

# **Rural 2010 Health Goals and Objectives for Nebraska**

NEBRASKA HEALTH AND HUMAN SERVICES SYSTEM

DEPARTMENT OF REGULATION AND LICENSURE  
Richard A. Raymond, M.D., Director

Office of Public Health  
David Palm, Administrator

DEPARTMENT OF FINANCE AND SUPPORT  
Financial Services Division  
Research and Performance Measurement  
Paula Hartig, Administrator

Meridel Funk, Program Analyst  
Norman Nelson, Statistical Analyst

Support Services Division  
Graphics Unit

November 2004



# TABLE OF CONTENTS

## **EXECUTIVE SUMMARY**

Introduction	5
Highlights	5
Methodology	7
Data Issues	8

## **RURAL 2010 HEALTH GOALS AND OBJECTIVES FOR NEBRASKA**

Access to High Quality Health Care	15
Cancer	25
Diabetes	29
Heart Disease and Stroke	35
Immunization and Infectious Diseases	41
Injury and Violence Prevention	43
Maternal, Infant, and Child Health	47
Mental Health and Mental Disorders	53
Nutrition and Overweight	57
Oral Health	61
Substance Abuse	65
Tobacco Use	71

<b>APPENDIX</b>	<b>77</b>
-----------------	-----------

<b>RURAL HEALTH OBJECTIVES ONLY</b>	<b>81</b>
-------------------------------------	-----------



# EXECUTIVE SUMMARY

## INTRODUCTION

One-fifth of all Americans currently live in rural areas of the United States. In Nebraska, more than 40 percent of the population live in non-metropolitan areas of the state. Rural residents are subject to many of the same health problems that urban-dwellers are, but they also face some additional challenges related to living in rural areas. This report will focus on some of the health disparities between rural and urban residents of Nebraska and compare the findings to the State's Healthy People 2010 objectives.

The *Nebraska 2010 Health Goals and Objectives* report, published in May 2002, outlines a set of health goals and objectives for the state that are to be achieved by 2010. It is patterned after Healthy People 2010, which is a nationwide health promotion and disease prevention initiative that is committed to improving the health of all people in the United States.

The national Healthy People 2010 (HP 2010) and Nebraska's 2010 health goals and objectives are designed to achieve two overarching goals:

- to increase quality and years of healthy life; and
- to eliminate health disparities.

In 2003, the Southwest Rural Health Research Center at Texas A & M University published *Rural Healthy People 2010: A Companion Document to Healthy People 2010*. This report identifies and addresses Healthy People 2010 objectives of particular interest to rural America. It contains overviews of the top rural health concerns and corresponding HP 2010 objectives, results of literature reviews on these topics, and descriptions of successful practices and programs that could serve as models of practice for rural communities to use in achieving key objectives.

This *Rural 2010 Health Goals and Objectives for Nebraska* report outlines rural-urban disparities in twelve priority areas (such as access to high-quality health care, cancer, and injury prevention) and summarizes factors that may contribute to these disparities. It identifies Nebraska 2010 objectives contained in the *Nebraska 2010 Health Goals and Objectives* report that are most relevant to rural areas of the state.

Please note that the purpose of both the national and the *Nebraska Rural Healthy People 2010* reports is to explore some of the disparities and disadvantages facing many rural communities with regard to health status and health care systems. The intent is to create a better understanding of rural health needs, not to diminish in any way the advantages that rural areas offer to their residents and visitors or the work that has already been done in improving health status and systems of care in rural areas.

## HIGHLIGHTS

There are more than 50 individual objectives in this report that address rural health issues. Most of the objectives were selected because they point out health disparities that currently exist between rural and urban populations in Nebraska. For a few of the objectives, the disparities between rural and urban residents are not great, but the objective has been included because

improvements in health status or prevalence of risk behaviors are needed in all segments of the population (e.g., obesity).

Everyone needs **access to high-quality health care** services in order to eliminate health disparities and increase the quality and years of healthy life for all people in Nebraska. Without access to high-quality health care, many of the Healthy People 2010 objectives will not be achieved.

- Having no health insurance or having a health care plan that provides inadequate coverage for needed services, coupled with a lack of financial resources to cover services falling outside insurance coverage, makes it difficult or impossible for many people to get necessary medical care. In Nebraska, 15 percent of rural adults (aged 18 to 64 years) had no health insurance in 2002, compared to 12 percent of urban adults (Table 1). Among rural Hispanic Nebraskans, 42 percent had no health insurance.
- Nebraska has many rural areas that are underserved and have shortages of physicians, midlevel practitioners, mental health professionals, dentists, and other health professionals. In 2002, there were 61 primary care physicians per 100,000 population in rural counties compared to 78 per 100,000 in urban counties in Nebraska.
- In 2003, there were 35 federally-designated primary care Health Professional Shortage Areas (HPSA's), 67 mental health HPSA's, and 2 dental population HPSA's in the state. All but five of these are located in non-metropolitan counties. In addition, there are many more counties that qualify as state-designated shortage areas.

**Table 1**  
**Rural vs. Urban Disparities**  
**in Selected Health Indicators for Nebraska**

	<b>Rural Nebraskans</b>	<b>Urban Nebraskans</b>
<b>ACCESS TO HIGH-QUALITY HEALTH CARE</b>		
Adults aged 18-64 years with no health insurance	15%	12%
--Hispanic Americans	42%	38%
Primary care physicians per 100,000 population	61	78
<b>CANCER</b>		
Women aged 40+ who had mammogram in past two years	72%	80%
Adults aged 50+ who ever had sigmoidoscopy to check for colorectal cancer	37%	48%
<b>DIABETES</b>		
Diabetes-related deaths per 100,000 population	70.1	78.0
--Native Americans	381.6	280.9
--Hispanic Americans	120.8	94.5
<b>HEART DISEASE AND STROKE</b>		
Stroke deaths per 100,000 population	57.3	50.9
Prevalence of high blood pressure among adults aged 18+	24%	21%

<b>INJURY PREVENTION</b>		
Unintentional injury deaths per 100,000 population	50.6	33.0
Adults who "always" or "nearly always" used seatbelts	77%	86%
<b>MATERNAL, INFANT, AND CHILD HEALTH</b>		
First trimester prenatal care rates	82.7%	83.4%
--Asian American	68.8%	87.3%
--Hispanic American	67.6%	70.0%
Women who smoked during pregnancy	16.4%	12.6%
<b>NUTRITION AND OVERWEIGHT / PHYSICAL ACTIVITY</b>		
Adults who are obese (BMI = 30+)	23%	23%
Adults who participated in no leisure-time physical activity	23%	21%
--Hispanic Americans	34%	43%
<b>ORAL HEALTH</b>		
Adults aged 65 - 74 who have lost all their permanent teeth due to cavities or periodontal disease	27%	19%
Adults aged 18+ who do not have dental insurance	55%	37%
<b>SUBSTANCE ABUSE</b>		
Alcohol-related motor vehicle fatality rate per 100,000 population	11.4	4.9
Adolescents in grades 9 - 12 who:		
--drank alcohol in the past 30 days	41%	NA
--reported drinking and driving in the past 30 days	30%	NA
<b>TOBACCO USE</b>		
Adults who currently smoke cigarettes	21%	24%
Adults with children under age 5 years who reported that, during the past month, someone had smoked in their home	25%	20%

**Cancer** remains the second leading cause of death in Nebraska and the United States, although death rates have fallen in recent years.

- There is generally little difference in cancer incidence and mortality rates between rural and urban areas nationwide. In Nebraska, urban rates were slightly higher than rates in rural areas. However, rural residents nationwide and in Nebraska are less likely to obtain cancer screenings according to nationally established timelines.
- In 2002, only 72 percent of rural Nebraska women aged 40 years or older had a mammogram in the past two years to check for breast cancer, compared to 80 percent of urban women in this age group.
- Eighty percent of rural women aged 18 years or older had a Pap test in the last three years to screen for cervical cancer, while 85 percent of urban women did.
- Much smaller proportions of Nebraska adults reported being screened for colorectal cancer, but rural-urban disparities in prevalence were evident for these tests as well. Nearly one-half (48 percent) of urban residents aged 50 and older ever had a sigmoidoscopy done to check for colorectal cancer, while only 37 percent of rural Nebraskans reported ever having this test.

The number of newly-diagnosed cases of **diabetes** has risen at an alarming rate in the United States. With obesity on the increase, it is likely that this strong upward trend will continue.

- Racial/ethnic, age, socioeconomic, and lifestyle factors appear to be stronger risk factors for developing diabetes than rural residence by itself. In 2002, differences in prevalence of diabetes between rural (5.7 percent of adults) and urban (6.1 percent) areas of Nebraska were small.
- Overall, diabetes-related death rates in 2002 were somewhat higher in urban areas (78.0 deaths per 100,000 population) than in rural ones (70.1 per 100,000) of Nebraska. Part of this difference is probably due to much higher diabetes-related death rates among the relatively large urban African American population. The white death rate for diabetes-related causes was also somewhat higher in the urban population.
- Native Americans experienced the highest diabetes-related death rates of any racial/ethnic group in Nebraska in 1998-2002. For this group, the rural rate (381.6 deaths per 100,000) was higher than the urban rate (280.9). The rural rate for Hispanic Americans in Nebraska (120.8) was also higher than the urban rate (94.5).

Although the coronary **heart disease** death rate has decreased significantly over the last twenty years, heart disease remains the leading cause of death in Nebraska and the nation. Deaths due to **stroke** have also fallen considerably, but stroke still ranks third as a leading cause of death. Advances in therapy and technology were the cause of much of the improvement in death rates, rather than disease prevention through lifestyle changes.

- Coronary heart disease death rates in Nebraska were very similar in rural (124.8 deaths per 100,000) and urban (123.1) areas in 2002.
- Stroke death rates were higher in rural areas (57.3) than in urban ones (50.9) in 2002.
- Self-reported prevalence of high blood pressure among Nebraska adults was slightly higher among rural populations (24 percent vs. 21 percent among the urban population) in 2002.

**Unintentional injuries** ranked fifth among the leading causes of death in Nebraska. These injuries were the leading cause of death for persons aged one through 19 years and for males aged 20 through 44 years in the state.

- In 2002, the unintentional injury death rate in rural Nebraska (50.6 deaths per 100,000 population) was 53 percent higher than the rate in urban areas of the state (33.0 per 100,000). Similar rural-urban disparities existed for each racial/ethnic group in the state.
- The motor vehicle fatality rate in Nebraska was 27.1 deaths per 100,000 in rural areas—2.3 times the rate in urban areas (11.6).
- In Nebraska, adult respondents to the 2002 Behavioral Risk Factor Surveillance System (BRFSS) who lived in rural counties (77 percent) were less likely than residents of urban counties (86 percent) to report “always” or “nearly always” using their seatbelts while riding in or driving a motor vehicle.

In addition to the impact it has on individuals and families, **infant mortality** is an important measure of a population’s health and an indicator of social wellbeing. Early and continuing **prenatal care** is essential to the health and wellbeing of both infant and mother. In general, women who receive early and comprehensive prenatal care are less likely to have preterm or low birthweight infants.

- During the five-year period 1998-2002, the infant mortality rate in rural Nebraska averaged 6.7 infant deaths per 1,000 live births, compared to 7.2 per 1,000 in urban areas of the state.
- In Nebraska, 83.1 percent of mothers in 2002 began receiving prenatal care in the first three months of pregnancy.
- White (84.7 percent) and Asian American (84.8 percent) mothers were much more likely than Native American (64.0 percent), Hispanic American (68.9 percent), and African American (69.5 percent) mothers to receive first trimester prenatal care.

- Overall, differences in prenatal care rates between rural and urban areas of the state were very small. Still, there were some disparities between rural and urban rates for specific racial and ethnic groups. Native Americans in rural counties (66.4 percent) were somewhat more likely than were those living in urban counties (59.9 percent) to receive first trimester care. On the other hand, rural Asian women (68.8 percent) were much less likely than their urban counterparts (87.3 percent) to receive first trimester care. Hispanic American mothers in rural areas (67.6 percent) were slightly less likely than were urban Hispanic mothers (70.0 percent) to begin receiving care in the first three months of pregnancy.
- While the number of women smoking during pregnancy has decreased nationwide and in Nebraska, in 2002, 14.1 percent of new mothers in the state had smoked during their pregnancy. Rural mothers (16.4 percent) were more likely than urban mothers (12.6 percent) in Nebraska to report smoking during pregnancy.

**Mental health** is another focus area of importance to all people in Nebraska. It is estimated that, in the past year, one of every five adults in the state had a diagnosable mental disorder. One-half of the population will experience a mental disorder at some point in their lifetime.

- Although higher suicide rates are reported in rural areas nationwide, in Nebraska the suicide rate was lower in the rural areas (9.8 deaths per 100,000) than in the urban areas (13.4 per 100,000) in 2002.

According to the national *Rural Healthy People 2010* report, rates of utilization of mental health services are generally lower in rural areas than in urban ones. Studies have identified three principal factors that contribute to difficulties in treating mental illness in rural settings.

- First, there is often limited access to specialty mental health providers in rural areas.
- Rural residents are more likely than urban dwellers to go to primary care practitioners for their mental health needs. Related to this, a second factor is a lack of sufficient mental health training, expertise, and coordination among mental health providers in these areas.
- A third factor affecting treatment of mental illness in rural areas is the lack of anonymity in rural communities and the perceived social stigma associated with mental illness. These factors may make rural residents less likely to seek treatment.

**Obesity** and **physical inactivity** are risk factors related to a variety of health problems, such as diabetes, heart disease and stroke, and some kinds of cancer. Prevalence of overweight and obesity among adults, adolescents, and children has risen tremendously over the last twenty years in the United States.

- In Nebraska, prevalence of obesity varied little between urban and rural areas of the state (23 percent each). Still, rates of obesity are high and have been increasing in rural as well as urban areas, warranting inclusion of obesity as a major public health concern for rural populations.
- In addition to dietary habits, physical inactivity also plays an important role in the development of obesity. According to the 2002 Nebraska BRFSS, 23 percent of rural adults participated in no leisure-time physical activity in the month preceding the survey. Among urban adults, the proportion who were physically inactive was slightly smaller (21 percent).
- Hispanic Americans in both rural (34 percent) and urban (43 percent) areas were much more likely than white Nebraskans to report being physically inactive.

**Oral health** problems include tooth decay, periodontal disease, and cancers of the mouth and throat. Dental disease is one of the most preventable of health problems. Proper dental hygiene and good eating habits, combined with regular professional dental care, decrease the risk of developing cavities and periodontal disease.

- Although Nebraska data on prevalence of dental caries (tooth decay) are currently unavailable, national data show that dental caries are more prevalent in rural populations.
- In Nebraska, the proportion of the population reporting loss of all their permanent teeth to cavities or periodontal disease is greater in rural areas. The 2002 Nebraska BRFSS found that, among adults aged 65 to 74 years, 27 percent of rural residents had lost all their teeth, compared to 19 percent of urban residents.
- Rural adults (55 percent) were much more likely than urban adults in Nebraska (37 percent) to report having no dental insurance in 2001.
- Water fluoridation is the process of adjusting the natural fluoride concentration in a water supply to a level that will provide the best protection against tooth decay. In Nebraska, about two-thirds of the population served by community water systems (67.7 percent) currently receive drinking water with optimal levels of fluoride. In the six Nebraska counties classified as urban, 94.6 percent of the population served by community water systems receives optimally fluoridated water. In contrast, only about one-third of the people living in rural areas and served by community water systems (32.1 percent) receive drinking water that is optimally fluoridated. These Nebraskans who are not receiving optimally fluoridated drinking water are at greater risk for developing dental cavities.
- Shortages of dentists in rural areas also have a major impact on the dental health of these Nebraskans. There were 963 dentists in practice in the state as of October 2004. The majority of dentists (583) were practicing in the six urban counties (Cass, Dakota, Douglas, Lancaster, Sarpy, and Washington), leaving only about 40 percent of the total to cover the rest of the state.
- Seventeen Nebraska counties have no dentists in practice. As of July 2004, 53 counties (or areas) were designated dental shortage areas by the State.
- According to the Surgeon General's report on Oral Health, these shortages may become more serious in the future as more dentists retire and as the number of dental students declines. In 1999, a survey conducted by the Nebraska Dental Association found that 31.1 percent of the state's dentists planned to retire by 2009.

The annual toll of deaths, illnesses, and injuries due to **substance abuse** (alcohol and other drugs) is one of the most serious preventable public health problems in the United States.

- The alcohol-related motor vehicle fatality rate for rural counties in Nebraska (11.4 deaths per 100,000 population) was more than double the rate in urban counties (4.9 per 100,000) in 2002.
- Among Nebraska high school seniors in 2001, only eight percent of those living in rural areas reported that they had never drunk alcoholic beverages.
- More than four out of ten rural adolescents (41 percent) stated they had engaged in binge drinking (i.e., had five or more drinks on at least one occasion) in the past 30 days. Thus, the binge drinking rate among Nebraska rural high school students was more than double the rate reported by rural adults (16 percent).
- The 2001 Nebraska Youth Risk Behavior Survey (YRBS) also found that 30 percent of rural high school students reported drinking and driving in the past 30 days.
- Sixteen percent of rural students in grades 9 through 12 stated that they had used marijuana in the past month.

**Tobacco use** remains the leading cause of preventable deaths in the United States today. Cigarette smoking alone is responsible for 430,000 deaths each year nationwide. Despite the fact that the adverse effects of smoking have been widely known for many years, an estimated 47.2 million adult Americans still smoke.

- Although national data show higher smoking rates in rural areas than in urban, in Nebraska, adults living in rural areas (21 percent) were somewhat less likely than urban adults (24 percent) to report that they were current smokers in 2002.
- Use of smokeless tobacco, however, is much more prevalent in rural areas of Nebraska. Thirteen percent of rural adult males reported currently using chewing tobacco or other forms of smokeless tobacco in 2002, compared to only six percent of urban men.
- Use of tobacco by rural adolescents is also a major concern in Nebraska. In 2001, 38 percent of rural high school students used tobacco products (i.e., cigarettes, smokeless tobacco, or cigars) in the past month. Thirty percent of Nebraska high school students reported smoking cigarettes in the past 30 days.

Second-hand smoke is associated with a number of adverse health effects in non-smokers. A recent national study found that rural residents were more accepting than urban residents of tobacco in the household, in the car, and around children.

- In the 2002 Nebraska BRFSS, rural respondents (25 percent) with children under age five in their household were more likely than those from urban areas (20 percent) to report that, during the past month, someone had smoked in their home.

## **METHODOLOGY**

A combination of methods was used by the Southwest Rural Health Research Center to identify Healthy People 2010 focus areas that should be considered national rural health priorities. Literature reviews, a survey of national and state rural health experts, and a survey of persons representing state and local organizations with a commitment to rural health were all used to assist in developing the set of rural health priorities discussed in the national Rural Healthy People 2010 report. (Please see the report for further information on the process used.)

The Nebraska 2010 Rural Health objectives are a subset of the State's 2010 health goals and objectives. Established Nebraska 2010 objectives were compared with the national Rural HP 2010 objectives for overlap. Rural and urban data for these objectives were compiled. Objectives were included if rural/urban disparities were noted or if the objectives were of particular importance overall (e.g., obesity objectives). In addition, rural and urban data were analyzed for other Nebraska 2010 objectives not included in the national Rural 2010 report and used if disparities were noted for Nebraska. A proposed list of objectives for the Nebraska report was then reviewed by the Nebraska Office of Public Health for inclusion in this report.

Please note that there may be other 2010 objectives with important rural and urban disparities that could have been included in both the national and the Nebraska Rural Healthy People 2010 reports. These reports are not intended to be totally comprehensive. However, future iterations of these reports may include additional objectives of importance as they are identified.

## **DATA ISSUES**

The definition of "rural" used in this report differs from the definition used in the Nebraska BRFSS reports. In the BRFSS, three counties are classified as "urban" (Douglas, Sarpy, and Lancaster Counties) and the remaining 90 counties are "rural". In this report, the six counties that are Metropolitan Statistical Areas (MSA's) are considered "urban" (Cass, Dakota, Douglas, Lancaster, Sarpy, and Washington Counties). The remaining 87 counties are classified as "rural". Due to these differences in definitions of "rural" and "urban", BRFSS prevalence estimates reported in other HHSS documents may differ from those presented in this report.

Whenever data were available for Nebraska, rural and urban data have been presented in this report by race and ethnicity. For some objectives (primarily those based on behavioral risk factors), whites and Hispanic Americans were the only population groups with sufficient numbers of respondents to analyze and report prevalence estimates. In addition, although African Americans comprise the second largest racial minority group in Nebraska, the majority of them reside in the six urban counties. In many cases, the numbers were insufficient in rural areas to make comparisons or to report rates.

All mortality rates in this report (except infant mortality rates) are age-adjusted to the 2000 standard unless otherwise noted.

Data definitions and sources for Healthy People 2010 objectives are presented in the Appendix to this report.

## **RESULTS AND DISCUSSION**



## ACCESS TO HIGH QUALITY HEALTH SERVICES

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#1-1	Percent of persons aged 18 to 64 years with health insurance	2002	85	88	86	100	100
	White	2002	86	90	88	100	100
	Hispanic American	2002	58	62	60	100	100
#1-4c	Percent of adults aged 18+ with specific source of ongoing care. (Have "one [or more] persons you think of as your personal doctor or health care provider")	2002	88	83	86	98	96
	White	2002	90	85	88	98	96
	Hispanic American	2002	62	58	60	98	96
#1-8	Racial and ethnic representation in health professions						
	Primary care physicians—African American as % of total	2002	Not Available		1.3	4.4	13
	Primary care physicians—Native American as % of total	2002	Available		0.2	1.3	1
	Primary care physicians—Asian American as % of total	2002	For Rural		7.0	4.8	4
	Primary care physicians—Hispanic American as % of total	2002	Vs. Urban		1.4	5.5	12
NOTE: Although Objective 1-8 has set targets for increasing the proportion of primary care physicians in racial and ethnic minority groups, the intent is not to decrease the number of minority physicians in currently "over-represented" population groups (i.e., Asian Americans).							
#1-9a	Hospitalizations for pediatric asthma (age <18 years) /10,000 persons Data by race/ethnicity unavailable	2001	9.1	8.0	8.6	NA	17.3
#1-9b	Hospitalizations for uncontrolled diabetes (age 18-64 years) /10,000 persons Data by race/ethnicity unavailable	2001	3.5	3.6	3.5	2.8	5.4
#1-9c	Hospitalizations for immunization-preventable pneumonia or influenza (age 65 + years) /10,000 persons Data by race/ethnicity unavailable	2001	10.9	5.3	8.7	16.0*	8.0

\*Nebraska 2010 Objective will be revised downward.

## **Health Impact**

Everyone needs to have access to high quality health care services in order to eliminate health disparities and increase the quality and years of healthy life for all Americans. In recent years, major changes in the structure of the U.S. health care system have occurred. Changes in payment and health care delivery systems, welfare reform, and market forces have all had an impact on health care consumers, particularly on vulnerable and at-risk populations. In the last few years, the proportion of the population without health insurance has increased in Nebraska and nationwide, leaving more people without access to needed health care.

Physician and dentist shortages in rural counties, along with hospital closures in the past 20 years and lack of public transportation, create barriers to health care for rural residents. Use of mid-level practitioners has helped to alleviate access problems in many rural areas, but unmet need for access to high quality health care still remains a problem in many communities.

There is also wide disparity in the delivery of emergency medical services (EMS) between rural and urban areas. Lack of available professional and paraprofessional service providers, geographic barriers (such as long distances between the patient needing emergency care and the nearest hospital emergency department), and resource constraints all contribute to differences in the type and quality of emergency medical care available in rural and urban areas.

