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# Cancer in Alaska Natives-a twenty-five year report: 1969-1993. Incidence and mortality.

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**CANCER  
IN  
ALASKA NATIVES  
1969-1993  
  
25 YEAR REPORT**



**Alaska Area Native Health Service  
Anchorage, Alaska**

**CANCER IN ALASKA NATIVES  
A TWENTY-FIVE YEAR REPORT  
1969-1993**

***INCIDENCE AND MORTALITY***

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The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the Indian Health Service.

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## **Project Summary**

### **INTRODUCTION**

Cancer incidence rates for all Alaska Natives (Eskimo, Indian, Aleut) were first reported in 1976. Since then numerous publications have documented the unusual cancer patterns in this population. The most recent report summarized data for twenty years, 1969-88. Key findings were that, in comparison to the U.S. White population, Alaska Natives were at greater risk for cancers of the nasopharynx, stomach, liver, gallbladder, cervix and kidney than the United States White population, although at less risk for cancers of the prostate, breast, uterus, bladder, brain, leukemia and lymphoma. Marked differences remain between Alaska Natives and U.S. Whites for cancers of specific sites (organs), however, the incidence rates in Alaska Natives for all cancers combined are now similar to those of U.S. Whites.

Over the twenty-year period, the most dramatic increase was seen in cancer of the lung. Rates increased two-fold in men, and five-fold in women. This pattern reflects the consequences of the widespread use of tobacco which occurred in Alaska Natives some time after World War II.

This report updates the previous report and adds information on patients diagnosed in the years 1989-1993. These are the latest statistics for which we have complete data statewide, and provide the best estimates of cancer incidence in the Alaska Native population. Data for the entire 25 year period are presented as a composite for the 25 years (1969-93), and for each of five five-year periods. Numbers of new (incident) cases and rates are given for all cancers and for specific sites. These are presented by age, sex, ethnicity, geographic region, and service unit. Sites listed are those most commonly included in standard cancer publications, plus a few additional sites of particular importance in the Alaska Native population (e.g. nasopharynx, gallbladder). Data have been collected, tabulated, and analyzed in accordance with procedures established by the National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) program. Data presented are based on "invasive" cancers only; cancers classified as "in situ" or "intraepithelial neoplasia" are not included in this report.

Rates for the most recent five year period (1989-93) are the best estimate of current rates. For comparison with cancer data for the U.S., Alaska Native rates are "age-adjusted " to the US 1970 standard population. For comparison of rates within Alaska and between subgroups, unadjusted ("crude") rates were used. This is based on the assumption that the distribution of the population by age and sex is similar for all Native subgroups. Rate calculations based on small numbers of patients must be interpreted with caution. We elected not to calculate rates when the rate would be based on less than five cases. In those instances, the tables include the numbers of cases but not the rates.

The Alaska Native Tumor Registry plays an active role in the clinical management of cancer patients, assisting providers in assuring appropriate and timely follow-up of all patients. Few other cancer registries are as clinically involved. The Alaska Native Tumor Registry is also a population-based registry, not solely a hospital-based registry. Active, statewide case identification has resulted in a complete registry of all Alaska Natives diagnosed with cancer while resident of Alaska since 1969. The State of Alaska initiated mandatory reporting of cancer in January, 1996. It is hoped that regional hospitals will continue to provide information to the Alaska Native Tumor Registry to assure optimal patient care. The Alaska Native Tumor Registry is also willing to assist small regional hospitals to fulfill cancer reporting requirements as specified by state regulation.

## **METHODS**

### **Incidence**

All Alaska Native patients newly diagnosed with cancer while residents of Alaska during the years 1969-1993 were identified. Case identification, collection of information, and data entry have been described in earlier reports. In brief, all public and private medical facilities in the state of Alaska were surveyed. Appropriate patients registered in the Cancer Surveillance System, Fred Hutchinson Cancer Research Center, Seattle, WA, and Native deaths caused by cancer were also reviewed.

Data were collected in accordance with the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) program. Data for U.S. Whites and Blacks from the SEER program were used for comparison. The study population consisted of Alaska Natives who are eligible for medical services from the Indian Health Service. Classification of Eskimo, Indian, Aleut was taken from the medical record based on the patient's self classification at the time of registration to the hospital or clinic.

### **Mortality**

Mortality (cause of death) data for the years 1989-93 were obtained from the Alaska Area Division of Planning, Evaluation and Statistics. Deaths for which the underlying cause was coded to cancer (ICD9 codes 140 - 208) were tabulated for all cancers and for select sites.

### **Population**

Population statistics were obtained from census data. The Alaska Native population increased from 50,900 in 1970 to 85,698 in 1990. (See Appendices pages 97 to 99). Linear interpolation was made for intercensal years. Service unit population counts were derived from reports from the Division of Planning, Evaluation and Statistics, Alaska Area Native Health Service. For comparison with U.S. rates, Alaska Native rates were age-adjusted to the 1970 U.S. (all races) standard population. Comparisons were tested for significant differences using  $\chi^2$

probability.

Rates are given as "crude" (unadjusted for age) rates per 100,000 population , or as "age-adjusted" rates (Alaska Native rates adjusted to the U.S. 1970 standard population). Age-adjusted rates were not calculated for categories in which there were fewer than five patients. In these instances, numbers but not rates are given in the Tables. In addition, because of the small size of the population in some service units, we believe "regional" rates (which combine some service units) are the better estimates of rates by geographic region. In most instances, regions are populated predominantly by one Native ethnic group. Annette Island Service Unit is included in the Mt. Edgecumbe Service Unit in every analysis.

Data for the 1989-93 best describe current cancer incidence. Only age-adjusted rates can be used for valid comparisons between Alaska Natives and the US. On the other hand, age-adjusted rates must be interpreted with caution since the adjustment procedure itself may introduce some error.

Cancers are generally categorized by the site (organ) of the body in which they first develop. The category oral/pharynx includes the nasopharynx (behind the nose), however, we also provide nasopharynx separately because of the relatively high frequency at which it occurs in the Alaska Native population.

## **Format**

The information is presented in various sections. Tables (pages 20 to 41) include numbers and rates of cancer. Figures (pages 43 to 95) include: graphs of trends in rates over the 25-year time period for Alaska Natives and U.S. Whites and Blacks; age distribution, and maps of rates by geographic region. The Figures are arranged in alphabetical order by the term most commonly used to describe the cancer site. The Appendices (pages 97 to 111) include: Population counts used in calculation of rates; the International Classification of Disease - Oncology (ICD-O) codes used to categorize cancers; a Bibliography of articles on cancer in Alaska Natives; and a Glossary of cancer terms used in this report.

## RESULTS

Information is presented in text, tables, graphs and maps in separate sections labeled: Project Summary, Tables, Figures, Population, ICD-O Codes, Bibliography, and Glossary. The first two tables (pages 20 to 21) present incidence data for the five years, 1989-93. Mortality data (page 41) are for the same five-year period. All other tables, graphs and maps include data for the entire 25-year time period, 1969-93. Data presented are for "invasive" cancers only.

### Cancer Incidence 1989-93

#### *Alaska Natives vs. U.S. Whites*

Rates for Alaska Natives for all cancers and for specific cancer sites have been calculated based on the most recent five years of data (1989-1993). Rates are given on page 20 for Alaska Natives and U.S. Whites, and for the ratio of Alaska Native to U.S. White rates. Ratios greater than one indicate Alaska Natives are at increased risk; ratios less than one indicate Alaska Natives are at less risk than the U.S. White population. The Figures also show Alaska Native rates compared to both U.S. Whites and Blacks over time.

Based on the most recent data, rates for all cancers in Alaska Natives are similar to those of the U.S. Whites (ratio = 1.0 for women and 0.9 for men). There is great variability by cancer site. Alaska Natives are at significantly increased risk for cancers of the nasopharynx, stomach, and colon/rectum, and at significantly lower risk for cancers of the prostate and bladder, lymphoma and skin melanoma.

#### *Rates: by ethnic group*

Age-adjusted rates and Alaska : U.S. rate ratios are shown by ethnic group for select cancer sites for the recent five year time period (page 21). Patterns are generally similar across the three ethnic groups (Eskimo, Aleut, Indian). However, rates for prostate cancer are

**Average Annual Age-Adjusted\* Cancer Incidence Rates per 100,000**

**Ratio of Alaska Native 1989-93 Incidence Rates to U.S. 1989-1992 †**

Site	Males			Females		
	Alaska Rate	U.S. Rate (White)	Rate Ratio	Alaska Rate	U.S. Rate (White)	Rate Ratio
All Sites	422.2	491.6	0.9	350.9	352.0	1.0
Oral Cavity & Pharynx	26.4	15.6	1.7	9.9	6.1	1.6
Salivary Gland	#	1.2		#	0.8	
Nasopharynx	15.9	0.6	27.8 **	#	0.2	
Gum & Other Oral Cavity	#	2.6		#	1.4	
Digestive	144.1	92.5	1.6 **	104.1	59.6	1.7 **
Esophagus	9.2	5.8	1.6	#	1.6	
Stomach	28.9	9.8	3.0 **	8.9	4.1	2.2
Colon & Rectum	81.0	57.8	1.4	70.1	39.4	1.8 *
Colon	68.3	39.8	1.7 *	54.0	29.3	1.8 *
Rectosigmoid Junction	#	6.2		4.2	3.7	1.1
Rectum	9.1	11.7	0.8	11.9	6.4	1.9
Liver	7.2	3.9	1.9	#	1.6	
Gallbladder	#	0.6		3.7	1.3	2.8
Other Biliary	5.1	1.4	3.8	#	1.0	
Pancreas	6.4	10.1	0.6	12.9	7.7	1.7
Respiratory	103.5	90.2	1.1	49.5	45.2	1.1
Lung & Bronchus	97.4	79.8	1.2	48.7	42.7	1.1
Larynx	5.4	7.7	0.7	#	1.6	
Bones & Joints	#	1.0		#	0.8	
Soft Tissue	#	2.6		#	1.8	
Melanoma of Skin	#	15.9	♦	#	11.4	
Breast	#	0.9		86.5	113.0	0.8
Female Genital				45.5	49.6	0.9
Cervix uteri				14.5	8.0	1.8
Corpus uteri/Uterus, nos				10.2	22.5	0.5
Ovary				16.0	15.9	1.0
Male Genital	76.8	153.7	0.5 **			
Prostate	69.8	147.4	0.5 **			
Testis	4.2	5.3	0.8			
Urinary	26.6	45.7	0.6	15.3	14.9	1.0
Bladder	4.5	31.9	0.1 **	#	8.1	
Kidney & Renal Pelvis	20.1	12.7	1.6	13.7	6.3	2.2
Eye & Orbit	#	0.9		#	0.6	
Brain & Nervous System	#	8.2		#	5.6	
Endocrine	#	3.3		6.9	7.4	0.9
Thyroid	#	2.8		6.9	6.9	1.0
Lymphomas	7.2	22.7	0.3 *	8.6	15.2	0.6
Hodgkin's	#	3.5		#	2.7	
Non-Hodgkin's	6.4	19.3	0.3	7.8	12.4	0.6
Multiple Myeloma	4.2	5.2	0.8	#	3.3	
Leukemia	5.0	13.7	0.4	4.7	8.0	0.6
Ill Defined & Unspecified	18.3	11.7	1.6	11.2	8.9	1.3

\* Rates are age-adjusted to the 1970 U.S. standard population.

