

Short CommunicationAlaska Native Cancer Update: Incidence Rates 1989–1993¹

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Abstract

Five-year average annual age-adjusted cancer incidence rates for Alaska Natives (Eskimos, Indians, and Aleuts) for the most recent period (1989–1993) are compared to rates of 20 years earlier. Rates for all cancers combined increased 28 and 25% in men and women, respectively, during the 25-year interval. Increases were seen in men in cancers of the lung, prostate, and colon and in women for cancers of the lung, breast, and corpus uteri.

Rates are also compared to data from the the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program for United States whites. Rates for all cancers combined in Alaska Native women are now similar to those of United States whites, whereas rates in Alaska Native men are lower than the United States, but only 10% lower. Significant site-specific differences previously reported between Alaska Natives and United States whites persist.

Introduction

Cancer incidence among Alaska Natives for the years 1969–1988 has been summarized previously (1). In the earliest data available (1969–1973), rates for all cancers combined in Alaska Natives were low relative to United States whites. However, rates for select cancer sites exceeded those of whites. These included cancers of the salivary gland, nasopharynx, gallbladder, liver, cervix, and kidney. Other site-specific incidence rates were low, specifically for cancer of the breast, corpus uteri, and prostate and for melanoma, leukemia, and lymphoma (2–10).

Data for the 20-year period 1969–1988 showed an increase in rates for all cancers combined (1). Lung cancer increased most rapidly, although increases also occurred in

cancers of the breast and prostate. No decreasing trends were observed in cancers in sites for which Alaska Natives have consistently shown an excess. Alaska Native cancer incidence patterns are unique and are changing. This report provides the most current complete incidence data available (1989–1993) for Alaska Natives.

Subjects and Methods

Newly diagnosed cancer cases were identified as in previous publications (1). These included intensive review of inpatient and outpatient coded diagnoses from all pertinent hospitals and clinics in Alaska, pathology reports, death certificates, and Alaska residents registered in the Seattle Cancer Surveillance System. Only Alaska Natives who are eligible for health benefits from the Indian Health Service and who are residents of Alaska at the time of diagnosis are included as incident cases. Population data for calculation of crude and age-specific rates were derived by linear interpolation of the census counts. Crude rates were age-adjusted to the United States 1970 standard population. Rates were tested for trends over time based on average annual age-adjusted incidence rates for the 5-year periods.

Results

Table 1 shows numbers of cases and age-adjusted rates for cancers for Alaska Natives for two periods 1969–1973 and 1989–1993 and for United States whites based on data from the National Cancer Institute's SEER³ program, 1989–1992 (11).

A total of 982 Alaska Native (Eskimo, Indian, and Aleut) patients were newly diagnosed with cancer in the 5-year period 1989–1993; there were slightly more women (498) than men (484). In descending order, the five most frequently occurring cancers in men are lung, colon/rectum, prostate, stomach, and oral cancer. As previously noted, a large proportion of the cancers of the oral cavity and pharynx (20 of 32) originated in the nasopharynx. The rank order has changed from the earliest period reported in which cancers of the colon/rectum ranked first and lung second.

Among Alaska Native women, the rank order of the five most frequently diagnosed cancers has also changed. In descending order, the current most frequently diagnosed cancers are breast, colon/rectum, lung, cervix, and ovary. In the earliest period reported, cancers of the colon/rectum ranked first, cervix second, and lung third.

Among site-specific cancers, significant increases have been documented over 25 years in men for cancers of the lung, prostate, and colon. In women, significant increases have occurred in cancers of the lung, breast, and corpus uteri. In contrast, the only cancer for which rates have significantly decreased over time is gallbladder cancer in women.

Average annual age-adjusted rates for all cancers for

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³ The abbreviation used is: SEER, Surveillance, Epidemiology, and End Results.

