

Needs Assessment of Long Term Care, North Dakota: 2002

Initial Report and Policy Recommendations

Issued November 2002



North Dakota State Data Center at North Dakota State University, Fargo, ND

Needs Assessment of Long Term Care, North Dakota: 2002

Initial Report and Policy Recommendations

Issued November 2002

A collaboration between the:

North Dakota State Data Center

Dept. of Agribusiness & Applied Economics
North Dakota State University
424 IACC Building, P.O. Box 5636
Fargo, ND 58105
Phone: (701) 231-7980
Fax: (701) 231-9730
URL: <http://www.ndsu.edu/sdc>

AND

Center for Rural Health

University of North Dakota
P.O. Box 9037
Grand Forks, ND 58202-2389
Phone: (701) 777-3848
Fax: (701) 777-2389
URL: <http://www.medicine.nodak.edu/crh>

Forward

This report is part of the 2002 North Dakota Needs Assessment of Long Term Care. The Long Term Care project was funded by a grant through the North Dakota Department of Human Services. The purpose of the project was to assess the current and future long term care needs of residents in North Dakota. This particular report is a summary of the activities contributed by North Dakota State University and the University of North Dakota.

Acknowledgments

We wish to acknowledge the helpful assistance of many individuals from the North Dakota Department of Human Services for their advice and guidance throughout this project. Specifically, we wish to thank David Zentner, Dave Skalsky, Henry Lebak, and Nancy Shantz. In addition, we wish to thank Gary Garland from the Department of Health for his insight and assistance. Equally important, we wish to acknowledge all those who offered their assistance and input during the many surveys, interviews, and meetings that are the heart of this report.

This project was a joint effort based on the sharing of various databases, expertise, and staff time/resources. In particular, we would like to recognize three individuals who graciously devoted their time, energies, and resources to advance this project. The first is Shelly Peterson, President of the North Dakota Long Term Care Association, who provided her assistance and financial support to ensure the completion of the Long Term Care surveys. Her efforts demonstrate that, through partnerships, the state can accomplish much despite tight budgets. Another example of the value and success of partnerships is the support and leadership provided by James Hirsch, Director of the North Dakota Department of Commerce, and Nelse Grundvig of North Dakota Job Services. These two individuals were key in allowing us to utilize a labor market survey conducted as a joint effort by the North Dakota Department of Commerce and various county economic development entities. We were able to dovetail our survey efforts with theirs in order to complete the statewide labor survey while leveraging tight budgets. We express our deep gratitude to these two individuals and to the various counties who jointly sponsored the labor survey. We appreciate their willingness to allow us to use the data, exhibiting their trust in us not to abuse that privilege. We are convinced that partnerships like these are the future of North Dakota.

Contributors

North Dakota State University

North Dakota State Data Center

Dr. Richard Rathge, Professor
Ramona Danielson
Mandy Clemenson
Jordyn Nikle
Steph Noehl
Lindsey Bergeron
Tammy Karlgaard

University of North Dakota

Center for Rural Health

Dr. Richard L. Ludtke, Professor
Lene Vallestad
Kathy Williams

Table of Contents

Executive Summary	1
Recommendations	1
Section I. Current and Future Elderly Population	1
Distribution of Elderly	2
Pre-Retirees	8
Living Arrangements of Elderly; Disability Status of Elderly; Elderly Migration	11
Section II. Elderly Needs Profile: “The North Dakota Survey of Elders”	i
Findings	3
Summary	46
Section III. Availability and Demand for Elderly Services	1
Current Senior Facilities	5
Where North Dakotans Get Their Services	8
Future Demand for Elderly Services	14
Section IV. Survey of Long Term Care (LTC) Administrators: “Recruitment and Retention Perceptions of Long Term Care Administrators”	i
Initial Descriptive Findings	3
Summary and Conclusions	18
Section V. Survey of Long Term Care (LTC) Staff: “Recruitment and Retention Perceptions of Long Term Care Staff”	i
Results	3
Comparison of Responses by Job Type	15
Urban, Rural and Frontier Comparisons	22
Predicting Retention	27
Summary	30
Section VI. Labor Force Issues	1
Current Workforce	5
Current Commuting Patterns	9
Labor Availability	14
Labor Force Commuting	34
Mobility of Labor Force	47

THE NORTH DAKOTA SURVEY OF ELDERS



Center for Rural Health
UND School of Medicine and Health Sciences

November 2002

Forward

This report is part of the 2002 North Dakota Needs Assessment for Long-Term Care. The Long-Term Care project was funded by the North Dakota Department of Human Services. This particular report addresses the characteristics of the retired and pre-retirement age population in terms of health status, functional limitations, health risk factors, plans for the future, access to long-term care services and use of services among those with functional limitations and preparations for the future.

Center for Rural Health Contributors

Dr. Richard L. Ludtke, PI
Lene Vallestad
Kathy Williams

Center for Rural Health
School of Medicine and Health Sciences
University of North Dakota
P.O. Box 9037
Grand Forks, North Dakota 58202-9037
Phone: (701) 777-3848
URL: <http://medicine.nodak.edu/crh>

TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vii
INTRODUCTION	1
FINDINGS	3
Health Status	3
Chronic Diseases.....	4
Need for Home Modification.....	6
Functional Limitations.....	7
Visual and Hearing Limitations.....	11
Health Risks.....	12
Smoking.....	13
Alcohol.....	16
Nutrition.....	20
Overweight/Obesity.....	21
Exercise.....	23
Social Involvement.....	26
Household Characteristics.....	29
Family Dimensions.....	33
Housing Adequacy.....	35
Informal Caregiving.....	36
Access to and Use of Formal Services.....	38
Locally Available Health and Residential Care.....	41

Contingencies and Acceptance of Care	42
Preparation for Future	44
Health Insurance	45
SUMMARY	46
Health Status	46
Functional Limitations	46
Health Risks	47
Smoking	47
Alcohol.....	48
Overweight/Obesity	48
Exercise.....	49
Social Involvement	49
Household Composition.....	49
Size.....	49
Moving Plans	50
Family Factors	50
Access and Use of Care	51
Informal Caregiving.....	51
Formal Services	51
Acceptance of Services.....	51
Preparations for Future	52
BIBLIOGRAPHY	53

LIST OF TABLES

Table	Page
1. Urban/Rural/Frontier Comparisons of Most Common Chronic Disease.....	5
2. Comparisons of Chronic Disease for Persons Age 55 and Over: Statewide, ND Tribes and Nation	6
3. Urban, Rural, and Frontier Need for Home Modification	7
4. Functional Limitation Age 55 and Over: Urban, Rural, and Frontier Tribes	11
5. Visual and Hearing Problems: Statewide, ND Tribes and Nation.....	12
6. Number of Cigarettes Per Day for Persons Age 55 and Over: Statewide, ND Tribes and Nation	14
7. Time Since Last Alcoholic Drink for Persons Age 55 and Over: Statewide, ND Tribes and Nation	16
8. Time Since Last Alcoholic Drink for Persons Age 50 and Over: Urban, Rural, and Frontier	17
9. Binge Drinking in Past 30 Days for Persons Age 55 and Over: Statewide, ND Tribes and Nation	18
10. Binge Drinking in Past 30 Days for Persons Age 50 and Over: Urban, Rural, and Frontier	18
11. Statewide Binge Drinking by Age Group.....	20
12. Exercise Rates for Persons Age 55 and Over: Statewide, ND Tribes and Nation.....	24
13. Number of Exercises for Persons Age 55 and Over: Statewide, ND Tribes and Nation	26
14. Number of Memberships Among Joiners for Persons Age 55 and Over: Statewide, ND Tribes, and Nation	28
15. Household Size Characteristics for Statewide and ND Tribes	30
16. Household Size for Persons 50 and Over by Age.....	31
17. Likelihood of Moving in Next 10 Years for Persons Age 50 and Over: Urban, Rural, and Frontier	32

18.	Household Composition for Persons Age 50 and Over: ND Statewide and ND Tribes	33
19.	Average Number of Living Children and Siblings: Urban, Rural, and Frontier	34
20.	Proportion Providing or Receiving Help from Family with ADLs for Persons Age 50 and Over: Urban, Rural, and Frontier	37
21.	Proportion Indicating Availability for Services for Persons Age 50 and Over: Urban, Rural, and Frontier	39
22.	Rates of Use for Services for the Functionally Limited When Services are Available	40
23.	Availability of Health and Residential Care for Persons Age 50 and Over: Urban, Rural, and Frontier	42
24.	Willingness to Use Service if Unable to Meet Own Needs for Persons Age 50 and Over: Urban, Rural, and Frontier	43
25.	Preparation for Future Long-Term Care by Persons Age 50 and Over: Urban, Rural, and Frontier	44
26.	Health Insurance Coverage: Urban, Rural, and Frontier	45
27.	Level of Functional Limitation for Persons Age 50 and Over: Urban, Rural, Rural Frontier, and ND Tribal.....	47

LIST OF FIGURES

Figure	Page
1. Comparisons of Proportions Reporting Good or Excellent Health, Age 55 and Over	4
2. Limitation of 3 or more ADL's Among Persons 65 Years of Age and Over: Statewide ND Tribes and Nation	9
3. Smoking Rate Age 55 and Over: Statewide, ND Tribes and Nation.....	13

THE NORTH DAKOTA SURVEY OF ELDERS

INTRODUCTION

A statewide survey of North Dakotans over age 50 was conducted in order to assess the characteristics of the population approaching or in retirement. The goal of this survey was to examine several important aspects of the population that are relevant for planning future long-term care programs. Health status, life style factors such as health risk behaviors, needs for environmental adaptation, functional limitations, location with respect to potential or current family caregivers, preparations for late life care and the availability, acceptability and use of long-term care services were included in the survey instrument. The content of the survey instrument was developed using an established core instrument developed at the UND Center for Rural Health and with input for additional items from the staff of the North Dakota Department of Human Services. The core instrument was designed to permit comparisons with national benchmarks taken from a variety of national surveys reflecting the status of the elderly. These comparisons will be employed in the analysis and provide a basis for interpreting many of the results. A copy of the instrument is in Appendix A.

The survey instrument represents an expansion of a survey tool used nationally by the National Resource Center on Native American Aging and although numerous additional items were included in the state survey, it does allow for comparisons with the North Dakota tribes and systematic comparisons will be made when the data permit. These comparisons are particularly important in that recent advances in life expectancy, combined with the baby boom effect have the nations Native American populations poised for rapid growth of their elders where historically there have been very few. The social and medical delivery systems for these

populations are now beginning to experience pressure to respond to the needs of the elderly and few services are adequately developed.

The survey data were collected under contract with the University of North Dakota Social Science Research Institute in February and March, 2002, using a computer assisted telephone interview (CATI) technology. The elder survey used a list-assisted sample of the state's counties, stratified by urban, rural and frontier locations. The sample drawn was the result of a shared sampling strategy with companion surveys for this long-term care project being conducted at North Dakota State University. This strategy ensured that the same household would not be overburdened by surveys contained in this project. The target population contained respondents who were 50 years of age and over. A screening question at the beginning of the survey established the true eligibility of each respondent and those who were not within the age parameters were excluded. Telephone interviews were completed with 1,501 respondents, representing a response rate of 63 percent of the eligible households. This provides a sample with a margin of error of +/-2.5 percent with a confidence interval of 95 percent. All interviews were conducted at SSRI facilities by trained interviewers with supervision and random monitoring for technique and adherence to established procedures. Interviews were conducted afternoons and evenings on weekdays and weekends. Efforts to complete interviews with selected respondents were involved using appointment times and calls using varying days of the week and time of day. The number of callbacks to complete an interview with an eligible respondent ranged from 1 to 12.

FINDINGS

The findings from the survey data that follow are presented in a series of sections corresponding to the major content areas of the survey instrument. Following a brief description of the statewide result, an examination of comparisons using the urban, rural and frontier classification is presented followed by comparisons with the results of the independent data on the Native American population. The urban classification contained Burleigh, Cass, Grand Forks, Morton and Ward counties. Frontier counties contained those counties with fewer than 6 people per square mile, with rural counties constituting the remainder. Comparison sheets containing detailed comparisons are contained in appendices B and C respectively.