† U.S. data from SEER program, National Cancer Institute, 1974-1992

# Rates not shown for less than five cases

\* Statistically significant at the 95% C.I.; \*\* statistically significant at the 99% C.I.

♦ Alaska Native rate significantly lower than US

Average Annual Age-Adjusted<sup>a</sup> Incidence Rates per 100,000  
Ratio of Alaska Native 1989-93 Incidence Rates to U.S. 1989-92<sup>a</sup>  
By Ethnicity and Sex  
**Males**

	<b>Aleut</b>			<b>Eskimo</b>			<b>Indian</b>		
	<u>No.</u>	<u>Alaska Rate</u>	<u>AK : US Rate Ratio</u>	<u>No.</u>	<u>Alaska Rate</u>	<u>AK : US Rate Ratio</u>	<u>No.</u>	<u>Alaska Rate</u>	<u>AK : US Rate Ratio</u>
All Sites	64	456.7	0.9	231	394.2	0.8	187	444.1	0.9
Nasopharynx	1	#		15	25.1	41.8 **	4	#	
Stomach	4	#		25	39.4	4.0 **	7	17.1	1.7
Colon/Rectum	10	76.7	1.3	48	88.7	1.5	29	71.1	1.2
Liver	0	#		7	9.0	2.3	3	#	
Lung/Bronchus	15	112.0	1.4	56	105.4	1.3	31	76.7	1.0
Prostate	7	59.4	0.4	15	28.1	0.2 **	51	130.5	0.9
Leukemia	5	16.3	1.2	3	#		3	#	

**Females**

	<b>Aleut</b>			<b>Eskimo</b>			<b>Indian</b>		
	<u>No.</u>	<u>Alaska Rate</u>	<u>AK : US Rate Ratio</u>	<u>No.</u>	<u>Alaska Rate</u>	<u>AK : US Rate Ratio</u>	<u>No.</u>	<u>Alaska Rate</u>	<u>AK : US Rate Ratio</u>
All Sites	67	382.2	1.1	219	321.0	0.9	210	376.3	1.1
Colon/Rectum	10	66.2	1.7	53	85.0	2.2 **	24	52.5	1.3
Lung/Bronchus	14	82.9	1.9	25	41.3	1.0	21	44.2	1.0
Breast	17	104.3	0.9	43	59.3	0.5 *	70	114.7	1.0
Cervix	3	#		11	12.6	1.6	14	18.9	2.4
Lymphoma	3	#		4	#		6	11.2	0.7

<sup>a</sup> Rates are age-adjusted to the 1970 U.S. standard population.

<sup>a</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992

# Rates not shown for less than five cases

\* Statistically significant at the 95% C.I.; \*\* statistically significant at the 99% C.I.

**Rank Order of Invasive Cancers  
Alaska Natives 1969-1993  
By Sex**

<b>Males and Females</b>			<b>Males</b>			<b>Females</b>		
<u>Rank</u>	<u>No.</u>	<u>% of Total</u>	<u>Rank</u>	<u>No.</u>	<u>% of Total</u>	<u>Rank</u>	<u>No.</u>	<u>% of Total</u>
Colon/Rectum	588	17.7	Lung/Bronchus	358	21.8	Breast	345	20.6
Lung/Bronchus	544	16.4	Colon/Rectum	283	17.2	Colon/Rectum	305	18.2
Breast	345	10.4	Prostate	168	10.2	Lung/Bronchus	186	11.1
Prostate	168	5.1	Stomach	116	7.1	Cervix	137	8.2
Oral/Pharynx	165	5.0	Oral/Pharynx	99	6.0	Kidney	69	4.1
Stomach	158	4.8	Kidney	69	4.2	Oral/Pharynx	66	3.9
Kidney	138	4.2	Nasopharynx@	63	3.8	Ovary	65	3.9
Cervix	137	4.1	Liver	53	3.2	Thyroid	50	3.0
Pancreas	93	2.8	Lymphoma	49	3.0	Pancreas	50	3.0
Nasopharynx@	88	2.6	Pancreas	43	2.6	Stomach	42	2.5
	2336	70.4		1238	75.4		1315	80.1

**Rank Order By Ethnicity and Sex  
Males**

<b>Aleut</b>			<b>Eskimo</b>			<b>Indian</b>		
<u>Rank</u>	<u>No.</u>	<u>% of Total</u>	<u>Rank</u>	<u>No.</u>	<u>% of Total</u>	<u>Rank</u>	<u>No.</u>	<u>% of Total</u>
Lung/Bronchus	46	20.4	Lung/Bronchus	203	24.8	Prostate	108	18.2
Colon/Rectum	40	17.7	Colon/Rectum	146	17.8	Lung/Bronchus	107	18.0
Prostate	20	8.8	Stomach	81	9.9	Colon/Rectum	97	16.4
Oral/Pharynx	17	7.5	Oral/Pharynx	54	6.6	Kidney	30	5.1
Stomach	15	6.6	Liver	43	5.3	Oral/Pharynx	28	4.7
Nasopharynx@	11	4.9	Nasopharynx@	42	5.1	Testis	23	3.9
Lymphoma	10	4.4	Prostate	40	4.9	Stomach	20	3.4
Leukemia	9	4.0	Kidney	32	3.9	Bladder	15	2.5
Pancreas	8	3.5	Lymphoma	25	3.1	Leukemia	15	2.5
Kidney	7	3.1	Pancreas	23	2.8	Lymphoma	14	2.4
	172	76.1		647	79.0		457	77.1

**Rank Order By Ethnicity and Sex  
Females**

<b>Aleut</b>			<b>Eskimo</b>			<b>Indian</b>		
<u>Rank</u>	<u>No.</u>	<u>% of Total</u>	<u>Rank</u>	<u>No.</u>	<u>% of Total</u>	<u>Rank</u>	<u>No.</u>	<u>% of Total</u>
Colon/Rectum	49	19.5	Colon/Rectum	173	22.3	Breast	179	27.7
Breast	44	17.5	Breast	122	15.7	Colon/Rectum	83	12.8
Lung/Bronchus	41	16.3	Lung/Bronchus	80	10.3	Lung/Bronchus	64	9.9
Cervix	21	8.4	Cervix	62	8.0	Cervix	54	8.4
Ovary	11	4.4	Kidney	37	4.8	Ovary	27	4.2
Pancreas	10	4.0	Oral/Pharynx	33	4.3	Kidney	25	3.9
Oral/Pharynx	9	3.6	Ovary	27	3.5	Oral/Pharynx	24	3.7
Thyroid	9	3.6	Gallbladder	26	3.4	Thyroid	23	3.6
Lymphoma	8	3.2	Stomach	23	3.0	Uterus	19	2.9
Kidney	7	2.8	Pancreas	23	3.0	Pancreas	17	2.6
	209	83.3		606	78.1		515	79.7

@ Cancers of the nasopharynx were also included in the oral/pharynx category.



**Rank Order Of Invasive Cancers**  
**Alaska Natives, 1969-1993**  
**By Sex and Age**  
**Males**

0 to 9 years			10-19			20-29			30-39		
Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total
Leukemia	10	28.6	Leukemia	10	30.3	Testis	18	43.9	Testis	10	15.4
Liver	6	17.1	Liver	7	21.2	Liver	5	12.2	Stomach	10	15.4
Brain	6	17.1	Lymphoma	5	15.2	Leukemia	5	12.2	Nasopharynx@	7	10.8
Lymphoma	4	11.4	Brain	4	15.2	Stomach	3	7.3	Colon/Rectum	5	7.7
Testis	2	5.7	Soft Tissue	2	6.1				Lymphoma	5	7.7
	28	80.0		28	84.8		31	75.6		37	56.9

40-49			50-59			60-69			70+		
Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total
Oral/Pharynx	21	15.4	Lung	86	26.9	Lung	135	28.5	Colon/Rectum	117	21.7
Colon/Rectum	20	14.7	Colon/Rectum	56	17.5	Colon/Rectum	82	17.3	Lung	115	21.4
Lung	19	14.0	Oral/Pharynx	29	9.1	Prostate	53	11.2	Prostate	87	16.2
Nasopharynx@	13	9.6	Stomach	28	8.8	Stomach	36	7.6	Stomach	29	5.4
Stomach	10	7.4	Prostate	25	7.8	Kidney	27	5.7	Kidney	22	4.1
Pancreas	9	6.6	Nasopharynx@	19	5.9	Oral/Pharynx	23	4.9	Esophagus	19	3.5
			Kidney	14	4.4	Nasopharynx@	17	3.6	Oral/Pharynx	17	3.2
						Pancreas	15	3.2	Lymphoma	15	2.8
									Bladder	14	2.6
	79	58.1		238	74.4		371	78.3		435	80.9

**Females**

0 to 9 years			10-19			20-29			30-39		
Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total
Leukemia	5	20.8	Leukemia	4	16.0	Cervix	24	28.6	Breast	44	33.8
Kidney	5	20.8	Ovary	4	16.0	Thyroid	15	17.9	Cervix	33	25.4
Brain	5	20.8	Liver	4	16.0	Ovary	8	9.5	Thyroid	12	9.2
Eye/Orbit	5	20.8	Brain	3	12.0	Breast	8	9.5	Oral/Pharynx	6	4.6
			Cervix	3	12.0	Lymphoma	6	7.1	Lung	4	3.1
						Leukemia	4	4.8	Ovary	4	3.1
	20	83.3		18	72.0		65	77.4		103	79.2

40-49			50-59			60-69			70+		
Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total	Rank	No.	% of Total
Breast	99	38.7	Breast	97	26.9	Colon/Rectum	84	24.2	Colon/Rectum	139	31.0
Cervix	30	11.7	Colon/Rectum	55	15.2	Lung	59	17.0	Lung	59	13.2
Lung	25	9.8	Lung	39	10.8	Breast	51	14.7	Breast	46	10.3
Colon/Rectum	21	8.2	Cervix	22	6.1	Oral/Pharynx	19	5.5	Kidney	21	4.7
Thyroid	14	5.5	Ovary	22	6.1	Pancreas	18	5.2	Gallbladder	18	4.0
Oral/Pharynx	12	4.7	Oral/Pharynx	17	4.7	Cervix	17	4.9	Pancreas	17	3.8
Kidney	9	3.5	Kidney	15	4.2	Kidney	15	4.3	Stomach	12	2.7
Uterus	7	2.7	Uterus	11	3.0	Gallbladder	12	3.5	Ovary	12	2.7
Stomach	7	2.7	Stomach	9	2.5	Nasopharynx@	10	2.9	Oral/Pharynx	11	2.5
Nasopharynx@	6	2.3	Pancreas	9	2.5						
	224	87.5		296	82.0		275	79.3		335	74.8

@ Cancers of the nasopharynx were also included in the oral/pharynx category.

