ALASKA CANCER CONTROL PLAN

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Alaska Cancer Control Plan

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ALASKA CANCER CONTROL PLAN

EXECUTIVE SUMMARY

The goals and objectives established by this Plan center on three main areas:

1. ***Risk reduction.***
2. ***Early detection and treatment.***
3. ***Increase cancer surveillance.***

In 1990, the National Cancer Institute awarded the Alaska Division of Public Health a grant to plan and undertake cancer prevention and control activities.The plan focuses on tobacco-related, diet-related, breast, and cervical cancers as these areas offer significant opportunities for early detection and prevention. The plan also focuses on the need for cancer surveillance and enhanced collection of data on cancer and its risk factors in Alaska.

Tobacco-related cancers are the most preventable types of cancer. Cigarette smoking is responsible for more cancers and more cancer deaths than any other known agent. Smokers are 10 times more likely to develop lung cancer than non-smokers; they also have three to five times as much cancer of the oral cavity and over three times as much cancer of the larynx.

Diet has been implicated as a risk factor in a number of cancers. It has been estimated that 35% of all U.S. cancers may be related to dietary factors. Dietary modification for reduced fat and increased fiber can reduce the risk of certain cancers.

Breast cancer affects one of every nine American women. Approximately 50 women die from the disease each year in Alaska. Screening with mammography can detect breast cancer at early stages and significantly increase chances for survival and successful treatment.

Cervical cancer is the second most common cause of female cancer deaths worldwide. In the United States, however, it ranks only eleventh as a cause of female cancer mortality. Approximately six women die from the disease each year in Alaska. The principal screening test for cervical cancer is the Pap smear. About 90 percent of women diagnosed with early cervical cancer survive for five years or more; only 40 percent survive at least five years if the disease is more advanced when diagnosed.

The goals and objectives of the Alaska Cancer Control Plan center on three main areas:

- risk reduction
- early detection and treatment
- surveillance

GOAL 1:
Reduce the risk of developing cancer.

This goal can be achieved primarily through tobacco prevention and cessation, and dietary modification. The objectives are to:

- Reduce the prevalence of smoking within high risk populations.
- Reduce initiation of smoking and use of other tobacco products by youth.
- Increase the consumption of fruits and vegetables; reduce the consumption of fats.
- Mobilize Alaskans to improve their nutritional/lifestyle patterns.

GOAL 2:
Detect and treat cancer early.

This goal can be achieved primarily through improved breast and cervical cancer screening. Successful attainment is through education, improved access to screening, and quality assurance. The objectives are to:

- Develop a breast and cervical cancer public education program.
- Develop a breast and cervical cancer professional education program.
- Identify areas of need in mammography and cervical cytology quality assurance and cancer screening services; establish comprehensive quality assurance guidelines for mammography and cervical cytology screening.
- Assure breast and cervical cancer screening services are available for low-income and rural women.

GOAL 3:
Increase cancer surveillance as a basis for prevention and control activities.

This goal will be met by maintaining, enhancing, and developing cancer surveillance systems. The objectives are to:

- Develop a cancer registry.
- Document the prevalence of behaviors which can prevent, detect, or increase the risks of smoking-related, diet-related, breast, and cervical cancers.
- Initiate additional surveillance activities necessary to establish baseline information, progress, and evaluation of stated objetives of the Cancer Control Plan.

INTRODUCTION

PURPOSE OF THIS REPORT

In 1990, the Alaska Division of Public Health was awarded a "Data-based Intervention Research Cooperative Agreement" by the National Cancer Institute to conduct a cancer control project using State cancer data to plan and undertake prevention and control activities.

The project is focused on tobacco-related, breast, and cervical cancer, since they offer significant opportunities for prevention and early detection.

During the first phase of the project, available data were reviewed. A Cancer Coalition was formed with members representing health professions, cancer organizations, state, federal and local government (see the appendix for list of coalition members). The Coalition met three times during 1991-92 to review data and make recommendations to the Alaska Division of Public Health. The Division of Public Health further analyzed and refined the recommendations to produce this report, a road map for cancer control activities in Alaska.

Available data are inadequate to describe cancer in Alaska. Absent are data of the number of new and existing cancer cases. Without this type of information, attempts to address the cancer problem in Alaska are incomplete.

The Alaska Cancer Control Plan focuses 80% of resources and attention on tobacco prevention, cessation, and control. The Alaska Division of Public Health sought additional federal support in 1992 through applications to the National Centers for Disease Control for funds for breast and cervical cancer prevention and control. Because this application was funded, enhanced activities directed at breast and cervical cancers will be possible.

TERMINOLOGY

Cancer Control: Where knowledge to reduce a significant portion of the cancer toll exists, translated into activities (approaches) designed to actively prevent, cure or manage cancer.

Cancer Mortality Rate: A measure of the number of deaths attributable to cancer in a population during a given period of time. Mortality rates are expressed in terms of numbers of deaths per 100,000 persons. Deaths, as an indicator of priority, can be regarded as an indicator of failure of treatment which to some extent is influenced by a failure of early diagnosis, and thus relevant to issues of screening and treatment. Data derived from death certificates are subject to well known limitations. The limitations that are important for cancer research include: discrepancies in coding, particularly to the fourth digit of the International Classification of Diseases (ICD); distinguishing primary from metastatic sites; information on race frequently is inaccurate and lacking in ethnicity; and the residence field reflects last known address without any indication of duration of residence.

Age-adjusted cancer mortality rate: Age distribution varies among populations; those with proportionately more older people can be expected to have higher death rates. Death rates are made more meaningful and allow for comparability if they are age-adjusted to a specific population. In cancer, the reference population is the 1970 U.S. population.

Tumor registries: Only one hospital in Alaska has an approved cancer program recognized by the American College of Surgeons and has maintained a registry of cancer patients as part of its accreditation since 1970.

The CDC/IHS Cancer Surveillance Program maintains a population-based registry containing data on all Alaska Natives with cancer from 1969 through the present.

In 1975, a regulation was promulgated (Alaska Administrative Code, 7AAC 27.008) requiring the reporting of all new cases of cancer by hospitals in Alaska to the Division of Public Health. This regulation was never implemented, and no cancer data were collected by the Alaska Division of Public Health.

Therefore, Alaska lacks data that would provide a count of the number of newly diagnosed cancer cases (incidence). Incidence is an important index of the load of cancer in the population, expresses the influence of risk factors for disease, and is the primary indicator for etiology and prevention.

Behavioral Risk Factor Surveillance System (BRFSS): Beginning in October 1990, Alaska participated in the Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS), which uses telephone interviews to ask a variety of questions relating to preventable risk factors for the leading causes of death, including cancer. Beginning in 1991, each month in Alaska about 150 telephone interviews are conducted in a randomly selected statewide sample. Limitations of the BRFSS are those common to all survey research utilizing self-report including recall bias, nonresponse, and noncoverage due to telephone unsaturated areas. In "Bush" Alaska, some villages may only have half a dozen phones. To achieve a more equitable sample size, the BRFSS over samples the Bush strata.

GOAL 1: REDUCE THE RISK OF DEVELOPING CANCER

TOBACCO-RELATED CANCERS

Human and Economic Costs of Tobacco Use

Tobacco use comprises both the smoking of tobacco (in cigarettes, cigars, or pipes) and the use of smokeless tobacco, including chewing tobacco and snuff. All forms of tobacco use are harmful. Smokers have an increased risk of cancer (particularly cancer of the lung and respiratory tract), coronary heart disease, chronic obstructive lung disease, stroke, reproductive problems, and peptic ulcer disease. Smokeless tobacco increases the risk of oral cancer.

The U.S. Surgeon General has identified cigarette smoking as the chief avoidable cause of death in the United States.[1] Smoking causes more premature deaths than cocaine, heroin, alcohol, fire, automobile accidents, homicide, and suicide **combined**.[2]

UNITED STATES

- The Centers for Disease Control and Prevention estimated that in 1988 alone, 434,000 Americans died as a result of smoking-related illnesses.[3]

- For 1985, direct and indirect costs of smoking-attributable morbidity and mortality in the United States were estimated to be $52.3 billion, or $221 per capita.[4]

ALASKA

- Of the 2,092 deaths among Alaskans during 1989, 351 (17%) were smoking-related; 121 (35%) of these 351 deaths resulted from smoking-related cancers (Figure 1).[5,6]

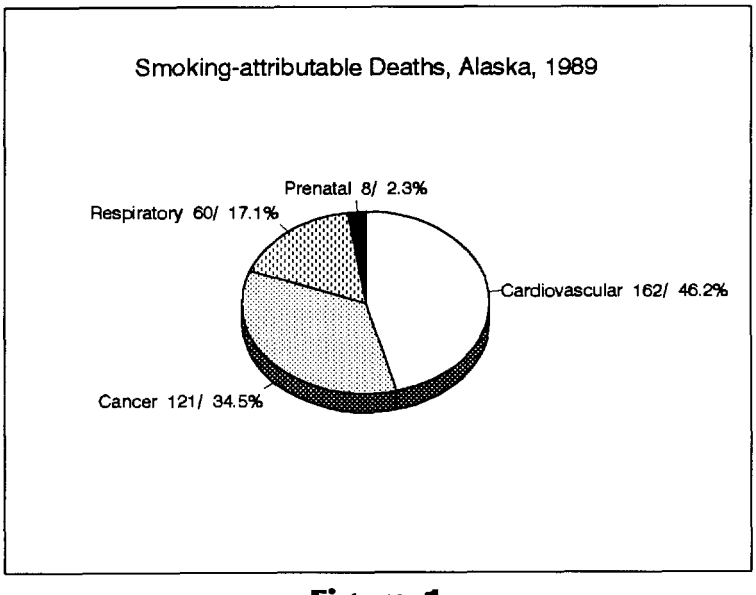

Figure 1

Among Alaskans who died at age 35-64 years, smoking-attributable years of potential life lost were estimated to be 1,446 person-years, an average of 9.6 years per person.

The total estimated smoking-attributable cost for Alaskans ≥35 years of age in 1989 was $83.2 million (Table 1).

Table 1. Alaska's Smoking-attributable costs, 1989

Direct Costs (all health-care costs)	$34.1 million
Indirect Mortality Costs (earnings and salaries forfeited by persons dying prematurely)	$38.4 million
Indirect Morbidity Costs (lost earnings and productivity)	$10.7 million
TOTAL	$83.2 million

SMOKING-RELATED CANCERS

Cigarette smoking is a major cause of cancers of the lung, larynx, oral cavity, and esophagus, and contributes to the development of cancers of the bladder, pancreas, and kidney. Smoking also has been linked to cancers of the stomach and uterine cervix.[1] Passive exposure to cigarette smoke is a cause of lung cancer among non-smokers.