Table 1 Invasive cancers in Alaska Natives 1989–1993 and in United States whites 1989–1992; average annual age-adjusted incidence rates^a per 100,000 males and females

Site	Males					Females				
	Alaska 1969–1973		Alaska 1989–1993		United States 1989–1992 Rate	Alaska 1969–1973		Alaska 1989–1993		United States 1989–1992 Rate
	No.	Rate	No.	Rate		No.	Rate	No.	Rate	
All sites	208	329.6	484	421.1 ^b	491.6 ^c	187	281.0	498	350.9 ^b	352.0
Oral cavity and pharynx	14	17.0	32	26.4	15.6	13	15.9	13	9.9	6.1
Salivary gland	3	3.1	2	1.4	1.2	5	4.5	2	1.6	0.8
Nasopharynx	9	11.4	20	15.9	0.6 ^c	3	3.8	4	2.7	0.2
Gum and other oral cavity	0		1	0.9	2.6	2	3.2	2	1.7	1.4
Digestive	77	135.1	161	144.1	92.5 ^c	67	122.7	132	104.1	59.6 ^c
Esophagus	6	13.2	10	9.2	5.8	1	1.8	3	2.3	1.6
Stomach	12	22.1	36	28.9	9.8 ^c	6	9.8	12	8.9	4.1
Colon and rectum	36	66.2	87	81.0	57.8	37	67.3	87	70.1	39.4 ^c
Colon	22	42.6	72	68.3 ^b	39.8 ^c	25	46.4	67	54.0	29.3 ^c
Rectosigmoid junction	3	6.5	4	3.6	6.2	3	5.4	5	4.2	3.7
Rectum	11	17.1	11	9.1	11.7	9	15.6	15	11.9	6.4
Liver	9	9.1	10	7.2	3.9	1	2.4	4	2.3	1.6
Gallbladder	2	5.2	3	3.1	0.6	9	19.3	5	3.7 ^b	1.3
Other biliary	2	4.0	5	5.1	1.4	3	4.3	3	2.4	1.0
Pancreas	8	12.5	7	6.4	10.1	5	8.7	16	12.9	7.7
Respiratory	36	53.0	111	103.5 ^b	90.2	9	14.3	62	49.5 ^b	45.2
Lung and bronchus	34	50.4	104	97.4 ^b	79.8	9	14.3	61	48.7 ^b	42.7
Larynx	0		6	5.4	7.7	0		0		1.6
Bones and joints	4	6.1	4	2.4	1.0	0		1	0.4	0.8
Soft tissue	4	7.3	2	0.9	2.6	0		2	0.7	1.8
Melanoma of skin	0		1	0.3	15.9 ^c	1	1.2	4	2.6	11.4 ^c
Breast	0		0		0.9	27	34.7	130	86.5 ^b	113.0
Male genital	23	37.6	87	76.8 ^b	153.7 ^c					
Prostate	16	30.1	73	69.8 ^b	147.4 ^c					
Testis	4	3.1	11	4.2	5.3					
Female genital						24	28.3	73	45.5	49.6
Cervix uteri						12	11.5	28	14.5	8.0
Corpus uteri (us), NOS						3	3.4	15	10.2 ^b	22.5 ^c
Ovary						8	11.0	24	16.0	15.9
Urinary	15	23.3	29	26.6	45.7 ^c	11	15.3	21	15.3	14.9
Bladder	7	11.4	5	4.5	31.9 ^c	2	2.0	2	1.7	8.1
Kidney and renal-pelvis	8	12.0	22	20.1	12.7	9	13.4	19	13.7	6.3
Eye and orbit	0		0		0.9	1	0.5	2	0.6	0.6
Brain and nervous system	3	1.7	3	1.4	8.2 ^c	4	3.0	2	1.1	5.6
Endocrine	0		1	0.4	3.3	10	8.1	14	6.9	7.4
Thyroid	0		1	0.4	2.8	10	8.1	14	6.9	6.9
Lymphomas	5	6.4	11	7.2	22.7 ^c	2	4.2	13	8.6	15.2
Hodgkin's	0		2	0.8	3.5	0		2	0.8	2.7
Non-Hodgkin's	5	6.4	9	6.4	19.3 ^c	2	4.2	11	7.8	12.4
Multiple myeloma	4	5.0	6	4.2	5.2	2	2.6	3	2.5	3.3
Leukemia	8	10.7	11	5.0	13.7	2	3.0	10	4.7	8.0
Ill-defined and unspecified	15	26.5	21	18.3	11.7	14	27.2	15	11.2	8.9

^a Rates are age-adjusted to the 1970 United States standard population.

