
Take Heart *Alaska*



*A Cardiovascular Disease
Prevention Plan
for Alaska
Second Edition*

Take Heart Alaska

A Cardiovascular Disease Prevention Plan for Alaska

A Joint Project Between

**Alaska Department of Health and Social Services,
Division of Public Health**

Frank H. Murkowski, Governor

Joel Gilbertson, Commissioner

Doug Bruce, Director

Take Heart Alaska Coalition

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Acknowledgements

Take Heart Alaska Coalition Steering Committee Members

Carolyn V. Brown, MD.....	Community Member
Michelle Cassano	American Diabetes Association
Mike Chriss.....	BP Exploration
Heather Davis.....	Chugachmiut
Jeff Erickson.....	Alaska Regional Hospital
Debbie Evans	Southcentral Foundation
Steve Johnson	Municipality of Anchorage, DHHS
Nancy Knapp.....	Southeast Alaska Regional Health Consortium
Gene Kulawik	Mended Hearts of Alaska
John McCleary	Alaska Recreation and Parks Association
Peter Mjos, MD.....	Anchorage Neighborhood Health Clinic
Judith Muller	Alaska Health Fair, Inc.
Bonnie Nygard.....	University of Alaska Anchorage
Corrine Olson	Alaska Division of Public Health - PHN
Cathie Schumacher, MD.....	Alaska Native Tribal Health Consortium
Lorraine Stumbaugh	American Heart Association
Shelley Wallace	Bristol Bay Area Health Corporation
Tim Wallstrom	Association for Health, PE, Recreation and Dance

State Cardiovascular Health Program Staff

Carol White	Cardiovascular Health Program Manager
Russ Stevens.....	Physical Activity Specialist
Sumer Todd-Harding.....	Administrative Staff

Health Promotion Unit Staff

Jayne Andreen	Health Promotion Unit Manager
Patty Owen	Community Resource Development Coordinator
Jeff Kasper	Publications Specialist

Executive Summary

Cardiovascular Disease (CVD) consists of a group of diseases and conditions affecting the heart and blood vessels. Heart attack and stroke are the most common forms of cardiovascular disease.

The Problem

- Each year, approximately 700 Alaskans die of cardiovascular disease.¹
 - Taken together, heart disease and stroke account for 27.2% of Alaskan deaths.¹
 - Heart disease is not just a disease of the elderly.¹
 - Heart disease is the second leading cause of death among both men and women in Alaska.¹
 - Individuals suffering a heart attack or stroke are living longer with illness and its complications.¹
 - At the present time, Alaska Native people have similar age adjusted death rate from heart disease and higher age-adjusted death rate for stroke than non-natives.¹
- Many Alaskans are at risk for developing cardiovascular disease because:
- 27% of Alaskan adults smoke.²
 - 21% are not physically active in their leisure time.²
 - 75% do not participate in regular physical activity.³
 - 59% are obese or overweight.²
 - 29% have high blood cholesterol.²
 - 22% have high blood pressure.²
 - 32% have not had cholesterol screening.²
 - 4% have diabetes²

Good News

Cardiovascular disease can be prevented or delayed through healthy lifestyles and preventive health services such as:

- Eliminating the use of tobacco
- Eating a heart healthy diet
- Being physically active everyday
- Having regular checkups for blood pressure and blood cholesterol levels
- Controlling high blood pressure and high cholesterol
- Maintaining desirable weight
- Managing stress

The healthy lifestyles that prevent cardiovascular disease also prevent other health problems, such as cancer, diabetes, arthritis, and depression.

Purpose of the Alaska Cardiovascular Disease Prevention Plan

The purpose of the Alaska Cardiovascular Disease Prevention Plan is to provide the impetus for action to prevent cardiovascular disease.

The plan is intended to provide overall guidance to communities, worksites,

schools, health care providers, public health leaders and others interested in improving cardiovascular health in Alaska and improving the systems to carry out that mission.

Goals of the Alaska Cardiovascular Disease Prevention Plan

The overall goal of the plan is to increase heart health among all Alaskans by advocating for individual and community-based commitment to healthy lifestyles and by improving access to preventive services.

Goal 1: Leadership, Coordination, Advocacy: Develop improved leadership, coordination and collaboration in Alaska in order to identify resources and improve advocacy for cardiovascular health.

Goal 2: Alaska Specific Issues: Ensure that Alaskans living in rural areas have access to cardiovascular disease prevention activities.

Goal 3: Healthy Lifestyles: Improve the ability of all Alaskans to eat a healthy diet, to engage in sufficient physical activity, to live tobacco-free, and to obtain needed preventive health services.

Goal 4: Data and Information: Develop and expand Alaska's capacity for making data about cardiovascular disease available and easily understood.

Goal 5: Education: Ensure the distribution of heart healthy information to the public and to health care providers.

Goal 6: Secondary Prevention: Ensure optimal secondary prevention programs and services to at risk population.

Development of the Alaska Cardiovascular Disease Prevention Plan

This second edition of the Alaska Cardiovascular Disease Prevention Plan is a joint project between the Alaska Department of Health and Social Services, Division of Public Health and the Take Heart Alaska Coalition. The coalition grew out of the agencies and organizations that joined together to develop the first Cardiovascular Disease Prevention Plan in 1998.

The original plan was developed as a joint project of the Alaska Department of Health and Social Services, Division

of Public Health; the American Heart Association, Alaska Region; and Alaska Health Fair, Inc. Individuals representing hospitals, tribal health organizations, local government, and experts in cardiology, wellness, nutrition, physical activity, and others were involved in the planning process.

For more information contact Alaska Division of Public Health, Section of Epidemiology, Health Promotion, PO Box 110616, Juneau, Alaska 99811-0616, 1-888-465-3140, fax 907-465-2770.

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Introduction to Cardiovascular Disease*

Cardiovascular disease (CVD) refers to a variety of heart and blood vessel diseases; atherosclerosis is the underlying cause of a large majority of cardiovascular diseases. CVD is of major public health importance because it affects so many people; and many interventions have been shown to decrease morbidity and mortality from

CVD.⁴ The good news is that many of the risk factors leading to CVD are preventable through healthy lifestyles and preventive health services. Furthermore, the healthy lifestyles that prevent atherosclerosis helps prevent other health problems, such as cancer, diabetes, arthritis and depression.

Atherosclerosis

Atherosclerosis comes from the Greek words athero (meaning gruel or paste) and sclerosis (hardness). It involves cholesterol, cellular waste products, calcium, and fibrin (a clotting material in the blood) in the inner lining of an artery. The buildup that results is called plaque.

Atherosclerosis affects arteries. The type of artery and where the plaque develops varies with each person. Atherosclerosis is a slow, progressive disease that starts in childhood. In some people, this disease progresses rapidly in their third decade. In others, it doesn't become threatening until they're in their fifties or sixties.

Exactly how atherosclerosis begins or what causes it isn't known, but some theories have been proposed. Many scientists think atherosclerosis begins because the innermost layer of the artery becomes damaged. This layer is called the endothelium. Some causes of damage include high blood pressure, elevated cholesterol in the blood, and cigarette smoking.

Because of the damage over time, fats, cholesterol, fibrin, platelets, cellular debris, and calcium are deposited in the artery wall. These substances may stimulate the cells of the artery wall to

produce other substances. This results in further accumulation of cells in the innermost layer of the artery wall where the atherosclerotic lesions form. These cells accumulate and many of them divide. At the same time, fat builds up within these cells and around them. The cells also form connective tissue.

The innermost layer of the artery becomes markedly thickened by these accumulating cells and surrounding material. If the wall is thickened sufficiently, the diameter of the artery will be reduced and the amount of blood decreased, thus decreasing the oxygen supply. If the oxygen supply to the heart muscle is reduced, a heart attack can occur. If the oxygen supply to the brain is cut off, a stroke can occur. And if the oxygen supply to the extremities occurs, pain with exertion can result. Often a blood clot forms and blocks the artery, stopping the flow of blood.

* Much of the text in this introduction has been adapted from text that was originally on the American Heart Association website (<http://www.americanheart.org>).

Heart Attack

Heart attacks usually result from a specific blood vessel disease called Coronary Heart Disease (CHD) or Ischemic Heart Disease (IHD). The medical term for heart attack is myocardial infarction. A heart attack occurs when the blood supply to part of the heart muscle itself, the myocardium, is severely reduced or stopped. This occurs when one of the arteries that supply blood to the heart

muscle (coronary arteries) is blocked by an obstruction, such as plaque from atherosclerosis. A myocardial infarction is the damaging or death of an area of the heart muscle resulting from a reduced blood supply to that area. If the blood supply is cut off, muscle cells suffer irreversible injury and die. Disability or death can result, depending on how much heart muscle is damaged.

Risk Factors for Heart Disease

Risk factors are characteristics that increase the likelihood of developing disease. Some risk factors can be changed, and some cannot. The more

risk factors a person has, the greater the chance that he or she will develop heart disease.

Risk factors for heart disease that can be changed

- a. High blood pressure** – High blood pressure increases the heart’s work load, causing the heart to enlarge and weaken over time. It also increases the risk of stroke, heart attack, kidney failure and congestive heart failure.
- b. High blood cholesterol levels** – The risk of coronary heart disease rises as blood cholesterol levels increase. A person’s cholesterol level is also affected by age, heredity and diet.
- c. Diabetes mellitus** – Diabetes seriously increases the risk of developing cardiovascular disease.
- d. Cigarette/tobacco smoke** – Smokers’ risk of heart attack is more than twice that of nonsmokers. Available evidence also indicates that chronic exposure to environmental tobacco smoke (secondhand smoke, passive smoking) increases the risk of heart disease.
- e. Physical inactivity** – Lack of physical activity is a risk factor for coronary heart disease. Regular aerobic exercise plays a significant role in preventing heart and blood vessel disease. Even modest levels of low-intensity physical activity are beneficial if done regularly and long term. Exercise can help control blood cholesterol, diabetes and obesity as well as help to lower blood pressure.
- f. Obesity** – People who have an excessive accumulation of body fat are more likely to develop heart disease and stroke even if they have no other risk factors.

Risk factors for heart disease that cannot be changed

- a. Heredity** – Children of parents with cardiovascular disease are more likely to develop it themselves. However, many inherited causes of heart disease are preventable, such as genetic abnormalities of cholesterol. Other preventable risk factors, such as smoking, run in families.
- b. Male sex** – Men have a greater risk of heart attack than women, and often have heart attacks earlier in life.
- c. Age** – The risk of heart attack increases with age. While heart attack is common among the elderly, substantial numbers of people less than 65 years of age also have heart attacks.

Other contributing risk factors for heart disease

- a. Stress** – may also be a contributing factor. Some scientists have noted a relationship between coronary heart disease risk and a person's life stress, behavior habits and socioeconomic status. These factors may affect established risk factors. For example, people under stress may start smoking or smoke more than they otherwise would.

Stroke

Stroke is a cardiovascular disease that affects the blood vessels supplying blood to the brain. Stroke is also called cerebrovascular disease. A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot or bursts. When that happens, part of the brain cannot get the blood (and oxygen) it needs, so it starts to die.

Clots that block an artery cause ischemic strokes. This is the most common type of stroke. Ischemic strokes account for about 70-80 percent of all strokes.

Ruptured blood vessels cause hemorrhagic or bleeding strokes.

When part of the brain dies from lack of blood flow, the part of the body it controls is affected. Strokes can cause paralysis, affect language and vision, and cause other problems.

Transient ischemic attack, more frequently referred to as TIAs, are “mini strokes” that produce stroke-like symptoms but no lasting damage. They are strong predictors of stroke. A person who’s had one or more TIAs is almost 10 times more likely to have a stroke than someone of the same age and sex who hasn’t.

Risk Factors for Stroke

Risk factors for stroke that can be changed

a. High blood pressure – High blood pressure is the most important controllable risk factor for stroke. Many people believe the effective treatment of high blood pressure is a key reason for the accelerated decline in the death rates for stroke.

b. Heart disease – After high blood pressure, heart disease is the most important risk factor for stroke. Heart attack is also the major cause of death among survivors of stroke.

c. Transient ischemic attacks (TIAs) – TIAs are strong predictors of stroke. A person who’s had one

or more TIAs is almost 10 times more likely to have a stroke than someone of the same age and sex who hasn’t.

d. Cigarette smoking – In recent years studies have shown cigarette smoking to be an important risk factor for stroke. The nicotine and carbon monoxide in cigarette smoke damage the cardiovascular system in many ways. The use of oral contraceptives combined with cigarette smoking greatly increases stroke risk.

Some stroke risk factors are based on heredity. Others result from a person's lifestyle. Factors resulting from heredity

can't be changed. Factors resulting from lifestyle or environment can be modified.

Risk factors for stroke that cannot be changed

- a. Heredity** – The chance of stroke is greater in people who have a family history of stroke
- b. Male sex** – Overall, men have a greater chance of stroke than women.
- c. Age** – The chance of having a stroke more than doubles for each decade of life after age 55. While stroke is common among the elderly, substantial numbers of people under 65 also have strokes.
- d. Race** – African-Americans have a much higher risk of death and disability from a stroke than whites, in part because African-Americans have a greater prevalence of high blood pressure.
- e. Diabetes mellitus** – Diabetes is an independent risk factor for stroke and is strongly correlated with high blood pressure.
- f. Prior stroke** — The risk of stroke for someone who has already had one is many times that of a person who has not.

