

1997 Health Assessment Report



Wahkiakum County Health Department

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Acknowledgments

We wish to thank the following individuals and organizations for their expertise and assistance in making this publication a reality:

Bekemeier Consulting - Betty Bekemeier

Data Services - Jeremy Schrader

Department of Health, Community Assessment Liaison - Katryne Lukens-Bull

Department of Health, Environmental Health Assessment Liaison - Don Oliver

Department of Health, Director of Planning - Joan Brewster

Hale & Associates - Christiane Hale

Lewis County Printing - Linda Hanson

McDonald Consulting - Sherri McDonald

Pacific Publication Services - Charles Summers

Rockwell Nontell & Associates - Jan Nontell

Seattle King County Department of Public Health - VISTA Program

Secretary of Department of Health - Bruce Miyahara

Public Health & Environmental Health Staff from:

Lewis County

Mason County

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Lewis County Commissioners for accepting the role of lead agency for the Five County Partnership.

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Historic pictures courtesy of:

Eric R. Nelson, Wahkiakum County Eagle

Ralph Keyser, Wahkiakum County Museum

Wahkiakum County Health Department - Public Health Planning Council

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Cover Photograph: Skamokawa School, circa. 1905, now restored as Redmon Hall. Courtesy of Wahkiakum County Museum.

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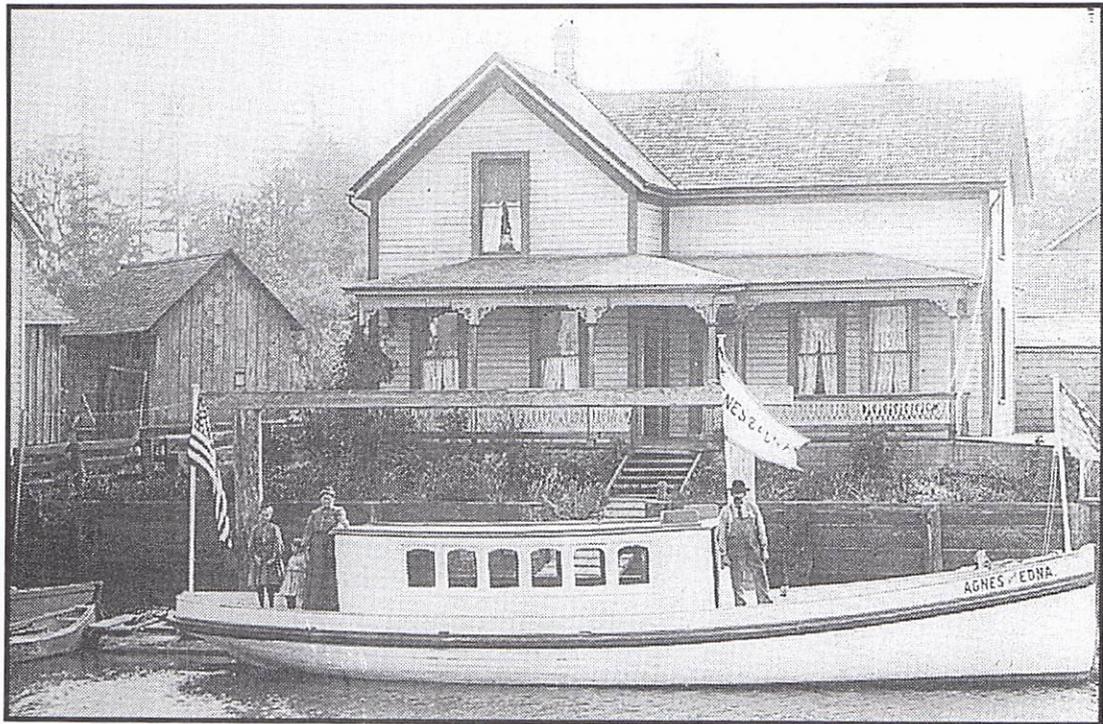
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*First
gas-powered
launch in
Skamokawa.
The Peterson
family.*

Introduction

The World Health Organization defines “health” as “a state of complete well-being, physical, social, and mental, and not merely the absence of disease and infirmity.” Traditionally the health of a population has been described as the amount of disease and disability experienced by the people whose health is being measured. The report that follows intends to describe the health of Wahkiakum County, but acknowledges factors well beyond actual “disease and infirmity” as having an influence on the well being of the Wahkiakum County community. This community assessment includes environmental, social and other factors that influence health as well as those traditional measures of disease and death.

This first Health Status Report is published by the Wahkiakum County Department of Public and Environmental Health. The purpose of the report is to present, in one reference document, a diverse range of information about Wahkiakum County, its people, current health status, and environmental risks.

The assessment and surveillance capacity of public health is the ability to track important health indicators over time and to make information regarding the indicators accessible and understandable to the public so that resources may be properly directed. This report contains all applicable and meaningful data that was available at the time of printing. It is intended that data will be updated as it becomes available, and will be submitted for publication in subsequent reports. Data included will provide a snapshot of historical patterns as well as current trends.

There is a truly impressive amount of health information produced in this nation. In the course of preparing this report, a number of general problems with health data specific to Wahkiakum County became apparent. These problems result from the type of information collected, the way it is collected, and how it is organized and made accessible. The problems are manifest by the specific data limitations of what is presented in this report and, more importantly, in the data one would like to see here but does not because credible and understandable information on several topics does not currently exist. In producing this report some difficult lessons were learned regarding the availability of high quality, timely, information. The best available data that could be presented in an understandable manner was consistently sought. Information sources are cited so people may be inspired to further inquiry, since this report can present only a small amount of the available data.

Interpreting the Information

While this report contains the best information available, it can sometimes be misleading. Here are some suggestions to the reader:

Make certain you know where the information comes from.

Most of the information contained in this report comes from the following sources.

1. The 1990 U.S. census.

Many people believe that everyone is counted in a census, but that is not true. People who have trouble reading, live at hard-to-locate addresses, or have no address at all are often not included in the census. Additionally, other information these individuals might have provided about the circumstances of their lives is also missing, resulting in an under-representation of particular segments of the population.

2. Wahkiakum County birth and death records.

Although the legal registration of births and deaths is reasonably complete, individual pieces of information on the birth and death certificates are not always recorded or accurate. While this does not infer that the information should be disregarded, it should be considered along with other sources of supporting and conflicting data.

3. Reports of infectious diseases among county residents.

Washington State law requires that specific diseases be reported to the health department, but not all health care providers comply with that law resulting in disease reports which are often under-counted. Sexually transmitted diseases, for example, are less likely to be reported among people who get their care from physicians in private practice than among people who get their care in public health or community clinics.

Don't jump to conclusions based on small numbers.

In Wahkiakum County the number of all events, occurrences and individuals being discussed is very small; so a small increase may appear great. For example, if there is one case of a disease one year and two the next, it may appear that the rate has doubled. While it is true that the rate has doubled among the population, it does not indicate a serious health problem for the community. We have tried to lessen the impact of this problem by combining events for several years, but frequently in Wahkiakum County there are small numbers of events even when presented in five year increments.

Being a small county with small numbers has many advantages. Local residents and professionals who gave input on this report were able to pool their knowledge and experiences about the community and provide personal information that raw numbers and statistics would never be able to show. Also, residents and professionals in the community have first hand knowledge of events and understand more about the events than the numbers available from the state data bases can show. The biggest drawback to having small numbers is in terms of trying to compare the County to the larger State and Regional populations.

Understand what is not here.

There are many ways to measure community health. Because of the difficulty getting accurate data, there is currently very little reliable information regarding levels of sickness or behaviors among residents, such as domestic violence or alcohol abuse, which also threaten the well-being of the community.

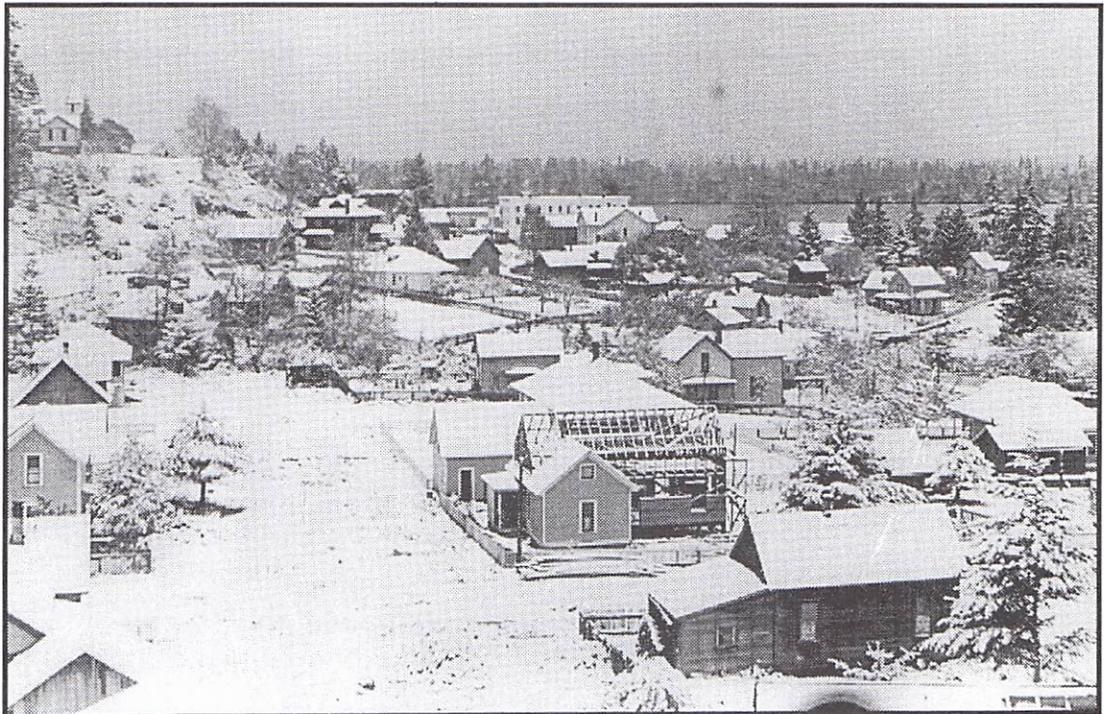
Even when there is information, it is often incomplete or unusable. For example, one of the

factors influencing the health of newborns is maternal smoking habits, yet for many years, birth certificates didn't include that information. Washington State added a question about maternal smoking habits in 1984, but in many instances the question about smoking was not answered by the person completing the birth certificate. What does the missing information mean? No one can know, and so in this example the information about maternal smoking becomes questionable.

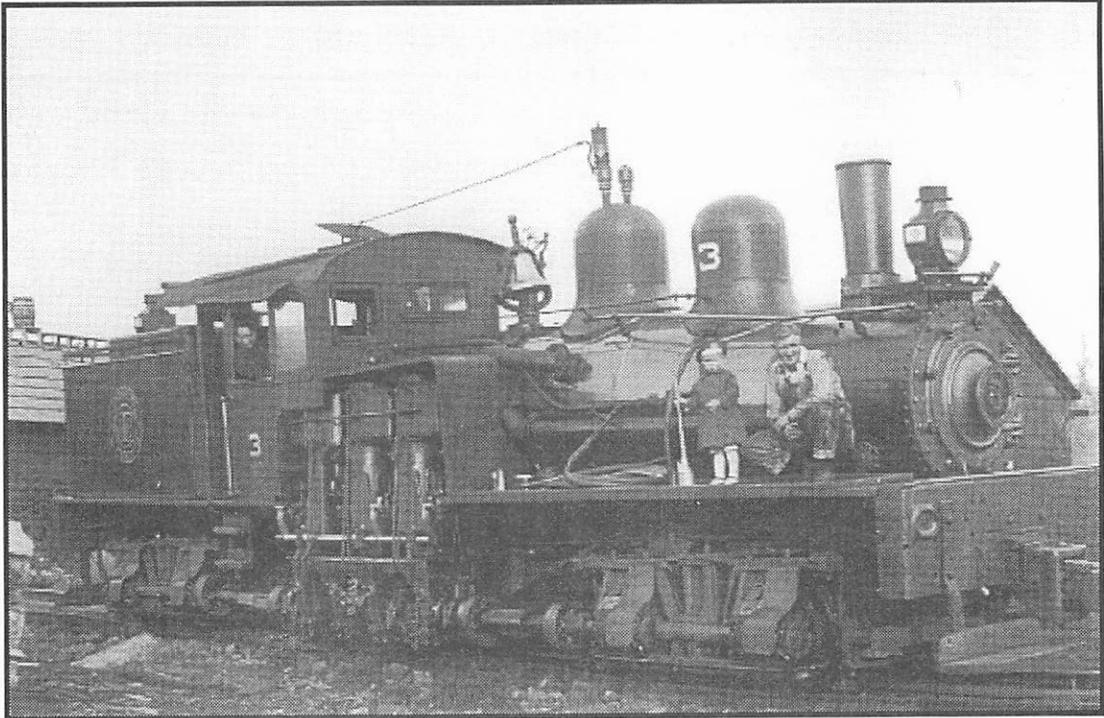
Look for patterns.

In the preparation of this report, hundreds of calculations were made. Finding that any one health indicator is out-of-line with state or national rates or with the targets set out in *Healthy People 2000* (Washington State Public Health Improvement Plan) is not cause for alarm. However, if several indicators point to same problem, then there may very well be a problem in that aspect of the community's health.

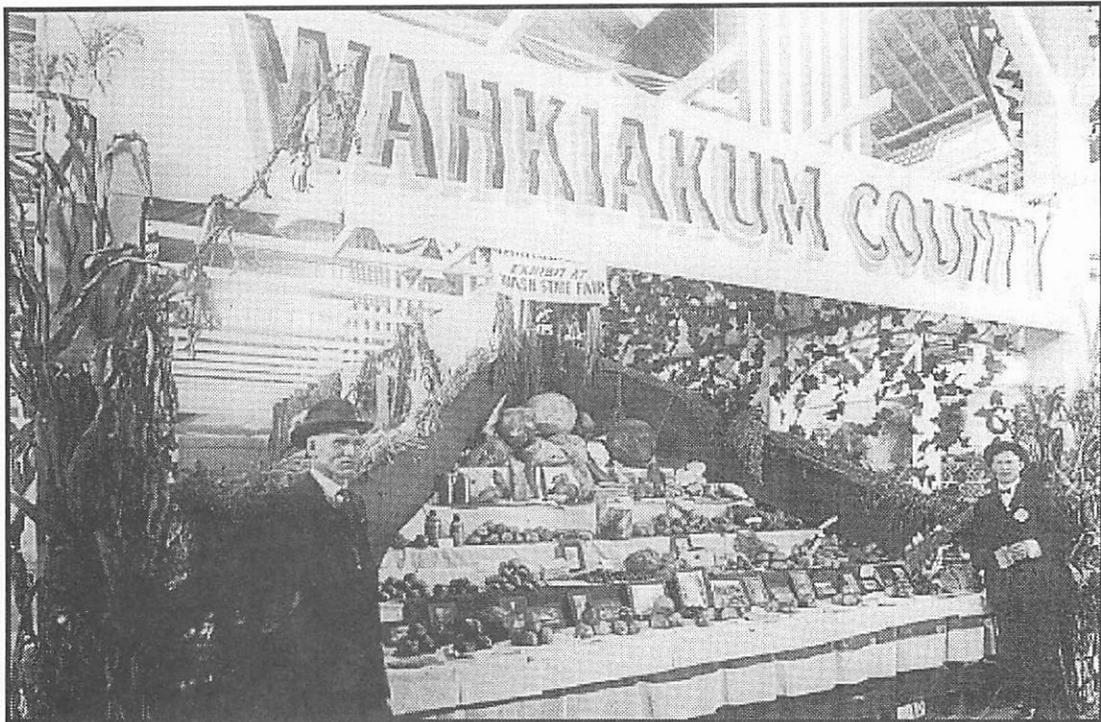
In preparing this report, Wahkiakum County Health Department entered a partnership, funded by a Department of Health Partnership Grant, with four other Health Departments in the South West Washington Region. The partnership includes Grays Harbor, Lewis, Mason, Pacific, and Wahkiakum Counties. A Regional report is also being published and will more accurately reflect a picture of the health status of a broader Southwest Washington area. The regional report is not as specific to Wahkiakum County as the local report, but the regional report offers a comparison the Washington State report will not be able to provide.



Cathlamet in winter.



*Cathlamet
Timber
Company
locomotive.*



*Wahkiakum
County Fair.*

Chapter One

Socioeconomic

Factors

Introduction

An important first step in assessing the health of the community is understanding and learning about the population: the size, age, gender, income distribution, and the employment status of its residents.

Many types of living arrangements are seen throughout Wahkiakum County. Individuals live by themselves, in families, or with friends. Where and how county residents live is influenced by family structure, by people moving into and out of the county, by education and employment opportunities.

Wahkiakum County's Population

Population growth occurs when there are more births than deaths (called "natural increase"), and/or because there are more people moving into an area than are leaving.