CANCER DEATHS AND DEATH RATES

- Smoking-related cancers account for 40% of smoking-related deaths among Alaskan women and for 33% of smoking-related deaths among Alaskan men.[5]

- Lung cancer is the leading cause of cancer deaths among both men and women in Alaska. From 1980 through 1989, 1,107 Alaska residents died of lung cancer.[7] The average annual age-adjusted lung cancer death rate during that time was 47.2 per 100,000 people.

- In Alaska, the lung cancer death rate is higher among Alaska Natives than non-Natives; the rate among men is almost twice as high as that among women.[7] Compared with all U.S. women, Alaskan women have a substantially higher lung cancer mortality rate (Figure 2).[8]

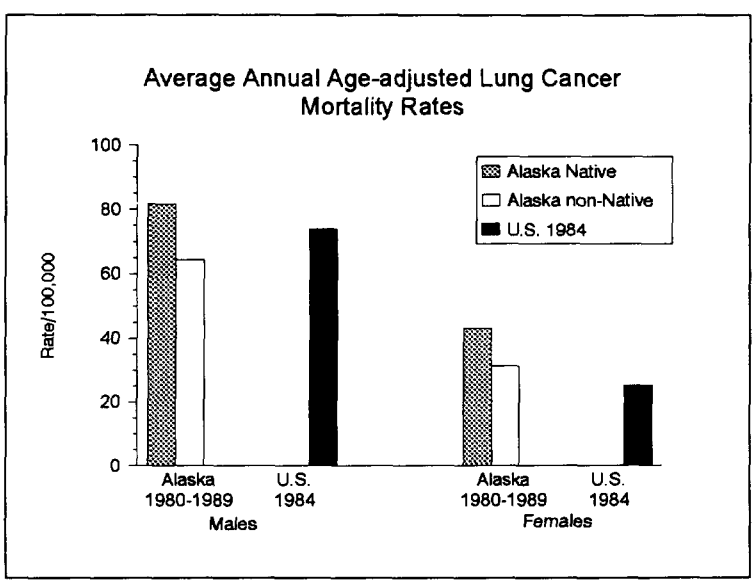

Figure 2

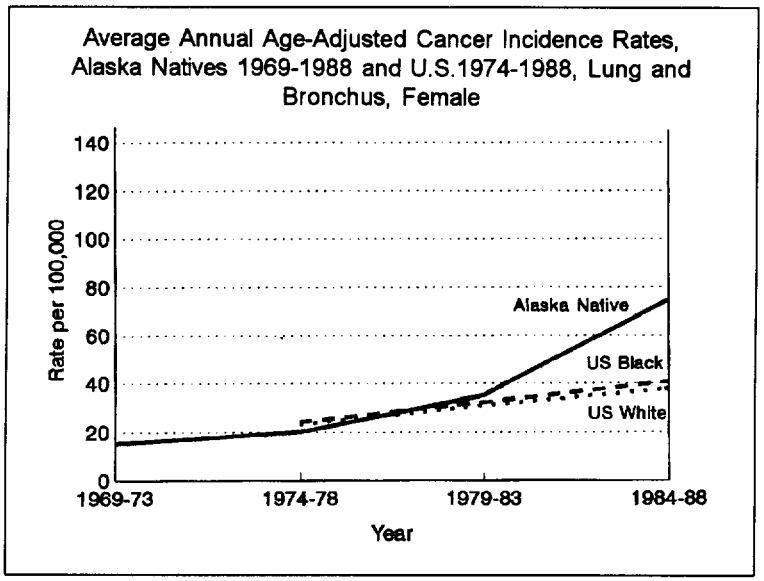

Figure 3

◆ Among Alaska Native women, the lung cancer incidence rate has increased alarmingly during the past decade (Figure 3).[9]

CIGARETTE-SMOKING PATTERNS

Adults: Alaska had the sixth highest smoking prevalence among the 48 states which participated in the Behavioral Risk Factor Surveillance Survey (BRFSS) in 1991. One-fourth (25.9%) of Alaskan adults interviewed in the BRFSS identified themselves as smokers.

Smoking prevalence in Alaska is highest among Alaska Native adults (38%), among persons 25-34 years of age (32.4%), among adults in low-income households (39%), and among adults who did not graduate from high school (46.6%).

Adolescents: The sale of tobacco products to persons under 19 years of age is prohibited in Alaska. However, experimentation with smoking and regular use of cigarettes among Alaskan adolescents is common. Among students in grades 10-12, one-third of males and one-half of females report having ever smoked cigarettes.

Among female 12th graders, the rate of daily cigarette use is much higher in Alaska (27%) than in the U.S. as a whole (18.1%). The rate is even higher in small communities (<2,500 population). National and Alaskan rates of daily cigarette use among male 12th graders are similar (Figure 4).[10]

Smoking and Pregnancy: Maternal smoking during pregnancy increases the rates of illness and death among newborn infants as a result of low birth weight and pre-term birth.[11,12]

Nearly one-fourth (23.5%) of pregnant Alaskan women smoke.[13] Smoking prevalence is highest among pregnant women under 25 years of age (Figure 5). The maternal smoking rate among Alaska Native women is twice that among white women (40.5% vs 19%).

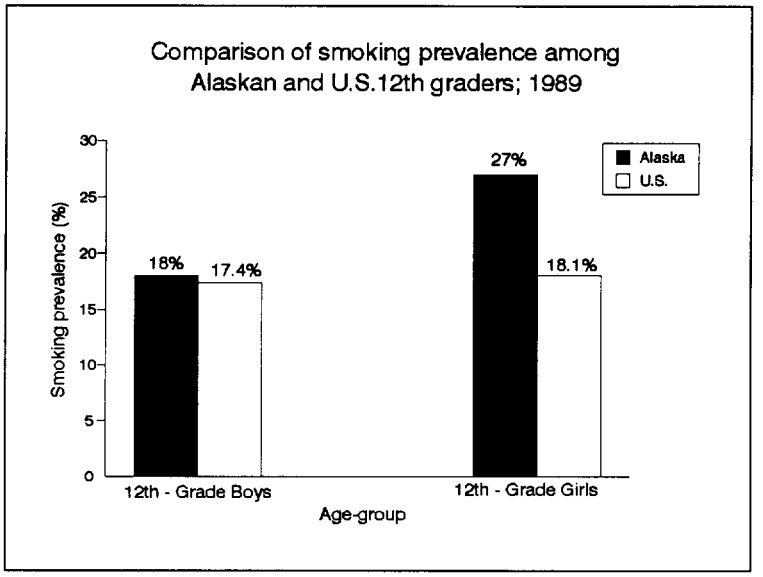

Figure 4

Passive Exposure to Tobacco Smoke: In December 1992, the U.S. Environmental Protection Agency (EPA) released a report classifying environmental tobacco smoke (ETS) as a Group A carcinogen and concluded that exposure to ETS presents a serious and substantial public health risk.[14] Besides being a cause of lung cancer in non-smokers, exposure to environmental tobacco smoke can precipitate or worsen the symptoms of pneumonia, asthma, bronchitis, and allergies.

A study of 85 young children in two rural Alaska villages in 1989 found that more than half (55%) had evidence of tobacco exposure, based on the concentration of cotinine (a breakdown product of nicotine) in their saliva.[15]

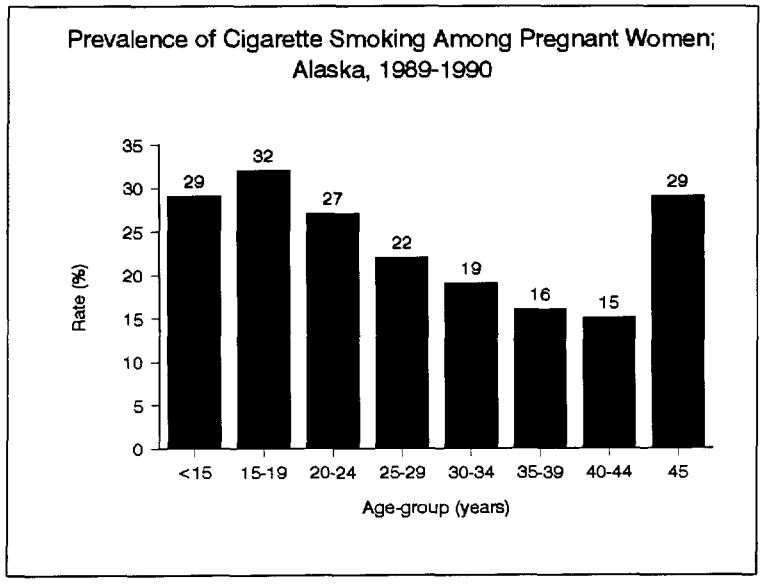

Figure 5

CIGARETTE SALES IN ALASKA

In 1980, 56.1 million packages of cigarettes were sold in Alaska. Department of Revenue data show that per capita cigarette consumption in Alaska decreased by 26.5% between 1980 and 1990 (Figure 6). Whether a cigarette tax increase which became effective in late 1985 contributed to the rapid decline during 1985-1987 is unclear. Studies conducted elsewhere have shown that increases in the cost of cigarettes discourage smoking, particularly among youth and the poor.

USE OF SMOKELESS TOBACCO

Results of Alaska's 1991 Behavioral Risk Factor Surveillance Survey indicate that only about 5% of Alaskan adults use smokeless tobacco. However, its use is much more common among adolescents, particularly in rural communities and among Alaska Native youth. According to the results of the 1989 Adolescent Health Survey, 16% of boys and 12% of girls in small communities (<2,500 population)—compared with 5% of boys and 1% of girls in larger communities—reported daily use of these products.

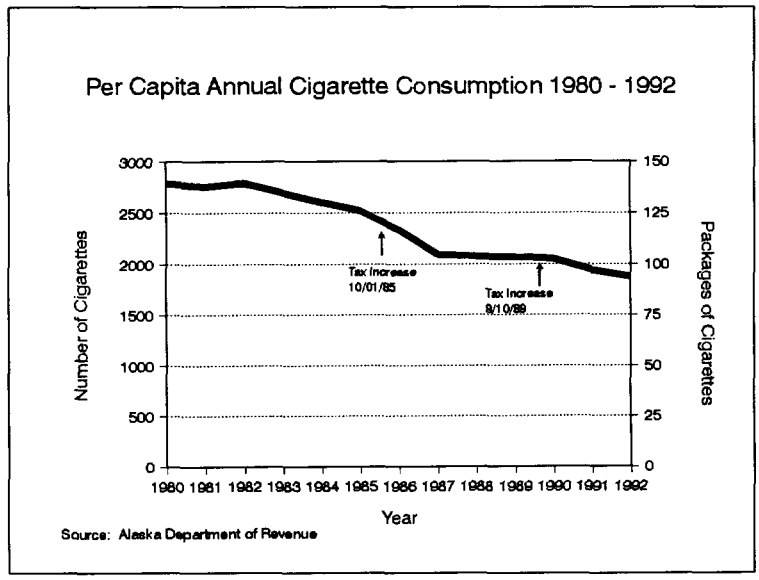

Figure 6

A broad Indian Health Service survey of Alaska Native youth in 1986 indicated that 34% of boys and 28% of girls between 5-18 years of age used smokeless tobacco. Nearly half (49%) of 18-year-old boys reported using these products, as did more than 10% of 5-year-olds.[16]

Although the majority of users are aware that smokeless tobacco use is harmful to health, only a minority believe that they are personally at risk for adverse health effects.[17]

CANCER CAUSATION BELIEFS

No organized, state-wide study of Alaskans knowledge and beliefs about causes of cancer has been undertaken.