^b Mantel-Haenszel χ^2 for trend for the years 1969–1973, 1974–1978, 1979–1983, 1984–1988, 1989–1993; $P < 0.05$.

^c χ^2 comparison of Alaska Native versus SEER incidence rates; $P < 0.05$.

Alaska Native women for the 5-year period 1989–1993 are very similar to those reported for United States whites, 1989–1992, whereas rates in men are 10% lower. Although rates for all cancers combined are more similar, site-specific cancer rates for Alaska Natives still differ markedly from those of United States whites. Among men, current rates that are significantly higher than those of United States white men include cancers of the nasopharynx, stomach, and colon, whereas rates are significantly lower for cancers of the prostate and urinary bladder. Rates are significantly higher in Alaska Native women than United States white women for cancers of the colon and significantly lower for cancer of the corpus uteri. Melanoma rates are significantly low in both Alaska Native men and women.

Discussion

Current rates are 28% higher in Alaska Native men and 25% higher in Alaska Native women than rates for the first 5-year period reported (1969–1973). The increase in rates in men is primarily due to increases in lung, prostate, and colon cancer, whereas the increase in women is primarily due to cancers of the lung, breast, and corpus uteri.

The dramatic increase in lung cancer (nearly 4-fold in women) is not surprising because the prevalence of adult Native smokers, both men and women, exceeds the rates of United States whites (12, 13). The current prevalence in Alaska Native adults is 50% (14). Because lung cancer mortality began to

increase in the 1970s in Alaska Native men and in the 1980s in women, we can assume that the high rates of tobacco use in this population had been present for at least 20 years prior.

Prostate, breast, and uterine cancers have increased steadily over the past 25 years and may reflect changes in reproductive factors in the population. Incidence rates of ovarian cancer are not changing, however, and the incidence rate for this cancer in Alaska Native women has remained similar to that of United States white women for the entire period for which we have data.

The pattern for cervical cancer differs from that of other female cancers. As previously described, cervical cancer rates rose for each 5-year period from 1969 to 1983, then declined in 1984–1988. Rates for 1989–1993 are similar to those of 1984–1988, currently twice the national average. These patterns may reflect Pap smear screening behavior; however, screening rates have only recently become available. Extensive efforts have been undertaken, particularly since 1991, to increase Pap smear screening of all women and follow-up and treatment of women with abnormal Pap smears. Although rates for cervical cancer for 1989–1993 continue to exceed those for the United States (14.6 versus 7.8 per 100,000, respectively), hopefully continued screening efforts will result in further declines in rates of invasive cervical cancer.

Colon/rectum cancer is the most frequently diagnosed cancer in Alaska Native men and women combined. Rates for colon cancer in Alaska Native men and women exceed those of United States whites, whereas rectal cancer does not differ significantly. To date, there is no explanation for the high rates of colon cancer. Detection at an early stage is hampered by frequent positive results on tests for occult blood in stool samples and, for many, by great distances from facilities with providers trained to perform sigmoidoscopy and colonoscopy.

The average age of the population is increasing. As a result, a larger proportion of the population is moving into the age groups at highest risk for cancer. Even without an increase in absolute rates, this population shift would in itself result in an increasing cancer burden: more patients are diagnosed each year needing extensive treatment and follow-up.

Reduction in tobacco use would result in the greatest decreases in cancer rates in this population. However, much of the reduction in morbidity and mortality would not be evident for many years. In the meantime, screening for breast and cervical cancer should be performed at optimal intervals and age groups.

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