## **Healthy People 2010 Goal**

The national Healthy People 2010 goal is to improve access to comprehensive, high-quality health care services.

## **Rural/Urban Disparities in Nebraska and the Nation**

### **Insurance Coverage**

Financial constraints are an important barrier to accessing health care services. Having no health insurance or having a health care plan that provides inadequate coverage for needed services, combined with a lack of financial capacity to cover services falling outside insurance coverage, makes it difficult or impossible for many people to get necessary medical care. Persons without health insurance are less likely to have a “regular” health care provider, to visit the doctor, to obtain preventive care, and to obtain needed tests and prescriptions.

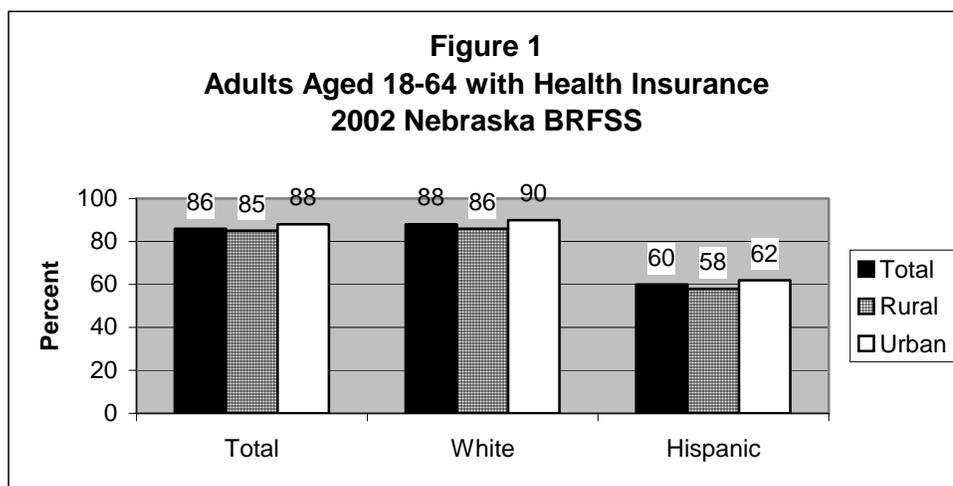
Health insurance status has also been found to be a reliable predictor of overall health status. Research has shown that the general health of persons who have recently lost their health insurance is comparable to that for privately insured individuals. However, persons who are categorized as “long-term uninsured” were found to be significantly less healthy than those with private health insurance. The uninsured are also more likely to be hospitalized for avoidable conditions, such as pneumonia and uncontrolled diabetes, and are more likely to be diagnosed for cancer at later stages.

The U.S. Census Bureau estimates that 43.6 million people nationwide were uninsured in 2002. These people represent 15.2 percent of the U.S. population in 2002, up from 14.6 percent in 2001. National data from a 1998 survey show that non-elderly persons living in rural areas not adjacent to metropolitan areas are the group most likely to be uninsured (24 percent), while

fewer persons in rural counties adjacent to metropolitan areas (18 percent) or in urban counties (18 percent) were uninsured.

Rural residents are also uninsured for longer periods of time. Their chances of being uninsured for 12 months or longer (20 percent) are one-third greater compared to urban county residents (14 percent).

The 2002 Nebraska Behavioral Risk Factor Surveillance System (BRFSS) found that 85 percent of rural adults aged 18 to 64 years had health insurance, compared to 88 percent of urban adults in this age group (Figure 1). Hispanic Americans in Nebraska reported much lower prevalence of health insurance coverage than whites, but the rural-urban disparity was evident for this group too. Fifty-eight percent of rural Hispanic Americans in the state had health insurance, while 62 percent of those living in urban areas had coverage.



Thus, in Nebraska, 15 percent of all rural adults under age 65 and 42 percent of rural Hispanic American adults in this age group had no health insurance in 2002. The Nebraska 2010 objective for health insurance is to have 100 percent coverage.

### **Factors Contributing to Rural/Urban Disparities in Health Insurance Coverage**

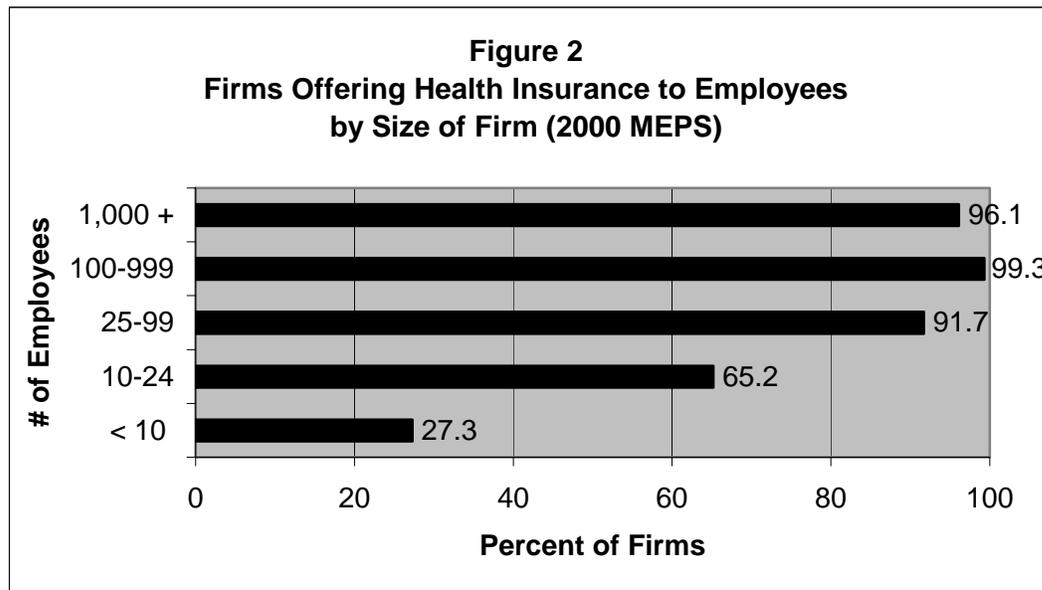
Higher poverty rates and lower wages in rural areas make it more difficult for residents to afford high health insurance premiums or to pay for health care without the benefit of insurance. The Kaiser Commission on Medicaid and the Uninsured reports that a much larger proportion of residents in remote rural areas of the United States live in households with incomes below 200 percent of the federally-designated poverty level (47 percent vs. 27 percent in less remote rural areas). Thus, Medicaid, S-CHIP, and other public programs play a greater role in supplying health insurance in remote rural counties, covering 16 percent of the population in these areas compared to 10 to 11 percent in other counties.

Since employers are the source of health insurance coverage for most non-elderly Americans, access to jobs that offer this benefit is very important. Businesses in rural areas tend to be smaller than businesses in urban areas and small businesses are less likely than large ones to offer affordable health insurance coverage. In addition, health insurance plans offered by small firms are more likely to provide less comprehensive coverage with higher co-pays and deductibles, stricter rules for covering employees and dependents, and reduced services

covered, resulting in employees who are underinsured. Small firms are also more likely to change insurance plans and/or carriers frequently.

Workers in remote rural areas nationwide are more likely to be employed by small businesses (46 percent in remote rural areas vs. 37 percent elsewhere) and thus have less chance of being offered health insurance by their employer. Workers in small firms located in remote rural areas are the group least likely to be offered health insurance through their employer (36 percent nationwide). Altogether, the majority of uninsured workers (68 percent) who live in these rural counties are working for small employers with less than 20 employees.

According to the 2000 Medical Expenditure Panel Survey, Nebraska ranks third highest among 40 states surveyed in proportion of firms employing fewer than 10 people. More than two-thirds (67.6 percent) of Nebraska businesses fall into this category. As might be expected, these small firms are least likely to make health insurance available to their employees. In Nebraska, only 27.3 percent of firms employing fewer than 10 people offered health insurance (Figure 2). In contrast, more than 90 percent of Nebraska firms with 25 or more employees offered this benefit to their workers.



Another factor related to health insurance status is level of education. On average, rural residents have fewer years of education than urban residents do. Statistics show that persons with fewer years of education are more likely to be uninsured than those with more education.

### **Access to Health Care Providers**

#### **Usual Source of Care**

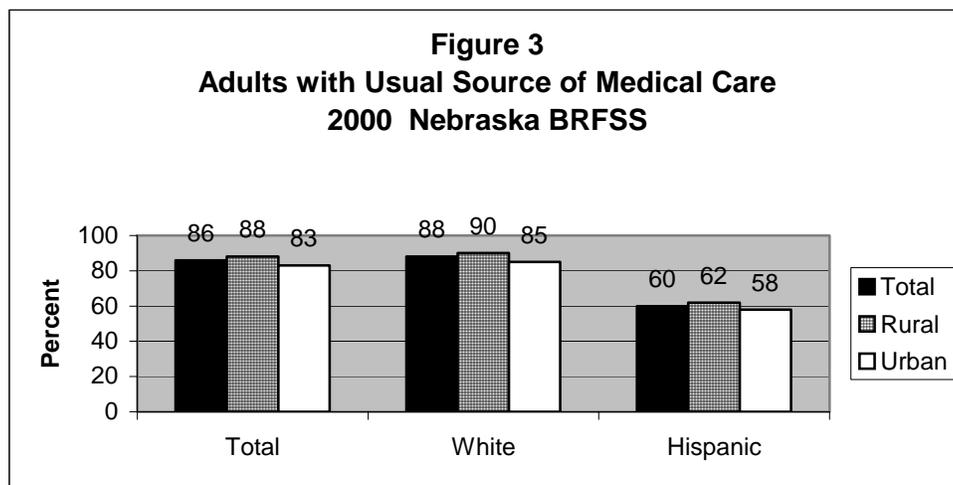
It can be difficult for people living in rural areas to achieve and maintain a regular source of health care due to shortages of physicians. Since the proportion of persons who are elderly and/or poor (groups traditionally needing more health care services) is generally greater in rural areas, the unmet need resulting from provider shortages can be significant.

Rural (89 percent) and urban (87 percent) populations nationwide are about equally likely to report having a usual source of medical care. Nebraska 2002 BRFSS respondents were asked whether or not they had one person that they consider their personal doctor or health care provider. Rural respondents in Nebraska (88 percent) were somewhat more likely than those living in the six urban counties (83 percent) to say they have a personal doctor or health care provider.

Hispanic Americans nationwide were less likely than white Americans or African Americans to have a usual source of medical care. In addition, Hispanic Americans living in rural areas of the United States were less likely than those living in urban areas to have a usual source of health care.

Nebraska BRFSS results matched national findings in one respect. Hispanic American adults (60 percent) were much less likely than white Nebraskans (88 percent) to report having a personal health care provider (Figure 3). However, in contrast to national data, Hispanic adults in rural areas of Nebraska (62 percent) were somewhat more likely than were urban Hispanic Americans in the state (58 percent) to say they have a personal physician or health care provider.

The Nebraska 2010 objective is to have at least 98 percent of adults with a specific ongoing source of medical care.



Rural residents nationwide commonly cite the lack of local transportation services and travel time as a reason for not having a usual source of care. If the public transportation system in the area is weak or nonexistent, problems result for the rural elderly and for people who are poor and may need help in reaching a provider. A national study found that only seven percent of urban dwellers must travel 13 to 50 miles to reach their usual source of health care, compared to 24 percent of rural residents.

### Health Care Provider Shortages in Rural Areas

Only about 10 percent of the physicians in the United States practice in rural areas, despite the fact that one-fourth of the U.S. population lives in these areas. The U.S. General Accounting Office published results of a national study of the physician workforce in October 2003. This study found that the physician supply had increased in both metropolitan and non-metropolitan

areas of the United States between 1991 and 2001. However, geographic disparities persisted. In 2001, there were only 122 physicians per 100,000 population in active practice in rural (non-metropolitan) areas, compared to 267 per 100,000 in metropolitan counties.

In Nebraska, there were 61 primary care physicians per 100,000 population in rural counties in 2002, compared to 78 per 100,000 in urban counties.

Primary care specialists (such as obstetrician/gynecologists, pediatricians, internists, and psychiatrists) and subspecialists (such as cardiologists) are frequently in short supply in rural areas. Rural physicians who will deliver babies (both family practice physicians and obstetricians) are becoming more scarce. Rising costs of malpractice insurance for obstetric services have accounted for part of this decline and may have had a greater effect on rural areas, because there are more small physician practices in these areas and they may be less able to withstand increasing costs.

Many of the primary care physicians now practicing in rural areas are nearing retirement age or have already reached it. Difficulties in recruiting physicians to “replace” current health care providers and especially in retaining them after they have located in a rural area contribute to these shortages. Numerous studies reveal that primary care physicians who were raised in rural areas are more likely to practice in rural areas. In addition, rural curricula and rural rotations in medical school tend to increase the proportion of physicians choosing to practice in rural communities.

With regard to retaining rural physicians, sociocultural integration appears to be a very important factor in keeping them practicing in rural areas. A rural community’s ability to support a group practice is also important because of the need for physicians to be able to provide 24-hour care and to have on-call and backup coverage.

The use of midlevel practitioners (i.e., physician assistants, nurse practitioners, and nurse midwives) has been helpful in increasing access to health care in many rural areas. In fact, provider-to-population ratios for physician assistants and nurse practitioners are slightly higher in rural areas nationwide. Still, the more attractive practice opportunities and salaries found in urban settings may affect the number of midlevel practitioners locating in rural areas.

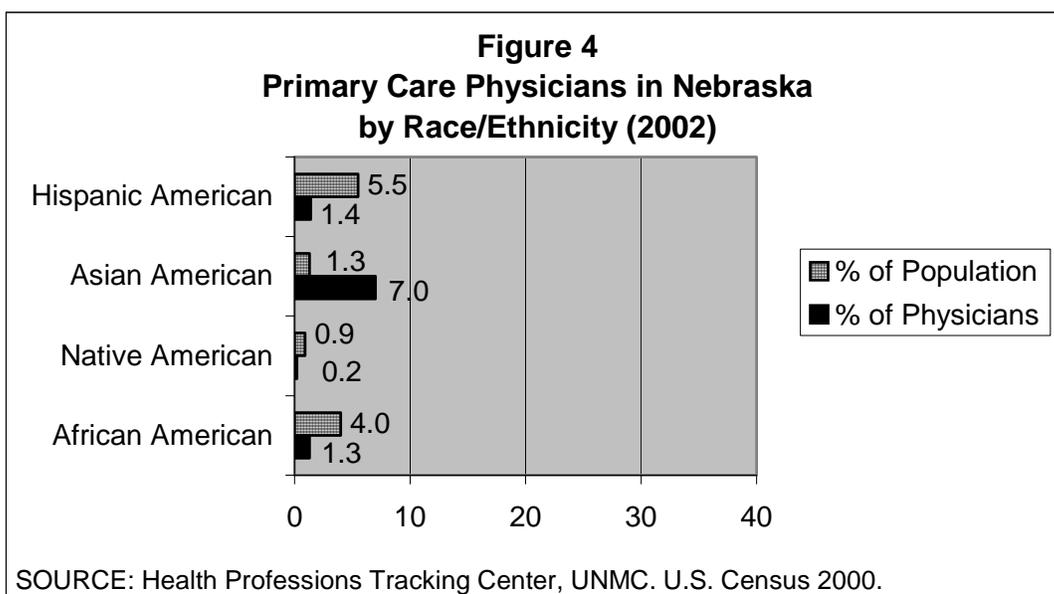
The Health Professions Educational Assistance Act of 1976 provided for designation of Health Professional Shortage Areas (HPSA’s) as a means of increasing the number of physicians practicing in underserved areas. Currently, there are 2,157 primary care HPSA’s in rural and frontier areas of U.S. states and territories, compared to 910 in urban areas. In Nebraska, there are 35 designated primary care HPSA’s, two dental population HPSA’s, and 67 mental health HPSA’s as of 2003. All but five of these are in non-metropolitan counties. Additional areas are state-designated as physician and dentist shortage areas.

### **Racial/Ethnic Minority Physicians**

Increasing the number of health care providers from certain racial and ethnic groups has been found to be an effective means of increasing access to care for underserved people, particularly for low-income and racial and ethnic minority populations. Studies have shown that racial and ethnic minority physicians are more likely than white physicians to go into primary care. They are also more likely to practice in areas with large proportions of underserved racial and ethnic minority groups and to practice in or near designated health professional shortage areas.

Having health care providers who are racial and ethnic minorities themselves also tends to eliminate some of the language and cultural barriers that limit access to high quality care.

According to the Health Professions Tracking Center at the University of Nebraska Medical Center (Figure 4), in 2002 only 1.3 percent of physicians in Nebraska were African American, although African Americans represent about 4.0 percent of the state’s population. Persons of Hispanic origin comprise 5.5 percent of the population and are the fastest-growing segment, but they account for only 1.4 percent of all Nebraska physicians. In the same way, Native Americans are also underrepresented in the physician population, with 0.2 percent of the total but 0.9 percent of the population of the state. On the other hand, Asian Americans are overrepresented in the physician population. They make up only 1.3 percent of Nebraska’s population, but comprise 7.0 percent of all physicians in the state.



Thus, racial and ethnic minorities (with the exception of Asian Americans) are seriously underrepresented in the physician population of the state. Even if the racial/ethnic minority physicians currently in practice were optimally distributed throughout the state, shortages are severe enough that access to care would be limited for people seeking care from these providers in both rural and urban areas.

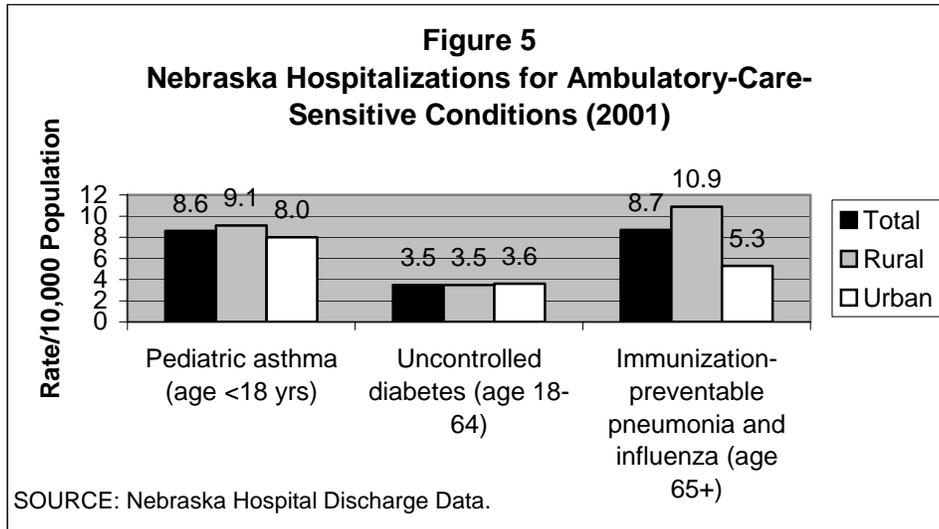
Nebraska’s 2010 objectives for racial/ethnic representation among primary care physicians seek to increase the proportions of these physicians so that each matches their corresponding proportion in the population.

### **Hospitalizations for Ambulatory-Care-Sensitive Conditions**

On average, it is estimated that up to 12 percent of hospitalizations for all diagnoses combined could be prevented. Ambulatory-care-sensitive conditions are those that are responsive to high-quality primary care health services. High hospital admission rates for these conditions indicate limited access to primary care and/or receipt of low-quality primary care services. Pediatric asthma, uncontrolled diabetes, and immunization-preventable influenza and pneumonia among

older adults are all conditions for which hospitalization generally could be avoided by provision of appropriate primary care and preventive services.

In 2001, asthma was the primary diagnosis for 385 hospitalizations of children under age 18 years in Nebraska (8.6 per 10,000 children in this age group) (Figure 5). The hospitalization rate for children living in rural areas (9.1 per 10,000) was higher than the rate for those residing in urban areas of the state (8.0).



Uncontrolled diabetes is another ambulatory-care-sensitive condition for which hospitalization rates are being tracked in Healthy People 2010. There were 365 hospitalizations for uncontrolled diabetes among persons aged 18 to 64 years in Nebraska in 2001. Nebraska hospital discharge data indicate almost no difference between rural (3.5 hospitalizations per 10,000 persons aged 18 to 64) and urban (3.6 per 10,000) rates for uncontrolled diabetes. The 2010 objective is to reduce hospitalizations for uncontrolled diabetes in Nebraska to no more than 2.8 per 10,000 persons.

For immunization-preventable pneumonia or influenza in Nebraska, there was a substantial disparity between rural and urban hospitalization rates. In 2001, these conditions were the primary diagnosis for 202 hospitalizations of persons aged 65 years and older. The rural hospitalization rate for persons in this age group (10.9) was double the rate in urban areas (5.3). So, for immunization-preventable pneumonia or influenza among elderly Nebraskans, these higher rural rates indicate there may be limited access to primary care and/or the quality of primary care services available may need improvement in rural areas. The Nebraska 2010 objective will need to be revised from the current 16.0 per 10,000 to a much lower rate that takes into account current hospitalization rates.

### Emergency Medical Services in Rural Areas

Emergency medical services (EMS) is a broad term covering a continuum of health services including pre-hospital medical services, emergency services provided at the hospital, and the trauma system that serves as the network of coordinated trauma care. In addition to providing emergency care, these services are often the gateway to health care for many people. This

report will be concerned primarily with access to pre-hospital emergency medical services in rural areas.

Pre-hospital emergency medical services are generally provided by a network of first responders who give emergency care from the initial 911 call to arrival at the hospital emergency department. There is a wide disparity in the delivery of EMS between rural and urban areas. Factors such as the availability of professional and paraprofessional service providers, geographic barriers (such as long distances between the patient needing emergency care and the nearest hospital emergency department), and resource constraints all contribute to differences in the type and quality of emergency medical care available in rural and urban areas.

In rural areas, EMS may be provided through a variety of service delivery components, such as non-transporting volunteer first-responder organizations, volunteer ambulance corps, or county ground or air ambulance services. It is estimated that 90 percent of EMS personnel in rural frontier areas nationwide are volunteer community members who are trained and organized to provide these services.

In Nebraska, there are 430 ambulance and first responder services. Approximately 80 percent of all EMS responders are volunteers statewide. Estimates are not available for rural versus urban areas. In Nebraska, only 15.5 percent of ambulance services offer Advanced Life Support services, while 84.5 percent offer Basic Life Support.

Injuries in rural areas are not any more frequent than in urban areas. But, many injuries sustained in rural areas are greater in severity and may be different types from those occurring in urban settings. Since many rural areas rely only on Basic Emergency Medical Technicians (EMT's), trauma patients who have a greater likelihood of needing advanced life support care are less likely to receive it in these settings. Low call volumes also result in less frequent use (and thus less "practice") in use of potentially life-saving interventions like artificial airways and IV fluids.

Nationally, only about one-third of all motor vehicle crashes occur in rural areas, but two-thirds of all motor vehicle fatalities result from crashes occurring on rural roads. In Nebraska, less than one-half (44.9 percent) of all motor vehicle crashes in 1999 occurred in rural counties, but three-fourths (75.4 percent) of all motor vehicle deaths were the result of crashes on rural roads. These findings suggest that the length of time from the call for assistance to arrival at the accident scene is of critical importance. Other factors, such as higher speeds and different types of vehicles driven in these areas, may also contribute to higher death rates from motor vehicle crashes in rural areas.

Response time data from the Nebraska Ambulance & Rescue Service Information System (NARSIS) will be available for rural and urban areas of the state beginning with 2003 data. This information will then be included in future *Nebraska Rural Healthy People 2010* reports.

The national *Rural Healthy People 2010* report lists several challenges in delivering adequate EMS in rural areas:

- High reliance on increasingly hard-to-find volunteer staff
- Inadequate financial resources
- Aging or inadequate equipment
- Difficulty maintaining skills due to low call volume
- Lack of training opportunities close to home

- Lack of proper medical direction, particularly from individuals trained in emergency medicine
- Gaps in telecommunications.

However, some sources of rural-urban disparities, such as large geographic distances and low population density, are intrinsic to rural areas and cannot be changed. Thus, it may not be possible to totally eliminate disparities in outcomes related to emergency medical services between rural and urban areas.

## CANCER

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#3-1	Overall cancer death rate	2002	179.8	195.0	186.6	147.0	159.9
	White	1998-2002	178.5	199.4	186.8	147.0	159.9
	African American	1998-2002	234.9	255.2	254.2	147.0	159.9
	Native American	1998-2002	210.2	227.0	219.0	147.0	159.9
	Asian American	1998-2002	118.3	139.8	135.2	85.2	159.9
	Hispanic American	1998-2002	123.0	123.4	123.4	72.0	159.9
#3-11b	Percent of women who received a Pap test within last 3 years (age 18+ with or without uterine cervix) Data by race/ethnicity unavailable	2002	80	85	83	90	90
#3-12a	Percent of adults age 50+ who had fecal occult blood test in past 2 years Data by race/ethnicity unavailable	2002	28	33	30	50	50
#3-12b	Percent of adults age 50+ who ever had sigmoidoscopy Data by race/ethnicity unavailable	2002	37	48	42	50	50
#3-13	Percent of women age 40+ who had mammogram within the past 2 years	2002	72	80	75	75*	70

\*Nebraska 2010 objective will be revised upward.

### Health Impact

According to the Centers for Disease Control and Prevention, about 1.4 million new cases of cancer will be diagnosed in 2004 and more than 560,000 people in the United States are expected to die from cancer this year.

Cancer is the second leading cause of death in the United States and in Nebraska. In Nebraska, there were 8,206 newly diagnosed cases of invasive cancer and 3,380 deaths attributed to cancer in 2000.

The National Cancer Institute estimates that about 8.9 million Americans living today have a history of cancer. Some of these persons have been cured of cancer, while others may be currently undergoing treatment for it. Five-year survival rates may vary widely by type of cancer. However, the average five-year survival rate for all cancers combined is currently 59 percent.

The National Institutes of Health estimate that health expenditures for cancer totaled \$60 billion in 2000. Indirect morbidity and mortality costs (that is, the cost of lost productivity due to illness and premature death) added another \$120 billion. Thus, overall costs for cancer were estimated to total \$180 billion in the United States in 2000.

## Healthy People 2010 Goal

The Healthy People 2010 cancer goal is to “reduce the number of new cancer cases as well as the illness, disability, and death” caused by cancer.

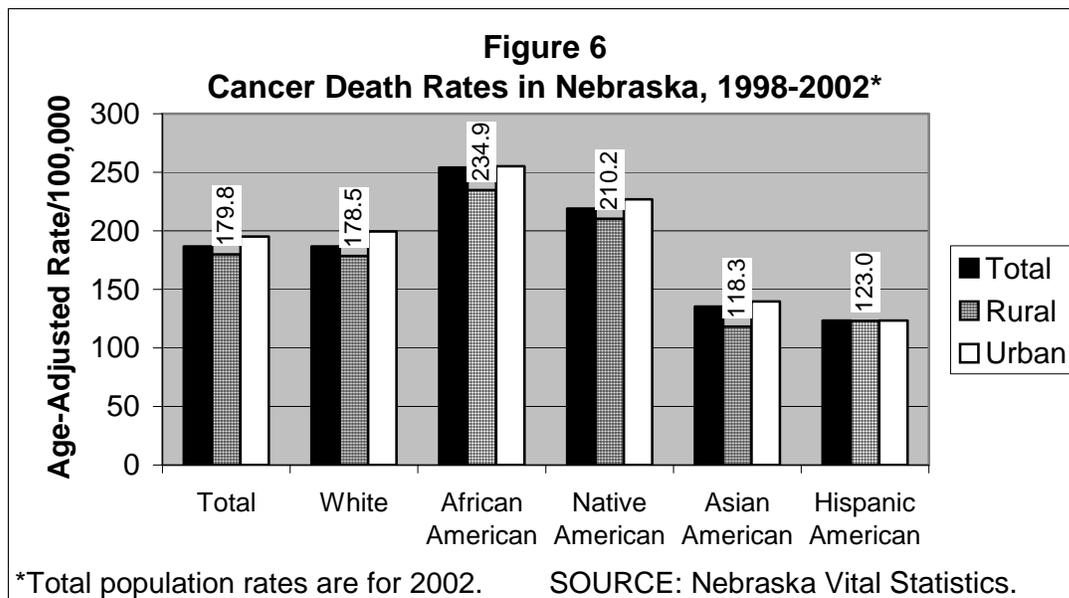
### Rural/Urban Disparities in Nebraska and the Nation

#### Cancer Incidence and Mortality

Certain segments of the population are at increased risk of getting cancer and of dying from it. Overall, more than one-half of all first cancer diagnoses occur among people who are 65 years of age or older. African Americans are generally at greater risk for illness and death due to cancer than persons of other racial/ethnic groups are. Statewide, the cancer death rate for African Americans was the highest of any racial or ethnic group (254.2 deaths per 100,000) in 1998-2002. Native Americans in Nebraska also experienced a high death rate due to cancer (219.0), while the rate for white Nebraskans was somewhat lower (186.8).

According to the national *Rural Healthy People 2010* report, there is usually little difference in incidence and mortality rates for cancer between rural and urban areas. However, according to Nebraska Cancer Registry data, the age-adjusted incidence rate in the six urban Nebraska counties combined (482.0 new cases per 1,000 population) is somewhat higher than the rural cancer incidence rate in the state in 2000 (449.6 per 1,000).

In Nebraska, the age-adjusted mortality rate for cancer was about 8 percent higher in the six urban counties combined (195.0) than it was in the remaining rural areas of the state (179.8) for the five-year period 1998-2002 (Figure 6). The urban rate was also higher than the rural rate for each racial/ethnic group except Hispanic Americans, where rural and urban mortality rates were nearly identical.



The Nebraska 2010 objective for cancer deaths is to reduce the rate to no more than 147.0 deaths per 100,000 population overall and for white, African American, and Native American

Nebraska. Since baseline rates for Asian Americans and Hispanic Americans are lower, the target rates for 2010 are also lower (85.2 and 72.0 deaths per 100,000, respectively).

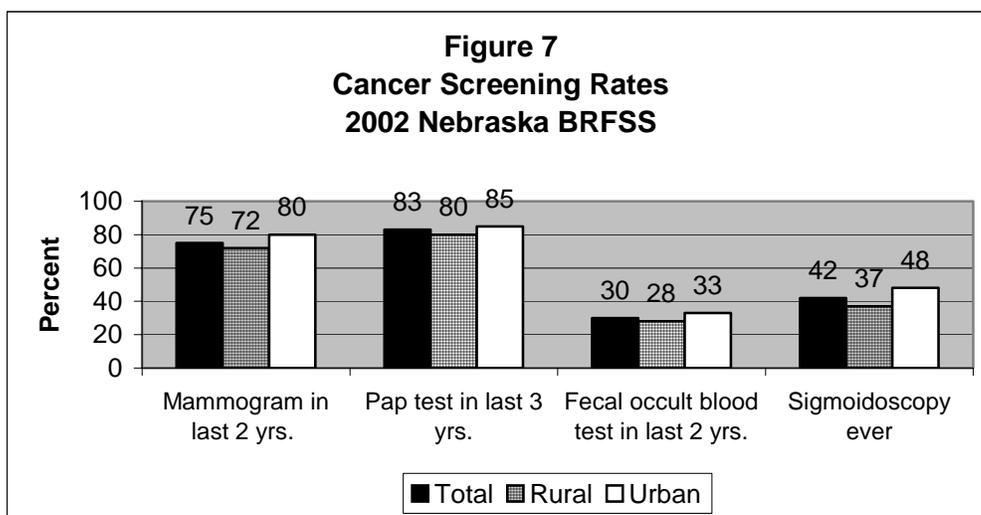
Statistics show that skin and lip cancer mortality rates are higher in rural areas and may be due to increased sun exposure of rural residents, particularly farmers.

Disparities also exist between rural and urban populations in the stage of disease at first diagnosis. (Cancer staging refers to the degree of tumor extension and growth at first diagnosis.) According to the *Rural Healthy People 2010* report, a number of state-level studies have found rural residents to be at risk for late-stage diagnosis. Delayed diagnosis can result in poorer patient outcomes.

### Prevalence of Cancer Screening

Data from the Behavioral Risk Factor Surveillance System (BRFSS) indicate that rural residents nationwide are less likely to obtain certain cancer-screening services according to nationally established standard timelines. In addition, national data show that persons with low incomes, low educational levels, and no insurance significantly underutilize screening services such as Pap smears and mammograms. Research has also shown that physicians are less likely to suggest screening of older and minority women.

In Nebraska, the prevalence of cancer screening was lower in rural areas than in urban areas for each of the screening tests tracked by the BRFSS in 2002 (Figure 7). Among women aged 40 years or older, 80 percent of those living in urban areas reported having a mammogram to check for breast cancer in the past two years. Among rural women in this age group, only 72 percent had this screening in the last two years.



Urban women aged 18 and older (85 percent) were also more likely than rural women (80 percent) to state that they had a Pap smear in the past three years to screen for cervical cancer.

Much smaller proportions of Nebraska adults overall reported being screened for colorectal cancer, but rural-urban disparities in prevalence were evident for these tests as well. One-third (33 percent) of urban residents aged 50 or older said they last had a fecal occult blood test in

the past two years. Among rural Nebraskans, the screening rate for this test was only 28 percent.

Persons in this age group who lived in urban areas (48 percent) were also more likely than were those residing in rural areas (37 percent) to report ever having a sigmoidoscopy done to check for colorectal cancer.

The Nebraska 2010 objectives for improving cancer screening rates are: (1) to increase to at least 90 percent the proportion of women aged 18 and older who have had a Pap test in the last three years; (2) to increase to at least 50 percent the proportion of adults aged 50 and older who have had a fecal occult blood test in the past two years; and (3) to increase to at least 50 percent the proportion of adults in this age group who have ever had a sigmoidoscopy. A new objective will be adopted for the proportion of women aged 40 and older who have had a mammogram within the past two years, since the current target rate has been achieved.

### **Factors Contributing to Rural/Urban Disparities**

The national *Rural Healthy People 2010* report states that, “A variety of uniquely rural attitudes and barriers may impact the stage of [cancer] diagnosis. Attitudes such as fatalism, fear of the stigma associated with cancer and denial of presenting symptoms may all contribute to delayed screening and thus diagnosis.” Rural residents’ knowledge of modifiable risk factors for cancer and the need for early cancer screening and detection may also be limited.

Another reason suggested for rural/urban disparities in cancer incidence and deaths is the large proportion of the rural population who are in high-risk groups. Rural residents are typically older, less educated and poorer than urban residents are — characteristics that are associated with higher prevalence of chronic diseases such as heart disease and cancer.

Compared to people living in urban areas, rural residents may find more variation in the quality, availability, and accessibility of health care services in their areas. Limited access to cancer prevention programs, early cancer screening and detection programs, and high quality medical care facilities may all have negative effects on patient outcomes. Thus, in spite of the lower overall cancer incidence experienced by rural residents, these factors may contribute to a poorer prognosis for them.

Despite the progress that has been made in reducing cancer incidence and mortality, prevalence of cancer is expected to increase as the population ages. While both urban and rural Americans will be faced with meeting the health care needs of an aging population, the impact may be greater for rural areas because of the disproportionately high number of elderly residents and the limited health care resources available in many of these areas.

## DIABETES

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#5-3	Overall prevalence rate of clinically diagnosed diabetes aged 18+ (%)	2002	5.7	6.1	5.9	2.5	2.5
#5-5	Diabetes-related death rate per 100,000 population	2002	70.1	78.0	73.6	25.0	45.0
	White	1998-2002	68.3	72.5		25.0	39.9
	African American	1998-2002	*	168.3		25.0	74.1
	Native American	1998-2002	381.6	280.9		25.0	61.0
	Asian American	1998-2002	*	103.0		25.0	35.3
	Hispanic American	1998-2002	120.8	94.5		25.0	49.0

\*Mortality rate based on fewer than five deaths.

### Health Impact

The number of newly diagnosed cases of diabetes has risen at an alarming rate in the United States. The number of adults with diagnosed diabetes (including women with gestational diabetes) has increased 61 percent since 1991. With obesity on the increase, it is likely that the number of cases of diabetes will continue this strong upward trend.

More than 18 million Americans have diabetes, with approximately one-third of these cases currently undiagnosed. In Nebraska, six percent of adults report they have been diagnosed with diabetes, with many more as yet undiagnosed. Diabetes is also becoming much more prevalent among children in the United States. Ten years ago, Type 2 diabetes was rarely seen in children; now, they represent more than one-half the new cases of diabetes.

In addition to those who currently have diabetes, an estimated 16 million more American adults aged 40 to 74 years are at high risk for developing diabetes. They have pre-diabetes; that is, their blood sugar is elevated but not high enough for them to be classified as having diabetes.

Each year more than 200,000 Americans die from diabetes or complications related to it. This disease ranks sixth as a leading cause of death nationwide. In Nebraska, diabetes-related deaths rates have risen steadily over the past ten years. In 2000, diabetes became the sixth leading cause of death in the state, up from seventh in 1999.

Diabetes often results not only in a shortened life span, but also increases the probability of various complications such as heart disease, stroke, kidney failure, blindness and amputation of the lower limbs. Persons with diabetes are also more likely than are people without diabetes to die from complications of influenza or pneumonia. Women with diabetes are at greater risk of pregnancy complications than are women who do not have this disease. In addition, infants born to mothers with diabetes are more likely than other infants to die at birth or have birth defects.

Economic costs of diabetes in the United States totaled \$132 billion in 2002. According to the National Center for Chronic Disease Prevention and Health Promotion, the average yearly

health care cost for a person with diabetes was \$13,243 in 2002, compared to only \$2,560 for a person who does not have diabetes.

### **Healthy People 2010 Goal**

The national HP 2010 goal for diabetes is to “reduce the disease and economic burden of diabetes and improve the quality of life for all persons who have or are at risk for diabetes” through prevention programs.

### **Rural/Urban Disparities**

#### **Incidence/Prevalence of Diabetes**

In general, prevalence of diabetes is somewhat higher in rural areas of the United States. Based on results of the 1995 National Health Interview Survey, self-reported prevalence of diabetes was higher in non-MSA's (3.6 percent) than in MSA's (3.24 percent).

In 2002, the Nebraska BRFSS reported that 5.9 percent of adults participating in this survey said they had ever been told by a health professional that they have diabetes. Differences in prevalence of diabetes between rural (5.7 percent) and urban (6.1 percent) areas in the state were small.

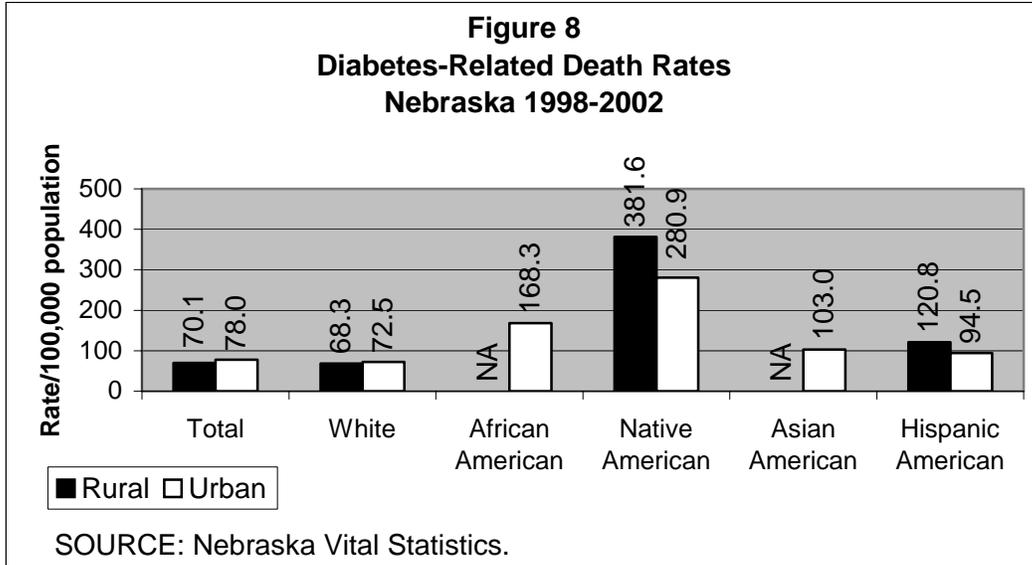
However, racial/ethnic, age, socioeconomic, and lifestyle factors appear to be stronger risk factors for developing diabetes than rural residence by itself. For example, there are substantial disparities in prevalence of diabetes by race. On average, this disease is two to five times more common among African Americans, Native Americans and Asians/Pacific Islanders nationwide than among white Americans. In Nebraska, the 2002 BRFSS reported that African Americans (11.4 percent) were twice as likely as whites (5.7 percent) to ever be “told by a doctor they have diabetes.” Among Hispanic Americans in the state, 6.4 percent said they had ever been diagnosed with this condition.

The Nebraska 2010 objective is to reduce prevalence of diagnosed diabetes to no more than 2.5 percent among adults aged 18 years and older.

#### **Mortality Due to Diabetes**

Diabetes accounted for more than 68,600 deaths in the United States in 2000. Death rates for persons with diabetes are twice as high as rates for persons who do not have this disease. Persons with diabetes are two to four times as likely to die from heart disease as other people. Diabetes is also the leading contributing cause of deaths from kidney disease.

Nationwide, racial and ethnic differences account for much larger disparities in mortality from diabetes than from rural-urban differences. In Nebraska, there were 1,419 diabetes-related deaths in 2002 (73.6 deaths per 100,000 population) (Figure 8). The mortality rate in the six urban counties (78.0 per 100,000) was higher than the rate in rural Nebraska (70.1). However, looking at the most recent five-year period (1998-2002), some of this difference can be attributed to a very high rate for African Americans in urban counties (168.3) and the size of the African American population residing there.



Native Americans in rural Nebraska counties (381.6) experienced the highest diabetes-related death rate of any racial/ethnic group, although the rate for urban Native Americans was also very high (280.9). The diabetes-related death rate for Hispanic Americans was also higher in rural counties (120.8) than it was in the six urban counties (94.5) of the state.

A Nebraska 2010 objective for diabetes-related deaths has been set at no more than 25 deaths per 100,000 population.

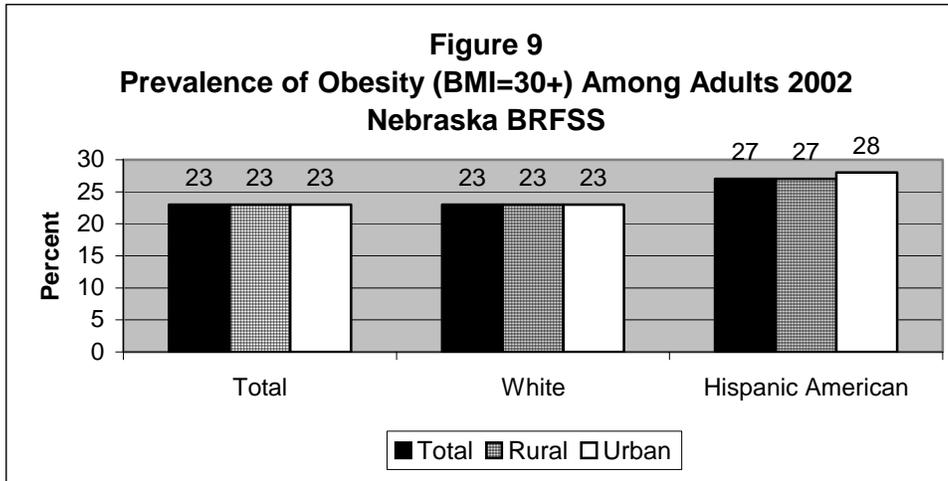
### Prevalence of Risk Factors for Diabetes

Ninety to 95 percent of persons with diabetes have the Type 2 form of the disease. The risk of developing Type 2 diabetes increases with age. Women are also somewhat more likely than men to have this form of diabetes. Type 2 diabetes also has a genetic component, with the disease tending to run in families.

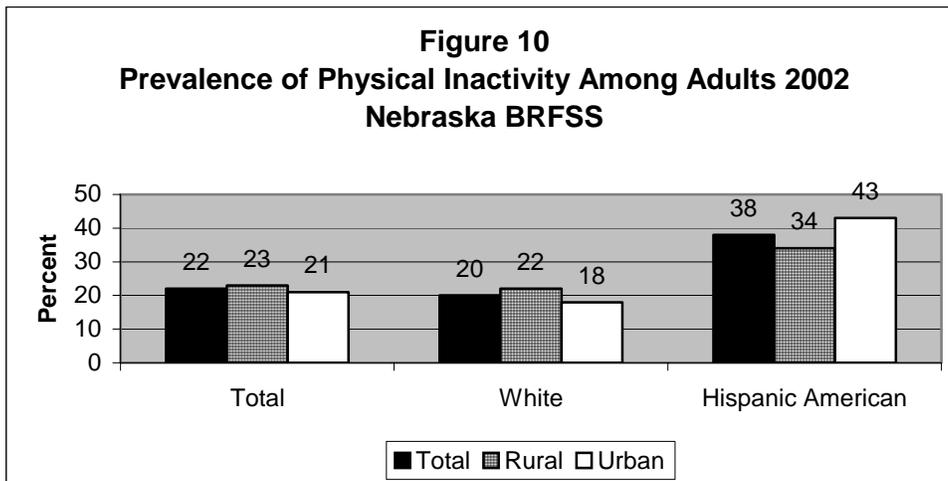
Like other chronic diseases, diabetes is associated with low socioeconomic status. It is also more common in persons exposed to certain environmental chemicals.

Type 2 diabetes is strongly linked to obesity and the increase in prevalence of this disease correlates closely with the growing proportion of people who are obese. Physical inactivity is also a risk factor for development of Type 2 diabetes. Obesity and physical inactivity are generally more common in rural areas than in urban ones.

In Nebraska, self-reported prevalence of obesity varied little between rural and urban areas (23.0 percent each) (Figure 9). Hispanic Americans (27 percent) were somewhat more likely than white Nebraskans (23 percent) to report heights and weights that placed them in the obese category; but rural and urban differences were small.



Physical inactivity, however, was somewhat more prevalent in rural Nebraska (23 percent) than in the six urban counties (21 percent). Hispanic Americans in the state (38 percent) were nearly twice as likely to report no participation in leisure-time physical activity as white residents (20 percent) were (Figure 10). Physical inactivity was more common among Hispanic Americans living in urban counties (43 percent) than among those living in rural areas (34 percent).



### Factors Contributing to Rural/Urban Disparities

Modest weight loss, healthy eating and exercise can largely prevent Type 2 diabetes among persons who are at risk for developing the disease. Obesity and physical inactivity are frequently more prevalent in rural areas, leading to increasing incidence of diabetes.

In addition, rural residents with diabetes are at greater risk of complications from this disease because they are less likely to get needed help in managing their condition. According to the *Rural Healthy People 2010* report, rural Medicare recipients with diabetes are less likely to visit a doctor than their urban counterparts. In addition, fewer of these patients have insurance coverage for needed medications. Rural residents are also more likely to rely on home health care visits than to visit the doctor's office.

Persons in rural areas are disadvantaged because of the lack of nearby health care providers who are knowledgeable about diabetes. When they do see a doctor, it is more likely to be a generalist than a physician specializing in treatment of diabetes. Persons with diabetes who live in rural areas tend to be diagnosed later and also may not receive needed screening for potential complications. For example, fewer rural residents with this disease receive an ophthalmic examination, which can detect early signs of diabetic retinopathy.



## HEART DISEASE AND STROKE

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#12-1	Coronary heart disease death rate per 100,000	2002	124.8	123.1	124.3	98.5	166
	White	1998-2002	134.6	133.3	134.6	121.5	166
	African American	1998-2002	157.4	141.5	141.8	121.5	166
	Native American	1998-2002	298.7	197.8	263.1	121.5	166
	Asian American	1998-2002	*	105.8	83.4	84.6	166
	Hispanic American	1998-2002	77.1	84.7	81.0	67.8	166
#12-7	Stroke death rate per 100,000	2002	57.3	50.9	54.9	47.4	48
	White	1998-2002	57.5	56.6	57.1	45.3	48
	African American	1998-2002	*	89.9	89.5	47.4	48
	Native American	1998-2002	61.2	99.5	73.6	47.4	48
	Asian American	1998-2002	70.2	57.8	60.4	32.7	48
	Hispanic American	1998-2002	37.6	39.1	38.4	22.3	48
#12-9	Percent of adults w/high blood pressure (age 18+)—among those who ever had it checked	2002	24	21	23	16	16
	White	2002	25	21	23	16	16
	Hispanic American	2002	13	10	12	16	16
#12-12	Percent of adults who had BP check in past 2 years (and can state if it is high or low)--age 18+	2002	94	95	95	97	95
	White	2002	94	95	95	97	95
	Hispanic American	2002	92	91	92	97	95
#12-15	Percent of adults (age 18+) who had blood cholesterol level checked in last 5 years	2002	65	64	65	80	80
	White	2002	66	67	66	80	80
	Hispanic American	2002	52	51	51	80	80

\*Mortality rate based on fewer than five deaths.

### Health Impact

Heart disease ranks first among the leading causes of death in the United States and in Nebraska. Cerebrovascular disease (stroke) ranks third nationwide and in Nebraska. Altogether, cardiovascular diseases account for about 950,000 deaths each year--about 40 percent of all deaths nationwide. In 2002, heart disease (all forms) was the cause of 4,235 deaths in Nebraska, while cerebrovascular disease resulted in 1,102 deaths in the state.

Mortality rates for coronary heart disease have declined significantly since the mid-1960's when rates were highest. In fact, the mortality rate has dropped by nearly 50 percent in the last two decades. Mortality rates for stroke have also fallen considerably, decreasing by more than 70 percent since 1950 (although most of this decline occurred prior to 1990). Advances in therapy and technology (e.g., new drugs, coronary angioplasty, bypass surgery) were the cause of much of the improvement in death rates, rather than disease prevention through lifestyle changes.

According to the National Center for Chronic Disease Prevention and Health Promotion, about 60 million Americans currently live with cardiovascular disease. Coronary heart disease is also a leading cause of premature, permanent disability in the United States and more than one million Americans have disability due to stroke. Cardiovascular disease accounts for almost six million hospitalizations each year--more than any other condition.

Substantial proportions of the population have one or more risk factors for cardiovascular disease, such as smoking, high blood pressure, elevated blood cholesterol levels, obesity, and physical inactivity.

Overall, the cost of heart disease and stroke in the United States is projected to be \$351 billion in 2003 (including health care costs and lost productivity from death and disability). The economic impact of these conditions is expected to continue growing as the population ages.

### **Healthy People 2010 Goal**

The national HP 2010 goal for heart disease and stroke is to “improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.”

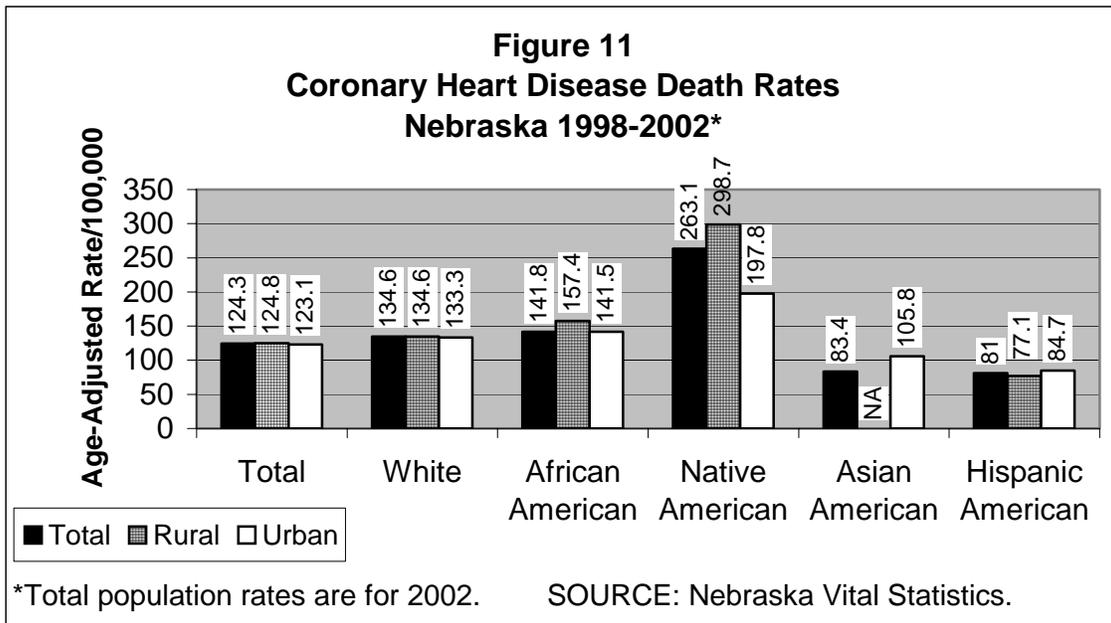
### **Rural/Urban Disparities**

#### **Incidence/Prevalence of Heart Disease and Stroke**

Self-reported data from the 1996 National Health Interview Survey show that heart disease was 1.34 times more prevalent in rural areas (non-MSAs) than in MSAs (98.8 vs. 72.6 per 1,000 persons). Prevalence of cerebrovascular disease was 1.45 times higher in non-MSAs than in MSAs (15.1 vs. 10.4 per 1,000), according to this survey. Prevalence data for heart disease and cerebrovascular disease are not available for Nebraska.

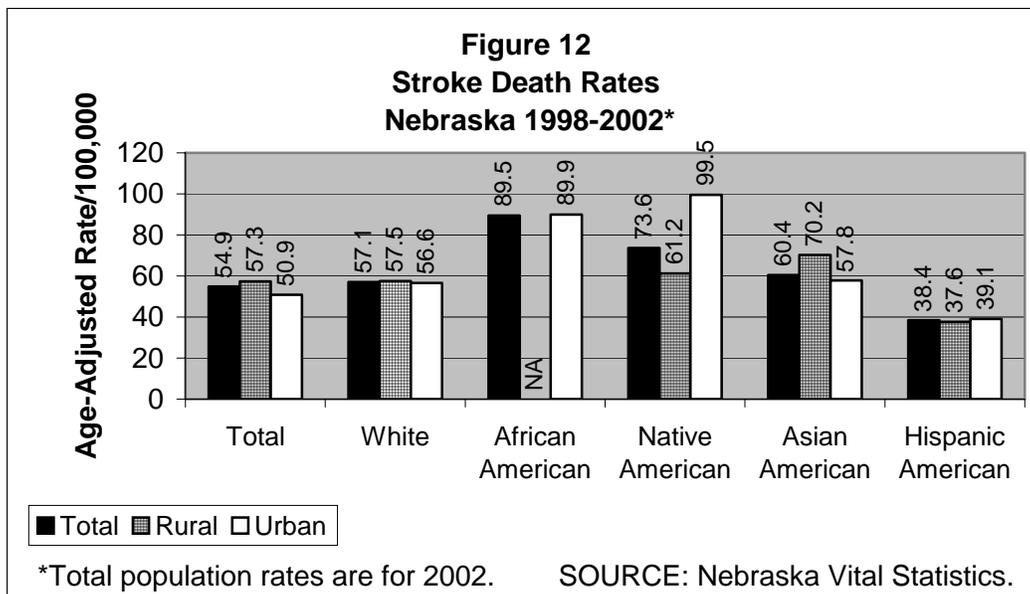
#### **Mortality Due to Heart Disease and Stroke**

In Nebraska, coronary heart disease death rates for 2002 (Figure 11) were very similar in rural (124.8 deaths per 100,000 population) and urban counties (123.1). However Native Americans, particularly those living in rural areas (298.7), experienced much higher mortality rates due to coronary heart disease than other racial/ethnic groups in Nebraska in 1998-2002.



The 2010 objectives for coronary heart disease death rates in Nebraska are presented in the table at the beginning of this section. A rate of no more than 98.5 deaths per 100,000 population has been targeted overall, with a target rate of 121.5 set for whites, African Americans and Native Americans in the state. Target rates are lower for Asian Americans and Hispanic Americans in Nebraska.

For deaths due to stroke, the difference in rural and urban rates was greater than the differences in coronary heart disease death rates (Figure 12). In rural Nebraska, there were 57.3 deaths per 100,000 due to stroke, compared to only 50.9 in urban counties in 2002.

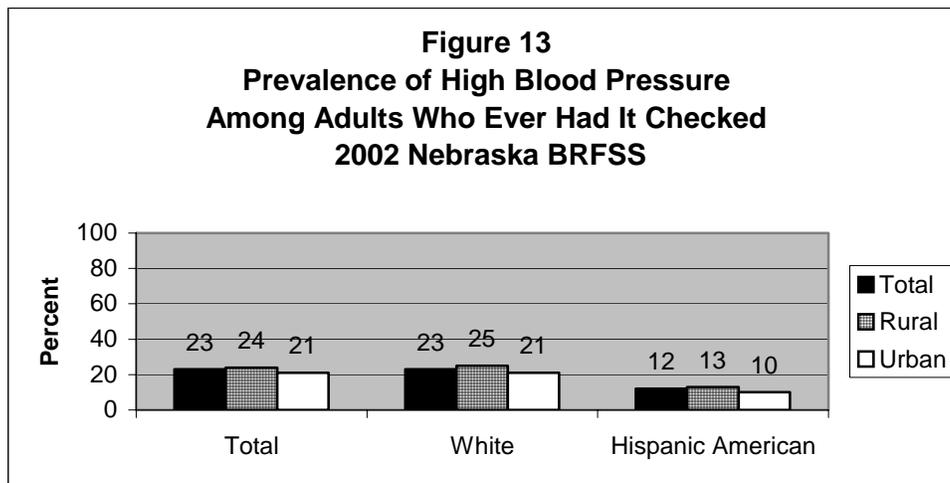


The overall Nebraska 2010 objective for stroke deaths is to reduce the rate to no more than 47.4. The same target rate has been set for African Americans and Native Americans, while a slightly lower target has been adopted for white Nebraskans (45.3). Much lower rates were set for Asian Americans (32.7) and Hispanic Americans (22.3).

### Prevalence of Risk Factors for Heart Disease and Stroke

Certain risk factors for coronary heart disease and stroke are also more prevalent in rural areas than in urban counties. According to the 1996 National Health Interview Survey, hypertension was more prevalent in rural (128.8 per 1,000 population) than in urban (101.3 per 1,000) areas. In Nebraska, 2002 BRFSS data show similar results (Figure 13). A somewhat greater proportion of the rural population aged 18 and older have ever been told by a health professional that they have high blood pressure (24 percent), compared to 21 percent of urban residents.

The Nebraska 2010 objective is to reduce to no more than 16 percent the proportion of adults who were told they have high blood pressure.



Screening for high blood pressure and for elevated blood cholesterol levels is important in identifying persons at increased risk for cardiovascular disease so that lifestyle modifications and treatment can be initiated. In Nebraska, there was very little difference between rural (94 percent) and urban (95 percent) areas in the proportion of adults who have had their blood pressure checked within the past two years, according to the 2002 BRFSS. Fewer adults reported having their cholesterol level checked within the last five years (65 percent), but there was almost no difference between the proportions of adults having this screening done in rural versus urban areas of the state.

Nebraska 2010 targets for screening are: (1) to increase to 97 percent the proportion of adults who had their blood pressure checked in the past two years; and (2) to increase to at least 80 percent the proportion of adults who had their blood cholesterol level checked in the past five years.

### Factors Contributing to Rural/Urban Disparities

According to *Rural Healthy People 2010*, research has found that rural populations tend to have certain attitudes or behaviors that contribute to a heightened risk of coronary heart disease and

stroke. Rate of lifestyle change, individuals' perceptions of cardiovascular disease risk, and attitudes and practices of health care providers all may increase the disparities in the risk of morbidity and mortality from these conditions between rural and urban populations.

People in rural areas often do not adopt changes in behaviors as rapidly as do those in urban areas. Recent studies suggest that risk behaviors such as smoking, high-fat diets, and physical inactivity may take longer to become established in rural areas. However, once they have become part of rural lifestyles, they are reversed at a slower rate than in urban areas.

Socioeconomic status may also contribute to higher rates of cardiovascular disease in rural areas. Lower household incomes and educational levels (population characteristics that are often more common in rural areas) are generally associated with higher prevalence of heart disease risk factors such as cigarette smoking, poor nutrition, and sedentary lifestyles.

Differences in perception of risk of cardiovascular disease may also contribute to disparities between rural and urban areas. For example, older rural women are less likely than their urban counterparts to consider themselves at risk for heart disease and stroke. As a result, they are not as likely to participate in prevention efforts such as screening for risk factors.

Attitudes of health care providers toward patients in rural areas also can affect the medical care they receive. A recent survey of physicians found that heart disease patients who had reduced access to services would be less likely than other heart patients to be referred to a cardiologist or to receive a particular test that was appropriate to their condition.

Since population densities are lower in rural areas, lack of potential users of some specialized health care services make it less likely that these services will be located within reasonable driving distances for many rural residents. This results in service gaps and lack of access to some types of care (such as cardiac rehabilitation services) for persons living in sparsely populated rural areas. Unavailability of new technology, lack of specialists in cardiovascular disease, and lack of Advanced Cardiac Life Support (ACLS) training may be factors affecting cardiovascular health in rural areas. Low patient volume for some procedures may also result in poorer outcomes in rural areas.



## IMMUNIZATION AND INFECTIOUS DISEASES

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#14-29a	Percent of adults aged 65+ who were vaccinated against influenza in the past 12 months	2002	69	67	68	90	90

### Health Impact

Infectious diseases have become an issue of global importance. Experts cite a number of factors that have increased the possibility of outbreaks of infectious disease becoming widespread rather than remaining contained in a relatively small area. Increases in international travel and commerce, increased immigration, and more frequent contact with environments where infectious diseases continue to be leading causes of death all make it imperative that full immunization coverage be achieved in the United States and worldwide.

The widespread use of vaccines has proven very effective in reducing the incidence of many infectious diseases in the United States. However, one-fourth of all visits to physicians in this country are currently related to infectious disease, generating costs of more than \$120 billion each year.

Pneumonia and influenza together made up the seventh leading cause of death in the United States in 2001, accounting for 62,034 deaths. In Nebraska, pneumonia and influenza were the cause of 414 deaths in 2002.

Influenza vaccinations (“flu shots”) can prevent up to 70 percent of hospitalizations and 85 percent of deaths from influenza-related pneumonia. Childhood vaccinations are one of the most effective kinds of preventive medicine. The Centers for Disease Control and Prevention (CDC) estimate that \$14 to \$25 in health care costs are saved for every dollar spent on immunizations (based on 1995 data).

### Healthy People 2010 Goal

The national Healthy People 2010 goal is to prevent disease, death, and disability from infectious diseases.

### Rural/Urban Disparities

Over the past 50 years, routine vaccinations have dramatically reduced rates of illness and death due to vaccine-preventable diseases among children. Vaccination coverage levels for school-aged children (five- and six-year-olds) have exceeded 95 percent each year since 1980 due to state-mandated completion of a basic immunization series by the time children enter school.

For infants and toddlers, however, vaccination coverage levels have been much lower and improvement is needed. Overall, 74.8 percent of American children aged 19 to 35 months had received the recommended number of the basic universal 4:3:1:3:3 immunization series in

2002. This series includes: four or more doses of diphtheria-tetanus-pertussis vaccine, three or more doses of poliovirus vaccines, one or more doses of any measles-containing vaccine, three or more doses of Haemophilus influenzae type b (Hib) vaccine, and three or more doses of Hepatitis B vaccine. The national Healthy People 2010 objective is to increase this proportion to at least 80 percent.

CDC's 2002 National Immunization Survey found low rates in both rural and urban areas across the United States. For children aged 19 to 35 months, this study reported the lowest immunization rates in metropolitan areas with a central city (urban areas) followed by non-MSA's (rural areas). Suburban areas reported the highest rates of immunization for this age group.

In Nebraska, 78.2 percent of the children between the ages of 19 and 35 months had received the 4:3:1:3:3 immunization series in 2002. No data are available for rural versus urban areas in the state.

Nationwide, 90 percent of deaths from influenza and 80 percent of deaths from pneumococcal infections occur in persons 65 and older. For persons in this age group, 66 percent have been vaccinated for influenza in the past 12 months and 55 percent have ever been vaccinated for pneumonia.

According to the national *Rural Healthy People 2010* report, pneumonia and influenza vaccination rates among persons age 65 and older are comparable between rural and urban areas. However, studies found that disparities in rates between racial groups appear to be greater in rural than in urban areas.

In Nebraska, influenza vaccination rates among persons aged 65 and older were similar in rural (69 percent) and urban (67 percent) areas of the state. The Nebraska 2010 objective is to increase to at least 90 percent the proportion of adults in this age group who have received a "flu shot" in the past 12 months.

### **Factors Contributing to Rural/Urban Disparities**

Although rural and urban immunization rates appear to be quite similar nationally, rates in both rural and urban areas are below Healthy People 2010 goals. Factors that contribute to low immunization rates include: poverty, racial/ethnic minority status, having a parent with a low level of education, and being a member of a large family. Other barriers are: the cost of immunization, lack of insurance coverage, late initiation of the immunization series, parental lack of awareness of the child's immunization status, missed opportunities for vaccination during clinic visits, and record problems resulting from visits to multiple providers. The national Rural HP 2010 report also states that rural residents are more likely than urban residents to be poor, less educated, lack health insurance, and have longer travel times to health care providers – all of which are factors associated with lower immunization rates.

In addition, the demand placed on health care resources related to influenza and pneumonia may be greater in rural areas where the elderly comprise a larger share of the total population and access to high quality health care may be more of a problem.

## INJURY AND VIOLENCE PREVENTION

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#15-13	Unintentional injury death rate per 100,000 population	2002	50.6	33.0	41.0	19.4	17.5
	White	1998-2002	46.4	30.5	38.2	19.4	17.5
	African American	1998-2002	*	23.7	23.8	19.4	17.5
	Native American	1998-2002	131.9	68.6	107.7	19.4	17.5
	Asian American	1998-2002	45.5	25.9	32.3	7.5	17.5
	Hispanic American	1998-2002	47.8	25.5	37.2	19.4	17.5
#15-15a	Death rate due to motor vehicle crashes per 100,000 population	2002	27.1	11.6	18.8	12.0	9.2
	White	1998-2002	25.4	11.4	18.2	12.0	9.2
	African American	1998-2002	*	10.2	10.8	12.0	9.2
	Native American	1998-2002	62.1	12.9	43.6	12.0	9.2
	Asian American	1998-2002	*	17.1	16.4	4.0	9.2
	Hispanic American	1998-2002	25.7	13.0	19.1	12.0	9.2
#15-19	Percent of adults aged 18+ who "always" or "nearly always" used safety belts when riding in or driving a motor vehicle	2002	77	86	81	92	92
	White	2002	77	86	82	92	92
	Hispanic American	2002	73	86	80	92	92

\*Mortality rate based on fewer than five deaths.

### Health Impact

One in every 17 deaths in the United States is due to injury. The risk of injury is so great that most people have a significant injury at some time in their lives. People tend to see these injuries as happening as a result of unpreventable "accidents", when in fact most injuries are predictable and preventable. In addition to the deaths resulting from injuries, millions more people are incapacitated by them, with many suffering lifelong disabilities.

Two-thirds of fatal injuries in the United States are unintentional, with the remaining one-third intentional. Although there is some overlap between intentional and unintentional injuries, in this report and in the national Rural 2010 report, unintentional injuries include those related to traffic, occupational and work-related injuries, falls, fires, drowning, poisoning, and firearms. Intentional injuries are incurred as a result of interpersonal violence, such as assaults. Homicides and suicides are considered intentional injury deaths.

In 2001, unintentional injuries were the fifth leading cause of death in the United States for all age groups combined. They were the leading cause of death for children aged one to four years and for young adults aged 25 to 34 years. In Nebraska, unintentional injuries resulted in 754 deaths in 2002, also ranking fifth among leading causes of death. These injuries were the leading cause of death for persons aged one through 19 years and for males aged 20 through 44 years in the state.

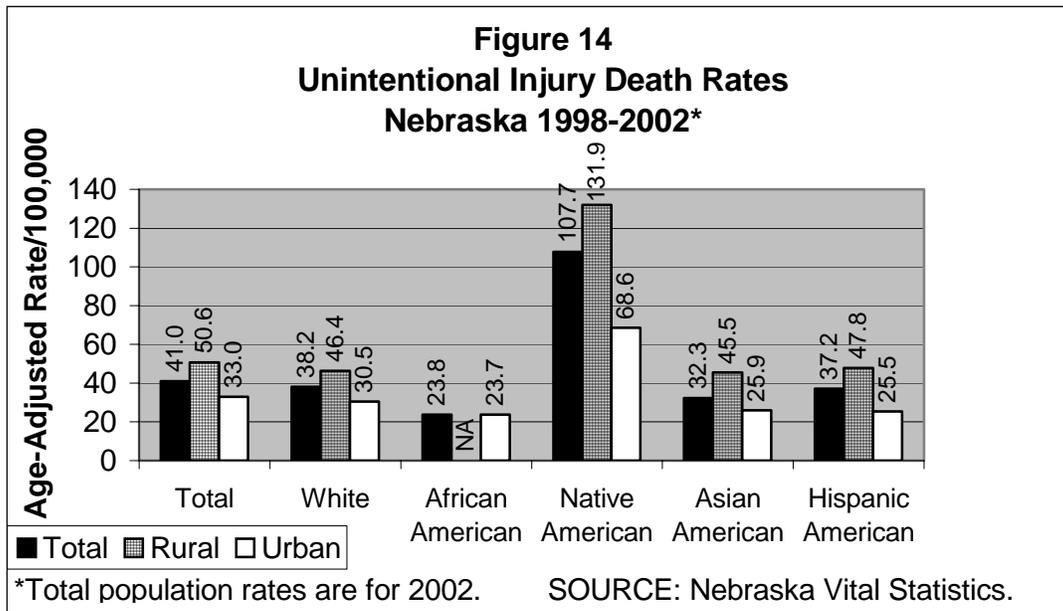
The economic cost of injuries in the United States (including direct medical care and rehabilitation plus lost income and productivity) is estimated to be more than \$224 billion each year.

### Healthy People 2010 Goal

The national Healthy People 2010 goal is to reduce injuries, disabilities, and deaths due to unintentional injuries and violence.

### Rural/Urban Disparities

In 2002, the unintentional injury death rate in rural Nebraska (50.6 deaths per 100,000 population) was 53 percent higher than the rate in urban areas of the state (33.0 per 100,000). Similar rural-urban disparities existed for each racial/ethnic group in the state, except African Americans where numbers in the rural areas were too small for comparison (Figure 14). Unintentional injury death rates for Native Americans were particularly high, with 131.9 deaths per 100,000 in rural Nebraska and 68.6 deaths per 100,000 in urban areas of the state in 1998-2002.



The Nebraska 2010 objective is to reduce the rate of unintentional injury deaths to no more than 19.4 per 100,000 overall and for all racial and ethnic groups except Asian Americans. The target rate for Asian Americans was set much lower (at no more than 7.5 deaths per 100,000), since the baseline rate at that time was already lower than the overall objective for unintentional injury deaths.

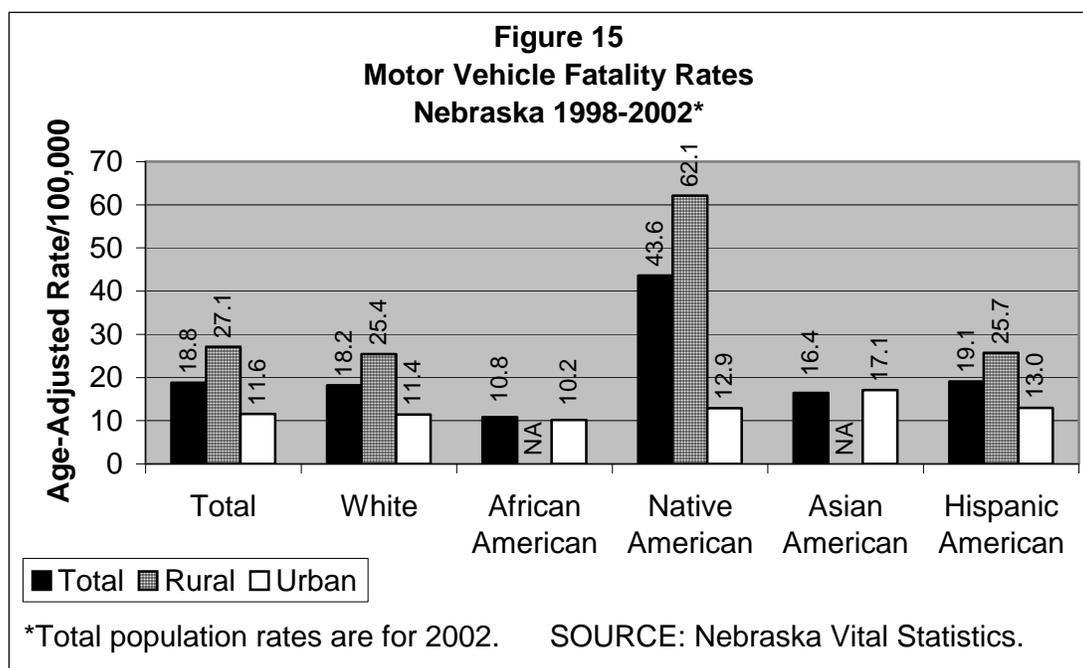
### Motor Vehicle Injuries

Deaths due to motor vehicle-related injuries are the leading cause of unintentional injuries nationwide and in Nebraska. Higher motor vehicle fatality rates are found in rural areas than in urban ones. The National Highway Traffic Safety Administration's Fatal Accident Reporting

System (FARS) found that, between 1979 and 1996, the rural motor vehicle crash death rate (58.1 deaths per 100,000 population) was higher than the urban rate (41.9).

The use of all-terrain vehicles (ATV's) is also a contributor to unintentional injuries and deaths, especially in rural areas of the United States. Rural residents and farmers are more likely than urban residents to have ridden an ATV in the last year. ATV's are used for work-related activities on farms, but they are also used frequently for recreation, where injuries are more likely to occur. According to CDC, children under 16 years of age account for more than one-third of ATV-related deaths in the United States each year.

In Nebraska, the motor vehicle fatality rate was 27.1 deaths per 100,000 in rural areas—2.3 times the rate in urban areas (Figure 15). Similar disparities were found in rates for whites and for Hispanic Nebraskans. Among Native Americans, the fatality rate in rural counties combined was 62.1, compared to 12.9 in urban counties.



In Nebraska, the 2010 objective for motor vehicle-related deaths was set at no more than 12.0 deaths per 100,000 population for all groups except Asian Americans. For Asian Americans, the target rate is no more than 4.0 deaths per 100,000, due to a lower baseline rate.

### Occupational Injuries

In 2001, there were 4.3 occupational deaths per 100,000 in the United States (excluding the September 11, 2001 fatalities). The highest occupational fatality rates occur among workers in the mining, agriculture, forestry, and fishing industries.

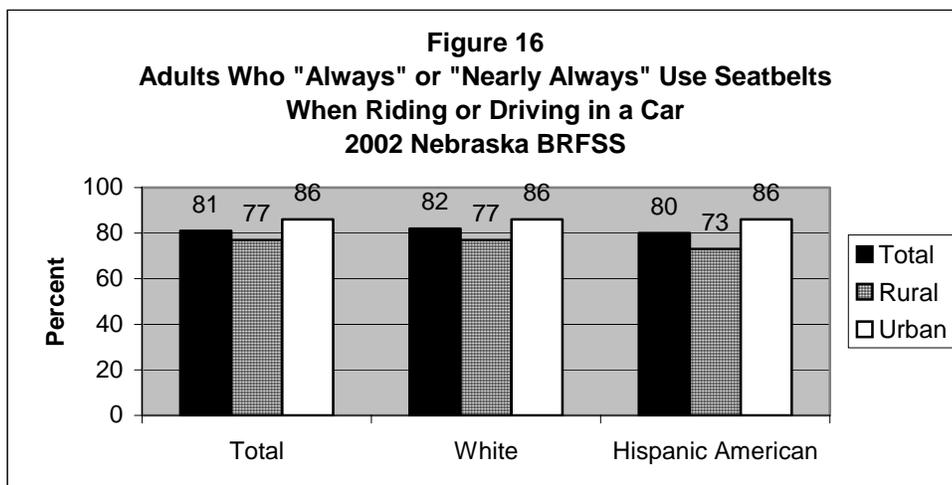
Occupational injury death rates in agriculture are primarily due to motor vehicle incidents or farm machinery accidents. Pesticide and herbicide exposures are another common occupational hazard. Youth aged 15 to 19 working in agriculture account for a disproportionate share of deaths. They make up only eight percent of the population, but account for 40 percent of work-related deaths in agriculture.

In 2002, there were 20 farm fatalities in Nebraska resulting from injuries. Nine of them resulted from tractor or machinery accidents. Persons aged 60 years or older accounted for one-half of the farm fatalities recorded in 2002.

### Factors Contributing to Rural/Urban Disparities

Failure to use safety belts is an important factor contributing to unintentional injuries and deaths. Farm residents have been found to be less likely than residents of metropolitan areas to regularly wear safety belts.

In Nebraska, adult respondents to the 2002 BRFSS who lived in rural counties (77 percent) were less likely than residents of urban counties (86 percent) to report “always” or “nearly always” using their safety belt while riding in or driving a motor vehicle (Figure 16). The Nebraska 2010 objective for safety belt usage matches the national objective that seeks to increase to at least 92 percent the proportion of adults who “always” or “nearly always” wear their safety belts.



Time of driving (dusk, dawn, or night) and delayed discovery and reporting of accidents in rural areas also affect unintentional injury and death rates. Rural areas are less likely to have trauma systems or trauma centers. They are also less likely to have health professionals who are experienced in treating major trauma. Greater travel distances in rural areas also mean that residents probably spend more time on the road and therefore at risk of injury. These greater travel distances also tend to have a negative effect on outcomes of motor vehicle injury accidents.

High-risk occupations, particularly those related to agriculture, are more common in rural areas leading to higher occupational injury and death rates in these settings. The Economic Research Service of the United States Department of Agriculture states that the proportion of farmers aged 55 and older increased from 37 percent in 1954 to 61 percent in 1997. The average age of farmers in 1997 was 54.3 years. Advanced age may present additional risk for injury among rural residents in high-risk occupations. According to the National Ag Safety Database, farmers become more susceptible to work-related injuries as they move into their 60's. However, age-related sensory and physical impairments occur among farmers at various rates. Eyesight, hearing, balance, muscle strength, and reaction time may remain good for some individuals who are beyond age 65, while becoming significantly poorer in others.

## MATERNAL, INFANT, AND CHILD HEALTH

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#16-1c	Infant mortality rate per 1,000 live births	1998-2002	6.7	7.2	7.0	4.5	4.5
	White	1998-2002	6.6	6.1	6.3	4.5	4.5
	African American	1998-2002	*	17.8	18.0	4.5	4.5
	Native American	1998-2002	10.2	19.6	13.6	4.5	4.5
	Asian American	1998-2002	*	4.6	5.0	4.5	4.5
	Hispanic American	1998-2002	7.0	7.4	7.2	4.5	4.5
#16-1d	Neonatal death rate (w/in first 28 days of life) per 1,000 live births	1998-2002	4.2	5.1	4.7	2.9	2.9
	White	1998-2002	4.2	4.4	4.3	2.9	2.9
	African American	1998-2002	*	12.0	12.0	2.9	2.9
	Native American	1998-2002	5.1	10.4	7.0	2.9	2.9
	Asian American	1998-2002	*	3.2	3.9	2.9	2.9
	Hispanic American	1998-2002	4.3	5.8	5.1	2.9	2.9
#16-1e	Postneonatal death rate (between 28 days and one year) per 1,000 live births	1998-2002	2.5	2.1	2.3	1.2	1.2
	White	1998-2002	2.5	1.6	2.0	1.2	1.2
	African American	1998-2002	*	5.8	6.0	1.2	1.2
	Native American	1998-2002	5.1	9.1	6.6	1.2	1.2
	Asian American	1998-2002	*	*	*	1.2	1.2
	Hispanic American	1998-2002	2.7	1.6	2.1	1.2	1.2
#16-6a	Percent of pregnant women who begin prenatal care in the first trimester of pregnancy	2002	82.7	83.4	83.1	90	90
	White	2002	83.9	85.3	84.7	90	90
	African American	2002	63.8	69.7	69.5	90	90
	Native American	2002	66.4	59.9	64.0	90	90
	Asian American	2002	68.8	87.3	84.8	90	90
	Hispanic American	2002	67.6	70.0	68.9	90	90
#16-6b	Percent of pregnant women who receive early and adequate prenatal care (as measured by the Kotelchuck Index)	2002	74.3	73.7	73.9	90	90
	White	2002	75.4	75.7	75.6	90	90
	African American	2002	66.0	59.8	60.0	90	90
	Native American	2002	50.8	49.0	50.1	90	90
	Asian American	2002	71.4	73.2	72.9	90	90
	Hispanic American	2002	61.8	63.1	62.5	90	90
#16-17c	Percent of women who smoked cigarettes during pregnancy	2002	16.4	12.6	14.1	2	1

\*Mortality rate based on fewer than five deaths.

## Health Impact

The health of mothers, infants, and children is of critical importance since they represent a substantial proportion of the population of the United States. Their health is also important as a predictor of the health of the next generation of Americans.

### Healthy People 2010 Goal

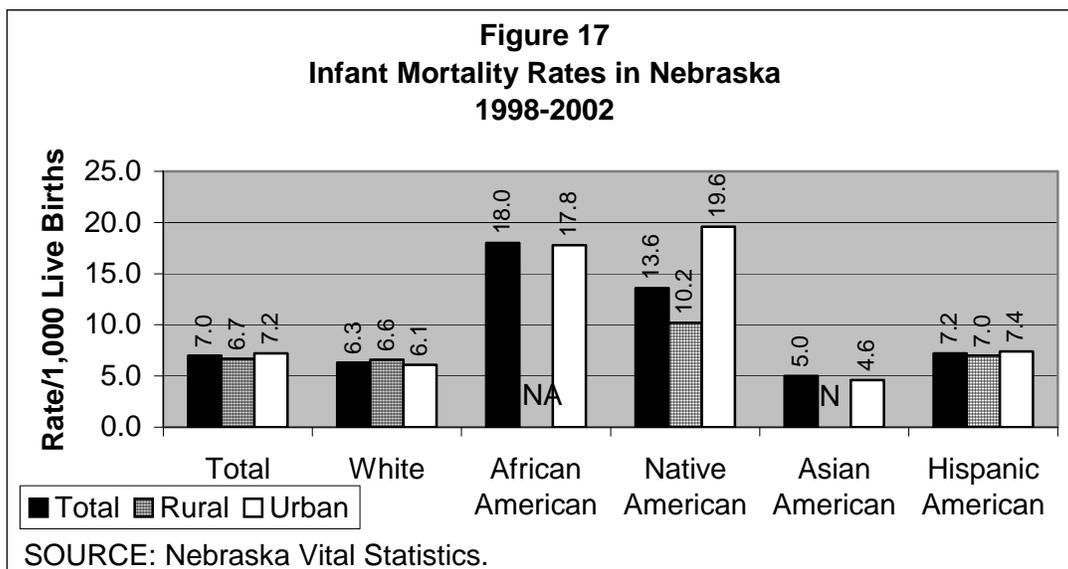
The national Healthy People 2010 goal is to improve the health and wellbeing of women, infants, children, and families throughout the nation.

### Rural/Urban Disparities

#### Infant Mortality

In addition to the impact it has on individuals and families, infant mortality is an important measure of a population's health and an indicator of social wellbeing. It reflects the overall state of maternal health and the quality and accessibility of primary health care that is available to pregnant women and infants. Among industrialized nations, the United States ranked 28<sup>th</sup> in infant mortality in 1998, with a rate of 7.2 infant deaths per 1,000 live births.

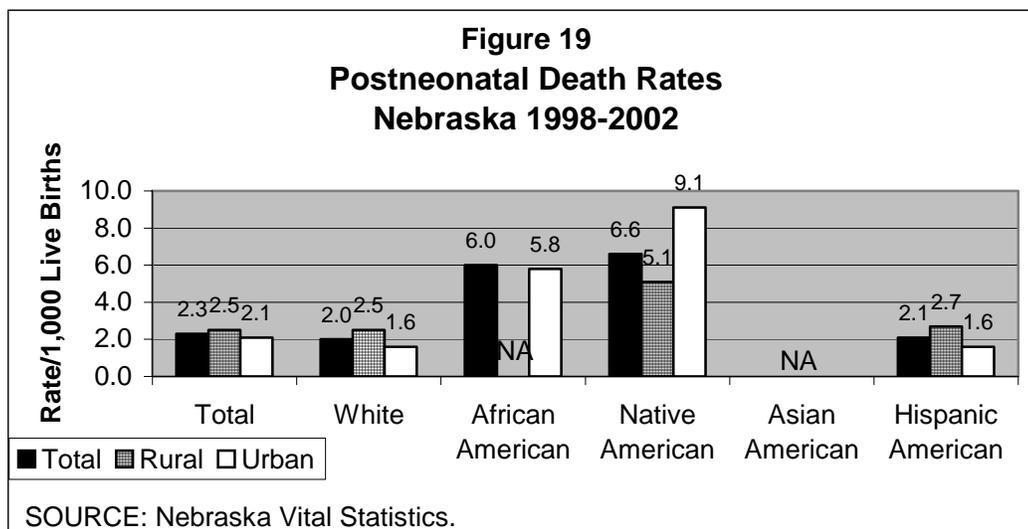
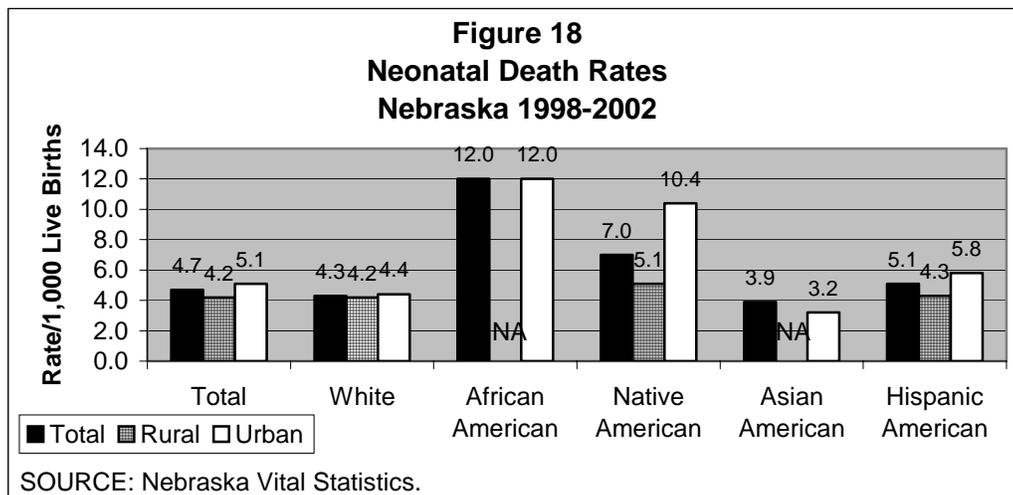
In Nebraska, there was an average of 7.0 infant deaths per 1,000 live births during the five-year period 1998-2002 (Figure 17). The infant mortality rate in urban counties was 7.2 per 1,000, compared to 6.7 in rural counties of the state. Among African Americans (18.0) the overall infant mortality rate was nearly triple the rate for white infants (6.3). For Native Americans (13.6), the overall rate was more than double the white rate. Although both rural and urban infant mortality rates were high for Native Americans, the rate for urban babies (19.6) was nearly double the rate for rural babies (10.2).



Neonatal deaths are infant deaths occurring within the first 28 days of life. They frequently are the result of congenital anomalies, prematurity, or complications of pregnancy or delivery. Postneonatal deaths are those occurring between 29 days and one year of age and are more

often caused by infectious diseases or injuries. In the United States, about two-thirds of all infant deaths in 2000 occurred during the neonatal period (4.6 neonatal infant deaths per 1,000 live births) and one-third during the postneonatal period (2.3 per 1,000). In Nebraska as well, the neonatal death rate in 1998-2002 (4.7) was about twice as high as the postneonatal death rate (2.3).

In general, low and very low birth weight rates and neonatal death rates are slightly lower in rural residents of the United States, while postneonatal death rates are somewhat higher in rural areas. In Nebraska, neonatal death rates were slightly lower in rural areas (4.2) compared to urban counties (5.1) (Figure 18). The reverse was true for postneonatal infant deaths, with the rural rate (2.5) a little higher than the urban rate (2.1). The postneonatal death rate for Native Americans in the state exceeded the corresponding rates for infants of other race/ethnicity, both in rural and urban areas (Figure 19).



The national and the Nebraska 2010 objectives for infant mortality rates are identical: to reduce the infant mortality rate to no more than 4.5 infant deaths per 1,000 live births. Neonatal death

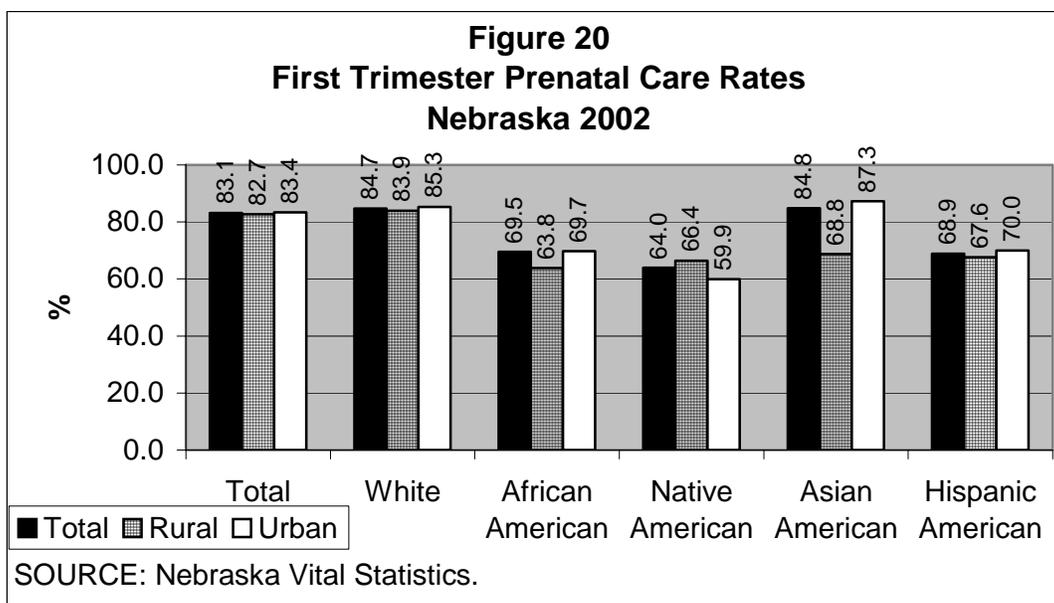
rates are to be reduced to 2.9 deaths per 1,000 and postneonatal death rates to 1.2 per 1,000 live births.

### Prenatal Care

Early and continuing prenatal care is essential to the health and wellbeing of both infant and mother. Prenatal care provides early and continuous risk assessment, health education, and medical and psychological intervention—all of which contribute to improved outcomes for both mother and child. In general, women who receive early and comprehensive prenatal care are less likely to have pre-term or low birth-weight infants.

However, in 2002, 16.3 percent of pregnant women in the United States did not begin receiving prenatal care in the first trimester of pregnancy and 3.6 percent delayed getting prenatal care until the third trimester or did not receive care at all.

In Nebraska, 83.1 percent of mothers in 2002 began receiving prenatal care in the first three months of pregnancy (Figure 20). White (84.7 percent) and Asian American (84.8 percent) mothers were much more likely than Native American (64.0 percent), Hispanic American (68.9 percent), or African American (69.5 percent) mothers to receive first trimester prenatal care.



Overall, differences in prenatal care rates between rural and urban areas of the state were very small. Still, there were some disparities between rural and urban rates for specific racial and ethnic groups. Native Americans in rural counties (66.4 percent) were somewhat more likely to receive first trimester care than were those living in urban counties (59.9 percent). On the other hand (based on 77 rural Asian American mothers), rural Asian women (68.8 percent) were much less likely than their urban counterparts (87.3 percent) to receive first trimester care. Hispanic American mothers in rural areas of Nebraska (67.6 percent) were slightly less likely than urban mothers (70.0 percent) to begin receiving care in the first three months of pregnancy. (The number of African American women giving birth in 2002 was small in rural areas, compared to the number in urban counties.)

The Adequacy of Prenatal Care Utilization Index (i.e., the Kotelchuck Index) combines the month of pregnancy when prenatal care began with the number of prenatal visits. The national *Rural Healthy People 2010* report states that, based on this index, significantly more nonmetropolitan women (16.8 percent) receive inadequate prenatal care compared to metropolitan women (12.5 percent).

In Nebraska, there was very little in difference in rates of early and adequate prenatal care between rural and urban areas in 2002, based on the Kotelchuck Index. In rural areas, 74.3 percent of pregnant women received early and adequate care, compared to 73.7 percent in urban areas. Rural/urban differences in these rates for racial and ethnic groups were generally small as well.

National and Nebraska 2010 objectives are to increase to at least 90 percent the proportion of women beginning prenatal care in the first trimester of pregnancy and to increase to at least 90 percent the proportion of women receiving early and adequate prenatal care (based on the Kotelchuck Index).

### **Obstetrical Care**

Pregnant women who live in rural areas with few obstetric services in their communities often must choose to go outside the community to deliver their babies. Higher rates of pre-term births, infant mortality, and delivery complications are reported in rural areas where prenatal and obstetrical care are not available locally.

Another recent study compares the use of high-technology services for pregnant women in rural versus urban communities. Results of this study showed that, among high-risk pregnancies, urban women were two to three times more likely than rural women to deliver at facilities with high-tech capabilities.

### **Prevalence of Cigarette Smoking during Pregnancy**

While the number of women smoking during pregnancy has decreased nationwide and in Nebraska, U.S. birth certificate data in 1997 show that 13.2 percent of women giving birth that year reported that they smoked during pregnancy. In 2002, 14.1 percent of new mothers in Nebraska had smoked during their pregnancy.

The national *Rural Healthy People 2010* review of literature found studies indicating that rural women were more likely to smoke during pregnancy than urban women. In addition, recent reductions in smoking rates were greater among urban pregnant women than among their rural counterparts.

In Nebraska, 16.4 percent of rural women smoked during pregnancy in 2002, compared to 12.6 percent of urban pregnant women. The Nebraska 2010 objective is to reduce the proportion of pregnant women smoking during pregnancy to no more than two percent.

## **Factors Contributing to Rural/Urban Disparities**

### **Infant Mortality**

According to the national *Rural Healthy People 2010* report, several state-based studies reported higher rates of infant mortality among rural residents. However, there is evidence that

the effects of rural residence may be indirect rather than direct. That is, rural/urban disparities in infant mortality may be the result of differences in poverty rates, race and ethnicity, population age and educational attainment, and availability and/or access to health care services in rural versus urban areas.

### **Prenatal Care**

Despite a number of technological advancements in perinatal medicine, access to many of these services has deteriorated for pregnant women and their babies in rural areas of the United States. Few obstetricians are located in rural counties and many family practitioners have dropped obstetrics from their practices, frequently due to the high cost of medical malpractice insurance and fears of litigation. For women with high-risk pregnancies who need access to tertiary care, regionalized systems of care have led to some improvements in birth outcomes. However, regional variations in access to this kind of care remain a problem in many rural areas.

A variety of other factors also act as barriers to prenatal care for rural women. Lack of access to adequate health insurance is often a problem for rural women, along with greater distance and travel time to health care providers, transportation problems, and lack of childcare for larger rural families.

## MENTAL HEALTH AND MENTAL DISORDERS

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#18-1	Suicide rate per 100,000 population	2002	9.8	13.4	11.7	8.2	5.0
	White	1998-2002	11.9	12.0	11.9	8.2	5.0
	African American	1998-2002	*	7.5	7.7	8.2**	5.0
	Native American	1998-2002	12.5	*	8.6	8.2	5.0
	Asian American	1998-2002	--	4.9	4.1	2.1	5.0
	Hispanic American	1998-2002	5.3	5.2	5.3	4.7	5.0
#18-2	% of adolescents in grades 9-12 who made suicide attempt requiring medical attention in past 12 months Data by race/ethnicity unavailable	2001	1.4	NA	1.5	1.0	1.0

\*Mortality rate based on fewer than five deaths.

\*\*Nebraska 2010 Objective will be revised downward.

### Health Impact

Mental illness and mental disorders impact the lives of millions of Americans. Data from the World Health Organization, the World Bank, and Harvard University's Global Burden of Disease study, reveal that mental illness ranks second only to cardiovascular disease in the magnitude of disease burden in countries such as the United States. Mental disorders collectively account for more than 15 percent of the overall burden of disease from all causes, slightly more than the burden associated with all forms of cancer. By 2020, it is predicted that depression will be the single leading cause of disease burden in the United States.

Mental disorders are widespread in both rural and urban areas and affect about 20 percent of the population in a given year. Approximately one-half of the population experiences a mental disorder over a lifetime. Mental illness also contributes to or is a consequence of disabilities or other serious health-related conditions among vulnerable populations such as homeless persons, individuals who abuse alcohol or drugs, and families in which domestic violence and/or child abuse occurs. Major depression, particularly in combination with substance abuse, is a major risk factor for suicide. There is also evidence that depression, anxiety, and other psychosocial factors contribute to the development and progression of certain chronic diseases, such as heart disease and cancer.

### Healthy People 2010 Goal

The national Healthy People 2010 goal is to improve mental health and ensure access to appropriate, quality mental health services.

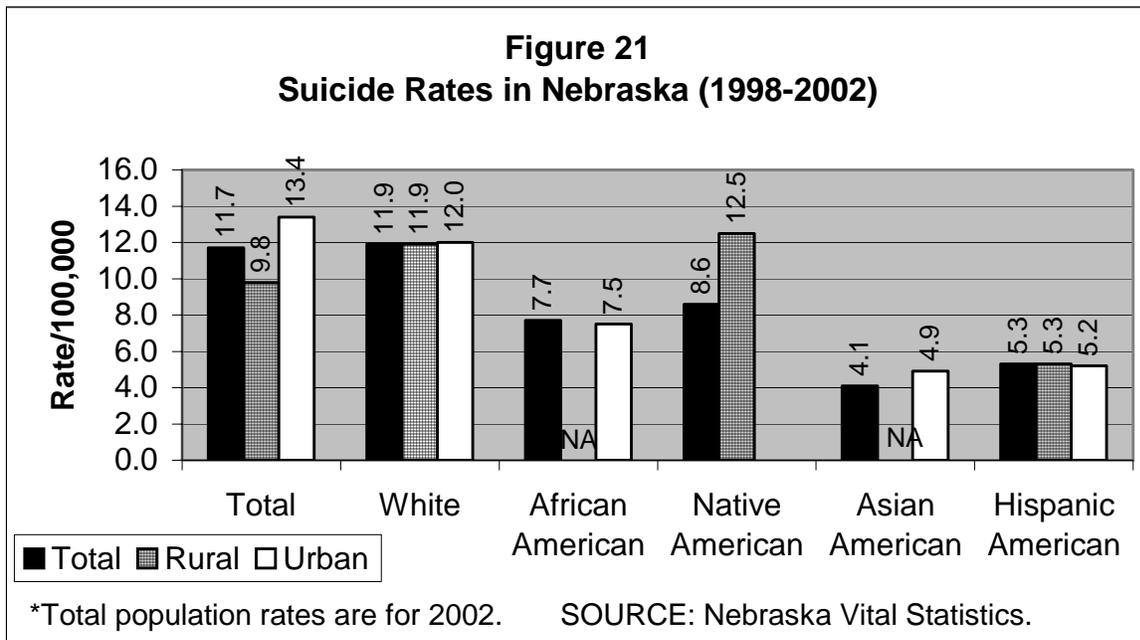
## Rural/Urban Disparities

### Prevalence of Mental Illness

According to the national *Rural Healthy People 2010* report, prevalence of lifetime and recent mental disorders appear to be similar in rural and urban areas. However, rural residents with mental illness may be less likely to say they need mental health care. They are also less likely to report experiencing three or more recent mental disorders.

### Suicides and Attempts

Higher suicide rates are also reported in rural areas, especially among adult males and children. More suicide attempts are also reported among depressed adults in rural areas than in urban areas. In Nebraska, the suicide rate was actually lower in the rural areas of the state (9.8 deaths per 100,000) than in the urban areas (13.4 per 100,000) in 2002 (Figure 21). For the five-year period 1998-2002, rates for white Nebraskans were nearly identical in rural (11.9) and urban (12.0) areas.



A target rate of no more than 8.2 suicides per 100,000 population has been set for whites, African Americans, and Native Americans in Nebraska by 2010. For Hispanic Americans and Asian Americans, lower target rates (4.7 and 2.1, respectively) have been adopted due to lower baseline suicide rates.

Based on 2001 Nebraska YRBS data, 1.4 percent of rural teens in grades 9 through 12 made a suicide attempt requiring medical attention in the 12 months preceding the survey. A Nebraska objective has been set to reduce this proportion to no more than 1.0 percent by 2010.

## Utilization of Mental Health Services

Rates of utilization of mental health services are generally lower in rural areas than in urban ones. For example, a recent three-year study in Maine found that rural Medicaid beneficiaries were less likely than urban ones to have an outpatient mental health visit in the past year. The disparity in inpatient mental health visits was even greater between rural and urban Medicaid patients. Similar results were found in a study of commercially insured patients. Still, a recent national study (Kessler et al, 2001) indicates that there is less unmet need for treatment of serious mental illness among rural populations.

Many rural areas have large proportions of elderly residents. These elderly adults tend to have difficulty in accessing mental health services. According to the *Rural Healthy People 2010* report, about 15 to 25 percent of non-institutionalized elderly suffer from mental disorders, but only two to four percent of mental health professionals' practice time is spent with elderly clients. Among nursing home residents, the picture is even bleaker, with two-thirds experiencing a mental disorder and less than five percent receiving treatment within a one-month period.

Several articles over the past decade report that rural adolescents also receive fewer mental health services than their urban counterparts. Rural areas are often disadvantaged in meeting the needs of children with serious mental health problems because of the scarcity of psychiatrists, particularly child psychiatrists, practicing in rural areas.

## Factors Contributing to Rural/Urban Disparities

According to the *Rural Healthy People 2010* report, a number of factors may contribute to mental disorders, to their consequences, or to failure to adequately treat these disorders. Stress is often associated with the appearance of mental disorders such as depression or anxiety. Stresses linked to economic hardship, such as the farm crisis of the 1980's or the loss of a major employer, can affect the mental health of rural populations. Stressful life events along with mental disorders and substance abuse are also among the risk factors for suicide.

The national *Rural Healthy People 2010* report states that three principal factors have been found to contribute to problems in treating mental illness in rural settings. First, there is often limited access to specialty mental health providers in rural areas. The provision of mental health services in these areas frequently depends on a collection of formal and informal care providers: primary care physicians, rural hospital and nursing home staff, school counselors, social workers, counselors, ministers, law enforcement personnel, self-help groups, family and friends, and possibly one or two specialty mental health providers.

Although the supply of specialty mental health professionals has increased overall during the 1990's, the increase in rural areas has been minimal. Nationwide, twenty percent of rural counties offer no mental health services, compared to only about five percent of metro area counties lacking these services. In 1999, 87 percent of the 1,669 federally-designated Mental Health Professional Shortage Areas (MHPSA's) in the United States were located in non-metropolitan counties with a total population of more than 30 million people. In Nebraska, as of 2003, 67 non-metropolitan counties (of the state's 93 counties) have been designated as Mental Health Professional Shortage Areas as of 2003.

Since mental health care providers are scarce in rural areas, patients are often required to travel long distances to obtain care. These distances to providers may account, in part, for the greater difficulties rural adults have in continuing to receive outpatient care over time. A recent study

has shown that greater travel distance to outpatient services (as found in rural areas) is associated with fewer mental health visits by adults and with a lesser likelihood of receiving care in accordance with treatment guidelines. Lack of adequate mental health services in rural areas may also delay entry into the mental health system until behavior is more serious and costs of treatment and lost productivity higher.

A second factor contributing to rural/urban disparities in mental illness treatment is the lack of sufficient mental health training, expertise, and coordination among mental health providers located in rural areas. Rural residents are more likely than urban dwellers to go to primary care practitioners for their mental health needs. Studies have found this to be especially true of the poor, the elderly, racial and ethnic minorities, problem drinkers, and the seriously mentally ill.

Rural residents may turn to primary care providers for mental health needs because of the scarcity of mental health professionals and/or because they perceive a stigma associated with going to see a mental health practitioner. However, primary care practitioners may have insufficient mental health training in medical school or residency and may have limited time for additional education needed for managing difficult cases. Primary care providers also may have heavy patient caseloads, short visits for patients, lack of time for counseling and lack of specialized backup.

In addition, there may be obstacles to primary care physicians making referrals, even when mental health professionals are available to see patients (such as concerns about patients' acceptance of the diagnoses or concerns regarding lack of communication with the mental health specialist and its effect on patient care). Some researchers have also found that primary care physicians may deliberately underdiagnose mental illness because of stigma, doubts about the patient's acceptance of a mental illness diagnosis, or concern for the patient's future insurability.

A third factor affecting treatment of mental illness in rural areas is the lack of anonymity in rural communities and the perceived social stigma associated with mental illness. These factors may make rural residents with mental health problems less likely to seek treatment.

## NUTRITION AND OVERWEIGHT

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective	
#19-2	Percent of adults aged 18+ who reported height and weight that placed them in the "obese" category according to the Body Mass Index	2002	23	23	23	15	15	
		White	2002	23	23	23	15	15
		Hispanic American	2002	27	28	27	15	15
#22-1	Percent of adults aged 18+ who engaged in no leisure-time physical activity in the past month	2002	23	21	22	15	20	
		White	2002	22	18	20	15	20
		Hispanic American	2002	34	43	38	15	20

### Health Impact

The prevalence of overweight and obesity among adults, adolescents, and children has risen considerably over the last twenty years in the United States. Overweight and obesity are major contributors to many preventable causes of death. On average, studies have shown that higher body weights are associated with higher death rates. According to current estimates, the risk of death from all causes for obese persons is about 1.5 times the risk of death for persons who are not obese.

At the most basic level, the recent increase in obesity in the United States and in Nebraska can be attributed to the fact that people are consuming more calories than they are using. However, development of obesity is a complex process involving a variety of social, behavioral, cultural, environmental, physiological, and genetic factors that interact to impact an individual's body weight.

Overweight- and obesity-related conditions are the second leading cause of death in the United States, resulting in about 400,000 lives lost each year and the number is rapidly increasing. Among preventable causes, only smoking kills more Americans.

Overweight and obesity substantially raise the risk of illness from: heart disease and stroke; hypertension; Type 2 diabetes; endometrial, breast, prostate, and colon cancers; gallbladder disease; arthritis; sleep disorders; and breathing problems. Obese persons (both children and adults) may also suffer from social stigmatization, discrimination, and lowered self-esteem.

It is estimated that obesity accounts for six to seven percent of total health care expenditures nationwide—more than \$100 billion each year. If costs of lost productivity are included, total costs increase to more than \$200 billion annually.

## Healthy People 2010 Goal

The national Healthy People 2010 goal is to promote health and reduce chronic disease associated with diet and weight.

### Rural/Urban Disparities

“Obesity” is defined in this report as a Body Mass Index (BMI) reading of 30 or more, while “overweight” is defined as a BMI of 25 to 29.

According to the national *Rural Healthy People 2010* report, overweight and obesity have traditionally been less prevalent in rural areas because of the greater demand for physical activity inherent in farming, ranching, and related occupations. However, with fewer people involved in these occupations and with these occupations becoming more mechanized, prevalence of overweight and obesity has increased in rural areas and become comparable to that reported for urban populations.

National surveys and smaller regional studies have found that obesity is generally more common among adults in rural areas than among their urban counterparts. In Nebraska, prevalence of obesity varied little between rural and urban areas of the state (23 percent each) (see Figure 9, page 32). Still, rates of obesity are high and have been increasing in rural as well as urban areas, warranting inclusion of obesity as a major public health concern for rural populations.

Physical inactivity also plays an important role in development of obesity. According to the 2002 Nebraska BRFSS, 23 percent of rural adults participated in no leisure-time physical activity in the month preceding the survey (see Figure 10, page 32). Among urban adults, the proportion that were physically inactive was somewhat smaller (21 percent). Hispanic Americans in both rural (34 percent) and urban (43 percent) areas were much more likely than white Nebraskans to report being physically inactive during the previous month.

Both nationwide and in Nebraska, a 2010 objective has been set to reduce the prevalence of obesity among adults to no more than 15 percent. In Nebraska, a target rate of no more than 15 percent has been adopted for decreasing the proportion of adults who engage in no leisure-time physical activity in the past month.

Although research using nationally representative samples is currently lacking, several regional studies of prevalence of obesity and overweight have been completed for children and adolescents. Results of these studies indicate that prevalence of obesity and overweight is higher among rural children and adolescents than it is among those living in urban areas.

In Nebraska, data on prevalence of overweight/obesity is scarce for adolescents and children in rural areas. The Nebraska Youth Risk Behavior Survey (YRBS) collects self-reported data on this topic for high school students, however rural and urban data are not available for comparison. In this study, “overweight or obese” is defined as at or above the gender- or age-specific 95<sup>th</sup> percentile of the Body Mass Index used in the Year 2000 U.S. Growth Charts. In Nebraska, nine percent of high school students responding to the YRBS in 2001 reported weights and heights that placed them in the “overweight or obese” category. In comparison, 10.5 percent of high school students participating in this study nationwide were overweight or obese.

## **Factors Contributing to Rural/Urban Disparities**

The national *Rural Healthy People 2010* report lists several factors, based on research findings, which may negatively affect maintenance of healthy weight among rural populations.

Cultural factors that may lead to higher rates of obesity and overweight include:

- Higher dietary fat and calorie consumption.
- More time spent watching television/videos or using the computer.
- Failure to educate rural people about the dangers of over-consumption of dietary fat and calories, resulting in less compliance with dietary recommendations.
- Less frequent exercise.

Structural factors may include:

- Lack of nutrition education among rural caregivers of children, along with lack of time and money to prepare nutritious meals.
- Lack of access to nutritionists, leaving patient education to physicians and nurses who may be inadequately trained to provide it.
- Limited resources in smaller schools resulting in fewer nutrition services.
- Fewer opportunities to exercise in rural communities, due to fewer physical education classes in schools, fewer exercise facilities, and fewer sidewalks for walking or other exercise.

Demographic factors also have an impact on prevalence of obesity/overweight in rural areas. On average, rural residents are older, less educated and have lower incomes than urban residents. These demographic characteristics are generally associated with higher rates of obesity.



## ORAL HEALTH

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#21-3	Percent of adults aged 35-44 years who have never had a permanent tooth extracted because of dental caries or periodontal disease	2002	62	71	67	75	42
#21-4	Percent of adults aged 65-74 years who have had all their permanent teeth Extracted	2002	27	19	23	17	20
#21-8	Percent of children who have received dental sealants on their molar teeth - Medicaid recipients aged 6-16 years	2002	14	13	14	50	50
#21-9	Percent of population served by community water systems with optimally fluoridated water	2003	32.1	94.6	67.7	80	75

### Health Impact

Millions of people nationwide experience dental caries or periodontal diseases and many more have lost all their teeth. “Dental caries” is defined as tooth decay or a disease of the teeth resulting in damage to the tooth structure. “Periodontal disease” is an inflammation of the gums that involves the loss of the connective tissue and bone that support the teeth.

Early tooth loss caused by dental decay in children can result in failure to thrive, impaired speech development, absence from and inability to concentrate in school, and reduced self-esteem. Children may also develop permanent disabilities that affect their ability to learn and grow.

Untreated dental decay in older persons can lead to pain, abscesses, and eventual loss of teeth. Periodontal disease is a leading cause of bleeding, pain, infection, tooth mobility, and tooth loss. Even when missing teeth are replaced with dentures, there may be limitations in speech, ability to chew, and overall quality of life. In addition, recent research suggests that bacteria associated with periodontal disease may also be linked with increased risk of heart disease and stroke, premature birth in some women, and respiratory infections in certain individuals.

Dental disease is one of the most preventable of health problems. Proper dental hygiene and good eating habits, combined with regular professional dental care, decrease the risk of developing cavities and periodontal disease.

## Healthy People 2010 Goal

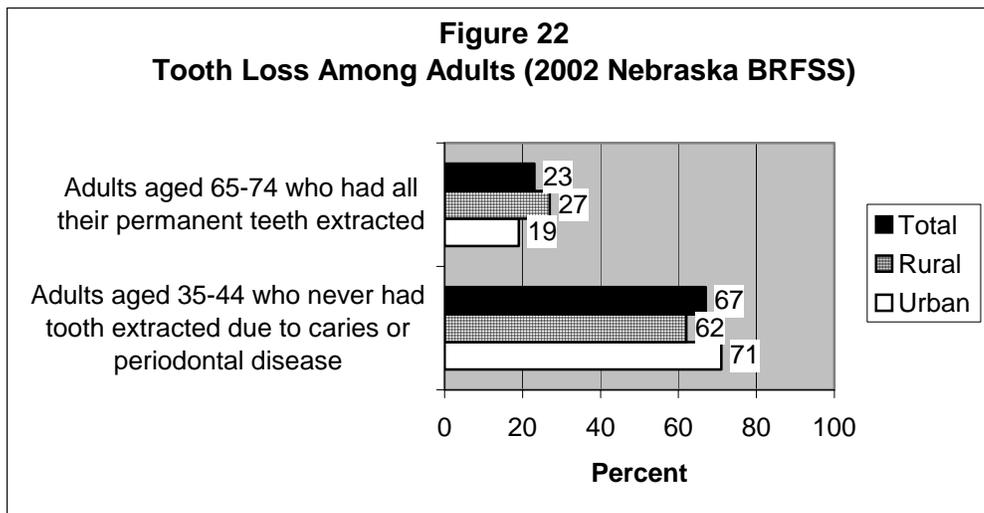
The goal of the national Healthy People 2010 oral health focus area is to prevent and control oral and craniofacial disease, conditions, and injuries, and improve access to related services.

### Rural/Urban Disparities

Although safe and effective measures exist for preventing dental caries and periodontal diseases, there are currently disparities in access to and use of these services across socioeconomic and geographic subgroups in the population of the United States.

According to the national *Rural Healthy People 2010* report, survey data show that dental caries (in children and adults) are more prevalent in rural populations than in urban ones. Nebraska data on prevalence of dental caries are currently unavailable.

The age-adjusted rate of edentulism (loss of all permanent teeth) is also higher in rural areas in the United States. In Nebraska as well, the proportion of the population reporting teeth lost to dental caries or periodontal disease is higher in rural areas (Figure 22). The 2002 Nebraska BRFSS found that, among adults aged 65 to 74 years, the proportion who had all their permanent teeth extracted was higher among rural residents (27 percent) than among urban residents (19 percent). The Nebraska 2010 objective seeks to decrease this proportion to no more than 17 percent among persons aged 65 to 74 years.



Among younger adults aged 35 to 44 years, 71 percent of those living in urban areas reported they had never had a permanent tooth extracted because of dental caries or periodontal disease. Among rural adults in this age group, only 62 percent indicated they had never had a permanent tooth pulled for either of these reasons. A 2010 objective has been adopted for Nebraska that would increase to 75 percent the proportion of adults in this age group who never had a tooth pulled.

Differences in access and utilization of dental care services have also been documented between rural and urban areas. In 1999, national survey data indicated that rural adults (58.3 percent) are less likely than urban adults (67.1 percent) to have visited the dentist in the past year.

In Nebraska, data on utilization of dental care services are limited. In 2002, the proportions of Medicaid recipients aged six to 18 years who received dental sealants varied little according to urban (13 percent) vs. rural (14 percent) place of residence. A Nebraska objective has been set to increase this proportion to at least 50 percent by 2010.

### **Factors Contributing to Rural/Urban Disparities**

A number of factors contribute to disparities in oral health status between residents of rural and urban areas. Differences in access to care, economic resources, and shortage of dental health professionals are all major contributors. In addition, rural populations often have lower levels of educational attainment, lack of transportation, cultural differences, and greater prevalence of other risk factors (such as smoking) that negatively impact their dental health.

#### **Access to Care**

Lack of dental health insurance is an important determinant of whether people receive dental care, especially among those with low household incomes. According to the Surgeon General's "Oral Health in America" report, children with dental insurance are 2.5 times more likely to receive dental care than children without dental insurance. However, for those who are enrolled in Medicaid, less than one-fifth see the dentist one or more times per year due to failure of Medicaid to cover dental health needs or due to a lack of providers who accept Medicaid patients.