The population of Wahkiakum County grew in the 1970s, declined in the 1980s, and is showing growth again in the 1990s. According to census data, in 1970, the county was home to 3,592 people. By 1980, the number of Wahkiakum residents had increased to 3,892, a 12% increase. In that same period the state's population grew by 21%. By 1990, the county population declined to 3,327, a loss of almost 15%. It is likely this decline was caused by out-migration of families related to the loss of jobs in the timber industry in the early 1980s and the resulting high unemployment rates in the county. As many young families left the area to seek employment, there were fewer births than deaths, or a natural loss, during at least part of that period. More recently, the county population has been increased by approximately 11% during the first half of the 1990s to an estimated 3,700. This increase may be due, at least in part, to the in-migration of retiring adults. This in-migrating adult population is primarily middle class and makes a positive contribution to the community. Among Washington State's counties, Wahkiakum County ranks 38th in terms of population size, and is thirteenth in the state in terms of the amount of population change experienced from 1990 to 1994. The Washington State Office of Financial Management projects that the county population will continue growing at a steady, slow rate into the next century.

Where have all these people come from? One answer can be found in the 1990 census. Of

the 3,327 residents living in Wahkiakum County in 1990, 60% had lived in the same house and 17% had lived in a different house within the same county between 1980 and 1990. Another 12% came from another county in Washington State, 10.% came from another western state. The remaining 1% came from elsewhere in the United States or a foreign country.

Birth versus Migration

In Wahkiakum County, the recent population growth has had little to do with increased rates of birth. Migration of adults into the county accounts for the majority of the population increase. From 1990 to 1994 births accounted for a 1% population change. The state average was a 3% gain. Population change based on in-migration was 10% in Wahkiakum County, while in-migration for the state as a whole accounted for 63% of the state's population change during that time period.

Aging and Elderly

Age is an important characteristic of a population when health status is being evaluated. An area's age distribution conveys much about it's social organization, population history, health status, current and future needs for health and social services programs. For example, areas with older populations have more illness and higher death rates than younger populations, and younger populations have fewer illnesses and higher birth rates than older populations.

The middle age and elderly population is one of the fastest growing segments of the population at national and state levels as well as in Wahkiakum County. Through natural increases alone, growth in this group will begin increasing dramatically just after the turn of the century when the leading edge of the baby boom begins turning 65. In addition to the natural increases, Wahkiakum County ranked thirteenth in the state in the early 1990s, for in-migration of older adults into the community. The scenic beauty and rural way of life serves to lure many middle class people to Wahkiakum County at retirement.

Population pyramid graphs show the age composition of a population at a given point in time. By comparing these types of graphs from two different time periods, changes in the composition the population can be seen. Over time, these changes can be seen occurring as a result of migration, birth and death.

Wahkiakum County's population pyramids between 1980 and 1994 show a notable decrease in the proportion of persons under age 34 and an increase in persons age 45 and older. This suggests that many younger families and some of the working population have migrated away, while older adults have moved into the county. The proportion of births to deaths resulted in a net loss during this time. In 1994, 21% of the county population was age 65 and over, ranking the Wahkiakum County the third highest in the state for proportion of its population over age 65. The state average was 12% for proportion of its population age 65 and over.

Racial and Ethnic Population

According to the U.S. Census, in 1990 the population of Wahkiakum County was 95% Caucasian. The Native American population comprises the second largest census classification of people in the county with 87 people in 1994, or almost 3% of the total population. The Asian/Pacific Islander population was 27, or 0.8%. This contrasts with Washington State, with a Caucasian population of approximately 84%, and the United States, which was about 65%.

Hispanic origin may denote individuals of any race. The category "Hispanic" designates an ethnic or cultural identity rather than a racial one. the number of persons reporting the ethnic designation of Hispanic in Wahkiakum County was 72, or 2% of the population in 1994. The African-American population was 13 in 1994, or 0.4% of the population.

Life Expectancy

According to Washington State Mortality data, a baby born in Wahkiakum County in 1995 can be expected to live, on average, 76.7 years. This figure is obtained by combining five year averages of the local death data. The 1995 life expectancy is a dramatic increase over the national average life expectancy of 47 years in 1900.

One reason that life expectancy was so short in the early 1900s was the high rates of infant mortality. During the first half of this century, life expectancy lengthened, in most part, by the reduction in deaths from infectious diseases during infancy and childhood. Recent gains in life expectancy are a result of prolonging life in middle-aged and older people through prevention and treatment of chronic and acute conditions.

In the 16 years from 1980 to 1995 there has been an average of 39 deaths per year among Wahkiakum County residents. Washington's statewide age adjusted death rate from all causes during the same period fell steadily, hitting a low mark of 449 deaths per 100,000 population in 1994 (Department of Health, 1996). The state's Year 2000 goal is to reduce the annual rate of death to 400 deaths per 100,000 persons.

Because Wahkiakum County is small and has few deaths in any one year, the data presented here is rolled often into five year averages. In many cases there are not enough local occurrences to make reasonable comparisons between Wahkiakum County and Washington State. Available mortality data must be taken in the context of the county's communities, where factors influencing small numbers of occurrences may change the appearance of trends in data in a positive or negative way, for years to come. For example, in Wahkiakum County the younger population, including young families, has declined in the past 15 years and an older, retirement age population has migrated into the county. This change can be expected to influence mortality statistics.

During the fifteen year period from 1980 through 1994, a total of 560 Wahkiakum County residents died. Examination of the causes of death during this time period places heart disease as the leading killer in Wahkiakum County. Other notable causes of death for Wahkiakum County during this fifteen year period were cancer, cerebrovascular disease (stroke), unintentional injury, chronic obstructive pulmonary disease (COPD), diabetes, and pneumonia/influenza.

If public health programs today could effectively address the major preventable causes of death—smoking, homicide, heart disease, unintentional injury, AIDS and certain types of cancer—the overall life expectancy, as well as the quality of life for Americans would probably increase substantially.

Housing and Families

Knowing where and how people live is important in understanding any area's population. Wahkiakum County, like the rest of the state, consists of diverse types of households.

The term household is used by the U.S. Census to identify all those who share a dwelling, regardless of their relationship to one another. A household may consist of one person who lives alone, or several people who share a dwelling. A family, on the other hand, is two or more persons related by birth, marriage, or adoption, who reside together. While all families form households, not all households are families under the Census Bureau definitions (Population Bulletin).

According to the U.S. Census, there were 1,321 households in Wahkiakum County in 1990 (excluding group homes and institutions). Of those households, 972, or 74% were comprised of families and 349, or 26% were non-family households. This represents a higher rate of family households than Washington State as a whole. The U.S. Census reports 68% of the

state's households in 1990 were family households, and 32% were non-family households. The 1990 U.S. Census also reports that the average household size for Wahkiakum County was virtually the same as the state's average household size of 2.5 persons.

Of the 972 family households enumerated in Wahkiakum County by the 1990 U.S. Census, 408, or 42%, had children under age 18 living at home, and 564, or 58%, had no children living in the home. Of the 408 family households with children in the home 80% of those were headed by married couples; 51, or 13% were headed by unmarried females, and 27, or 7% were headed by unmarried males. Throughout the state, in 1990, 77% of all family households with children were headed by married couples; 18% were headed by unmarried females; and 5% were headed by unmarried males.

Living Arrangements of Children

During the past 15 years the United States has undergone a change in family structure, away from the two-parent family and toward the single-parent family. It is believed the change can be attributed to a number of social trends: an increasing tendency to postpone marriage; an increasing trend in the number of people choosing to live alone; greater numbers of widowed people choosing not to remarry; enhanced self-sufficiency of women; increased divorce rates; and growing numbers of non-traditional households. Demographers report that single parents raising their children are statistically most likely to be women, and are more likely to be poor. Studies show that children in a single-parent household are more likely to experience poverty and difficulties in school. Of the households with children in Wahkiakum County, 19% in 1990 were single parent households and the average family size was three.

Cost of Rental Housing

Federal and state guidelines regarding housing expenses state that no more than 30% of the monthly income should be spent on gross housing costs. These guidelines are based on the premise that if more than 30% of monthly income is spent on housing costs, it is likely that money will not be available to buy adequate food, clothing, insurance, and health care.

According to the 1990 U.S. Census, the median monthly gross rent (which includes utilities other than telephone) charged in Wahkiakum County in 1989 was \$300. In 1989, no households with an income of \$20,000 or more paid more than 25% of their income for gross rent in Wahkiakum County.

Homelessness

Homelessness is not just a poverty issue. It can simultaneously be a housing issue, a disability, a mental health issue, a substance abuse issue, and an issue of profound social disaffiliation, or lifestyle.

There are no homeless shelters located in Wahkiakum County, and only rarely is a person or family identified as homeless. The vast majority of the poor are able to secure some type of housing for themselves and their families. Some homeless people are taken in locally by friends and family. Occasionally persons, or families are identified as "camping" or living in substandard housing with deficits such as lack of water or sewage disposal. Sometimes these families are not interested in accessing shelter or low income housing.

Income (1990 Census)

The income levels of county residents can greatly affect the overall living conditions and health status in the county. Household and family incomes are a major factor in determining health care access, nutritional status, risk of contracting certain infectious diseases, and exposure to environmental health hazards.

The indicator known as “household income” sums the wages of all workers age 16 years and older who share a single home, regardless of relationship. In 1989, slightly more than 35% of the households in Wahkiakum County earned less than \$15,000, whereas just over 19% earned \$50,000 or more. In 1989, the median household income in the county was \$26,969, meaning that half of all households earned less than that amount and half earned more. In that same period, the state’s median household income was \$31,873.

Another measure of socioeconomic status is family income. Unlike household income, which takes into consideration income earned by all persons 16 years and older who share a single residence, family income is defined as the income contributed by those persons 16 and older in a single residence who are legally related to one another.

The 1990 U.S. Census reports that in 1989, the median family income for Wahkiakum County was \$29,679. The state’s median income for families in 1989 was \$43,722. Family income levels are based a great deal on whether or not there is a married couple in the home. Wahkiakum County families headed by a married couple, with children in the home, earned approximately \$37,981 in 1989. Female headed families with children in Wahkiakum County earned \$16,958. Female headed families across the state earned \$16,930.

Poverty

The poverty rate in the United States since the 1960s reflects fluctuations in the nation’s economy, as well as changes in federal policies. Nationally, there was a steep drop in the poverty rate following the mid-1960’s War on Poverty. Further declines in poverty occurred during economic boom cycles in the 1970s. Yet, in the 1980s - generally a period of economic expansion – there was a rise in poverty. This rise is attributed to:

- ◆ A recession early in the decade.
- ◆ A decline in manufacturing jobs.
- ◆ Shrinking federal programs which assist people on the brink of poverty.
- ◆ A larger number of households headed by women than at any other time in history.

The federal poverty level is used by the U.S. Department of Agriculture to estimate the income necessary to provide food, housing and other essentials for individuals and families. The concept of poverty applies only to the civilian, non-institutionalized population. Institutionalized persons, and those in college dormitories, military group quarters, and children less than 15 years of age who live with non-relatives (for example, in foster care) are excluded. If an individual’s or family’s income is below the recognized federal poverty level, they are considered to be living in poverty. In 1996, a family of four with annual gross income of \$15,600 (or \$1,300 a month,) would be living in poverty.

The 1990 U.S. Census reports that the median income in Wahkiakum County ranked fifteenth in the state among all counties, and was highest median income of the five counties in the regional partnership. Approximately 10% of Wahkiakum County residents lived at or below the poverty level in 1989, an improvement from 12% in 1979. Wahkiakum County was the only county in the area to experience a decrease in poverty during the 1980s. By comparison, the state realized a small increase from 10% in the number of residents living in poverty during the 1980s to 11% in 1989 (*Assessing County Change*).

In Wahkiakum County in the early 1980s, the loss of jobs due to the decline of the timber industry added to the increase in poverty and resulted in people migrating from the county to seek jobs elsewhere. This caused a decline in the population that has still not returned to pre-1980 levels.

The elderly are often particularly poor. Nationwide as well as in Wahkiakum County, a larger proportion of elderly than non-elderly Americans are near-poor, with incomes at or just above the Federal poverty threshold. Historically, the elderly are hardest hit by poverty, because they are more likely to be disabled and to be without work or income. Older adult poverty often varies by gender. Older women are more likely to be poor than older men. This is partly linked to living arrangements. Women tend to marry men who are older, but on average females live seven years longer. Many older women today participated little or not at all in the labor force, and the jobs held by women are less likely to have pensions. When a husband dies, a woman's income often diminishes substantially. Since the advent of improved retirement plans, Social Security, Medicare and other programs the financial status of people 65 and older has improved.

In Wahkiakum County in 1989, 9% of children under age 18 were living at or below poverty level. Single mothers made up 38% of all families living in poverty. Among married couples in Wahkiakum County, only 0.2% had incomes below poverty level.

AFDC, Food Stamps and Medicaid

Another measure of socioeconomic status is the portion of the county's population qualifying for and using Aid to Families with Dependent Children (AFDC), food stamps and/or Medicaid. These programs, along with many others, are administered through the Washington State Department of Social and Health Services (DSHS). DSHS administers both federally and state mandated programs.

In 1994 in Wahkiakum County the average number of persons served monthly by AFDC was 110, or 3% of the county population, ranking Wahkiakum County as 34th in the state for the number of AFDC recipients. This figure has remained constant since 1990.

Education

The level of education attained by an area's residents affects that area's overall standard of living. Increasingly, education is the key to individual economic success. The U.S. Census reports that in 1990, 10% of Wahkiakum County's adults age 25 and older had at least a bachelor's degree. The state average is 23 %. In Wahkiakum County, 40% had a high school education, and 22% had less than a high school education.

Employment

Occupation and Industry

The 1990 U.S. Census reports that Wahkiakum County's workforce was comprised of 1,486 workers over the age of 16. The greatest proportions of Wahkiakum County workers are manual laborers or work in the logging, farming, or fishing industry. Manual labor was listed by over 24% of the county's workforce and 21% of workers listed their occupation as farmers, loggers or fishers. Slightly over 18% of the workforce described their occupations as sales and support and 15% reported that they were service workers. Approximately 14% listed their occupation as managers and professionals. Precision manufacturer was listed by over 8%.

The 1990 U.S. Census asked the same workers to classify the industry sector in which they were employed. Of the 1,486 workers, 18% worked in professional services, 13% worked in the retail trades; 26% worked in agriculture, mining or construction; and 24% worked in manufacturing. The remaining 22 % of the workforce worked in other services, public administration, finance, insurance or real estate, and transportation and public utilities.

Maternal employment

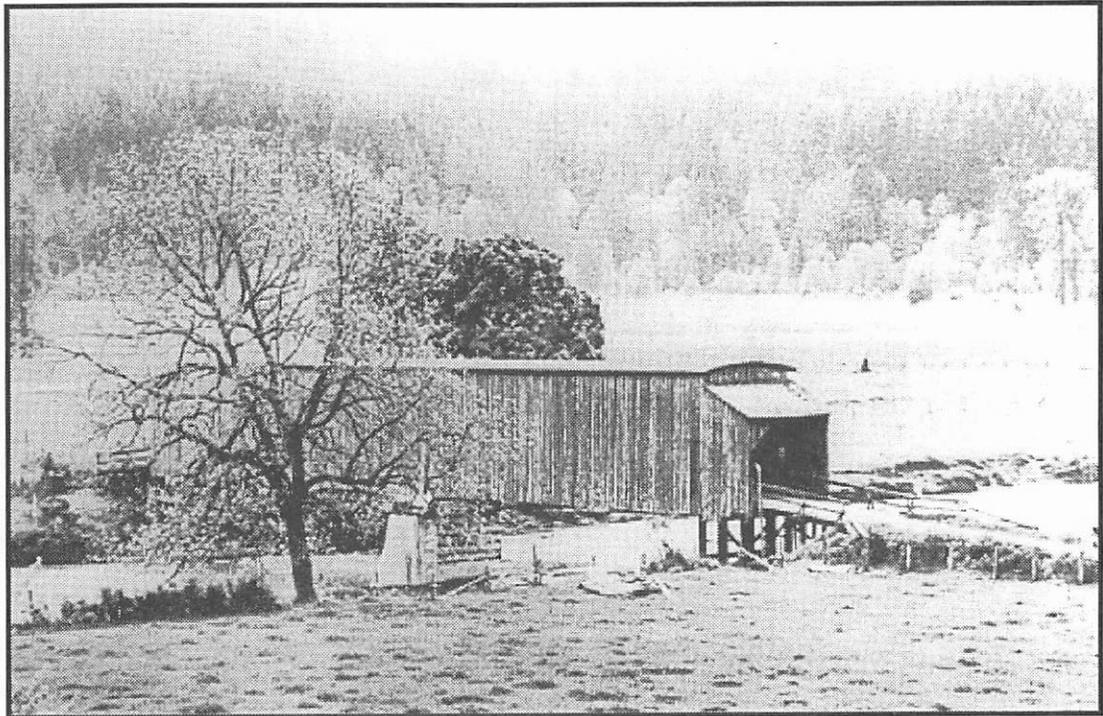
The U.S. census reports that 270 women with children under the age of 18 years were living in the county in 1990. The vast majority of these women worked or were actively seeking work, whether their children were very young (less than 6) or older (6-18). A total of 223 of these 270 women (83%) in Wahkiakum County with children under age 18 were employed in the labor force or were actively seeking employment in 1990. Of the 73 mothers who had children under six, 54 were employed or actively looking for employment; of the 197 women who had children age 6 to 17, 169 were in the labor force or actively seeking employment.. This data does not indicate the number of hours a woman worked per week nor how many jobs she may have had.

Unemployment

Unemployment rates among Wahkiakum County workers give the impression that local business and the economy have been improving since the early 1980s. In 1982 unemployment in Wahkiakum County was at a high of 12%. It continued to gradually drop throughout the 1980s until it fell to a low of 5% in 1991. The rate of high unemployment closely matches the out-migration of population from the county during that time period. In 1994, unemployment increased slightly with the increase in the population and was 6%, the same as the state rate for that year. Unemployment data includes only those people not employed who are actively seeking employment and registered with Washington State Employment Security. This data does not show those people considered underemployed nor wages earned (*Washington State Employment Security*). The data also does not show the decline in the fishing, and to some extent, the timber industries in Wahkiakum County. Many of these workers were self-employed, or not qualified or eligible for unemployment benefits, and not able to attain other positions in the community; at least not in jobs that would maintain their standard of living.



Cathlamet
Dock



*Covered
bridge at
Grays River.*



*Church at
Grays River.*

Chapter Two

Maternal and Child Health

Fertility

Fertility is the number of live births occurring in a population. The “general fertility rate” is the number of live births in a given year per 1,000 women in their childbearing years (assumed to be ages 15-44 years). The “total fertility rate” is the estimated number of babies the hypothetically “average” woman will have in her lifetime. A total fertility rate of 2.1 children per woman is necessary for one generation to be replaced in the next, and is called “replacement fertility”.

Fertility rates higher than 2.1 children per woman generally should result in natural population growth; rates lower than 2.1 children per woman generally result in a decline in population size (unless migration occurs). Fertility rates are affected by the age at which sexual activity begins, the availability and use of contraception and abortion, the social and economic status of women, and the age-gender structure of a community. Changes in women’s social status and roles, and greater access to contraception and abortion contribute to the most recent decline in overall birth rates in this country.

Total fertility rates in the United States have fallen steadily for 20 years or more. In the past decade, U.S. fertility rates have fluctuated between replacement and slightly below replacement. This pattern has also been observed in Washington State and Wahkiakum County. The total fertility rate in Wahkiakum County has remained relatively stable at about 1.8%, or just below replacement, in the early 1980s to approximately 2% in the early 1990s.

Births

Over the past 15 years, the average number of births in Wahkiakum county has been 36 per year. The number of births occurring among Wahkiakum County women has declined slightly over the past 15 years from 43 births in 1980 to a low of 26 in 1990, and then slightly increased to 38 births in 1994. The most significant decline occurred from 1980 to 1984, during the years when the entire population declined. The annual number of births in the county has been relatively stable since 1986. During this 15 year period the proportion of single mothers

has more than doubled from 10% to 25% and the number of teen age mothers has increased from 2% to 4%.

Several key factors are used to assess the health of a community's mothers and children. One such key factor is low birthweight, a major threat to infant health. Low birthweight infants are at greater risk for life threatening respiratory problems immediately after birth and neurological injuries that can last a lifetime. Low birthweight babies are more likely to die, or if they survive, to have physical and/or developmental conditions that hinder their efforts to learn and function independently.

Two demographic factors often used to assess the health of a community's mothers and children is maternal age and maternal marital status. Children born to adolescent mothers and children born to single mothers have an increased risk for delayed physical and mental development, for living in poverty, and for experiencing health problems associated with poverty.

A fourth key factor is the timing of the entry into prenatal care in pregnancy. Early prenatal care is associated with decreased rates of low birthweight and infant mortality. Without early care, there can be no detection and professional support in correction of health problems or maternal health-related behaviors, such as smoking, substance abuse and poor diet, which could complicate pregnancy and threaten the infant's well-being.

Yet another factor is a maternal behavior, smoking during pregnancy. Smoking during pregnancy is closely associated with an increased risk of infant morbidity and mortality. Some increased risk is due to the relationship of smoking with increased rates of low birthweight, sudden infant death syndrome (SIDS), and pre-term (early) labor.

By evaluating the effects of maternal demographics and behaviors we can add to the knowledge base regarding the health status of the county's mothers and infants.

Low Birthweight

Low birthweight is the leading preventable cause of infant death. In medical terms, a low birthweight (LBW) infant weighs less than 2,500 grams, or about 5.5 pounds, and a very low birthweight (VLBW) infant weighs less than 1,500 grams, or about 3.3 pounds. Low birthweight babies are at greater risk for medical complications and death following birth. Survival of very low birthweight infants has been increased by use of medical technology such as neonatal intensive care units. Many of these children, however, are left with physical and learning conditions that hinder their efforts to learn and function independently. Another reality is that this sophisticated medical technology is very expensive medical care. Generally, the highest rates of low birthweight exist among babies born to single mothers, to mothers who have late or no prenatal care, to mothers with medical complications such as diabetes or hypertension, to mothers who engage in high risk behaviors such as drug, alcohol or cigarette use, and to mothers who are young, poor and lack adequate formal education.

Infant birth weights are recorded on Washington State Birth Certificate data. As Wahkiakum County has a relatively small population, low birthweight and very low birthweight rates have fluctuated greatly for the past 12 years due to the small number of cases. Using five year combined averages, however for low birthweight from 1984 to 1995, Wahkiakum County's rates appear to have been consistently below the state and regional rates. While very low birth weight deliveries are rather rare in Wahkiakum County, very low birthweight rate when averaged over those years is one of the lowest rates in the state at 0.3% of all births. The low

birthweight average during that same time period in Wahkiakum County is less than 4% of all births. Because of the small numbers no significant correlation can be made in Wahkiakum County to other risk factors such as maternal marital status, late or no prenatal care, medical complications or maternal risky behavior, though research has consistently shown that these are significant factors.

Infant Mortality

Infant mortality (death) is among the most commonly used indicators of maternal and infant health. Infant mortality, as a measure, is sensitive to a wide range of social, biological, health, and environmental factors. Although many factors can influence infant mortality, many experts agree that premature birth and low birthweight are most frequently associated with it. Other factors include the initiation and length of prenatal care, maternal substance abuse, and maternal education and socioeconomic status. Improved socioeconomic conditions, wider access to prenatal care, better nutrition, and improved control of infectious diseases through vaccination and antibiotic therapies all contribute to the decline in infant mortality.

In Washington State, the infant mortality rate declined from 10.5 deaths per 1,000 live births in 1980-1984 to 7.5 deaths per 1,000 live births in 1990-1993. The state 1990-93 rate is very near the state's Health People 2000 objective of "no more than 6.5 infant deaths per 1,000 live births," and the national objective of "no more than 7.0 infant deaths per 1,000 live births."

Due to the small numbers in Wahkiakum County it is not possible to determine whether the rates are meaningful or are the result of random variation. There have been two infant deaths in Wahkiakum County between 1984 and 1995, one each in 1988 and 1989.

Maternal Age Younger than 18 Years

Research has shown that births to mothers younger than 18 years of age are frequently associated with long-term adverse social and economic consequences. These consequences occur in part because motherhood at such young ages interrupts education, which can lead to poor-paying employment opportunities and poverty. Being poor often means the young mother and her baby are more likely to live in inadequate housing, are less likely to eat a nutritionally sound diet, and may experience problems with access to health care.

In addition, young mothers often have not completed their own psycho-social development and are ill-equipped to raise a healthy, socially competent child. When single mothers are the only adult in the household, providing for their families' physical and financial needs reduces the time available for meeting their child's developmental needs.

According to Washington State Birth Certificate data, between 1980-1984 and 1990-1994, the proportion of all births to teenage mothers, less than age 18, in Wahkiakum County increased, going from slightly more than 2% to over 4% of all births. The proportion of births across the state to mothers age 18 or less, for the same period, remained steady between 3.5 and 4%. The state and county are well within the national objective that no more than 5% of all births should be to mothers under the age 18.

Information about the fathers of the babies born to adolescent mothers is not consistently reported on birth certificates. This along with the low numbers of teenage mothers makes it difficult to calculate a significant rate. However, research clearly shows that the majority of teenage pregnancies are fathered by older men, not school age adolescent boys.

Single Mothers

Recent research suggests that the term “single mother” includes a wide range of lifestyles. It can be a teenager living alone raising children who have different fathers or a woman in a long-term unmarried relationship with one man who is the father of all her children.

According to data taken from Washington State Birth Certificates, childbearing rates among single women in Wahkiakum County has steadily increased during the past 15 years. Using five year combined rates, in 1980-1984 10% of the county's babies were born to single women; in 1991-1995 this number increased to almost 25%. In the period 1980-1984, 60% of mothers less than age 18 were unmarried. By 1990-1994, 75% of these mothers were unmarried. There has also been a steady rise in the proportion of mothers age 25 and older who remain unmarried at the time they give birth. In 1980-1984 only 6.5% of mothers 25 and older gave birth while single; by 1990-1994, 11.2% of this group gave birth while single.

Research has shown, in general, that families headed by single mothers have significantly lower incomes than other family types.

Initiation of Prenatal Care

Early prenatal care, defined as care that begins in the first trimester (in the first three months of pregnancy), plays an important role in ensuring healthy births. Obtaining appropriate prenatal care is especially critical for pregnant women if they are in a high risk group, such as substance abusers, adolescents, those who have not completed high school, those with low income, those who have had five or more children, or those with chronic medical conditions. Without early care, it is difficult to detect and treat health problems or change health-related behaviors that could complicate pregnancy and threaten the developing fetus' well-being. Women who do not initiate early prenatal care are at greater risk of experiencing medical complications during their pregnancy.

The proportion of all mothers in Wahkiakum County receiving first trimester prenatal care has remained relatively steady since the 1980s, with consistently higher rates for increasing maternal age. In 1980-1984, 40% of mothers under age 18 received prenatal care in the first trimester, and almost 85% of those age 25 and older received first trimester care. In 1990-1994, 50% of pregnant women under age 18 received prenatal care in the first trimester, while over 78% of those age 25 and older received first trimester prenatal care. These may not be significant differences considering the small numbers of pregnancies. The national and state objectives state that at least 90% of women should receive first trimester prenatal care.

Pregnancy

Annual rates of pregnancy are computed by adding the number of births and abortions each year and showing that number in terms of 1,000 women age 15-44 years. Spontaneous abortions and miscarriages are not included in this computation because many studies suggest these are events are unevenly reported.

The county's pregnancy rate for women 15-44 years of age declined 9% in the past 15 years, going from 69.5 per 1,000 women in 1980-1984 to 60.4 per 1,000 women in 1990-1994.

Chapter Three

Mental and Social Factors

Problems of social health can be addressed using many of the same approaches public health programs have used in controlling the spread of infectious disease, discouraging use of tobacco, and reducing the incidence of motor vehicle fatalities. A public health approach begins with reviewing and analyzing available data, including interviewing those affected. Pilot projects may be designed to modify the problem, may be implemented in a small number of high risk communities, and are evaluated for effectiveness. Successful projects are then implemented across broad areas. Interdisciplinary coordination is integral to a public health approach.

Arrests of Juveniles and Adults

Crime and arrest rates are difficult to characterize for several reasons:

1. Arrest policies may vary from one law enforcement jurisdiction to another.
2. Not all law enforcement agencies report their crime and arrest statistics to state authorities, because such reporting is voluntary.
3. Arrests are tracked by location of the crime, rather than where the perpetrator lives.
4. If multiple offenses occur in the same crime event, only the most serious offense is counted. Thus, if a perpetrator both robs and assaults a victim, only the robbery will be counted.

All of these factors hamper meaningful county comparisons of crime data (Washington State Department of Health, *The Health of Washington State*, September 1996).

Violent crime includes murder, rape, robbery, and aggravated assault (assault with a weapon or with intent to cause severe injury). Property crime includes burglary, larceny-theft, motor vehicle theft, and arson. Property crime is thought to be a predictor of more violent crime, particularly if the arrest is of someone of a younger age (Bensley, I.s. and VanEenwyk, J., *Youth Violence and Associated Risk Factors: An epidemiologic View of the Literature*, Washington State Department of Health, 1995). Persons who are arrested and held in booking facilities have self-reported substance abuse and dependence rates which, depending on the

gender and age subgroup, range from 2 to 15 times the rates for similar persons in the households. (Washington State Department of Social & Health Services, Tobacco, Alcohol & Other Drug Abuse Trends in Washington State, 1997). Within the Partnership juvenile arrests for property crime is increasing at an alarming rate. Juvenile violent crime is increasing, but at a slower rate. Adult arrests are, however, relatively stable over the same time period.

Weapons in School

Awareness of a problem of weapons in schools has come to the public attention recently. Incidents of weapons or firearms in schools is reported by public school administrators to the Office of Superintendent of Public Instruction each year.

Studies generally show that violent behavior among students is more characteristic of males than females. This is clearly the case in Washington. Males are two to three times as lively as females to engage in any violent behavior, and three to five times as likely to engage in such behavior frequently (Washington State DSHS, Survey of Adolescent Health Behaviors, Analytic Report, 1996).

Domestic Violence

Arrests for domestic violence are tracked by the Washington State Patrol in a specific Domestic Violence Related Arrest File. In Wahkiakum County, domestic violence is tracked by Sheriff Department and Office of the Prosecuting Attorney. Domestic violence is defined in state law and includes any violence by one family member against another family member. Family can include spouses, former spouses, parents who have a child in common regardless of their marital status, adults who live in the same household, and parents and children (Washington State DSHS, County Profile on Risk and Protection for Substance Abuse Prevention Planning, 1996).

Several studies have shown that children from homes broken by marital discord are at higher risk of drug use. Family conflict is a stronger predictor of drug use than family structure (intact parental marriage).

Domestic violence arrests in the Partnership and in Wahkiakum County have increased in the period from 1990 to 1994.

Child Abuse and Neglect

Child abuse and neglect is behavior which is outside the norms of conduct and entails a substantial risk of causing a child physical or emotional harm. Four categories of maltreatment are physical abuse, sexual abuse, neglect and emotional maltreatment.

Child maltreatment causes suffering directly, has long term effects on physical and emotional well-being, and increases the risks of delinquency, substance abuse, adolescent pregnancy, suicide, and other problems in the next generation. Child abuse is a serious problem by any measure, but accurate measurement is hindered by underreporting, varying definitions, and other issues. There is a need for more accurate measures and for development and evaluation of long term, multifaceted programs that are effective in preventing maltreatment.

Mandated reporters, such as doctors, nurses, psychologists, pharmacists, teachers, child care providers, social service counselors, employees of the Department of Social and Health Services (DSHS), and juvenile probation officers, are required by state law to notify Child Protective Services (CPS) if they suspect a child is in danger of negligent treatment, physical

abuse, sexual abuse or other maltreatment. In addition, other concerned individuals may report suspected child abuse cases to Child Protective Services.

A report of suspected child abuse is a referral. If the information provided meets the sufficiency screen, the referral is accepted for intervention. Referrals are not accepted if the referral has no legal basis for complaint, the child cannot be located, the child cannot be identified, or the perpetrator does not live with or care for the child (third party case). Third party cases are referred to the appropriate law enforcement agency. A referral (or an accepted referral) may have one or more children identified as victims. The data in this report are based on the total number of victims reported in CPS referrals.

The number of child victims reported and accepted for investigation in the Partnership has grown steadily from 1990 to 1994. If the trend continues, the number of victims identified could easily double by the year 2000.

Children are placed in foster care as a last resort to protect the child from further maltreatment. The number of children placed in foster care has steadily grown in the Partnership between 1990 and 1994.

Chronic Mental Illness

Many people with mental illness lead productive and satisfying lives. This is often not possible for the estimated 2.8 million adults—more than one percent of the population of the United States – who are considered chronically mentally ill. Some cannot work, complete their education, maintain social relationships, or take care of their basic needs because of their disability. Others are unable to lead productive, fulfilling lives because of the stigma attached to mental illness.

During the 1989 Washington state Legislative Session, a new and enhanced system for community based mental health service delivery was created. Counties were given the opportunity to create a “Regional Support Network” (RSN) and Wahkiakum County took this opportunity to join with Lewis and Pacific Counties to form Timberland Regional Support Network. This RSN offers comprehensive mental health services aimed at offering alternatives and/or reducing acute psychiatric hospitalization while shifting services from clinic based to community based.

In Wahkiakum County, although the population is small, complete mental health, developmental disability and chemical dependency services can be provided within the community.

Suicide and Depression

Depression is one of the most common mental health conditions in the United States and a major contributor to disability and loss of productivity (JAMA, 1989). Appropriate outpatient care is effective in treating most depression and only those most severely affected are admitted to hospitals. Accurate measures of the number of people with depression are unavailable. However, a small proportion of individuals suffering from depression are included in vital statistics as suicides.