Health Status

General health status was assessed with a single question asking respondents to rate their health on a five point scale from excellent to poor. The results for the state present an image of relatively good health. The statewide result produced 48.7% reporting their health as excellent or very good and 20.1% reporting fair or poor. This compares favorably with data from the National Health and Nutrition Examination Survey in which the nation's population age 55 and older had only 31% of the national respondents in the excellent or very good categories and 34% in the fair and poor categories.

Nationally, the rural elderly are uniformly presented as having poorer health than the elders in urban areas. In North Dakota, however, self reported health status does not indicate such a rural deficiency. Rather, the proportion indicating their health status as either excellent or very good in rural and frontier counties is equal to or higher than that found in the urban counties. Similarly, the proportion indicating their health status as fair or poor is lower in the rural and frontier counties.

The question as to how North Dakota’s Native American elders compare yields a picture of greater difficulty. In North Dakota, the Native American elders reported substantially poorer health status than that reported in national data or in the statewide survey. All comparisons examining the North Dakota tribal data limit the age to 55 and over in order to match the existing data from the tribes.

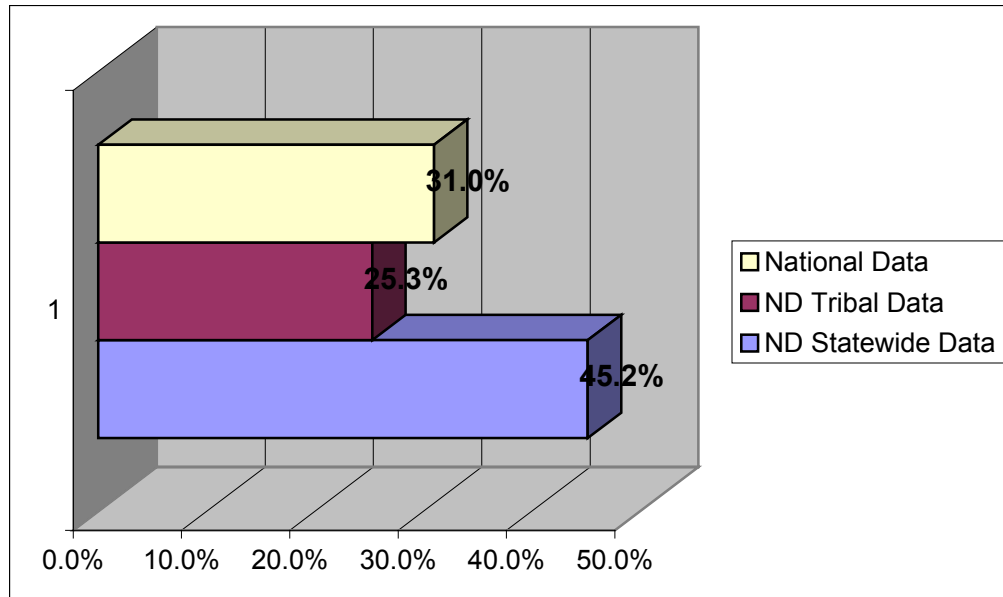


Figure 1. Comparisons of Proportions Reporting Good or Excellent Health, Age 55 and Over

Chronic Diseases

Respondents were asked whether a doctor had ever told them they had any of a list of 24 chronic diseases or disorders. Detailed comparisons of these are in the appendices. A comparison of the mean number of chronic diseases yielded no significant differences from an overall mean of 1.88 chronic diseases in this population. To look at the most commonly listed diseases, the diseases in the top 1/3 of the distribution were selected. The results in Table 1 do not indicate any substantial differences among urban, rural, and frontier counties. Those chronic diseases most likely to result in activity limitation, however, may be slightly less prevalent in the rural and frontier counties. One concern emerging from this analysis is a question as to whether

a selective migration occurs from the more sparsely populated rural counties resulting in a misleading impression that these are healthier places for living. One should keep in mind that the data reflect prevalence rates, not incidence rates. Chronic diseases may well be a driving force for some selective migration to larger population centers where health care and a wider range of services are available.

Table 1. Urban/Rural/Frontier Comparisons of Most Common Chronic Diseases.

Disease	Urban	Rural	Frontier
Arthritis	37.1%	34.4%	33.4%
Cataracts	19.2%	16.3%	18.3%
High Blood Pressure	36.1%	36.9%	40.6%
Heart Disease	14.0%	11.1%	13.7%
Diabetes	9.8%	9.5%	13.7%
Circulatory: Legs/Arms	11.8%	11.1%	7.7%
Osteoporosis	9.6%	10.1%	8.5%

Comparisons of chronic disease prevalence rates with the Native American data are limited to a smaller range of items. Table 2 contains the comparisons and while not all differences place the tribal elders in the most afflicted category, the majority of the comparisons do and some of the comparisons are dramatic. Arthritis, a major source of activity limitation, is dramatically higher among the tribes' elders and the prevalence of diabetes is nearly four times as great among the tribal elders, again leading to long-term consequences that are activity limiting. Cancer and cataract rates were both reported lower in the tribal data. Questions remain as to whether this finding may be due to under-diagnosis or other factors. Previous national

research has concluded that Native Americans have lower survival rates for cancer and this would affect the prevalence rates.

Table 2. Comparisons of Chronic Diseases for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Disease	ND Statewide Data (55 and over)	ND Tribal Data (55 and over)	National Data (55 and over)
Arthritis	34.7%	46.3%	40.0%
Congestive Heart Failure	6.7%	6.3%	8.0%
Stroke	4.1%	5.1%	8.0%
Asthma	6.7%	7.7%	7.0%
Cataracts	17.9%	17.3%	28.0%
Cancer	10.2%	6.0%	8.1%
High Blood Pressure	37.8%	42.5%	43.0%
Diabetes	10.6%	48.2%	14.0%

Overall, it can be safely concluded that the prevalence rates for chronic diseases containing implications for future activity limitations are relatively high among the states tribal populations.

Need for Home Modification

In the statewide survey, respondents were asked whether they needed to have their homes modified in order to retain their independence, using a series of suggested modifications. The overall need for home modifications is substantial. Overall, 34.8% indicated a need for one or more home improvements in order for their homes to adequately help them retain their independence. The most frequent expressed needs were for air conditioning, weatherization, safety strips in bathtubs or showers and hand rails. Comparisons by county classification

revealed less overall demand in Frontier counties, but the picture is mixed. The greatest difference appeared with air conditioning and this may be interpreted differently as to whether it is needed to help people retain independence.

Table 3. Urban, Rural and Frontier Need for Home Modification.

Modification	Urban	Rural	Frontier
Grab bars	8.4%	11.3%	9.4%
Non-skid strips for bathtub or shower	14.9%	15.1%	11.1%
Ramps	2.0%	3.0%	4.3%
Hand rails	11.6%	15.1%	10.8%
Weatherization	16.1%	15.1%	15.4%
Air conditioning	24.9%	23.6%	16.4%
Modifications for wheel chairs	3.6%	4.5%	3.4%
None of the above	63.5%	62.6%	70.0%

Functional Limitations

The extent to which functional limitations exist in a population determines the degree to which the population will need assistance. The dominant measures of functional limitation involve the use of measures of limitation in Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). ADLs represent the extent to which people have assistance needs for the most basic activities of living. These include bathing, dressing, eating, getting in or out of bed, walking and using the toilet. These activities are fundamental and when people express difficulties with them, they are considered to be in need of assistance. This assistance may be obtained from informal family caregivers, formally offered home and community based

service programs or in more institutionalized care settings, such as nursing homes. As the number of activity limitations increases, the nature and amount of care required is likely to change with people in skilled nursing homes receiving the greatest amount of care and possessing the greatest number of ADL limitations. IADLs reflect activities required for independent living, but that are less severe than ADLs. Examples include cooking, shopping, managing money, using a phone, doing light or heavy housework and getting outside the home.

People normally experience needs with IADLs in advance of ADL limitations and the ADL limitations tend to evolve in a pattern with bathing one's self commonly being the first and most frequent ADL for which assistance is needed. Eating and toileting are the least frequently identified ADLs among the non- institutional elderly.

In North Dakota 14.1 percent of the respondents from the statewide survey reported at least one ADL limitation. This proportion increases with age and as the population becomes older, the issue of ADL limitations becomes more significant. Another commonly used marker with ADL measures is the presence of 3 or more ADL limitations. This degree of limitation constitutes eligibility for nursing home care and is used quite consistently in measures of functional limitation. Comparing national data (Manton et. al., 1997) from 1994 with the North Dakota statewide and tribal data requires a limited comparison to those age 65 and over because of the age range used in national surveys. This comparison presented in Figure 2 suggests a different picture than the self report of general health status, with North Dakotans age 65 and over having a slightly higher proportion with 3 or more ADL limitations than the nation and the tribal population reporting a rate of limitations that is higher than the statewide proportion.

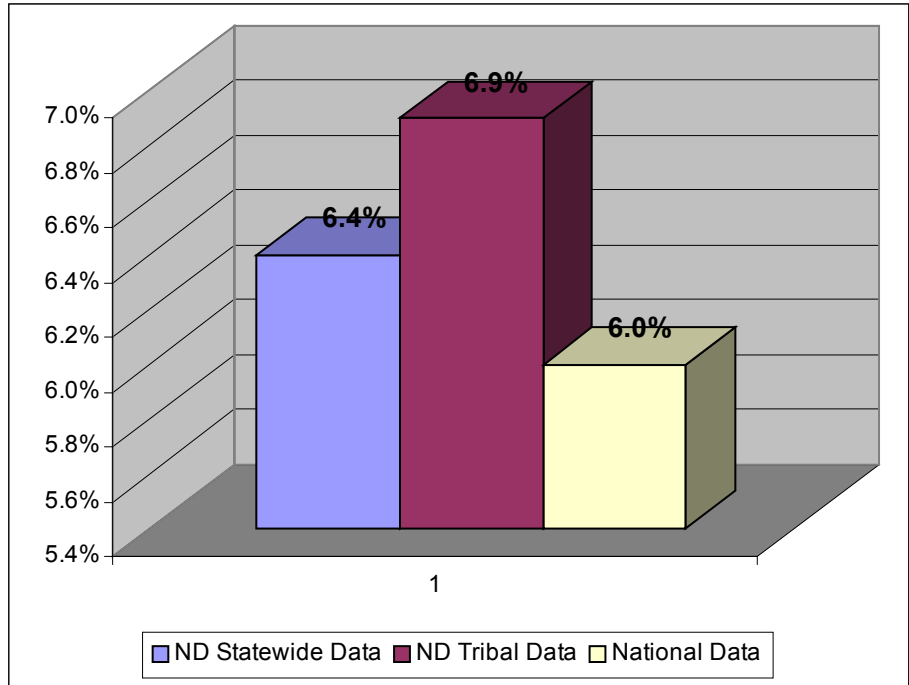


Figure 2. Limitation of 3 or more ADL’s Among Persons 65 Years of Age and Over: Statewide ND Tribes and Nation.

Examining the pattern of limitation in 3 or more ADLs in the statewide survey using urban, rural and frontier classifications produces a substantial difference between the frontier counties and the other two categories. Urban and rural counties reported 6% and 6.4% with 3 or more ADL limitations, but the frontier counties reported only 3.5% at this level of limitation. This suggests that the relative health of the population in these smaller counties reflects a selective loss of impaired older people. People experiencing significant functional limitations are more likely to relocate to accommodate their need for care. Unfortunately, this for rural depopulation and remains one of the issues to be addressed for the state’s most rural counties.

Again, IADL limitations relate to activities required for independent living, but not as basic as the personal care issues involved with ADL limitations. These may employed as indicators of need for a range of home and community based programs that empower people to

remain in their own homes. Meal delivery, homemaker services, chore services and transportation are examples of such programs. It is important to note that limitations in IADLs normally precede the development of ADL limitations and that persons who report 3 or more ADL limitations are also likely to have extensive IADL limitations.