**Number of Invasive Cancers  
Alaska Natives 1969-1993  
By Age  
Males**

Site	Age								Total
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
All Sites	35	33	41	65	136	320	474	538	1642
Oral Cavity & Pharynx	0	0	2	7	21	29	23	17	99
Salivary Gland	0	0	1	0	2	2	2	0	7
Nasopharynx	0	0	0	7	13	19	17	7	63
Gum & Other Oral Cavity	0	0	1	1	2	3	1	0	8
Digestive	6	8	10	17	51	107	172	204	575
Esophagus	0	0	0	0	4	3	11	19	37
Stomach	0	0	3	10	10	28	36	29	116
Colon & Rectum	0	1	2	5	20	56	82	117	283
Colon	0	0	2	3	14	39	57	94	209
Rectosigmoid Junction	0	0	0	1	4	5	7	4	21
Rectum	0	1	0	1	2	12	18	19	53
Liver	6	7	5	1	6	8	13	7	53
Gallbladder	0	0	0	0	0	1	3	10	14
Other Biliary	0	0	0	0	0	2	6	7	15
Pancreas	0	0	0	1	9	8	15	10	43
Respiratory	0	0	0	5	25	92	142	118	382
Lung & Bronchus	0	0	0	3	19	86	135	115	358
Larynx	0	0	0	0	4	3	5	1	13
Bones & Joints	0	1	1	3	0	2	4	1	12
Soft Tissue	1	2	0	2	1	3	1	2	12
Melanoma of Skin	0	0	0	2	1	0	0	0	3
Breast	0	0	0	0	0	0	1	0	1
Male Genital	4	1	18	10	7	32	55	89	216
Prostate	0	0	0	0	3	25	53	87	168
Testis	2	1	18	10	3	4	0	0	38
Urinary	1	0	0	3	5	23	36	38	106
Bladder	0	0	0	2	1	9	8	14	34
Kidney & Renal Pelvis	1	0	0	1	4	14	27	22	69
Eye & Orbit	1	0	0	0	0	1	0	1	3
Brain & Nervous System	6	4	2	1	4	1	0	1	19
Endocrine	0	1	1	2	3	4	1	3	15
Thyroid	0	0	1	2	2	2	0	3	10
Lymphomas	4	5	2	5	5	5	8	15	49
Hodgkin's	1	1	1	2	1	0	0	0	6
Non-Hodgkin's	3	4	1	3	4	5	8	15	43
Multiple Myeloma	0	0	0	1	4	4	5	6	20
Leukemia	10	10	5	2	1	1	2	6	37
Ill Defined & Unspecified	2	1	0	5	7	16	22	34	87

Number of Invasive Cancers  
Alaska Natives 1969-1993  
By Age  
Females

Site	Age								Total
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
All Sites	24	25	84	130	256	361	347	448	1675
Oral Cavity & Pharynx	0	0	1	6	12	17	19	11	66
Salivary Gland	0	0	1	5	2	4	1	1	14
Nasopharynx	0	0	0	1	6	7	10	1	25
Gum & Other Oral Cavity	0	0	0	0	1	1	2	5	9
Digestive	0	5	7	10	39	94	132	203	490
Esophagus	0	0	0	0	1	6	3	4	14
Stomach	0	1	3	3	7	9	7	12	42
Colon & Rectum	0	0	2	4	21	55	84	139	305
Colon	0	0	2	3	17	40	68	107	237
Rectosigmoid Junction	0	0	0	0	2	2	4	13	21
Rectum	0	0	0	1	2	13	12	19	47
Liver	0	4	2	0	1	1	2	5	15
Gallbladder	0	0	0	0	1	7	12	18	38
Other Biliary	0	0	0	1	1	3	1	1	7
Pancreas	0	0	0	1	5	9	18	17	50
Respiratory	0	0	0	5	26	40	62	59	192
Lung & Bronchus	0	0	0	4	25	39	59	59	186
Larynx	0	0	0	1	1	1	1	0	4
Bones & Joints	1	2	2	0	0	1	0	2	8
Soft Tissue	0	0	1	1	1	1	0	3	7
Melanoma of Skin	0	0	0	1	2	1	3	2	9
Breast	0	0	8	44	99	97	51	46	345
Female Genital	1	7	37	42	44	57	31	29	248
Cervix uteri	0	3	24	33	30	22	17	8	137
Corpus uteri/Uterus, nos	0	0	3	3	7	11	5	3	32
Ovary	1	4	8	4	6	22	8	12	65
Urinary	5	1	1	3	11	16	17	28	82
Bladder	0	0	0	1	2	0	2	7	12
Kidney & Renal Pelvis	5	1	1	2	9	15	15	21	69
Eye & Orbit	5	0	0	0	0	0	0	0	5
Brain & Nervous System	5	3	0	2	0	3	1	0	14
Endocrine	0	1	15	12	14	2	3	3	50
Thyroid	0	1	15	12	14	2	3	3	50
Lymphomas	0	1	6	1	5	6	7	7	33
Hodgkin's	0	0	4	0	0	0	1	1	6
Non-Hodgkin's	0	1	2	1	5	6	6	6	27
Multiple Myeloma	0	0	0	0	0	6	2	2	10
Leukemia	5	4	4	2	0	3	1	4	23
Ill Defined & Unspecified	2	1	2	1	3	17	17	49	92

## Average Annual Age-Specific Incidence Rates\* per 100,000

## Alaska Natives 1969-1993

## Males

Site	Age							
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+
All Sites	18.3	16.3	25.5	61.6	184.0	605.5	1485.9	2476.4
Oral Cavity & Pharynx	0.0	0.0	1.2	6.6	28.4	54.9	72.1	78.3
Salivary Gland	0.0	0.0	0.6	0.0	2.7	3.8	6.3	0.0
Nasopharynx	0.0	0.0	0.0	6.6	17.6	36.0	53.3	32.2
Gum & Other Oral Cavity	0.0	0.0	0.6	0.9	2.7	5.7	3.1	0.0
Digestive	3.1	4.0	6.2	16.1	69.0	202.5	539.2	939.0
Esophagus	0.0	0.0	0.0	0.0	5.4	5.7	34.5	87.5
Stomach	0.0	0.0	1.9	9.5	13.5	53.0	112.9	133.5
Colon & Rectum	0.0	0.5	1.2	4.7	27.1	106.0	257.1	538.6
Colon	0.0	0.0	1.2	2.8	18.9	73.8	178.7	432.7
Rectosigmoid Junction	0.0	0.0	0.0	0.9	5.4	9.5	21.9	18.4
Rectum	0.0	0.5	0.0	0.9	2.7	22.7	56.4	87.5
Liver	3.1	3.5	3.1	0.9	8.1	15.1	40.8	32.2
Gallbladder	0.0	0.0	0.0	0.0	0.0	1.9	9.4	46.0
Other Biliary	0.0	0.0	0.0	0.0	0.0	3.8	18.8	32.2
Pancreas	0.0	0.0	0.0	0.9	12.2	15.1	47.0	46.0
Respiratory	0.0	0.0	0.0	4.7	33.8	174.1	445.1	543.2
Lung & Bronchus	0.0	0.0	0.0	2.8	25.7	162.7	423.2	529.3
Larynx	0.0	0.0	0.0	0.0	5.4	5.7	15.7	4.6
Bones & Joints	0.0	0.5	0.6	2.8	0.0	3.8	12.5	4.6
Soft Tissue	0.5	1.0	0.0	1.9	1.4	5.7	3.1	9.2
Melanoma of Skin	0.0	0.0	0.0	1.9	1.4	0.0	0.0	0.0
Breast	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0
Male Genital	2.1	0.5	11.2	9.5	9.5	60.5	172.4	409.7
Prostate	0.0	0.0	0.0	0.0	4.1	47.3	166.1	400.5
Testis	1.0	0.5	11.2	9.5	4.1	7.6	0.0	0.0
Urinary	0.5	0.0	0.0	2.8	6.8	43.5	112.9	174.9
Bladder	0.0	0.0	0.0	1.9	1.4	17.0	25.1	64.4
Kidney & Renal Pelvis	0.5	0.0	0.0	0.9	5.4	26.5	84.6	101.3
Eye & Orbit	0.5	0.0	0.0	0.0	0.0	1.9	0.0	4.6
Brain & Nervous System	3.1	2.0	1.2	0.9	5.4	1.9	0.0	4.6
Endocrine	0.0	0.5	0.6	1.9	4.1	7.6	3.1	13.8
Thyroid	0.0	0.0	0.6	1.9	2.7	3.8	0.0	13.8
Lymphomas	2.1	2.5	1.2	4.7	6.8	9.5	25.1	69.0
Hodgkin's	0.5	0.5	0.6	1.9	1.4	0.0	0.0	0.0
Non-Hodgkin's	1.6	2.0	0.6	2.8	5.4	9.5	25.1	69.0
Multiple Myeloma	0.0	0.0	0.0	0.9	5.4	7.6	15.7	27.6
Leukemia	5.2	4.9	3.1	1.9	1.4	1.9	6.3	27.6
Ill Defined & Unspecified	1.0	0.5	0.0	4.7	9.5	30.3	69.0	156.5

\* Rates are age-adjusted to the 1970 U.S. standard population.