Other contributing risk factors for stroke

Other controllable risk factors are secondary risk factors for stroke. They affect the risk of stroke indirectly by increasing the risk of heart disease:

- a. High blood cholesterol and lipids**
- b. Physical inactivity**
- c. Obesity**

Scope of the Problem in Alaska

Each year approximately 700 Alaskans die of cardiovascular or cerebrovascular disease (stroke) (ICD-10 codes I00-I09, I11, I13, I20-I51)¹ (Figure 1). Taken together, heart disease and stroke account for 27% of Alaskan deaths (Table 1). This percentage has not changed appreciably in the last decade and continues to run a close second to cancer deaths in Alaska.

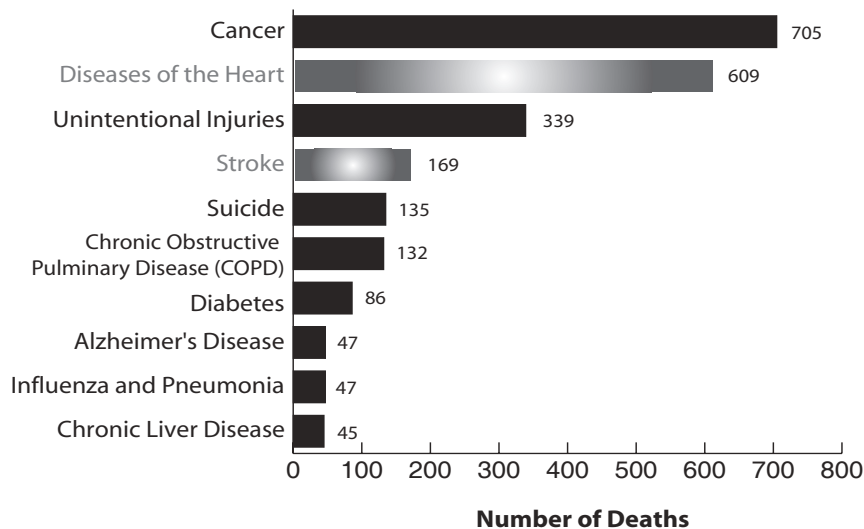
Cardiovascular disease, or diseases of the heart (ICD 10 codes I00-I09, I11, I13, I20-I51), is the second leading cause of death in Alaska, with an age-adjusted death rate in 2000 of 213.1 deaths/100,000 people. This is lower than the national age-adjusted death rate of 258.2 deaths/100,000 for that same year.¹ All rates in the scope of the problem are age-adjusted to United States 2000 population unless otherwise stated.

Stroke is the fourth leading cause of death in Alaska with an age-adjusted death rate in 2000 of 65.6 deaths/100,000 people. This rate exceeds the national age-adjusted death rate of 60.9 deaths/100,000 for that same year.¹

Coronary or ischemic heart disease (ICD 10 codes I20-I25) death rates are higher for males in Alaska than they are for females. The death rate for males is 165.4 compared to 98.9 for women. The death rate for ischemic heart disease for both men and women is lower than the national death rates for their counterparts (Figure 2). However, the opposite is true for stroke death rates. Alaskan women have a higher death rate of 80.0 compared to men's death rate of 68.5. Both men and women in Alaska have higher death rates from stroke than do men and women nationally.

The Healthy Alaskans 2010 target rate is set at 120 coronary heart disease deaths and 60 stroke deaths for all Alaskans. Healthy Alaskans 2010 is a health improvement plan, which includes health improvement goals for 2010 utilizing selected indicators and targets for those indicators. Healthy Alaskans 2010 is based on Healthy People 2010, developed by the U.S. Department of Human Services.

Figure 1
Leading Causes of Death
Alaska 2000



Source: Alaska Bureau of Vital Statistics

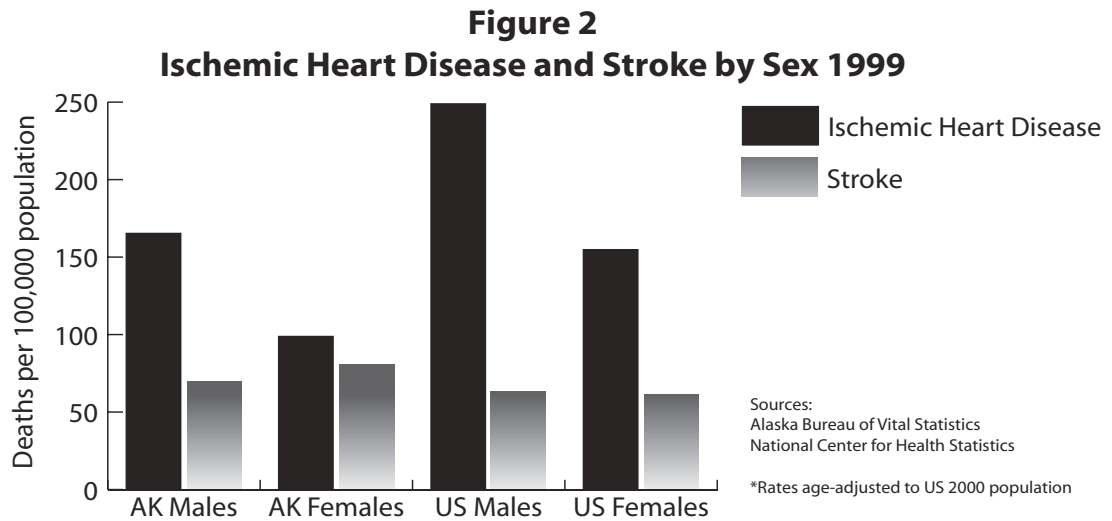
Table 1
Ten Leading Causes of Death in Alaska and U.S., 2000

	Alaska Rank¹	U.S. Rank	Alaska Total Deaths	Alaska Age-Adjusted Death Rate²
Cancer	1	2	705	209.0
Diseases of the Heart	2	1	609	213.1
Unintentional Injuries	3	5	339	63.4
Stroke	4	3	169	65.6
Suicide	5	10	135	21.0
Chronic Obstructive Pulmonary Disease (COPD)	6	4	132	48.0
Diabetes	7	6	86	26.7
Alzheimer's Disease	8	8	47	22.0
Influenza and Pneumonia	9	7	47	16.5
Chronic Liver Disease	10	12	45	10.0

¹Rank is based on the number of deaths rather than rate

²Deaths per 100,000, age-adjusted to the 2000 standard population

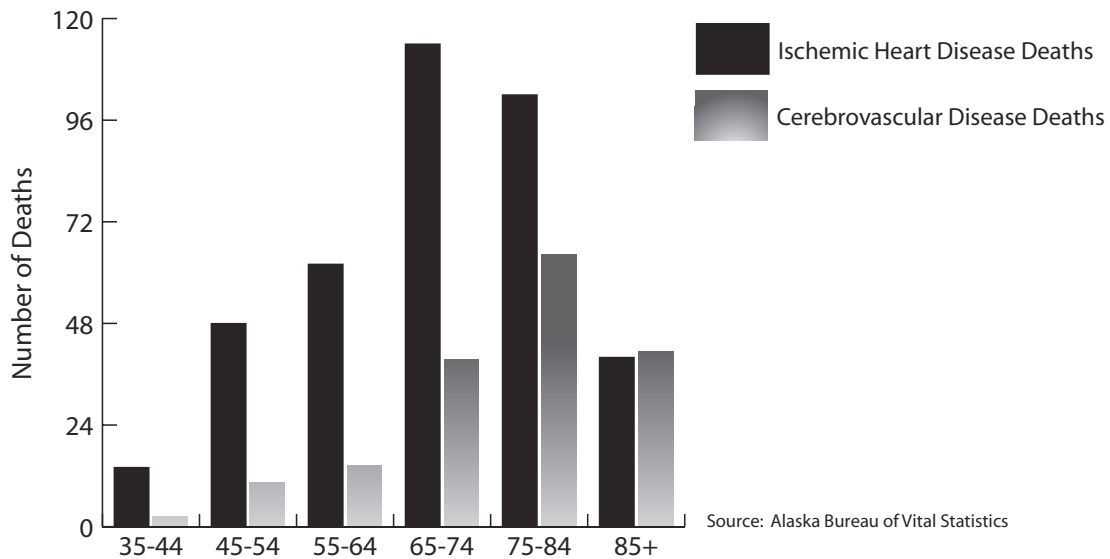
Data Source: Bureau of Vital Statistics



Cardiovascular disease is not just a disease of the aged. Nationally, an estimated 15% of all ischemic heart disease deaths occur among people less than 65 years of age. In Alaska, 33% of the ischemic heart disease

deaths occur among people less than 65 years of age.¹ This represents a substantial number of relatively young people, especially men, in their most productive years of life (Figure 3).

Figure 3
Ischemic Heart Disease and Cerebrovascular Disease Deaths
by Age Group - Alaska 1999



Cardiovascular Disease Among Alaska’s Racial and Ethnic Groups

During the 1980’s, mortality rates from ischemic heart disease increased among Alaska Native men and women, and then began to decline during the mid-1990s. During the time period 1994-1998 the mortality rate for Alaska Native men was close to that of U.S. white men, reaching 90% of the U.S. rate for white men, whereas the rate for Alaska Native women was still approximately 50% of the U. S. White Rate.⁴²

In the 1950s the major cause of death among Alaska Native people was infectious diseases. By the 1980s, cancer, heart disease, and injuries surpassed infectious diseases to become the leading causes of death among Alaska Natives.⁶

During the 20 year period 1979-1998, mortality from stroke diseases increased by 17% among Alaska Natives. In contrast, mortality from cerebrovascular disease among U.S. Whites decreased by 31%.⁴²

Regional Differences in Heart Disease and Stroke Mortality

Age-adjusted data aggregated from 1990-1999 show the death rate for ischemic heart disease varying from region to region with a high of 329 for the Aleutian region to a low of 83 for Bethel Wade Hampton region (Table 2). The national age adjusted death rate for Ischemic Heart Disease in 1999 was 196; and the Alaska rate was 156 for that same year. The Aleutians, Southeast Fairbanks, Fairbanks Denali, Nome, Kenai and North Slope all have rates above the state rate.⁷

This same data shows the age-adjusted death rate for stroke also varies by region. Eight of the fifteen regions had large enough numbers to be statistically meaningful. Of these eight, Kodiak had the highest death rate (93) and Bethel Wade Hampton had the lowest (57)⁷ (Table 3).

Table 2
Ischemic Heart Disease Death Rates Aggregated 1990-1999

Regions	Ischemic Heart Disease
Aleutians	329
Southeast Fairbanks	184
Fairbanks Denali	181
Nome	166
Kenai	166
North Slope	160
Mat-Su	156
Valdez/Cordova	156
Anchorage	155
Southeast	152
Kodiak	149
Yukon Koyukuk	145
Northwest Arctic	141
Bristol Bay	137
Bethel/Wade Hampton	83
State	156
United States	196

Table 3
Stroke Death Rates Aggregated 1990-1999

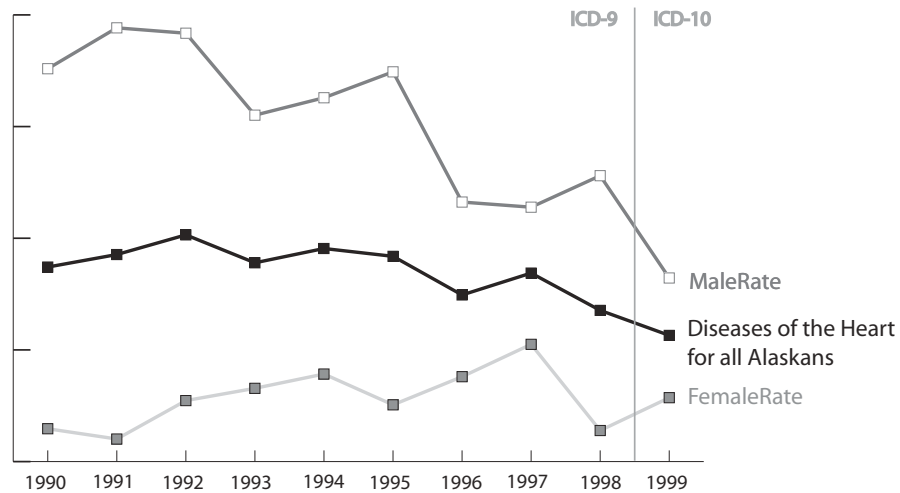
Regions	Stroke
Kodiak	93
Anchorage	83
Fairbanks Denali	83
Nome	77
Yukon Koyukuk	76
Mat-Su	72
Southeast	66
Bethel/Wade Hampton	57
State	72
United States	62

Trends in Cardiovascular Disease Mortality

Mortality from heart disease has been declining in Alaska and in the U.S. over the past several decades. The decline has been most dramatic among men (Figure 4). During the same time period, stroke

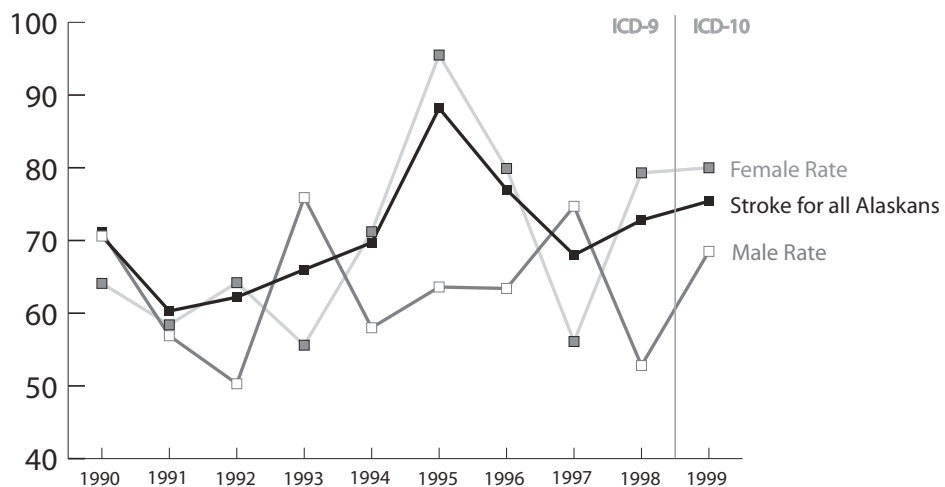
rates in Alaska have shown a gradual increase. The overall stroke rate is higher for women than for men (Figure 5).