Among those who report only IADL limitations, the prevalence is greatest among the North Dakota tribes with 13.7% of those 55 and over having one or more IADL limitation. The statewide survey produced an overall prevalence of 9.6% with the frontier having the lowest rate at 7.7% and rural possessing the highest at 12.1%. Urban respondents were in the middle with a prevalence rate of 10%. Once again, the need for service may be suspected of influencing people's decision to relocate, leaving behind a relatively vital population in frontier areas.

Functional limitations can be classified into categories that correspond to levels of care. A model that rests heavily on ADL limitations but that allows for multiple IADL limitations categorizes people into four groups. The groups are composed of those with little or no limitations, slight (one ADL limitation or at least two IADL limitations), moderate (2 ADL limitations) and severe (3 or more ADL limitations). These four groupings correspond to those who need no services, limited home and community based services, assisted living and nursing home care respectively. These are not rigid allocations, but assist in defining the volume of need at each level.

Table 4. Functional Limitation Age 55 and Over: Urban, Rural and Frontier and Tribes.

Level of Functional Limitation	Urban	Rural	Frontier	ND Tribal Data
Little or none	81.1%	79.3%	84.5%	71.1%
Slight	8.9%	9.7%	8.4%	16.1%
Moderate	4.2%	4.1%	3.0%	5.3%
Severe	5.8%	6.9%	4.1%	7.5%

The rates of functional limitation are lowest for the frontier counties, reflecting a relatively healthy resident population. They are also highest for the Native American elders, where at each level of limitation, the rates were the highest discovered in the state. The growing population of elders residing on the states reservations present service needs that are likely to continue to grow.

Visual and Hearing Limitations

In the survey instrument questions were asked to discern whether people experienced blindness or had difficulties with their vision despite the use of corrective lenses. North Dakota respondents did have a slightly greater proportion than the nation indicating blindness in either one or both eyes, yet when responding to the question about trouble seeing even after corrective lenses were used, the proportion having difficulty was less (see Table 5). North Dakota’s Native American elders were more likely than their national or state counterparts to have either blindness or trouble seeing after receiving corrective lenses.

Table 5. Visual and Hearing Problems: Statewide, ND Tribes and Nation.

	National	ND Statewide	ND Tribes
Blindness in one or both eyes	3.0%	4.4%	7.5%
Trouble seeing even with corrective lens	19.0%	11.2%	23.4%
Deafness in one or both ears	4.1%	11.8%	13.1%
Wears hearing aid	7.0%	6.6%	10.1%
Trouble hearing even with aid	23.0%	55.1%	10.2%

Hearing difficulties rendered a similar pattern in that the rate of deafness was higher in North Dakota than in the nation and was highest among the Native American elders. Hearing aid use did not follow this pattern as the use of such aids was slightly lower in the state than for the nation, but was higher for Native Americans. It is also of note that the use of hearing aids declined from urban to rural to frontier areas, suggesting that those in rural and frontier locations may experience the least access to speech and hearing clinics (see Appendix B for detailed comparisons). Finally, among those with hearing aids, it appears that substantially more North Dakotans with hearing aids have failed to achieve satisfaction after receiving the aids. Nearly twice as many North Dakotans continued to have trouble hearing after receiving hearing aids as did the nation. Satisfaction with hearing appeared highest among the Native Americans with hearing aids.

Health Risks

Health risk behaviors relate not only to present levels of chronic disease or disability, but also set the stage for future experiences. In this survey we examined a standard set of health

risks for which comparisons are available. Specifically, smoking, drinking, eating regular meals, exercise, weight levels and social involvement were examined in the survey.

Smoking. Smoking and exposure to second hand smoke is clearly linked with increased risks for a variety of chronic and acute disease. North Dakota’s older citizens appeared to smoke at rates that were below the nation’s norms for comparable age people. This is substantially the case for the general population and is also the case, albeit to a lesser degree, for the Native American elders. The prevalence of smoking also varies little across urban, rural and frontier locations. The low rate of smoking signals a positive foundation for one of the most significant health risk factors. The public health benefits of avoiding tobacco smoke is of course substantial and may be expected to pay dividends in the future by postponing and preventing diseases related to tobacco use.

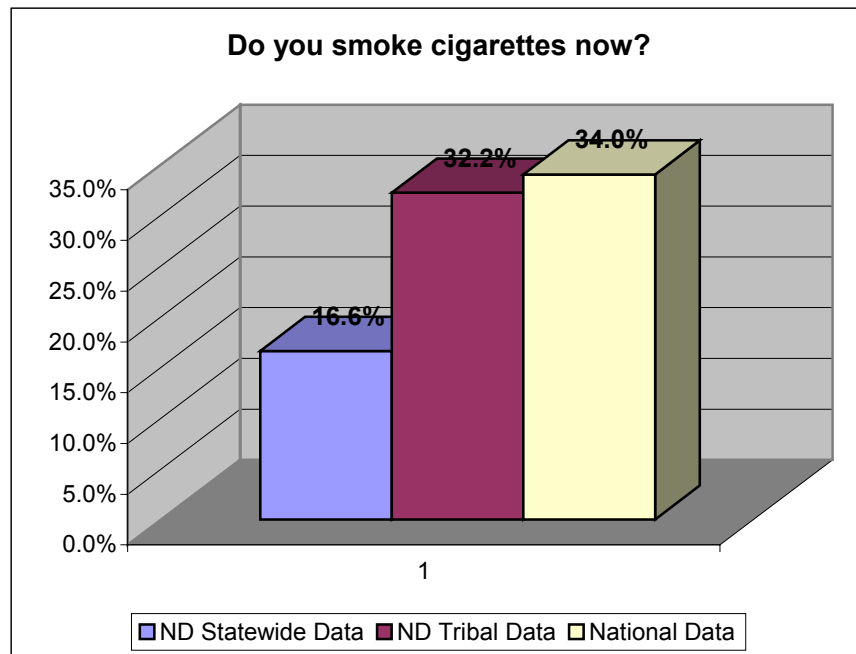


Figure 3 – Smoking Rates Age 55 and Over: Statewide, ND Tribes and Nation

Smokers also expose themselves to relative risks depending on the amount of smoking with heavy smoking clearly the most destructive to health. The data on smoking volumes are

found in Table 6. The greatest observed difference is that the North Dakota tribes, who reported higher numbers of smokers, and reported the lowest volume of cigarette consumption. This observation may be explained by ceremonial use of tobacco. One third of the state’s Native American elders who reported themselves as smokers also reported that they smoke no cigarettes each day. Thus, the self report of smoking contained ceremonial use of tobacco and in fact, the Native American elders were not heavy consumers of cigarettes.

Table 6. Number of Cigarettes Per Day for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Number of Cigarettes/day	ND Statewide Data	ND Tribal Data	National Data
Less than 5	14.7%	53.4%	14.0%
6 to 10	20.2%	24.7%	25%
11 to 20	45%	17.4%	42%
21 to 30	10.9%	2.7%	10.0%
31 & over	9.2%	1.8%	10.0%

Comparisons by urban, rural and frontier counties indicated that rural and frontier respondents smoked quantities of cigarettes that were slightly higher than the urban respondents. The average for urban was 16.4 cigarettes per day, while the rural respondents smoked 18.2 on average and the frontier smokers smoked 17.9.

Smoking behavior is a complex issue, but an existing consensus suggests that it produces risks for increased illness and mortality levels. In the statewide data, when one examines smokers and the volume of smoking, there are significant relationships between smoking and age, gender and education. Increases in age or education produced reduced amounts of smoking.

Future cohorts of retirees will be better educated and a bi-product of this appears to be a reduced likelihood of smoking. Gender differences also exist. Women smoked less than men, with 13% of the women respondents smoking compared to 23.2% of the men. It may also be noteworthy that the gender difference is smaller among the younger cohorts. As women have increased their smoking over time, it has been among the younger cohorts and this will produce more smokers among women who retire in the future along with some increase in risks for chronic diseases. This may offset some of the improvements expected in people with higher educational levels. Age differences may be produced by reduced smoking among older people or reflect different smoking behaviors among generations. This is not discernable with these data, but the prospect of significant changes among future generations smoking does not appear great. Given the public health awareness of smoking issues, it is likely that over time the volume of smokers and smoking among smokers will decrease. Fortunately, this does not present any negative growth in future health outcomes as a result of this risk factor. This is not to say that the need for continued and improved efforts to curtail smoking aren't needed, but rather that we see no particular pattern that suggests a surge or decline in smoking for future generations as they become old.

Finally, smoking among the Native American elders appeared to be exaggerated by the presence of people who smoke for ceremonial purposes, but do not smoke cigarettes. There are some features that merit special considerations for this population. When education is examined in relation to smoking among the tribe's data, there is no relationship. Normally, when the educational level of a population increases, smoking decreases. Our data suggest that using education as a general vehicle for smoking reduction may not produce results for Native Americans, in part because some of the smoking is ceremonial. Smoking reduction efforts for

this group should be fostered from within in order to accommodate subtle cultural differences in the view of smoking and tobacco.

Alcohol

Two questions were employed to examine the extent of alcohol consumption in both the statewide survey and North Dakota’s tribal populations. The first question dealt with the length of time since one’s last alcoholic beverage. This item identified non-drinkers, drinkers with a long period of abstinence and those with a history of recent consumption.

Table 7. Time Since Last Alcoholic Drink for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Time since last drink	ND Statewide Data	ND Tribal Data	National Data
Never had a drink in one’s life	13.8%	11.4%	0.3%
More than 3 years	22.9%	56.8%	29.7%
30 days to 3 years	22.8%	14.3%	20.4%
Within 30 days	40.4%	17.5%	49.5%

North Dakotans appeared more likely to report lifelong abstention than the nation. This is true for both the statewide survey respondents and the tribal respondents as shown in Table 6. In these two samples of people age 55 and over, there were substantially more reporting that they had never had a drink than was found for the nation. Persons who were not lifelong abstainers, but had not had a drink in more than three years reflects a second level of abstinence. This category includes those who have stopped drinking. The North Dakota Native American elders had an unusually large proportion in that category, reflecting a strong measure of conscious alcohol avoidance. We interpret this as evidence of positive behavior regarding this risk factor.

Consistent with high proportion of respondents who had either never consumed alcohol or had not consumed alcohol recently is the observation that among North Dakota’s Native American elders, there is a low rate of consumption for recent time periods.

Comparisons among urban, rural and frontier counties did not exhibit dramatic differences (see Table 8). Members of the rural and frontier populations are only slightly more likely than urban people to be life-long or recent abstainers and are only slightly less likely to have recently consumed alcohol.

Table 8. Time Since Last Alcoholic Drink for Persons Age 50 and Over: Urban, Rural and Frontier.

Time since last drink	Urban	Rural	Frontier
Never had a drink in one’s life	14.7%	13.2%	13.6%
More than 3 years	20.9%	22.8%	24.8%
30 days to 3 years	20.7%	23.4%	24.2%
Within 30 days	43.6%	40.7%	37.1%

The second alcohol item dealt with binge drinking among those who do consume alcohol, defined as having five or more drinks on the same occasion. Using this operational definition of binge drinking, North Dakotans did not fare as well as the nation (see Table 9). Only 7.5% of the nation’s consuming population ages 55 and over who drink indicated that they had one or more days of binge drinking in the past 30 days. This compares with 21.6% of the statewide respondents and 60.3% of the tribal population 55 and over. This leads to a conclusion that among those for whom alcohol consumption is present, North Dakota and especially North Dakota tribal elders have a high rate of heavy drinking.

