | 28,967 – 43,450 | 43,451 – 57,934 | 57,935+ | 7 | 9 |

Closing Statement

That's my last question. Everyone's answers will be combined to give us information about the health practices of people in the [local tribe]s area. The information that you have provided will be handled in the strictest confidence possible. Your name will not be associated with any of your responses. Thank you very much for your time and cooperation.

TIME INTERVIEW COMPLETED ____ : ____

INTERVIEWER: PLEASE COMPLETE IMMEDIATELY FOLLOWING INTERVIEW

1. Subject cooperation was:

- | | |
|---|-----------|
| 1 | VERY GOOD |
| 2 | GOOD |
| 3 | FAIR |
| 4 | POOR |

2. Did the subject have difficulty with the interview?

- | | |
|---|-----|
| 1 | YES |
| 2 | NO |

3. Do you feel any of the sections of the interview are unreliable?

- | | |
|---|--------------------------------------|
| 1 | YES (SPECIFY SECTION NUMBER/S) _____ |
| 2 | NO |

4. Provide a reason why you think these sections are unreliable.

5. The main reason for the unsatisfactory interview was (circle all that apply)...

- | | |
|---|--------------------|
| 1 | A LANGUAGE PROBLEM |
|---|--------------------|

Or, that the subject ...

- | | |
|---|--|
| 1 | WAS ILL OR DISABLED |
| 2 | WAS BORED OR DISINTERESTED |
| 3 | WAS UNABLE TO CONCENTRATE ON THE INTERVIEW |
| 4 | HAD POOR HEARING, SPEECH, OR VISION |
| 5 | OTHER |

(SPECIFY) _____

6. Additional comments:
