

CHAPTER 1

WEST VIRGINIA AND WEST VIRGINIANS

DESCRIPTION OF THE STATE

West Virginia, commonly referred to as a South Atlantic state, is surrounded by Pennsylvania, Maryland, Virginia, Ohio, and Kentucky. The Appalachian Mountains extend through the eastern portion of the state, giving West Virginia its nickname of the “Mountain State.” Because of its mountainous terrain, West Virginia has the highest elevation of any state east of the Mississippi River. The second most rural state in the nation, 20 of West Virginia’s 55 counties are 100% rural according to the Census Bureau definition, with an additional 14 more than 75% rural. Even so, West Virginia is located within 500 miles of 60% of the nation’s population.

The state is traversed by two north/south and one east/west interstates that connect its major population centers. In addition, I-68, which ends at Morgantown, provides access to Washington, D.C., and Baltimore, Maryland. Winding secondary roads connect the majority of the state’s population, with little to no public transportation available between many of the small, isolated towns.

Population Trends and Characteristics. West Virginia reached its population peak a half century ago, with 2,005,552 residents counted in the 1950 census. The state’s population has not exceeded the two million mark since then, but has fluctuated between 1.7 and 1.9 million depending on the state’s economy. The estimated 1998 state population was 1,811,156, with a population density of 74.6 persons per square mile (see Figure 1). Compared to an estimated 8.7% increase in the national population between 1990 and 1998, West Virginia’s population grew only 1.0% during the same time period. Four of the state’s five largest cities have lost population since 1990. Charleston, the state capitol and largest city, and Huntington are the only places with populations exceeding 50,000.

The 1998 Statistical Abstract of the United States identifies four metropolitan statistical areas (MSAs) in West Virginia: Charleston, Huntington-Ashland, Parkersburg-Marietta, and Wheeling. To qualify as an MSA, the area must have one city with 50,000 or more residents, or a Census-Bureau-defined urbanized area of at least 50,000 residents and a total metropolitan population of at least 100,000.

West Virginia is among the most racially homogeneous states in the country. The 1990 census reported that 96.2% of the residents were white, with African-Americans accounting for 3.1% of the population, Asian/Pacific Islanders for 0.4%, and other races for 0.2%. These proportions are not expected to change drastically in the 2000 census count.

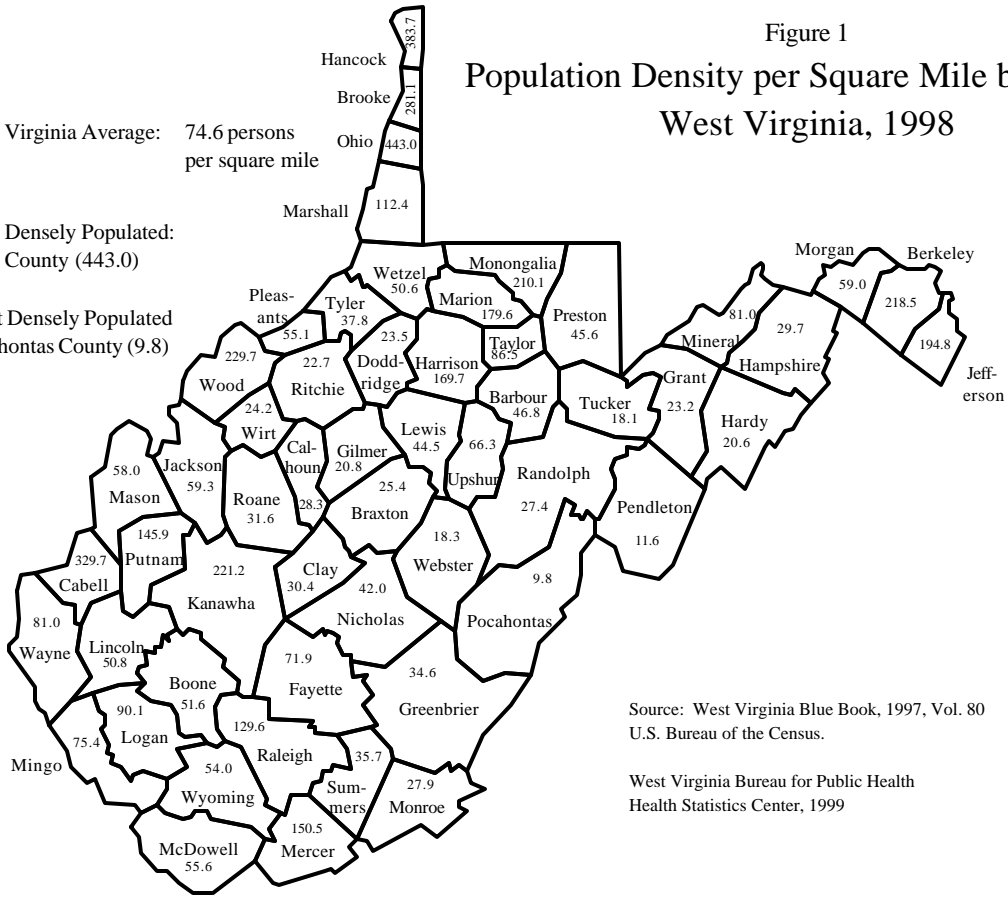
The composition of the state’s population by age has changed markedly during the last half of the century, and West Virginia now has the distinction of having the oldest median age in the nation (38.1 years), surpassing even that of Florida (38.0). The aging of the state was illustrated graphically in 1997 when West Virginia saw its first natural *decrease*, having had 137 more deaths in that year than births, the first state in the nation to experience such a phenomenon. Figure 2 presents the distribution by age group of the 1997 estimated populations of the state and the nation. The older age groups can be seen to compose a larger percentage of the population in West Virginia than in the U.S. as a whole. Because of its older population, West Virginia ranked 1st among the states in 1998 in the percentage of its residents enrolled in Medicare (18.4%, compared to a national average of 13.9%).

Figure 1
Population Density per Square Mile by County
West Virginia, 1998

West Virginia Average: 74.6 persons per square mile

Most Densely Populated: Ohio County (443.0)

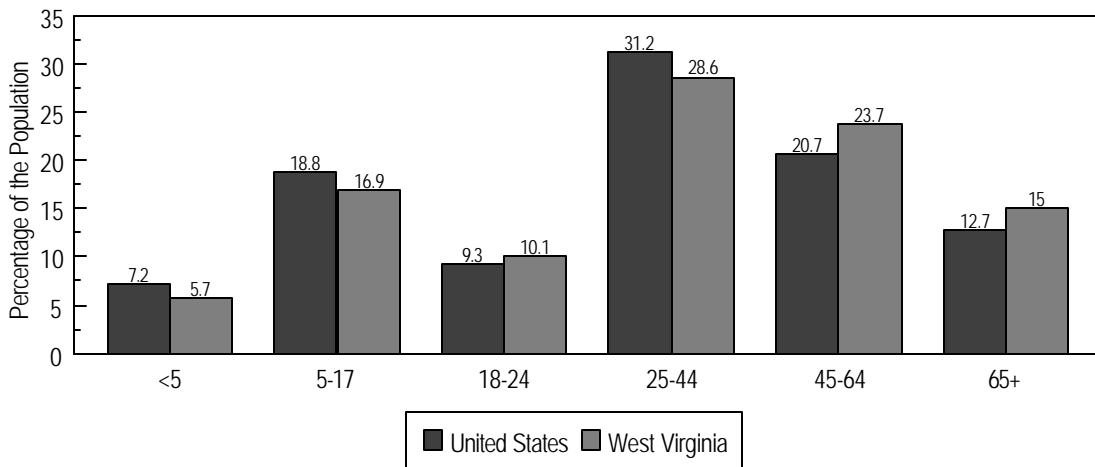
Least Densely Populated Pocahontas County (9.8)



Source: West Virginia Blue Book, 1997, Vol. 80
U.S. Bureau of the Census.

West Virginia Bureau for Public Health
Health Statistics Center, 1999

Figure 2
Distribution of the Population by Age Group
United States and West Virginia, 1997



West Virginia Bureau for Public Health
Health Statistics Center, 1999

Employment and Labor Force. Table 1 illustrates the shift in the state's major employers over the past 30 years. As indicated, the dominant industries in West Virginia have shifted from mining and manufacturing to services and service producing jobs. Traditionally, mining and manufacturing wage scales are much higher than those in service occupations and include benefits such as medical, dental, and vision plans. Service jobs, on the other hand, are frequently part-time and do not include insurance plans. The low wages earned at such jobs often do not allow individuals to purchase their own health insurance coverage.

Industry	1998	1988	1978	1968
Total Nonfarm Payroll	718.5	609.8	633.1	508.4
Private Sector	578.1	480.5	512.8	413.5
Goods Producing	140.4	145.9	227.0	203.9
All Mining	23.5	34.6	56.7	45.5
Coal Mining	18.7	29.4	51.6	40.7
Construction	34.5	24.3	43.7	26.0
Manufacturing	82.4	87.0	126.6	132.4
Service Producing	578.2	463.9	406.2	304.5
Transportation & Public Utilities	38.9	36.6	40.2	41.3
Trade	163.2	142.7	131.8	90.8
Finance, Insurance, & Real Estate	28.6	24.3	21.2	14.7
Services	207.0	131.1	92.7	62.8
Government	140.5	129.3	120.3	94.9
Source: West Virginia Bureau of Employment Programs, 1999				

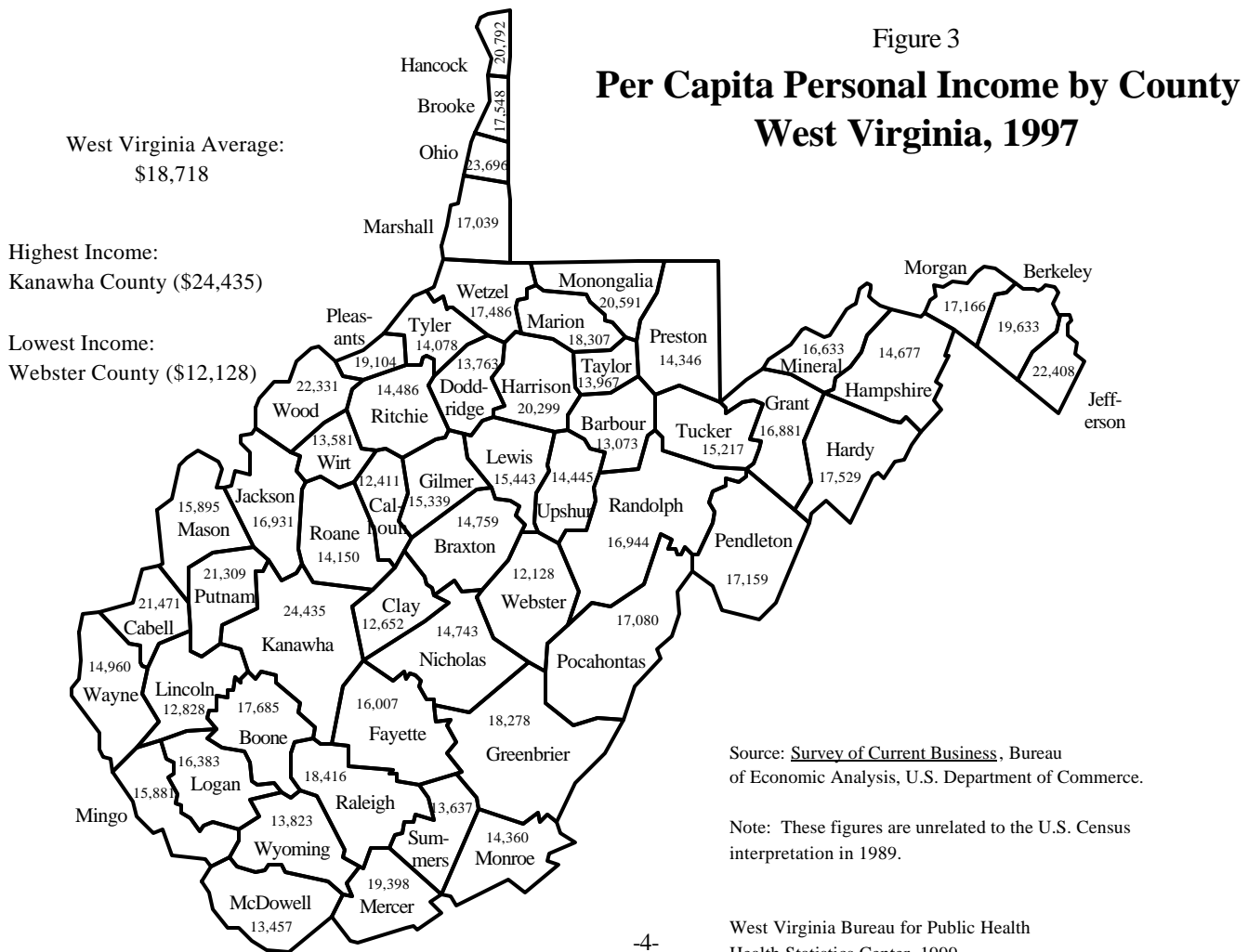
According to figures provided by the U.S. Department of Labor, Bureau of Labor Statistics, state unemployment stood at 6.6% in 1998, the highest of the 50 states and exceeded only by the District of Columbia. The national average in that year was 4.5%. Of all the states, West Virginia has the lowest percentage of women participating in the labor force. In 1997 (the most recent year for which data were available), only 47.8% of the state's women were participating in the civilian work force, compared to a national average of 59.3%.

Work disability is a significant problem in West Virginia. In 1990, 12.6% of the labor force had a work disability, and 8.4% were prevented from working at all due to a work disability. The latter figure is twice as high as that for the United States as a whole and the highest among the states.

Income and Education Statistics. Figures released by the U.S. Bureau of the Census place West Virginia 51st among the 50 states and the District of Columbia in median household income, using a three-year average of data from 1994-96. The state's median household income for those years was \$26,505, compared to a national median of \$36,399. The state's per capita personal income for 1997 was \$18,718, compared to \$25,298 for the United States. Figure 3 depicts average per capita income by county for 1997, which ranged from a high of \$24,435 in Kanawha County to a low of \$12,128 in Webster County.

As noted previously, there has been a dramatic decrease in high-paying mining and manufacturing jobs in West Virginia over the past 30 years, with a concurrent rise in the state's poverty rate. According to figures supplied by the U.S. Census Bureau and reported in *State Rankings 1999* (published by Morgan Quitno), in 1997 West Virginia ranked 5th in the nation in the percentage of its population living below the poverty line. Using a three-year average of data from 1995-97, 17.2% of the state's residents were living in poverty, compared to a national average of 13.6%.

The economic and health care costs of educational dropouts have a ripple effect through an area's economy. Individuals lacking a high school diploma have difficulty finding jobs that pay more than minimum wage and provide health insurance. The *1998 West Virginia Kids Count Data Book* reports that the number of high school dropouts in the state in 1996 was 4,046, or 16.7% of the students in grades 7 through 12. Dropout rates among counties ranged from 29.2% in Jefferson County to 7.1% in Marion County.



CHAPTER 2 HEALTH STATUS

The following chapter examines the health status of the residents of the Mountain State. Health is not just the absence of disease, but also includes the physical, mental, and social aspects that together make up the total well-being of the population. Health is influenced by biological, physical, genetic, and environmental factors as well as lifestyle choices. Among the health indicators that are examined are selected data on natality, mortality, behavioral risk factors, chronic illnesses, infectious diseases, and environmental health. Looked at together, these indicators can form a picture of the health of our residents that will help us determine our health care priorities. There are numerous other indicators of the health of a population that could be considered in this overview; however, limitations in data availability, as well as space and time constraints in the preparation of this document, have forced us to be selective in what is included. The indicators that were chosen are felt to provide a valid snapshot of the current state of the health of the majority of our residents. These data were provided by the Health Statistics Center, Office of Epidemiology and Health Promotion (OEHP), West Virginia Bureau for Public Health (WVBPH).

NATALITY

Live Births. Despite slight upturns between 1989 and 1991, West Virginia's birth rate has had an overall decline since 1980. In 1997, there were 20,744 live births to West Virginia residents for an overall birth rate of 11.4 births per 1,000 population, markedly lower than the overall U.S. rate of 14.9. The birth rate among teenagers aged 15-19 was 14% lower in West Virginia than in the United States as a whole, while that among women aged 20 and older was 23% lower.

Low Birthweight Births. In 1997, 8.3% of all births were of low birthweight, 8.2% of white babies and 12.8% of African-American babies. In the United States in that year, 7.4% of infants were low birthweight, 6.3% of white babies and 13% of African-American babies.

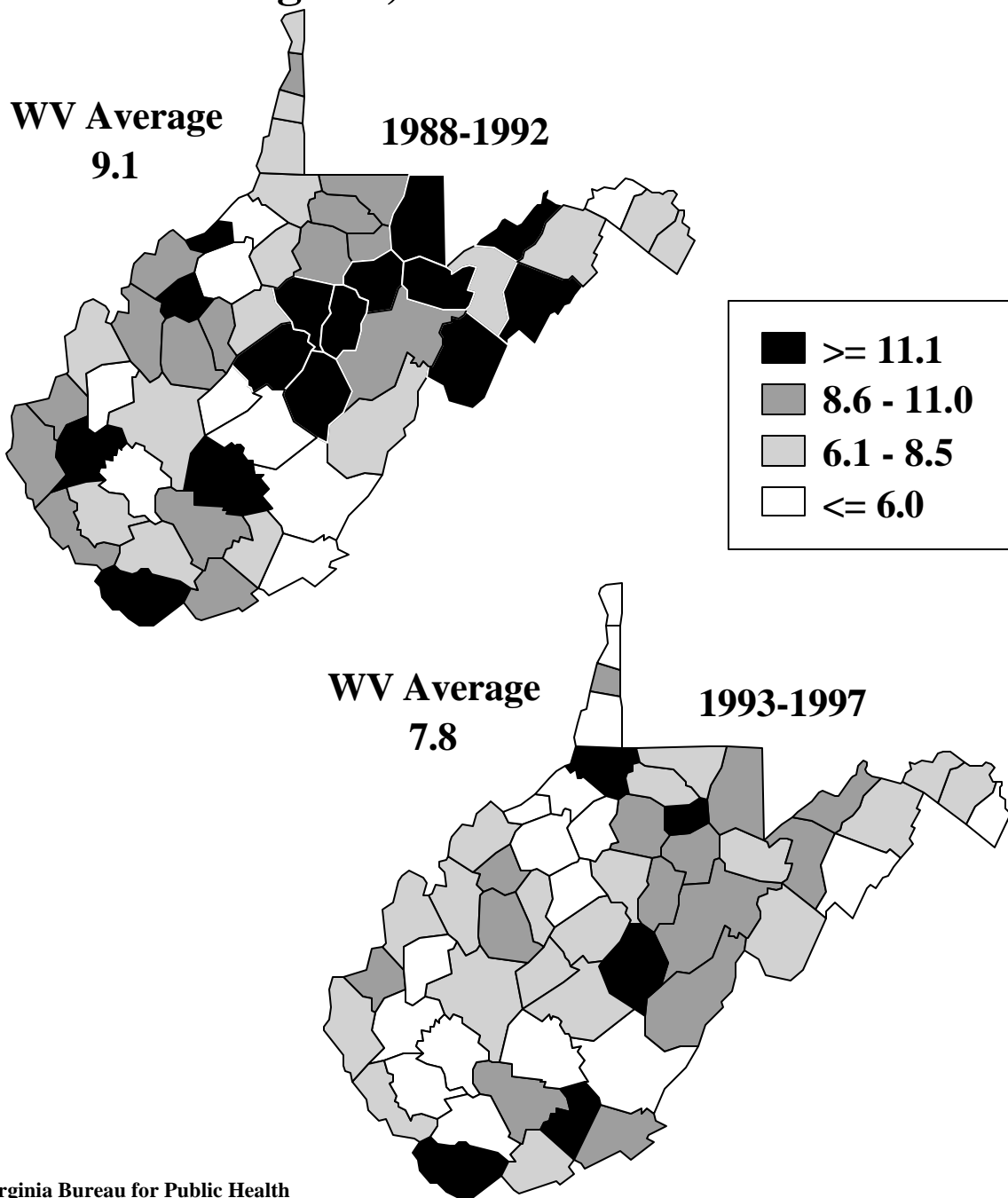
Prenatal Care. Among West Virginia mothers with known prenatal care, 82.0% began their care during the first trimester of pregnancy in 1997, compared to 82.5% of mothers nationwide. Among state residents, 82.5% of white mothers and 66.1% of African-American mothers reported first trimester care; the national rates were 87.9% and 72.3%, respectively.

INFANT MORTALITY

Infant deaths have long been viewed as an important indicator of a population's health. In 1997, West Virginia had 197 infant deaths for a rate of 9.5 deaths per 1,000 live births, 25% higher than the provisional U. S. rate of 7.1. The year before, however, the state reported 150 infant deaths for a rate of 7.2, the same as the national rate. The overall trend in infant mortality is downward, and Figure 4 illustrates how county infant mortality rates have changed during the 10-year period from 1988 through 1997.

Figure 4

Resident Infant Death Rates by County West Virginia, 1988-1992 and 1993-1997

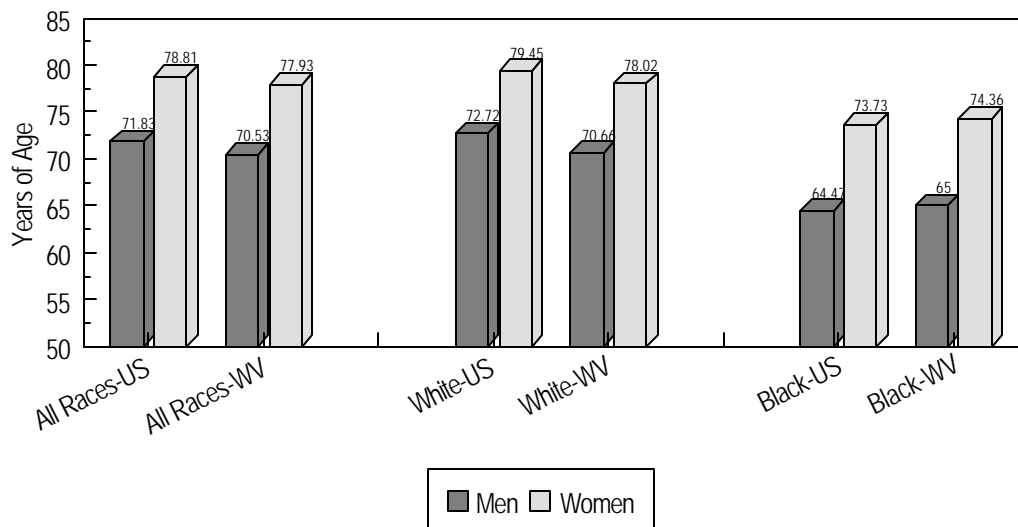


West Virginia Bureau for Public Health
Health Statistics Center, 1999

MORTALITY

Life expectancy is commonly used as a health status indicator and a tool to assess public health problems. The latest average life expectancies currently available are those calculated by the National Center for Health Statistics using 1990 census data (NCHS, May 1998). According to these data, West Virginia was ranked 44th among the states and D.C. in overall average lifetime. The graph below compares average life expectancy in 1990 by race and gender in the United States and West Virginia. While African-American men and women residing in West Virginia had slightly higher life expectancies than African-Americans nationwide in 1990, white residents of both sexes had life expectancies that were more than a year lower than their counterparts in the rest of the nation. Among all races, the average life expectancy for women in West Virginia was 77.93 in 1990, 7.40 years longer than that for men (70.53).

Figure 5
Average Life Expectancy by Race and Gender
United States and West Virginia, 1989-91



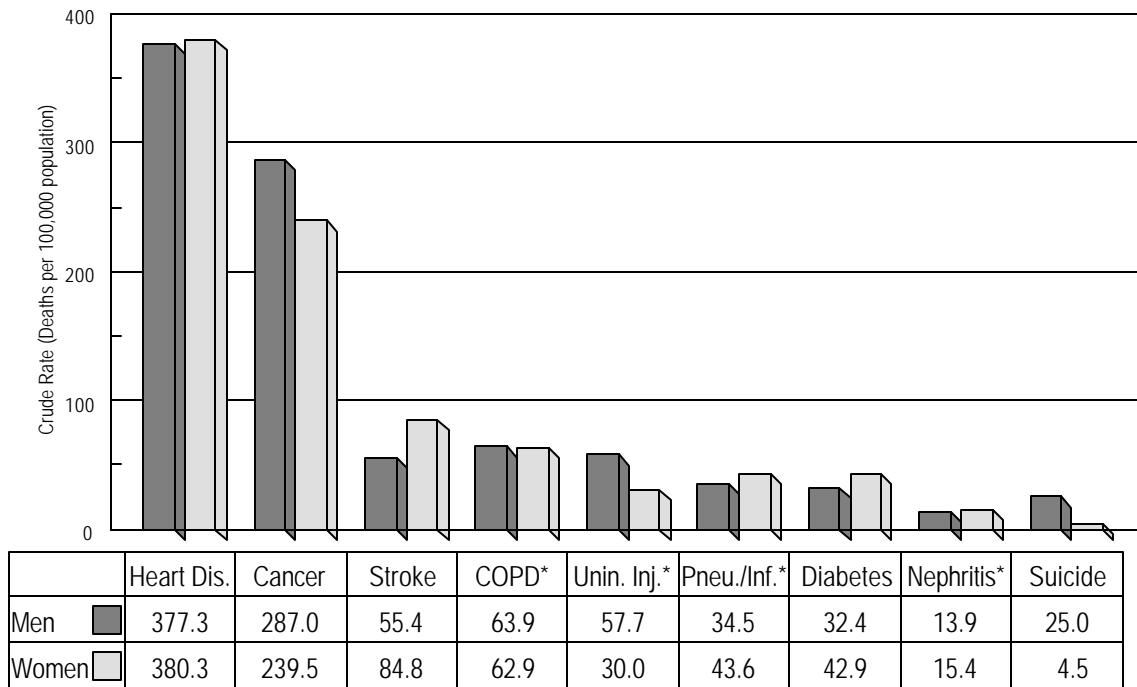
National Center for Health Statistics, 1998

The 1997 age-adjusted mortality rate in West Virginia was 10.1 deaths per 1,000 population, compared to a rate of 8.6 nationwide. Not only was the overall death rate higher in the state than in the nation as a whole in that year, but the state's cause-specific rates for the ten leading causes of death were all higher than the national rates. The ten leading causes of death in West Virginia in 1997, and the percentage differences with the comparable U.S. rates, were

- (1) diseases of the heart (+21.2%)
- (2) cancer (+13.8%)
- (3) stroke (+2.4%)
- (4) chronic obstructive pulmonary disease (+31.6%)
- (5) unintentional injuries, all forms (+22.2%)
- (6) pneumonia and influenza (+2.9%)
- (7) diabetes mellitus (+40.8%)
- (8) nephritis, nephrotic syndrome, and nephrosis (+34.0%)
- (9) suicide (+27.8%)
- (10) septicemia (+24.3%).

The rates for heart disease mortality differed little by gender in 1997, with 377.3 deaths per 100,000 men and 380.3 deaths per 100,000 women. Heart disease rates and other leading causes of death in that year are shown in the graph below, with rates for each sex given in the accompanying table. Men had higher rates of mortality from cancer, unintentional injury, and suicide, while women were more likely to have died from stroke, pneumonia/influenza, diabetes, and nephritis, nephrotic syndrome, and nephrosis.

Figure 6
Leading Causes of Death by Gender
West Virginia, 1997



*Chronic Obstructive Pulmonary Disease; Unintentional Injury;
Pneumonia/Influenza; Nephritis, Nephrotic Syndrome, and Nephrosis
WVBP, Health Statistics Center, 1999

Heart Disease. Coronary heart disease is the decreased flow of blood through the coronary arteries, usually caused by atherosclerosis. This results in a decreased oxygen supply to the heart muscle and can cause reduced function of the heart muscle and destruction of heart muscle cells (myocardial infarction or “heart attack”). Heart disease has been the leading cause of death in the nation since 1921. Beginning in the 1950s, there has been a decline in heart disease mortality for several reasons, including the adoption of healthier lifestyles and improved medical interventions, but this decline has been slower in West Virginia than in the country as a whole, due in part to the state’s high prevalence of diabetes, a recognized risk factor for cardiovascular disease. In 1997, the latest year for which final data were available at time of publication, the age-adjusted mortality rate for heart disease in the state was 328.8 deaths per 100,000 population, 21% higher than the U.S. rate of 271.2 in that year. (Mortality rates presented in Figure 6 are crude rates and thus will not match age-adjusted rates provided in this discussion.) Heart disease deaths were aggregated for the years 1993-97 to produce average age-adjusted rates on the county level. For that time period, Mingo County had the highest rate of heart disease mortality at 431.3 deaths per 100,000, while Monroe County had the lowest rate at 223.4. Appendix C contains heart disease mortality rates for all 55 counties.

The Healthy People 2000 Objective¹ specifically addressing heart disease:

Objective 15.1. Reduce deaths due to diseases of the heart to no more than 300 per 100,000 population

Cancer. Cancer is a group of more than 100 diseases that occur when normal cells become transformed into malignant cells, which then grow and multiply without control or order. Without treatment to stop this growth, cancer cells can spread throughout the body, resulting in illness and death. One person in three will develop cancer in his or her lifetime even though many cancers are preventable. Researchers estimate that if everything known about the prevention of cancer could be applied, about two-thirds of cancers would not occur.

Cancer is the second leading cause of death in both West Virginia and the United States. In 1997, the state's age-adjusted rate of cancer death was 228.5 per 100,000, which was 14% higher than the national rate of 200.8. Within the state, Logan County reported the highest age-adjusted 1993-97 rate of cancer mortality at 274.1 per 100,000, while Grant reported the lowest at 140.3. County rates are found in Appendix C.

The Healthy People 2000 Objectives applicable to cancer:

Objective 16.1 Increase to at least 80% the proportion of women age 40 and older who have ever received a clinical breast examination and a mammogram, and to at least 60% those aged 50 and older who have received them within the preceding one or two years.

Objective 16.2 Increase to at least 95% the proportion of women aged 18 and older who have ever received a Pap Test, and to at least 85% those who received a Pap Test within the preceding two years.

Objective 16.3 Reduce cigarette smoking to a prevalence of no more than 15% among West Virginians aged 18 and older.

Cerebrovascular Disease. Cerebrovascular disease is the loss of muscle function, vision, sensation, or speech resulting from brain cell death. Ischemic stroke, about 80% of all strokes, is caused by a severe reduction in blood supply to part of the brain. Blood flow becomes obstructed due to blockage of an artery by atherosclerosis or by bits of debris (emboli) transported through the bloodstream, usually from the heart. Many strokes could be prevented by reducing the risk factors for atherosclerosis, including high blood pressure, eliminating cigarette smoking, and increasing physical activity.

Cerebrovascular disease is the third leading cause of death in West Virginia, as well as in the rest of the nation. In 1997, there were 1,252 deaths from stroke in the state, resulting in an age-adjusted rate of 61.2

¹The West Virginia Healthy People 2010 initiative is currently in progress, including the establishment of new and/or updated objectives based upon the most recent data and needs assessments available. These new objectives will be issued in the spring of 2000. The Healthy People 2000 objectives are provided in this document only to illustrate the range and focus of the Healthy People initiative, as well as its applicability to the state health planning process. Baseline data are not provided for the Year 2000 objectives for this reason. Updates on the HP 2000 objectives are available from the Office of Epidemiology and Health Promotion, WVBPH.

per 100,000. This was slightly higher (+2.4%) than the national rate of 59.7. Data from 1993-97 show Wetzel County with the highest rate of stroke mortality (76.6 per 100,000) and Summers County with the lowest rate (35.0). See Appendix C for a listing of all county cerebrovascular disease rates.

The Healthy People 2000 Objectives applicable to cerebrovascular disease:

Objective 15.2 Reduce deaths due to cerebrovascular disease to no more than 20 per 100,000 population.

Objective 15.3 Reduce the current rate of hypertension among adults in West Virginia to 15%.

Chronic Obstructive Pulmonary Disease (COPD). COPD is a chronic disorder that disturbs airflow, either in the airways or within lung tissue. The three disorders generally included in this disease category are chronic bronchitis, emphysema, and asthma, although there are others. Individuals frequently have features of more than one of these conditions. COPD occurs more frequently in some families, so there may be an inherited tendency. Working in an environment polluted by chemical fumes or nonhazardous dust may also increase the risk of COPD. However, smoking remains the most serious risk factor for the disease.

Chronic obstructive pulmonary disease was the fourth leading cause of death in both the state and the nation in 1997. West Virginia has a markedly higher rate of COPD than the nation as a whole. The state's 1997 age-adjusted rate of 54.4 deaths per 100,000 population was 32% higher than the national average of 41.3. County rates from 1993-97 for COPD are presented in Appendix C; Webster County had the highest rate (85.6), while Pendleton County had the lowest (19.4).

The Healthy People 2000 Objective applicable to COPD:

Objective 16.3 Reduce cigarette smoking to a prevalence of no more than 15% among West Virginians aged 18 and older.

Unintentional Injuries, All Forms. Unintentional injuries are injuries related to motor vehicle accidents (including all terrain vehicles), falls, fires and burns, drowning, occupational injuries, accidental firearm injuries, and poisonings. It is the leading cause of premature death in West Virginia and the United States. In 1997, unintentional injuries were tied with malignant neoplasms as the leading cause of death for children aged one through four years and were by far the leading cause among persons aged five through 34. West Virginia's 1997 age-adjusted rate of 42.1 deaths per 100,000 population was 22% higher than the U.S. average rate of 34.5. On the county level, Pendleton County had the highest average 1993-97 rate at 87.2 deaths per 100,000, and Tyler County had the lowest rate at 18.0. Appendix C contains county rates.

Of particular concern in West Virginia are injuries occurring as a result of all terrain vehicle (ATV) accidents. From 1985 through 1997, West Virginia ranked 7th nationally in the number of ATV-related deaths (113). The state's rate of fatality from ATV accidents was second highest during that time period with a rate of 6.3 deaths per 100,000 population, compared to a national average rate of 1.2.

The Healthy People 2000 Objectives applicable to unintentional injuries:

Objective 9.1 Reduction of motor vehicle crash deaths among children aged 14 and under to 6.0 deaths per 100,000 population.

Objective 9.2 Reduction in the number of falls and fall-related injuries among persons aged 85+ to 105.0 per 100,000 population.

Objective 9.3 Reduction in mortality rate due to fire and burns among children under the age of five to 3.1 per 100,000 population.

BEHAVIORAL RISK FACTORS

Behavioral risk factors are health behaviors that can place individuals at risk of preventable illness and death. Because of their severe toll on our population, four such lifestyle choices have been selected for review in this document: **tobacco use, obesity, sedentary lifestyle, and alcohol misuse**. Data describing these risk factors are taken from the Behavioral Risk Factor Surveillance System (BRFSS) administered in the WVBPH's Office of Epidemiology and Health Promotion.

Tobacco Use. According to the Surgeon General, smoking is the single most preventable cause of death and disability in our society, and the health care costs of tobacco use in the United States are staggering. It is estimated that the costs of smoking annually exceed \$100 billion for health care expenditures for tobacco-related diseases and lost productivity of workers. Each year smoking kills more than 400,000 Americans, more than died in battle in World War II and the Vietnam War combined. In West Virginia alone, more than 4,000 persons die each year as a result of tobacco. Smoking is a major risk factor for heart disease and cancers of the lung, larynx, pharynx, oral cavity, pancreas, kidney, and urinary bladder. Smoking during pregnancy is associated with low birthweight and increased risk for spontaneous abortion, fetal death, and neonatal death. Figure 7 illustrates the percentages of 1997 hospital discharges by county that were attributable to tobacco-related diseases. Individual county data are included in Appendix C.

In 1997, the rate of smoking among West Virginia adults was 27.4%, ranking the state fifth among the 50 states, the District of Columbia, and Puerto Rico. The prevalence of smoking in West Virginia has trended downward slightly since 1986, although the trend has been reversed since a low of 24.8% reported in 1992. Overall, the smoking rate has only decreased an average of 0.7% annually since 1985, a discouraging finding. Table 2 presents 1997 smoking rates by selected characteristics and shows a high prevalence of smoking among women of childbearing ages. County smoking rates are found in Appendix C. The southern counties generally report higher rates of smoking than other parts of the state, although only eight counties reported rates that were lower than the U.S. average of 22.1% from 1991-95.

Smokeless tobacco use has traditionally been viewed as a safe alternative to smoking, but this is no longer recognized as true. Health problems associated with smokeless tobacco use include oral cancer, cancers of the throat and stomach, tooth decay and loss, and periodontal disease. Smokeless tobacco use in West Virginia is epidemic. In 1997, nearly one-fifth (18.4%) of West Virginia men reported this activity. While a varying number of BRFSS participants have included this topic in their surveys since the questions were first available in 1986, West Virginia has consistently ranked first or second among them in smokeless tobacco use. Table 3 contains data on smokeless tobacco use by sex, age, education, and income. Looking at 1991-95 county data shows that all but eight counties reported smokeless tobacco use that was significantly higher than the U.S. average. Only in Ohio County was the rate lower than the U.S. rate. Individual county rates are given in Appendix C.

Table 2
PREVALENCE OF CURRENT CIGARETTE SMOKING
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	27.3	27.6	27.4
AGE			
18-24	30.8	44.7	37.6
25-34	31.0	34.4	32.7
35-44	36.9	33.0	34.9
45-54	28.8	22.1	25.4
55-64	22.1	29.2	25.9
65+	11.0	13.8	12.7
EDUCATION			
< 12 Years	31.5	33.9	32.9
12 Years	35.3	28.4	31.7
13-15 Years	19.1	28.6	24.5
16+ Years	11.5	13.8	12.6
INCOME			
<\$15,000	35.5	31.9	33.4
\$15,000 - \$24,999	30.8	33.6	32.3
\$25,000 - \$49,999	25.4	23.4	24.5
\$50,000 +	21.6	19.6	20.6

Figure 7 is available in the Appendix.

Table 3
PREVALENCE OF SMOKELESS TOBACCO USE
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	18.4	0.2	8.7
AGE			
18-24	16.7	0.0	8.6
25-34	24.4	0.5	12.3
35-44	19.1	0.0	9.2
45-54	18.7	0.2	9.3
55-64	17.7	0.0	8.2
65+	12.9	0.2	5.4
EDUCATION			
< 12 Years	24.7	0.6	11.1
12 Years	19.1	0.1	9.4
13-15 Years	18.2	0.0	7.9
16+ Years	9.8	0.0	5.1
INCOME			
<\$15,000	23.2	0.5	9.2
\$15,000 - \$24,999	16.4	0.3	7.7
\$25,000 - \$49,999	20.5	0.0	10.9
\$50,000 +	12.1	0.0	6.2

The West Virginia Healthy People 2000 Objectives addressing tobacco use:

Objective 3.1 Reduce cigarette smoking to a prevalence of no more than 15% among West Virginians age 18 and older.

Objective 3.2 Expand public smoking restriction laws to include enclosed public places, work sites, health care facilities, day care centers, and schools.

Objective 3.3 Reduce the use of smokeless tobacco to a prevalence of no more than 10% among males 18 and older.

Objective 3.4 Reduce the initiation of tobacco product use by children and youth so that no more than 15% have become regular users by age 20.

Obesity and Overweight. Obesity is defined by the BRFSS as weighing at least 120% of one's ideal weight as determined by the Metropolitan Life Insurance Company's 1959 height/weight tables. Obesity is a major risk factor for cardiovascular disease, arthritis, gall bladder disease, and some forms of cancer. It is the most important preventable cause of diabetes. Obesity is associated with hypertension, and weight reduction tends to reduce blood pressure. Exercise is essential to successful weight loss, in addition to a well-balanced, calorie-restricted diet.

West Virginia ranked number one in obesity prevalence among all 50 states, the District of Columbia, and Puerto Rico in the 1997 BRFSS survey. The state's rate in that year was 41.2%, compared to a U.S. average of 35.6%. Since data collection on obesity began in 1984, the prevalence has risen an average of

3.6% each year; this trend shows no sign of reversing. In 1997, 23 counties reported rates of obesity that were statistically significantly higher than the national average. County prevalences are found in Appendix C.

Overweight is defined as weighing 10% to 19% over one's ideal weight. In 1997, 19.1% of adults surveyed met this definition. When the rate of overweight is combined with that of obesity, six out of every ten adults in West Virginia report being at least 10% over their ideal, healthy weight.

The following tables present obesity and overweight rates by sex, age, and socioeconomic characteristics.

Table 4
PREVALENCE OF OBESITY
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	41.5	40.9	41.2
AGE			
18-24	27.7	23.5	25.7
25-34	44.0	37.2	40.6
35-44	47.6	42.0	44.8
45-54	52.3	49.2	50.8
55-64	41.4	50.6	46.2
65+	32.1	40.8	37.2
EDUCATION			
< 12 Years	42.0	43.4	42.8
12 Years	41.9	40.5	41.2
13-15 Years	39.2	43.2	41.4
16+ Years	43.3	34.7	39.3
INCOME			
<\$15,000	40.2	42.3	41.5
\$15,000 - \$24,999	36.1	43.7	40.2
\$25,000 - \$49,999	46.6	37.9	42.6
\$50,000 +	44.9	45.9	45.4

Table 5
PREVALENCE OF OVERWEIGHT
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	23.1	15.4	19.1
AGE			
18-24	15.3	6.6	11.1
25-34	21.5	10.8	16.1
35-44	25.7	17.6	21.6
45-54	21.8	19.2	20.6
55-64	27.8	18.5	21.7
65+	25.8	18.5	21.5
EDUCATION			
< 12 Years	17.9	17.6	17.8
12 Years	21.1	15.6	18.3
13-15 Years	25.9	11.2	17.8
16+ Years	30.0	18.7	24.7
INCOME			
<\$15,000	16.6	14.6	15.4
\$15,000 - \$24,999	23.2	14.0	18.3
\$25,000 - \$49,999	26.4	17.0	22.1
\$50,000 +	24.1	17.5	21.0

The West Virginia Healthy People 2000 Objectives applicable to obesity:

Objective 1.1 Reduce the rate of sedentary lifestyle among resident adults to 60%.

Objective 1.2 Reduce the state's overall prevalence of obesity to 26%.

Objective 2.2 Decrease frequency of high-fat foods consumed by West Virginia youth and adults.

Objective 2.3 Increase identification of major sources of fat in diets of people aged 18 and older.

Sedentary Lifestyle and Physical Inactivity. Exercise is extremely important in maintaining health, and it has been recognized that the life expectancy of physically active people exceeds that of inactive people. Inactivity elevates the risk of coronary heart disease; studies have shown that regular physical activity reduces this risk, as well as helping to prevent hypertension, Type II diabetes, osteoporosis, and obesity.

Sedentary lifestyle is defined by the BRFSS as not engaging in leisure-time physical activity for at least 20 minutes, at least three times a week. The rate of sedentary lifestyle among adult respondents to the BRFSS in 1996 (the latest year for which data were available) was 67.6%, over two-thirds of all adult residents. The prevalence of sedentary lifestyle has increased approximately 1% annually since 1984.

Physical inactivity is defined as the failure to report any leisure-time physical activity at all. In 1996

West Virginia ranked third among 49 states and the District of Columbia in physical inactivity, with a prevalence of 42.7%. This means that more than four out of every 10 adult West Virginians did not engage in any leisure-time activity during the month prior to their interview. In 1984, the first year of BRFSS data collection, 27.3% of respondents reported no physical activity. The rate of this risk factor has risen statewide an average of 4.1% each year, an alarming statistic.

County data are available only for sedentary lifestyle; using 1991-95 data, 46 counties reported rates of sedentary lifestyle that were significantly higher than the estimated U.S. prevalence of 57.7%, eight counties had rates that were higher than the U.S. rates but not significantly so, and only three (Monongalia, Brooke, and Ohio) had lower rates. County prevalences are listed in Appendix C.

Table 6 breaks down the statewide rates of sedentary lifestyle by respondent sex, age, education, and household income level.

Table 6
PREVALENCE OF SEDENTARY LIFESTYLE
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	66.9	68.2	67.6
AGE			
18-24	61.7	60.5	61.1
25-34	62.2	63.0	62.6
35-44	70.1	63.4	66.6
45-54	65.9	64.1	65.0
55-64	73.3	71.6	72.4
65+	78.3	80.7	76.8
EDUCATION			
< 12 Years	81.8	85.5	83.9
12 Years	71.9	66.4	69.0
13-15 Years	62.0	66.9	64.6
16+ Years	43.8	49.1	46.5
INCOME			
<\$15,000	78.0	76.1	76.8
\$15,000 - \$24,999	71.1	73.1	72.2
\$25,000 - \$49,999	68.9	60.9	64.9
\$50,000 +	45.1	52.4	48.5

The West Virginia Healthy People 2000 Objective addressing sedentary lifestyle:

Objective 1.1 Reduce the rate of sedentary lifestyle among resident adults to 60%.

Alcohol Misuse. Many people who choose to drink alcohol can limit their consumption to amounts that cause no harmful health or social consequences. Millions of other people, however, use alcohol excessively or unwisely and suffer adverse consequences. According to the National Institute of Alcohol Abuse and Alcoholism, more than 13 million Americans abuse alcohol. As a result, alcohol abuse and alcoholism are major social, economic, and public health problems. In the United States, the annual cost of lost productivity and health expenses related to alcohol are estimated to be almost 100 billion dollars.

The excessive use of alcohol is a major contributor to cirrhosis of the liver, motor vehicle accidents and other unintentional injuries, suicides, and homicide. Chronic abuse increases the risk for cancer of the mouth and throat and other types of cancer, suppresses the immune system, and can damage the heart muscle and gastrointestinal tract. Alcohol consumed during pregnancy can increase the risk of certain birth defects.

According to the BRFSS, West Virginia's rates of alcohol misuse by adults are lower than those reported by the majority of the other states. In 1997, the state's prevalence of heavier drinking (60 or more drinks in the month prior to the interview) was 2%, ranking the state 46th among the BRFSS participants. The prevalence of binge drinking (five or more drinks on one occasion during the previous month) was 8%, giving the state a rank of 49th, and the rate of drinking and driving was 1%, ranking the state 50th. Among 18 to 24 year old males, however, the rate of binge drinking was 30%. County rates are provided in Appendix C.

Even though West Virginia's rates of alcohol misuse appear low in relation to other states (and it must be remembered that the BRFSS data are *self-reported*), charges and hospitalizations for alcohol-related diagnoses in the state are significant. Provisional data for 1997 show that gross charges for primary and secondary diagnoses related to alcohol among West Virginia residents totaled \$144,742,918. Figure 8 illustrates gross hospital charges for 1997 by county attributable to alcohol-related diagnoses, both in actual dollars and normalized by population. County data are included in Appendix C. The 167,586 resident discharges for alcohol-related problems in that year represented 116,986 inpatient days.

Tables 7 through 9 present BRFSS data on alcohol misuse risk factors.

Figure 8 is available in the Appendix

Figure 8 is available in the appendix.

Table 7
PREVALENCE OF HEAVIER DRINKING
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	3.9	40.5	2.1
AGE			
18-24	7.3	3.0	5.2
25-34	2.3	0.0	1.1
35-44	4.5	0.4	2.4
45-54	3.5	0.0	1.7
55-64	3.4	0.8	1.9
65+	3.3	0.0	1.3
EDUCATION			
< 12 Years	3.5	0.3	1.7
12 Years	4.1	0.0	2.0
13-15 Years	5.6	1.5	3.2
16+ Years	2.0	0.5	1.3
INCOME			
<\$15,000	7.5	1.2	3.5
\$15,000 - \$24,999	4.8	0.3	2.3
\$25,000 - \$49,999	3.1	0.5	1.9
\$50,000 +	3.7	0.5	2.1

Table 8
PREVALENCE OF BINGE DRINKING
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	13.8	3.6	8.4
AGE			
18-24	29.7	10.3	20.2
25-34	16.5	6.7	11.5
35-44	16.2	5.3	10.5
45-54	12.4	1.3	6.8
55-64	7.6	0.1	3.6
65+	2.0	.02	0.9
EDUCATION			
< 12 Years	7.3	2.7	4.7
12 Years	14.4	2.4	8.2
13-15 Years	19.5	6.6	12.2
16+ Years	12.7	3.1	8.1
INCOME			
<\$15,000	18.0	4.8	9.9
\$15,000 - \$24,999	14.8	3.7	8.8
\$25,000 - \$49,999	13.2	3.3	8.6
\$50,000 +	15.8	4.5	10.3

Table 9
PREVALENCE OF DRINKING AND DRIVING
BY SELECTED CHARACTERISTICS
1997 WEST VIRGINIA BEHAVIORAL RISK FACTOR SURVEY

CHARACTERISTIC	MEN	WOMEN	TOTAL
	1.4	0.3	0.8
AGE			
18-24	2.7	0.0	1.4
25-34	1.1	0.9	1.0
35-44	1.0	0.9	1.0
45-54	1.7	0.0	0.8
55-64	2.3	0.0	1.1
65+	0.3	0.0	0.1
EDUCATION			
< 12 Years	0.5	0.7	0.6
12 Years	1.6	0.2	0.9
13-15 Years	1.1	0.3	0.7
16+ Years	2.1	0.3	1.2
INCOME			
<\$15,000	2.4	0.2	1.0
\$15,000 - \$24,999	1.4	0.9	1.1
\$25,000 - \$49,999	1.2	0.3	0.8
\$50,000 +	1.8	0.0	0.9

The Healthy People 2000 Objectives addressing alcohol misuse:

Objective 4.1 Reduce the harm to youth and adolescents caused by early use of alcohol, tobacco, marijuana, and other drugs. (Increase by at least one year the average age of first use of alcohol, tobacco, and other drugs by adolescents.)

Objective 4.2 Establish and monitor comprehensive plans to ensure access to alcohol and drug treatment programs for traditionally underserved people.

Objective 4.3 Extend adoption of alcohol and drug policies for the work environment to at least 60% of worksites with 50 or more employees.

INFECTIOUS DISEASES

An infectious disease is any disease that is caused by growth of pathogenic microorganisms in the body. The principal causes of infections are agents belonging to the following groups of microorganisms: viruses, bacteria, rickettsiae, fungi, and animal parasites (helminths). This section examines diseases that can be

spread from one organism to another – often from one human to another. Some of them – tuberculosis, for example -- were once among the major causes of death.

Control of infectious disease has been a major reason for declining death rates and improved health in the United States during the 19th and 20th centuries, and public health activities are responsible for much of this improvement. In our preoccupation with increasingly technical and specialized medical care, we sometimes overlook the importance of such basics as sanitation, water quality, education, food safety, bacteriology, epidemiology, and immunization in protecting our health. While there has been great progress in controlling communicable disease, the data presented in this section demonstrate that we should not be complacent. Despite the relatively low death rates from most communicable diseases, they merit continuing vigilance. All data in this section were provided by the Division of Surveillance and Disease Control, Office of Epidemiology and Health Promotion, WVBPH.

In 1998 the top 15 reportable diseases in West Virginia, in rank order, were (1) Chlamydia; (2) Gonorrhea; (3) Salmonellosis; (4) Campylobacteriosis; (5) Giardiasis; (6) Aseptic Meningitis; (7) Animal Rabies; (8) Arboviral Encephalitis; (9) Tuberculosis; (10) Other Bacterial Meningitis; (11) Meningococcal, Invasive Disease; (12) E.Coli; (13) Hepatitis B; (14) Lyme Disease; and (15) Shigellosis.

AIDS and HIV Infection. AIDS reporting in West Virginia began in 1984; HIV reporting began in 1989. Between 1984 and June 30, 1999, 977 cases of AIDS were reported in the state. There were 498 cases of HIV reported from 1989 through June 30, 1999. Of the 977 cases of AIDS, 87.5% were found in males; 12.5% in females. By race, whites accounted for 81% of the cases, African Americans for 18%, with 1% other or unknown. Nine out of every 10 cases (89%) were reported in persons aged 20 through 49.

The Healthy People 2000 Objectives addressing AIDS and HIV:

Objective 18.1 Confine the annual incidence of diagnosed AIDS cases to no more than 115 cases.