The Nebraska 2001 BRFSS asked adults aged 18 and older, "Do you have any kind of insurance coverage that pays for some or all of your routine dental care, including dental insurance, prepaid plans such as HMOs, or government plans such as Medicaid?" Respondents from rural Nebraska counties (55 percent) were much more likely than those from the six urban counties (37 percent) to indicate that they did not have any dental insurance.

#### **Economic Resources**

Income level is a major factor influencing whether or not people seek dental services. Since incomes tend to be lower in rural areas, lack of access due to low household incomes tends to be more common in these areas. National data indicate that 72 percent of non-poor adults (persons with incomes above 200 percent of the federal poverty level) had a dental visit during the past year, compared to less than 50 percent of adults with incomes at or below 200 percent of poverty.

Looking at differences in dental visit rates by race and ethnicity, much of the disparity disappears if only rates for the poor in each group are examined. National data show that among the poor, 49.9 percent of white non-Hispanics had a dental visit in the last year, as did 46.7 percent of non-Hispanic blacks and 41.9 percent of Hispanic Americans.

#### **Dental Workforce**

In rural areas, there are often shortages of dentists. In addition, the number of dentists who accept Medicaid or other discounted fee schedules may be inadequate or dentists may be reluctant to participate in managed care programs. Nationwide, there are more than 60 dentists per 100,000 population in large metropolitan areas. In rural non-city areas, this ratio decreases to about one-half as many per population (30 dentists per 100,000).

In Nebraska, there were 963 dentists in practice in 2004. The majority of dentists (583) were practicing in the six urban counties, leaving only about 40 percent of the total to cover the rest of the state. Seventeen Nebraska counties have no dentists in practice. As of July 2004, 53 counties (or areas) were designated dental shortage areas by the State.

According to the Surgeon General's report on Oral Health, these shortages may become more serious in the future as more dentists retire and as the number of dental students declines. In 1999, a survey conducted by the Nebraska Dental Association found that 31.1 percent of the state's dentists planned to retire by 2009.

### **Water Fluoridation**

Water fluoridation is the process of adjusting the natural fluoride concentration in a water supply to a level that will provide the best protection against tooth decay. In the past 40 years, more than 140 water fluoridation studies have been conducted, with the result that this process has been found to be safe and effective. Only 1.0 part of fluoride for every one million parts of water is needed to reduce the incidence of new dental cavities.

In Nebraska, about two-thirds of the population served by community water systems (67.7 percent) currently receive drinking water with optimal levels of fluoride. In some communities, the level of naturally-occurring fluoride is sufficient. For others, the water has been fluoridated.

In the six Nebraska counties classified as urban, 94.6 percent of the population served by community water systems receives optimally fluoridated water. In contrast, only about one-third of the people living in rural areas and served by community water systems (32.1 percent) receive drinking water that is optimally fluoridated. These Nebraskans who are not receiving optimally fluoridated drinking water are at greater risk for developing dental cavities.

A Nebraska 2010 objective has been set to increase to at least 80 percent the proportion of people served by community water systems that are supplied with optimally fluoridated drinking water.

## SUBSTANCE ABUSE

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#26-1a	Death rate due to alcohol-related motor vehicle crashes/100,000	2002	11.4	4.9	7.9	4.0	4.0
	White	1998-2002	10.7	4.8	7.7	4.0	4.0
	African American	1998-2002	*	4.3	4.5	4.0	4.0
	Native American	1998-2002	26.1	*	18.3	4.0	4.0
	Asian American	1998-2002	*	7.2	6.9	4.0	4.0
	Hispanic American	1998-2002	10.8	5.5	8.0	4.0	4.0
#26-2	Death rate due to cirrhosis per 100,000 population	2002	6.5	8.3	7.3	3.0	3.0
	White	1998-2002	5.2	6.8	6.0	3.0	3.0
	African American	1998-2002	*	5.5	6.1	3.0	3.0
	Native American	1998-2002	93.1	62.8	81.8	3.0	3.0
	Asian American	1998-2002	--	*	*	3.0	3.0
	Hispanic American	1998-2002	15.7	14.9	15.0	3.0	3.0
#26-9c	Percent of high school seniors who never drank alcoholic beverages Data not available by race or ethnicity.	2001	8	NA	NA	29	29
#26-9d	Percent of high school seniors who never used any illicit drug Data not available by race or ethnicity.	2001	63	NA	NA	75	56
#26-10a	Percent of adolescents in grades 9-12 who had not used alcohol or any illicit drug in the past 30 days Data not available by race or ethnicity.	2001	42	NA	NA	60	89
#26-10b	Percent of adolescents in grades 9-12 reporting use of marijuana in the past 30 days Data not available by race or ethnicity.	2001	16	NA	19	5	0.7
#26-11c	Percent of adults aged 18+ who engaged in binge drinking of alcoholic beverages in the past month	2002	16	19	18	6	6
	White	2002	15	20	18	6	6
	Hispanic American	2002	20	18	19	6	6
#26-11d	Percent of adolescents in grades 9-12 who engaged in binge drinking during the past 30 days Data not available by race or ethnicity.	2001	41	NA	39	25	2
#26-xx	Percent of adults aged 18+ who engaged in "drinking and driving" in the past month Data not available by race or ethnicity.	2002	5	5	5	1	--

#26-xx	Percent of adolescents in grades 9-12 who reported "drinking and driving" in the past 30 days Data not available by race or ethnicity.	2001	30	NA	25	10	--
--------	---	------	----	----	----	----	----

\*Mortality rate based on fewer than five deaths.

### Health Impact

The annual toll of deaths, illnesses, and injuries due to the use and abuse of alcohol and illicit drugs is one of the most serious preventable public health problems in America.

Alcohol-related deaths exceed 100,000 annually in the United States, making alcohol the fourth leading "actual cause of death" in the United States. Each year, these alcohol-related deaths result in nearly 1.5 billion years of potential life lost before age 65. On average, people who die from alcohol-related causes lose 26 years from their normal life expectancy.

A large proportion of alcohol-related deaths are the result of injuries sustained in motor vehicle crashes, falls, fires, or drowning. Alcohol abuse is also a factor in a substantial proportion of homicides, suicides, domestic violence, and child abuse and neglect cases. Long-term heavy drinking can lead to heart disease, cancer, alcohol-related liver disease, and pancreatitis. Alcohol use during pregnancy is known to cause fetal alcohol syndrome in infants, a leading cause of mental retardation.

Approximately 38,900 deaths nationwide are related to abuse of drugs other than alcohol each year. Health-related consequences of illicit drug use include hepatitis, tuberculosis, sexually transmitted diseases, various bacterial infections, and HIV infection. As with alcohol abuse, drug abuse is also linked to increased incidence of injuries and violent behavior.

Health care costs for the nation are increased directly by treatment for alcoholism and drug dependency and indirectly by the adverse effects of drug abuse on other medical conditions. In 1995, direct health care costs for alcohol abuse were estimated at \$22.5 billion. When indirect costs (such as loss of productivity due to illness and premature death) were included, the total soared to \$166.5 billion. Direct health care costs for drug abuse services amounted to \$22.5 billion in 1995 nationwide. Total costs of illicit drug use were estimated at \$109.9 billion when indirect costs were included.

### Healthy People 2010 Goal

The national Healthy People 2010 goal is to reduce substance abuse to protect the health, safety, and quality of life for all, especially children.

### Rural/Urban Disparities

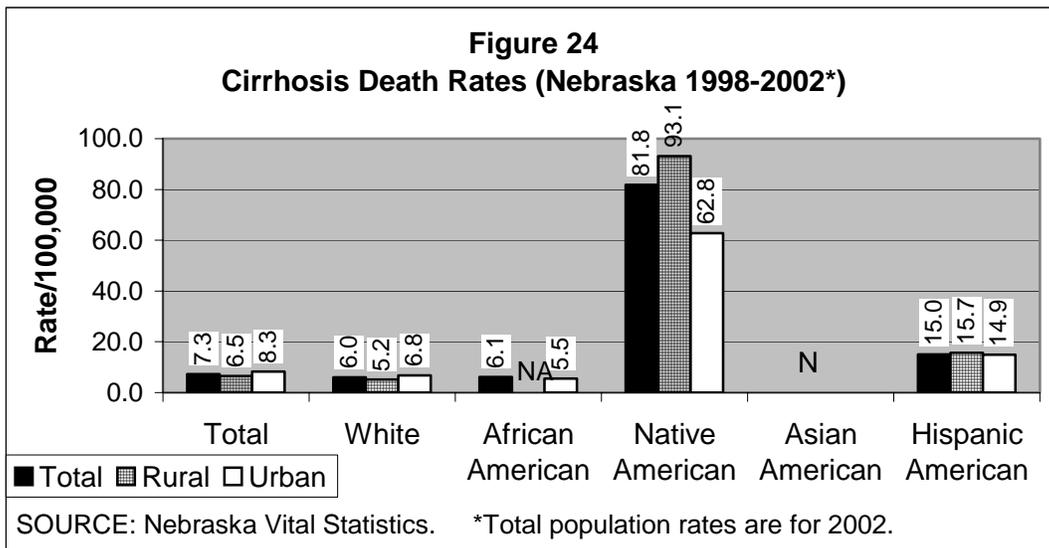
The alcohol-related motor vehicle fatality rate for rural counties in Nebraska (11.4 deaths per 100,000 population) was more than double the rate in urban counties (4.9 per 100,000) in 2002 (Figure 23). These fatality rates may also be affected by differences in the availability of emergency medical service providers and the long distances between patients needing emergency care and the nearest hospital emergency department in rural areas.



A rate of no more than 4.0 deaths per 100,000 due to alcohol-related motor vehicle crashes has been targeted for achievement by 2010, both in Nebraska and nationwide.

In contrast to alcohol-related motor vehicle fatality rates, mortality rates for cirrhosis of the liver (an alcohol-related condition) in Nebraska were lower in rural areas (6.5 deaths per 100,000 population) than they were in urban areas (8.3 per 100,000) in 2002 (Figure 24). Among Native Americans living in rural areas, the mortality rate for cirrhosis (93.1) was nearly 18 times as high as the rate for white rural Nebraskans (5.2) for the five-year period 1998-2002. Hispanic Nebraskans in both rural and urban parts of the state also experienced somewhat higher rates of cirrhosis deaths than did white persons.

The 2010 objective for Nebraska and the nation has been set at no more than 3.0 cirrhosis deaths per 100,000 population.



Research has also shown that substance abuse contributes to higher rates of job-related injuries. Since adults in rural areas are engaged in some of the most dangerous and injury-prone occupations, substance abuse may have a greater impact on occupational injury rates in rural areas than in urban settings.

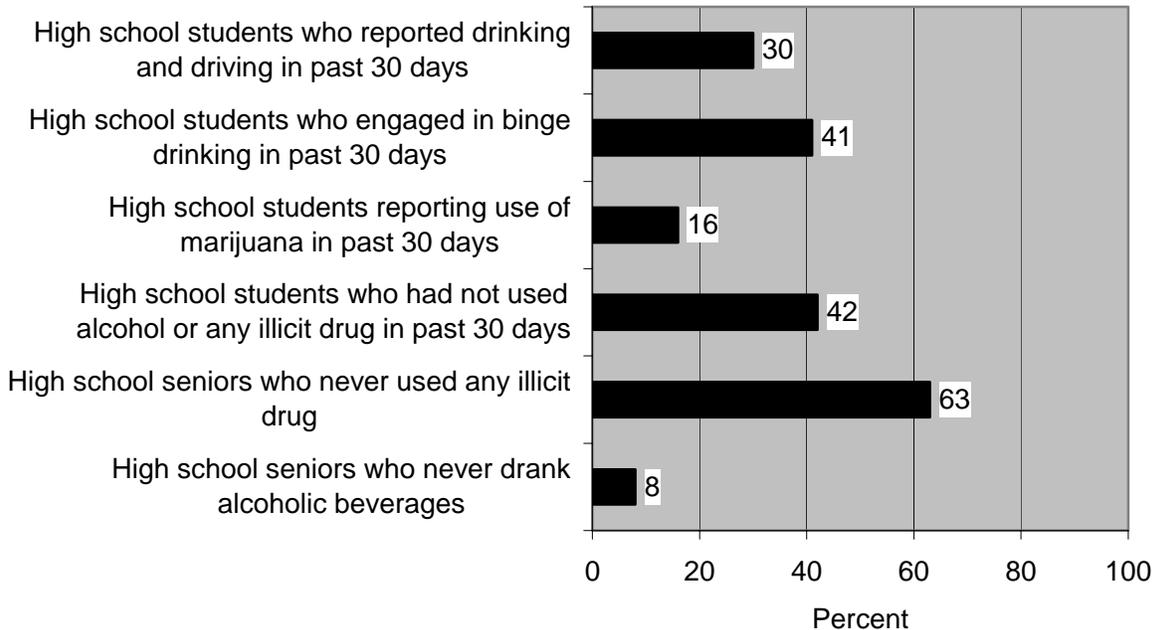
Nationally, an estimated 15.1 million people abuse alcohol. The *Health, United States, 2001* report shows that prevalence of binge drinking (five or more alcoholic drinks in one day) appeared to vary little according to rural vs. urban residence among adults aged 18 to 49 years (based on the results of the National Health Interview Survey). In Nebraska, the 2002 BRFSS found that the self-reported rate of binge drinking among adults was lower in rural areas (16 percent) than it was in urban areas (19 percent).

According to the federal Uniform Crime Reports for 1998, arrests for “driving under the influence” of alcohol or drugs (DUI) were most prevalent in non-metropolitan areas with cities less than 10,000 population and in rural areas of the United States. In Nebraska, based on self-reported 2002 BRFSS data, prevalence of drinking and driving among adults was only slightly higher in rural counties (5.4 percent) than in the metropolitan counties in the state (4.8 percent).

Significant reductions in the prevalence of binge drinking and driving among adults in Nebraska have been targeted for 2010. The objectives seek to reduce binge drinking rates by two-thirds and drinking and driving rates by 80 percent.

Alcohol and drug abuse is also a major problem among adolescents, both in Nebraska and nationwide. Among Nebraska high school seniors, only eight percent of those living in rural areas reported that they had never drunk alcoholic beverages (Figure 25). More than four out of ten (41 percent) rural adolescents stated they had engaged in binge drinking (i.e., had five or more drinks on at least one occasion) in the past 30 days. Thus, the binge drinking rate among Nebraska rural high school students was more than double the rate reported by rural adults (16 percent).

**Figure 25  
Prevalence of Substance Abuse Among Rural Adolescents  
2001 Nebraska YRBS**



A report published by the National Center on Addiction and Substance states that the incidence of driving while intoxicated is higher for youth aged 12 to 17 in rural areas than it is for their counterparts in urban areas. Other research found that 40 percent of rural 12<sup>th</sup> grade students reported using alcohol while driving, compared to only 25 percent of urban 12<sup>th</sup> graders.

The 2001 Nebraska Youth Risk Behavior Survey (YRBS) found that 30 percent of rural high school students (grades 9-12) reported drinking and driving in the past 30 days.

Drug abuse affects 15.9 million users (7.1 percent of the population) nationwide. According to the 2001 National Household Survey on Drug Abuse, on average, the highest rates of drug abuse occur in large metropolitan areas (7.65 percent) while the lowest rates occur in rural counties (4.8 percent). However, among adolescents, the trend appears to be moving in the opposite direction. In rural areas, 14.4 percent of youth reported illicit drug use, compared to only 10.4 percent in counties with small or large metropolitan areas.

The 2001 YRBS reported that 63 percent of Nebraska rural high school seniors said they had never used any illicit drug. Four of every ten rural high school seniors in the state indicated that they had not used alcohol or any illicit drug in the past 30 days. On the other hand, 16 percent of rural students in grades nine through 12 stated they had used marijuana in the past month. Prevalence estimates for adult use of drugs other than alcohol are not available for Nebraska.

Nebraska 2010 objectives call for substantial improvements in substance abuse rates among adolescents. For example, these objectives seek a decrease of 74 percent in proportion of youth currently using marijuana and a 60 percent decrease in the proportion of adolescents

drinking and driving in the past month. Other Nebraska objectives are summarized in the table at the beginning of this chapter.

### **Factors Contributing to Rural/Urban Disparities**

Prevention, education, enforcement of drug laws, and access to care are all important means of combating alcohol and drug abuse in rural areas.

#### **Prevalence of Substance Abuse**

In general, travel distances are greater in rural areas than in urban communities. In comparison to people in urban areas, rural people must rely on their own motor vehicles to get from place to place since public transportation is frequently not available. According to the national *Rural Healthy People 2010* report, research suggests that greater prevalence of driving under the influence (DUI) of drugs or alcohol in rural areas is due in part to these factors.

Socioeconomic conditions, such as low incomes and lower levels of educational attainment which are more prevalent in rural areas, are also linked to greater prevalence of substance abuse.

#### **Treatment**

While both rural and urban populations experience substance abuse problems, access to effective substance abuse treatment services is more difficult in rural areas. In general, the hospital (rather than a treatment center) is responsible for delivery of substance abuse treatment in rural areas. However, national data show that only a small proportion of hospitals in rural areas (10.7 percent) offer these services compared to hospitals in metropolitan areas (26.5 percent).

The perceived social stigma associated with substance abuse is particularly important in rural areas. For certain groups (particularly rural women), seeking treatment is difficult due to the stigma attached to substance abuse and the desire to remain anonymous. Another factor influencing treatment-seeking behavior is physical distance to services. One recent study found that patients are not willing to travel as far for substance abuse treatment as they are for general medical treatment.

Financial considerations are another factor affecting the likelihood of seeking treatment for substance abuse. In general, health plans are shifting toward greater sharing of costs. This trend results in patients being financially responsible for a larger portion of treatment costs, particularly for behavioral health needs (including substance abuse treatment). Studies have found that an increase in cost sharing by the patient reduces the services used.

In addition to lack of access to treatment and low affinity to seeking treatment among rural populations, inadequate spending for substance abuse prevention also contributes to increasing prevalence of drug and alcohol abuse in rural areas.

National data from the Drug Enforcement Administration (DEA) also indicate that drug trafficking in rural areas is increasing, particularly methamphetamine-related activities. Access to alcohol and other drugs is perceived to be “easy” or “fairly easy” by the majority of youth in both rural and metropolitan areas.

## TOBACCO USE

Nebraska Rural Healthy People 2010 Objectives		NE Data Year	NE Rural Rate	NE Urban Rate	NE Total Rate	NE 2010 Objective	US 2010 Objective
#27-1a	Percent of adults aged 18+ who currently smoke cigarettes	2002	21	24	23	12	12
	White	2002	22	23	22	12	12
	Hispanic American	2002	17	32	25	12	12
#27-1b	Percent of males aged 18+ who currently use smokeless tobacco Data not available by race or ethnicity	2002	13	6	9	4	0.4
#27-2a	Percent of adolescents in grades 9-12 who used tobacco products (cigarettes, spit tobacco, or cigars) in the past month Data not available by race or ethnicity	2001	38	NA	35	21	21
#27-2b	Percent of adolescents in grades 9-12 who smoked cigarettes in the past month Data not available by race or ethnicity	2001	30	NA	31	15	16
#27-2c	Percent of adolescents in grades 9-12 who used spit tobacco in the past month Data not available by race or ethnicity	2001	12	NA	10	6	1
#27-2d	Percent of adolescents in grades 9-12 who smoked cigars in the past month Data not available by race or ethnicity	2001	13	NA	15	10	8
#27-9	Percent of households with children under five years of age where someone had smoked during the past month Data not available by race or ethnicity	2002	25	20	23	10	10

### Health Impact

Tobacco use is the leading cause of preventable deaths in the United States. Cigarette smoking, the most prevalent form of tobacco usage, alone is responsible for 430,000 deaths each year nationwide. Despite the fact that the adverse health effects of smoking have been widely known for many years, an estimated 47.2 million adult Americans still smoke.

Cigarette smoking is responsible for about one-third of all cancer deaths in the United States and is a major risk factor for heart disease and stroke. It contributes substantially to illness and death from respiratory diseases.

Smoking during pregnancy is associated with increased rates of infant mortality, low birth weight, and infant health problems.

Second-hand smoke (SHS), also known as environmental tobacco smoke or passive smoking, is associated with a number of adverse health effects in non-smokers. It contributes to approximately 3,000 lung cancer deaths and 62,000 coronary heart disease deaths in nonsmokers each year. SHS contributes to higher rates of Sudden Infant Death Syndrome (SIDS) and to increased severity and frequency of asthma, bronchitis, chronic middle ear infection, and pneumonia. Children exposed to SHS in their homes also have more days of restricted activity, bed confinement, and school absences.

In addition to the impact of tobacco use on morbidity and mortality rates, other risk behaviors are more common among persons who smoke, especially during adolescence. Studies have shown that adolescents who smoke have higher prevalence of drinking alcohol, using illicit drugs, engaging in sexual activity, school misbehavior and low academic achievement, violent or antisocial behavior, and mental health problems.

The Centers for Disease Control and Prevention (CDC) estimate that smoking costs the United States between \$50 and \$73 billion each year in direct medical expenditures and another \$50 billion in indirect costs. In Nebraska, cigarette smoking cost approximately \$858 million for the medical care of people with smoking-related illnesses and for lost wages and productivity during the year 2002.

### **Healthy People 2010 Goal**

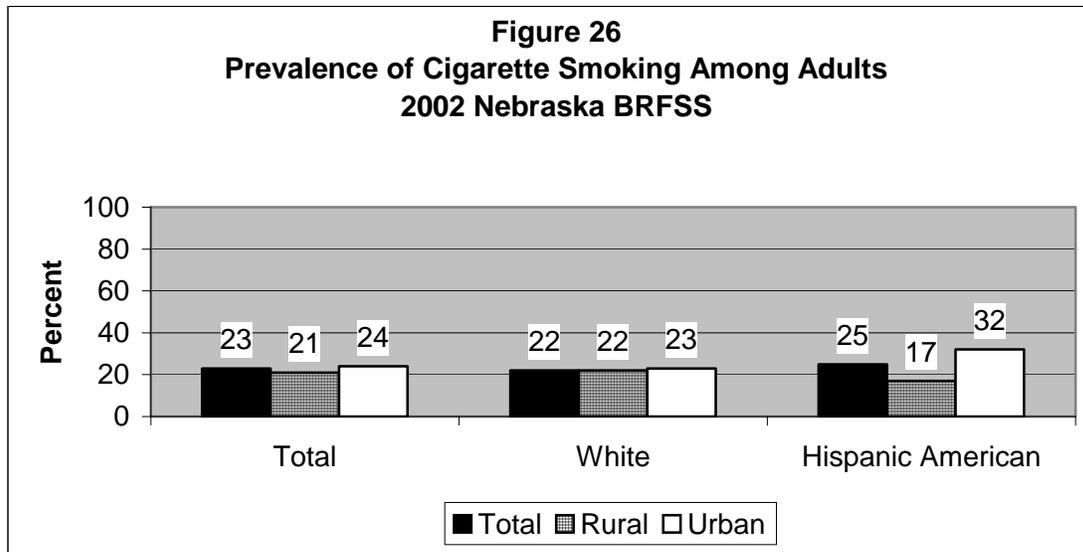
The national Healthy People 2010 goal is to reduce illness, disability, and death related to tobacco use and exposure to second hand smoke.

### **Rural/Urban Disparities**

According to the 1995 National Household Survey on Drug Abuse (reported in 2001), cigarette use is more prevalent in rural areas than in metropolitan areas of the United States. In non-metropolitan (rural) areas, the smoking rate was 33 percent, compared to 27 percent in large metropolitan areas and 28 percent in small metropolitan areas.