Table 9. Binge Drinking in Past 30 Days for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Number of days with 5 or more drinks	ND Statewide Data	ND Tribal Data	National Data
None	78.4%	39.7%	92.5%
1 or 2 days	12.5%	36.8%	3.7%
3 to 5 days	5.9%	7.4%	2.0%
6 or more days	3.2%	16.2%	1.9%

The findings regarding differences in binge drinking between urban, rural and frontier counties are presented in Table 10. While the patterns are not dramatic, rural populations appeared to be more at risk for heavy drinking and the data indicated that the rural category has the greatest proportion of people engaging in some level of binge drinking. Frontier respondents exhibited less binge drinking than other rural respondents, but more than the urban.

Table 10. Binge Drinking in Past 30 Days for Age 50 and Over: Urban, Rural and Frontier

Number of days with 5 or more drinks	Urban	Rural	Frontier
None	82.6%	71.3%	79.1%
1 or 2 days	10.6%	16.4%	11.8%
3 to 5 days	4.3%	9.4%	5.0%
6 or more days	2.6%	2.9%	4.1%

Age differences were examined to determine whether any suggestion of increases or decreases in binge drinking is likely in future cohorts of elders. While cross sectional data can only offer limited suggestions regarding this issue, there is some comfort to be derived from

examining the influence of age. The North Dakota Native American elders were examined using a dichotomy, those under age 65 and those 65 and over. This comparison exhibited a significant difference in the proportion with no occasions of binge drinking in the past 30 days. The proportions for the two age groups were 31.3% and 47.1% respectively. Alternative interpretations of this finding are difficult to resolve without longitudinal data. One might expect future cohorts of elders to carry with them patterns of heavier drinking since the age comparisons demonstrated heavier drinking among the under 65 cohort. Alternatively, the amount of alcohol abuse may decrease with age as result of selective survival or people simply growing out of the behavior with age. The evidence of large numbers who report a pattern of recent abstinence is encouraging and provides a basis for promoting a social norm supporting abstinence.

Similarly, the statewide data for the general population found a slight general trend toward less binge drinking with increasing age. A majority of the respondents did not report binge drinking at all ages and this majority generally increased with each age category. One exception is the 55-59 age category where the number engaged in binge drinking increases and frequent heavy alcohol use is greater. Since this is contrary to the general trend, one must be alert to the possibility of increased alcohol related issues for this age cohort. It may reflect greater acceptance of drinking among those who reached adulthood in the early 1960s. A second observation of note is an observation of increased high frequency binge drinking reported by the older age groups. Persons who binge on more than 20% of the days would appear to have a severe alcohol use problem. Each age cohort produced a higher proportion of this frequent binge drinking until the 70 and over cohort. One interpretation for this phenomenon is that a progressive increase in alcohol abuse may be a reaction to late life stressors and signify a pattern

of age related dependency. In any event, there is evidence of a need to promote a healthier approach to alcohol among some mature adults.

Table 11. Statewide Binge Drinking by Age Group.

Number of days with 5 or more drinks	50 to 54	55 to 59	60 to 64	65 to 69	70 and over
None	73.3%	68.8%	84.2%	82.9%	89.8%
1 or 2 days	16.7%	20.8%	7.9%	5.3%	6.6%
3 to 5 days	7.2%	7.2%	3.4%	6.6%	2.2%
6 or more days	2.8%	3.2%	4.5%	5.3%	1.5%

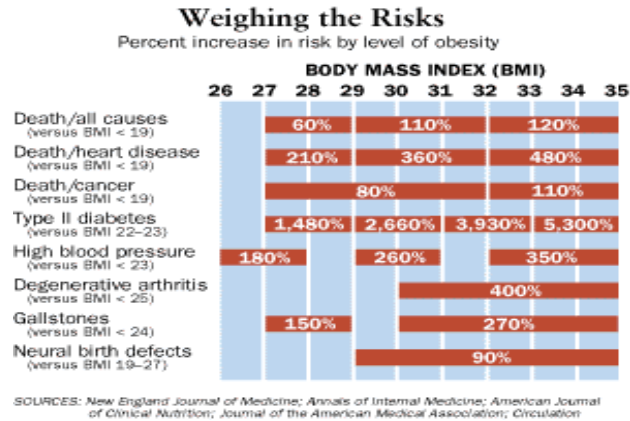
P<.05, G -.26

Nutrition. Nutritional adequacy was addressed using a single item as representative of whether one ate regular meals. This item on breakfast was taken from the National Health and Nutrition Survey to serve as a proxy item for this area. Eating a regular breakfast in this context is considered a positive health behavior and indicative of positive dietary behavior in general. Nationally, 77% reported eating breakfast every day. In North Dakota the statewide proportion was 77.9%, and differences between North Dakota and the national benchmark were small. The North Dakota tribes reported fewer eating breakfast daily (68.7%). The nation, state and tribes appeared quite similar in the proportions eating breakfast rarely or never.

Similar comparisons between urban, rural and frontier counties did not yield statistically significant differences. There was, however, a pattern of change over age. The youngest cohort had the least regular pattern of eating breakfast and regularity in eating breakfast increased with age growing from 61.4% to 91%. This may reflect success in educating the public and a shift in the perception of importance attached to diet over the life cycle. The overall result of this

interpretation is that one would not predict future changes in nutritional adequacy assuming that this indicator accurately reflects nutritional adequacy.

Overweight/Obesity. Body Mass Index (BMI) scores were calculated for the respondents on the statewide survey and the survey of the North Dakota tribes. Computing one's BMI is accomplished using the following formula: $BMI = \text{Weight in kilograms} \div [\text{Height in meters}]^2$. A table indicating coordinates for height and weight is provided in the appendices for use as a reference point. Issues of weight are considered important both as direct predictors of disability and indirectly, as predictors of chronic diseases that eventually lead to disability. According to the Centers for Disease Control (CDC), a healthy BMI for adults is between 18.5 and 24.9. The definition of BMI categories employs the effect body weight has on disease and death. They further state "A high BMI is predictive of death from cardiovascular disease. Diabetes, cancer, high blood pressure and osteoarthritis are also common consequences of overweight and obesity in adults. Obesity itself is a strong risk factor for premature death". While many object to the relatively stringent definition of overweight as including those with a BMI of 25 or greater, empirical evidence establishes this as the point at which health risks begin to accelerate. People are considered obese when their BMI is 30 or above. The inserted graphic inserted documents the degree to which this factor produces an influence on a variety of health risks.



If one accepts the goal of avoiding overweight or obesity and uses the national norms as a basis for comparison, the statewide data produce an undesirable result. A classification recommended by CDC uses the following. Persons with a BMI of under 18.5 are considered underweight. Those between 18.5 and 24.9 are considered normal. Between 25 and 29.9 people are considered overweight and 30 and above constitutes obesity. Nationally, 35% of the people over 55 years of age are classified as overweight and an additional 18% are considered obese. North Dakota's respondents over 55 years of age produced 40.7% overweight with an additional 24.5% obese. Less than one percent of the states respondents were underweight. These suggest substantially greater risks due to weight in North Dakota's mature adults. The statewide survey respondents produced no significant difference between age groups in terms of the levels of BMI. Consequently, we should not expect this to become of greater concern in the future, but should remain alert to the presence of a significant contributor to late life limitations in activity.

Data reflecting the North Dakota tribal elders also demonstrated relatively high proportions in the overweight and obese categories. The proportion in the obese category for this population was very high (39%) compared to the 24.5% for the state and 18% for the nation. A significant difference did exist by age groups for the Native American population with people under age 65 reporting an average BMI of 29 compared with 27.5 for those 65 years of age and

over. This suggests a great need for nutritional programs, exercise and weight control for the adult population living on North Dakota reservations. It also suggests that issues related to overweight are likely to increase as a heavier cohort reaches retirement age.

Comparisons by urban, rural and frontier suggested that adults in rural North Dakota are slightly more likely to be overweight or obese than their urban counterparts. Those with BMI scores in the obese or overweight ranges were highest in frontier counties, with rural counties also being higher than urban. Frontier counties have 72.4% of their respondents in the overweight and obese range. Other rural counties have 68.5% overweight or obese and the urban counties have 62.7%. Again, no consistent pattern by age was found for this issue. These findings reinforce the need for nutritional counseling, weight control and exercise throughout the state.

Exercise. The benefits of exercise in all likelihood need no elaboration in this document. Exercise assists us in maintaining our strength, range of motion, cardiovascular fitness, glucose tolerance, and extends into mental health as a stress management tool. Suffice it to say that exercise is a pivotal aspect of wellness, yet one that is irregularly attended by many in our society. In the surveys reported here, a set of items including common modes for obtaining exercise were presented to the respondents with an opportunity for them to check each that the respondents engaged in one or more times a week. Each of these can be examined individually or in terms of some classification. We also combined the exercise list into a count that reflected the number of exercise activities engaged in by the respondents.

The comparisons between national norms, the statewide survey and North Dakota tribal data for specific exercises are in Table 12. Exercise rates are higher for the North Dakota's general population for most of the listed activities. They are lower only for swimming and other

dancing (including square dancing, swing etc). The item reflecting hard physical work was unique to the statewide survey. These findings bode well for the state.

Table 12. Exercise Rates for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Exercise	ND Statewide Data	ND Tribal Data	National
Walk a mile or more at a time w/out stopping	40.8%	24.8%	37.2%
Jog or run	4.3%	1.4%	3.9%
Ride a bicycle or exercise bicycle	17.6%	6.1%	11.7%
Swim	3.1%	0.0%	4.1%
Aerobics or aerobic dancing	7.1%	1.0%	2.8%
Other dancing	5.5%	3.9%	8.1%
Calisthenics	18.9%	13.6%	14.8%
Garden or yard work	49.7%	30.9%	46.0%
Lift weights	8.1%	6.1%	4.0%
Hard physical work for one hour or more	22.7%	NA	NA

The comparison with the North Dakota tribal data produced the opposite picture, with the tribes' elders exercising less than the national norms on all indicators except lifting weights. One account for this difference has to do with access to facilities. Many of the exercise activities are dependent on access to designated space and/or facilities and these forms of exercise are clearly less often used by the Native American population. Particularly striking is the total absence of water based exercise which is, of course, dependent on access to swimming pools or lakes. The absence of this item reflects an access problem, yet the Arthritis Foundation recommends water based exercise for older people, particularly those with arthritis in order to reduce the load on

large joints. Similarly access to indoor opportunities for walking programs, especially during the harsh winters is needed to promote walking as an exercise form and this too needs appropriate space.

A count of the exercise activities (excluding the item reflecting hard work) indicates the overall level of exercise and provides a basis for comparison with national norms. The results comparing the state and North Dakota Tribes with the nation are in Table 13. The nation has become more sedentary than populations of our state, with the state's general population much less likely to have no activities and also much more likely to have several exercise activities. The reservation populations are also engaged in more exercise activities than the nation, but substantially less than other areas of the state. This may be due in part to differences in access. It was noted earlier that those exercise activities that are facility dependent or that require organized programs are less accessible to some people in some locations. The lower amount of exercise may also be partially a consequence of higher levels of physical limitation with Native Americans experiencing chronic diseases and activity limitations at earlier ages than the balance of the population. While we can be gratified that all North Dakota populations were more active than national norms, we continue to have room for improvement, especially in meeting the needs of reservations.

Table 13. Number of Exercises for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Number of Exercises	Statewide Data	ND Tribal Data	National
None	24.7%	48.8	58.9%
1	32.0%	26.6%	37.0%
2	23.0%	15.4%	3.7%
3 or more	20.1%	9.1%	.3%

Comparisons of urban, rural and frontier counties did not produce significant differences in the number of exercise activities. It is important to observe, however, that between $\frac{1}{4}$ and $\frac{1}{2}$ of our population over age 55 did not engage in any regular activities. Although the comparisons are gratifying, the overall rate of non-participation is still very high and impedes the public health.

Finally, patterns of exercise reflect reduced activity as a function of weight. The number of exercise activities diminishes as weight classes increase, with the obese reporting the least amount of exercise. This presents a paradox in that the greatest need for exercise in order to manage or lose weight and to counter the adverse effects of weight is among the overweight and obese and yet, their obesity inhibits exercise. The task of designing and encouraging appropriate exercise programs for people fitting this profile is great.