A 1987 investigation of a cluster of seven lung cancer cases (all of whom had been smokers) in a remote Alaska Native village offered an opportunity to examine villager's cancer causation beliefs. Among 46 households interviewed, 34 (74%) understood that cigarette smoking is a cause of cancer; 34 (74%) believed that the cancer cluster under investigation was due to consumption of contaminated drinking water; and 14 (30%) thought that the cancers might have resulted from fall-out from foreign nuclear testing. Thus, despite their understanding that cigarette smoking is a cause of lung cancer, many villagers attributed the cancer cluster to putative risk-exposures outside their control.[18]

LAWS REGARDING SMOKING AND TOBACCO SALES IN ALASKA

Sales to Minors: Alaska law requires the licensing of retailers who sell tobacco products. This license may be revoked if a retailer violates the law prohibiting sales of tobacco products to persons under 19 years of age. In addition, it is illegal for a person under age 19 to possess tobacco products.

Vending-Machine Sales: There are statutory restrictions on the placement of cigarette vending machines in the state and requirements for the supervision of cigarette vending machines. The posting of signs regarding prohibition of tobacco sales to minors at points-of-sale is required, and it is required that vendors post signs warning of possible danger from smoking cigarettes during pregnancy.

Indoor Smoking Restrictions: Alaska's clean indoor air laws ban smoking in public and private schools (by both staff and students), in child care facilities, in health-care facilities and medical or dental labs and offices, and in elevators. There are legal restrictions on smoking in public places, in public-sector and private-sector workplaces, in food-service establishments with seating for more than 50 persons, in grocery stores, and in public-transport vehicles and boarding areas. Alaska is among twelve states with the most extensive state laws restricting smoking in public places.

Cigarette Excise Tax: In 1990, Alaska's cigarette tax of $0.29 per pack was the seventeenth highest such tax among the 50 states (range: $0.02 - $0.41 per pack). A bill to increase the excise tax levied on tobacco products was introduced during the 1992 legislative session. Although it passed in the House, proponents were not successful in bringing the bill to a vote in the Senate. Regarding the use of cigarette tax revenue, provisions of the State Constitution prevent tax revenues from being dedicated to specific uses.

CONCLUSION

The lung cancer mortality rate of Alaska residents exceeds that of the U.S. population. In Alaska, death rates from tobacco-related cancers are higher among men than women and greater among Alaska Natives than among non-Natives. Alaska Natives—nearly 40% of whom smoke cigarettes—have experienced an alarming increase in their lung cancer mortality and incidence rates in recent years.

Cigarette and smokeless tobacco consumption among rural Alaskan adolescents is much greater than the national average. Cigarette tax increases in the last decade have been associated with a modest decline in cigarette sales. The data presented suggest that a reduction in the incidence of tobacco use (and of tobacco-related cancers) in Alaska might best be achieved by decreasing access to tobacco products and by developing anti-tobacco educational programs for school children, particularly those in rural areas. Therefore, Alaska's cancer control priorities will include efforts to effect changes in public policy (e.g., a substantial increase in the excise tax on tobacco products, enforcement of existing anti-tobacco laws, and banning tobacco advertising) and to advocate for effective anti-tobacco school curricula.

GOAL 1: REDUCE THE RISK OF DEVELOPING CANCER

Objective 1. By the Year 2000, reduce cigarette smoking to a prevalence of no more than 15% among people aged 18. years and older. (Alaska baseline: 25.9% in 1991 (men, 28.4%; women, 23.1%))

Special Population Targets

	Baseline	2000 Target
Alaska Native adults	38.0% (1991)	20%
Pregnant women	23.5% (1990)	10%
Adults with less than college education	32.9% (1991)	20%

Strategy A: By November 1992, a Tobacco Task Force will have been formed to advocate for public policy against tobacco use.

Strategy B: By 1996, the Alaska Legislation should have substantially increased the excise tax to at least two dollars on all tobacco products.

Strategy C: By 1994, the Division of Public Health (DPH) should secure funding to empower the Tobacco Task Force and support health promotion activities either from federal funding or designated state funds.

Strategy D: By 1995, the Alaska Legislature should pass model legislation that all public buildings and areas are smoke-free.

Strategy E: By 1995, the Alaska Legislature should pass legislation to ban tobacco advertising at public events and within public facilities. (This includes sports and recreation events, billboards, busboards, signs and posters).

Strategy F: By 1994, enforcement of all tobacco and smoking-related laws will have been tested/encouraged by "sting" operations and rewarding of individuals reporting violators.

Strategy G: By 1995, 90% of all health care providers will routinely assess smoking and smokeless tobacco status, utilize techniques of cessation intervention, and discuss effects of environmental tobacco smoke with their patients.

Strategy H: By 1994, the DPH should facilitate the development of smoking cessation programs especially where persons have inadequate access to such programs.

Strategy I: By 1994, the DPH should collaborate with the American Cancer Society (ACS), American Lung Association, and American Heart Association to coordinate smoking prevention and control programs, and to increase marketing and availability of smoking cessation programs to the public and worksites.

EVALUATION MEASURES:

1. Achievement of the objective will be assessed annually with the Behavioral Risk Factor Surveillance System (BRFSS). Birth certificate data will be compared with the BRFSS to assess tobacco use reduction in pregnant women.

A) Formation of the Tobacco Task Force (Alaska Tobacco Control Alliance) has occurred. Activities will be assessed by number of advocacy contacts, what initiatives and strategies were promoted and their outcome.

B) Identify organizations involved in tax initiative and their role. If taxes were increased monitoring by the Department of Revenue should indicate tobacco sales reduction. Track legislation introduced, pending, and passed.

C) Was fiscal support secured either from the state or federally? What impediments were encountered? What further efforts need to be initiated?

D) Track Legislation introduced, pending, and passed.

E) Track Legislation introduced, pending, and passed.

F) Number of operations conducted and outcome; organizations that participated and their role; success of incentive system.

G) No Alaska data are available. Survey of health care providers will be completed by 1994 to assess knowledge, counseling practices, and resource/training needs.

H) No Alaska data are available. Statewide survey of existing cessation programs, geographic location, numbers served and numbers quit will be completed by end of 1994.

I) See evaluation measure 1.H.

Objective 2. By the Year 2000, reduce the initiation of smoking by children and youth so that no more than 10% have become regular cigarette smokers by age 18 (Baseline: males, 18%; females, 27% (1989)); reduce the use of smokeless tobacco products among rural Alaska adolescents (grades 7-12) to no more than 5% (Baseline: males, 16%; females, 12% (1989)).

Strategy A: By 1998, all schools (grades K-12) will include the health effects and avoidance of tobacco use in a comprehensive health education curriculum.

Strategy B: By 1994, The Alaska Tobacco Control Alliance will sponsor a Youth Health Task Force for the urban/rural areas to increase effectiveness of youth tobacco prevention programs.

Strategy C: By 1995, a statewide public education media campaign targeted at youth will be implemented.

Strategy D: By 1995, ensure active enforcement of all tobacco and smoking-related laws restricting youth access to tobacco.

EVALUATION MEASURES:

2. No statewide data are available. Implementation of the Youth Behavioral Risk Factor Surveillance Survey (YBRFSS) will begin in 1994.

A) The number of schools that include tobacco use avoidance in their curriculum is not known. A survey of all schools will be completed by 1995.

B) Monitor the number of events, contests, promotional activities, and youth groups involved, as well as geographic distribution.

C) Utilize a "clipping service" to monitor statewide newspaper coverage; monitor number, message content, and saturation of PSA's on radio and television.

D) By 1994, a system of compliance checks to test youth access laws will have been established and implemented on a periodic basis.

DIETARY MODIFICATION

Dietary Impact

It has been estimated that 35% of all U.S. cancers are related to dietary factors.[19] Diet has been implicated as a risk factor in a number of cancers including cancers of the esophagus, oral cavity, pancreas, liver, stomach, colon and rectum, lung, breast, endometrium, ovary, cervix, bladder and prostate.

Estimates of the overall impact of diet and total cancer incidence and mortality are based on a combination of evidence. Evidence includes established relationships between dietary factors and cancer risk, dramatic shifts in site-specific cancer rates among migrants to the United States, secular trends in cancer for which a dietary etiology is likely, supportive evidence from animal experiments for biologic plausibility, and lack of more persuasive alternative hypothesis.[20] The major understanding of the influence of nutrition on cancer incidence comes largely from global comparisons.

In the decade or more since the interest in dietary factors and cancer was first stimulated, much more information has become available. Our current dietary and sedentary habits play a major role in many of the leading chronic diseases. Prudent efforts to change dietary habits appear to be clearly warranted.[21] Despite broad dissemination of recommendations, people fail to recognize that current dietary practices are "abnormal" and that a low-fat, high-fiber, high-vegetable-and-fruit-diet more closely matches our metabolic capacities.[22]

The most recent dietary guidelines proposed by the National Cancer Institute (NCI, 1988) are given below. Although translation of research results into dietary guidelines is somewhat controversial, compliance with these guidelines is likely to improve health and is not known to be harmful.

National Cancer Institute Dietary Guidelines

- Reduce fat intake to 30% or less of total calories
- Increase fiber intake to 20 to 30 grams daily, with an upper limit of 35 grams
- Include a variety of vegetables and fruits in the daily diet
- Avoid obesity
- Consume alcoholic beverages in moderation, if at all
- Minimize consumption of salt-cured, salt-pickled and smoked foods.

Although the NCI guidelines were developed specific to cancer risk reduction, they project the same concepts as dietary guidelines developed by other federal agencies. Emerging priorities for dietary change as reflected by these dietary guidelines are to reduce total fat (especially saturated fat), maintain desirable body weight, limit sodium and alcohol intakes, and to consume a dietary pattern which includes a variety of foods (particularly increased amounts of vegetables, fruits and whole grain products).

Public education efforts should be directed at increasing fruits and vegetables in the diet. Eating at least five servings of fruits and vegetables every day will help reduce the risk of cancer because these foods are low in fat and rich sources of vitamin A, vitamin C, and fiber. Additionally, fruits and vegetables have no cholesterol and are naturally low in calories, fat, and sodium. Vitamin supplements will not provide the same health benefits as eating a variety of fruits and vegetables.