Average Annual Age-Specific Incidence Rates<sup>‡</sup> per 100,000  
Alaska Natives 1969-1993  
Females

Site	Age							
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+
All Sites	13.1	13.0	52.8	124.0	359.8	718.8	1041.3	1988.9
Oral Cavity & Pharynx	0.0	0.0	0.6	5.7	16.9	33.8	57.0	48.8
Salivary Gland	0.0	0.0	0.6	4.8	2.8	8.0	3.0	4.4
Nasopharynx	0.0	0.0	0.0	1.0	8.4	13.9	30.0	4.4
Gum & Other Oral Cavity	0.0	0.0	0.0	0.0	1.4	2.0	6.0	22.2
Digestive	0.0	2.6	4.4	9.5	54.8	187.2	396.1	901.2
Esophagus	0.0	0.0	0.0	0.0	1.4	11.9	9.0	17.8
Stomach	0.0	0.5	1.9	2.9	9.8	17.9	21.0	53.3
Colon & Rectum	0.0	0.0	1.3	3.8	29.5	109.5	252.1	617.1
Colon	0.0	0.0	1.3	2.9	23.9	79.6	204.1	475.0
Rectosigmoid Junction	0.0	0.0	0.0	0.0	2.8	4.0	12.0	57.7
Rectum	0.0	0.0	0.0	1.0	2.8	25.9	36.0	84.4
Liver	0.0	2.1	1.3	0.0	1.4	2.0	6.0	22.2
Gallbladder	0.0	0.0	0.0	0.0	1.4	13.9	36.0	79.9
Other Biliary	0.0	0.0	0.0	1.0	1.4	6.0	3.0	4.4
Pancreas	0.0	0.0	0.0	1.0	7.0	17.9	54.0	75.5
Respiratory	0.0	0.0	0.0	4.8	36.5	79.6	186.0	261.9
Lung & Bronchus	0.0	0.0	0.0	3.8	35.1	77.7	177.0	261.9
Larynx	0.0	0.0	0.0	1.0	1.4	2.0	3.0	0.0
Bones & Joints	0.5	1.0	1.3	0.0	0.0	0.0	0.0	4.4
Soft Tissue	0.0	0.0	0.6	1.0	1.4	2.0	0.0	13.3
Melanoma of Skin	0.0	0.0	0.0	1.0	2.8	2.0	9.0	8.9
Breast	0.0	0.0	5.0	42.0	139.1	193.1	153.0	204.2
Female Genital	0.5	3.6	23.3	40.0	61.8	113.5	93.0	128.7
Cervix uteri	0.0	1.6	15.1	31.5	42.2	43.8	51.0	35.5
Corpus uteri/Uterus, nos	0.0	0.0	1.9	2.9	9.8	21.9	15.0	13.3
Ovary	0.5	2.1	5.0	3.8	8.4	43.8	24.0	53.3
Urinary	2.7	0.5	0.6	2.9	15.5	31.9	51.0	124.3
Bladder	0.0	0.0	0.0	1.0	2.8	0.0	6.0	31.1
Kidney & Renal Pelvis	2.7	0.5	0.6	1.9	12.6	29.9	45.0	93.2
Eye & Orbit	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brain & Nervous System	2.7	1.6	0.0	1.9	0.0	6.0	3.0	0.0
Endocrine	0.0	0.5	9.4	11.4	19.7	4.0	9.0	13.3
Thyroid	0.0	0.5	9.4	11.4	19.7	4.0	9.0	13.3
Lymphomas	0.0	0.5	3.8	1.0	7.0	11.9	21.0	31.1
Hodgkin's	0.0	0.0	2.5	0.0	0.0	0.0	3.0	4.4
Non-Hodgkin's	0.0	0.5	1.3	1.0	7.0	11.9	18.0	26.6
Multiple Myeloma	0.0	0.0	0.0	0.0	0.0	11.9	6.0	8.9
Leukemia	2.7	2.1	2.5	1.9	0.0	6.0	3.0	17.8
Ill Defined & Unspecified	1.1	0.5	1.3	1.0	4.2	33.8	51.0	217.5

<sup>‡</sup> Rates are age-adjusted to the 1970 U.S. standard population.

Cancer Incidence Rates per 100,000  
Average Annual Crude and Age-Adjusted\*  
Alaska Natives 1969-1993  
Males

<u>Site</u>	<u>No. Cases</u>	<u>Crude Rate</u>	<u>Age-Adjusted Rate</u>
All Sites	1642	195.5	375.2
Oral Cavity & Pharynx	99	11.8	20.5
Salivary Gland	7	0.8	1.3
Nasopharynx	63	7.5	12.7
Gum & Other Oral Cavity	8	1.0	1.3
Digestive	575	68.5	135.1
Esophagus	37	4.4	9.5
Stomach	116	13.8	25.7
Colon & Rectum	283	33.7	69.4
Colon	209	24.9	52.0
Rectosigmoid Junction	21	2.5	4.6
Rectum	53	6.3	12.8
Liver	53	6.3	9.6
Gallbladder	14	1.7	3.9
Other Biliary	15	1.8	3.9
Pancreas	43	5.1	9.7
Respiratory	382	45.5	91.7
Lung & Bronchus	358	42.6	86.8
Larynx	13	1.5	2.7
Bones & Joints	12	1.4	2.2
Soft Tissue	12	1.4	2.1
Melanoma of Skin	3	0.36	#
Breast	1	0.12	#
Male Genital	216	25.7	50.2
Prostate	168	20.0	43.9
Testis	38	4.5	4.3
Urinary	106	12.6	25.6
Bladder	34	4.0	8.2
Kidney & Renal Pelvis	69	8.2	16.6
Eye & Orbit	3	0.36	#
Brain & Nervous System	19	2.3	2.4
Endocrine	15	1.8	2.8
Thyroid	10	1.2	1.9
Lymphomas	49	5.8	9.7
Hodgkin's	6	0.7	0.7
Non-Hodgkin's	43	5.1	9.1
Multiple Myeloma	20	2.4	4.5
Leukemia	37	4.4	5.2
Ill Defined & Unspecified	87	10.4	20.4

\* Rates are age-adjusted to the 1970 U.S. standard population.

# Rates not shown for less than five cases

Cancer Incidence Rates per 100,000  
Average Annual Crude and Age-Adjusted\*  
Alaska Natives 1969-1993  
Females

<u>Site</u>	<u>No. Cases</u>	<u>Crude Rate</u>	<u>Age-Adjusted Rate</u>
All Sites	1675	205.1	351.6
Oral Cavity & Pharynx	66	8.1	13.8
Salivary Gland	14	1.7	2.3
Nasopharynx	25	3.1	5.1
Gum & Other Oral Cavity	9	1.1	2.3
Digestive	490	60.0	116.5
Esophagus	14	1.7	3.2
Stomach	42	5.1	8.8
Colon & Rectum	305	37.3	74.5
Colon	237	29.0	57.8
Rectosigmoid Junction	21	2.6	5.4
Rectum	47	5.8	11.3
Liver	15	1.8	2.9
Gallbladder	38	4.7	9.5
Other Biliary	7	0.9	1.4
Pancreas	50	6.1	11.8
Respiratory	192	23.5	44.3
Lung & Bronchus	186	22.8	43.1
Larynx	4	0.49	#
Bones & Joints	8	1.0	1.3
Soft Tissue	7	0.9	1.4
Melanoma of Skin	9	1.1	1.9
Breast	345	42.2	66.8
Female Genital	248	30.4	43.2
Cervix uteri	137	16.8	21.8
Corpus uteri/Uterus, nos	32	3.9	6.0
Ovary	65	8.0	12.5
Urinary	82	10.0	18.1
Bladder	12	1.5	2.9
Kidney & Renal Pelvis	69	8.4	15.0
Eye & Orbit	5	0.6	0.5
Brain & Nervous System	14	1.7	1.9
Endocrine	50	6.1	7.1
Thyroid	50	6.1	7.1
Lymphomas	33	4.0	6.4
Hodgkin's	6	0.7	0.9
Non-Hodgkin's	27	3.3	5.6
Multiple Myeloma	10	1.2	2.3
Leukemia	23	2.8	3.5
Ill Defined & Unspecified	92	11.3	22.5

\* Rates are age-adjusted to the 1970 U.S. standard population.

Average Annual Age-Adjusted\* Incidence Rates per 100,000  
Alaska Natives 1969-1993  
By Ethnicity  
Males

Site	Aleut		Eskimo		Indian	
	No.	Rate	No.	Rate	No.	Rate
All Sites	226	387.1	819	348.7	593	405.2 *
Oral Cavity & Pharynx	17	23.4	54	20.7	28	17.1
Salivary Gland	1	#	5	1.7	1	#
Nasopharynx	11	15.6 @	42	16.6	10	5.3 *
Gum & Other Oral Cavity	0	#	4	#	4	#
Digestive	75	135.9	338	147.7	162	114.2 *
Esophagus	8	11.9	17	8.5	12	9.3
Stomach	15	21.2 @	81	34.2	20	13.9 *
Colon & Rectum	40	75.5	146	67.6	97	69.4
Colon	28	54.0	114	53.6	67	48.5
Rectosigmoid Junction	2	#	8	3.3	11	7.4
Rectum	10	19.1	24	10.7	19	13.6
Liver	1	#	43	14.3	9	5.1 *
Gallbladder	1	#	8	4.0	5	4.1
Other Biliary	1	#	10	4.7	4	#
Pancreas	8	18.0 @	23	9.9	12	7.3
Respiratory	53	90.8	211	95.4	116	83.9
Lung & Bronchus	46	81.1	203	92.3	107	78.1
Larynx	2	#	5	1.9	6	3.9
Bones & Joints	3	#	6	2.1	3	#
Soft Tissue	2	#	5	1.2	5	3.6
Melanoma of Skin	0	#	1	#	2	#
Breast	0	#	0	#	1	#
Male Genital	25	47.5 @	54	23.3 ~	136	92.1 *
Prostate	20	40.2 @	40	19.9 ~	108	82.0 *
Testis	3	#	11	2.5	23	7.1 *
Urinary	15	29.4	44	19.7	46	32.6 *
Bladder	7	12.7	11	4.8 ~	15	10.9
Kidney & Renal Pelvis	7	13.8	32	14.4	30	20.9
Eye & Orbit	0	#	2	#	1	#
Brain & Nervous System	2	#	9	2.1	8	3.0
Endocrine	2	#	4	#	9	4.7 *
Thyroid	0	#	3	#	7	3.8 *
Lymphomas	10	17.9	25	8.8	14	8.6
Hodgkin's	1	#	4	#	1	#
Non-Hodgkin's	9	16.8	21	8.1	13	8.3
Multiple Myeloma	1	#	7	2.7	12	8.2 *
Leukemia	9	9.3	13	2.3 ~	15	8.3
Ill Defined & Unspecified	12	21.3	44	19.2	31	22.0

\* Rates are age-adjusted to the 1970 U.S. standard population.