Figure 4
Heart Disease Age-Adjusted Death Rates
Alaska 1990-1999



Rates are per 100,000 U.S. year 2000 standard population.
Rates previous to 1999 have been comparability modified.

Figure 5
Stroke Age-Adjusted Death Rates
Alaska 1990-1999



Rates are per 100,000 U.S. year 2000 standard population.
Rates previous to 1999 have been comparability modified.

Physical Disability

Cardiovascular disease and stroke are also major causes of physical disability. As many as 7.5 million Americans are alive today who have had a heart attack and 4.6 million who have had a stroke. The economic costs of CVD in the United States continues to climb. It is estimated that the economic burden of cardiovascular disease will be \$329.2 billion in 2002, including expenditures, such as physician and nursing services, hospital and nursing home services, the cost of medication, home health care,

and loss of productivity.⁸ This represents a \$70 billion dollar increase since 1997.

Nationally, 250,000 people die each year of ischemic heart disease without being hospitalized. This represents about 1/2 of all ischemic heart disease deaths. For many, the first symptom of ischemic heart disease is sudden death. Fifty percent of men, and sixty-three percent of women who died suddenly of ischemic heart disease had no previous symptoms of the disease.⁸ This fact alone, provides rationale for focusing on prevention.

Risk Factors for Cardiovascular Disease in Alaska

Modifiable risk factors for cardiovascular disease include tobacco use, lack of physical activity, poor diet, high blood pressure, high cholesterol, overweight, and diabetes. Stress may also play a role. Control of these risk factors at both the population and individual levels is important in the prevention of CVD. Despite the fact that the risk factors are modifiable, the data indicate that many Alaskans remain at risk for heart disease and stroke.

Much of the data we have in this report on risk factors comes from the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a random sample telephone survey that interviews Alaskan adults about their health and day to day living living habits. Each year they survey about 2000 Alaskan adults. The Youth Behavioral Risk Survey (YRBS) is a random sample survey that interfuse Alaskan youth in grades 9-12.

High Blood Pressure and High Cholesterol

Among Alaskan adults, 6% have not had their blood pressure checked in the past two years,⁴¹ and 32% have not had a cholesterol test in the past five years.³ Overall, 22% of adults have been told that they have high blood pressure. Of those tested for blood cholesterol,

29% have been told that their blood cholesterol is too high.

There is no information about how many people in Alaska have been treated for blood pressure and cholesterol, or how effective the treatment might be.

Diabetes

Approximately 14,800 Alaskan adults (18 years and older) have been diagnosed with diabetes, comprising 4% of the adult population. The diabetes prevalence rate among women is 34 per 1000 population and among men 37 per 1000 population.⁹ The risk of developing diabetes increases with age; the diabetes prevalence rate among Alaskans age 65 and older is 118 per 1000 population. The size of the population age 65 and older is increasing, and by 2018, people age 65 and older will make up 12% of the total population of the state.¹⁰

Among the Alaskan adult populations by race or ethnicity, the highest rates of diabetes are found among African

Americans, with 48 per 1000 population, and among Hispanics, with 43 per 1000 population.⁹ Between 1980-1999, the African American and Hispanic populations in Alaska have both increased by more than 70%.¹¹ The diabetes rate among the Alaska Native population has increased dramatically over the past decade, increasing from 15.7 per 1,000 people in 1985, to 19.2 per 1,000 people in 1993 and to 31.4 per 1,000 people in 1999.¹² The lowest rates of diabetes are found in the Eskimos and the highest in the Aleuts. The changing demographics of the population in Alaska will likely cause a future increase in the prevalence of diabetes in the state.

Tobacco Use

Among Alaskan adults, 26% report current smoking.³ Alaska has one of the highest smoking rates in the United States, similar to those of the tobacco

growing states.⁵ Rates are higher among Alaskan Natives with 42% reporting current smoking.² The highest smoking rate is consistently found in the rural

Tobacco Use (continued)

regions of the state, where 38% of the adult population smokes compared to 25-29% in other regions. Smoking rates have remained relatively constant in Alaska since 1991, when the BRFSS was first implemented.⁵

Among high school students, 37% have smoked cigarettes at least once in the past 30 days, and 21% have smoked on 20 or more of the past 30 days. Among middle school students, over half have tried smoking at least once, and 25% have smoked at least once in the past 30 days.¹³

Physical Inactivity

Physical inactivity is defined as no leisure time physical activity within the last month. Among Alaskan adults, 21% were physically inactive.³

Among physically active adults, 57% are either moderately active (physically active for at least 30 minutes per session for at least 5 days per week) or vigorously active (engage in vigorous activity for at least 20 minutes per session on at least 3 days per week).

Alaska high school students are much more likely to be physically active; 78% of boys and 66% of girls report engaging in vigorous physical exercise on three or more of the past seven days. Among middle school students, 87% of boys and 82% of girls report exercising and/or playing on a school sports team.¹³ Youth data more current than 1995 is unavailable due to an unreliable sample size caused by the active parental consent law.

Diet

Dietary Fat

There is little information about fat consumption among Alaskans. The 1992 BRFSS collected information about how frequently adults ate certain high fat foods, such as potato chips, hot dogs and fried chicken. Men reported eating more high fat foods than did women. Because the survey did not quantify the actual amount of each food, there was no way to determine how much fat people actually ate.¹⁴

Alaska Native fat intake has been documented to be comparable to that of the nation in one study, and comparable or higher in another study.^{15, 16}

The 1995 Youth Risk Behavior Survey found that among high school students, 57% of boys and 43% of girls reported eating french fries or potato chips during the previous day, and 54% of boys and 33% of girls reported eating hamburgers, hot dogs or sausages on the previous day. Similar results were found for middle school students.¹³

Fruits, Vegetables and Fiber

In 1994, 19% of adult Alaskans (age 18+) reported eating five or more fruits or vegetables per day. In 1996 the percentage peaked at 26%, decreased in 1998 to 24% and maintained that level in 2000.

In 2000, 26% of Alaskan women reported eating five or more fruits and vegetables per day, as compared to 22% of Alaskan men.²

In 1996, 16% of Alaskan Natives reported eating five or more fruits and vegetables per day. This percentage has increased in 2000 to 26%.

In 1998, 34% of Alaskan high school students, reported eating five or more fruits and vegetables in the previous day, as compared to 28% of U.S. students.¹³

No data is available on fiber consumption for Alaska.

Overweight

The 1996 BRFSS found that 36.8% of Alaskan adults are overweight compared to 37% in 2000. Previously, only the category of "overweight" was utilized to illustrate risk. A stronger indication of the extent of weight related risk in Alaska would be to combine the categories of overweight and obesity. The 2000 BRFSS found that 58% of Alaskan adults are

overweight or obese based on a body mass index >25 for females and males. Among men, 68% are overweight or obese; among women, 47%. Among Alaska Natives 69.3% are overweight or obese. Among Alaska adults, 10% have been advised by a health care provider in the past year to lose weight.

Alcohol

Although moderate alcohol consumption may be a protective factor for cardiovascular disease, it has a number of adverse effects on the heart. These include alcoholic cardiomyopathy caused by a direct toxic effect of alcohol on the myocardium; dysrhythmias, including atrial fibrillation; high blood pressure, and elevated triglycerides.¹⁷ Among Alaskan adults, 19% report drinking at least five or more drinks on one occasion (binge drinking) in the past month, as compared to the national median of 15%.⁴¹ Men are more likely to engage in binge drinking-26% of Alaskan men reported drinking

more than five drinks on one occasion in comparison to 11% of Alaskan women. An estimated 4% of Alaskan adults surveyed had more than 60 drinks during the past month.²

Among Alaskan high school students, 47% have had at least one drink of alcohol in the past 30 days; 34% reported binge drinking on at least one occasion in the past 30 days.¹³ Approximately 50% of middle school students report ever having had at least one drink of alcohol.

Stress

Among Alaskan adults surveyed, 33.2% report having one or more days in the prior month where their mental health was not good. Forty-five percent of women and 29% of men report having a

day where mental health is not good. Women and men are equally as likely to report having a day where mental health is not good.

Current Alaska Activities Related to Cardiovascular Disease Prevention

Alaska State Cardiovascular Health Program

The Alaska State Cardiovascular Health Program first received funding in October 2001. The program is focusing on building the capacity of the state to implement a comprehensive cardiovascular health program.

The priorities of the program are:

- To collaborate and strengthen working relationships with cardiovascular health related programs, agencies, providers, partners, and individuals.
- Improve the ability to monitor the burden of cardiovascular disease in Alaska.
- Complete an inventory of population based and environmental issues related to cardiovascular health at the state level.
- Prioritize population-based strategies for decreasing cardiovascular disease that are culturally appropriate.
- Develop and implement training programs for those working to improve the public's cardiovascular health.

Alaskans Promoting Physical Activity

To accomplish the objectives and mission of Take Heart, Alaskans Promoting Physical Activity (APPA) was formed as a sub-committee of the Take Heart Alaska coalition. APPA currently consists of more than 75 individuals from around the state who represent a wide variety of organizations interested in promoting physical activity. Although a sub-committee of Take Heart Alaska, APPA has its own leadership structure including a chair, steering committee, and sub-committees.

The purpose of Alaskans Promoting Physical Activity is to increase physical activity among Alaskans by influencing policies, physical and social environments, and personal behaviors through health promotion, education, and advocacy efforts.

- **Active Community Environments:** APPA seeks to work collaboratively with other agencies and organizations that have influence over these aspects of the physical environment. The purpose is to improve the physical environment, making it more conducive to physically active lifestyles and promote increased access for all Alaskans.
- **Public Education:** APPA seeks to develop educational materials and provide resources to health educators and others involved in health promotion as well as the general public. The purpose is to ensure the distribution of quality educational material regarding the risks of a sedentary lifestyle and the health benefits of physical activity.
- **School Physical Education:** This committee focuses on efforts to increase participation in, and the quality of, physical education in Alaska's schools. The purpose is to improve health and fitness among children and adolescents through advocating for the provision of quality, daily physical education in support of national recommendations.

Alaskan Area Diabetes Program

The Alaska Area Diabetes Program was started in 1986 and is located at the Alaska Native Medical Center (ANMC). It is a statewide Alaska Native program that provides clinical and education services in the prevention and treatment of diabetes for Alaska Natives and American Indians living in Alaska.

Clinical and educational outpatient services for diabetes are offered through the Internal Medicine outpatient clinic at ANMC. Patients with pre-diabetes, diabetes, and gestational diabetes are seen in consultation with ongoing plans coordinated through their primary care provider. The Diabetes Program also offers comprehensive consultative services for patients admitted to ANMC's inpatient wards. These services include diabetes education, blood sugar monitoring instruction, and medical management.

Throughout the year, the diabetes team (a physician, nurse practitioner, nutritionist, and podiatrist) travels to regional health care facilities to conduct periodic diabetes specialty clinics where requested. These 4-5 day clinics offer consultative clinical care and diabetes education/nutritional services to both patients with diabetes and those at risk for diabetes. Other activities of the team include professional inservices, yearly chart reviews to assess care provided according to nationally recognized standards, and assisting small communities with preventive education activities such as health fairs and community workshops.

Alaska Diabetes Control Program

The overall goal of the State of Alaska's Diabetes Control Program is to reduce morbidity and mortality due to diabetes and its complications, enhance the quality of life of persons with diabetes, and apply demonstrated scientific knowledge into practice. The program staff include a full time program manager, a full time surveillance/evaluation lead, two half-time public health nurses, one full time clerical staff, and a part-time data analyst.

The AKDCP uses routine data sources to monitor risks associated with the development of diabetes, morbidity, mortality, and diabetes trends. Surveillance data are used to formulate policy, identify high-risk groups, target interventions, and evaluate progress in disease prevention and control.

The AKDCP applies public health interventions at the community level to impact on the needless, preventable

complications associated with diabetes from both the individual and community perspectives. The AKDCP provides the leadership and basic framework for enabling communities to conduct local programs tailored to address its unique mix of problems, needs, and resources.