To increase fruit and vegetable consumption to five or more daily servings, it is helpful to know the practical equivalents. A serving size is:

- a medium piece of fruit
- 1/2 cup of fruit or cooked vegetable
- 1 cup of leafy salad greens
- 1/4 cup of dried fruit
- 3/4 cup of juice

DIETARY FIBER

Dietary fiber is material from plant cells that humans cannot digest or only partially digest as it's resistant to the action of normal digestive enzymes. Increased risk of colon and rectal cancers seem to be associated with low intake of vegetables.[23]

FAT

Many epidemiological studies have associated high intake levels of dietary fat especially saturated fat with a higher risk for cancers of the colon and rectum as well as for cancers of the breast, prostate, and endometrium.[24] Obesity, commonly the result of excess consumption of fat and calories has been identified as a risk factor for breast cancer among postmenopausal women.

VITAMINS

Epidemiological studies have also shown a relationship between the intake of several vitamins and the incidence of different types of cancer. Frequent consumption of green and yellow vegetables (leading to a high intake of B-carotene and other constituents in such foods) appears to be protective against lung cancer.[24]

Vitamin C may prevent carcinogenesis by preventing the formation of N-nitroso compounds or by enhancing cellular immunity, but experiments have produced variable results. Adequate or greater intakes of vitamin C, as well as vitamin E, have been associated with lower incidence of several different cancers.

Much research continues in the investigation of vitamin A and with synthetic retinoids because the naturally occurring compounds are toxic at the doses currently being tested. Most of this research is directed toward epithelial cell-type cancers.

ALCOHOL

The misuse of alcohol represents a major hazard to health and well-being. Misuse, abuse and dependence result in medical, psychological and social consequences. Misuse of alcohol results when the quantity consumed impairs judgment, information processing, and physical coordination. Excessive alcohol use is a major factor in liver diseases, stomach problems and pancreatitis. Alcoholics experience more cancers of the mouth, tongue, pharynx, and esophagus than non-alcoholics.

TABLE 1. SUMMARY OF DIETARY RELATIONSHIPS TO SELECTED CANCER SITES

Site	Increased risk for cancer at this site with:
Esophagus	Excessive alcohol use, especially in combination with tobacco use; diets with large intakes of pickled foods; diets with inadequate amounts of vitamins and minerals
Stomach	Diets containing large amounts of salt-preserved foods and foods containing nitrates and nitrites; diets with inadequate amounts of fresh fruits and vegetables (especially vitamin C sources)
Colon and Rectum	Diets containing large amounts of fat (particularly saturated fat) intake and low vegetable intake; excessive alcohol consumption
Lung	Diets containing low intakes of fruits and vegetable rich in vitamin C, Beta-carotene and other carotenoids
Breast	Inconsistent evidence, but some association with diets heavy in fat; diets high in alcohol or low in fiber and the vitamins A, C and E have also been implicated
Prostate	Diets containing large amounts of fat, especially fat from animal sources; obesity
Pancreas	Fat, alcohol

Source: National Research Council

DIET-RELATED CANCERS IN ALASKA

Colorectal cancer is the second leading cause of cancer mortality in Alaska and is only slightly less than the U.S. rate (18.1 vs 19.6 respectively). Colorectal cancer mortality has decreased in Alaska Natives from a high of 42 per 100,000 in the early 1970's to almost half that rate (26.3 per 100,000) in 1984-1988. This rate is still higher than the overall U.S. rate for 1986 (23.1 per 100,000). Alaska Native women have a particularly high mortality rate of colorectal cancer (33.0 per 100,000) compared to the U.S. rate of (17.1 per 100,000) for females. The average mortality of colorectal cancer in 1980-1989 is higher in both Alaska Native males and females than in the Alaska non-Native.

Stomach cancer mortality is ranked fourth of all cancers among Alaska Natives. The average annual age-adjusted 1980-1989 rate (11.85 per 100,000) is almost triple that of the 1987-1988 U.S. rate of (4.8 per 100,000).

HEALTH PROMOTION BEHAVIORS IN ALASKA

Data from the Alaska 1991 BRFSS indicate that only 22% of adults reported eating 5 or more servings of fruits and vegetables per day. About half (50.6%) of Alaskans do not exercise regularly. The survey results show that 30.1% of Alaskan adults are overweight, males more than females (32.5% vs 27.3% respectively). The BRFSS median for all 48 states is 27.7%. Acute or binge drinking was reported by 22.1% of Alaskan adults. Chronic or heavier drinking was a risk factor for 4% (48 BRFSS States median: acute or binge drinking, 14.4%; chronic or heavier drinking, 3.4%).

A study conducted by the Alaska Area Native Health Service in 1987-1988 to better understand the role of diet in chronic diseases among Alaska Natives included 351 Alaska Native adults from eleven communities.[25] The study found that the overall diet was somewhat better than the average U.S. population diet except for calcium. Alaska Natives consumed six times more fish, but only two servings of fruits and vegetables a day. Nonetheless, vitamin A and C intake was high, due in large part to increased consumption of fortified foods, e.g. Tang and fruit drinks, which are consumed in quantities three to four times that of national estimates. The Alaska Native diet was low in fiber as well as cruciferous vegetables, and the percentage of energy from fat was 37%.

Data from the 1989 Adolescent Health Survey indicate the proportion of Alaskan students surveyed in grades 7-12 who may be at risk for developing chronic disease problems as adults based on their own reports of certain behaviors or health status as adolescents (Table 2). The Adolescent Health Survey largely over-sampled rural school children as the Anchorage and Fairbanks (the two largest cities in the state) school districts did not participate.

Table 2. Antecedents for Adult Chronic Disease	**Percent of:**		
	Males	Females	Total
Are somewhat overweight	28.3	15.3	20.7
Are obese	15.4	13.5	14.4
Eat red meat daily	41.6	33.1	37.3
Eat eggs daily	20.1	11.9	16.0
Eat fruit and vegetables less often than once a day	24.8	21.6	32.2
Eat "junk food" three or more times daily	45.3	35.7	40.4
Don't get adequate physical exercise	29.5	44.9	37.5

Alaska rural stores do not offer fruit/vegetables noted for quality or quantity. In the northern Bush villages, fresh food is difficult to obtain. By the time fruits or certain vegetables reach the shelves, they are unappealing, very expensive, and limited to a few sturdy varieties.

CONCLUSION

Diet is estimated to be a contributing cause of 35% of all cancers and may be one of the predominant risk factors for cancer. Increasing consumption of fruits, vegetables, and other foods high in fiber, and reducing consumption of total fat to less than 30% of average daily caloric intake may be protective and reduce cancer risk among the U.S. population.

Alaska has adopted the National Cancer Institute, "Year 2000 Dietary Objectives" that call for reducing average consumption of fat to 30% or less of total calories and increasing average consumption of fiber to 20-30 g per day. Following the dietary guidelines as a cancer risk reduction measure is not only prudent, but also is consistent with recommendations for cardio-vascular disease prevention.

GOAL 1: REDUCE THE RISK OF DEVELOPING CANCER

Objective 1: By the Year 2000, the proportion of the Alaskan population that consumes five or more servings of fruit and vegetables per day will have increased by 30 percent or higher. (Alaska baseline: 1991, 22%)

Objective 2: By the Year 2000, reduce the average daily intake of fat among adult Alaskans to 30% or less of total calories.

Strategy A: By 1995, the Alaska Department of Health and Social Services in conjunction with other agencies and the private sector should assess Alaskan communities and develop a plan to implement nutrition related chronic disease risk reduction programs such as 5-A-Day for Better Health.

Strategy B: By 2000, all schools will include nutrition education as part of a comprehensive school health education curriculum (grades K-12).

Strategy C: By 2000, school lunch menus will follow dietary guidelines for Americans.

Strategy D: By 2000, public and private health agencies and health care providers will include nutrition assessment and counseling or referral to a registered dietitian or qualified nutritionist.

Strategy E: By 1995, nutritionists and involved organizations (including the Cooperative Extension) will have developed simplified, standardized, Alaska-specific media messages promoting dietary guidelines appropriate for Alaska's various geographic regions.

EVALUATION MEASURES:

1. Data are available from the Behavioral Risk Factor Surveillance Survey (BRFSS).

2. Some baseline data is available on Alaska Natives through the Alaska Area Native Health Service.

A) Efforts can be assessed through the Division of Public Health, Section of Family Health's nutrition-related chronic disease program.

B) The number of schools that may do so is not known; baseline data will be available in 1994.

C) The number of schools that do so is not known; baseline data will be available in 1994.

D) No data exists on the number of health care providers that may currently do so.

E) The number and appropriateness of media messages developed.

Objective 3: By the Year 2000, reduce the percentage of Alaskans with sedentary lifestyles to less than 30%. (Alaska baseline: 1991, 50.6%)

Objective 4: By the Year 2000, reduce the percentage of overweight adult Alaskans to less than 20%. (Alaska baseline: 1991, 30%)

Objective 5: By the Year 2000, reduce the prevalence of overweight Alaskans aged 12-19 years to no more than 15%.

Strategy A: By 1995, all commercial environments (including restaurants, school and work-site cafeterias, and food markets) will participate in point-of-purchase nutrition education and promotion programs (e.g., shelf and menu labeling, sales promotion, food preparation information, and modified recipes).

Strategy B: Public and private health care providers should routinely provide lifestyle counseling, education, and referral.

Strategy C: By 2000, all schools will have implemented a mandatory physical fitness curriculum.

Strategy D: By 2000, nutrition education will be implemented in school curriculum and the dietary guidelines will be followed in all school lunch programs.

Strategy E: By 1995, develop and distribute to all Alaskans a risk assessment appraisal form as a "personal body maintenance manual" that incorporates preventive health measures for specific age groups.

EVALUATION MEASURES:

3&4. Data are available from the BRFSS including measures for overweight and physical activity.

5. The Youth-BRFSS will provide data once implemented.

A) The current percentage is not known.

B) No data exists on the number of health providers who may do so.

C&D) The number of schools that do so is not known; baseline data may be available in 1994.

E) By the end of 1994, the U.S. Office of Disease Prevention and Health Promotion will have materials ready for their "Put Prevention Into Pratice" campaign. Materials will contain an adult and child Personal Health Guide. Applicability of materials for Alaska will be determined, and if necessary, a modified version will be developed. Distribution may occur with mailing of permanent fund dividend checks or utility billings. Evaluation will be assessed by number of calls to an informational number and health care provider contacts to determine if patients are using their guide/manual at provider visits.

GOAL 2: DETECT AND TREAT CANCER EARLY

BREAST AND CERVICAL CANCER

BREAST CANCER

Breast cancer accounts for 29% of all newly diagnosed cancers in women and for 18% of all female cancer deaths.[26,27] The American Cancer Society (ACS) estimates that182,000 American women will be diagnosed with breast cancer in 1993, and that 46,000 women will die of the disease.[26] It is now estimated that one in nine American women will develop breast cancer, presuming a life expectancy of 85 years.

Although mortality has remained nearly constant the incidence of invasive breast cancer has increased 2% a year since the early 1970s. Earlier diagnosis of more recent cases(lead-time bias) may account for a portion of this increase.[28] The observed incidence rate per 100,000 women rose from 86.7 in 1980 to 111.9 in 1987.

BREAST CANCER IN ALASKA

The ACS estimates that 200 Alaskan women will be newly diagnosed with breast cancer and 50 women will die of the disease in 1993.[26] Of cancer-related deaths among Alaskan women, only deaths from lung cancer exceed those from breast cancer.

During 1986-87, Alaska's annual breast cancer mortality rate for all races combined was slightly lower than the national average and ranked twenty-third highest among the 50 states (Fiure1).[27] Compared only with other white women, those in Alaska and New York had the second highest rate–31.7 per 100,000–among the 50 states.

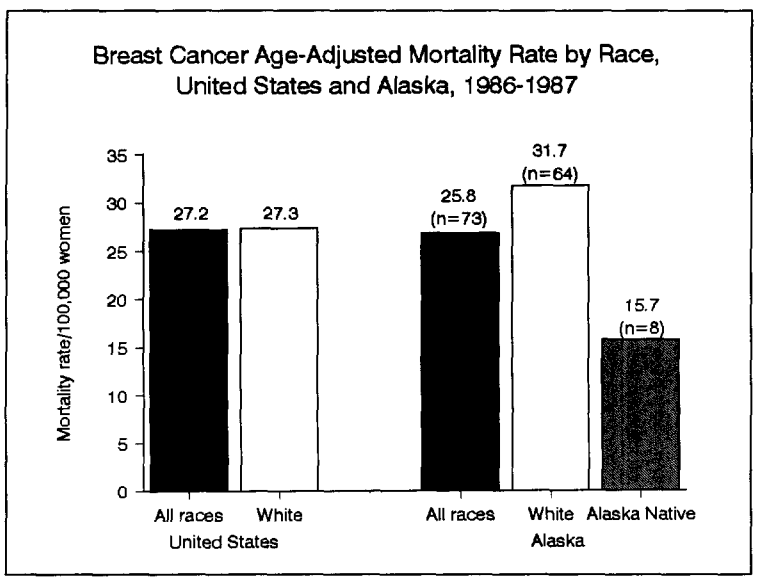

Figure 1

During 1980-1989, breast cancer mortality rates for Alaska Natives and non-Natives between ages 30 thru 64 years were almost identical (Figure 2). However, among older women, the mortality rate for Alaska Native women was much lower than that for non-Native women. Overall, the mortality rate among Alaska Native women was only about half the rate for other Alaskan women and for all U.S. women. This ethnic/racial difference is consistent with observations among native Hawaiians and American Indians in other geographical regions of the United States.[26,27,29]

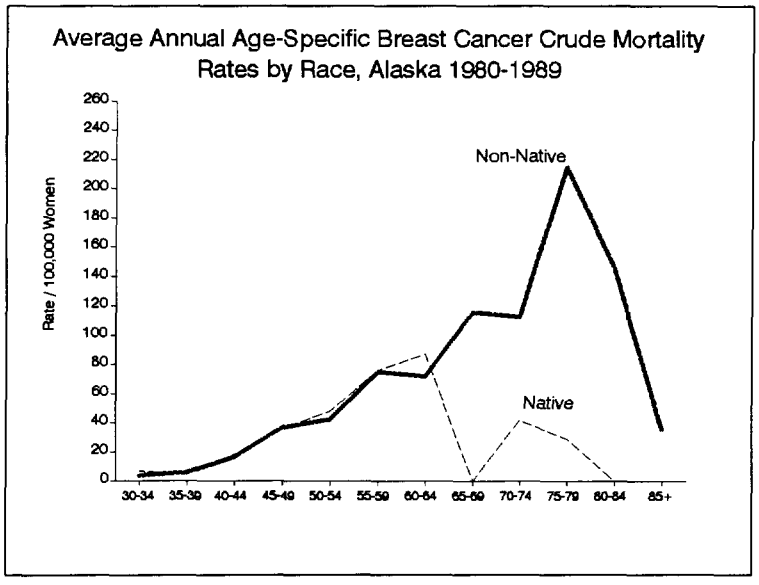

Figure 2

Alaska does not have a state-wide cancer registry from which cancer incidence and other cancer-related data (e.g., stage of disease at diagnosis, treatment costs) can be extracted. However, the CDC/IHS Cancer Surveillance Program's population-based registry contains information about the incidence of breast cancer among the Alaska Native population. During the years 1969-1983, the incidence rate among Alaska Native women was 44.1 per 100,000 or approximately half the U.S. rate.[30]

RISK FACTORS

Factors which have been found to be associated with an increased risk of breast cancer include the following:

- Early onset of menstruation
- Late onset of menopause
- Having never been pregnant
- First full-term pregnancy after age 30
- Breast cancer history in a first-degree relative (mother, sister)
- Personal history of fibrocystic disease
- Obesity
- Increasing age

Prolonged estrogen exposure is a condition common to several of these risk factors and is thought to play a major role in the genesis of breast cancer. Suspected causes of breast cancer for which human epidemiological evidence is weak or inconsistent include high-fat diet, alcohol use, and hormone usage. Despite the recognition of all these associated risk factors, approximately 70% of the women who develop breast cancer do not have any identifiable risk factors.[31]

EARLY DETECTION

Early detection of breast cancer, particularly for high-risk women, increases the chance for cure, can reduce the risk of death from breast cancer, and may broaden the range of therapeutic options available.[32]

BREAST CANCER SCREENING

Effective screening tests for breast cancer include mammography, clinical breast examination by a qualified health-care provider, and breast self-examination.

Screening Mammography: Screening mammography is the most sensitive screening test for breast cancer.[33-35] Wide application of mammographic screening has increased the proportion of breast cancers detected at an early stage and has been associated, in most studies with adequate follow-up,[36-38] with increased survival time. Radiation exposure from screening mammography is negligible compared to the benefits of early diagnosis.[39]

Clinical Breast Examination **(CBE).** Although mammography clearly is more effective than physical exam in detecting breast cancer in its earliest stages, some cancers are detectable only by means of physical examination. The ACS recommends that women aged 20-39 years have a CBE every 3 years and that women aged 40 and older have a CBE annually. CBE should be incorporated into all routine health maintenance programs.

Breast Self-Examination (BSE). Nation-wide surveys have shown that only one-third of women perform BSE at least once every 2 months. Better, more intensive public education efforts will result in the detection of a greater number of breast tumors and of smaller lesions at an early stage of disease.[33,40] Health-care providers other than physicians may be the most available and effective teachers of BSE techniques.

A comparison of lesion size detectable by mammography and by BSE is demonstrated in Figure 3. If all three screening techniques were used correctly, more breast cancers could be diagnosed early.

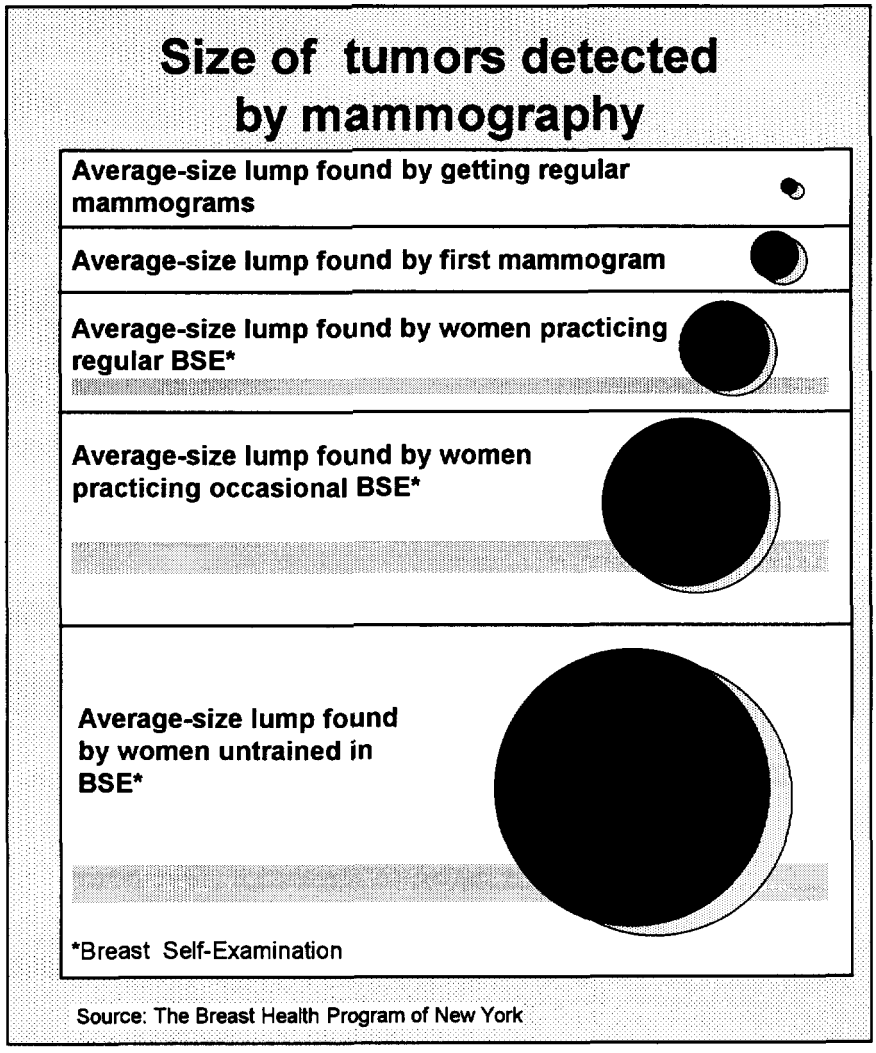

Figure 3

ALASKA RECOMMENDATIONS FOR BREAST CANCER SCREENING

Recommendations of the Alaska Division of Public Health are similar to those adopted by the Centers for Disease Control and Prevention, the National Cancer Institute, and the American Cancer Society.[41,42] They include the following:

- *Annual clinical examination beginning at age 40;*
- *Screening mammography every 1-2 years between ages 40-49;*
- *Screening mammography yearly beginning at age 50.*

USE OF MAMMOGRAPHY

Results of a 1991 survey indicated that there were 25 mammography units in Alaska and that 31,324 mammograms were done state-wide in that year. Thus, of the 70,674 Alaskan women over age 40, no more than 44.3% may have had a mammogram in 1991 (U.S. rate: 62.6% in 1989).