\* =Indian vs. Eskimo, @=Aleut vs. Indian, and ~=Eskimo vs. Aleut crude rate  $\chi^2$  comparisons which are statistically significant at the 95% C.I.

\* Rates not shown for < 5 cases.



Average Annual Age-Adjusted\* Incidence Rates per 100,000  
Alaska Natives 1969-1993  
By Ethnicity  
Females

Site	Aleut		Eskimo		Indian	
	No.	Rate	No.	Rate	No.	Rate
All Sites	251	403.8	776	325.6 ~	646	369.0 *
Oral Cavity & Pharynx	9	15.5	33	13.4	24	13.8
Salivary Gland	1	#	7	2.0	6	2.9
Nasopharynx	3	#	15	6.0	7	4.2
Gum & Other Oral Cavity	2	#	4	#	3	#
Digestive	74	132.7 @	277	130.9	139	90.4 *
Esophagus	2	#	11	5.2	1	# *
Stomach	4	#	23	9.7	15	8.2
Colon & Rectum	49	93.1 @	173	83.6	83	55.8 *
Colon	36	68.0 @	141	67.5	60	40.9 *
Rectosigmoid Junction	4	#	13	7.0	4	#
Rectum	9	17.6	19	9.1	19	12.4
Liver	2	#	8	2.5	5	3.3
Gallbladder	2	#	26	12.9	10	6.9
Other Biliary	1	#	5	2.0	1	#
Pancreas	10	15.7	23	10.9	17	11.3
Respiratory	43	71.8 @	82	38.1 ~	66	42.4
Lung & Bronchus	41	69.5 @	80	37.3 ~	64	41.2
Larynx	2	#	1	#	1	#
Bones & Joints	0	#	4	#	4	#
Soft Tissue	0	#	5	2.1	2	#
Melanoma of Skin	1	#	6	2.9	1	#
Breast	44	68.6 @	122	46.7 ~	179	95.2 *
Female Genital	35	47.4	105	35.3	108	53.3 *
Cervix uteri	21	26.0	62	19.7	54	23.4
Corpus uteri/Uterus, nos	2	#	11	4.0	19	10.2 *
Ovary	11	15.4	27	10.0	27	14.8
Urinary	12	21.3	41	17.8	29	17.7
Bladder	5	10.2 @	4	# ~	3	#
Kidney & Renal Pelvis	7	11.1	37	15.9	25	15.3
Eye & Orbit	1	#	2	#	2	#
Brain & Nervous System	2	#	10	2.3	2	#
Endocrine	9	9.4	18	4.8	23	9.6 *
Thyroid	9	9.4	18	4.8	23	9.6 *
Lymphomas	8	11.6	12	4.1 ~	13	7.8
Hodgkin's	2	#	3	#	1	#
Non-Hodgkin's	6	8.5	9	3.6 ~	12	7.1
Multiple Myeloma	0	#	2	#	8	5.2
Leukemia	2	#	10	2.7	11	5.0
Ill Defined & Unspecified	11	18.4	47	22.5	34	23.2

\* Rates are age-adjusted to the 1970 U.S. standard population.

\* =Indian vs. Eskimo, @=Aleut vs. Indian, and ~=Eskimo vs. Aleut crude rate  $\chi^2$  comparisons which are statistically significant at the 95% C.I.

\* Rates not shown for < 5 cases.

Average Annual Age-Adjusted\* Cancer Incidence Rates per 100,000  
Alaska Natives 1969-1993  
By Five Year Time Periods  
**Males**

Site	1969-73		1974-78		1979-83		1984-88		1989-93	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
All Sites	208	329.6	253	326.4	317	366.7	380	372.1	484	422.2 *
Oral Cavity & Pharynx	14	16.9	22	23.2	9	10.8	22	19.7	32	26.4
Salivary Gland	3	#	0	#	1	#	1	#	2	#
Nasopharynx	9	11.4	17	18.1	6	6.4	11	9.5	20	15.9
Gum & Other Oral Cavity	0	#	2	#	2	#	3	#	1	#
Digestive	77	135.1	88	118.3	114	130.9	135	136.2	161	144.1
Esophagus	6	13.2	5	7.7	8	9.4	8	9.4	10	9.2
Stomach	12	22.1	17	22.0	25	27.5	26	24.1	36	28.9
Colon & Rectum	36	66.2	45	62.7	48	58.8	67	70.7	87	81.0
Colon	22	42.6	29	38.9	38	47.6	48	51.5	72	68.3 *
Rectosigmoid Junction	3	#	6	7.9	3	#	5	4.4	4	#
Rectum	11	17.1	10	15.9	7	9.0	14	14.8	11	9.1
Liver	9	9.1	10	10.3	13	12.5	11	8.3	10	7.2
Gallbladder	2	#	2	#	5	6.6	2	#	3	#
Other Biliary	2	#	1	#	0	#	7	7.7	5	5.1
Pancreas	8	12.5	7	9.5	9	9.6	12	11.1	7	6.4
Respiratory	36	53.0	58	81.5	74	85.6	103	105.8	111	104.4 *
Lung & Bronchus	34	50.4	55	78.3	67	79.3	98	101.3	104	98.3 *
Larynx	0	#	1	#	5	4.6	1	#	6	5.4
Bones & Joints	4	#	0	#	0	#	4	#	4	#
Soft Tissue	4	#	4	#	0	#	2	#	2	#
Melanoma of Skin	0	#	1	#	1	#	0	#	1	#
Breast	0	#	0	#	1	#	0	#	0	#
Male Genital	23	37.6	24	32.5	42	50.7	40	39.6	87	76.8 *
Prostate	16	30.1	14	24.9	35	46.5	30	34.4	73	69.8 *
Testis	4	#	9	6.3	6	3.7	8	3.7	11	4.2
Urinary	15	23.3	16	21.0	18	23.1	28	29.2	29	26.6
Bladder	7	11.4	5	7.3	9	12.1	8	7.7	5	4.5
Kidney & Renal Pelvis	8	12.0	10	11.9	9	11.1	20	21.5	22	20.1
Eye & Orbit	0	#	0	#	3	#	0	#	0	#
Brain & Nervous System	3	#	5	4.5	3	#	5	2.6	3	#
Endocrine	0	#	5	5.4	5	5.8	4	#	1	#
Thyroid	0	#	4	#	3	#	2	#	1	#
Lymphomas	5	6.4	4	#	18	20.0	11	9.6	11	7.2
Hodgkin's	0	#	1	#	2	#	1	#	2	#
Non-Hodgkin's	5	6.4	3	#	16	18.6	10	9.2	9	6.4
Multiple Myeloma	4	#	4	#	4	#	2	#	6	4.2
Leukemia	8	10.7	5	4.1	5	3.4	8	4.8	11	5.0
Ill Defined & Unspecified	15	26.5	17	22.0	20	24.9	14	13.1	21	18.3

\* Rates are age-adjusted to the 1970 U.S. standard population.

\* Mantel-Haenszel chi-square for trend, p<0.05.

# Rates not shown for less than five cases

Average Annual Age-Adjusted\* Cancer Incidence Rates per 100,000  
Alaska Natives 1969-1993  
By Five Year Time Periods  
Females

Site	1969-73		1974-78		1979-83		1984-88		1989-93	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
All Sites	187	281.0	232	297.0	303	316.7	455	387.1	498	350.9 *
Oral Cavity & Pharynx	13	15.9	12	13.5	15	16.6	13	11.6	13	9.9
Salivary Gland	5	4.5	3	#	1	#	3	#	2	#
Nasopharynx	3	#	7	8.4	6	6.2	5	4.6	4	#
Gum & Other Oral Cavity	2	#	0	#	4	#	1	#	2	#
Digestive	67	122.7	67	101.5	90	107.1	134	124.2	132	104.1
Esophagus	1	#	3	#	3	#	4	#	3	#
Stomach	6	9.8	4	#	6	6.6	14	11.2	12	8.9
Colon & Rectum	37	67.3	39	62.7	56	67.6	86	81.6	87	70.1
Colon	25	46.4	32	51.7	43	51.0	70	66.3	67	54.0
Rectosigmoid Junction	3	#	2	#	6	7.3	5	5.2	5	4.2
Rectum	9	15.6	5	7.8	7	9.3	11	10.0	15	11.9
Liver	1	#	3	#	2	#	5	4.7	4	#
Gallbladder	9	19.3	10	15.5	7	8.7	7	7.2	5	3.7 *
Other Biliary	3	#	0	#	0	#	1	#	3	#
Pancreas	5	8.7	7	9.3	9	10.6	13	11.9	16	12.9
Respiratory	9	14.3	14	18.2	28	30.6	79	72.8	62	49.5 *
Lung & Bronchus	9	14.3	14	18.2	28	30.6	74	68.9	61	48.7 *
Larynx	0	#	0	#	0	#	4	#	0	#
Bones & Joints	0	#	2	#	2	#	3	#	1	#
Soft Tissue	0	#	1	#	2	#	2	#	2	#
Melanoma of Skin	1	#	1	#	1	#	2	#	4	#
Breast	27	34.7	41	45.6	51	49.0	96	75.6	130	86.5 *
Female Genital	24	28.3	40	45.1	59	50.2	52	34.7	73	45.5
Cervix uteri	12	11.5	27	31.3	42	34.1	28	16.2	28	14.5
Corpus uteri/Uterus, nos	3	#	3	#	5	3.9	6	5.6	15	10.2 *
Ovary	8	11.0	9	9.4	9	10.1	15	11.0	24	16.0
Urinary	11	15.3	12	14.8	12	14.3	26	23.5	21	15.3
Bladder	2	#	2	#	3	#	3	#	2	#
Kidney & Renal Pelvis	9	13.4	10	11.2	8	9.2	23	20.7	19	13.7
Eye & Orbit	1	#	0	#	1	#	1	#	2	#
Brain & Nervous System	4	#	2	#	2	#	4	#	2	#
Endocrine	10	8.1	7	6.1	8	5.1	11	7.8	14	6.9
Thyroid	10	8.1	7	6.1	8	5.1	11	7.8	14	6.9
Lymphomas	2	#	4	#	5	5.3	9	6.9	13	8.6
Hodgkin's	0	#	0	#	2	#	2	#	2	#
Non-Hodgkin's	2	#	4	#	3	#	7	5.5	11	7.8
Multiple Myeloma	2	#	0	#	2	#	3	#	3	#
Leukemia	2	#	3	#	3	#	5	3.7	10	4.7
Ill Defined & Unspecified	14	27.2	26	38.9	22	27.4	15	14.9	15	11.2

\* Rates are age-adjusted to the 1970 U.S. standard population.