The AKDCP provides leadership for translating promising findings of diabetes research into widespread clinical and public health practices. The leadership role includes the maintenance and further development of linkages with public, private, and voluntary agencies to ensure the coordination of efforts to attain common goals. The AKDCP also provides leadership to increase awareness and education about diabetes, promote early detection of diabetes and treatment of its complications and improve the quality of and access to diabetes care.

Eat Smart Alaska!

Eat Smart Alaska is a coalition of volunteers, staffed by the Alaska Department of Health and Social Services. Its mission is to help shape food consumption in a positive way, in order to promote health and reduce disease among all Alaskans. Members include consumers, foodservice representatives, educators, health professionals, government agencies and private businesses. Some of the ways Eat Smart Alaska works toward its mission are:

- to advocate for increased availability of healthful foods,
- to increase educational efforts on the economic benefits of healthful eating,
- to increase use of the media to promote healthful eating messages, and
- to publicize that healthful eating enhances quality of life and prevents disease.

In May 1997, Eat Smart Alaska published a detailed needs assessment entitled "Eat Smart Alaska! Nutrition Related Chronic Disease in Alaska: Baseline Needs Assessment". The needs are summarized into four areas:

- 1) food access and availability
- 2) environmental conditions and support
- 3) education
- 4) data collection and research

Eat Smart Alaska also directs the Five-A-Day for Better Health Program in Alaska. This is a campaign to increase consumption of fruits and vegetables to five servings a day.

Alaska Tobacco Control Alliance

The Alaska Tobacco Control Alliance is a statewide coalition of more than 170 organizations and individuals. Its purpose is to encourage, coordinate, and support effective methods for preventing tobacco use by children and discouraging use by adults. A priority of the alliance is to influence public policy decisions related to tobacco use. The alliance is working in the following public policy areas:

- Ensuring that at least 20% of Alaska's Master Settlement Funds are applied to tobacco prevention and control,
- Enabling affordable and available cessation services,
- Advocating for clean indoor air, and
- Developing school-based initiatives.

Alaska Health Fair Program

Alaska Health Fair Inc. is a statewide program that coordinates over 100 community, school, and worksite health fairs each year through out Alaska.

WISEWOMAN - Southeast Alaska Regional Health Consortium (SEARHC)

The SEARHC WISEWOMAN (Well Integrated Screening and Evaluation For Women Across the Nation) Program is one of twelve CDC demonstration projects nationwide to integrate cardiovascular risk factor screening into a comprehensive women's health program. Partnering with the National Breast and Cervical Cancer Early Detection Program, WISEWOMAN screens for cholesterol, blood pressure, and lifestyle factors such as nutrition, physical activity, and tobacco use. Individualized counseling and classes

which address risk factors are offered to women enrolled in the program.

WISEWOMAN serves Native women 40-64 years old living in Southeast Alaska who meet the income criteria of the grant, or those below 250% of the Alaska Poverty level. Enrollment clinic sites include Haines, Klawock, Sitka, and Juneau.

See the WISEWOMAN website at WWW.SEARHC.ORG for more information, including contact information for staff.

Cardiac Rehabilitation

Cardiac rehabilitation is a process that assists patients who are recovering from a cardiovascular event such as a heart attack, angioplasty, or coronary bypass surgery. Cardiac rehabilitation involves a comprehensive approach that entails proper exercise prescription, cardiac risk factor modification, patient education and counseling, and behavioral interventions.

Cardiac rehabilitation often starts while the patient is still in the hospital. This phase is called inpatient or Phase I cardiac rehabilitation. After the patient is discharged, Phase II cardiac rehabilitation continues on an outpatient basis.

Both the inpatient and outpatient programs are designed to assist the patients and their families in adjusting to an altered lifestyle. This multifaceted approach has shown positive results in decreasing the physiological and psychological effects of a cardiovascular event, and in improving a person's ability to function. It has also been effective in raising the threshold of chest pain or ischemia, stabilizing or reversing the

atherosclerotic process and restoring patients psychosocial, emotional, and vocational status.

There are seven cardiac rehabilitation programs located around the state.

- Cardiac Rehabilitation, Valley Hospital, Wasilla
- Cardiac and Pulmonary Rehabilitation, Providence Alaska Medical Center, Anchorage
- Cardiac Rehabilitation, Providence Health System, Kodiak
- Cardiopulmonary Rehabilitation, Bartlett Regional Hospital, Juneau
- Health Management Center, Alaska Regional Hospital, Anchorage
- Heart Builders, Central Peninsula General Hospital, Soldotna
- Pace Cardiac Rehabilitation, Fairbanks Memorial Hospital, Fairbanks

Chugachmiut - Cardiovascular Disease Prevention/Core Capacity Building Project

Chugachmiut is the Native organization serving seven Alaska Native villages in Prince William Sound, Resurrection Bay, and Lower Cook Inlet. In September 2001, Chugachmiut received a six-year REACH 2010 grant from the Centers for Disease Control and Prevention (CDC) for Cardiovascular Disease Prevention/Core Capacity Building in Chugach region villages.

In 1998, heart disease was the third leading cause of death for Alaska Native men, and the second leading cause of death for Alaska Native women. The Cardiovascular Disease Prevention/Core Capacity Building Project was developed to address cardiovascular disease and stroke prevention. The goals of the project are to:

- 1) increase the ability of communities to provide health promotion activities aimed at reducing disparities in cardiovascular disease outcomes and;
- 2) develop an Alaska Native Cardiovascular Disease Database, in conjunction with the Alaska Native Tribal Health Consortium, that will allow the ongoing monitoring of trends in heart disease and stroke incidence, prevalence and mortality, as well as risk factors and healthy behaviors.

Village-based Community Wellness Advocates (CWAs) work to increase awareness of cardiovascular disease and promote healthy lifestyle changes that help to reduce the risk of cardiovascular problems. Working closely with community members, CWAs promote heart healthy lifestyles through exercise programs, nutrition information and cooking demonstrations, tobacco cessation, and health education. Working to control cardiovascular disease risk factors at the individual and community level is key to preventing cardiovascular disease and its complications.

Goals and Objectives of the Plan

Introduction

The overall goal of the Alaska Cardiovascular Disease Prevention Plan is to increase heart health among all Alaskans through advocating for individual and community-based commitment to healthy lifestyles and through improving access to preventive services.

The plan is divided into six major issues which are:

- Leadership, Coordination and Advocacy
- Alaska Specific Issues
- Healthy Lifestyles
- Data and Information
- Public and Professional Education
- Optimal Secondary Prevention Practices

Development of the Plan

This second edition of the Alaska Cardiovascular Disease Prevention Plan is a joint project between the Alaska Department of Health and Social Services, Division of Public Health and the Take Heart Alaska Coalition. The coalition grew out of the agencies, organizations, and individuals that joined together to develop the first Cardiovascular Disease Prevention Plan.

The original plan was developed as a joint project of the Alaska Department of Health and Social Services, Division of Public Health; the American Heart Association, Alaska Region; and Alaska Health Fair, Inc. Individuals representing hospitals, tribal health organizations, local government; and experts in cardiology, wellness, nutrition, physical activity and others were involved in the planning process.

A statewide meeting in October 1996, hosted by the Alaska Division of Public Health, highlighted the problem of cardiovascular disease in Alaska and began the planning process. A planning committee formed and guided the process. Workgroups met independently on physical activity, nutrition, school health, community and worksite interventions, data, public education, professional education, health screening and rural issues. The workgroups

developed goals, objectives, and strategies, which were reviewed by the steering committee. Once a draft was agreed on by the steering committee, reviewers were sought from a variety of areas.

The original intent of the plan to provide the impetus for action remains constant for the second edition. The plan is not meant to be prescriptive, but rather to provide overall guidance to communities, worksites, schools, health care providers, public health leaders, and others interested in improving health in Alaska, and improving the infrastructure necessary to carry out that mission.

In order to share responsibility for action for implementing strategies to prevent cardiovascular disease in Alaska, the planning committee agreed in March of 1998 to create a statewide coalition. The cardiovascular disease prevention coalition called "Take Heart Alaska" was formed and continues to build support for improving cardiovascular health in Alaska. For more information on "Take Heart Alaska," contact the Alaska Division of Public Health, Section of Epidemiology, Health Promotion Office, PO Box 110616, Juneau, Alaska, 99811-0616, or by phone 1-888-465-3140 or fax 907-465-2770.

Issue 1: Statewide Leadership, Coordination and Advocacy

We need improved coordination, advocacy, and leadership in CVD prevention. Although there is interest in CVD prevention, activities tend to be

done in isolation. CVD prevention does not appear to be a priority for Alaskans, and there are limited resources to develop prevention programs.

Goal: Develop improved leadership, coordination, and collaboration in Alaska in order to identify resources and improve advocacy for heart health.

Objective 1: Coordinate with, build, and strengthen CVD prevention related coalitions.

- a. Continue to build and strengthen CVD Prevention partnership/coalition.
- b. Evaluate, revise, and implement a CVD plan.
- c. Build a statewide Physical Activity Coalition to affiliate with the National Coalition (or reestablish the Governor’s Council on Physical Fitness).
- d. Support the Eat Smart Alaska Coalition and the expansion of the Five-A-Day for Better Health Program
- e. Support the Alaska Tobacco Control Alliance.
- f. Re-establish the Alaska Worksite Wellness Association.
- g. Coordinate CVD Prevention efforts with the state planning efforts.
- h. Coordinate with TRAAK.

Objective 2: Increase CVD Prevention/Health Promotion program capacity within state government.

- a. Establish a CVD staff position in the Division of Public Health.
- b. Develop a CVD Prevention/Health Promotion Program within the Division of Public Health.
- c. Advocate for a physical activity staff position in the Department of Health & Social Services.
- d. Continue collaboration between the Division of Public Health and the Department of Education on health-related issues.
- e. Support capacity-building programs such as Community Wellness Advocate Training.

Objective 3: Increase support for community-based CVD prevention/health promotion programs.

- a. Provide models, resources, technical assistance, and incentives for implementing and improving community-based CVD prevention/health promotion programs.
- b. Increase community-based health promotion program grant opportunities in the areas of physical activity, nutrition, and tobacco prevention.
- c. Support community-based CVD prevention/health promotion programs to meet needs of specific populations such as racial and ethnic minority groups, women, older adults, persons with disabilities, and low income groups.

Objective 4: Increase awareness, support, and funding for cardiovascular health.

- a. Educate legislators, policy makers, business leaders, and others about the value of heart health promotion and its role in health care.
- b. Advocate for financial benefits for businesses that implement and maintain worksite health promotion programs.
- c. Develop and promote low-cost prevention services.
- d. Advocate for legislation to mandate coverage of CVD preventive services.
- e. Advocate for funding and implementation of coordinated school health programs.
- f. Advocate for increased local and state capital expenditures for indoor and outdoor recreation facilities and areas.
- g. Support/promote enforcement of existing youth access tobacco prevention laws.
- h. Advocate for and promote clean-indoor-air policies.

Objective 5: Advocate for Coordinated School Health Programs (CSHP).

- a. Partner with Department of Education, Department of Health and Social Services, Alaska Association of Physical Education, Health Recreation and Dance, American Cancer Society, All Alaska Pediatric Partnership, and others to increase efforts.
- b. Educate the lawmakers and others about the importance of CSHP.
- c. Advocate for daily physical education in all Alaska schools, as part of comprehensive school health programs.
- d. Advocate for ongoing preparation programs in health and physical education.

Issue 2: Alaska Specific Issues

Alaska has unique characteristics that make delivery of preventive services and education about healthy lifestyles difficult. These include the long winter, many isolated communities, different foods, and the fact that other risk factors may seem more important to communities.

It will be important to involve community health aides and community health representatives in rural villages in order to deliver a CVD prevention message. In some areas, there may be other influential groups, including traditional councils and elder councils who should be involved in program development. Including Alaska Native tradition and the subsistence diet into a CVD prevention program would assist with implementation.

In order to involve a community in CVD prevention, it is important to deal with issues felt to be important by the people in that community. Many times alcohol

and stress are listed as important issues. Dealing with mental health issues may be beneficial to CVD prevention, in that stress makes it difficult for people to attend to other areas in their lives. Furthermore, many risk factors leading to CVD have a behavioral or emotional component. Alaska leads the nation in suicide mortality. Mental health and alcohol issues cannot be ignored in this CVD prevention plan.

Many people believe that Alaska Natives are somehow protected against coronary heart disease. As shown in this document, Alaska Natives now have similar rates of death from heart disease and stroke than do non-Native people. Furthermore, the data show that Alaska Native people are less likely to be screened for CVD risk factors; and anecdotal information suggests that if high cholesterol is identified, it is less likely to be treated.

Goal: Ensure that Alaskans living in rural areas have access to CVD Prevention programs and services.

Objective 1: Ensure that CVD prevention activities are culturally relevant to individuals residing in rural Alaska.

- a. Include representatives from rural communities in identifying effective CVD prevention strategies.
- b. Develop a network of individuals with experience living and working in rural Alaska to consult in the development of informational materials.
- c. Use existing data about effective interventions and continue to collect new data to assist in the development of interventions relevant to rural communities.

Objective 2: Increase accessibility to heart healthy foods, physical activity, and tobacco prevention efforts in rural Alaska.