Results of the 1991 BRFSS survey provided the following information (Figures 4 & 5) about its sample of 482 Alaskan women ≥40 years of age:

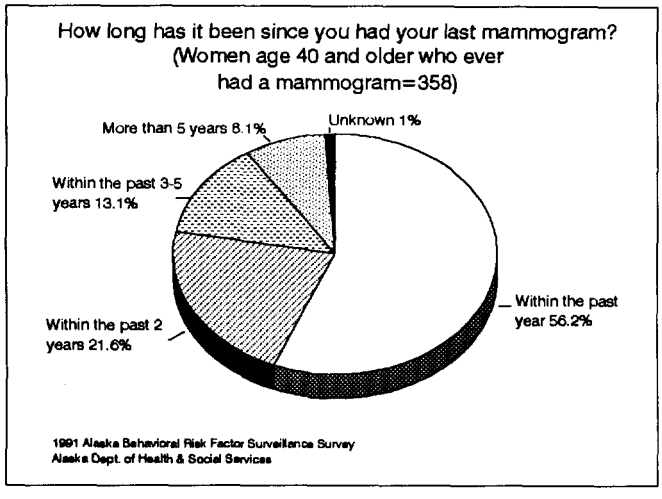

Figure 4

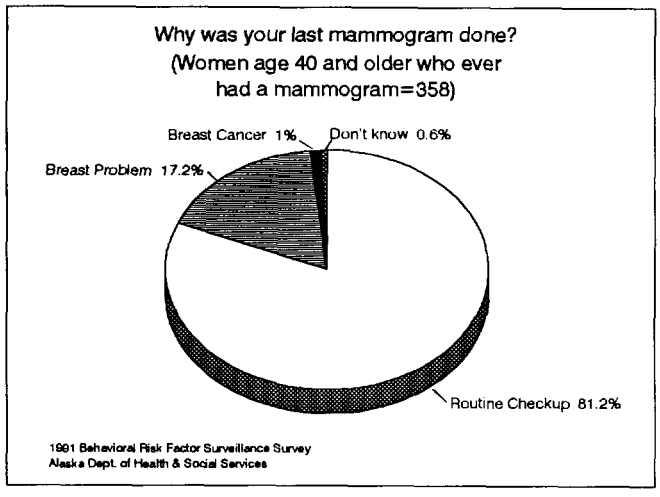

Figure 5

358 (74.3%) had <u>ever</u> had a mammogram.

- ◆ Of these, 56.2% had had a mammogram within the past year.
- ◆ 81.2% had their last mammogram done as part of a routine check-up.
- ◆ 55.2% reported that their doctors suggested the need for mammography.
- ◆ 39% reported that they themselves suggested the need for mammography.

124 (25.7%) had <u>never</u> had a mammogram.

- ◆ These women were likelier than women who had ever had mammograms to have lower incomes, to have had less education, and to be non-white.

Most respondents (78.8%) reported having had a clinical breast examination (CBE) within the past year, almost invariably as part of a routine check-up. These results—and those of national surveys—indicate that health-care providers are missing opportunities to educate women about the benefits and importance of periodic mammographic screening.

Possible explanations for health-care providers' failure to recommend mammography appropriately include the following:

- Patient characteristics (age, lack of concern, anxiety, embarrassment)
- Provider characteristics (gender, specialty, knowledge of guidelines, recency of training)
- Practice constraints (availability of mammography facilities)
- Test constraints (cost, equivocal reports, radiation risk)
- Other considerations (unnecessary biopsies, litigation concerns).[27]

MAMMOGRAPHY FACILITIES

As of May 1992, there were 26 dedicated mammography facilities in Alaska, and two mobile units (both in Southeast Alaska); however, one facility and one mobile unit were not yet operational. Only five facilities were certified for mammography by the American College of Radiology (ACR). In mid-1992, only six radiology technicians in Alaska were certified as mammography technicians. One year later, this number had increased six-fold as the board certification examination was held for the first time in Alaska.

The paucity of physical and personnel resources is not the only barrier to periodic screening mammography in Alaska. A few facilities require that women can be screened only if they are referred by a health-care provider. In addition, rural residents may have to travel great distances at considerable cost in order to obtain a mammogram. Finally, 175 Alaskan villages are only accessible by air, mobile mammography units are currently too large to fit on the small airplanes providing transportation services.

In 1988, a study by the Alaska Area Native Health Service (AANHS) and the National Cancer Institute assessed use of mammography screening for Alaska Native women, including a review of guidelines for implementing screening programs for disease. Key considerations included logistic difficulties, ratio of false positive to true positive mammogram results (FP/TP ratio 10:1), application of screening in a low prevalence population, and costs. A comprehensive regional breast cancer mammography screening program would cost roughly $1.7 million annually and might prevent two breast cancer deaths per year in the 1990 decade.[43] Travel to a mammography facility accounts for the greatest cost impact irregardless if a screening program was centralized in Anchorage or regionally located.

Careful attention to quality control is crucial in order to guarantee that mammography units function properly, that mammograms are of optimal quality, and that mammogram interpretations are correct and are expressed in diagnostically useful terms. In September 1992, the Health Facilities Licensing and Certification program (of the State's Division of Medical Assistance (DMA)) and the state radiologic health inspector will begin quality control assessment of mammography facilities in Alaska. Certification criteria are consistent with Health Care Finance Administration (HCFA) guidelines required for Medicare payment for mammography. At least half of the facilities have agreed to comply with the requirements for the quality assurance certification. Facilities not certified through this process will not receive Medicare reimbursement.

LEGISLATION

In June 1991, Alaska became the 27th state to pass legislation (HB45) requiring insurance carriers to provide coverage for screening mammography. This law applies to group disability policies, health-care service contracts, health maintenance agreements, health plans offered to public employees, and Medicaid. Preliminary survey information suggests that use of screening mammography has increased since implementation of this legislation.

Other Alaskan legislation for mammography require that mammograms be performed on "dedicated" equipment and restricts radiation exposure to an average exposure of less than one rad mid-breast.

ACCESS TO TREATMENT

Since radiographically suspicious lesions require biopsy confirmation, a rise in mammography screening will expand the demand for diagnostic breast biopsies.

Is the supply of surgical services state-wide sufficient to respond to the anticipated demand? In the Anchorage area there are 18 surgeons; only one specializes in breast diseases. Anecdotally, some Anchorage women with a mammographic abnormality have been forced to wait a month or longer before having the lesion biopsied. The reasons for these delays are unclear, and whether women in other areas of Alaska have had a similar experience is unknown. A survey conducted by the medical officer of Anchorage's Department of Health and Human Services found that 10 (55%) of Anchorage's 18 surgeons regularly perform breast biopsies and believe that patients calling to request an appointment are scheduled within 1-2 weeks of their call. The availability of services in rural and urban regions of the state has not been sufficiently studied. Further, the extent to which Alaskan women seek treatment outside the state—and whether their outcomes are different from those of women treated in-state—is unknown.

The adequacy, timeliness, and range of surgical services available to women needing evaluation or treatment of breast lesions should be documented before screening services are expanded.

CONCLUSION

Screening mammography is not being used to its full potential, despite abundant national and local media attention and coverage of women's health problems. Misperceptions about the importance of routine, periodic mammographic screening are amenable to proven educational techniques, just as targeted professional education programs can persuade health-care providers of the importance of incorporating mammography into a program of comprehensive preventive care and health maintenance for their patients.

The Alaskan experience suggests that, in order to increase further the proportion of women who receive mammograms, the following strategies may be effective: (1) educating health-care providers to promote screening for breast cancer; (2) educating the general public and underserved women state-wide regarding screening for breast cancer; (3) increasing the number of mammography facilities that meet quality-assurance standards; and (4) developing cost-effective strategies to improve access to screening and treatment.

CERVICAL CANCER

Worldwide, cervical cancer is the second most common cause of cancer mortality among women. In the United States it ranks eleventh as a cause of female cancer mortality, accounting for three percent of female cancer deaths. Each year 13,000 women develop invasive cervical cancer and 7,000 women die from the disease.[26] The U.S. cervical cancer mortality rate for the two-year period from 1986-1987 was 3.1 per 100,000 women.[27] Localized cervical cancer is virtually 100% curable if the current medical resources are made available to, and used by, the population at risk.

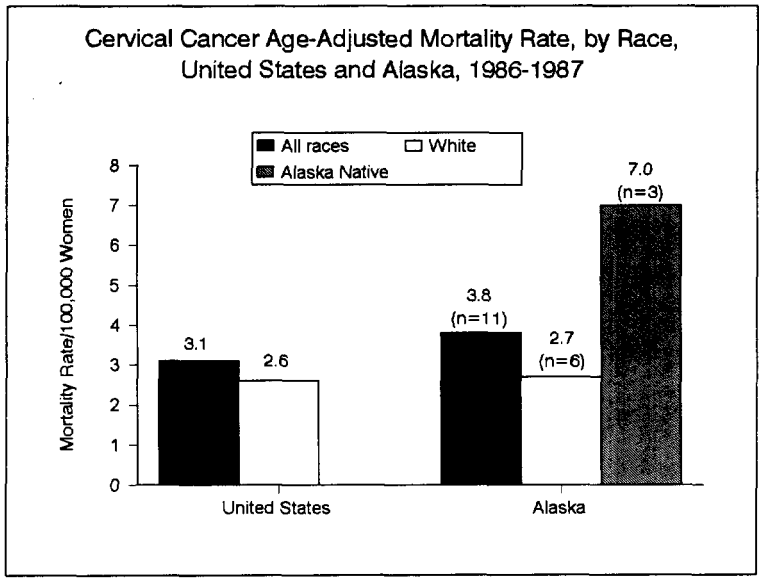

Figure 1

CERVICAL CANCER IN ALASKA

For the years 1984-1986, Alaska had an average annual cervical cancer mortality rate of 5.1 per 100,000 females, the sixth highest state mortality rate from cervical cancer.[44] During 1986-1987, Alaska's rate was 3.8 per 100,000 (Figure 1), the tenth highest rate among the 50 states.[27]

During the decade 1980-1989, death from cervical cancer was the fifteenth commonest cause of cancer deaths among all Alaskans and was the seventh commonest cause of cancer deaths among Alaskan females, with an average annual age-adjusted rate of 3.5 per 100,000 females. The total number of deaths attributable to cervical cancer during the decade was 52. The age-adjusted cervical cancer mortality rate among Alaska Natives was four times the rate among non-Natives (8.7 (20 deaths) vs. 2.4 (32 deaths), respectively) and is the fourth commonest cause of cancer deaths among Alaska Native females, accounting for 5.3% of their cancer-related mortality. These data suggest that this disease is more frequent, more virulent, or diagnosed at a later, less curable stage of disease in Alaska Natives. While based upon small numbers, the cervical cancer mortality rate of Alaska Natives is higher than those of other Native Americans, except for those residing in the Dakotas and Montana.[29] A comparison of age-specific cervical cancer mortality rates shows clearly that, at all ages, Alaska Natives have higher death rates than non-Natives, especially among women aged 60 years and older (Figure 2).