Social Involvement. Social involvement is included in this study as an essential element of well being. People who are socially integrated are likely to have a more positive outlook on life and their involvement provides an incentive to remain active. Logically, such involvement leads to better health and greater independence. The measures of social involvement used in this

study were indicators of attendance at church or religious services and a combination of membership and participation in clubs and organizations.

Attendance at church or religious services is relatively high in North Dakota as 52.2% of the respondents in the statewide survey reported attending church once a week. This compares with 36% nationally and indicates a high measure of social involvement through religious institutions for our state. The definition includes sweats and ceremonies when applied to the Native American elders and they also reported relatively high levels of participation. The rate of weekly participation for the North Dakota tribe's elders was the highest among all comparisons as 59.6% reported engaging in weekly attendance.

Church attendance also appears to increase among people in more sparsely populated areas. Attendance at church was reported by 50.6% of the urban respondents, 51.8% of the rural respondents, and 54.9% of the frontier respondents. While this reinforces a stereotype of rural morality, it is significant for our purposes because of the level of social involvement. North Dakotan's are substantially involved with religious organizations.

Membership and participation in clubs and organizations also signifies active involvement on the part of people. Two questions establish the extent to which people have memberships and are actively involved in clubs and organizations. First, we examined whether our populations were active in joining clubs and organizations. Nationally, 35% join organizations. In North Dakota the rate of memberships was greater with 59.9% of the statewide respondents 55 years of age and over reporting that they belong to one or more clubs or organizations. The Native American elders reported a rate for joining of 40.9% - also higher than the national average, but lower than the statewide data.

Among those who report joining clubs or organizations North Dakota respondents from the statewide survey were more likely to limit memberships to one, two or three organizations the nation’s total population of joiners appeared to opt for multiple memberships. This was also true for the North Dakota tribal sample where 93.7% were involved in 3 or fewer organizations. Table 14. Number of Memberships Among Joiners for Persons Age 55 and Over: Statewide, ND Tribes and Nation.

Number of clubs	ND Statewide Data	ND Tribal Data	National
1	29.5%	69.8%	21.0%
2	30.3%	15.7%	9.0%
3	18.8%	8.2%	27.0%
4	9.8%	1.9%	17.0%
5 or more	11.6%	4.4%	26%

When the item reflecting memberships was combined with a question reflecting frequency of attendance, it becomes evident that although the North Dakota samples were all inclined to join fewer organizations, they are more likely to be active in those they do join. Nationally, 90.9% of those who join clubs and organizations reported no participation. Comparable numbers for the statewide and tribal data were 49.3% and 69.9% respectively. Differences by urban, rural and frontier residence were not statistically significant.

The value of this information is that we have an active population when it comes to being involved in church and organizational activities. This active base serves those who participate by promoting socially active lifestyles which in turn keep people both active and independent. It also provides a social base from which to promote activity. Building increased social

involvement would clearly be easier from a foundation in which a substantial number of the community is already involved.

Overall, the question as to whether North Dakota's older population contains either healthy or unhealthy practices or characteristics that would impact future long-term care needs is mixed. The importance of smoking, alcohol abuse, overweight, diet, exercise and social integration are certainly not uniform, yet no statistical algorithm is available to weight the relative importance of each. Health promotion and wellness activities are important in response to each and all of these risk factors. Smoking did appear in this cross sectional data to taper with age, but many of the health consequences are established by smoking at earlier ages. So also is the case with alcohol. Even a small percentage of the population with alcohol dependency produces a large volume of human suffering. While we expect fewer people to drink in the older cohorts, we also find a significant increase in intense binge drinking among the drinkers of these older cohorts. This would appear to command attention, both intervention and prevention targeted at mature citizens. The risk factor that yields the largest difference between our state and the nation is with the amount of overweight and obesity. North Dakota has a very high proportion of its population with weight beyond recommended levels. This leads to increased prospects for chronic diseases such as diabetes, heart disease and osteoarthritis. Part of any statewide wellness effort would clearly benefit by strong attention to diet, weight and exercise. While each of these may be addressed independently, they operate in unison to produce adverse health outcomes.

Household Characteristics

Household size is an important characteristic of one's household. Living alone in later life creates a unique context when it comes to adapting to functional limitations and the need for

assistance. Comparing the household sizes for the North Dakota statewide population with the tribal respondents reveals significant differences. In North Dakota, the general population over age 55 had an average household size of 1.82 persons. The tribe’s population over age 55 reported households with 2.79 persons on average, substantially larger households than the general population. Further evidence of this is presented in Table 15. The proportion of households that are single person households is substantially less in the reservation communities, while the proportion with 3 or more persons is over four times as great for the North Dakota tribes.

The significance of household size can be appreciated when informal caregiving is considered. Those living alone are handicapped by not having another member of their household to rely on for informal care, while those living in larger or extended households have an advantage with access to a help.

Table 15. Household Size Characteristics for Statewide and ND Tribes.

	ND Statewide Data	ND Tribal Data
Mean household size	1.82 persons	2.79 persons
Proportion with 1 person	33.6%	21.9%
Proportion with 2 persons	57.9%	32.4%
Proportion with 3 or more persons	8.5%	45.7%

The influence of age on household size is significant and in order to account for the influence of age, age specific comparisons of the state’s general population with the tribe’s data were developed. As evidenced in Table 15, the differences in household size declined with age. The difference for those 55 to 64 years of age was 1.13 persons on average. This is a huge

difference and while the difference dropped to an average difference of .76 persons per household for those 75 and over, this is still a very large difference. Clearly, the Native American elders were more likely to live in households with extended family present. This can be a source of strength when incorporating informal caregivers into the state’s system of long-term care.

Table 16. Household Size for Persons 50 and Over by Age.

	50-54	55-59	60-64	65-69	70-74	75 & up
Mean Household Size	2.35	2.08	1.93	1.82	1.81	1.50
Proportion with 1 person	13.4%	19.3%	18.9%	30.9%	31.6%	59.9%
Proportion with 2 persons	54.8%	63.3%	75.1%	62.4%	58.2%	37.0%
Proportion with 3 or more persons	27.8%	17.4%	7.0%	6.9%	10.2%	3.4%

North Dakotans in both the statewide survey and the survey of tribal elders tended to be geographically stable, with the majority of respondents age 55 and over having lived at their present address for over 20 years. The length of current residence also increased among the rural and frontier populations. Indeed, the longest residential tenure is found in the frontier counties where 61.4% of the respondents lived at their present address for over 20 years. The shortest residential tenure was found in the urban counties.

Respondents were also asked how likely it was that they would move in the next 10 years. The results are in Table 17. Residents of North Dakota’s sparsely populated frontier counties were the least likely to express an intent to move. The urban population was the most likely to move. It appears that rural people were the most committed to aging in place and that if they eventually were required to move, it would likely be against their wishes. Further evidence of this desire to remain in their communities was found in the observation that an inverse

relationship existed between age and the likelihood of moving. Consistent with demographers' observations that migration decreases with age following peak migration occurring in young adulthood, the anticipation of moving declined with age and the least likely to anticipate moving were those in the oldest age cohorts. When one examines the population structure of frontier counties, the evidence is clear showing that the younger cohorts have been leaving and that over time this has prepared a foundation for limiting access to informal caregiving. The available caregivers are simply no longer locally available to the extent they once were. An expectation exists that older residents will follow their children and also leave the sparsely populated rural counties. This however, does not appear supported and even among the frontier counties, the oldest cohorts are the most committed to aging in place and resistant to moving. Additionally, among those who indicated that they either might or would move, the dominant location designated for those over age 65 was within the present community and the proportion indicating that they would be likely to move within their present community increased with age. Finally, levels of functional limitation were cross-tabulated with the likelihood of moving and no significant relationship was observed. Evidently, even those beginning to experience functional limitations do not see moving as a solution to their problems and are committed to staying.

Table 17. Likelihood of Moving in Next 10 Years for Persons Age 50 and Over: Urban, Rural and Frontier.

	Urban	Rural	Frontier
Unlikely	62.2%	70.3%	74.1%
May move within present community	14.5%	11.2%	6.7%
May move to another community	10.3%	9.4%	12.5%
Will definitely move with present community	7.2%	4.4%	1.9%
Will definitely move to another community	5.8%	4.7%	4.8%

Family Dimensions

Living alone may contribute to one's need for formal assistance when functional limitations arise. The surveys conducted in North Dakota asked people about the composition of their households using similar questions. We compared the statewide sample to the sample taken from North Dakota tribes using categories for living with family members, living with non-family members, living with both family and non-family and living alone (see Table 18). Significant differences were observed between the general population and the tribal data for those living alone or living with family. Those living with family included living with spouse, parent, brother, sister and/or children. Elders in the general population were more likely to live alone and correspondingly less likely to live with family members. This difference was substantial and would affect the efficiency of relying on programs such as a family caregiving program.

Table 18. Household Composition for Persons Age 50 and Over: ND Statewide and ND Tribes.

	ND Statewide Data	ND Tribal Data
Live with family	63.5%	72.4%
Live with non-family	2.8%	2.8%
Live with both family and non family	2.0%	1.1%
Live alone	31.7%	23.7%

Family composition was queried in greater detail for the North Dakota statewide survey. Respondents were asked how many living relatives they had in each of the following categories: sons, daughters, brothers, sisters, and parents. Children and siblings constitute a pool of

prospective family caregivers. Parents in a sample of people age 50 and above would more likely constitute the group in need of care.

It is interesting to note that the average number of living siblings for those over age 50 was greater than the average number of children (3.14 compared to 2.92). While the difference was not great, it does reflect the smaller family sizes resulting from the long-term fertility decline. These smaller numbers of children, in turn, have the caregiving task for a parent generation that is experiencing significantly increased life expectancies.

The question as to how urban, rural and frontier counties compare with respect to the mean numbers of children and siblings is presented in Table 18. The average number of children was smaller in each category, but that the average did increase as one moves from urban to frontier. The differences were not great.

The average number of siblings also increased as population size and density decreased, but the differences were small and of little consequence. Overall, the influence of population size and density on the availability of living children and siblings was small and not likely to have an impact on informal caregiving. Since spouses and children are the most likely caregivers for the frail old, the availability of living children is a legitimate concern. Our data suggest that in terms of living persons, there are only slightly more informal caregivers available for residents of rural and frontier areas.

Table 19. Average Number of Living Children and Siblings: Urban, Rural and Frontier.

	Average # of living children	Average # of living siblings
Urban	2.81	3.38
Rural	3.09	3.52
Frontier	3.22	3.58

If we shift our attention to the local presence of potential caregivers, the question of how many of these relatives live nearby becomes important. The average total number of living relatives was 6.95 persons. Using a traveling distance of one hours travel time, the average number of available family was reduced to 2.35. Less than half of the relatives lived sufficiently close to participate substantially in family caregiving relationships. Further, the number of available family does not vary significantly by location.

Restricting the analysis to those over 75 years of age, the availability of family declined predictably. The average number of available family for this age group is 2.01 and this average is least for the most isolated frontier residents where the average is 1.78. This may be interpreted as evidence of North Dakota's loss of younger people through out migration and as evidence that the portion of the population with least access to formal services also has the least access to informal caregivers from within the family.

Housing Adequacy

In order to determine the adequacy of housing when faced with a contingency of becoming disabled, a question regarding how adequate one's home would be should a member of the household become disabled. The majority of North Dakota homes for the 50 and over population would not be adequate for a disabled person without at least some modification. Only 35% indicated their homes would be adequate as is and 20.6% rated their homes as inadequate. The remaining 44.4% indicated that their homes would be adequate with modifications. This pattern did not vary across when comparing urban, rural and frontier counties and suggests that efforts to enhance home and community based services or to increase and support family caregiving will require significant attention to housing as well.