- a.** Improve knowledge about and access to fruits, vegetables, and low-fat food choices in rural and village communities.
- b.** Network with nutrition groups to develop strategies to assist communities with innovative/realistic methods to increase the availability of heart healthy foods.
- c.** Emphasize traditional meats, sea mammals, fish, plants, and berries in dietary recommendations for rural Alaska.
- d.** Network with physical activity groups to develop strategies to assist communities with innovative/realistic methods to increase opportunities for increasing physical activities.
- e.** Build on community strengths, such as subsistence diet and lifestyle, and established recreational activities.
- f.** Support ongoing tobacco prevention efforts in rural Alaska.

Objective 3: Enhance accessibility to opportunities for mental health counseling, stress reduction, and healthy community activities in rural areas.

- a.** Support networks including mental health professionals, public health programs, and community planning groups.
- b.** Support strategies to increase activities that promote a sense of connection to community, as well as those that reduce risk for CVD.
- c.** Build on individual, family, and community strengths by partnering with Suicide Prevention Wellness grants and Alaska Association of School Boards' Assets Building.

Objective 4: Increase awareness of CVD risks among Alaska Native populations and improve the level of preventive health services.

- a.** Format existing data about CVD risks and continue to collect new data to make the problem real to health care providers, communities, and individuals.
- b.** Increase CVD screening programs and services in rural communities, clinics, and among the Alaska Native population.

Issue 3: Healthy Lifestyles

Despite what we know about preventing heart disease with healthy lifestyles, many Alaskans do not engage in healthy lifestyles. Healthy lifestyles include eating a good diet, being physically active, and living tobacco free, as well as obtaining clinical preventive services.

People can be motivated to healthy lifestyles in many different settings,

including communities, worksites, schools and health care settings. Objectives are presented for each of the settings so that communities, worksites, schools, and health care settings will be able to examine the objectives most relevant to their area of interest.

Goal: Improve ability of all Alaskans to eat a healthful diet, to be physically active, to live tobacco-free, and to obtain needed preventive health services.

Objective 1: Improve heart health by developing, supporting, and implementing community-based health promotion programs.

- a. Involve members of communities in planning, developing, and implementing health promotion programs.
- b. Coordinate community-based health promotion activities with private, public, academic, and service organizations within communities.
- c. Promote the identification, gathering, and preparation of traditional, and subsistence foods.
- d. Encourage availability and use of healthful food in restaurants, fast food establishments, worksites, and school cafeterias.
- e. Increase physical activity and recreational opportunities with options and incentives for individuals, families, and groups.
- f. Promote “family friendly” community physical activity events and programs at local levels.
- g. Provide safe, accessible walking, jogging and biking paths, and ski trails.
- h. Increase opportunities for making public buildings and schools available for physical activities.
- i. Enforce strict laws on youth access to tobacco.
- j. Support non-smoking facilities.
- k. Decrease environmental tobacco smoke in public places.
- l. Increase population-based CVD/cholesterol screening health promotion programs.

Objective 2: Improve heart health by developing, supporting and involving worksite wellness programs.

- a. Implement worksite health promotion programs that include CVD health screening and health education.
- b. Involve members of worksites in planning, developing, and implementing wellness programs specific to the needs of the employees.

Objective 2: *(Continued)*

- c.** Increase availability and purchase of high fiber, low-fat foods in worksite cafeterias and vending machines.
- d.** Promote and support opportunities for employees to incorporate physical activity into their daily lives.
- e.** Support and encourage worksite non-smoking policies.
- f.** Increase opportunities for smoking cessation programs for employees.

Objective 3: Advocate for an increase in the amount of quality of physical activity for children and youth.

- a.** Increase the amount of time and program quality designated for physical activity and sports in Alaska school districts.
- b.** Advocate for daily physical education in all Alaska schools, as part of comprehensive school health programs.

Objective 4: Develop, advocate for, and implement coordinated school health programs (CSHP) in schools including pre-kindergarden through college.

- a.** Ensure quality school health education on health lifeskills including nutrition education, physical activity, and tobacco prevention.
- b.** Advocate for quality school-based nutrition programs as part of a coordinated school health program.
- c.** Work to improve the playgrounds and play areas for schools, including preschools and universities.
- d.** Create and expand after-school physical activity programs.
- e.** Provide ongoing training for school personnel involved in teaching health.

Objective 5: Assure that all health care providers and clinics in Alaska are implementing appropriate CVD risk reduction techniques in their practices.

- a.** Provide professional education on screening guidelines for all primary care providers.
- b.** Advocate for CVD/Cholesterol screening services and equipment.
- c.** Increase CVD screening and assessment, follow up health education, counseling, and referral services.
- d.** Advocate for providers to routinely assess fitness levels and talk to patients about incorporating physical activity into their daily lives, preferably as part of comprehensive clinical preventive services.
- e.** Advocate for providers to routinely assess tobacco use, advise users to quit, and assist them with a quit plan.
- f.** Advocate for providers to routinely counsel patients to limit dietary fat and increase consumption of fiber, fruits, and vegetables.

Issue 4: Data and Information

We do not have adequate data to evaluate and monitor CVD morbidity, mortality, and risk factors in Alaska.

Goal: Develop and expand Alaska’s capacity for having data about cardiovascular disease available and understandable so that the information can be used for evaluation, planning, and policy development.

Objective 1: Increase capacity to use existing data systems.

- a. Support and make use of data from the National Registry of Myocardial Infarction (NRMI).
- b. Increase use of Medicaid and Medicare data to evaluate costs of CVD.
- c. Support the Youth Risk Behavior Survey and the Behavioral Risk Factor Surveillance System.
- d. Make the data real and personal and use Alaska data in presentations.

Objective 2: Advocate for additional data collection systems necessary for evaluating the impact of CVD in Alaska.

- a. Support implementation of a statewide uniform hospital discharge data system.
- b. Support the collection of secondary prevention for CVD data.
- c. Support the collection of emergency response data for CVD related events.

Objective 3: Conduct special studies to improve knowledge about cardiovascular disease in Alaska.

- a. Consider KAP (knowledge, attitude, and practice) surveys among health care providers regarding clinical preventive services.
- b. Support Department of Education health education and physical education curriculum surveys of Alaska schools.
- c. Support Maternal, Child, and Family Health efforts at developing and implementing methods of measuring food consumption patterns and monitoring nutrition status of Alaskans.
- d. Identify policies and environmental supports for decreasing cardiovascular risk factors.

Issue 5: Education

The issues of public education and professional education are critical to meeting the objectives of the Alaska CVD Prevention Plan. Information about CVD prevention can be confusing and conflicting. The media reports a fact one day, and then seems to present

a contradictory fact the next day. In actuality, a large body of reliable information exists regarding the prevention of CVD. This plan proposes to develop a strategic way to distribute that information to the public and health care providers.

Goal: Ensure distribution of heart healthy information (including primary and secondary prevention) to the public and to health care providers.

Public Education

Objective 1: Develop a statewide strategic media plan.

- a. Develop a coordinated communications plan to reach communities and worksites.
- b. Involve the media, public relations specialists, and representatives from a variety of audiences to help develop the plan.
- c. Adapt and implement national media campaigns.
- d. Ensure that the media campaign is age-appropriate and culturally diverse to reach a broad population of Alaskans.
- e. Use the following channels of communication in the development of the statewide media plan: television, radio, organizational newsletters, health fairs, Internet web site(s), and newspapers.
- f. Develop persuasive health messages to educate the public about healthful foods, physical activity, wellness, and lifestyle choices.
- g. Implement a statewide campaign on the signs and symptoms of heart attack and stroke.

Objective 2: Develop CVD health education materials for the public and develop methods to deliver public education.

- a. Produce an educational video to show at health fairs with testimonials and lifestyle behaviors.
- b. Use American Heart Association materials and resources at health fairs and other events.
- c. Coordinate with American Heart Association and Alaska Health Fair, Inc. to provide coordination of services at local health fairs statewide.
- d. Use existing distance delivery technologies to develop CVD education for rural communities.

Objective 3: Develop and market a statewide clearinghouse for CVD prevention information to improve access to CVD resources for all Alaskans (in coordination with the Alaska Health Education Library Project).

- a. Identify reliable resources/references for the public based on sound scientific advice.
- b. Maintain and promote Take Heart Alaska web site including information on nutrition, physical activity, and tobacco.

Professional Education (Health Care Providers)

Objective 1: Promote providers following national CVD/cholesterol screening recommendations and standards of care for CVD Prevention.

- a. Support Prevention into Practice Program.

Objective 2: Develop consistent, concise, understandable educational messages for all health care providers in Alaska focusing on the prevention of cardiovascular disease.

- a. Use a bulletin approach: one page, concise, unbiased information.
- b. Use Alaska data in presentations to health care professionals.
- c. Emphasize the importance of intensive secondary prevention, preventive care for people who have had a heart attack, bypass surgery, or other objective evidence of atherosclerotic disease in all educational materials.
- d. Support Heart Association's efforts to recruit post-bypass and MI patients for patient education.
- e. Support efforts to increase number and strength of referrals to outpatient cardiac rehabilitation for secondary prevention interventions.

Objective 3: Develop ways to provide information to outlying communities.

- a. Work with existing technology to reach outlying communities.
- b. Provide professional education videotapes for outlying communities.
- c. Develop a CVD risk factor self study module (similar to the one developed for diabetes) for Community Health Aides.

Objective 4: Make CVD prevention easier to implement in busy clinical practices.

- a. Support adopting the Putting Prevention into Practice program.

Issue 6: Optimal Secondary Prevention Practices

A comprehensive cardiovascular disease prevention plan must include strategies to assure optimal secondary prevention efforts. Secondary prevention is defined by the CDC Chronic Disease workgroup as prevention efforts targeting people with diagnosed cardiovascular and cerebrovascular disease. The goal of these prevention efforts is to

prevent recurrent cardiovascular and cerebrovascular events.

The objectives address the need to determine current resources and practices for secondary prevention amongst communities and within the health system, and provide data, guidelines, and feedback that support quality secondary prevention efforts.

Goal: Ensure optimal secondary prevention programs and services (to be developed) for at-risk populations with cardiovascular disease.

Objective 1: Determine existing community resources and policies for the secondary prevention of cardio-vascular disease.

- a. Compile a statewide inventory of resources (agencies, nonprofits, etc.) for secondary prevention.
- b. Compile a statewide inventory of policies for secondary prevention.

Objective 2: Assess existing management plans that health care providers in Alaska use for secondary prevention of cardiovascular disease.

- a. Sample physicians, advanced nurse practitioners, physician's assistants, nurses, physical therapists, occupational therapists, and cardiac rehabilitation specialists to determine current management plans guiding secondary prevention efforts.
- b. Sample diabetes educators and public health nurses to determine current management plans guiding secondary prevention efforts.
- c. Survey insurance companies and Qualis, the Medicaid Peer Review Organization to determine current management plans guiding secondary prevention efforts.
- d. Obtain written management plans, and "best practice" plans from groups who have them.

Objective 3: Determine the existence and extent of self-management support systems available through private, public and volunteer agencies for patients with cardiovascular disease.

- a. Survey American Heart Association, American Diabetes Association, Alaska Association of Retired Persons, senior groups, public/private/nonprofit disability groups, the Mended Hearts Program, and trainers at gyms/fitness centers to determine what self-management support systems are available to patients with cardiovascular disease.
- b. Hold a focus group with Native elders and Community Health Aides to determine what self-management and other support systems look like in their communities for patients with cardiovascular disease.

Objective 4: Provide evidence-based community guidelines integrated with clinical practice guidelines specific for standards of care for cardiovascular disease and secondary prevention to all agencies and providers working with cardiovascular disease.

- a. Determine the database for community guidelines as well as secondary prevention clinical guidelines. Determine which guidelines are most used and preferred.
- b. Develop and provide for marketing an integrated guideline for distribution to those who provide programs and services in the community.
- c. Carry out a data search for the “best practices” guidelines.

Objective 5: Assure that public health and clinical information systems are in place for data and evaluation of cardiovascular disease and secondary prevention treatment, for quality improvement of secondary prevention efforts, and for future funding program support.

- a. Review current hospital discharge data, and make recommendations to State of Alaska, Department of Health and Social Services, Division of Public Health, Data and Evaluation Unit regarding additional data collection needs.
- b. Review Healthy Alaskans 2010 and make recommendations as to additions or changes to better track secondary prevention efforts.
- c. Develop partnerships with other agencies, businesses or groups that can supply data, such as Medicaid, Medicare, insurance companies, peer review organizations, Alaska Native Tribal Health Consortium, and the Alaska Native Health Board.
- d. Research national data for developing benchmarks for monitoring cardiovascular disease in Alaska.

Objective 6: Assure that public health and clinical information systems are in place for consistent care in accordance with practice guidelines.

- a. Support the Putting Prevention into Practice Program, Diabetes System, and other collaborative preventive models that are comprehensive in providing a system for patient reminders, physician and nurse reminders, and education for ongoing preventive services.
- b. Determine the most effective strategies for statewide communication, i.e. bulletins, email, journal articles, symposia, conference and other education training systems to support health care providers efforts for consistent quality patient care.
- c. Develop and plan for effective strategies for statewide communication.