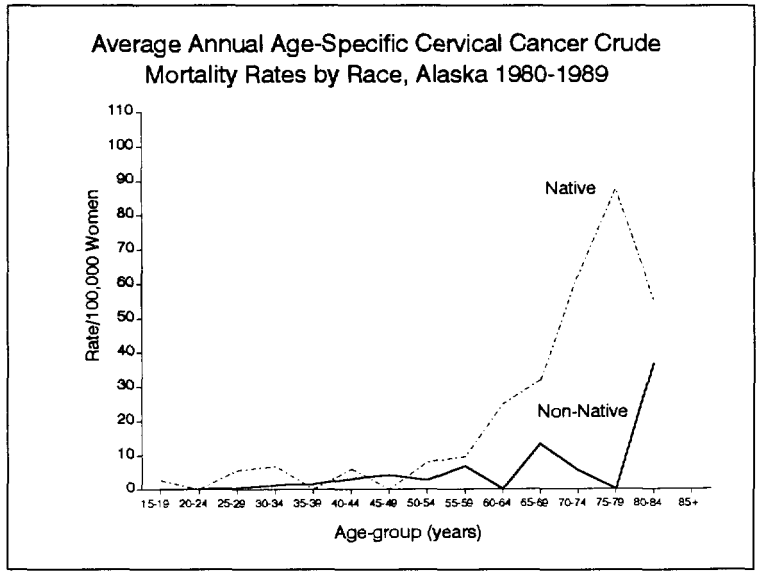

Figure 2

Because Alaska does not have a cancer registry, statewide data on incidence of cancer are not available. Cancer incidence in Alaska Natives has been followed by the IHS/CDC Cancer Surveillance System since 1969. From 1969-1983, there were 83 cases of invasive cervical cancer diagnosed in Alaska Native females. Invasive cervical cancer was more commonly diagnosed in women aged 30-59 years. Rates for cervical cancer in-situ were highest in Alaska Native women aged 20-39 years during this same time period.[30] Of ten racial and ethnic groups for which data were available in 1977-1983, incidence of cervical cancer was greatest for Alaska Natives, with a risk ratio of 2.7 compared to Blacks.[45]

RISK FACTORS

"Traditional" risk factors which predispose women to developing cervical cancer include early age at first sexual intercourse, multiple sex partners, cigarette smoking, and low socioeconomic status. Cervical cancer has also been associated with certain sexually transmitted disease (particularly human papillomavirus), irregular screening, and a history of cervical dysplasia.

Epidemiological studies have consistently demonstrated that poor, minority, and rural populations are at greatest risk of developing cervical cancer.

CERVICAL CANCER SCREENING

Nationwide, deaths from cervical cancer have decreased significantly over the last 40 years as a result of early detection. The principal screening test for cervical cancer is the Papanicolaou (Pap) smear, one of the few truly effective screening tests for cancer and pre-cancerous lesions. Increased use of the Pap smear since 1969 has contributed to a 50% reduction in the cervical cancer death rate. It is estimated that expanded Pap smear screening could reduce the death rate by 75% from the 1969 level.[46] Adequate follow-up of women with abnormal Pap smears and attention to laboratory quality control are also important in reducing mortality from this disease. The following factors increase the risk of progression of localized cervical cancer to invasive, potentially fatal disease:

- Failure to get a Pap smear.
- Falsely negative Pap smear interpretation.
- Failure to evaluate/treat a woman with an abnormal Pap smear.
- Excessive interval between screening tests.
- Rapid onset or progression of disease after a negative screening test.

Nationally, an estimated 79% of women aged 20-39 years and 57% of women aged 40-69 years get Pap smears every 1 to 3 years. Results of Alaska's 1991 Behavioral Risk Factor Surveillance Survey (BRFSS) indicated that 83% of women had a Pap smear within the past 2 years. Women aged 18-44 years were far more likely to have had a Pap smear within the past 2 years than those over the age of 65 years (78.3% vs. 52.9%, respectively). Alaskan women with low incomes and little education were also less likely to have Pap smears. Unfortunately, the BRFSS does not include questions about <u>why</u> respondents have not had Pap smears. The following are some factors that are known to influence women's participation in cervical cancer screening programs:

- **Sociodemographic variables:** Older age; working outside the home; lower income; unmarried; social pressure from family; less education.

- **Medical systems variables:** No recommendation from a physician; disruption of continuity of care; no choice of appointment; no medical insurance; lack of transportation.

- **General health beliefs and practices:** No prior breast self-examination practice; current smoking; little understanding of the value of screening in preventive care.

- **Pap smear and cervical cancer variables and beliefs:** No knowledge of the test or information about it; dislike of the Pap smear exam procedure; lack of confidence in the test; no perceived risk of cervical cancer; fear of cancer or abnormal results of a Pap smear.

Some reasons for primary care providers' failure to adhere to cervical cancer screening guidelines include: (1) provider characteristics, such as knowledge of guidelines, specialty, gender, time constraints, forgetfulness and inconvenience; (2) patient characteristics, such as age and refusal; (3) test constraints, such as lack of supplies and cost; and (4) type of patient, such as "new" versus "established" and "high-risk" versus "low risk".

ALASKA RECOMMENDATIONS FOR CERVICAL CANCER SCREENING

The Alaska Division of Public Health supports a consensus position adopted by the American Cancer Society, American Medical Association, National Cancer Institute, and four other organizations[47] which recommends **annual pelvic examination with Pap smear for all women who are or have been sexually active, or who have reached age 18.** These guidelines permit less frequent testing at the discretion of a health care provider once three or more annual Pap smears have been normal. Unlike some prior recommendations, no age cut-off for discontinuing Pap smears was recommended.

Members of the March 1990 working conference on Cervical Cancer Control raised concern about the current recommendation of leaving the frequency of screening to the discretion of the physician. A difficulty in interpreting the recommendation concerns the age at which three consecutive tests are done. Three negative Pap smears in women in their teens or early twenties are less likely to be predictive of future cervical cancer risk than tests done at age 30 or later.[44] The working group recommends more research in this area.

QUALITY ASSURANCE

Recent publicity over the accuracy of Pap smear tests has drawn public attention to the issue of quality control in laboratories. In 1988 Congress enacted a comprehensive laboratory regulatory program (CLIA) requiring that laboratories maintain a quality assurance program and submit to proficiency testing. CLIA requirements, implemented in September 1992, require the reporting of cervical cytology using the Bethesda system. The Alaska Department of Health's Office of Health Facilities Licensing and Certification will oversee regulatory activity for laboratories processing cervical cytology within the state.

CONCLUSION

Although cervical cancer deaths have decreased dramatically in the United States, the mortality rate in Alaska remains relatively high. Mortality from cervical cancer should be treated as a sentinel health event, since death from this cause is potentially preventable and indicates a failure of the system. Alaskan data indicate that statewide priorities should be similar to national cervical cancer priorities—improved education of health-care providers and the public, increased access to screening, and improved quality of screening. Effective screening of high-risk populations (Alaska Natives, older women, and minorities) and access to treatment can greatly reduce the incidence of invasive, potentially fatal cervical cancer and is a public health priority in Alaska.

GOAL 2: DETECT AND TREAT CANCER EARLY

Objective 1: By the Year 2000, the proportion of breast cancer cases diagnosed while localized to the breast will be increased to 80%.

Objective 2: By the Year 2000, 85% of women aged 50 and older will have received a clinical breast examination and a mammogram within the preceding year; 85% of women aged 18 and older will have received a Pap smear and pelvic examination in the preceding two years.

Strategy A: By 1994, a public education program will be implemented regarding the efficacy of breast and cervical cancer screening and early detection through breast self-exam, clinical breast exam, mammography, Pap smear and clinical pelvic examination.

Strategy B: By 1994, a professional education program will be implemented which will enhance each health care provider's understanding, motivation, and ability to provide and promote early detection via regular breast and cervical cancer screening.

Strategy C: By 1993, the current structure of the health care system as it relates to breast and cervical cancer screening should be assessed and publicly available identifying under-served populations and any needs for quality improvement.

Strategy D: By 1994, a service delivery system should be established and funded to assure breast and cervical cancer screening services are available for women of low income, under-and-uninsured, and of ethnic/racial minorities.

EVALUATION MEASURES:

1. No statewide data are available.

2. Data are available from the BRFSS.

A) The number, location, and types of public education efforts initiated will be monitored. The most effective ways to reach elderly, minorities, and low-income women will be identified. Successful media campaigns developed and promoted will be identified. The different organizations involved and their roles will be described.

B) The number, location, and type of professional education efforts initiated will be ascertained, as well as the number of professionals reached, and participant evaluation results. The different organizations involved and their roles will be described.

C) The number, type, and distribution of health care providers is currently readily available. Annually, survey and publish the number, distribution, and accreditation status of mammography facilities, including regular inspection/maintenance of machines, training of personnel, etc. as well as the cost of screening and availability of further diagnostic procedures for breast cancer abnormalities.

- Annually, survey and publish the number, distribution, and costs of facilities performing cervical cancer screening, facilities processing cervical cytology, facilities performing colposcopy, and distribution of further diagnostic/treatment services.

- Identify results of quality assurance assessment and implement statewide guidelines.

D) Successful federal or state funding secured to provide breast and cervical cancer screening services to women. Analyze reporting from the delivery system to assess appropriate outreach, outcome of screening, and compliance with screening guidelines.

GOAL 3: INCREASE CANCER SURVEILLANCE AS A BASIS FOR PREVENTION AND CONTROL ACTIVITIES

SURVEILLANCE

Data on the incidence of cancer in Alaska are lacking. In the absence of these data, the Division of Public Health is unable to determine the incidence among Alaska residents of cancer by type and by stage at diagnosis; to describe the state-wide distribution of cancer by age group, gender, geographic region, race/ethnicity, and socioeconomic status; or to define precisely the populations at which specific intervention efforts should be targeted.

BACKGROUND

Although regulations were promulgated in 1975 requiring hospitals to report newly diagnosed cancer cases to the Division of Public Health, funding was not provided to implement this program. Consequently, the law has never been enforced, and no attempts have been made to collect data regarding cancer incidence in the general population.

Existing sources of information about cancer in Alaska include the following:

- Death certificate data - Using ICD-9 codes, Section of Epidemiology staff coded all death certificates for the years 1950 and 1980-1989 and analyzed the data from death certificates of persons whose deaths were cancer-related.

- Tumor registries - There are two active tumor registries in the state:
  1. The Fairbanks Memorial Hospital registry has been in existence since 1970; it is hospital-based.
  2. The CDC/IHS Cancer Surveillance Program, a population-based registry of the Alaska Native population, was begun in 1969; data from the registry have been published through 1983; data from 1984 to the present will be forthcoming.

- Hospital discharge data - Data are from selected hospitals for the year 1989 and provide some information regarding hospitalization for specific cancers including length of stay and cost of hospitalization.