There have been a total of nine reported suicides in Wahkiakum County since 1980, of which eight occurred after 1985. Six of these deaths were related to firearms, and all nine of the victims were over eighteen years of age. Rates of suicide, or trends cannot be predicted because of the small numbers involved.

Alcohol Abuse-Related Disease and Death

The health consequences of alcohol use are wide-ranging and complex. Chronic long-term abuse of alcohol may lead to liver damage, cardiovascular diseases, neurologic disorders, gastrointestinal diseases, and certain types of cancer.

Nationally, studies have been conducted to identify treatment needs for alcohol and chemical dependency. A sampling of the findings include:

- ◆ 7-10% of Americans over age 65 abuse alcohol (House Committee on Aging, 1992)
- ◆ For every treatment slot available four to five times as many individuals need treatment. (Washington State Epidemiology Work Group Proceedings, 1990)

According to a 1990 report from the National Council on Alcoholism and Drug Dependence:

- ◆ As many as 20.5 million Americans show signs of alcoholism or alcohol dependence, and an additional 7.2 million show patterns of persistent heavy drinking associated with impaired health and/or social functioning.
- ◆ By 1995 alcohol-dependent adults will number 11.2 million, an increase of over a half million.
- ◆ Alcoholism and related problems cost an estimated \$85.8 billion in 1988, \$27.5 billion more than illicit drugs.
- ◆ An average of 300 people died each day in 1987 from alcohol-related causes, for a total of 105,095 deaths in 1987. Each victim lost an average of 25.9 years of life.
- ◆ Alcohol is closely linked to suicide. Among causes of death in alcoholics, an average of 18% are from suicide, and nearly 21% of suicide victims are alcohol dependent.
- ◆ 54% of prison inmates surveyed indicated using alcohol just before committing violent offenses: manslaughter (68%), assault (62%), murder or attempted murder (49%), and rape (52%).

Substance abuse is a direct or contributing factor in many adverse social and health outcomes, and it is difficult to accurately estimate the true costs to society. Conservative national estimates of the monetary costs of substance use include Harwood's 1985 estimate of \$136.3 billion in alcohol related problems and use in 1990. It is difficult to establish conclusions for Wahkiakum County because of the small numbers involved.

Smoking-Related Health Problems

More than one in every six deaths in the United States is associated with cigarette smoking. While the percentage of Americans who smoke has declined steadily since 1965, many of those who smoked in 1965 continue to do so. In 1985, approximately 94 million Americans had a history of regular cigarette smoking, placing them at greatly increased health risks. In 1985, about 94 million Americans had a history of regular cigarette smoking, placing them at greatly increased health risk. In 1985, an estimated 390,000 deaths associated with smoking occurred in the United States.

Nationally, cigarette smoking accounts for 21% of all deaths from coronary heart disease and 87% of deaths due to lung cancer. Smoking is also associated with stroke and cancer in the following sites: esophagus, cervix, kidney, bladder, larynx. The Surgeon General of the United States has indicated that cigarette smoking is as addictive as heroin or cocaine.

Between 1965 and 1985, there was a marked increase in the number of women smokers

entering the over-60 year age group—the group that suffers the highest incidence of smoking-related diseases. (The number of men over 60 years of age who currently smoke has remained relatively stable.)

Increasing numbers of teenage girls are smoking. The time youths face the of greatest risk for beginning to smoke tobacco is in the sixth and seventh grades. Smoking is still popular with high school students despite years of warnings about the dangers of tobacco use and studies show that youth who smoke are also more likely to use alcohol and other drugs. The Centers for Disease Control and Prevention report approximately one-third of high school students use tobacco at least monthly, while 13% smoke frequently.

Mortality from smoking-related chronic lung diseases (such as emphysema, bronchitis and asthma) has risen for men and women since 1979, but the rise has been more dramatic for women.

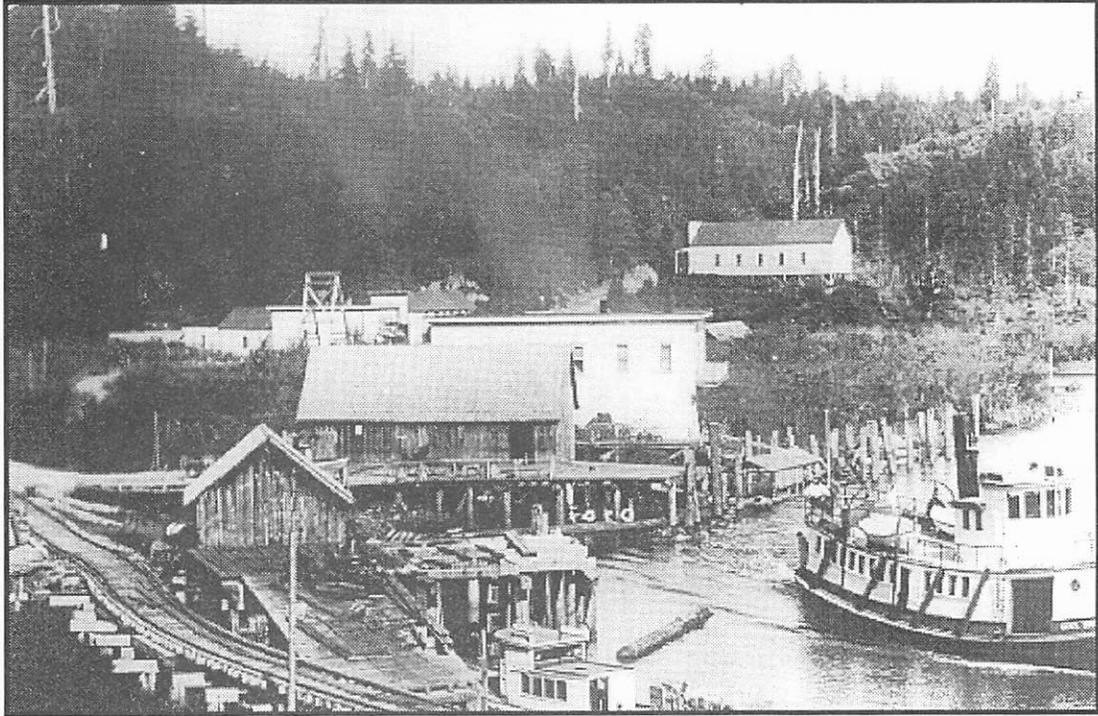
In 1964, lung cancer was the fifth leading cause of cancer mortality in the United States among women. Now the number of deaths from lung cancer exceeds deaths from breast cancer, formerly the leading cancer among women. Lung cancer death rates have leveled off in men since the late 1970s, but continue to increase in women.

Smoking is only one of the risk factors for coronary heart disease (CHD). Overall, death rates from CHD have declined significantly since 1950, but the drop has been greater in nonsmokers. Smokers have a 70% greater risk of dying from CHD than do nonsmokers.

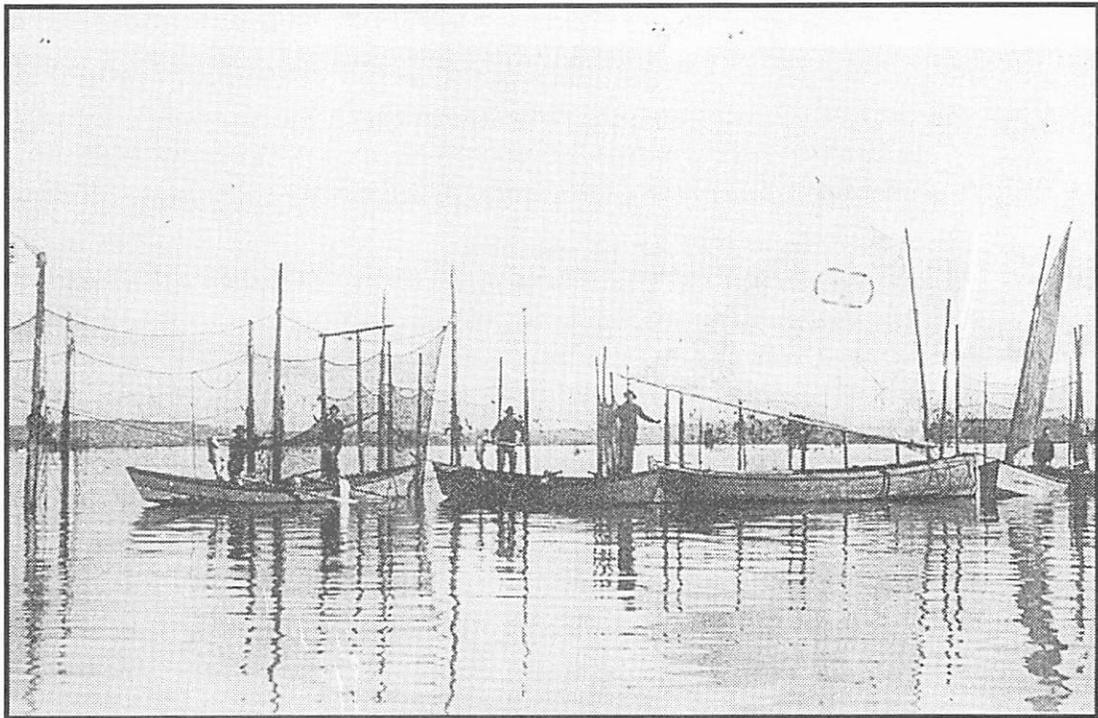
The health risks of smoking are not confined to the smoker. Pregnant women who smoke put their infants at greater risk for low birthweight, premature birth and death. Passive or involuntary smoking (second hand smoke) has been associated with lung cancer in nonsmokers and with respiratory diseases in children. Cigarette smoking causes 17% of fatal residential fires.

Between 1964 and 1985, nearly 800,000 smoking-related deaths were avoided or postponed as a result of people's decisions to quit smoking or not to start. In Washington State, the division of Alcohol and Substance Abuse will be working with the Department of Health's American Stop Smoking Intervention Study (ASSIST).

The goal of ASSIST is to reduce smoking prevalence by 43% over the next seven years. Because it takes a long time to develop smoking-related health problems, Americans will continue to reap the health benefits of today's lower smoking rates far into the future. In Wahkiakum County the numbers are too small for valid analysis, so it is not possible to draw conclusions from the tobacco use related health data.



Deep River.



*Salmon Traps
on the
Columbia
River, 1910.*

Chapter Four

Communicable Diseases

Physicians and laboratories are required by Washington State law to report over sixty separate communicable diseases to public health officials. Prompt reporting enables health department staff to identify those persons who may be at risk of acquiring disease, to detect outbreaks, to follow disease trends, to assure appropriate treatment, and to utilize measures to limit the spread of disease.

The advances in medical and public health practices since the turn of the century have dramatically decreased the incidence of infectious disease as a cause of death. These advances include treatment and protection of public drinking water supplies, sanitary sewage disposal, development of antibiotics, and proper storage, cleaning and preparation of food. (see the Environmental Health section for more information on food safety.)

Infectious Diseases

Infectious diseases are still a concern, especially emerging diseases such as Lyme disease, HIV and hantavirus. Nationwide, there are some traditional diseases such as tuberculosis, malaria and staph infections which are becoming increasingly resistant to antibiotic drug therapy. Like any living organism, pathogens (disease causing organisms) adapt and change, and some diseases that were once considered eradicated, or well controlled, are re-emerging.

Public health professionals are concerned about all communicable diseases, including those linked to sexual behavior and injection drug use such as HIV/AIDS, syphilis, gonorrhea, chlamydia, and hepatitis B and C. Other infectious diseases of concern are those that are vaccine-preventable such as measles, pertussis (whooping cough), rubella, mumps, and polio. Because of inadequate levels of immunizations these diseases continue to cause outbreaks or place individuals at risk for outbreaks.

The data used in this section is supplied by the Washington State Department of Health *Morbidity and Mortality Summary*. Due in part to its small population size, Wahkiakum County has had very few numbers of reportable diseases in the past ten years.

Sexually Transmitted Diseases

In Wahkiakum County, most sexually transmitted diseases (STD) are diagnosed and treated by a primary care physician, or at a health clinic in an adjacent county. In the most severe cases, such as pelvic inflammatory disease, the patient is hospitalized. Populations with high STD rates are at greater risk for sterility, female pelvic inflammatory disease, related life-threatening complications and viruses such as Hepatitis B and C, and the spread of the human immunodeficiency virus (HIV.)

Sexually transmitted diseases are a serious concern to the public health because of their highly infectious nature and sometimes serious health complications.

Chlamydia

Chlamydia has been the most frequently reported sexually transmitted disease in both the state and the county since it became reportable in 1987. Additionally, because chlamydia often goes undiagnosed it is suspected that the number of new chlamydia infections is under-reported. While there is little reason to believe that under-reporting causes distortions in the comparative rates, it is reasonable to believe that rates for chlamydia are minimum estimates rather than accurate measures of the true incidence of the disease.

Among females, chlamydia is the leading cause of pelvic inflammatory disease (PID) which can lead to infertility, ectopic pregnancy, and chronic pelvic pain. Nearly two-thirds of the infants born vaginally to women with chlamydia infections become infected during delivery and if not properly treated can suffer from diseases such as pneumonia and an eye disorder known as neonatal conjunctivitis.

In Wahkiakum County there have been a total of approximately 20 cases of chlamydia reported since 1988. This represents a rate below the Healthy People 2000 objective of no more than 170 cases per 100,000 population. Chlamydia is the only communicable disease for which Wahkiakum County has sufficient numbers to establish a rate. In Wahkiakum County, more women than men are diagnosed with Chlamydia, a pattern observed across the state, due in part to the greater frequency with which women seek reproductive health care and are, therefore, more likely to have a disease detected.

Genital Herpes

Genital Herpes is a virus generally harbored in the genitals of both males and females. The type of actual virus is similar to the virus that causes simple cold sores, but has more serious consequences. It is usually acquired by sexual contact with someone who has herpes sores in the genital area. It can also be transmitted by an infected person with no noticeable symptoms. People with oral herpes can transmit the infection to a partner's genital area during oral-genital sex (Annual Communicable Disease Reports, Washington State Department of Health).

The symptoms of genital herpes vary widely from person to person. When symptoms of a first episode occur, they usually appear 2 - 21 days after contact with an infected partner. Small fluid-filled sores which may itch, burn, or be very painful appear at the site where the virus entered the body. Sores from the first outbreak heal in one to two weeks and rarely leave scars.

After the first infection heals, the virus leaves the area of the sores and stays near the spinal cord but does not cause symptoms there. The virus remains in the dorsal root ganglia near the spinal cord for life causing periodic symptoms in some people. Some people with herpes have one to six outbreaks a year at or near the site of the original herpes sores, and some

people have no further outbreaks. The cause of reactivation is not known. Later outbreaks usually have fewer sores, heal faster, and are less painful than the first infection.

A pregnant woman may transmit the disease to her child at birth as it passes through the birth canal. This is most serious if she has lesions at the time of delivery. Serious infection or death may result to the child. To avoid this possibility, pregnant women with herpes need careful prenatal care and sometimes delivery by Cesarean section.

Medication is available that can lessen the severity of episodes in many individuals. It does not rid the body of the virus and it is not a cure for herpes. (Wa. St. Annual CD report, DOH)

Occasionally a case of genital herpes is reported in Wahkiakum County.

Gonorrhea

Gonorrhea is caused by a complex, fragile bacteria that infects only humans. The bacteria grows and multiplies quickly in moist, warm areas of the body, and is transmitted through vaginal, oral, or anal sex with an infected partner. If symptoms develop, they usually appear within 2 - 10 days. Women may describe abnormal vaginal discharge or painful urination. Approximately 50% of infected women do not have symptoms. Men who are infected usually have a discharge from the penis and a burning sensation during urination.

The incidence of gonorrhea has declined in Washington State in recent years. Between 1980 and 1984, thirteen cases of gonorrhea were reported in Wahkiakum County. No cases have been reported in the county since 1984.

HIV/AIDS

Human Immunodeficiency Virus and Acquired Immunodeficiency Disease Syndrome are a communicable disease that is at epidemic levels internationally and nationally. Public health education is an important mechanism for reducing the spread of this fatal disease. The 1995 Washington State Governor's Advisory Council on HIV/AIDS reports that AIDS is increasing in frequency in rural areas across the state.

Human Immunodeficiency Virus (HIV) is transmitted through blood, semen, vaginal secretion, and breast milk. Most frequently, the routes of transmission are unprotected sexual intercourse, and the sharing of HIV-contaminated needles, syringes and equipment used by injection drug users. Most infected people remain symptom free of this fatal disease for years, unknowingly transmitting HIV. For every known case of AIDS it is estimated there are ten to twenty additional individuals infected with HIV.

Public Health programs such as needle exchange, condom distribution and community education are frequently controversial, but remain the only weapons against the spread of this disease.

Wahkiakum County Health Department offers education programs regarding HIV prevention and distributes free condoms throughout the community.

In Washington State, HIV is not reportable until it progresses to it's final stage, AIDS. Therefore, the epidemic is measured in terms of individuals who have been infected for years. Those recently infected with HIV, but who have not progressed to AIDS, will not be reflected in the data for several years to come. There have been no cases of AIDS reported in Wahkiakum County, but there are known AIDS cases in all of the surrounding counties.

Other Reportable Communicable Diseases

Most of the reportable communicable diseases, such as rabies, malaria, tetanus and polio, are now rare in the United States. This is due, to a large extent, to the efforts of public health in promoting high immunization levels, and through disease investigation and control measures. These are very serious diseases, and even a small outbreak in the United States would have a significant impact on public health policy.

Tuberculosis

Tuberculosis (TB) is a serious infectious disease spread by airborne transmission of bacteria. TB can be prevented and successfully treated with antibiotics. Once a major cause of illness and death, it became relatively uncommon, but is now on the increase in Washington State and the United States. Over 20,000 cases are now reported in the United States annually.

The number of TB cases reported in Washington State declined from more than 1,483 cases in 1953 to 207 cases in 1984. Since 1984 dramatic changes in TB illness trends have occurred and jeopardize the control of TB. Reported TB cases in Washington State increased from 207 in 1984 to 306 in 1992, representing more cases than were expected given the previous downward trend. The increased number of cases of TB is due to many factors, including the human immunodeficiency virus (HIV) epidemic, a deterioration in the health-care infrastructure, and increases in the number of cases among foreign born persons. Increasing numbers of individuals from high risk populations including the homeless, HIV infected, foreign born, and those in long term care facilities complicate the TB problem. These populations more often experience close living quarters, housing with poor ventilation, physical suppression of the immune system, other complicating medical problems, and exposure to a population in which Tuberculosis is endemic.

Contributing to the problem is the emergence of multiple drug-resistant TB. In New York City in 1991, 33% of TB cases were resistant to at least one drug and 19% were resistant to both isoniazid and rifampin, the two most effective drugs available for treating TB.

Three cases of multiple drug resistant TB have been reported in Washington State since October 1993. In Wahkiakum County, one case of Tuberculosis has been reported since 1989.

Hepatitis A, B, and C

Hepatitis A, often called infectious hepatitis, is an infection of the liver and is transmitted through the fecal-oral route (ingesting contaminated feces as the virus gets on ones hands or is on unwashed foods). It is most often caused by inadequate hand washing after using the toilet and before preparing food. In the years from 1988 to 1995, five cases of Hepatitis A were reported in Wahkiakum County.

Hepatitis B is clinically similar to hepatitis A, but differs in the way it is transmitted, where it occurs in the population, its greater severity, and the fact that individuals act as carriers. Hepatitis B, like HIV is a blood borne pathogen spread by contact with blood and body fluids, including sexual contact and injection drug use. The current strategy is to vaccinate high risk populations and those in high risk jobs. Public education programs similar to those used to prevent the spread of HIV/AIDS are also a mechanism for Hepatitis B prevention. Wahkiakum County works to promote Hepatitis B vaccine for all infants, high risk adolescents and sexual contacts of pregnant women who are positive for Hepatitis B. Between 1988 and 1995 there have been four cases of Hepatitis B reported in Wahkiakum County.

Hepatitis C is a bloodborne pathogen spread by behaviors involving contact with the blood of an infected person, and in the past by blood transfusions. In the United States, approximately 600 persons each year die of liver failure shortly after getting hepatitis C. About half of all persons who get hepatitis C never fully recover and carry the virus for the rest of their lives. One case of hepatitis C has been reported in Wahkiakum County between 1988 and 1995.

Intestinal Diseases

The five most commonly reported intestinal diseases, causing diarrhea and vomiting, are: campylobacteriosis, *E. coli* O157:H7, giardiasis, salmonellosis, and shigellosis. Intestinal viruses are probably as common, but are reported less often because diagnosis is more difficult.

Campylobacteriosis

Campylobacteriosis is an intestinal bacterial disease which can be spread from person to person, but is most often associated with the consumption of contaminated foods, especially chicken, raw milk, contaminated water and occasionally from contact with infected animals, including pets.

Campylobacter became a reportable disease in Washington State in 1987. Since that time six cases have been reported in Wahkiakum County, making it the most frequently reported intestinal disease. The cases have been sporadic over time and it is not possible to analyze trends or establish rates with the small numbers.

E. coli O157:H7

E. coli is a bacteria which normally inhabits the intestines of all animals including humans. *E. coli* O157:H7 is a rare variety of *E. coli* that produces a potent toxin. Symptoms may include abdominal pain, diarrhea, bloody diarrhea, and vomiting. *E. coli* O157:H7 infection has been linked to hemolytic uremic syndrome with a fatality rate of up to 10% and thrombotic thrombocytopenic purpura with a fatality rate of up to 38%. Consuming undercooked ground beef and raw milk is a risk, as these foods may be contaminated. Person to person transmission through a fecal-oral route is another common mechanism of spread. Adequate cooking of all meats, consuming pasteurized milk and practicing good handwashing are important control measures.

E. coli O157:H7 cases have increased in Washington State from 167 in 1988, when it became reportable, to 300 cases in 1992. Three cases have been reported in Wahkiakum County since 1988.

Giardia Lambia

Giardia is a protozoan infection usually transmitted from person to person by a fecal-oral route, or the consumption of contaminated water. Giardiasis occurs with some frequency among young children, especially those still in diapers, and in child care settings. Staff and family members in contact with these individuals occasionally become infected. Control measures include recognizing and treating the infection, practicing good handwashing, using good personal hygiene, and not drinking untreated water.

In Wahkiakum County, two cases of giardiasis have been reported since 1988.

Salmonellosis

Salmonellosis is a bacterial disease most commonly associated with the consumption of the salmonella organism in food, but it can also be transmitted from an infected person or animal. Poultry, meat and eggs are the most common food sources of infection. Adequate cooking,

cleaning of utensils and handwashing are the best ways to prevent transmission. In Wahkiakum County, there has only been one case of salmonellosis reported since 1988.

Shigellosis

This bacterial disease differs from campylobacteriosis and salmonellosis in that it is almost always spread from person to person through a fecal-oral route. It is an organism that can cause infection with exposure by an extremely small amount of the bacteria. As few as ten microscopic organisms are enough to make a person ill and once in a population it spreads rapidly. Handwashing and adequate cooking of food are control measures.

In Wahkiakum County, two cases of shigellosis have been reported since 1988.

Vaccine Preventable Diseases

The most effective means for the prevention of many diseases, and the disability associated with those diseases, is immunization. Vaccines for children and adults have prevented millions of deaths over the last 50 years. Vaccine programs are highly cost-effective strategies when compared to the resource and economic consequences of the preventable disease. For example, vaccines prevent the transmission of disabling diseases that would otherwise not only affect the person who is sick, but those who are responsible for the individual's care. Appropriate use of vaccines has added years to life expectancy not only nationally, but internationally, and provides for a measure of safety otherwise not possible in a very mobile society.

Healthy People 2000 and the Washington State Public Health Improvement Plan have as their goals that 90% of children will be fully immunized by two years of age. The CASA assessment showed in 1996 that in Wahkiakum County 77% of children were fully immunized by age two.

Pneumonia and Influenza

Pneumonia can be caused by either bacterial or viral infections. Pneumonia is most often fatal among the elderly and the very young, those who are coping with chronic diseases, and people with compromised immune systems. Many cases of pneumonia and influenza may be prevented in the elderly and in other high risk groups through proper immunizations.

There were 11 deaths caused by pneumonia in Wahkiakum County between 1980 and 1995.

Measles

Measles is a serious viral disease which is very easily passed from one person to another. It causes a high fever, cough and a rash, and lasts for one to two weeks. In the United States, 1 of every 500 to 10,000 children who get measles die. Infants and adults who catch measles are often much sicker than children and teenagers. One of every ten children who catch measles will have an ear infection or pneumonia. Measles may also cause an infection of the brain that can lead to convulsions, hearing loss, and mental retardation. This happens to approximately 1 of every 1,000 children reported to have the disease.

Almost all people who get vaccinated are protected from measles. Adverse effects from the vaccine occur much less frequently and with less severity than the complications that occur when a person has the disease

The numbers of cases reported yearly in Washington State fluctuate dramatically according to apparent outbreaks. Since 1985, anywhere from three to 352 cases of measles have been

reported yearly in Washington State. Outbreaks still occur and these outbreaks have a relationship with inadequate levels of immunization in the state. No cases of measles have been reported in Wahkiakum County since 1985.

Haemophilus influenzae B, (HIB)

Haemophilus influenzae B bacterium can cause serious disease, including meningitis, and is especially severe in children under five. The bacterium is spread through respiratory droplets exhaled by one person and inhaled by another. This bacterium is not the cause of the "flu" (influenza). In the last ten years, between 22 and 319 cases of Haemophilus influenzae B have been reported annually in Washington State. Almost one child of every 20 with meningitis caused by HIB dies and one in four has permanent brain damage. Cases of meningitis caused by HIB have fallen dramatically with widespread use of the vaccine specific for HIB. HIB can also cause pneumonia and infections of other body systems.

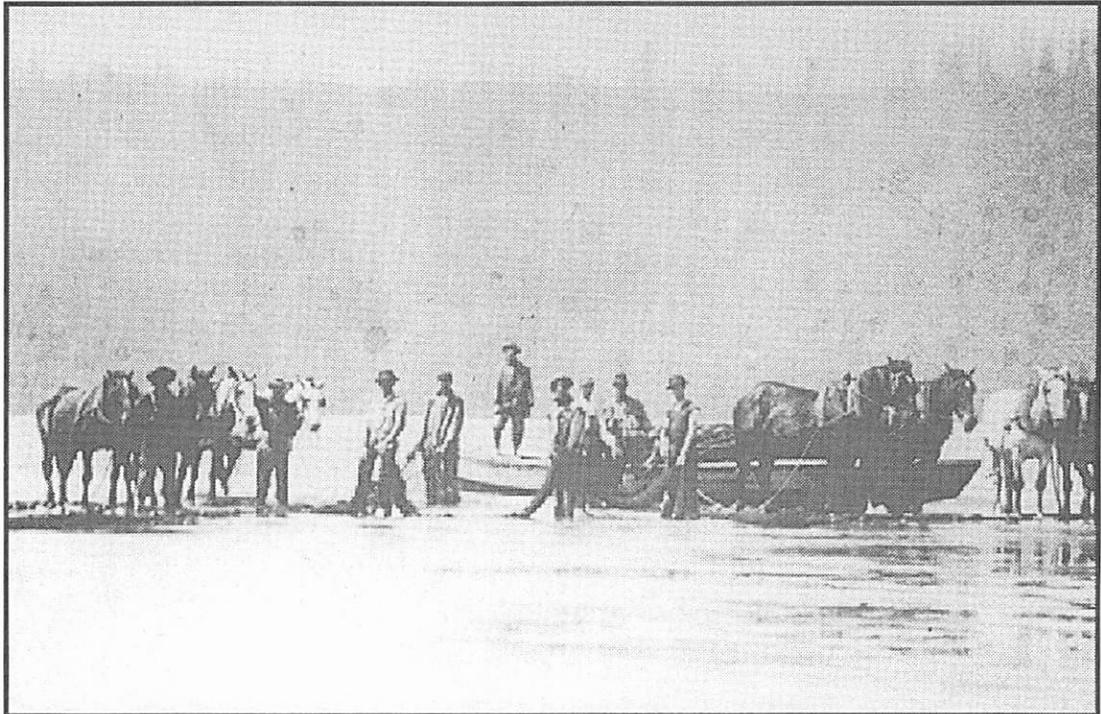
No cases of HIB have been reported in Wahkiakum County in the past ten years.

Pertussis, or Whooping Cough

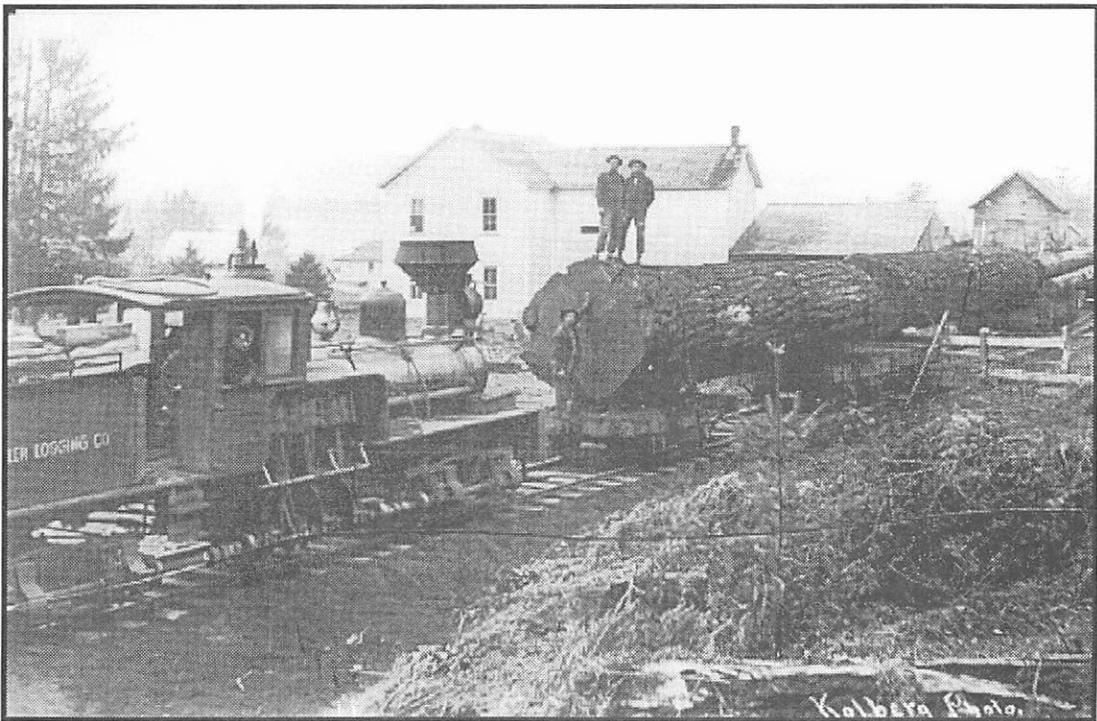
Pertussis may be a mild or a serious bacterial disease, and is easily passed from one person to another. Pertussis can cause spells of coughing that can last for several weeks. Many cases are never diagnosed or reported.

Pertussis is most dangerous to infants (children less than one year old). About half of the infants with pertussis become so sick they are hospitalized. As many as 16 of 100 infants with pertussis get pneumonia, and as many as two of 100 may have convulsions. About one infant of every 200 with pertussis dies. Serious illness is less likely in older children and adults. Most people who have had three or more DTP immunizations are protected from pertussis for many years. Children who have the immunizations but get pertussis, generally have a much milder case than if they had not been immunized. A small number of children receiving the DTP immunization may have an adverse reaction to the pertussis component in the vaccine.

As many as 326 cases of pertussis have been reported yearly in Washington State in the last decade. In Wahkiakum County, no pertussis has been reported in the past ten years.



*Seine fishing
with horses on
the Columbia
River.*



*A logging train
in Cathlamet.*

Chapter Five

Non-infectious Disease

The Impact of Non-Infectious Disease

As the impact of communicable diseases has been moderated through public and personal health measures such as clean water and personal hygiene, non-infectious diseases have emerged as the major causes of death in the U. S. population. In 1994, in Washington State, non-infectious disease accounted for 69 percent of all deaths and 75 percent of deaths among people age 55 and older. Similarly, in the past ten years in Wahkiakum County, non-infectious disease accounted for 64 percent of all deaths from 1986 to 1995.

Very little information is presently available on the extent of illness (morbidity) due to chronic diseases, particularly if the illness is not captured in data from a hospitalization or death. As new data bases become available it will be possible to examine the reasons for the hospitalizations of Wahkiakum County residents hospitalized within or outside of Washington State. Death and hospitalization data alone do not indicate how many people have chronic disease which, while not fatal, interferes with ones ability to engage in the activities of daily life. However, hospitalization data, along with input from the citizens of Wahkiakum County, can give some measure of non-infectious disease occurrence, and help quantify the economic and social impact of chronic and degenerative diseases upon individuals, families and the community. The Behavioral Risk Factor Survey, a standardized survey of adult health-risk behavior used nationwide by the Center for Disease Control as well as statewide and by many individual Washington counties has not yet been used to gather risk behavior data in Wahkiakum County.

Public Health and Non-Infectious Disease

Non-infectious diseases are important from a public health standpoint because they affect large numbers of people and because there are proven interventions which can prevent or alleviate much of their impact. Public health measures related to these diseases focus on prevention. Early detection can reduce the effects of many of these diseases (Washington State Department of Health, 1994), as many deaths are caused or brought on prematurely by behavioral and environmental factors which increase the probability of disease occurrence.

“Tobacco use is the leading preventable cause of death and disease in our society” (Washington State Department of Health, 1996). Smoking is a prime example of health risk behavior which can significantly contribute to the development of chronic illness. Smoking has been linked with higher rates of lung cancer, Chronic Obstructive Pulmonary Disease (COPD), and coronary heart disease.