Informal Caregiving

“The major long-term care provider is the family and, to a lesser extent, other unpaid “informal” caregivers” (Stone, 2000). This observation of the importance of informal care is both critical and complex. Recent attention to family care providers by the Administration on Aging (AoA) has elevated the visibility of informal care. It has also promoted attention to the need for support services for these care providers. In the statewide survey, two questions were addressed regarding informal care. The first question dealt with whether the respondent was either receiving assistance from or providing assistance to family members with activities of daily living (ADLs). ADLs reflect personal care and include items such as bathing, dressing, eating, walking, getting in and out of bed and using the toilet. The second items were broader and asked whether anyone in their household was serving as either an informal caregiver or a senior caregiver. Definitions of each were read to the respondents with informal care reflecting providing assistance to someone over age 60 and including a broad range of assistance, extending to Instrumental Activities of Daily Living (IADLs) with activities such as transportation, cooking, cleaning and such. Senior caregiving referred to a person over age 60 living with and providing care to a grandchild or young person under the age of 18 as the primary caregiver.

Overall, 5.9% of the respondents indicated that they were providing or receiving care from family members. The distribution for urban, rural and frontier is presented in Table 19. The rate of family caregiving was slightly higher in the frontier counties where 6.9% reported that they were in family caregiving relationships. The frontier counties were both more likely to provide and receive assistance from family caregivers. This probably reflects the scarcity of services as well as a strong value on familism.

Table 20. Proportion Providing or Receiving Help from Family with ADLs for Persons Age 50 and Over: Urban, Rural and Frontier.

Providing or receiving help for ADLs	Urban	Rural	Frontier
None	94.6%	94.7%	93.2%
Providing help	3.4%	3.0%	4.0%
Receiving help	2.0%	2.0%	2.2%
Both providing and receiving help	0%	.3%	.7%

Family caregiving was assessed in relation to the ADL needs and these caregivers are the most likely to be targeted for supportive services. Those providing family care can be described with the following thumbnail sketch. They are largely without serious functional limitations themselves, but 10.6% of them reported two or more ADL limitations. This suggests that, among family caregivers, there is a number who are themselves quite limited. With spouses the most common caregivers, one would expect that some of the caregivers themselves are in need of care. The family caregivers were also likely to be women (75.4%), under age 65 (71.4%), and relatively affluent with 52% of the incomes above \$25,000.

The recipients of family care were also predominantly female (75%) and presented an age distribution that was older than the recipients, but that was also spread over the entire age range (50 and over). They were also less affluent as the majority (52.4%) reported incomes of less than \$15,000.

If we shift our attention from family caregiving with ADL needs to the broader category of informal caregiving and needs expanded to include IADLs, the proportion of the respondents engaged in informal caregiving increases to 10.3% and did not vary significantly by location.

Similarly, senior caregivers occurred at a rate of 3.2% among the respondents and again, this did not vary by location.

Access to and Use of Formal Services

Formal services were examined both in terms of local availability and use. The first issue of local availability relies on the respondent to recognize the various services as being part of the array of services provided locally. In rural areas, some services may reach only part of the population, while in others the population may not have uniform awareness. For example, the availability of services to those who reside in the open country is often limited. Programs that take services to people, such as transportation, meals on wheels, personal care and such become difficult to offer to all residents of a county when they are so geographically dispersed. All services were reportedly less available to those living on farms and ranches and a minority of the respondents living in the open country reported finding most services available. Only home health and physical were reported locally available to over 50% of the respondents living in the open country.

The availability of services is reflected in Table 21 and clearly demonstrates a reduction in availability as people live in more remote rural places. The drop is particularly dramatic when one looks to the sparsely populated frontier counties. In these counties many services were not available to the majority of their residents. Indeed, developing access to programs that are becoming part of our national standard may represent one of the greatest challenges facing our rural state. Many of the programs require direct personal caregiving and need to be configured to become more widely available. Housekeeping, chore services, meals programs, respite care, personal care, and many aspects of home health services would appear to require hands-on service and local providers. Others may be accommodated with a more centralized model and

may capitalize on electronic presence or regional distribution of services. Programs such as the PACE (Programs for All-inclusive Care for the Elderly) program contain a requirement of availability for an inclusive list of services, but have indicated a willingness to permit creative methods that include electronic participation for some services under CMS waivers. This will clearly be important when building service models for the most sparsely populated rural places.

Table 21. Proportions Indicating Availability for Services for Persons Age 50 and Over: Urban, Rural, and Frontier.

Type of Service	Urban	Rural	Frontier
Housekeeping	73.1%	64.8%	64.3%
Chore Services	73.9%	62.3%	59.1%
Transportation	81.1%	57.3%	51.2%
Meals on Wheels	78.7%	62.5%	57.6%
Congregate Meals	65.9%	56.6%	53.5%
Dietary Counseling	72.1%	55.6%	49.5%
Respite Care	65.9%	52.6%	39.3%
Personal Care	67.9%	53.6%	47.0%
Home Health	78.2%	70.1%	62.2%
Physical Therapy	79.6%	70.4%	59.7%
Occupational Therapy	71.9%	56.3%	45.3%
Medical Equipment	72.7%	56.3%	49.8%
Home Modifications	69.5%	50.9%	44.0%

While availability for a comprehensive array of services is a critical issue for long-term care, the use of services also represents an important consideration. Simply creating organizations that make services available to people does not spontaneously generate use. In order to assess the rate of use for each service, the respondents who exhibited some level of functional limitation were selected for analysis. This means that only people with some measure of activity limitation and who would need some help are included in this analysis. On a service by service basis, each service was examined to determine what proportion of those with functional limitations and who had also indicated that services were available actually used the services. Table 22 contains the

results. The range reported for use was from 2.5% to 36.1% suggesting that use among those with general levels of need is not high.

Table 22. Rates of use for Services for the Functionally Limited When Services are Available.

Type of Service	Some level of Functional Limitation	Functional Limitations Moderate/Severe
Housekeeping	27.8%	27.6%
Chore Services	27.1%	27.8%
Transportation	36.1%	36.9%
Meals on Wheels	15.7%	12.0%
Congregate Meals	30.8%	31.9%
Dietary Counseling	10.9%	9.0%
Respite Care	2.5%	1.8%
Personal Care	9.6%	14.9%
Home Health	13.8%	21.0%
Physical Therapy	14.5%	18.4%
Occupational Therapy	6.3%	7.4%
Medical Equipment	20.8%	31.4%
Home Modifications	26.9%	34.4%

When the level of functional limitation was further restricted to include only those who exhibited moderate or severe limitations, the proportions using each service did not increase dramatically and actually decreased for four of the services. One would expect home delivered meals to experience a higher rate of use among the more severely limited and for congregate meal use to decline. Meals on wheels was not used more by the more severely disabled. Respite care also dropped slightly for the moderately and severely limited from the already low rate for all functionally limited.

Questions remain regarding factors that promote or discourage the use of formal services. For example, family caregiving is often presented as an alternative to formal care whereby the family provides informal care and may receive some training and/or support services. Family caregiving is most likely considered a tool for providing care to frail elders through no or low cost providers as a sort of substitution for formal, paid caregivers. However, according to the statewide

survey, use of formal services actually increased among those who were receiving informal care or family assistance with ADLs. The average number of services was lower among the functionally limited who were not receiving family or informal care. This pattern was sustained when the level of functional limitation employed a more restrictive definition, using only moderate or severe limitations. The mean number of services used either remained constant or increased when informal or family caregivers were utilized. It is likely that these caregivers promote increased contact with aging services and encourage use.

Locally Available Health and Residential Care

A question asking whether an array of health and residential care facilities or services were present establishes an image of the relative completeness of the health care delivery system. The data were organized on a county basis, so those counties classified as urban also contain rural components, but in close proximity to urban services. This may account for some of the small percentage not claiming services like hospitals. They were not local to the rural respondents from urban counties. Table 23 contains the results of a comparison on that item for urban, rural and frontier counties. Clearly, all services are less often locally available in the smaller rural and frontier counties. Each is part of an essential array of services required to meet the full range of health care needs for the elderly.

Table 23. Availability of Health and Residential Care for Persons Age 50 and Over: Urban, Rural, and Frontier.

	Urban	Rural	Frontier
Hospital	96.3%	83.0%	67.0%
Basic Care Home	86.3%	67.5%	64.7%
Nursing Home	93.3%	83.5%	78.4%
Assisted Living	88.8%	71.6%	64.5%
Clinic	95.1%	85.9%	85.1%
Pharmacy	95.9%	86.6%	85.1%
Dentist	91.1%	79.7%	70.3%

Contingencies and Acceptance of Care

Each respondent was asked to indicate the types of care they would be willing to accept in the event they became unable to meet their own needs at some point in their lives. Table 24 contains the results, comparing urban, rural and frontier residents. The rates of acceptance under this contingency were generally high and the slight variation did not consistently place one or the other type of residence as the most or least accepting.

Table 24. Willingness to Use Service if Unable to Meet Own Needs for Persons Age 50 and Over: Urban, Rural, and Frontier.

	Urban	Rural	Frontier
Family Caregivers	75.7%	74.7%	74.2%
Assisted Living	83.4%	86.0%	84.0%
Basic Care Facility	78.3%	83.9%	80.3%
Nursing Home	74.7%	77.7%	77.3%
Housekeeping	80.2%	87.4%	85.6%
Chore Services	81.0%	84.0%	82.8%
Transportation	83.9%	84.0%	82.8%
Meals on Wheels	77.7%	83.9%	81.7%
Congregate Meals	72.7%	76.7%	78.2%
Respite Care	72.7%	78.6%	79.0%
Personal Care	78.3%	82.4%	81.0%
Home Health	67.3%	76.1%	82.0%

Following a question about the influence of age on the acceptance of services or the types of services acceptable to the younger, better educated and more affluent cohorts who will be tomorrow's frail old, there was a statistically significant pattern with the younger cohorts exhibiting greater acceptance for formal care services. While our data do not permit us to address the expected content of such services, it did appear that future cohorts will bring to their frail years a greater attitude of acceptance for formal, funded long-term care services. This acceptance declined modestly with age and one unique cohort creates an exception. The cohort 70 to 74 years

of age, consistently produced a high level of acceptance that would not have been predicted by a linear trend. This cohort would have experienced childhood during the depression and witnessed the unique events of the depression and recovery. Perhaps this influenced their perception, creating a greater acceptance of government’s responsibilities for human services. In any event, the next cohort to enter the age of increased risk for chronic disease and functional limitation is likely to have a relatively high level of acceptance for formal service and this could translate into higher levels of participation.

Preparation for Future

The respondents were asked about three forms of preparation for any possible future long-term care needs for themselves. Had they purchased nursing home insurance, arranged durable power of attorney or prepared a living will? Table 25 contains their responses. Acquiring nursing home insurance was quite popular with nearly 1/4 of the respondents having done so. This did not vary significantly by location. Durable power of attorney was also very popular, with slightly more urban residents having executed a durable power of attorney, but more than 1/3 in each type of location having done so. The living will was also uniformly popular with approximately 40% of the people over age 50 having prepared a living will.

Table 25. Preparation for Future Long-Term Care by Persons Age 50 and Over: Urban, Rural, and Frontier.

	Urban	Rural	Frontier
Purchased Nursing Home Insurance	26.3%	22.4%	27.7%
Durable Power of Attorney	45.3%	38.3%	35%
Prepared a Living Will	40.0%	40.6	42.5%
Other	6.9%	7.9%	1.2%

Health Insurance

Health coverage varied somewhat by location with reliance on Medicaid appeared higher in the rural and frontier counties. The question used to assess coverage asked which sources of payment served to pay one's medical bills. The respondents could report more than one source of payment. The payers for care tended to change with the age of the respondent. While one expects this, the observation extends beyond Medicare. Medicaid as a source of payment also increased with age, especially after age 65. The proportion of the respondents using Medicaid hovered at about 2% until age 65, after which rapid growth in dependence on Medicaid occurred. While this data is based on self report and is not detailed, it does suggest that as our population ages, there is likely to be an increased burden for Medicaid.

Table 26. Health Insurance Coverage: Urban, Rural and Frontier.