Objective 18.2 Confine the prevalence of HIV infection to no more than 8 per 100,000 population.

Objective 18.3 Increase to at least 95% the proportion of middle and secondary schools that have included HIV instruction in their curricula as part of comprehensive school health education.

STDs. The two leading reportable diseases in West Virginia are sexually transmitted diseases (STDs). STDs are infections that are often, if not always, passed from person to person through sexual contact. They are among the most common infectious diseases in the world. In 1995, although African-Americans comprised only 3.1% of the state's population, they accounted for 24% of all reported cases of gonorrhea and chlamydia.

Chlamydia is an STD caused by the bacterium *Chlamydia trachomatis*. In 1995, 45% of the reported chlamydia cases occurred among individuals aged 20-29, while 41% of cases occurred among people aged 15-19. There were 2,378 cases of chlamydial infections reported in West Virginia in 1998.

Gonorrhea is an STD caused by the bacterium *Neisseria gonorrhoeae*. In 1995, 43% of the reported cases of gonorrhea occurred among individuals aged 20-29, while 34% of cases occurred among persons aged 15-19. Gonorrhea is the second leading reportable infectious disease in West Virginia with 856 cases reported in 1998.

Other Reportable Diseases. **Salmonellosis** is a bacterial infection that can cause diarrheal disease. Salmonella has been implicated as responsible for about a third of the cases of diarrhea from contaminated food. Salmonella generally originates within the food itself (as opposed to coming from the hands of infected food handlers). The populations thought to be at greatest risk are those at the extremes of age—the very young and the very old. Salmonella infections generally occur in the summer and fall. Recently, some evidence has been found to suggest that salmonella occurs in animals treated with antibiotics. The use of tetracycline for growth promotion in animals may increase the risk of salmonella infection in individuals who consume meats from these animals. The potential risk for consumers is now an area of intense investigation. In 1998 there were 181 cases of salmonellosis reported in West Virginia.

Campylobacteriosis is also a bacterial infection, which occurs in all age groups, but the largest percentages occur in children younger than one year of age and in young adults. Campylobacter may be the most common bacterial cause of infectious diarrhea in young adults. The most common source of campylobacter appears to be contaminated food, particularly raw milk and poultry. In 1998 there were 105 cases of campylobacteriosis in West Virginia.

Disease	Additional Reportable Disease Numbers	
	1998 Cases Reported	1993 - 1998 (1998 Is Provisional) Cases Reported
Giardiasis	90	480
Aseptic Meningitis	87	436
Animal Rabies	77	556
Arboviral Encephalitis	46	444
Tuberculosis	42	379
Other Bacterial Meningitis	26	170
Meningococcal, Invasive Disease	19	75 (1993, 96-98)
E.Coli	14	14 (1998 provisional only)
Hepatitis B	14	211
Lyme Disease	13	13 (1998 provisional only)
Shigellosis	<u>11</u>	<u>249</u>
1998 Total Reportable Diseases	439	3,027

The West Virginia Healthy People 2000 Objective addressing gonorrhea:

Objective 19.3 Contain gonorrhea to an incidence of no more than 75.8 cases per 100,000 population.

ENVIRONMENTAL HEALTH

Environmental health comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social, and psychosocial factors in the environment. It also refers

to the theory and practice of assessing, correcting, and preventing those factors in the environment that can potentially affect adversely the health of present and future generations.

Radon. Radon, a colorless, odorless, radioactive gas causes thousands of deaths from cancer annually. Since radon levels below four picocuries per liter can still cause lung cancer, the Environmental Protection Agency (EPA) recommends testing your home for radon and “radon-proofing” your home if the radon level is four picocuries or higher. Testing is inexpensive and easy, and there are simple ways to fix your home to prevent radon from leaking in through cracks in solid floors, construction joints, cracks in walls, gaps in suspended floors and around pipes, and through water supplies.

Asbestos. Exposure to asbestos claimed 259,000 lives between 1965 and 1999, with asbestos-related cancer deaths peaking in 1992. Although a continuing decline is projected, asbestos-related diseases are typically diagnosed 15 to 40 years after initial exposure. Such deaths will therefore continue to occur; it is projected that approximately 166,000 additional deaths will occur between 1999 and 2030 due to asbestos exposure.

Water. The vigilance over West Virginia’s public water system is given as an example in this document to illustrate how the state’s environmental health standards protect its citizens. Noteworthy environmental efforts in this area include the WVBPH’s Wellhead Protection Program, Source Water Assessment and Protection Program, the Infrastructure and Capacity Development Programs, and Ground Water Under the Direct Influence Program, all designed to supply West Virginians with safe drinking water. These programs are particularly necessary in a state where many water tables exist in terrain fractured by mining activity.

The Wellhead Protection Program (WHPP) was established in 1992 as a consequence of the Safe Drinking Water Act. This act mandates that a WHPP be prepared for each Public Water Supply System (PWSS) that utilizes ground water as a source. WHPP requires that each PWSS recharge area around the supply well(s) be designated as the wellhead protection area based on the type of aquifer, amount of water usage, hydrogeologic characteristics, etc. Once the area has been defined, an inventory of potential contaminant sources within it must be compiled. Also, a contingency/emergency and land management plan must be prepared for the PWSS.

The Source Water Assessment and Protection Program (SWAP) is an EPA program that is mandated by the 1996 amendments to the Safe Drinking Water Act. The objectives of this program are to assess, preserve, and protect the state’s source waters that are used to supply ground and surface water for the state’s public drinking water systems and to provide a long-term availability of abundant safe drinking water in sufficient quantity for present and future needs. The primary requirements of SWAP for each public water supply system include the following:

- Delineate the source water protection area where the water supplying the intake of surface or ground water is originating,
- Prepare an inventory of the potential contaminant sources,
- Determine the PWSS’s susceptibility to potential contamination,
- Provide an assessment that will be available to the public, and
- Incorporate public stakeholders into the process.

The Infrastructure and Capacity Development Programs are associated with the Safe Drinking Water Act. The objective of the Infrastructure Program is to assist in developing new, renovated, and expanded public drinking water systems and making safe drinking water available to the state's citizens. For this purpose, the state's Drinking Water Treatment Revolving Fund, partnering with other state and federal funding agencies, is a source of low-interest loans that are made available for infrastructure development.

The Capacity Development Program is also mandated by the Safe Drinking Water Act and is an integral part of the Infrastructure Program and other related programs. Its objective is to help assure that all public water systems have the necessary technical, managerial, and financial capability, or capacity, to assure the proper management and operation of their infrastructure.

In addition, the Ground Water Under the Direct Influence (GWUDI) Program exists as a requirement of the Surface Water Treatment Rule (SWTR), which was promulgated by the EPA in 1989 as a result of the 1986 amendments to the Safe Drinking Water Act. The SWTR requires all water systems using ground water under the direct influence of surface water to meet minimum standards for control of Giardia Lamblia, enteric viruses, Legionella, heterotrophic bacteria, and turbidity. State regulations require all such systems to either correct the influence problem, if possible, or adequately filter the water. GWUDI determinations are to be completed during 1999.

As a consequence of its experience with regulation of mine waters, West Virginia possesses an infrastructure well prepared to guarantee quality water for the citizens of the state.

The Healthy People 2000 Objectives addressing environmental health:

Objective 11.1 Increase to at least 80% the proportion of residents who receive a supply of drinking water that meets safe drinking water standards established by the U.S. Environmental Protection Agency.

Objective 11.2 Increase to 40% the proportion of homes in which homeowners/occupants have tested for radon concentrations and which have either been found to pose minimal risk or have been modified to reduce health risk.