Risk factors known to increase the occurrence and severity of high blood pressure, high blood cholesterol, and diabetes include poor diet and sedentary lifestyle. Health promotion activities aimed at prevention and reduction of these risk behaviors could reduce the effects of these illnesses in the population.

For some chronic diseases, such as breast, cervical, and prostate cancers, early detection and treatment lessen the impact of disease and increase life expectancy.

Coronary Heart Disease

Coronary heart disease is defined as “decreased flow of blood through the coronary arteries, usually caused by atherosclerosis (hardening of the arteries)” (Washington State Department of Health, 1996). This results in a decreased oxygen supply to the heart muscle and destruction of heart muscle cells referred to as myocardial infarction or “heart attack.” Primarily a disease of older adults, coronary heart disease is the leading cause of death in the United States, and in Washington State. Between the years 1980 and 1995 coronary heart disease was the leading cause of death in Wahkiakum County. Risk factors known to contribute to the development of coronary heart disease include:

- ◆ tobacco use
- ◆ physical inactivity
- ◆ high blood pressure
- ◆ high blood cholesterol
- ◆ diabetes
- ◆ obesity (excess weight)
- ◆ poor nutrition

The progression of heart disease can be modified by controlling or reducing these risk factors. Strategies include early identification and treatment of hypertension (high blood pressure) and diabetes, smoking cessation, improved fitness, and cholesterol screening and reduction. Interventions which are used to produce changes in these risk factors include public and professional education, environmental and policy change, and improved access to health services. Washington State’s goal for the year 2000 is an age-adjusted death rate from coronary heart disease of 85 deaths/100,000 persons. In the five year period from 1991 through 1995, Wahkiakum County’s age-adjusted death rate for the disease was very close to that goal at just over 85 deaths per 100,000 persons.

In a statewide assessment of health status the Washington State Department of Health included Wahkiakum in its list of the state’s counties with the lowest death rates from coronary heart disease (Washington State Department of Health, 1996). These rates must be viewed with caution due to the increasing population of older adults in the county, and the small number of events utilized to calculate Wahkiakum’s death rate. The declining rate of heart disease mortality in Wahkiakum County may suggest that over time some of these strategies

have been effective in preventing the progression of heart disease. Improved medical care for heart disease and increased survival following heart attacks are also a factor.

Stroke (Cerebrovascular Disease)

A stroke occurs when the blood supply to an area of the brain is interrupted by blockage or rupture of a blood vessel. Although a less frequent cause of death than heart disease, stroke can result in major disabilities among survivors who might lose their ability to move, speak, eat, or function independently. The risk factors for stroke are similar to those of heart disease and include hypertension, smoking, physical inactivity, and diabetes.

In Wahkiakum County 43 deaths occurred from Cerebrovascular Disease between 1980 and 1995, or an average of almost 3 deaths per year.

Cancer

Cancer is a group of diseases characterized by uncontrolled growth of abnormal cells within the body. Cancer is the second leading cause of death in Wahkiakum County residents. The major cancer classifications are respiratory, breast, prostate, cervical, colorectal, and "other." The "other" category is made up of uncommon types of cancer, such as non-Hodgkin's lymphoma and leukemia, and cancers that infrequently cause death, such as skin cancer.

Risk factors influencing cancer development include lifestyle, heredity, environmental factors, and age. A primary prevention strategy, aimed at controlling known risk factors, may help significantly reduce the chance of contracting cancer. A secondary prevention strategy, including regular screening of asymptomatic people, may help diagnose cancer at an early, treatable age.

Age-adjusted death rates due to cancer in Wahkiakum County have fluctuated over the years. This appears likely, in part, because of small numbers. However, there appears to be a trend toward increasing cancer rates. From 1981 to 1985 the rate for deaths from all cancers was 82 deaths per 100,000 population. By 1989 to 1993 the rate for deaths from all cancers in Wahkiakum County was 146 deaths per 100,000 population. During the latest five year average from 1991 to 1995 there were 108 deaths from cancer per 100,000 population. It appears the Wahkiakum County rate is lower than the Washington State rate. In 1994 the overall state death rate due to cancer was 184 per 100,000. The nation objective is "no more than 130 age-adjusted deaths per 100,000."

Oral-pharynx Cancers

The use of tobacco products, including chewing tobacco, can create an oral environment that helps decay-producing agents thrive and significantly increases the risk of oral cancer. Preventive health services and the cessation of tobacco use, can be major factors in reducing deaths from oral cancer. Although the number of oral-pharynx cancer of individuals is so small that a rate is unattainable, there is a growing concern over the increase in this cancer.

Lung Cancer

Cancer of the lung is the leading cause of cancer death among men and women, with an overall five-year survival rate under 15%. It kills over 2,600 Washington residents each year.

In Wahkiakum County, from 1986 to 1995, twenty one people died of cancer of the lung.

Tobacco smoke is by far the most important factor in lung cancer, accounting for over 85% of the deaths. Incidence and mortality rates have increased markedly since the 1930s among men and the 1960s among women, following increases in cigarette consumption.

Occupational exposures, most prominently asbestos, can also be a cause. Smoking in combination with occupational exposures greatly increases risk. Encouragingly, current national trends show a slight decline in lung cancer death rates, reflecting decreasing cigarette consumption in recent decades.

Most authorities recommend against screening asymptomatic individuals for lung cancer. Studies have failed to provide evidence that screening can reduce mortality. Control of occupational exposures and tobacco is important in lung cancer prevention. There is evidence that regular consumption of fruit and vegetables may help reduce risk. Clearly, the major focus of efforts to prevent and control lung cancer must be on reducing tobacco use.

Only 21 lung cancer deaths occurred in Wahkiakum County in the decade from 1986 to 1995. The annual death rate in Washington state is approximately 36 deaths per 100,000 population.

Breast Cancer

Breast cancer is the second leading cause of cancer death among women in the United States, Washington State and Wahkiakum County. Although both men and women are at risk for breast cancer, 99% of cases occur women.

The risk of dying from breast cancer increases significantly the older a woman is at the onset of the disease. Other factors such as heredity and delayed childbirth have been identified as risk factors, adding to a woman's potential for developing breast cancer. Although research in this area continues, current opportunities for primary prevention are limited. Research has shown that mammography screenings and clinical breast exams performed by health care professionals are effective methods for early detection of breast cancer. Mortality can be reduced by 30 to 40% among women age 50 years and older with regular mammography screenings and clinical breast exams. The effectiveness of screening younger women by mammography has not been clearly established.

In 1991, breast cancer killed 775 women in Washington State, and 45,000 nationwide. In Wahkiakum County between 1986 and 1995 six deaths were caused by breast cancer over this decade.

Overall, about 70% of women diagnosed with breast cancer survive five years. In a given case, the stage of disease at diagnoses and tumor characteristics play an important part in determining prognosis. Survival rates are generally lower among those less likely to receive an early-stage diagnosis.

Colorectal Cancer (Cancer of the Colon and Rectum)

Cancer of the colon and rectum is the third most common site of cancer diagnosis among both men and women in Washington State and the second most common cause of cancer deaths in Washington State. Colorectal cancer is responsible for about 900 deaths per year statewide. Strong evidence has accumulated for the importance of the diet in determining

risk for this disease. While not yet conclusive, strong evidence suggests that fats in the diet may increase the risk, whereas fiber, fruits and vegetables markedly decrease it. Other factors, such as calcium in the diet, regular exercise, and low-dose aspirin may also help prevent colon and rectal cancer.

Treatment results in an overall five year survival rate of fifty to sixty percent. Survival is better in early-stage disease and worse in cases diagnosed in later stages. Screening for colorectal cancer after age 40 by regular digital rectal examinations, testing for small amounts of blood in the stool and other methods, is recommended by many authorities. Recent evidence shows a beneficial effect of annual fecal occult blood screening after age 50. Further studies are underway to resolve controversy regarding the optimal screening protocol and the benefit of screening in reducing mortality from colorectal cancer.

Colorectal cancer accounted for six deaths in Wahkiakum County between 1986 and 1995.

Prostate Cancer

Among men, cancer of the prostate gland is the most commonly reported malignancy. It is the second leading cause of cancer deaths in males, killing 569 men in Washington State in 1990. Rarely diagnosed before age 45, prostate cancer is primarily a disease of older men. The cause of this disease is obscure although some evidence suggests that environmental factors may play a role. A family history of prostate cancer is associated with increased risk of contracting this disease.

Difficulty with urination is usually the first symptom of prostate cancer to appear. In the absence of symptoms the diagnosis is only made during routine screening, with digital rectal examination or other tests. As a result, the majority of cases are diagnosed while localized in an early stage. In these cases, survival is equivalent to men of the same age without prostate cancer. Survival in later stage disease is notably worse.

Prostate cancer screening, while recommended by authorities, remains controversial. This cancer tends to grow slowly without causing symptoms for long periods of time. In the majority of instances, it does not manifest itself during the person's lifetime. Many of the early-stage prostate cancers diagnosed through screening might not, if undetected, result in illness or premature death. The availability of screening for cancer of the prostate is a subject of intensive investigation at this time.

Between 1986 and 1995 six deaths were caused by cancer of the prostate in Wahkiakum County.

COPD (Chronic Obstructive Pulmonary Disease)

Chronic Obstructive Pulmonary Disease (COPD) results in a progressive loss of lung function and difficulty breathing. Emphysema, asthma and chronic bronchitis are the most common forms of COPD. A sufferer of COPD can also die prematurely from related conditions such as cardiovascular disease or respiratory cancer.

COPD is highly preventable. Tobacco use is a major contributor to COPD; it is thought to be responsible for at least 80% of all COPD deaths. Men tend to be affected more often than women, in part due to the greater historical use of tobacco among men. Another important cause of COPD is occupational exposure: miners, shipyard workers and some agricultural workers are at especially high risk.

In Wahkiakum County in the years between 1986 and 1995 eighteen deaths occurred due to COPD.

Diabetes

Diabetes is caused by a decreased ability to produce the hormone insulin, an impaired response to insulin, or both. Diabetics are at increased risk of complications including chronic infections of the feet and legs, eye damage, kidney failure, stroke, and heart disease.

Death and other complications from diabetes can be decreased through reduction of smoking, high blood pressure, high cholesterol and obesity. Preventing complications of diabetes may be difficult because it requires the patient to follow diet, exercise and medication regimens, in addition to getting adequate outpatient medical care. Aging is another risk factor for adult onset diabetes.

In interpreting diabetes mortality rates, it is important to recognize that death rates are usually based on the underlying cause of death. Diabetes often contributes significantly to deaths from heart or kidney disease, and without detailed analysis of the underlying cause of death its importance may be underestimated.

Using five year averages, in Washington State the death rate for diabetes has increased slightly over recent years from 28 deaths per 100,000 population in the five year period from 1980 to 1984 to 34 deaths per 100,000 population from 1991 to 1995. In Wahkiakum County the trend toward increasing diabetes related deaths appears greater. In 1980 to 1984 the death rate was 12 deaths per 100,000 population and in 1991 to 1995 there were approximately 36 deaths from diabetes per 100,000 population. Nineteen diabetes related deaths occurred in Wahkiakum County between the years 1991 and 1995.

Several factors may contribute to the increase in diabetes. The population in Wahkiakum County is aging because of outmigration of young families in the early 1980s and immigration of retirement age adults in the 1990s. There is an increasing trend toward obesity throughout the nation. And finally, it is difficult to establish valid rates with relatively small numbers of incidence.

Chapter Six

Injury

Injuries are one of the biggest causes of death and disability among populations of children and young adults and many injuries can be prevented. Since the economic and social costs of injury are tremendous, reducing and preventing injury has become a major health focus.

The two categories of injuries are unintentional and intentional. Unintentional injuries are those caused by accidents such as motor vehicle accidents, falls, drowning, firearms and burns. Intentional injuries include homicides and suicides.

Data regarding injuries as it is presented in this chapter is limited in that it measures the number of deaths caused from unintentional and intentional injuries. What is not measured is just as important, perhaps more so. This data does not include hospital admissions (unless the person dies), emergency room visits, clinic visits and persons who are injured but do not see a physician.

Unintentional Injuries

In the ten years from 1986 through 1995, twenty Wahkiakum County residents died as a result of unintentional injuries, and even more were likely to have occurred within the county boundaries (Wahkiakum County Coroner, 1997). At present, state death data is limited to geographical areas of residence rather than areas of occurrence, so deaths occurring within the county to out-of-county residents do not appear as part of these twenty deaths.

Motor vehicle crashes are generally the largest single cause of death from unintentional injury in a population.

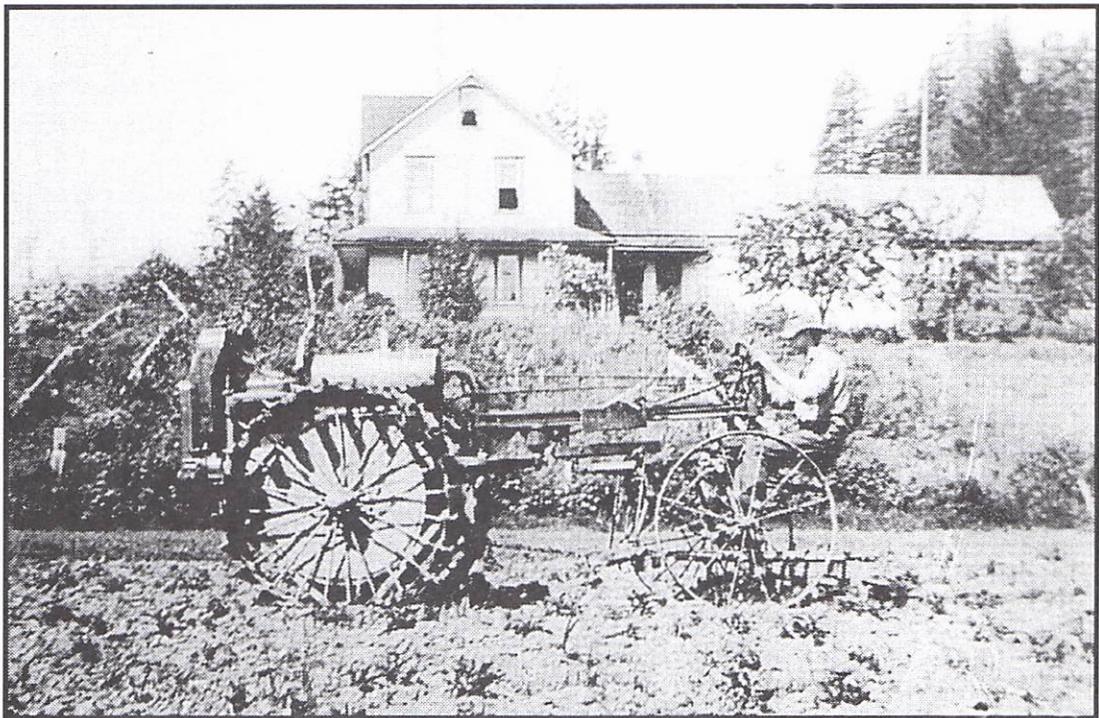
Forty five percent of the unintentional injury deaths of Wahkiakum County residents during this ten year period involved a motor vehicle. In the years 1980 through 1995, sixteen county residents lost their lives to motor vehicle related injuries, and almost all of these motor vehicle related deaths involved alcohol. Very often those killed and maimed by injuries are young adults, resulting in a huge cost to families and communities in terms of the years of life lost in a population. Many more of those who are injured do not die, but are hospitalized and may have lengthy recovery periods.

According to data released by the Washington State Injury Prevention Program, 135 Wahkiakum County residents were hospitalized within Washington State with non-fatal unintentional injuries in the five years from 1990 through 1994.

Because Wahkiakum County is situated near the Oregon border, some injury victims are likely to be hospitalized outside the State of Washington, most likely in Portland or Astoria. These out of area hospitalizations frequently represent the more seriously injured residents, and often include such injuries as severe head injuries and burns. Data is difficult to obtain for those residents treated out of state.

Intentional Injuries

Intentional injuries include suicide, homicide and legal intervention. In the years from 1986 through 1995 there were no homicides in Wahkiakum County. However, during that same period there were five suicides, primarily from firearms. Intentional injury is put into perspective when the stark reality is that there are generally more suicides than homicides, but homicides are what everyone hears about and remembers.



*Frank Smalley
Farm, Eden
Valley,
circa 1920.*

Chapter Seven

Health Systems

The complexity of the health care system and the sometimes conflicting needs of the participants - consumers, providers, facilities, health plans, and purchasers such as employers - creates significant challenges in measuring health care quality to everyone's satisfaction, or improving quality in a way that assure a fair distribution of accountability.

Extremely rapid changes have occurred in health care in a very short time. Major purchasers, including employers and public sector agencies, recently have applied market mechanisms such as competitive contracting to reduce the rate of growth in health care costs. As a result, the role of health insurance carriers is being transformed from a system for pooling money and financial risk to pay health care bills into a more complex system that blends financial management with the responsibility for managing utilization and quality of care for their enrollees. Some consumers, purchasers and health care providers are voicing concerns that these changes may be eroding the quality of care, as well as blurring the traditional lines of accountability for health care quality.