\* Mantel-Haenszel chi-square for trend, p<0.05.

# Rates not shown for less than five cases

Average Annual Age-Adjusted\* Incidence Rates per 100,000  
Alaska Natives, 1969-1993  
By Region  
Males

Site	Anchorage	Barrow Kotzebue Norton Sound	Bristol Bay Yukon-Kusk.	Interior	Mt. Edgecumbe Annette
All Sites	326.4	406.6	343.4	427.5	436.5
Oral Cavity & Pharynx	23.8	21.5	20.1	13.8	16.2
Salivary Gland	#	#	#	#	#
Nasopharynx	14.5	18.0	15.6	#	#
Gum & Other Oral Cavity	#	#	#	#	#
Digestive	112.8	180.8	132.6	135.1	122.0
Esophagus	11.5	#	11.9	#	9.0
Stomach	21.7	53.0	21.5	20.1	9.8
Colon & Rectum	61.6	73.9	65.5	85.7	73.2
Colon	43.7	58.3	51.2	55.1	58.0
Rectosigmoid Junction	3.6	#	#	9.3	7.1
Rectum	14.4	11.2	11.7	21.4	8.1
Liver	4.8	18.3	12.6	1.8	7.2
Gallbladder	#	7.2	#	#	#
Other Biliary	#	8.1	#	2.8	#
Pancreas	7.6	10.6	10.5	16.4	6.3
Respiratory	77.3	99.1	106.9	118.3	60.8
Lung & Bronchus	72.0	94.2	105.6	112.5	50.8
Larynx	#	#	#	#	6.8
Bones & Joints	#	#	#	7.3	#
Soft Tissue	#	#	#	3.8	#
Melanoma of Skin	#	#	#	#	#
Breast	#	#	#	#	#
Male Genital	45.7	26.3	23.2	50.9	135.5
Prostate	37.6	21.6	20.0	44.7	127.1
Testis	5.8	#	2.0	4.3	6.4
Urinary	19.6	26.4	22.7	45.8	24.7
Bladder	7.9	8.0	4.5	11.4	11.3
Kidney & Renal Pelvis	10.6	17.1	18.2	34.3	11.4
Eye & Orbit	#	#	#	#	#
Brain & Nervous System	3.2	#	#	#	#
Endocrine	3.3	#	#	#	#
Thyroid	#	#	#	#	#
Lymphomas	9.7	9.8	9.3	#	13.0
Hodgkin's	#	#	#	#	#
Non-Hodgkin's	8.4	9.3	9.0	#	12.3
Multiple Myeloma	4.3	#	#	#	14.2
Leukemia	4.8	4.0	2.5	#	14.1
Ill Defined & Unspecified	16.2	25.3	17.4	29.5	21.3

\* Rates are age-adjusted to the 1970 U.S. standard population.

# Rates not shown for less than five cases

**Average Annual Age-Adjusted\* Incidence Rates per 100,000**  
**Alaska Natives, 1969-1993**  
**By Region**  
**Females**

<u>Site</u>	<u>Anchorage</u>	<u>Barrow Kotzebue Norton Sound</u>	<u>Bristol Bay Yukon-Kusk.</u>	<u>Interior</u>	<u>Mt. Edgecumbe Annette</u>
All Sites	390.4	322.5	287.2	454.3	364.0
Oral Cavity & Pharynx	15.4	16.5	10.8	19.5	8.9
Salivary Gland	#	#	#	7.6	#
Nasopharynx	4.9	7.2	4.7	#	#
Gum & Other Oral Cavity		#	#	#	#
Digestive	121.4	117.7	127.5	101.3	98.6
Esophagus	3.9	#	4.5	#	#
Stomach	6.6	12.5	8.7	13.6	#
Colon & Rectum	90.4	65.0	82.4	60.2	54.7
Colon	65.1	52.1	67.4	45.0	44.3
Rectosigmoid Junction	7.1	8.7	#	#	#
Rectum	18.3	#	11.0	10.9	#
Liver	#	5.6	#	#	#
Gallbladder	#	16.9	12.1	#	11.4
Other Biliary	#	#	#	#	#
Pancreas	14.3	10.9	9.9	11.2	12.3
Respiratory	68.1	33.6	31.1	46.7	36.7
Lung & Bronchus	64.7	33.6	30.2	46.7	36.7
Larynx	#	#	#	#	#
Bones & Joints	#	#	#	#	#
Soft Tissue	#	#	#	#	#
Melanoma of Skin	#	#	#	#	#
Breast	70.0	53.5	33.4	113.5	105.6
Female Genital	50.0	41.6	24.0	73.6	46.5
Cervix Uteri	23.8	24.7	10.7	35.7	24.7
Corpus uteri/Uterus, nos	#	#	4.6	16.3	10.0
Ovary	17.9	13.0	6.0	21.7	7.4
Urinary	15.6	16.5	20.5	31.4	10.8
Bladder	7.4	#	#	#	#
Kidney & Renal Pelvis	8.3	13.8	19.7	31.4	8.8
Eye & Orbit	#	#	#	#	#
Brain & Nervous System	#	#	2.6	#	#
Endocrine	10.0	4.0	3.5	9.6	10.1
Thyroid	10.0	4.0	3.5	9.6	10.1
Lymphomas	7.8	5.9	3.6	11.8	#
Hodgkin's	#	#	#	#	#
Non-Hodgkin's	6.1	5.9	3.0	11.8	#
Multiple Myeloma	#	#	#	#	#
Leukemia	2.3	#	4.4	6.4	#
Ill Defined & Unspecified	21.5	25.6	18.6	27.0	24.6

\* Rates are age-adjusted to the 1970 U.S. standard population.

Number of Invasive Cancers  
Alaska Natives 1969-1993  
By Service Unit  
Males

<u>Site</u>	<u>Anchorage</u>	<u>Barrow</u>	<u>Bristol Bay</u>	<u>Interior</u>	<u>Kotzebue</u>	<u>Mt.Edge.</u>	<u>Norton S.</u>	<u>Yukon-Kusk.</u>
All Sites	414	89	64	197	104	279	154	338
Oral Cavity & Pharynx	32	4	6	8	2	10	16	21
Salivary Gland	2	0	0	1	0	0	1	3
Nasopharynx	19	3	5	4	2	2	13	15
Gum & Other Oral Cavity	3	1	0	1	0	1	0	2
Digestive	136	28	16	62	49	76	70	138
Esophagus	14	0	0	3	1	5	2	12
Stomach	28	11	4	10	12	7	22	22
Colon & Rectum	71	13	8	38	15	45	29	64
Colon	49	10	5	25	12	35	22	51
Rectosigmoid Junction	5	2	0	4	0	5	2	3
Rectum	17	1	3	9	3	5	5	10
Liver	9	0	0	2	8	5	10	19
Gallbladder	2	0	0	0	2	4	3	3
Other Biliary	2	1	0	1	3	3	2	3
Pancreas	8	2	2	8	5	5	2	11
Respiratory	91	30	16	51	21	39	30	103
Lung & Bronchus	84	29	14	48	20	32	28	102
Larynx	4	0	0	2	0	5	2	0
Bones & Joints	3	2	0	3	0	1	0	3
Soft Tissue	3	1	1	2	1	3	0	1
Melanoma of Skin	1	1	0	0	0	0	0	1
Breast	0	0	0	0	0	1	0	0
Male Genital	57	3	11	24	8	85	10	17
Prostate	40	3	9	18	4	75	7	12
Testis	14	0	1	5	3	8	1	5
Urinary	23	6	6	19	8	16	7	20
Bladder	9	2	1	5	2	7	3	4
Kidney & Renal Pelvis	13	4	5	14	6	8	3	16
Eye & Orbit	1	0	0	0	2	0	0	0
Brain & Nervous System	8	1	0	4	2	2	0	2
Endocrine	5	0	1	3	1	4	1	0
Thyroid	2	0	1	3	0	3	1	0
Lymphomas	16	3	3	3	1	9	6	8
Hodgkin's	3	1	0	0	0	1	0	1
Non-Hodgkin's	13	2	3	3	1	8	6	7
Multiple Myeloma	5	0	0	1	0	9	3	2
Leukemia	11	3	2	3	1	10	4	3
Ill Defined & Unspecified	20	7	2	13	8	13	7	17

Number of Invasive Cancers  
Alaska Natives 1969-1993  
By Service Unit  
Females