Objective 7: Assure that public health and clinical information systems are in place for data registries for health care providers. A disease registry is a population-based, statewide registry that maintains a listing of newly diagnosed cases of a particular disease and pertinent data about each case. Generally hospitals, physicians and other health care practitioners report information to the registry. The primary purpose of a population-based registry is to show epidemiologic trends for a particular disease. The data can then be used to plan intervention strategies to prevent or reduce the occurrence of disease.

- a. Research existing data registries which may be available nationally.
- b. Assess what data registries are needed or wanted and for what purpose.
- c. Support efforts for establishing needed registries.

Objective 8: Assure that public health and clinical information systems are in place for feedback to health care providers about their management.

- a. Determine what systems are already in place.
- b. Work with other organizations to support the development of these systems.

Objective 9: Increase awareness, support and funding for secondary prevention.

- a. Increase awareness by utilizing the public information specialist in the Public Health Division for consultation, public relations, media outreach and patient oriented information for secondary prevention.
- b. Develop fact sheets for insurance companies in support of coverage for cardiovascular prevention recommendations.
- c. Assure access to educational materials about secondary prevention activities for health care providers and major agencies involved with cardiovascular disease.
- d. Invite agencies involved with secondary prevention to join Take Heart Alaska.
- e. Distribute contact information about funding sources groups, foundations and others to the groups (private, public, nonprofits) involved with cardiovascular work in Alaska.
- f. Provide technical assistance for grant development for those seeking grants around secondary prevention.
- g. Provide educational and public health information to legislators and policy makers about the importance and value of secondary prevention services.
- h. Advocate for legislation to mandate coverage of cardiovascular disease preventive services.

Objective 10: Develop an integrated public health clinical care prototype model for secondary prevention of cardiovascular disease with dedicated focus areas for the patient (host), the disease (the agent), and the lifestyle (environment).

- a.** Determine what chronic care models are currently being used by American Medical Association, American College of Prevention, and other medical groups working with cardiovascular patients.
- b.** Review existing chronic care models being used in public health.
- c.** Work with health care providers on an acceptable model for secondary prevention that combines the best of the currently used models in both private and public health settings.

Evaluation of the Cardiovascular Disease Prevention Plan

The results of the Alaska Cardiovascular Disease Prevention Plan will be evaluated using methods described in "Evaluating Community Efforts to Prevent Cardiovascular Disease."¹⁸ Briefly, the evaluation will consist of a process evaluation, monitoring intermediate outcomes, and monitoring distal outcomes.

Process evaluation is concerned with whether the planning has been completed, and whether it is operating on

schedule. It looks at activities of staff and community members. Outcome evaluation determines whether or not changes are occurring in the community; intermediate outcomes are changes occurring in the community to reduce risks and enhance protective factors for CVD, such as new services or new policies. Distal outcomes include CVD risk factors, such as physical activity and smoking prevalence (Table 4).

Table 4
System for Evaluating Cardiovascular Disease Prevention Plan¹⁸

Measurement Instrument	Measures and Brief Definition
Process Evaluation	
Monitoring System	<ol style="list-style-type: none"> 1. Members participating; new members, affiliates, or partners 2. Planning products: new objectives, bylaws, committees, and other internal outcomes 3. Media coverage 4. Financial resources generated, including in-kind services, grants, donations 5. Dollars obtained 6. Services provided 7. Community actions taken to bring about changes, such as phone calls, personal contacts 8. Satisfaction with aspects of initiative
Member satisfaction survey	
Intermediate Outcome Evaluation	
Monitoring system	<ol style="list-style-type: none"> 1. Community changes: changes in programs, policies and practices of agencies, businesses, and governmental bodies related to goals and objectives
Distal Outcome Evaluation	
Behavioral Surveys	<ol style="list-style-type: none"> 1. Behavioral measures (diet, physical activity, smoking)
Community-level indicators	<ol style="list-style-type: none"> 2. Archival or other indirect or global measures, such as miles of walking trails, percentage of stores with low fat milk
Interviews with key participants	<ol style="list-style-type: none"> 3. Qualitative information about critical events based on semi-structured interviews with key participants

Data Collection

The level of the evaluation will to some degree depend on the level of resources available. Prior to developing data collection systems, the group involved in the initiative will need to decide what information is needed to evaluate progress.

A monitoring system will be set up using log forms to document activities of the initiative. Log forms are used for events, ongoing services, media coverage and resources generated. Log forms will be further analyzed to provide information to the group.

A member satisfaction survey can be carried out, adapting existing surveys for Alaska's use. Existing behavioral surveys can be used to evaluate distal outcomes. These include the Alaska Behavioral Risk Factor Surveillance System and the Youth Risk Behavior Survey. Community level indicators can be monitored, based on decisions of the group about which indicators should be monitored.

Cardiovascular Disease Risk Factors and Risk Reduction Guidelines

The Alaska Cardiovascular Disease Prevention Plan addresses risk factors that are:

- modifiable,
- responsible for a large proportion of heart disease and stroke, and

- risk factors for which well-tested prevention and intervention strategies exist for control.

The plan also addresses Alaska-specific issues, including the stress of living in isolated communities.

High Blood Pressure

Blood pressure refers to the force used to circulate blood through the body, and is reported in millimeters of mercury (mmHg). When the blood pressure is high, the heart has to work harder. Systolic pressure is the force generated when the heart contracts, and diastolic

pressure is the force when the heart is at rest. The increased pressure can damage vessels to vital organs, such as the heart, brain and kidneys. Hypertension is the single most important modifiable risk factor for stroke.

Blood Pressure Screening Guidelines

Blood pressure should be measured every two years for all adults if the latest systolic and diastolic blood pressure readings were below 130 and 85, respectively. If the latest systolic blood pressure was 85-89, the measurement should be yearly.¹⁹ If the systolic pressure is greater than 139 or the diastolic pressure is greater than 89,

the reading should be followed up by a health care provider and another reading within 2 months (see table).

Children and adolescents should also have blood pressure measured during routine office visits; age-sex-height specific nomograms have been published for use in determining abnormal levels.²⁰

**Table 5
Recommendations for Followup Based on Initial Blood Pressure Measurements for Adults**

Initial Blood Pressure (mm Hg)*

Systolic	Diastolic	Followup Recommended†
<130	<85	Recheck in 2 years
130-139	85-89	Recheck in 1 year‡
140-159	90-99	Confirm within 2 months‡
160-179	100-109	Evaluate or refer to source of care within 1 month
>180	>110	Evaluate or refer to source of care immediately or within 1 week
depending on clinical situation		

* If systolic and diastolic categories are different, follow recommendations for shorter time followup (e.g., 160/86 mm Hg should be evaluated or referred to source of care within 1 month).

Risk Determination and Treatment

Criteria for hypertension among adults are an average diastolic pressure of 90 or more, or an average systolic pressure of 140 or more. Hypertension should not

be diagnosed on the basis of a single measurement; elevated readings should be confirmed on more than one reading on each of three separate visits.

Table 6
Classification of Blood Pressure for Adults Age 18 and Older*

Category	Systolic (mm Hg)		Diastolic (mm Hg)
Optimal†	<120	and	<80
Normal	<130	and	<85
High-normal	130-139	or	85-89
Hypertension‡			
Stage 1	140-159	or	90-99
Stage 2	160-179	or	100-109
Stage 3	>180	or	>110

* When systolic and diastolic blood pressures fall into different categories, the higher category should be selected to classify the individual's blood pressure status.

† Optimal blood pressure with respect to cardiovascular risk is below 120/80 mm Hg. However, unusually low readings should be evaluated for clinical significance.

‡ Based on the average of two or more readings taken at each of two or more visits after an initial screening.

Once high blood pressure is diagnosed, health care providers should counsel patients about physical activity, weight reduction and dietary salt intake, and alcohol consumption. Health care providers should look for evidence for other cardiovascular risk factors, such as smoking and elevated cholesterol, and offer appropriate interventions. If needed, antihypertensive medications should be prescribed according to the most recent guidelines.

The efficacy of treatment in reducing stroke death and disability has been well established. Treatment has been found to be effective among whites and blacks, and among all age groups. Treatment has also been found to be effective among the elderly with isolated systolic hypertension.²⁰

High Blood Pressure Awareness, Treatment and Control Rates

National data find that among persons with hypertension, the percentage who are aware that they have hypertension has increased from 51% to 70%; the percent under treatment has increased from 31% to 55%, and the percent controlled has increased from 10%

to 29%. Although the trend is going in the right direction, little gain was made between the 1988-91 and 1991-94 time periods. It is clear that there is a long way to go to get all people with hypertension under treatment and controlled.

The recent report “The Sixth Report of the Joint National Committee on the Prevention, Detection and Treatment of High Blood Pressure” lists a number of public health challenges related to hypertension:¹⁹

- prevent the rise of blood pressure with age;
- decrease the existing prevalence of hypertension;
- increase hypertension awareness and detection;
- improve control of hypertension;
- reduce cardiovascular risks;
- increase recognition of the importance of controlled isolated systolic hypertension;
- improve recognition of high-normal blood pressure;
- reduce ethnic, socioeconomic and regional variations in hypertension;
- improve opportunities for treatment; and
- enhance community programs.

Cholesterol

Cholesterol is a soft, waxy substance found among the lipids (fats) in the bloodstream and in all the body’s cells. It is an important part of a healthy body because it is used to form cell membranes, some hormones, and other needed tissues. But a high level of cholesterol in the blood, hypercholesterolemia, is a major risk factor for heart attack (coronary heart disease)(Table 7). Cholesterol and other fats can’t dissolve in the blood. They have to be transported to and from the cells by special carriers of lipids and proteins called lipoproteins. There are several kinds, but the most important are low density lipoprotein (LDL) and high density lipoprotein (HDL).

LDL is the major cholesterol carrier in the blood. When a person has too much LDL cholesterol circulating in the blood, it can slowly build up within the walls of the arteries feeding the heart and brain. That is why LDL cholesterol is often called “bad” cholesterol. HDL carries about one-third to one-fourth of blood cholesterol. Medical experts think HDL tends to carry cholesterol away from the arteries and back to the liver, where it is passed from the body. HDL is known as “good” cholesterol because a high level of HDL seems to protect against heart attack. The opposite is also true: a low HDL level indicates a greater risk.

Table 7
Classification of Total, LDL and HDL Cholesterol ³¹

Total Cholesterol

<200 mg/dl	Desirable
200-239 mg/dl	Borderline high
≥240 mg/dl	High

LDL Cholesterol

<100 mg/dl	Optimal
100-129 mg/dl	Near optimal/above optimal
130-159 mg/dl	Borderline high
160-189 mg/dl	High
≥190 mg/dl	Very high

HDL Cholesterol

<40 mg/dl	Low
≥60 mg/dl	High

Cholesterol Screening Guidelines

The National Cholesterol Education Program recommends that for all adults aged 20 years or older, a fasting lipoprotein profile (total cholesterol, LDL cholesterol, high density lipoprotein (HDL) cholesterol, and triglyceride) should be obtained once every 5 years.

If the testing opportunity is nonfasting, only the values for total cholesterol and HDL cholesterol will be usable. In such a case, if total cholesterol is ≥ 200 mg/dl or HDL is < 40 mg/dl, a followup lipoprotein profile is needed for appropriate management based on LDL.

Risk Determination and Treatment

Risk for cardiovascular disease is determined, in addition to LDL cholesterol, by the presence or absence of coronary heart disease or coronary

heart disease risk equivalents, other clinical forms of atherosclerotic disease, and the major risk factors (other than LDL) (Table 8).

Table 8
Major Risk Factors (Exclusive of LDL Cholesterol) That Modify Treatment Goals*¹⁹

- Cigarette smoking
- Hypertension (BP $\geq 140/90$ mmHg or on antihypertensive medication)
- Low HDL cholesterol (< 40 mg/dL)[†]
- Family history of premature CHD (CHD in male first degree relative < 55 years; CHD in female first degree relative < 65 years)
- Age (men ≥ 45 years; women ≥ 55 years)*

* In ATP III, diabetes is regarded as a CHD risk equivalent.

[†] HDL cholesterol ≥ 60 mg/dL counts as a "negative" risk factor; its presence removes one risk factor from the total count.

Based on these other risk determinants, the National Cholesterol Education Program identifies three categories of risk that determine treatment type and goals.

Treatment consists of dietary therapy, physical activity and medication, when indicated (Table 9).

Table 9
Three Categories of Risk that Modify LDL Cholesterol Goals¹⁹

Risk Category	LDL Goal (mg/dl)
CHD and CHD risk equivalents	< 100
Multiple (2+) risk factors*	< 130
Zero to one risk factor	< 160

* Risk factors that modify the LDL goal are listed in Table 5.

Diabetes

Diabetes mellitus is a heterogeneous group of disorders characterized by high blood glucose (sugar) levels. The high glucose levels in the blood are usually due either to insulin deficiency (type 1 diabetes) or to resistance of the body's cells to the action of insulin (type 2 diabetes). The majority, 90-95%, of people with diabetes has type 2 diabetes. Typically, type 2 diabetes is diagnosed after age 30, however, due to increasing prevalence of overweight, obesity and sedentary lifestyles, type 2 diabetes is become more common in younger age groups. Approximately 80% of people newly diagnosed with type 2 diabetes are obese (BMI \geq 30 kg/m²).