The complexity of dealing with health care quality is further confounded by the tensions among some of its principal components. Clinical or technical measures of quality may not necessarily match consumer's values and criteria for choosing health care providers or services. Neither of these can be easily woven into quality standards that might provide useful yardsticks for all parties.

Health Insurance Coverage

Increasing health care costs and changes in the structure of employment have led to a decline in the percentage of individuals with employer-based health insurance coverage. There exists an episodic nature of health insurance for many low-income people. Frequent job changes, often punctuated by periods of unemployment, can result in people having health coverage one month but not the next. Under the typical private insurance policy, individuals pay roughly one-third of their total medical costs out-of-pocket through premiums, deductibles, and copayments. Health insurance that is associated with a job presents particular problems for people whose lives are characterized by high job mobility and periods of unemployment. In these circumstances, Medicaid may provide more comprehensive and more consistent coverage than employer-sponsored health insurance. There is some evi

dence that Medicaid has important health benefits for the population it serves. Researchers agree that expanded Medicaid eligibility has led to more needy people getting insurance.

From 1990 to 1994, the percentage of the US population receiving health insurance coverage through employers fell from 61% to just under 57% - a loss of about one percentage point per year. Many people never got insurance elsewhere, swelling the ranks of the uninsured from 13 to 15% of the US population. In 1980, 80% of Washington state employers provided health insurance. This declined to only 64% in 1993. This is expected to decline even further in 1996 to 52%

Premium cost increases for employer-sponsored health insurance vary by firm size, industry, and region of the country:

Firm size: Increases were smaller for larger firms (5,000 and more employees) and larger for smaller firms (200 to 1,000 employees).

Industry: Increases were smaller in the service industry and larger in manufacturing and financial institutions.

Region: Increases were smaller in the West than in any other region of the country.

Several reasons are cited for the slowing growth in employer health insurance costs, but they have little to do with overall efforts to control costs. Rather, they reflect:

- ◆ Shifting costs from employers to employees - e.g., employees pay a greater share of the premium; and
- ◆ A drop in the proportion of employees receiving employer-sponsored health insurance either because the employer stopped offering it or because the employees - usually people in low-paying jobs - are less likely to enroll, especially for dependent coverage.

Consumers see health care costs increasing, despite the overall slowing of the growth of health care costs. Consumers consistently report that their costs are rising and have mostly negative things to say about anything related to health care costs. Employees are paying an increasingly greater share of premiums. The 5.0% average annual increase in total premium cost between 1992 and 1995 translates to a 12.3% per year increase in employee payments. And those with family coverage experienced an even greater increase.

A major effort to control health care costs is the institution of managed care. Expanded managed care organizations are expected to cover the life of 80-90% of the insured population of the US by the year 2000. People residing in the Partnership area enrolled in Healthy Options, the Medicaid managed care health insurance, numbered as of February 1997:

Grays Harbor County:	6,022
Lewis County:	7,427
Mason County:	4,536
Pacific County:	2,167
Wahkiakum County:	75

In August 1996 the Washington State Basic Health Plan, administered by the Washington State Health Care Authority reached a total statewide enrollment of 163,400. Of those enrollees more than 102,000 were subsidized members. At that rate of growth, it was expected to have available funding to enroll 130,00 subsidized individuals - and to sustain

enrollment for that number of enrollees through the end of the biennium. Starting with applications received in September for November coverage, new reduced premium members were enrolled only as existing members left the program.

The percent of population without health insurance in Washington State increased from 11.3% in 1990 to 12.2% in 1994. This increase was much lower than the uninsured population of the US: 13.4% in 1990 and 15.2% in 1994. Studies show that adults and children with no insurance were sicker, had fewer ambulatory care visits, and had less continuity of care than insured people. Studies also have found that uninsured people are more likely to undergo avoidable hospitalization or institutionalization, be diagnosed at later stages of life-threatening diseases, be hospitalized on an emergency or urgent basis, be more seriously ill upon hospitalization, and die in the hospital.

The majority of the uninsured cite cost as the principal reason they do not have insurance coverage and approximately half of the uninsured reported difficulty in getting needed care and/or in paying for medical bills in the course of a year. While many people in this group worry about the future, and we may speculate about their plight in the event of a major accident or illness, about half of the uninsured in America are not experiencing difficulties in obtaining medical care.

In Washington State in 1994 the most likely to be without health insurance were young adults between 19 and 34 years of age. There is a nearly even split between males and females without health insurance.

Access to Essential Health Services

The Institute of Medicine defines access as: "the timely use of personal health services to achieve the best possible health outcomes." Essential health services are primary health care, short term general hospital care, prenatal and postpartum care for uncomplicated births, pharmacy services, and emergency medical services. Access to such services is affected by such factors as time, transportation, geography, distance, socioeconomics, language, and culture.

The Children's Access to Health Care Committee, based on a review of existing literature, examination of recent Washington State Medicaid studies and personal knowledge and experience, found that barriers to access to health care can be classified primarily into three broad categories: 1) financial; 2) structural (non-financial); and 3) personal knowledge and responsibility.

Financial barriers include:

- ◆ The high cost of health insurance.
- ◆ Limited coverage for preventive services and equipment.
- ◆ Limited coverage for follow-up services.
- ◆ Limited coverage for mental health.
- ◆ Health insurance limits on "pre-existing conditions."

Structural barriers consist of:

- ◆ Insufficient numbers of primary care providers in specific geographic regions.
- ◆ Lack of cultural and language appropriate services.
- ◆ Focus on medical model which does not emphasize social, emotional growth and development needs.
- ◆ The shift to managed care.

- ◆ Lack of transportation,
- ◆ Inconvenient hours of service, and
- ◆ Inadequate distribution of services.

Personal knowledge and responsibility barriers include:

- ◆ A lack of acceptance of the value of preventive services
- ◆ Inappropriate use of health care services
- ◆ Misinformation about vaccines, diseases and immunization schedules

Availability of Primary Care

The Maternal and Child Health Bureau definition of primary care is “a set of personal health care services delivered in the context of family and community. Primary care is comprehensive in scope and includes services that preserve health, prevent disease and dysfunction, and care for common illnesses and disabilities. Primary care serves as the usual entry point to the personal health care system. It shares with the family of the child or adolescent ongoing responsibility for health care, whether illness or injury is present or absent. The primary care provider serves as the integrator of health services or coordinator of needed services. Finally, primary care includes mechanisms that assure the appropriateness, cultural acceptability and quality of services being provided.

In Washington State 15% of the adult population do not have a regular source of primary care. Younger adults, especially the 25-34 age group, were most likely to not have a source of care. For the adult population under age 55, the proportion of males without a usual source of care was significantly higher than that for females. The most often cited reason for not having a source of primary care was “did not need a doctor”, and secondly “could not afford a doctor”.

Primary care practitioners are usually a patient's first point of contact for medical health services. These practitioners give continuous coordinated care for patients. The 1995 Health Personnel Resource Plan designated all of Mason, Grays Harbor, Pacific and Wahkiakum Counties and the eastern half of Lewis County Shortage Areas for Primary Care. This means that the ratio of licensed doctors and advanced registered nurse practitioners to the population was less than 1:1200, with variables of poverty, prenatal care, and aged population taken into account.

Quality Assurance, Quality Improvement

The most widely cited definition of “quality of care” comes from the Institute of Medicine: “Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”

In responding to traumatic injury,, the difference between life and death is often a matter of minutes or even seconds. In Washington in 1994 the median response time from dispatch of an Emergency Medical Services (EMS) unit to arrival on the scene was 8 minutes, ranging from 4 minutes in urban areas to 10 minutes in rural areas to 22 minutes in wilderness areas. All these times are well within the current state standards.

The Washington State Department of Health monitors the quality of practitioners in 43 licensed health professions. The primary means of identifying and resolving alleged problems

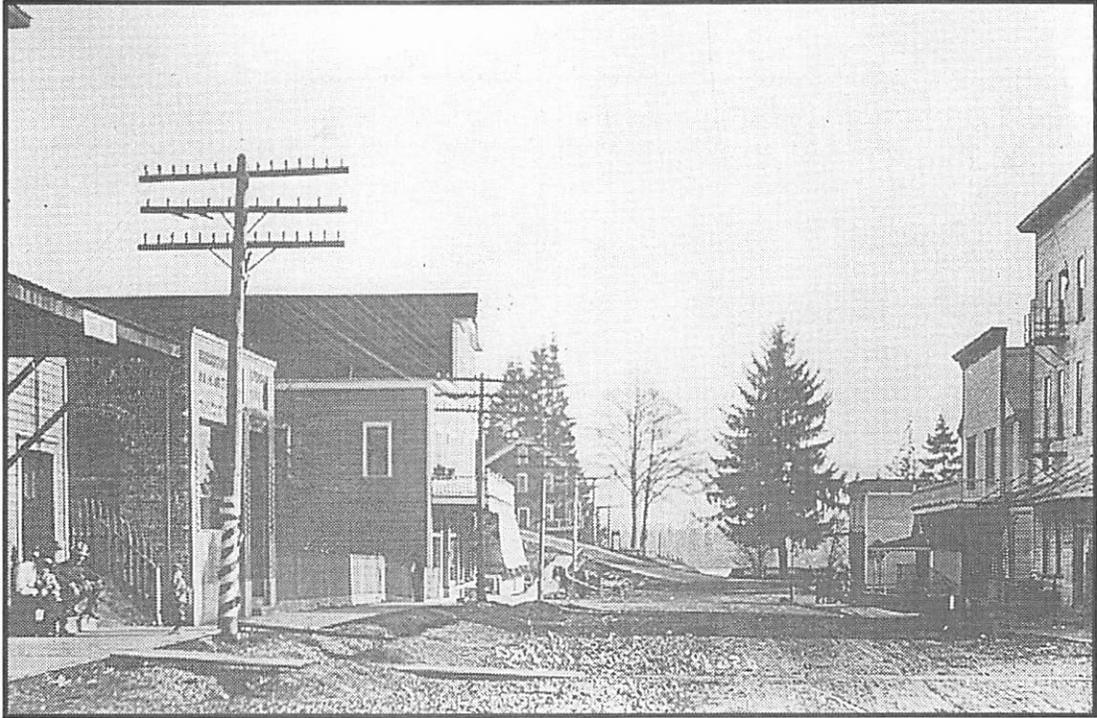
with the quality of care delivered by professionals is a complaint and investigation process that results in actions against the licenses of professionals whose practices do not meet state standards. Timeliness of actions against unsafe health practitioners is a significant factor in assuring access to competent health care. Unsafe practitioners pose a threat to public safety, while unnecessary restrictions on practice limit the provision of health care. In fiscal year 1994 there were 5,842 complaints about health professionals, resulting in 554 actions, 468 of which involved removal from practice or restriction from practice with rehabilitation. These involved about 0.3% of all practitioners.

Health Facilities

Health facilities and services quality assurance is a process of monitoring and improving the quality of health services through enforcement of health and safety standards, technical assistance, and dissemination of new technology and methodologies. The Washington State Department of Health Facilities and Services licensing programs seek to assure that all facilities practice within the state's rules regarding safe, fair, and prudent patient treatment. The goal is to promote and protect individual patient health. The primary method of assuring health facility quality is an annual inspection process.

The table below shows the number and types of facilities and services that are licensed to operate within Wahkiakum County.

<u>Type of Facility</u>	<u>Number in Wahkiakum County</u>
Hospital	0
Home Health Agency	0
Hospice Agency	0
Convalescent Homes	1
Alcoholism Treatment (outpatient) Facility	1
Department of Corrections Facility	0
Community College	0
Shelters for Domestic Violence	1 (being planned to open in early 1998)
Child Care Centers	1
Physicians	2



*Main Street
in Cathlamet.*



*Oxen on a
Wahkiakum
County skid
road.*

Chapter Eight

Environmental Health

Environmental measures have long been a mainstay of public health. State and local efforts to assure safe supplies of food and water, manage sewage and municipal wastes, and control or eliminate vector-borne illnesses have contributed substantially to public health improvements in the US.

These achievements cannot be taken for granted. Infectious agents continue to taint food and water. Animals continue to carry diseases to humans. Outbreaks of intestinal diseases occur frequently. There will undoubtedly be new hazards emerging in the future, some microbial, many chemical. As we maintain and improve activities to prevent effects of well-known and familiar hazards, we must also monitor developments related to these emerging, often poorly understood hazards.

Food Safety

Improperly handled and prepared food can be a significant source of intestinal illness. Food can be contaminated at the source or near the time of consumption. Viruses are probably the most common cause of intestinal disease, but typically are recognized only when they cause large outbreaks. Diagnostic tests for viruses are usually not performed. Bacteria are the largest reported cause of intestinal illness in Washington State as well as in the Partnership.

Gastrointestinal illnesses are described and documented in the Infectious Disease chapter under Intestinal Diseases. Foodborne illness outbreaks occur when two or more cases of an illness, caused by an infection or intoxication from bacteria, virus, parasite, or chemical agent, are reported from a common food source. Foodborne illness outbreaks have been reported in all counties within the Partnership, except Wahkiakum. The number of outbreaks seem to be falling since 1993.

Risk factors for foodborne illness can be mitigated by using safe food handling practices. Recommendations to prevent foodborne illness include:

- ◆ Cook food thoroughly.
- ◆ Wash, rinse, and sanitize utensils, cutting boards or other potentially contaminated surfaces between uses.

- ◆ Store and thaw ground beef and other meats in a manner that prevents meat juice from dripping on other foods or surfaces.
- ◆ Thaw foods in a refrigerator or microwave, never at room temperature.
- ◆ Wash hands thoroughly with soap and warm water before preparing food, eating, after using the bathroom, and after changing diapers.
- ◆ Do not drink raw milk or untreated water.
- ◆ Wash fruits and vegetables before eating.
- ◆ Return any undercooked food received at a restaurant for further cooking.
- ◆ Promptly freeze or refrigerate perishable foods.
- ◆ Cool food under refrigeration - never cool foods at room temperature.

In Wahkiakum County there are currently 32 food service establishments inspected and permitted. Wahkiakum County Health Department offers education and tests for Food Handler Certificates and provides inspection and permits for temporary food events as well as permanent food establishments. The Department also reviews plans for new food service establishments.

Waste Water

Proper handling (treatment and disposal) of sewage minimizes public health exposure and threats associated with raw sewage. Public health protection entails ensuring sewage disposal systems, whether public or private, are located, designed, installed, and operated properly. This will lessen the potential of adverse impacts from sewage on the ground and in surface waters, minimizing the chance for direct public contact with sewage.

Liquid wastewater, or sewage, is managed by public (municipal) sewage treatment plants and private, or on-site sewage disposal systems. More than 2,000,000 Washington residents are served by approximately 700,000 on-site sewage systems, which if properly designed and maintained, collect, treat and properly dispose of an estimated 100,000,000 gallons of sewage per day.

Within Wahkiakum County approximately 675 people are served by the City of Cathlamet's municipal sewage treatment plant. The remainder of Wahkiakum County's population of approximately 3,600 are served by individual on-site sewage systems. Since 1975, 669 On Site Sewage System permits have been issued in Wahkiakum County, according to Health Department records.

The Wahkiakum County Health Department provides Site Evaluations and issues Permits for property within the county. The Health Department also provides education and public information related to wastewater and sewage disposal issues.

Water Recreation

Every year an estimated 10 million persons use an outdoor pool or beach in Washington. The high demand on existing facilities heightens the usual public health concerns associated with water recreation, specifically drowning, injury, and illness. Other conditions that may lead to increased public health concerns include improper design and maintenance of pools, and the

unauthorized use of unsupervised sites. Regulated water recreation facilities may include, but are not limited to, swimming pools, wading pools, spray pools, and hot tubs located within hotels, motels, bed and breakfasts, recreational vehicle parks, campgrounds, and other public and semi-public locations.

State and local health jurisdictions have regulatory responsibilities for an estimated 3,500 swimming pools in the state. Common problems at these facilities include the lack of adequate disinfection, which can lead to skin rashes and ear infections, and the lack of proper barriers to keep unsupervised small children out of the pool, which can result in injuries and drowning. The Wahkiakum County Health Department regulates and inspects one pool in the County.

State and local health agencies provide limited review of an estimated 500 public and private resort and camp beach facilities. The potential problems at these beaches include poor water quality, hazardous diving areas, sudden drop-offs, rapid currents, and lack of supervision. Residential pools and spa pools, which number more than 100,000 in the state, are common locations for drowning of young children.

Western Washington's natural bathing beaches experienced several disease outbreaks in recent years, the most serious occurring at Deep Lake in Thurston County in 1993. Outbreaks at natural bathing beaches generally affect large numbers of individuals when reported. Adequate public health surveillance and enforcement of standards are needed to prevent injuries and illness at water recreation facilities.

Drownings are described and quantified in the chapter titled Injury: Intentional and Unintentional.