<u>Site</u>	<u>Anchorage</u>	<u>Barrow</u>	<u>Bristol Bay</u>	<u>Interior</u>	<u>Kotzebue</u>	<u>Mt.Edge.</u>	<u>Norton S.</u>	<u>Yukon-Kusk.</u>
All Sites	528	55	73	234	94	259	137	294
Oral Cavity & Pharynx	21	2	3	10	3	6	10	11
Salivary Gland	3	1	0	5	2	0	1	2
Nasopharynx	7	1	0	2	1	3	5	6
Gum & Other Oral Cavity	4	0	2	0	0	1	2	0
Digestive	146	14	30	45	37	60	44	114
Esophagus	5	1	1	1	1	1	0	4
Stomach	10	0	3	7	7	3	5	7
Colon & Rectum	105	10	20	26	17	32	23	72
Colon	76	9	14	19	11	26	21	61
Rectosigmoid Junction	8	1	0	2	4	1	1	4
Rectum	21	0	6	5	2	5	1	7
Liver	2	0	0	2	2	2	4	2
Gallbladder	1	2	2	4	6	7	5	11
Other Biliary	2	0	0	0	2	1	0	2
Pancreas	17	1	2	5	2	8	5	10
Respiratory	84	5	6	23	8	23	13	30
Lung & Bronchus	79	5	6	23	8	23	13	29
Larynx	4	0	0	0	0	0	0	0
Bones & Joints	1	0	1	2	1	1	0	2
Soft Tissue	3	0	1	1	1	0	1	0
Melanoma of Skin	2	0	0	0	0	3	0	3
Breast	101	9	9	65	14	81	29	37
Female Genital	82	11	9	42	19	39	16	30
Cervix uteri	43	6	4	24	11	22	12	15
Corpus uteri/Uterus, nos	4	2	1	9	2	8	0	6
Ovary	29	3	3	9	5	6	4	6
Urinary	19	3	4	13	6	9	4	24
Bladder	8	1	1	0	0	1	1	0
Kidney & Renal Pelvis	11	2	3	13	6	7	3	24
Eye & Orbit	0	0	1	1	0	1	0	2
Brain & Nervous System	3	0	0	0	0	2	4	5
Endocrine	20	1	2	8	2	9	2	6
Thyroid	20	1	2	8	2	9	2	6
Lymphomas	12	2	2	5	0	4	3	5
Hodgkin's	3	0	0	0	0	1	0	2
Non-Hodgkin's	9	2	2	5	0	3	3	3
Multiple Myeloma	3	1	0	2	0	3	0	1
Leukemia	5	1	3	5	0	4	0	5
Ill Defined & Unspecified	26	6	2	11	3	14	11	19

Average Annual Crude Cancer Incidence Rates per 100,000  
Alaska Natives 1969-1993  
By Service Unit  
Males

<u>Site</u>	<u>Anchorage</u>	<u>Barrow</u>	<u>Bristol Bay</u>	<u>Interior</u>	<u>Kotzebue</u>	<u>Mt.Edge.</u>	<u>Norton S.</u>	<u>Yukon-Kusk.</u>
All Sites	177.5	260.4	134.2	219.3	175.4	217.9	230.2	186.6
Oral Cavity & Pharynx	13.7	11.7	12.6	8.9	3.4	7.8	23.9	11.6
Salivary Gland	0.9	0.0	0.0	1.1	0.0	0.0	1.5	1.7
Nasopharynx	8.1	8.8	10.5	4.5	3.4	1.6	19.4	8.3
Gum & Other Oral Cavity	1.3	2.9	0.0	1.1	0.0	0.8	0.0	1.1
Digestive	58.3	81.9	33.6	69.0	82.6	59.4	104.6	76.2
Esophagus	6.0	0.0	0.0	3.3	1.7	3.9	3.0	6.6
Stomach	12.0	32.2	8.4	11.1	20.2	5.5	32.9	12.1
Colon & Rectum	30.4	38.0	16.8	42.3	25.3	35.1	43.3	35.3
Colon	21.0	29.3	10.5	27.8	20.2	27.3	32.9	28.2
Rectosigmoid Junction	2.1	5.9	0.0	4.5	0.0	3.9	3.0	1.7
Rectum	7.3	2.9	6.3	10.0	5.1	3.9	7.5	5.5
Liver	3.9	0.0	0.0	2.2	13.5	3.9	14.9	10.5
Gallbladder	0.9	0.0	0.0	0.0	3.4	3.1	4.5	1.7
Other Biliary	0.9	2.9	0.0	1.1	5.1	2.3	3.0	1.7
Pancreas	3.4	5.9	4.2	8.9	8.4	3.9	3.0	6.1
Respiratory	39.0	87.8	33.6	56.8	35.4	30.5	44.8	56.9
Lung & Bronchus	36.0	84.9	29.4	53.4	33.7	25.0	41.9	56.3
Larynx	1.7	0.0	0.0	2.2	0.0	3.9	3.0	0.0
Bones & Joints	1.3	5.9	0.0	3.3	0.0	0.8	0.0	1.7
Soft Tissue	1.3	2.9	2.1	2.2	1.7	2.3	0.0	0.6
Melanoma of Skin	0.4	2.9	0.0	0.0	0.0	0.0	0.0	0.6
Breast	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Male Genital	24.4	8.8	23.1	26.7	13.5	66.4	14.9	9.4
Prostate	17.1	8.8	18.9	20.0	8.4	58.6	10.5	6.6
Testis	6.0	0.0	2.1	5.6	5.1	6.2	1.5	2.8
Urinary	9.9	17.6	12.6	21.1	13.5	12.5	10.5	11.0
Bladder	3.9	5.9	2.1	5.6	3.4	5.5	4.5	2.2
Kidney & Renal Pelvis	5.6	11.7	10.5	15.6	10.1	6.2	4.5	8.8
Eye & Orbit	0.4	0.0	0.0	0.0	3.4	0.0	0.0	0.0
Brain & Nervous System	3.4	2.9	0.0	4.5	3.4	1.6	0.0	1.1
Endocrine	2.1	0.0	2.1	3.3	1.7	3.1	1.5	0.0
Thyroid	0.9	0.0	2.1	3.3	0.0	2.3	1.5	0.0
Lymphomas	6.9	8.8	6.3	3.3	1.7	7.0	9.0	4.4
Hodgkin's	1.3	2.9	0.0	0.0	0.0	0.8	0.0	0.6
Non-Hodgkin's	5.6	5.9	6.3	3.3	1.7	6.2	9.0	3.9
Multiple Myeloma	2.1	0.0	0.0	1.1	0.0	7.0	4.5	1.1
Leukemia	4.7	8.8	4.2	3.3	1.7	7.8	6.0	1.7
III Defined & Unspecified	8.6	20.5	4.2	14.5	13.5	10.2	10.5	9.4



Average Annual Crude Cancer Incidence Rates per 100,000  
Alaska Natives 1969-1993  
By Service Unit  
Females

<u>Site</u>	<u>Anchorage</u>	<u>Barrow</u>	<u>Bristol Bay</u>	<u>Interior</u>	<u>Kotzebue</u>	<u>Mt.Edge.</u>	<u>Norton S.</u>	<u>Yukon-Kusk.</u>
All Sites	233.4	165.9	157.8	268.5	163.5	208.6	211.2	167.4
Oral Cavity & Pharynx	9.3	6.0	6.5	11.5	5.2	4.8	15.4	6.3
Salivary Gland	1.3	3.0	0.0	5.7	3.5	0.0	1.5	1.1
Nasopharynx	3.1	3.0	0.0	2.3	1.7	2.4	7.7	3.4
Gum & Other Oral Cavity	1.8	0.0	4.3	0.0	0.0	0.8	3.1	0.0
Digestive	64.5	42.2	64.9	51.6	64.3	48.3	67.8	64.9
Esophagus	2.2	3.0	2.2	1.1	1.7	0.8	0.0	2.3
Stomach	4.4	0.0	6.5	8.0	12.2	2.4	7.7	4.0
Colon & Rectum	46.4	30.2	43.2	29.8	29.6	25.8	35.5	41.0
Colon	33.6	27.1	30.3	21.8	19.1	20.9	32.4	34.7
Rectosigmoid Junction	3.5	3.0	0.0	2.3	7.0	0.8	1.5	2.3
Rectum	9.3	0.0	13.0	5.7	3.5	4.0	1.5	4.0
Liver	0.9	0.0	0.0	2.3	3.5	1.6	6.2	1.7
Gallbladder	0.4	6.0	4.3	4.6	10.4	5.6	7.7	6.3
Other Biliary	0.9	0.0	0.0	0.0	3.5	0.8	0.0	1.1
Pancreas	7.5	3.0	4.3	5.7	3.5	6.4	7.7	5.7
Respiratory	37.1	15.1	13.0	26.4	13.9	18.5	20.0	17.1
Lung & Bronchus	34.9	15.1	13.0	26.4	13.9	18.5	20.0	16.5
Larynx	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bones & Joints	0.4	0.0	2.2	2.3	1.7	0.8	0.0	1.1
Soft Tissue	1.3	0.0	2.2	1.1	1.7	0.0	1.5	0.0
Melanoma of Skin	0.9	0.0	0.0	0.0	0.0	2.4	0.0	1.7
Breast	44.6	27.1	19.5	74.6	24.3	65.2	44.7	21.1
Female Genital	36.2	33.2	19.5	48.2	33.0	31.4	24.7	17.1
Cervix uteri	19.0	18.1	8.6	27.5	19.1	17.7	18.5	8.5
Corpus uteri/Uterus, nos	1.8	6.0	2.2	10.3	3.5	6.4	0.0	3.4
Ovary	12.8	9.0	6.5	10.3	8.7	4.8	6.2	3.4
Urinary	8.4	9.0	8.6	14.9	10.4	7.2	6.2	13.7
Bladder	3.5	3.0	2.2	0.0	0.0	0.8	1.5	0.0
Kidney & Renal Pelvis	4.9	6.0	6.5	14.9	10.4	5.6	4.6	13.7
Eye & Orbit	0.0	0.0	2.2	1.1	0.0	0.8	0.0	1.1
Brain & Nervous System	1.3	0.0	0.0	0.0	0.0	1.6	6.2	2.8
Endocrine	8.8	3.0	4.3	9.2	3.5	7.2	3.1	3.4
Thyroid	8.8	3.0	4.3	9.2	3.5	7.2	3.1	3.4
Lymphomas	5.3	6.0	4.3	5.7	0.0	3.2	4.6	2.8
Hodgkin's	1.3	0.0	0.0	0.0	0.0	0.8	0.0	1.1
Non-Hodgkin's	4.0	6.0	4.3	5.7	0.0	2.4	4.6	1.7
Multiple Myeloma	1.3	3.0	0.0	2.3	0.0	2.4	0.0	0.6
Leukemia	2.2	3.0	6.5	5.7	0.0	3.2	0.0	2.8
Ill Defined & Unspecified	11.5	18.1	4.3	12.6	5.2	11.3	17.0	10.8

**Average Annual Age-Adjusted\* Cancer Mortality Rates per 100,000**  
**Ratio of Alaska Native Cancer Mortality Rates 1989-93 to US 1988-1992**  
**Males**