In Nebraska, 23 percent of adults 18 and older reported that they currently smoke cigarettes (Figure 26). Unlike the national data reported above, however, the 2002 Nebraska BRFSS found that adults living in rural areas (21 percent) were somewhat less likely than urban adults (24 percent) to report that they were current smokers.

A 2010 objective has been set to reduce the prevalence of cigarette smoking to no more than 12 percent of adults, both nationwide and in Nebraska.



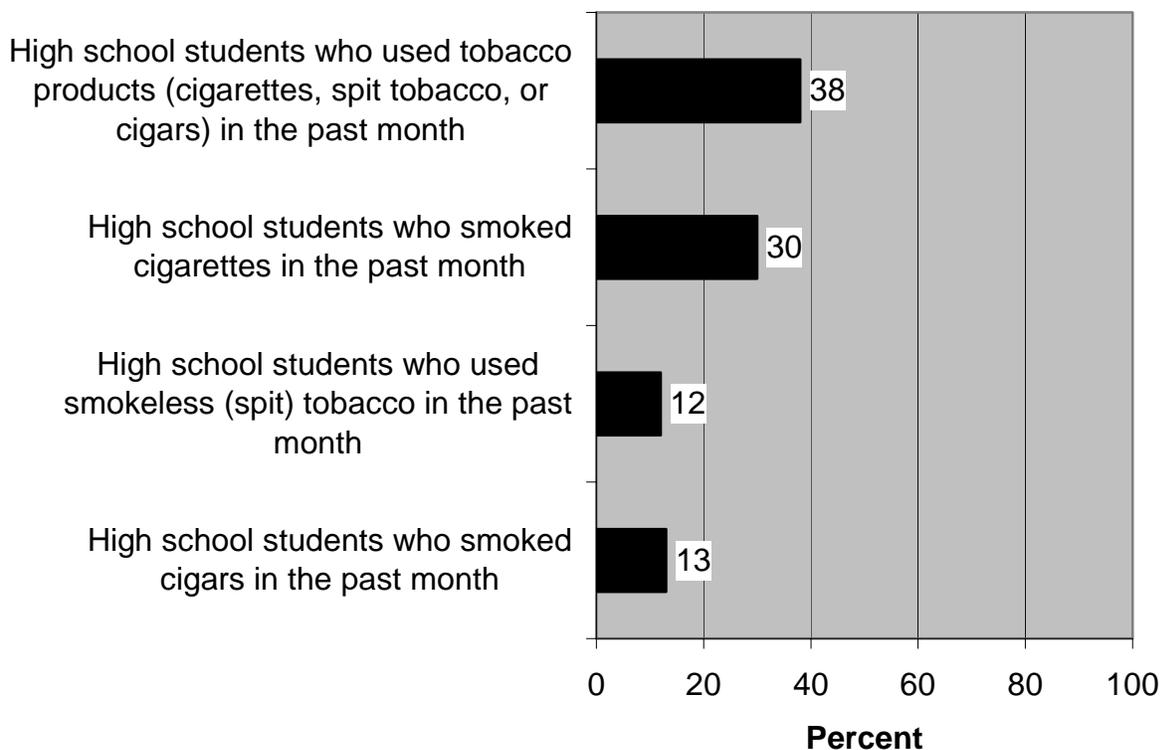
Use of smokeless tobacco, also known as spit tobacco, is much more prevalent in rural areas, both in Nebraska and the nation. In Nebraska, 13 percent of adult males living in rural areas reported currently using chewing tobacco or other forms of smokeless tobacco in 2002, compared to only six percent of urban men. The 2010 objective for Nebraska is to reduce the prevalence of smokeless tobacco use among adult males to no more than four percent.

Use of tobacco by adolescents living in rural areas is also a major concern in the United States and in Nebraska. Although the smoking rate among adolescents overall has decreased somewhat in the last few years, there is a wide disparity in rates between teens living in rural versus urban settings. According to *Health, United States, 2001*, 18 percent of adolescents aged 12 to 17 living in rural areas smoked cigarettes in the past month, compared to 11 percent of those in urban areas.

Smokeless tobacco use rates are also much higher among rural adolescents than among those in urban areas. The Center on Addiction and Substance Abuse Whitepaper on substance abuse in rural America reports that smokeless tobacco use by rural eighth-graders is nearly five times as likely as use by their urban counterparts (8.9 percent versus 1.8 percent).

In Nebraska, the 2001 YRBS found that 38 percent of rural high school students in grades nine through 12 used tobacco products (i.e., cigarettes, spit tobacco, or cigars) in the past month (Figure 27). Thirty percent of rural high school students reported smoking cigarettes in the past 30 days, while 13 percent said they had smoked cigars during that period. Smokeless tobacco use was reported by 12 percent of all rural high school students.

**Figure 27**  
**Prevalence of Tobacco Use Among Rural Adolescents**  
**2001 Nebraska YRBS**



As with 2010 substance abuse objectives, Nebraska has adopted ambitious objectives for reducing tobacco use among adolescents. For example, the proportion of adolescents using any tobacco products in the past month would be reduced by 40 percent by 2010. The prevalence of current cigarette smoking among adolescents would decrease by more than 50 percent.

**Second-Hand Smoke**

Tobacco-related illnesses resulting from second-hand tobacco smoke are undoubtedly present in both rural and urban settings. However, a 2001 study (The National Social Climate of Tobacco Control Survey) found evidence that rural respondents were more accepting of tobacco in the household, in the car, and around children. They were also less likely than urban respondents to disagree with children under age 18 regarding smoking.

In the 2002 Nebraska BRFSS, rural respondents with children under age five in their household (25 percent) were more likely than those from urban areas (20 percent) to report that, during the past month, someone had smoked in their home.

A 2010 objective has been set to reduce the proportion of households with children under five years of age where someone has smoked during the past month to no more than 10 percent in Nebraska and nationwide.

### **Factors Contributing to Rural/Urban Disparities**

One major obstacle to tobacco use education, prevention, cessation and treatment is a lack of resources in rural areas. Rural communities usually do not have the economies of scale necessary to provide substance abuse treatment services.

The national *Rural Healthy People 2010* report lists several barriers to prevention and treatment of tobacco use in rural areas. These include transportation difficulties, lower median incomes to pay for treatment, lower prevalence of insurance coverage, and limited media resources designed to change unhealthy habits. In addition, rural residents also are less likely to have access to health care providers who could provide needed counseling and treatment.



## APPENDIX



## REFERENCES

1. Gamm, Larry D., Hutchison, Linnae L., Dabney, Betty J., and Dorsey, Alicia M., eds. (2003). *Rural Healthy People 2010: A Companion Document to Healthy People 2010. Volumes 1, 2, and 3*. College Station, Texas: The Texas A&M University System Health Science Center, School of Rural Public Health, Southwest Rural Health Research Center.
2. U.S. Department of Health and Human Services. *Healthy People 2010. 2<sup>nd</sup> ed. With Understanding and Improving Health and Objectives for Improving Health*. 2 vols. Washington, D.C.: U.S. Government Printing Office 2000.
3. Nebraska Health and Human Services System, Department of Services, Preventive and Community Health and Department of Finance and Support. *Nebraska 2010 Health Goals and Objectives*. May 2002.
4. Kaiser Commission on Medicaid and the Uninsured. Key Facts: The Uninsured in Rural America. April 2003. Available online at: <http://www.kff.org>.
5. U.S. General Accounting Office. Report to the Chairman, Committee on Health, Education, Labor, and Pensions, U.S. Senate: Physician Workforce—Physician Supply Increased in Metropolitan and Nonmetropolitan Areas but Geographic Disparities Persisted. October 2003.
6. United States Department of Agriculture, Economic Research Service. Briefing Room—Farm Structure: Questions and Answers. Available online at: <http://www.ers.usda.gov>.
7. Centers for Disease Control and Prevention, National Ag Safety Database. Safety for Aging Farmers. Available online at: <http://www.cdc.gov/nasd>
8. Evans, Garret D. (2004). Improving Behavioral Health Services in Rural America. *Rural Mental Health*, 29(1), 12-16.
9. Kessler, R.C., Berglund, P.A., Bruce, M.L., et al. The Prevalence of Correlates of Untreated Serious Mental Illness. *Health Services Research* 36(6): Part 1, December 2001.
10. National Rural Health Association. Mental Health in Rural America. May 1999. Available online at: <http://www.nrharural.org/dc/issuepapers>.
11. Park, Hyesook, Sprince, Nancy L., Jensen, Christine, Whitten, Paul S., and Zwerling, Craig. (2002). Health Risk Factors among Iowa Farmers. *The Journal of Rural Health*, (18)2, 286-293.



**Nebraska 2010 Health Goals and Objectives  
Rural Health Objectives Only  
Data Sources and Notes**

<b>ACCESS TO QUALITY HEALTH SERVICES</b>		
	Data Sources:	Additional Notes:
#1-1	U.S.--National Health Interview Survey (NHIS), CDC.  Nebraska--Behavioral Risk Factor Surveillance System (BRFSS), HHSS.	Percent of persons under age 65 years who report coverage by any type of public or private health insurance. (Includes children under age 18 years.) Percent of persons age 18-64 years who report coverage by any type of public or private health insurance.
#1-4c	U.S.--National Health Interview Survey (NHIS), CDC. Nebraska--Behavioral Risk Factor Surveillance System (BRFSS), HHSS.	Percent of persons aged 18 years and older who report having a source of ongoing primary care. Same as U.S.
#1-8	U.S.--AAMC Data Book, Association of American Medical Colleges  Nebraska--Health Professions Tracking Center, University of Nebraska Medical Center. U.S. Census Bureau.	Number of medical degrees awarded by accredited allopathic medical schools by race or ethnicity as a percent of all medical degrees awarded. Percent of all primary care physicians (General/Family Practice, Internal Medicine, Pediatrics, Obstetrics/ Gynecology, General Surgery, and Psychiatry) who are members of each racial or ethnic group.
#1-9a	U.S.--Healthcare Cost and Utilization Project (HCUP), AHRQ.  Nebraska -- Nebraska Hospital Discharge Data, HHSS.	Number of hospitalizations among persons under age 18 years with asthma (ICD-9 code 493) as principal diagnosis per 10,000 persons under age 18 years. Same as U.S.
#1-9b	U.S.--Healthcare Cost and Utilization Project (HCUP), AHRQ.  Nebraska -- Nebraska Hospital Discharge Data, HHSS.	Number of hospitalizations among persons aged 18 to 64 years with uncontrolled diabetes (ICD-9 codes 250.02-250.03, 250.10-250.13, 250.20-250.23, 250.30-250.33) as principal diagnosis per 10,000 persons aged 18 to 64 years. Same as U.S.
#1-9c	U.S.--Healthcare Cost and Utilization Project (HCUP), AHRQ.  Nebraska -- Nebraska Hospital Discharge Data, HHSS.	Number of hospitalizations among persons aged 65 years and older with preventable pneumonia or influenza (ICD-9 codes 481, 487) as principal diagnosis per 10,000 persons aged 65 years and older. Same as U.S.
<b>CANCER</b>		
#3-1	U.S.--National Vital Statistics System, CDC.  Nebraska--Vital Statistics, HHSS, Regulation & Licensure.	Age-adjusted to 2000 standard population. ICD-9 codes 140-208. Same as U.S.
#3-11a,b	U.S.--National Health Interview Survey (NHIS), CDC. Nebraska--BRFSS, HHSS.	Includes women with or without a uterine cervix.  Same as U.S.

#3-12a	U.S.--National Health Interview Survey (NHIS), CDC. Nebraska—BRFSS, HHSS.	A fecal occult blood test is referred to as a blood stool test in the NHIS.
#3-12b	U.S.--National Health Interview Survey (NHIS), CDC. Nebraska--BRFSS, HHSS.	A sigmoidoscopy is referred to as a proctoscopic examination in the NHIS.
#3-13	U.S.--National Health Interview Survey (NHIS), CDC. Nebraska--BRFSS, HHSS.	
<b>DIABETES</b>		
#5-3	U.S.--National Health Interview Survey (NHIS), CDC.  Nebraska—Behavioral Risk Factor Surveillance System (BRFSS), HHSS.	All ages. Adults aged 18 and older interviewed. Ever been told by a doctor/health professional that they (or child) have diabetes or sugar diabetes. For females, does not include those for whom diabetes was diagnosed only during pregnancy (gestational diabetes). Adults aged 18 and older. Ever been told by a doctor or health professional that they have diabetes.
#5-5	U.S.--National Vital Statistics System, CDC.  Nebraska--Vital Statistics, HHSS.	Deaths due to diabetes (ICD-9 code 250) reported as the underlying or multiple cause of death (i.e., all mentions of diabetes on the death certificate). Age-adjusted to 2000 standard population. Same as U.S.
<b>HEART DISEASE AND STROKE</b>		
#12-1	U.S.--National Vital Statistics System, CDC. Nebraska--Vital Statistics, HHSS.	ICD-9 codes 402,410-414,429.2. Age-adjusted to 2000 standard. Same as U.S.
#12-7	U.S.--National Vital Statistics System, CDC. Nebraska--Vital Statistics, HHSS.	ICD-9 codes 430-438. Age-adjusted to 2000 standard. Same as U.S.
#12-9	U.S.--National Health and Nutrition Examination Survey (NHANES), CDC.  Nebraska--BRFSS, HHSS.	Adults aged 20 and older. Definition of high blood pressure: either (a) have a measurement of systolic blood pressure >140 mmHg or diastolic blood pressure >90 mmHg or (b) report they are taking high blood pressure medicine. Self-reported.
#12-12	U.S.--National Health Interview Survey (NHIS), CDC.  Nebraska—BRFSS, HHSS.	An adult was considered able to state their blood pressure level if they responded high, low, normal or borderline when asked. Self-reported.
#12-15	U.S.--NHIS, CDC. Nebraska--BRFSS, HHSS.	Self-reported. Self-reported.
<b>IMMUNIZATION AND INFECTIOUS DISEASES</b>		
#14-29	U.S.--National Health Interview Survey (NHIS), CDC. Nebraska--BRFSS, HHSS.	
<b>INJURY AND VIOLENCE PREVENTION</b>		
#15-13	U.S.--National Vital Statistics System, CDC. Nebraska--Vital Statistics, HHSS.	ICD-9 codes E800-869, E880-E929. Age-adjusted to 2000 standard. Same as U.S.

#15-15a	U.S.--National Vital Statistics System, CDC. Nebraska--Vital Statistics, HHSS.	ICD-9 codes E810-E819. Age-adjusted to 2000 standard. Same as U.S.
#15-19	U.S.--National Occupant Protection Use Survey, DOT, NHTSA. Nebraska--BRFSS, HHSS.	Observational data collected at intersections, highway ramps, and parking lots. Self-reported use of seatbelts (always, nearly always, sometimes, seldom, never wear safety belts when driving or riding in a motor vehicle).
<b>MATERNAL, INFANT AND CHILD HEALTH</b>		
#16-1c	U.S.--National Vital Statistics System (NVSS), CDC. Nebraska--Vital Statistics, HHSS.	Deaths of infants under age one year. Same as U.S.
#16-1d,e #16-6a	U.S.--National Vital Statistics System (NVSS), CDC. Nebraska--Vital Statistics, HHSS.	
#16-6b	U.S.--National Vital Statistics System (NVSS), CDC.  Nebraska--Vital Statistics, HHSS.	Using the Adequacy of Prenatal Care Utilization Index (APNCU), i.e., Kotelchuck Index. Combines the month of pregnancy when prenatal care began with the number of prenatal visits. Rates can be classified as intensive, adequate, intermediate, or less than adequate. For this objective, adequate prenatal care is defined as a score of either "adequate" or "intensive use." Same as U.S.
#16-17c	U.S.--National Vital Statistics System (NVSS), CDC. Nebraska--Vital Statistics, HHSS.	Percent of women having live births reporting cigarette smoking during pregnancy. Same as U.S.
<b>MENTAL HEALTH AND MENTAL DISORDERS</b>		
#18-1	U.S.--National Vital Statistics System, CDC.  Nebraska--Vital Statistics, HHSS.	ICD-9 codes E950-E959. Age-adjusted to 2000 standard. Suicides may be undercounted due to difficulty in determining suicidal intent by coroner or medical examiner. Same as U.S.
#18-2	U.S.--Youth Risk Behavior Surveillance System (YRBS). CDC. Nebraska--YRBS, HHSS.	
<b>NUTRITION AND OVERWEIGHT</b>		
#19-2	U.S.--National Health and Nutrition Examination Survey (NHANES), CDC. Nebraska--BRFSS, HHSS.	Adults aged 20 and older. Body Mass Index (BMI) = 30 or greater. Adults aged 18 and older. Body Mass Index (BMI) = 30 or greater.
<b>ORAL HEALTH</b>		
#21-3	U.S.--National Health and Nutrition Examination Survey (NHANES), CDC; Oral Health Survey of Native Americans, 1999, Indian Health Service. Nebraska--BRFSS, HHSS.	Clinical confirmation of at least 28 natural teeth, exclusive of third molars, is used as a proxy measure.  Self-reported. BRFSS respondents were asked how many of their permanent teeth have been removed because of tooth decay or gum disease.
#21-4	U.S.--National Health Interview Survey (NHIS), CDC; Oral Health Survey of Native Americans, 1999, Indian Health Service. Nebraska--BRFSS, HHSS.	

#21-8	U.S.--National Health and Nutrition Examination Survey (NHANES), CDC; Oral Health Survey of Native Americans, 1999, Indian Health Service; Hawaii Children's Oral Health Assessment, 1999, State of Hawaii Department of Health. Nebraska--Nebraska Medicaid Program, HHSS.	Percent of children with a clinical confirmation of dental sealants applied to one or more permanent molars.  Percent of children aged 6 to 16 years who are Medicaid recipients who have had dental sealants applied to one or more permanent molars.
#21-9	U.S.--CDC Fluoridation Census, CDC.  Nebraska--Nebraska Dental Health Program, HHSS.	Optimal water concentration of fluoride is specific for geographic areas, based on their mean daily temperature. Percent is based on information from local water systems on the number of people served by the fluoridated water system. Same as U.S.
<b>PHYSICAL ACTIVITY AND FITNESS</b>		
#22-1	U.S.--National Health Interview Survey (NHIS), CDC.  Nebraska--BRFSS, HHSS.	Adults are classified as not engaging in leisure time physical activity if they answer "never" or "unable to do this type of activity" to both the vigorous and moderate physical activity questions. National and state estimates are not comparable due to difference in questions and in interview method. Neither survey accounts for physical activity that is required for their jobs.
<b>SUBSTANCE ABUSE</b>		
#26-1a	U.S.--Fatality Analysis Reporting System (FARS), Dept. of Transportation (DOT), National Highway Traffic Safety Administration (NHTSA); General Estimates System (GES), DOT.  Nebraska—Vital Statistics, HHSS; Office of Highway Safety, Dept. of Motor Vehicles.	A fatal crash is alcohol-related if either a driver or non-motorist has a measurable or estimated blood alcohol concentration (BAC) of 0.01 g/dL or above. Only deaths that occur within 30 days of the motor vehicle crash are included. FARS data are obtained from state documents, including police crash reports, death certificates (ICD-9 E810-E819), vehicle registration files, and hospital medical reports. Age-adjusted to 2000 standard. ICD-9 E810-E819. Age-adjusted to 2000 standard.
#26-2	U.S.--National Vital Statistics System, CDC. Nebraska--Vital Statistics, HHSS.	ICD-9 code 571. Age-adjusted to 2000 standard. ICD-9 code 571. Age-adjusted to 2000 standard.
#26-9c	U.S.--Monitoring the Future Study, National Institutes of Health, National Institute of Drug Abuse. Nebraska--Youth Risk Behavior Surveillance System, HHSS.	Students in private and public schools in the U.S. in attendance on the day of the survey administration.  Self-reported.

#26-9d	U.S.--Monitoring the Future Study, National Institutes of Health, National Institute of Drug Abuse.  Nebraska--Youth Risk Behavior Surveillance System, HHSS.	Students in private and public schools in the U.S. in attendance on the day of the survey administration. Use of any illicit drug includes any use of marijuana ("weed" or "pot", or hashish), LSD ("acid"), other hallucinogens ("psychedelics like mescaline, peyote, psilocybin, PCP"), cocaine ("coke," "crack," "rock"), heroin, narcotics other than heroin, stimulants, barbiturates, or tranquilizers not taken under a doctor's orders. Self-reported.
#26-10a	U.S.--National Household Survey on Drug Abuse (NHSDA), SAMHSA.  Nebraska--Youth Risk Behavior Surveillance System, HHSS.	Alcohol or illicit drug use by adolescents aged 12 to 17 years is defined as using at least one of the following substances in the past month: alcohol, marijuana or hashish, cocaine (including "crack"), inhalants, hallucinogens (including PCP and LSD), heroin, or any nonmedical use of analgesics, tranquilizers, stimulants, or sedatives. Self-reported. High school students grades 9-12.
#26-10b	U.S.--National Household Survey on Drug Abuse (NHSDA), SAMHSA. Nebraska--Youth Risk Behavior Surveillance System, HHSS.	Self-reported. Adolescents aged 12 to 17. Self-reported. High school students grades 9-12.
#26-11c	U.S.--National Household Survey on Drug Abuse (NHSDA), SAMHSA.  Nebraska--BRFSS, HHSS.	Self-reported. Binge drinking is defined as drinking 5 or more alcoholic beverages at the same time or within a couple of hours of each other during the past 30 days. Same as U.S.
#26-11d	U.S.--National Household Survey on Drug Abuse (NHSDA), SAMHSA.  Nebraska--Youth Risk Behavior Surveillance System, HHSS.	Self-reported. Binge drinking is defined as drinking 5 or more alcoholic beverages at the same time or within a couple of hours of each other during the past 30 days. Adolescents aged 12 to 17 years. Same as U.S., except for high school students grades 9-12.
#26-xx	U.S.--Youth Risk Behavior Surveillance System, CDC. Nebraska--Youth Risk Behavior Surveillance System, HHSS. BRFSS.	Self-reported.  Self-reported.
<b>TOBACCO USE</b>		
#27-1a	U.S.--National Health Interview Survey (NHIS), CDC.  Nebraska--Behavioral Risk Factor Surveillance System (BRFSS), HHSS.	Percent of adults aged 18 and older who have smoked at least 100 cigarettes in their lifetime and who now report smoking cigarettes everyday or some days. Same as U.S.
#27-1b	U.S.--National Health Interview Survey (NHIS), CDC.  Nebraska--Behavioral Risk Factor Surveillance System (BRFSS), HHSS.	Percent of adults aged 18 and older who have used snuff or chewing tobacco at least 20 times in their lifetime and who now use it everyday or some days. Percent of adults aged 18 and older who report that they "currently use any smokeless tobacco products such as chewing tobacco or snuff."
#27-2	U.S.--Youth Risk Behavior Surveillance System (YRBS), CDC. Nebraska--Youth Risk Behavior Survey (YRBS).	Self-reported.  Self-reported.

#27-9	<p>U.S.--National Health Interview Survey (NHIS), CDC.</p> <p>Nebraska--Behavioral Risk Factor Surveillance System (BRFSS), HHSS.</p>	<p>Percent of children aged six and under living in households where a household resident smoked inside the home at least four days per week. Cigarette, cigar, and pipe smoking are all counted.</p> <p>Percent of households with children under five years of age where someone (the respondent or anyone else) has smoked cigarettes, cigars, or pipes anywhere inside your home in the past 30 days.</p>
-------	---	---