Type 2 diabetes is an independent risk factor for cardiovascular disease (CVD). There are also a number of common coexisting conditions, such as

hypertension, dyslipidemia (low HDL cholesterol and high triglyceride and LDL cholesterol levels), and obesity, which are all also independent risk factors for CVD. Other CVD risk factors including cigarette smoking and lack of exercise also apply to people with diabetes.

The most common cause of death nationally among adults with both types of diabetes is coronary heart disease. In contrast to people without diabetes, heart disease in people with diabetes appears earlier in life, affects women almost as often as men, and is more often fatal. Adults with diabetes are more likely to have hypertension and lipid abnormalities (low levels of HDL cholesterol and high levels of LDL cholesterol).

Diabetes Guidelines²²

The American Diabetes Association recommends the following to people with diabetes in regard to preventing heart disease:

- a. Keep blood glucose levels as near to normal as possible.
- b. Quit smoking.
- c. Keep blood pressure under control.
- d. Keep cholesterol and triglyceride levels in the good range. If diet alone is not effective, medications may be needed.
- e. Keep within a normal weight range (BMI 20-25).
- f. Daily aspirin therapy, if recommended by a healthcare provider.
- g. Seek regular medical care. Health care providers should monitor blood pressure, cholesterol levels, and overall blood glucose control, including glycated hemoglobin.
- h. Eat a heart-healthy and nutritionally well-balanced diet.
- i. Get regular exercise after discussing with a healthcare provider.

Tobacco Use

Tobacco use is one of the most important preventable causes of premature death in the United States. Millions of Americans use tobacco, and almost 500,000 people will die prematurely per year as a result of tobacco. One-third of all tobacco users will die as a result of their addiction.

Overall, smokers experience a 70% increase in the death rate from coronary heart disease; stroke and peripheral vascular disease are also increased among smokers. Cigarette smoking acts synergistically with other risk factors (notably elevated cholesterol and hypertension) to greatly increase the risk for coronary heart disease. Smoking also leads to lung cancer, emphysema, cancers of the oral cavity, esophagus, bladder, cervix; and adverse birth outcomes. Atherosclerotic cardiovascular disease (clogged arteries) is the chief contributor to the excess deaths from smoking. Cigarette smoking is such a widespread and significant risk factor that the Surgeon General has called it "the most important of the known modifiable risk factors for coronary heart disease in the United States."²³ Cigarette smoking accounts for 22% of cardiovascular heart disease in the U.S. As of 2000, the rate of smoking for Alaska (26%) is higher than the national rate (23.2 %).

Many people assume that smokeless tobacco use, such as chewing tobacco and snuff, is less damaging to one's health than smoking. Smokeless tobacco is not a safe alternative to smoking. It produces addiction to nicotine, and has serious health consequences. In addition to cardiovascular disease, the use of smokeless tobacco can result in abrasion of teeth, gingival recession, periodontal bone loss and oral cancer.

Second Hand Smoke (passive smoking)

Several studies document the health hazards posed by passive smoking.²⁴ It is estimated that from 37,000 to 40,000 people die from heart and blood vessel disease caused by other people's smoke each year.²⁵

Smoking Cessation

Stopping tobacco use can greatly decrease the risk of heart disease. After only one year of stopping, ex-smokers have half the risk of developing heart disease. The risk is reduced to normal after 10-15 years of success at quitting smoking.²⁶

Benefits of Smoking Cessation ²⁶

- a. Compared with people who continue using tobacco, stopping tobacco use substantially reduces the risk of coronary heart disease among men and women of all ages.
- b. After only one year of stopping, ex-smokers have half the risk of coronary heart disease as do smokers; the risk is reduced to normal after about 15 years of stopping.
- c. Among people who have already developed coronary heart disease, stopping tobacco use markedly reduces the risk of having another heart attack or of dying. In many studies, the reduction in risk has been 50% or more.
- d. Stopping smoking markedly reduces the risk of developing peripheral artery disease.
- e. Among people who already have peripheral artery disease, stopping smoking greatly improves exercise tolerance, reduces risk of amputation and increases overall survival.
- f. Stopping smoking greatly reduces the risk of stroke. After stopping smoking, the risk of stroke returns to the level of non-smokers after about five years.

By supporting existing efforts to prevent and control tobacco use, and by developing additional approaches, the

CVD Prevention Plan will be fighting other major killers in Alaska.

Physical Inactivity

Health Benefits of Physical Activity

Regular physical activity decreases the risk of cardiovascular disease and of coronary heart disease. At the present time, it is not clear if physical activity prevents stroke. The level of decreased risk of coronary heart disease attributable to regular physical activity is similar to that of other lifestyle factors, such as keeping free from cigarette smoking. Regular physical activity has a beneficial effect on the cardiovascular system by preventing or delaying the development of high blood pressure, and reducing blood pressure in people who already have high blood pressure. In addition, regular physical activity lowers the risk of developing diabetes.²⁷

Regular physical activity also improves

health in the following ways:²⁷

- Reduces risk of dying prematurely.
- Reduces risk of developing colon cancer.
- Maintains normal muscle strength, joint structure and joint function.
- Essential for normal skeletal development and attainment of optimal peak bone mass during childhood and adolescence.
- Relieves symptoms of depression and anxiety and may reduce risk of developing depression.

In July 1996, the U.S. Department of Health and Human Services released the first Surgeon General’s report on physical activity and health.²⁷ The report provides a detailed review of the literature on physical activity and health, including: the historical background and evolution of recommendations; physiologic responses to long-term exercise; the effects of physical activity on health and disease; patterns and trends in physical activity; and understanding and promoting physical activity. Among the major findings:

- People who are usually inactive can improve their health and well-being by becoming even moderately active on a regular basis.
- Physical activity need not be strenuous to achieve health benefits.
- Greater health benefits can be achieved by increasing the amount (duration, frequency or intensity) of physical activity.

Working to improve the level of physical activity among Alaskans will improve the overall health of the population.

Physical Activity Guidelines

The Surgeon General recommends that all people (over 2 years of age) accumulate at least 30 minutes of endurance-type physical activity, of at least moderate intensity, on most— if not all—days of the week. A moderate amount of physical activity is defined as physical activity that is roughly equivalent to 150 calories of energy per day, or 1000 calories per week.

People should select activities that they enjoy and that fit into their daily lives. Because the amount of activity is a function of duration, intensity and frequency, the same amount of activity can be obtained in longer sessions of moderately intense activities (such as brisk walking) or in shorter sessions of more vigorous activity (such as running).

Examples of moderate amounts of physical activity

Common Chores

- Washing and waxing a car for 45-60 minutes
- Washing windows or floors for 45-60 minutes
- Gardening for 30-45 minutes
- Wheeling self in wheelchair 30-40 minutes
- Pushing a stroller 1 1/2 miles in 30 minutes
- Raking leaves for 30 minutes
- Walking 2 miles in 30 minutes (15min/mile)
- Shoveling snow for 15 minutes
- Stairwalking for 15 minutes

Sporting Activities

- Playing Volleyball for 45-60 minutes
- Playing touch football for 45 minutes
- Walking 1 3/4 miles in 35 minutes (20min/mile)
- Basketball (Shooting baskets) 30 minutes
- Bicycling 5 miles in 30 minutes
- Dancing fast (social) for 30 minutes
- Water aerobics for 30 minutes
- Swimming laps for 20 minutes
- Basketball (playing game) for 15-20 minutes
- Bicycling 4 miles in 15 minutes
- Jumping rope for 15 minutes
- Running 1 1/2 miles in 15 minutes (10min/mile)

Diet/Nutrition

Diet has always been vitally important to health.¹⁷ In previous decades, the so-called “deficiency diseases” predominated. These include rickets, pellagra, scurvy, and goiter, caused by dietary deficiencies in vitamin D, niacin, vitamin C and iodine, respectively. Such conditions have been virtually eliminated in the developed world due to an abundant food supply

and to fortifying foods with essential elements. Now we face the problems of dietary excess and imbalance.

Dietary fat and cholesterol play an important role in regulation of the blood cholesterol level which is directly related to atherosclerosis. In addition, other dietary factors have also been found to be related to CVD.²⁸

Dietary Guidelines for the General Population^{5,29}

- a. Eat a variety of foods;
- b. Balance food intake with physical activity to maintain or improve weight;
- c. Choose a variety of grains (especially whole grains), fruits and vegetables daily;
- d. Keep food safe to eat;
- e. Choose a diet low in saturated fat and cholesterol and moderate in total fat;
- f. Choose beverages and foods to moderate intake of sugars;
- g. Choose and prepare foods with less salt;
- h. If alcoholic beverages are consumed, do so in moderation.

Dietary Guidelines for Alaskans Living a Subsistence Lifestyle^{15,30}

- a. Eat traditional fish and lean meat; if marine mammals and fats are part of traditional lifestyle, continue consumption of these foods;
- b. Minimize intake of foods high in saturated fat, such as fatty beef, butter, milk fat, margarine, and processed meat;
- c. Substitute water frequently in place of sugar-containing or caffeine containing beverages;
- d. Eat more calcium-rich foods, fruits, and vegetables;
- e. Substitute whole grain bread for white bread;
- f. Reduce energy-dense sweets, salt, cured meats, canned soups, and other salty foods.

Reducing dietary fat and increasing fruit and vegetable consumption will also reduce risk for several types of cancer, including colorectal cancer and lung

cancer. Maintaining caloric balance will reduce risk of diabetes and high blood pressure.¹⁴

Dietary Fat and Cholesterol

The relationship of dietary fat and cholesterol to CVD, and in particular, coronary heart disease, is supported by extensive and consistent clinical, epidemiologic, metabolic, and animal evidence.¹⁷ Atherosclerosis is related to the level of total and LDL ("bad") cholesterol in the blood, which is increased by diets high in saturated fats. Sources of saturated fat in the diet include animal products, and some vegetable fats, such as coconut and palm oils. The American Heart Association and others recommend that the amount of fat in the diet comprise 30% or less of total calories, and that saturated fats comprise 10% or less of total calories. The effect of dietary cholesterol on blood cholesterol is weaker and more variable than that of saturated fats. However, recommendations are to reduce daily consumption to no more than 300 mg of dietary cholesterol per day. Fat and cholesterol consumption can be reduced by choosing foods relatively low in fat and cholesterol, such as vegetable, fruits, whole grain foods, fish, poultry, lean meats and low-fat dairy products.¹⁷

In recent years there has been interest in monounsaturated fatty acids as an appropriate replacement for saturated fat in the diet, the so-called "Mediterranean Diet".³¹ Monounsaturated fats are slightly

unsaturated fats found in greatest amounts in foods from plants, including olive and canola oil. When substituted for saturated fat, monounsaturated fat helps to reduce LDL cholesterol and increase HDL cholesterol.³² The American Heart Association recommends a monounsaturated fat intake in the range of 10% to 15% of calories, although others indicate that higher amounts may be beneficial.^{28,31}

Another factor deserving attention is the use of trans-fatty acids.²⁸ Trans-fatty acids are produced when liquid vegetable oils are heated to form margarine and vegetable shortening. This technology was discovered around the turn of the century, and production increased until about the 1960s as vegetable fats replaced animal fat, first because of cost and then because of health issues.²⁸ Recent data have shown that trans-fatty acids may have an adverse effect on CHD risk, although not to the extent as saturated animal fat or highly saturated vegetable oils (such as palm and coconut). The American Heart Association recommends limiting use of trans-fatty acids, and encourages the food industry to develop more products with reduced trans-fatty acid content.³¹

Other Dietary Factors Related to Cardiovascular Disease

Fruits, Vegetables and Fiber

Studies have shown that eating more fruits and vegetables can reduce risk for heart attack and stroke.¹⁴ The reasons are not entirely clear, although it may be the result of consuming a diet relatively low in animal fat, and high in soluble fiber. Currently, there is a national campaign to encourage the consumption of at least five servings of fruits and vegetables each day.

The recommended level of fiber consumption is 20-35 grams per day.³³ This level can be achieved through eating at least two to three servings of whole grains per day, five servings of fruits and vegetables per day, and legumes at least once or twice per week.³⁴

Excess Caloric Intake

Obesity is related to an increased risk of heart disease in that it increases risk of diabetes and of high blood pressure. The current dietary recommendations

encourage reaching and maintaining a desirable body weight by balancing caloric intake with physical activity.¹⁷

Marine Animals and Omega-3 Fatty Acids

Low rates of heart disease in Japan and Greenland have led to speculation that consumption of fish might be protective.²⁸ Fish and other marine life, such as seal and walrus are high in a special class of polyunsaturated fatty acids known as omega-3 fatty acids. Clinical studies have found that fish oils can decrease blood levels of cholesterol and triglycerides, as well as prolonging the blood clotting time.³⁵ Some large epidemiologic studies have found a protective effect of fish consumption; however, other studies found no effect.²⁸ Although the evidence is not clear at the present time, some, including the American Heart Association, recommend eating fish “both as an excellent source of omega-3 fatty acids and as a good protein source that is low in saturated fat.”³⁵

This issue is important among Alaska Natives, especially those with a subsistence lifestyle. Alaska Natives consume six times the amount of

fish consumed by the general U.S. population.¹⁵ Among at least one group of Alaska Natives, Siberian Yup’iks of Gambell, fat intake is high but it includes subsistence foods, such as marine mammals.³⁰ These foods are higher in omega-3-fatty acids and monounsaturated fatty acids. Individuals eating this diet have high levels of both LDL and HDL cholesterol but a favorable LDL to HDL ratio.¹⁶ The more subsistence food consumed, the more desirable was the LDL to HDL ratio.