- Medicare/Medicaid databases - These provide information on diagnoses and procedures billed to federal Medicare and to the State's Medicaid system, respectively, during 1989-90.

  However, even taken together, these data are insufficient to provide accurate, epidemiologically useful information about cancer incidence and prevalence in Alaska.

NEED FOR INCIDENCE DATA

Mortality from specific forms of cancer may differ substantially from their occurrence within a population, depending on their invasiveness or susceptibility to available therapies. Thus, cancer mortality data may correlate poorly with incidence data. Only the former data are available for Alaska's general population, since no systematic, state-wide mechanism is in place to monitor the incidence of specific cancers.

A population-based, state-wide system for surveillance of incident cancers would present the following advantages:

- The availability of data regarding the incidence of specific types of cancer would enable public health agencies in Alaska to quantify the cancer risks of sub-groups of the population, to monitor trends in cancer incidence, and to evaluate objectively the impact of cancer control activities and interventions.

- Information about specific cancer risks would provide a basis for devising and implementing productive, cost-effective cancer prevention activities among high-risk groups through appropriate channels.

- Cumulative cancer surveillance data would constitute a reliable database for the evaluation of reports of possible cancer clusters.

- Alaska-specific cancer surveillance data could be used to educate health-care professionals and other interested persons about Alaskans' cancer risks and to address public concerns about cancer in Alaska.

- Analyses of surveillance data may shed light on modifiable lifestyle behaviors that pose a cancer risk and may help to identify environmental carcinogens.

NEED FOR INFORMATION ABOUT RISK FACTORS FOR CANCER

As a first step in formulating an effective program of cancer prevention and control activities, it is essential to determine the prevalence, within the target population, of life-style behaviors which contribute to cancer morbidity and of health-seeking behaviors which can result in the early detection, prevention, and control of cancer. The Behavioral Risk Factor Surveillance System (BRFSS), developed in 1984 by the Centers for Disease Control and Prevention (CDC), is a well-established, telephone-survey mechanism for assessing health behaviors of adults (≥18 years). Alaska began participating in the BRFSS in late 1990. Beginning in 1991, and for every year thereafter, the standard sample size of 1,550 residents was surveyed. Currently, 48 states conduct BRFSS surveys of their residents annually. It will be important for the State to continue its support of the BRFSS, since it is the only source of information about Alaskans' life-style and health-seeking behaviors.

The Adolescent Health Survey, conducted in 1989, presented ample evidence (despite the lack of participation of students in the state's two largest school districts) that Alaska has a high-risk youth population. It is important that the State implement the Youth BRFSS (YBRFSS), a survey which is similar to the adult BRFSS survey but which focuses on the behaviors of youth (<18 years). The YBRFSS will identify modifiable life-style factors that predispose to cancer and will aid in developing cancer-prevention strategies and interventions appropriate for children and adolescents.

DEVELOPMENT OF A CANCER SURVEILLANCE SYSTEM IN ALASKA

Alaska's small population presents an advantage in developing a comprehensive, thorough system of cancer surveillance among its residents. There are relatively few health-care providers in the state who evaluate and treat patients with cancer. Excluding USPHS and military health-care providers, their numbers, by specialty, are as follows: one radiation oncologist (in Anchorage); 5 medical oncologists (Anchorage, 4; Fairbanks, 1); 12 pathologists (Anchorage, 9; Fairbanks, 3) in 3 hospitals; 38 gynecologists (Anchorage, 23; Fairbanks, 9; Palmer, 2; Soldotna, 2; Juneau, 1; and Ketchikan, 1); and 27 general surgeons.

Problems regarding case ascertainment exist, but they are foreseeable and manageable. The most important is that the lack of cancer-treatment specialists in Southeast Alaska impels most residents of that area to seek cancer diagnostic/treatment services outside Alaska. (However, only 12.5% of Alaska's residents live in the Southeast Region, and the proportion of the state's cancer cases for which they account would likely be similarly small.) Residents of other areas of Alaska may also seek medical care outside the state. The complex of Seattle-area hospitals is the most common medical self-referral site for Alaska residents.

Data regarding patients who are diagnosed and/or treated in Washington's Puget Sound area (i.e., the Seattle-Tacoma metropolitan area and environs) are entered into the SEER cancer registry located at Seattle's Fred Hutchinson Cancer Center, which has shared data on Alaska patients with Alaska Native cancer registry staff and Alaska's Data-Based Cancer Intervention Research (DBIR) Project.

Many health-care providers already have a working relationship with the Section of Epidemiology in reporting infectious disease morbidity and seeking epidemiologic consultation, and some physicians have expressed interest in having a cancer surveillance system.

Developing a comprehensive, state-wide cancer surveillance system will require the participation and cooperation of many individuals, agencies, and facilities: IHS officials, hospital administrators, pathologists, health-care providers, established cancer registries, the Section of Vital Statistics, the Division of Medical Assistance, and Medicare.

CONCLUSION

The Division of Public Health is committed to establishing a state-wide cancer surveillance system—an idea for which there is wide community support—and is prepared to enforce and/or amend existing State law in order to permit development of a population-based cancer surveillance system. Throughout this document, reference has been made to the various areas where data do not exist to be able to describe the cancer problem adequately, if at all. Measurable objectives and evaluation criteria have been included so that progress toward these objectives can be evaluated and monitored, particularly in reference to the Year 2000 objectives. It is therefore appropriate that objectives and methods also be included to track the progress being made on the actions proposed in the plan.

GOAL 3: INCREASE CANCER SURVEILLANCE AS A BASIS FOR PREVENTION AND CONTROL ACTIVITIES

Objective 1: By 1996, data systems will be in place to measure program progress in cancer goals and objectives, and the public and professional awareness objectives.

Strategy A: By 1994, the Alaska Cancer Prevention and Control Program (AK-CPCP) will have developed a cancer registry.

Strategy B: By 1994, the DPH should develop a systematic surveillance system of tobacco use and disease impact among Alaskan adults and adolescents.

Strategy C: By 1995, the DPH should develop a systematic surveillance system to monitor trends in nutritional status, dietary practices, and nutrition-related knowledge and behaviors in Alaska's population.

Strategy D: By 1994, the AK-CPCP in collaboration with related organizations should develop the necessary surveys to measure health care providers knowledge, attitudes, and practices in cancer screening, tobacco cessation, and nutrition counseling.

Strategy E: By 1996, the AK-CPCP's cancer surveillance system will be capable of assisting in formulating public policy, plan and evaluate public health interventions and programs, and stimulate further epidemiological research.

Strategy F: On a periodic basis, the AK-CPCP will assess Alaska's cancer-related resources.

EVALUATION MEASURES:

1. By 1996, the surveillance and survey data produced will be published annually comparing national and the state's baseline data goals and objectives.

A) The cancer registry will produce annual reports commencing with the first year of complete data.

B) The tobacco surveillance system will produce annual reports utilizing data from the cancer registry, BRFSS, SAMEC, Department of Revenue, birth certificates, and the legislative database.

C) The nutritional surveillance system will publish annual reports utilizing data from the BRFSS and any specialized surveys implemented.

D) Health care provider surveys will be analyzed and intervention strategies identified and recommended.

E) Annual evaluation of the cancer surveillance system will include its usefulness, cost, interdependent quality attributes, and limitations.

F) Every two to three years, a report will be publicly distributed minimally listing cancer-related organizations/agencies and their activities, screening facilities, and treatment services.

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APPENDIX

ALASKA CANCER COALITION

NAME	ORGANIZATION
Tom Anderson, MD	- Consultant, Medical College of Wisconsin
Delisa Culpepper	- Municipality, Health Education
Karen Dalenius	- DPH - Nutrition
Denny DeGross	- President, Alaska Public Health Association
Mike Dimino, PhD	- Biomedical Program, UAA
LouAnn Feldmann, MD	- Anchorage Neighborhood Health Center
Mary Ellen Gordian, MD	- Municipality, Health Officer
Mary Hafele	- Oncology nurse
Donna Hurdle	- Director, Planned Parenthood of Alaska
Harold Johnston, MD	- Anchorage Neighborhood Health Center
Michael Jones, MD	- DPH - Medical Epidemiologist
Diana Kuhns	- Director, American Cancer Society
Kay Lahdenpera	- Municipality, Family Planning Clinic
Anne Lanier, MD	- IHS - Cancer Surveillance Program
Cathy Lawrence	- American Lung Association
Jean Leary	- Municipality, Community Health
Marsha McCrimmon	- AANHS, Prevention Specialist - Dental
Patti McGuire	- Providence Hospital Cancer Therapy Center
Elaine McKenzie	- Assistant Chief, DPH - Section of Nursing
John Middaugh, MD	- DPH - Principal Investigator
Peter Nakamura, MD	- Director, Division of Public Health
Betsy Nobmann	- IHS - Nutrition
Patty Owen	- DPH - BRFSS Coordinator
Karen Pearson	- DPH - Chief, Maternal Child and Adolescent Health
Anita Powell	- DPH - Maternal, Child and Adolescent Health
Glenn Ray	- DPH - Health Promotion
Jeanne Roche	- DPH - Program Coordinator
Kathleen Seybert	- Bristol Bay Health Corporation, CHAP
Glenn Stewart, MD	- Providence Hospital Cancer Therapy Center
Latha Subramanian, MD	- Oncologist
Barbara Tellmann	- Planned Parenthood of Alaska
Wendy Thon	- DPH - Maternal Child and Adolescent Health
Jeanine Tucker, DMD	- AANHS, Community Health Service - Dental
Anne Walker	- Director, Alaska Native Health Board
Richard Waller	- Assistant Administrator, Humana Hospital; - President, American Cancer Society -Anchorage Chapter
Nora Waters	- Providence Imaging Center
Jeanne Wolf	- Municipality, Director of Community Health Services
Beverly Wooley	- Municipality, Nutrition

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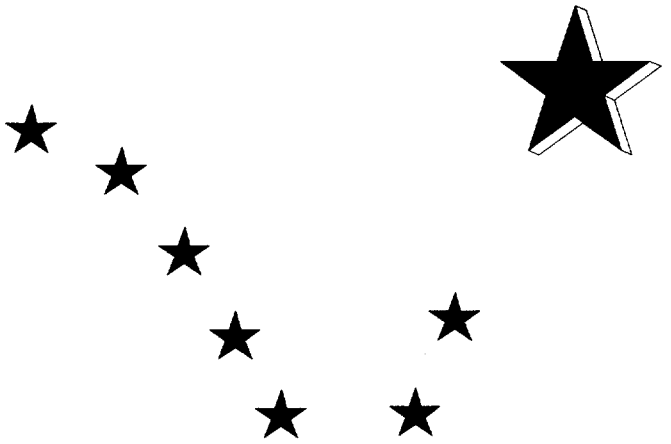

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Strategies for Prevention and Control