	Urban	Rural	Frontier
Medicare	46.9%	42.7%	53.3%
Private Health Insurance	83.5%	81.6%	82.2%
Champus or Champ VA	5.8%	6.2%	5.7%
Medicaid	5.2%	7.5%	8.7%
Other	5.9%	8.6%	8.9%

SUMMARY

Health Status

- North Dakota's general population over age 55 report higher levels of health status than the nation.
- North Dakota's reservation populations report health status that is much lower than the nation and lower than the state's general population
- Chronic disease rates are lower than national norms for North Dakota's general population, but higher among the reservation's elders.

Functional Limitations

Functional limitations are the basis for entry into long-term care programs and/or facilities. Based on activities of daily living (ADL) and instrumental activities of daily living (IADL), the following patterns emerge. Note also that prevalence rates for functional limitation when applied to demographic data permit us to forecast future levels of need.

- North Dakota has functional limitation rates that are higher than national norms.
- Functional limitations are highest among the state's reservation elders.
- Functional limitation levels vary among urban, rural, rural frontier and tribal populations. As the table below indicates, functional limitation is highest among the Native American elders, high among rural residents and lowest among rural frontier. The rural frontier appearance of health may be due to out-migration of elderly with needs for acute and long-term care.

Table 27. Level of Functional Limitation for Persons Age 50 and Over: Urban, Rural, Rural Frontier, and ND Tribal.

Level of Functional Limitation	Urban	Rural	Rural Frontier	ND Tribal Data
Little or none	81.1%	79.3%	84.5%	71.1%
Slight	8.9%	9.7%	8.4%	16.1%
Moderate	4.2%	4.1%	3.0%	5.3%
Severe	5.8%	6.9%	4.1%	7.5%

Key: Slight = need beginning levels of assistance, Moderate = screened as appropriate for assisted living (2 ADLs), and Severe = eligible for nursing home care (3 or more ADLs).

Health Risks

Health risks reflect conditions and behaviors related to the development of chronic disease and that set the stage for future long-term care needs. Note – these are modifiable markers of health behavior and call for attention through health promotion and wellness activities.

Smoking.

- North Dakotan’s over age 55 smoke less than the national norm
- Smoking decreases with age, most likely as a function of cessation.
- Native elders in North Dakota’s tribal data reported a high percentage who smoke, but relatively low volumes of smoking. One third of the smokers among the Native American elders reported no cigarette smoking, suggesting ceremonial use of tobacco as their use.

- Smoking relates to inversely with age, and education, and women tend to smoke less than men. Future cohorts will have higher levels of formal education and this should assist in smoking reduction efforts.

Alcohol.

- North Dakota Native Elders have the highest rate of abstaining from Alcohol consumption. Those indicating they either never had a drink, or more than three years with no alcohol consumption was very high (68.1%), indicating success in self mastery.
- Binge drinking – heavy drinking among those who do consume alcohol – was also highest among Native American elders. They were the least likely to be active drinkers, but when active, they were the heaviest drinkers.
- North Dakotans over age 50 were more extensively involved in binge drinking than the nation.
- Rural North Dakotans over age 50 have higher rates of binge drinking than urban comparisons.
- Severe frequencies of binge drinking (6 or more days out of 30) were highest in the sparsely populated rural counties.
- Age relates to binge drinking with fewer people engaging in binge drinking in older cohorts, but – the proportion with severe frequencies increases from age 50 to 70!

Overweight/Obesity. The Body Mass Index (BMI) is used as a basis for defining problems of weight. This is highly predictive of future chronic diseases that lead to disability, especially diabetes, arthritis, high blood pressure and heart disease.

- North Dakotans age 55 and over have substantially higher proportions in the overweight or obese categories than the nation – Nationally 52% are overweight or obese. North Dakota – 65.2% and North Dakota Native elders – 74%.
- Age does not appear to be a factor in overweight issues except among the Tribal elders. Among tribal elders, the relatively young (55-64) have a higher rates of overweight and obesity.

Exercise.

- North Dakotans appear to exercise more than the nation, but the bar is set low!
- North Dakota’s tribal elders also exercise more than the nation, but less than the general population.
- Although differences were not significant between urban and rural counties for exercise, all had substantial proportions reporting no exercise.
- Exercise does appear to be a function of weight, with the obese the least likely to exercise. This countervails weight control!

Social Involvement. Active social involvement is important for maintaining independence and a positive outlook. North Dakota appears a socially healthy place, which provides us a good foundation for building wellness.

- Weekly participation in religious services was high for all of North Dakota – 52.2% for the general population, 59.6% for the Native American elders compared with 36% nationally.
- North Dakotans had high rates of joining for clubs and associations and had high rates of participation once becoming members. This is true for all subgroups.

Household Composition

Size.

- The mean household size for people over 55 is 1.82 persons statewide. About one-third of households are single person.
- Household size decreases with age, so as the population becomes increasingly old, the household size will diminish. The proportion of households with a single person at ages 75 and over is 59.9%.
- Native American elders tend to live in larger households with an average of 2.79 persons per household.

Moving Plans

- The majority (69%) of North Dakotans age 50 and over say a move in the next ten years is unlikely.
- Those living in rural frontier counties are the most committed to staying in their present homes and or communities.
- The presence of functional limitations did not relate to plans to move – even those with emerging disabilities plan to stay.

Family Factors

- People over 50 in North Dakota have more living siblings than children (3.14 to 2.92).
- The total family alive - spouses, parents, children and siblings – for those over 50 has an average of 6.95 persons, but less than half of them are within one hour travel time (2.35 persons within one hour).
- Available family (within one hour) decreases with age and is least in rural frontier locations.

Access and Use of Care

Informal Caregiving.

- 5.9% of those age 50 and over are either giving or receiving family care that involves help with activities of daily living (ADLs); including eating, bathing, dressing, walking, getting in and out of bed, and toileting.
- Family caregiving involving ADLs is highest in rural locations.
- When the definition for informal care expands to include help with instrumental activities of daily living (IADLs include activities like cooking, transportation etc.) and non-family caregivers the percent increases to 10.3% and does not vary by location.
- Caregivers are largely female (75%), under age 65 (71.4%) and the majority (52%) have incomes above \$25,000.

Formal Services.

- The number of services people report as available declines as one moves from urban to rural and rural frontier. Availability is a major issue.
- Use of services that are locally available by those who reported having functional limitations is limited.
- Family care serves to increase the use of existing services! Informal caregivers become bridges to accessing formal care.

Acceptance of Services.

- If North Dakotans become unable to meet their own needs, they appear very receptive to the full range of formal services, including nursing home care.
- How to recognize legitimate need may be the larger issue for a people who exhibit strong tendencies for self reliance.

Preparations for Future

- Nursing home insurance has been purchased by 25.9% of those over age 50.
- Durable power of attorney has been arranged by 39.3%.
- Living wills exist for 41.2%.

BIBLIOGRAPHY

- Center for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Body Mass Index, 2002 URL: <http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-adult.htm>
- Coburn, Andrew F., “Rural Long-term-Care: What Do We Need to Know to Improve Policy and Programs?”, *The Journal of Rural Health*, 18, No. 5 (2002). 256- 269.
- Coleman , Barbara, Wendy Fox-Grage and Donna Folkemer, State Long-Term Care: Recent developments and Policy Directions, National (2002) Council of State Governments, URL: <http://aspe.hhs.gov/daltcp/reports/statelrtc.htm>.
- Feinberg, Lynn F., Systems Development for Family Caregiver Support Services, URL:<http://www.aoa.gov/carenetwork/Fin-Feinberg.html>.
- Greenwood, Robert, The PACE Model, Issue Brief Vol. 2, No 10, (2001) Center for Medicare Education.
- Kane, Robert L. and Rosalie A. Kane, “What Older People Want From Long-Term Care, and How They Can Get It”, *Health Affairs*, 20, No 6 (2001) 114 – 127.
- Liu, Korbin, Kenneth Manton and Cynthia Aragon, Changes in Home Care Use by Older People with Disabilities: 1982-1994, AAPR Public Policy Institute, 2000.
- Leon, Joel, Jonas Marainen and John Marcotte, Pennsylvania’s Frontline Workers in Long-term Care: The Provider Organization Perspective, Jenkintown, PA, Polisher Research Institute, 2001.
- Manton, Kenneth G., Larry Corder, and Eric Stallard, “Chronic Disability Trends in the United States Populations: 1982-1994.” Proceedings of the National Academy of Science, (1997), Vol 94, 2593-2598.
- Montgomery, Rhonda J. V. and Karl D. Koslosski, Change, Continuity and Diversity Among Caregivers, URL: <http://www.aoa.gov/carenetwork/Fin-Montgomery.html>
- Sayyoun, N. R., Lentzner H. and Robinson K. N., “The Changing Profile of Nursing Home Residents: 1985-1997”, *Aging Trends*, No 4, Hyattsville, Maryland, National Center for Health Statistics, 2001.
- Spector, William D., John A. Fleishman, Liliana E. Pezzin, and Brenda Spillman, *The Characteristics of Long-Term Care Users*, Agency for Healthcare Research and Quality, Pub. No 08-0049. 2001.

Spillman, Brenda C. and Liliana E. Pezzin, "Potential and Active Family Caregivers: Changing Networks and the "Sandwich Generation", *The Milbank Memorial Fund Quarterly*, 78, No 3 (2000).

Stone, Robyn I., *Long-Term Care for the Elderly with Disabilities: Current Policy, Emerging Trends, and Implications for the Twenty-First Century*, (2000) Milbank Memorial Fund, URL:<http://www.milbank.org/0008stone/index.html>.

Super, Nora, Who Will Be There to Care? The Growing Gap Between Caregiver Supply and Demand, George Washington University, National Health Policy Forum, January 2002.

Sullivan, Stephanie, *Wellness Programs*, (2002), URL: <http://www.e-hresources.com/Nov2.htm>.

Tassone Kovner Christine, Mathy Mezey and Charlene Harrington, "Who Cares for Older Adults", *Health Affairs*, 21. No 5 (2002), 78-89.

The Characteristics of Long-Term Care Users. AHRQ Research Report. AHRQ Publication No. 00-0049, January, 2001. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/research/ltcusers/index.htm>

Wagner, Donna L., *Comparative Analysis of Caregiver Data for Caregivers to the Elderly 1987 and 1997*, Bethesda, Maryland, National Alliance for Caregiving 1997.

Weiner, Joshua M. and David G. Stevenson, *Long-Term Care for the Elderly: Profiles of Thirteen States*, (1998), Urban Institute
URL:<http://newfederalism.urban.org/html/occa12.html>.

Weiner, Joshua M. and David G. Stevenson, "State Policy on Long-Term Care for the Elderly", *Health Affairs*, 71, No 3 (1998), 81-100.

West Virginia Healthy People 2000, Educational and Community-Based Programs, URL: <http://www.wvdhhr.org/bph/hp2000/educ.htm>.

Wunderlich, Gooloo S. and Peter O. Kohler, Eds., Improving the Quality of Long-term Care, Washington, D.C. National Academy Press, 2001.

National sources for items and comparison:

1988-94 National Health and Nutrition Examination Survey III (NHANES III), U.S. Department of Health and Human Services, Data Dissemination Branch, National Center for Health Statistics, Centers for Disease Control and Prevention, 6525 Belcrest Road, Room 1064, Hyattsville, Maryland 20782-2003

1994 National Home and Hospice Care Survey (NHHCS), U.S. Department of Health and Human Services, Data Dissemination Branch, National Center for Health Statistics, Centers for Disease Control and Prevention, 6525 Belcrest Road, Room 1064, Hyattsville, Maryland 20782-2003

1982, 84, 89, 94 National Long-Term Care Survey (NLTCs), Duke University Center for Demographic Studies, 2117 Campus Drive, Durham, NC 27708-0408

1991-1996 National Household Survey on Drug Abuse, Substance Abuse and Mental Health Data Archive. ICPSR/ISR, P.O. Box 1248, Ann Arbor, MI 48106-1248.