When giving advice to people living a subsistence lifestyle, it is important to emphasize decreasing saturated fats, as obtained in fatty meat and dairy foods from the store, rather than decreasing the total fat in the diet.³⁰ (See previous section on dietary guidelines.)

Folic Acid, Homocysteine and Atherosclerosis

Homocysteine is an amino acid in the blood. Epidemiologic studies have found that people who have higher levels of homocysteine are at increased risk for heart attack and stroke. Folic acid and other B vitamins help to break down the homocysteine, and may be protective. Research is currently underway to further investigate the relationship between homocysteine and atherosclerosis.²⁸

At the present time, the American Heart Association advises a healthy balanced diet and use of supplements only when diet is inadequate. The recommended intake of folic acid is 400 mg/day. Good sources are citrus fruits, tomatoes, vegetables, and grain products.³⁶

Overweight and Obesity

Overweight is classified as a body mass index (BMI) of 25 to 29.9, and obesity as a BMI of 30 or higher, according to the latest National Institutes of Health report, *The Practical Guide: The Identification, Evaluation and Treatment of Obesity*.³⁷ The BMI, which describes relative weight for height, is significantly correlated with the amount of total body fat. BMI is calculated as weight (kg)/height squared (m²). To calculate BMI using pounds and inches use: [weight (pounds)/height (inches)² x 704.5].

The report recommends that overweight be treated when a person has a BMI >29.9. A person with a BMI between 25 and 29.9 or a high risk waist circumference (>40 inches for men and >35 inches for women) should also be treated when they have two or more risk factors. Treatment of overweight should emphasize altering diet and physical activity patterns to

prevent development of obesity and to promote moderate weight loss. Treatment of obesity should focus on producing a substantial weight loss over a prolonged period of time.

Treatments discussed in the report include low calorie diets, low fat diets, altering physical activity patterns, behavior therapy, pharmacotherapy, surgery, and combinations of these therapies.

In response to the growing body of scientific evidence linking obesity to heart disease and the fact that the prevalence of obesity is increasing in the United States, the American Heart Association recently reclassified obesity as a major, modifiable risk factor for coronary heart disease.³⁸

Benefits of Weight Loss in Overweight and Obese People³⁷

- a. Blood pressure reduction among hypertensive and non-hypertensive individuals;
- b. Reduction in serum triglycerides;
- c. Increase in serum HDL;
- d. Reduction in total cholesterol and LDL cholesterol;
- e. Reduction in blood sugar levels among people with and without diabetes;
- f. Improved HgA1c levels among people with Type 2 diabetes.

Alcohol

From a Public Health perspective, it is important to note that alcohol is a drug that produces addiction in susceptible individuals and birth defects in some children born to mothers who drink during pregnancy. Alcohol consumption is also responsible for numerous intentional and unintentional injuries, especially in

Alaska, and many medical problems.¹⁷ Although the consumption of alcohol at the level of one to two drinks per day has not been shown to be harmful and may be beneficial, an overall public health plan cannot recommend alcohol consumption as a broad, population-based approach.

Stress, Anger and Other Psychosocial Factors

A relationship between heart and mind has long been suspected. In the past 35 years, a large body of literature has evolved looking at "cardiac psychology." Researchers have examined psychological stress, Type A behavior, anger, lack of social support, job strain, and depression in relation to heart disease. However, little is known of any specific mechanism by which stress contributes to heart disease risk.³⁹

"Stress" is a term used to describe the condition that results from a person's response to physical, chemical, emotional, or environmental factors. Stress can refer to physical effort as well as mental tension. Physical stress is relatively easy to measure; on the other hand, it has been exceedingly difficult to measure, and therefore study, mental or emotional stress. All people feel stress, but they feel it in different amounts and react to it in

different ways. Research on the effects of stress is difficult because stress is so hard to define and because people experience it differently.³⁹

Stress may affect other coronary risk factors and behaviors. Many of the traditional risk factors for heart disease, such as cigarette smoking, hyperlipidemia, hypertension, and lack of exercise, have a significant behavioral component.

What is evident from recent research is that heart disease risk reduction programs that include a psychological component appear to be helpful.³⁹ Furthermore, efforts to improve heart health may improve mental health. For example, physical activity has been shown to be beneficial in treatment and prevention of depression.⁴⁰

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Selected Healthy Alaskans 2010

Objectives for Prevention and Control of Cardiovascular Diseases

Reduce coronary heart disease deaths to no more than 120 per 100,000. OBJECTIVE 21.1

Reduce stroke deaths to no more than 48 per 100,000 people. OBJECTIVE 21.3

Reduce the proportion of adults with high blood pressure to 16%. OBJECTIVE 21.5

Reduce the proportion of adults with high blood pressure whose blood pressure is under control to 50%. OBJECTIVE 21.6

Increase the proportion of adults with high blood pressure who are taking action (for example, losing weight, increasing physical activity, or reducing sodium intake) to help control their blood pressure to 95%. OBJECTIVE 21.7

Reduce the proportion of adults with high total blood cholesterol levels to 17%. OBJECTIVE 21.9

Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years to 75%. OBJECTIVE 21.10

Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day to 40%. OBJECTIVE 1.2

Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion to 85%. OBJECTIVE 1.5

Increase the proportion of adolescents who participate in daily school physical education to 85%. OBJECTIVE 1.6

Reduce cigarette smoking by adults to 14% and smokeless tobacco to 3% OBJECTIVE 3.8 & 3.9

Reduce cigarette smoking by highschool students to 17% and smokeless tobacco products to 8%. OBJECTIVE 3.1 & 3.2

Increase the proportion of adults who are at a healthy weight to 52%. OBJECTIVE 2.1

Reduce the proportion of children and adolescents who are overweight or obese to 5%. OBJECTIVE 2.2

Increase the proportion of persons aged 2 years and older who consume at least five daily servings of fruit and vegetables to 30%. OBJECTIVE 4

Increase the proportion of worksites that offer a majority of the identified components of a comprehensive health promotion program to their employees to 10% above baseline. OBJECTIVE 6.6

Healthy People 2010

Increase the proportion of physician office visits made by patients with a diagnosis of cardiovascular disease, diabetes or hyperlipidemia that include counseling or education related to diet and nutrition to 75%. OBJECTIVE 19.17

Resources

Heart Disease and Stroke

Alaska Health Fair, Inc.
P.O. Box 202587
Anchorage, Alaska 99520-2587
907-278-0234, fax 907-258-1848

Alaska Division of Public Health
Health Promotion Program
Section of Epidemiology
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-3140, fax 907-465-2770

American Heart Association, Alaska Region
1057 W. Fireweed Lane, Suite 206
Anchorage, Alaska 99503
907-263-2044, fax 907-263-2045

American Heart Association
7320 Greenville Avenue
Dallas, Texas 75231
800-640-4640, fax 800-242-8721
Website: www.amhrt.org/

Centers for Disease Control and Prevention
Cardiovascular Branch
Mailstop K-47
3005 Chamblee Tucker Rd.
Atlanta, Georgia 30341
770-488-8524

National Heart Lung and Blood Institute
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
301-251-1222, fax 301-251-1223
Website: [www.nhlbi.nih.gov/nhlbi/cardio/
cardio.htm](http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm)

National Cholesterol Education Program
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
301-251-1222, fax 301-251-1223
Website: [www.nhlbi.nih.gov/nhlbi/cardio/
cardio.htm](http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm)

National High Blood Pressure Education
Program
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105
301-251-1222, fax 301-251-1223
Website: [www.nhlbi.nih.gov/nhlbi/cardio/
cardio.htm](http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm)

Smoking

Alaska Division of Public Health
Tobacco Prevention and Control Program
Section of Epidemiology
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-8641, fax 907-465-6861

Alaska Native Health Board
Trampling Tobacco Project
1402 Tudor Centre Drive, Suite 105
Anchorage, Alaska 99508
907-562-6006, fax 907-563-2001
Website: <http://www.anhb.org/>

Alaska Tobacco Control Alliance
Alaska Division of Public Health
Section of Epidemiology
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-8641, fax 907-465-6861

American Cancer Society
1057 W. Fireweed Lane, Suite 204
Anchorage, Alaska 99503
800-478-9355 or 907-277-8696,
fax 907-263-2803

American Cancer Society Inc.
1599 Clifton Road, N.E.
Atlanta, Georgia 30329-4251
800-ACS-2345 or 404-320-3333
Web site: www.cancer.org/main.html

Smoking (Continued)

American Lung Association of Alaska
1057 W. Fireweed Lane, Suite 201
Anchorage, Alaska 99503-1736
907-276-5864, fax 263-2090

American Lung Association
1740 Broadway
New York, New York 10019
212-315-8700
Web site: www.lungusa.org/

Office on Smoking and Health
Centers for Disease Control and Prevention
2945 Flowers Road South, Mailstop K 67
Atlanta, GA 30341
770-488-1265, fax 770-488-1157
Web site: www.cdc.gov/tobacco

Diabetes

Alaska Division of Public Health
Diabetes Control Program
Section of Epidemiology
P.O. Box 240249
Anchorage, Alaska 99524-0249
907-269-8000, fax 907-562-7802

Alaska Native Medical Center
Diabetes Program
4315 Diplomacy Drive
Anchorage, Alaska 99508
907-729-1125, fax 907-729-1129

American Diabetes Association, Alaska
Affiliate Inc.
801 West Fireweed Lane, Suite 103
Anchorage, Alaska 99503
800-DIABETES or 907-272-1424,
fax 907-272-1428

American Diabetes Association
1660 Duke St.
Alexandria, Virginia 22314
703-549-1500
Web site: www.diabetes.org/

Physical Activity

Alaska Association of Health, Physical
Education, Recreation, and Dance
c/o American Heart Association
1057 West Fireweed Lane, Suite 206
Anchorage, Alaska 99505

Alaska Division of Public Health
Health Promotion Program
Section of Epidemiology
P.O. Box 110616
Juneau, Alaska 99811-0616
907-465-3140, fax 907-465-2770

Alaska Association of Recreation and Parks
P.O. Box 102664
Anchorage, Alaska 99510-2664

National Association of Recreation and
Parks
P.O. Box 6287
Arlington, Virginia 22206
800-626-6772

American Alliance for Health, Physical
Education, Recreation and Dance
1900 Association Drive
Reston, Virginia 20191-1599
800-213-7193 or 703-476-3410,
fax 703-476-8316
Web site: www.aahperd.org/

National Association for Sport and Physical
Education
1900 Association Drive
Reston, Virginia 20191-1599
800-213-7193 or 703-476-3410,
fax 703-476-8316

National Coalition for Promoting Physical
Activity (NCPA)
1900 Association Drive
Reston, Virginia 20191-1599
Website: www.ncppa.org/ncppa/

Physical Activity (Continued)

Division of Nutrition and Physical Activity
 National Center for Chronic Disease
 Prevention and Health Promotion
 Centers for Disease Control and Prevention
 4770 Buford Highway
 Atlanta, Georgia 30341
 1-800-CDC-4NRG
 Website: www.cdc.gov/

Diet

Alaska Dietetic Association
 P.O. Box 242731
 Anchorage, Alaska 99524-2731
 907-261-3089

Eat Smart Alaska!
 1231 Gambell Street
 Anchorage, Alaska 99501
 907-269-3457, fax 907-269-3465

Alaska Division of Health Care Svcs.
 Community Nutrition Svcs.
 1231 Gambell Street
 Anchorage, Alaska 99501
 907-269-3457, fax 907-269-3465

National Obesity Education Initiative
 NHLBI Information Center
 P.O. Box 30105
 Bethesda, Maryland 20824-0105
 3011-251-1222, fax 301-251-1223
 Website: [www.nhlbi.nih.gov/nhlbi/cardio/
 cardio.htm](http://www.nhlbi.nih.gov/nhlbi/cardio/cardio.htm)

Weight-control Information Network
 1 WIN Way
 Bethesda, Maryland 20892-3665
 800-WIN-8098 or 301-984-7378,
 fax 301-984-7196
 Website: [www.niddk.nih.gov/health/nutrit/
 win.htm](http://www.niddk.nih.gov/health/nutrit/win.htm)

Obesity/Overweight

Obesity Program
 Section of Epidemiology
 Division of Public Health
 PO Box 240249
 Anchorage, AK 99524-0249
 907-269-8032

Worksite Health Promotion

Association of Worksite Health Promotion
 60 Revere Drive, Suite 500
 Northbrook, Illinois 60062-1577
 708-480-9574

Wellness Councils of America
 7101 Newport Avenue, Suite 311
 Omaha, Nebraska 68152
 402-572-3590
 Website: www.welcoa.org

National Wellness Institute Inc.
 1300 College Court
 P.O. Box 827
 Stevens Point, Wisconsin 54481-0827
 Website: www.wellnessnwi.org/

Healthy Workforce 2010.
 Website: [www.prevent.orge/winword/
 healthy_workforce_2010_pdf.pdf](http://www.prevent.orge/winword/healthy_workforce_2010_pdf.pdf).

Institute for Health and Productivity
 Management.
 Website: www.ihpm.org

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