Drinking Water

Safe and reliable drinking water is one of the most basic human requirements. In Washington state, people may receive their drinking water from public systems serving thousands of people, or from individual systems. A number of agencies regulate different aspects of drinking water, including the Federal Environmental Protection Agency, the State Utilities and Transportation Commission and Departments of Health and Ecology, and tribal and local governmental agencies. Sources of drinking water may be surface or ground water, and may or may not be protected from contamination by development, humans, or wild and domestic animals.

Individual drinking water systems, or private wells, serve approximately 13% of the state's population. Except for initial construction, these systems are unregulated. Depending on the water source, depth and construction, they may provide a lower level of public health protection to their users than regulated systems.

Public water systems serve approximately 87% of Washington State residents. Public water systems in Washington are designated as Group A or Group B systems, depending on the number of connections and the number of individuals served. Additionally, temporary non-community (TNC) water systems serve transient populations at, restaurants, parks and other temporary accommodations

Group A systems are those that serve 15 or more connections or 25 or more people per day for 60 or more days per year. Washington ranks third highest among the 50 states in the number of public water systems violating the federal Safe Drinking Water Act, and seventh highest in the percentage of population (36%) served by water systems not in compliance.

Wahkiakum County has five Group A systems in compliance with Safe Drinking Water Act requirements. These are the Town of Cathlamet, Puget Island, West Side Water, Western Wahkiakum and Crista Vista water systems. These five systems serve a population of approximately 2600 people.

Group B systems are those that serve less than 15 connections and less than 25 people for 60 days or more per year. There are few statistics available on compliance of Group B systems. The number of these small public water systems is growing rapidly. Eight Group B systems serving at least 75 people have been identified in Wahkiakum County, although the total number of Group B systems in the county is unknown. Some of Wahkiakum County's identified Group B systems are recognized as unsafe, non-compliant systems. The water quality conditions of the unknown small public water supplies cannot be assessed. Persons wanting information on individual Group B systems can contact the Wahkiakum County Health Department.

Transient Non-Community (TNC) water systems may serve many connections for less than 60 days per year. There are six TNC systems currently identified in Wahkiakum County. Some of these, such as the system serving Skamokawa Vista Park, serve a relatively large number of persons on an annual basis, and most are actively maintained and monitored. The health status of some these systems has not been evaluated.

It is estimated that as many as 1000 Wahkiakum County residents satisfy their domestic water requirements with individual wells or springs. For new construction, a water test is required before development permits are issued, but these private water supplies are otherwise unregulated.

Vector and Zoonotic Diseases

These diseases are described in the chapter on Infectious Diseases.

Solid Waste

Individuals generate about 4 pounds of solid waste each day. Solid waste disposal, if not properly handled, can lead to contamination of groundwater, surface water, and the air. Improperly handled solid waste can contribute to vector-borne diseases and fires. Waste reuse and recycling has decreased the amount of solid waste that must be disposed.

Improper or illegal solid waste disposal is a significant problem for counties within the Partnership. This is due to the large percentage of isolated lands and low per capita income which may not allow adequate resources for a subscribed disposal service.

Wahkiakum County has no open municipal waste landfills, one closed woodwaste landfill and one open woodwaste landfill. The County operates a transfer station near KM Mountain for household waste. Solid Waste is, for the most part transferred to Cowlitz County.

Hazardous Waste

Hazardous substances are typically liquid, solid, gas, or sludge material that exhibit one or more of the following characteristics: ignitability, corrosivity, reactivity, and/or toxicity. Hazardous substances may range from household hazardous wastes or moderate risk wastes to toxic chemicals used for industrial processes. These substances can become incorporated

into the environment if not properly utilized and disposed.

Generally, a household hazardous waste product will contain the word *caution*, *danger*, or *warning* on the label. Examples include: paints, thinners, pesticides, insecticides, herbicides, and solvents. Improper use and/or disposal may cause adverse effects to individuals and the environment.

Used motor oil is typically the highest volume hazardous waste generated.

Leaking underground storage tanks can jeopardize soil and ground water quality if not corrected.

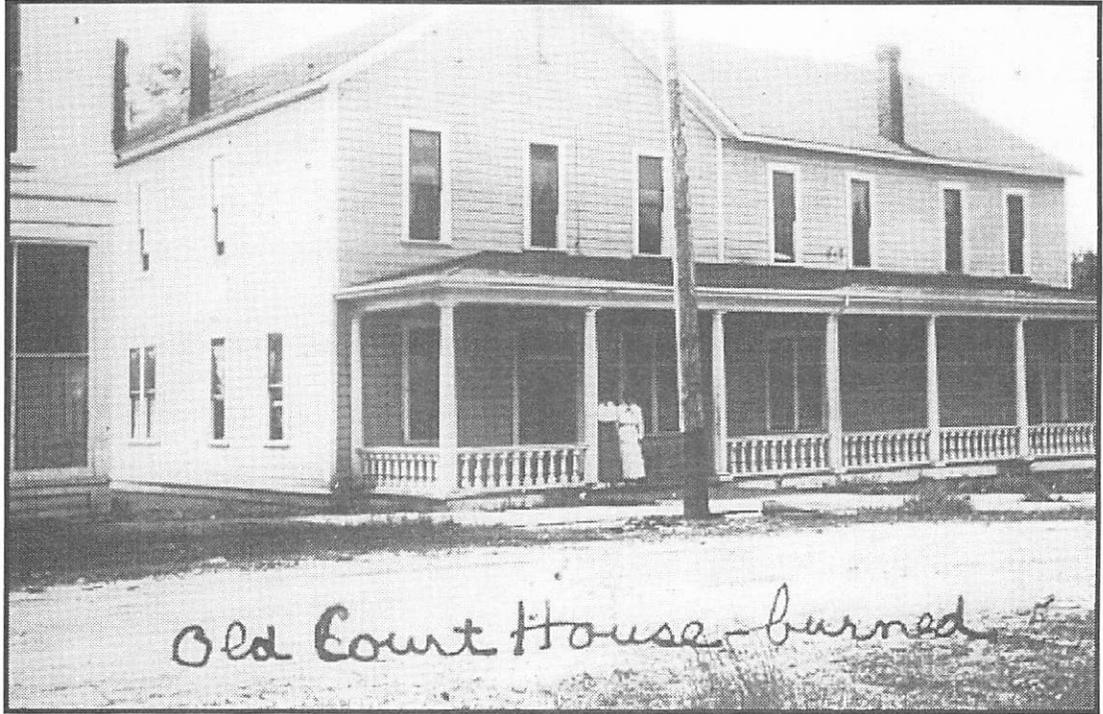
Cowlitz County provides pickup of hazardous household waste in Wahkiakum County on a regular basis.

Air Quality

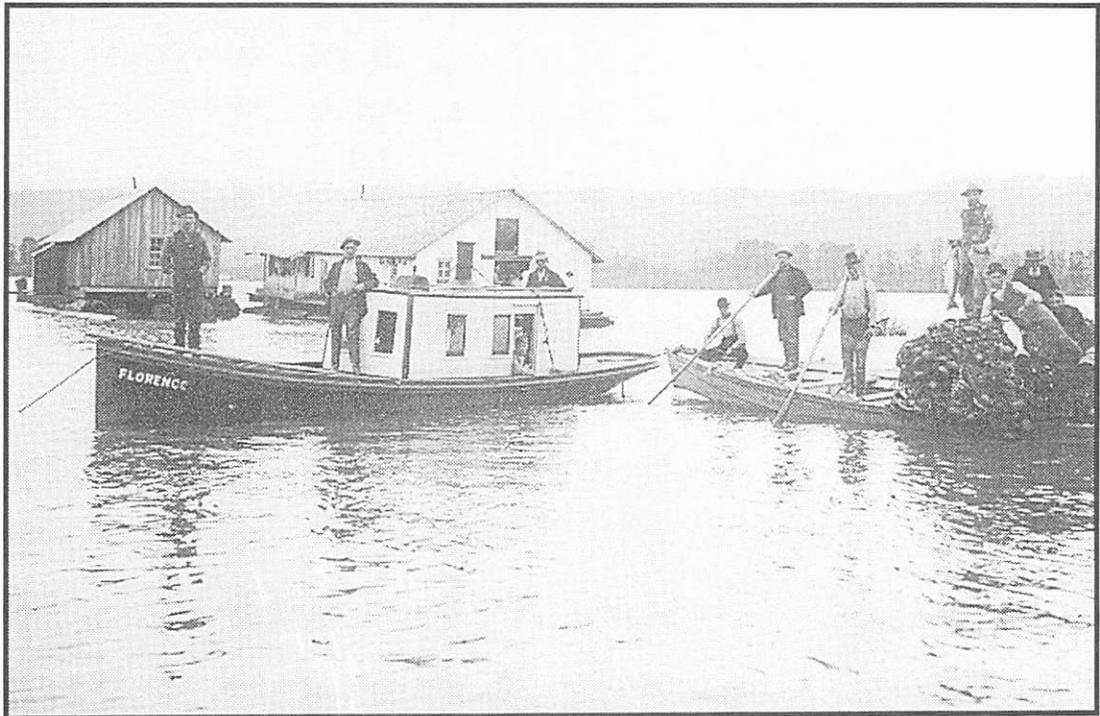
Children, the elderly, pregnant women, and those with an existing respiratory ailment (asthma, emphysema, bronchitis, for example) or heart disease are the most susceptible victims of air pollution. Exposure to air pollutants can also make healthy individuals more susceptible to infectious disease and to other environmental contaminants. Health effects from exposure to air pollution can range from headaches to asthma to organ damage to cancer and even death.

Many contaminants that are regulated in the outdoor air are found in high concentrations indoors. Americans spend greater than 90% of their time indoors, exposed to a variety of household and hygiene products as a result of the efforts to reduce energy losses from buildings. Both the levels and the length of exposure to harmful air pollutants mean that the health risks from such contaminants is greater indoors than out. It should be noted that second-hand cigarette smoke is rated as a Class A carcinogen by the Environmental Protection Agency.

Residential wood smoke, motor vehicles, outdoor burning, and industrial emissions are the major sources of outdoor air pollution.



*Old
Courthouse
in Cathlamet.*



*Seine fishing
on the
Columbia
River.*

Appendix

Definition of Terms

Age-adjusted rate: the number of events occurring among the entire population, adjusted to permit the comparison of rates among populations with different age structures. Crude rates are applied to the standard 1940 US population age structure to arrive at an age-adjusted rate.

Age-specified rate: the number of events occurring among a specific age group. The age-specific death rate is the number of deaths per 100,000 population of a defined age range. The age-specific hospitalization rate is the number of in-patient hospitalizations per 100,000 population of a defined age range.

Aggregate: a mass of distinct things gathered into a total or whole.

Aggravated assault: an unlawful attack or attack attempt by one person upon another, for the purpose of inflicting severe or aggravated bodily injury, usually accompanied by the use of a weapon or by means likely to produce death or great bodily harm. Assaults involving guns, knives or other weapons capable of causing serious harm are included, whether or not injury actually occurred.

Angina: a distinctive type of distress or pain due to deficiency of blood supply to the heart muscle.

Baby boom: the period following W.W.II from 1946-1964 marked by a dramatic increase in fertility rates and the absolute number of births in the United States, Canada, Australia and New Zealand.

Birth rate (or crude birth rate): the number of live births per 1,000 population.

Burglary: the unlawful entry of a structure to commit a felony or a theft.

Campylobacteriosis: an intestinal disease caused by the bacterium *Campylobacter*. The disease may include vomiting and diarrhea.

Case rate: the number of reported cases of a specific disease per 100,000 population in a given year.

Cause of death rate: the number of deaths from a specific cause per 100,000 population.

Chronic disease: a disease, lasting over three months, which is often incurable but which may be preventable. Examples are heart disease and cancer.

Confidence intervals (boundaries): the range of values within which a population parameter is estimated to lie. This statistic is often used as a basis of comparison between rates from two or more different areas.

Crude death rate: the number of deaths per 100,000 population in a given year.

Crude hospitalization rate: the number of inpatient hospitalizations per 100,000 population.

Death rate: the number of deaths per 100,000 population.

Domestic Violence: Specified crimes which include rape, assault, homicide, kidnapping, and property crimes, committed by/against people who at one time were either married, cohabitating and/or share children in common.

Fertility: throughout this report, the term fertility is used to mean relating to live births; none of the data include abortion or fetal death information.

Fetal death ratio: the number of fetal deaths per 1,000 live births.

Giardiasis: an intestinal disease, resulting from ingestion of the parasite *Giardia*, and including symptoms of diarrhea, abdominal cramping, and bloating.

Homicide: the willful (non-negligent) killing of one human being by another.

Homogeneity: the same in structure or quality.

Household: one or more persons occupying a housing unit.

In-migration: the process of entering one administrative subdivision of a country (such as a county or state) from another subdivision to take up residence.

Incidence rate: the number of persons contracting a disease as a proportion of the population at risk, per unit of time.

Infant mortality rate: the number of infant deaths (those occurring from birth up to, but not including, the first birthday) per 1,000 live births in a given year.

Infectious disease: one of a number of diseases caused by transmission of agents such as bacteria or viruses.

Ischemic heart disease: inadequate circulation of the blood to the cardiac muscle.

Larceny: the unlawful taking, carrying, leading or riding away of property from the possession of another, or the attempt to do so.

Life expectancy: the average number of additional years a person would live if current mortality trends were to continue; also commonly cited as life expectancy at birth.

Low birthweight rate: the percentage of live births in which the infant weighed less than 2500 grams (5.5 pounds).

Morbidity: the frequency of disease and illness in a population.

Mortality: deaths as a component of population change.

Net migration: an estimate of the balance of people moving out of an area versus those moving into an area.

On-site sewage disposal system: any system of piping, treatment devices, or other facilities that convey, store, treat, or dispose of sewage on the property where it originates or on adjacent or nearby property under the control of the user where the sewage system is not connected to a public sewer system.

Out-migration: the number of people moving out of an area.

Per capita income: total income generated in a population divided by the total number of people in that population.

Perinatal causes of death: conditions arising in the perinatal period (before, during and shortly after delivery), such as prematurity, premature rupture of membranes (PROM), respiratory distress, and infections.

Population projection: the computation of future changes in population numbers, given certain assumptions about future trends in the rates of fertility, mortality, and migration.

Poverty threshold: In 1995, federal guidelines established poverty for a family of four at \$15,150 of earned income.

Preterm labor: a live birth in which the infant was born before the end of the 37th week of gestation.

Rape: The carnal knowledge of a female forcibly and against her will. Assaults or attempts to commit rape by force or threat of force are also included. Statutory rape (no force used and victim under age of consent) and other sex offenses are excluded. Note that this definition excludes male rape victims.

Rate per 100,000: this is the total number of events occurring within a population during a specified time period (usually a year), divided by the total population, and then multiplied by 100,000.

Rolling averages: for populations of small size, small changes in the number of events will cause the rate to fluctuate significantly. To help stabilize the rate and observe the time trend of an event, the rates are aggregated into "rolled" averages, such as in 3 or 5 year intervals, across the total observed period. For example, if there is a highly fluctuating rate caused by low numbers of events for years 1987 through 1992, the rates are instead reported as three-year rolling averages: 1987-1989, 1988-1990, 1989-1991, 1990-1992. Each series of three year averages successively advances by one year, and includes a higher number of cases than a single year, smoothing out random year-to-year fluctuations.

Salmonellosis: an infectious, intestinal disease caused by the bacterium *Salmonella*, causing vomiting and diarrhea.

Shigellosis: an infectious, intestinal disease caused by the bacterium *Shigella*, causing vomiting and diarrhea.

SIDS, (or Sudden Infant Death Syndrome): the sudden unexpected death of an infant which often cannot be explained even after autopsy.

Simple assault: an unlawful attack or attempted attack by one person upon another in which no weapon was used and which did not result in serious or aggravated injury to the victim.

Smoking rate during pregnancy: prior to 1989, the birth certificate asked, "Did the mother smoke at any time during pregnancy?" In 1989 and 1990, the certificate asked, "Tobacco

used during pregnancy” and requested the average number of cigarettes per day. The question was moved from the middle third of the certificate to the bottom third, which historically is less reliably completed. This change apparently caused an artificial change in the reporting of smoking behavior, making time trends difficult to interpret. The question returned to the middle third of the form in 1992.

Suicide: as defined by death certificates: Deaths due to injuries in suicide or self-inflicted injuries specified as intentional.

Total fertility rate: the average number of children that would be born alive to a woman (or group of women) during her lifetime if she were to pass through all her childbearing years conforming to the age-specific fertility rates of a given year.

Very low birthweight rate: the percentage of live births in which the infant weighed less than 1500 grams (3.3 pounds).

VOC's (volatile organic chemicals): manufactured, carbon-based chemicals that vaporize quickly at standard temperature and pressure including: solvents, fuels, varnishes, pesticides, and others.

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Most of the information cited in this report is available for review at Wahkiakum County Health Department. Please contact Anne Ozment, 64 Main St., Cathlamet, WA, 98612; (360) 795-6207; e-mail ANNE@wahkiakum.co.wa.us for more information.

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*Cutting timber
in Wahkiakum
County.*