1994 National Health Interview Survey (N.H.I.S.), U.S. Department of Health and Human Services, Data Dissemination Branch, National Center for Health Statistics, Centers for Disease Control and Prevention, 6525 Belcrest Road, Room 1064, Hyattsville, Maryland 20782-2003

The Prevalence of Cancer: Estimated Number of Persons Diagnosed with Cancer (1997), National Cancer Institute, <http://www.nci.nih.gov/public/factbk97/prevalen.htm>

ND Statewide Data (N=1180) Comparison to State Tribal Data (N=492) and National Data

Question	Response(s)	ND Statewide Data (55 and over)	ND Tribal Data (55 and over)	National Data (55 and over)
1. Would you say your health in general is excellent, very good, good, fair, or poor?	Excellent	15.2%	4.2%	11.0%
	Very Good	30.0%	11.1%	20.0%
	Good	33.1%	37.9%	34.0%
	Fair	16.0%	37.9%	25.0%
	Poor	5.7%	9.0%	9.0%
2. Has a doctor ever told you that you had any of the following diseases?	Arthritis?	38.5%	46.3%	40.0%
	Congestive Heart Failure?	8.0%	6.3%	8.0%
	Stroke?	5.1%	5.1%	8.0%
	Asthma?	7.1%	7.7%	7.0%
	Cataracts?	22.5%	17.3%	28.0%
	High Blood Pressure	40.7%	42.5%	43.0%
4. Because of a health or physical problem, that lasted longer than 3 months, did you have difficulty... (Please mark all for which you need assistance)	Bathing or showering?	7.8%	11.2%	9.4%*
	Dressing?	5.5%	6.3%	4.3%*
	Eating?	2.7%	4.1%	2.1%*
	Getting in or out of bed?	6.5%	9.3%	5.9%*
	Walking?	11.2%	21.1%	8.8%*
	Using the toilet, including getting to the toilet?	4.2%	4.1%	5.0%*
We have inserted this column to give a count of the number of activities of daily living (adl's) , and their percentages.	0 ADL's	84.4%	74.4%	87.2%*
	1 or more ADL's	15.6%	25.6%	12.8%*
	2 or more ADL's	9.1%	12.7%	6.0%*
5. Because of a health or physical problem that lasted longer than 3 months, did you have any difficulty... (Please mark all for which you need assistance)	Preparing your own meals?	5.8%	12.6%	9.3%*
	Shopping for personal items (such as toilet items or medicines)?	4.3%	12.2%	NA
	Managing your money (such as keeping track of expenses or paying bills)?	2.2%	6.1%	7.5%*
	Using the telephone?	1.4%	5.7%	6.5%*
	Doing heavy housework (like scrubbing floors or washing windows)?	16.1%	28.5%	NA
	Doing light housework (like doing dishes, straightening up, or light cleaning)?	5.4%	12.0%	12.2%*
	Getting around outside?	7.8%	9.6%	16.0%*
We have inserted this column to give a count of the number of instrumental activities of daily living, (IADL's) and their percentages.	0 IADL's	80.9%	67.7%	71.2%*
	1 or more IADL's	19.1%	32.3%	28.2%*
6. Do you have total blindness in one or both eyes?	Yes, one eye	4.7%	5.6%	2.7%
	Yes, both eyes	.7%	1.9%	0.3%
	No	94.6%	92.5%	97.0%
7. Do you have trouble seeing with one or both eyes (even when wearing glasses or contact lenses)?	Yes	12.2%	23.4%	19.0%
	No	87.8%	76.6%	81.0%
8. Do you now have total deafness in one or both ears?	Yes, one ear	7.7%	11.3%	4.0%
	Yes, both ears	5.8%	1.9%	Less than 1%
	No	86.5%	86.8%	96.0%
9. Do you wear a hearing aid?	Yes	8.0%	10.1%	7.0%
	No	92.0%	89.9%	93.0%

ND Statewide Data (N=1180) Comparison to State Tribal Data (N=492) and National Data

Question	Response(s)	ND Statewide Data (55 and over)	ND Tribal Data (55 and over)	National Data (55 and over)
10. Do you have trouble hearing (even when wearing your hearing aid)?	Yes	56.2%	10.2%	23.0%
	No	43.8%	89.8%	77.0%
11. Do you smoke cigarettes now? (If no, then skip to item 13)	Yes	14.7%	32.2%	34.0%
	No	85.3%	67.8%	66.0%
12. How many cigarettes do you smoke per day?	1-5 cigarettes/day	15.2%	24.4%	14.0%
	6-10 cigarettes/day	22.2%	40.0%	25.0%
	11-20 cigarettes/day	45.1%	28.1%	42.0%
	21-30 cigarettes/day	6.5	4.4%	10.0%
	31 or more per day	10.5	3.0%	10.0%
13. The next few questions are about drinks of alcoholic beverages. By a "drink," we mean a can or bottle of beer, a glass of wine or a wine cooler, a shot of liquor, or a mixed drink with liquor in it. How long has it been since you last drank an alcoholic beverage?	Within the past 30 days.	36.3%	17.5%	38.2%
	More than 30 days ago but within the past 12 months.	17.1%	8.1%	11.3%
	More than 12 months ago But within the past 3years.	5.7%	6.2%	4.5%
	More than 3 years ago.	25.1%	56.8%	23.0%
	I have never had an alcoholic drink in my life. (Skip to Question #15)	15.7%	11.4%	23.1%
14. During the past 30 days, on how many days did you have five or more drinks on the same occasion?	None	81.3%	86.5%	92.5%
	1 or 2 days	10.8%	8.3%	3.7%
	3 to 5 days	4.7%	1.6%	1.9%
	6 or more	3.3%	3.6%	1.9%
15. Which of the following do you do one or more times a week? (Check all that apply)	a. Walk a mile or more at a time without stopping?	39.2%	24.8%	37.2%
	b. Jog or run?	3.9%	1.4%	3.9%
	c. Ride a bicycle or an exercise bicycle?	17.7%	6.1%	11.7%
	d. Swim	3.1%	5.7%	4.1%
	e. Aerobics or aerobic dancing?	7.5%	1.0%	2.8%
	f. Other dancing? (Swing, square dancing, waltz, etc.)	5.2%	3.9%	8.1%
	g. Calisthenics or exercise	19.6%	13.6%	14.8%
	h. Garden or yard work	48.3%	30.9%	46.0%
	i. Lift weights	7.0%	6.1%	4.0%
16. How often do you eat breakfast? (Check the response that best fits you)	Everyday	83.1%	68.7%	77.0%
	Some days	7.7%	20.6%	12.0%
	Rarely	5.3%	6.1%	6.0%
	Never	3.1%	2.7%	3.0%
	Weekends Only	.8%	1.9%	2.0%
We have inserted this column to give the present Body Mass Index (BMI) of your tribal elders. The formula is currently being used by NHANES to show the relationship between height and weight.	Low/Normal Weight	32.2%	25.0%	47.0%
	Overweight	40.7%	36.0%	35.0%
	Obese	27.1%	39.0%	18.0%
19. How often do you attend church or religious services? (Please indicate the number of times per week)	Never or less than once a week	31.9%	33.7%	NA
	Once a week	55.4%	59.6%	NA
	More than once a week	12.7%	6.7%	NA

ND Statewide Data (N=1180) Comparison to State Tribal Data (N=492) and National Data

Question	Response(s)	ND Statewide Data (55 and over)	ND Tribal Data (55 and over)	National Data (55 and over)
20. How many clubs, organizations, such as church groups, community boards, or school groups, do you belong?	None	40.5%	59.6%	65.0%
	The number of memberships among those who joined clubs			
	1	18.2%	28.8%	21.0%
	2	17.6%	6.5%	9.0%
	3	11.4%	3.4%	27.0%
	4	5.9%	0.8%	17.0%
21. All together, how often do you attend meetings of the clubs or organizations that you belong to? (Please indicate the number of times a week, use 0 for none)	5 or more	6.3%	1.0%	26.0%
	None	50.3%	69.9%	NA
	1	32.2%	21.5%	NA
	2 or more	17.5%	8.8%	NA
22. How many years have you lived at your present address?	21 Years & Over	55.6%	54.4%	42.9%
	11-20 years	16.4%	15.7%	21.8%
	5-10 years	14.4%	15.5%	15.5%
	3-4 years	7.6%	6.4%	7.0%
	1-2 years	5.0%	3.6%	7.2%
	Less than 1 year	1.0%	4.5%	5.6%
25. What type of housing do you presently have? (if you live in a nursing home, basic care of assisted living facility skip to question 31)	Private residence (house or apt)	96.3%	96.9%	90.1%
	Sleeping room	.4%	0.0%	.6%
	Retirement home	1.4%	.8%	1.1%
	Health facility	.7%	0.0%	2.1%
	Other specify	1.3%	2.3%	5.3%
26. How many live in your household?	Average household size	1.8 persons	2.85 persons	2.11 persons
37. Sex	Male	33.6%	37.2%	52.4%
	Female	66.4%	62.8%	47.6%
38. Age	55-64	41.7%	34.9%	34.1%
	65-74	32.2%	45.2%	33.6%
	75-84	20.8%	16.7%	25.0%
	85 and over	5.3%	3.2%	7.3%
39. Current Marital Status	Now married	60.0%	39.8%	63.9%
	Widowed	27.0%	35.6%	23.3%
	Divorced	7.7%	15.5%	7.5%
	Separated	.5%	1.9%	1.3%
	Never married	4.9%	7.1%	4.0%
40. What is your personal annual income?	Under \$5,000	6.2%	38.2%	15.2%
	\$5,000-\$6,999	2.4%	26.7%	12.8%
	\$7,000-\$14,999	16.8%	21.8%	35.6%
	\$15,000-19,999	8.2%	6.1%	11.6%
	\$20,000-\$24,999	14.9%	2.1%	26.7%
	\$25,000-\$49,999	32.2%	5.2%	8.6%
	\$50,000 & over	19.2%	0.0%	3.4%
41. What is the highest grade or year of regular school you have completed?	Never attended	.5%	.2%	1.1%
	Elementary 1 2 3 4 5 6 7 8	12.0%	20.0%	12.1%
	High 9 10 11 12	46.0%	60.3%	48.5%
	College 1 2 3 4 5 6 or more	41.6%	17.3%	38.3%

ND Statewide Data (N=1180) Comparison to State Tribal Data (N=492) and National Data

NATIONAL DATA SOURCES

1988-94 National Health and Nutrition Examination Survey III (NHANES III), U.S. Department of Health and Human Services, Data Dissemination Branch, National Center for Health Statistics, Centers for Disease Control and Prevention, 6525 Belcrest Road, Room 1064, Hyattsville, Maryland 20782-2003

1994 National Home and Hospice Care Survey (NHHCS), U.S. Department of Health and Human Services, Data Dissemination Branch, National Center for Health Statistics, Centers for Disease Control and Prevention, 6525 Belcrest Road, Room 1064, Hyattsville, Maryland 20782-2003

1994 Current Trends Prevalence of Disabilities and Associated Health Conditions – United States 1991-1992. Morbidity and Mortality Weekly Report, October 14, 1994., Vol 43, No. 40; 730-731, 737-739.

1991-1996 National Household Survey on Drug Abuse, Substance Abuse and Mental Health Data Archive. ICPSR/ISR, P.O. Box 1248, Ann Arbor, MI 48106-1248.

1994 National Health Interview Survey (N.H.I.S.), U.S. Department of Health and Human Services, Data Dissemination Branch, National Center for Health Statistics, Centers for Disease Control and Prevention, 6525 Belcrest Road, Room 1064, Hyattsville, Maryland 20782-2003

The Prevalence of Cancer: Estimated Number of Persons Diagnosed with Cancer (1997), National Cancer Institute, <http://www.nci.nih.gov/public/factbk97/prevalen.htm>

Historical National Population Estimates (1998), U.S. Bureau of the Census, <http://www.census.gov/population/estimates/nation/popclockest.txt>