<u>Site</u>	<u>No. Deaths</u>	<u>Alaska Native Mortality Rate</u>	<u>US Mortality Rate<sup>+</sup></u>	<u>Alaska:US Rate Ratio</u>
All Sites	247	210.8	212.8	1.0
Oral Cavity/Pharynx	21	17.4	4.1	4.2 **
Nasopharynx	20	16.4	0.3	54.7 **
Digestive	81	68.3	49.8	1.4
Esophagus	9	7.9	5.3	1.5
Stomach	25	20.6	6.1	3.4 *
Colon & Rectum	29	24.9	22.9	1.1
Liver	9	6.1	3.8	1.6
Gallbladder	4	3.8	0.5	7.6
Pancreas	5	5.0	9.7	0.5
Lung & Bronchus	72	65.8	72.5	0.9
Male Genital	10	8.9	24.4	0.4
Prostate	8	7.2	24.0	0.3 *
Urinary	18	16.3	11.0	1.5
Bladder	3	2.8	5.8	0.5
Kidney & Renal Pelvis	15	13.5	5.0	2.7
Lymphomas	5	3.9	8.8	0.4
Leukemia	7	3.3	8.5	0.4
Ill Defined & Unspecified	24	19.5	14.3	1.4

**Females**

<u>Site</u>	<u>No. Deaths</u>	<u>Alaska Native Mortality Rate</u>	<u>US Mortality Rate<sup>+</sup></u>	<u>Alaska:US Rate Ratio</u>
All Sites	236	177.2	140.0	1.3
Oral Cavity/Pharynx	9	7.4	1.6	4.6
Nasopharynx	5	4.1	0.1	41.0 **
Digestive	68	51.9	30.0	1.7 *
Esophagus	3	2.3	1.2	1.9
Stomach	8	5.1	2.7	1.9
Colon & Rectum	30	24.0	15.3	1.6
Liver	5	3.5	1.8	1.9
Gallbladder	5	3.8	0.8	4.8
Pancreas	15	11.6	6.9	1.7
Lung & Bronchus	55	43.0	31.8	1.4
Breast	29	20.7	27.0	0.8
Female Genital	21	12.9	14.5	0.9
Cervix uteri	11	5.8	2.5	2.3
Ovary	9	6.3	8.0	0.8
Urinary	17	13.7	4.1	3.3 *
Bladder	3	2.5	1.7	1.5
Kidney & Renal Pelvis	14	11.2	2.3	4.9 *
Lymphomas	7	5.5	5.8	0.9
Leukemia	2	1.6	5.0	0.3
Ill Defined & Unspecified	19	14.6	9.5	1.5

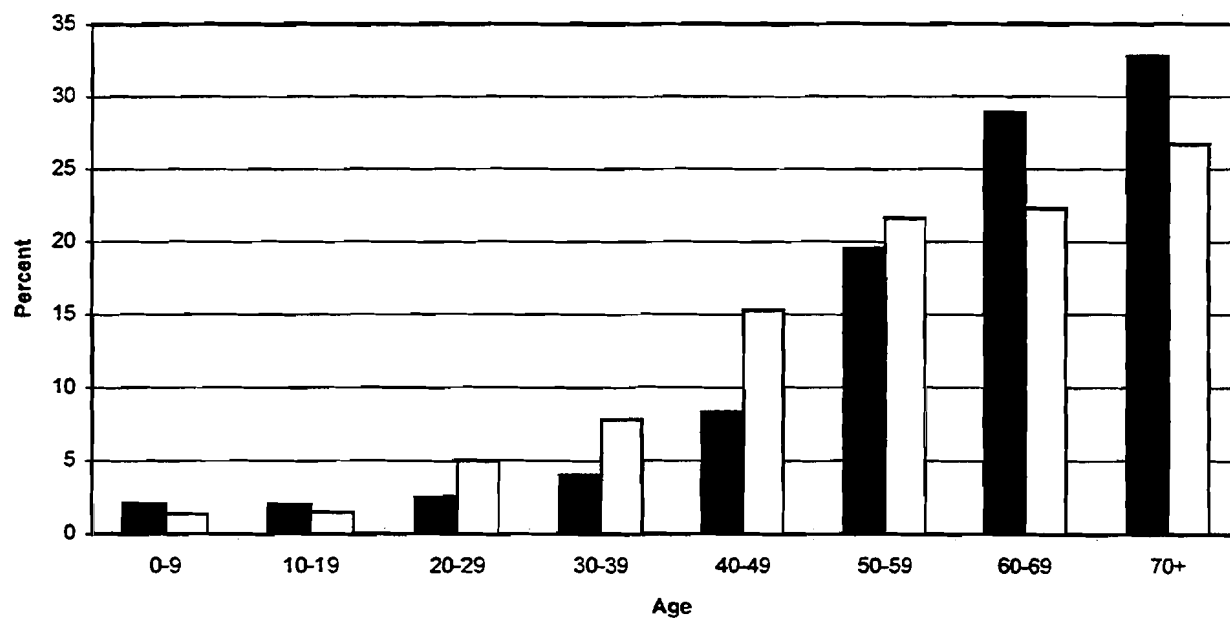
\* Rates are age-adjusted to the 1970 U.S. standard population.

+ Rates are for U.S. White population

\* Statistically significant at the 95% C.I.; \*\* statistically significant at the 99% C.I.

**Invasive Cancers, Alaska Natives, 1969-1993**  
**Percent by Age and Sex**

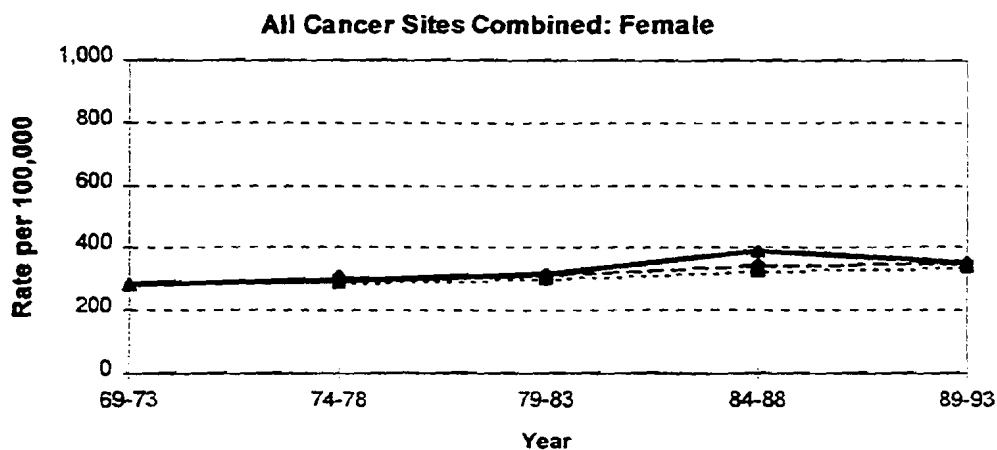
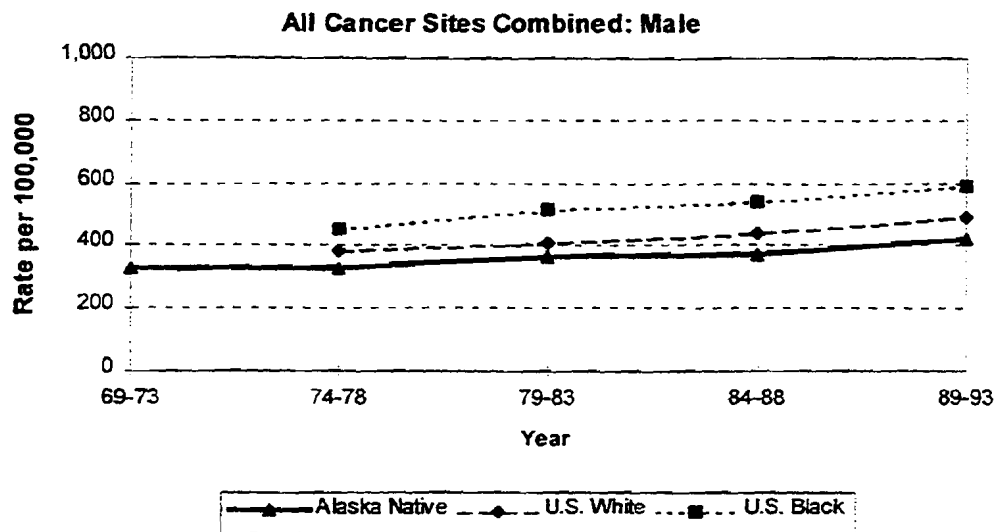
■ Males  
□ Females



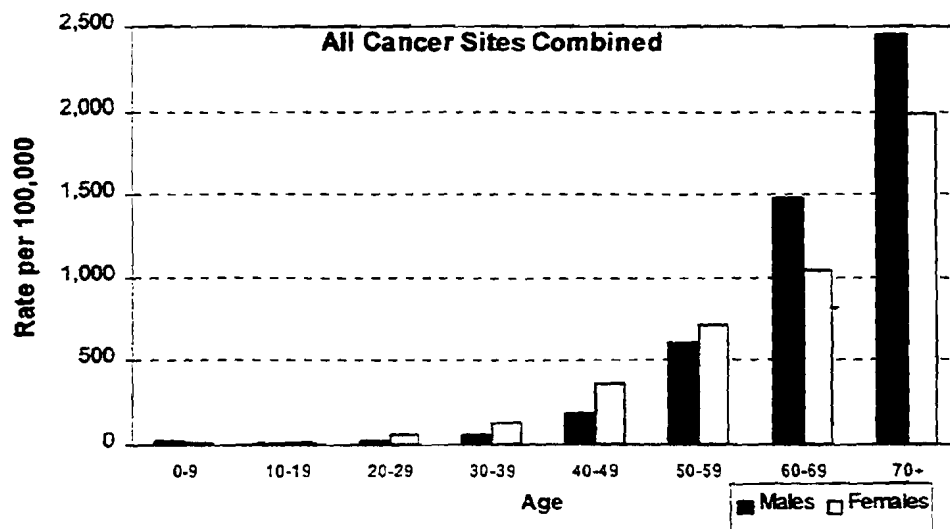
Percent of All Cancers by Age and Sex									
Ages	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	Total
Males	2.1	2.0	2.5	4.0	8.3	19.5	28.9	32.8	100.0
Females	1.4	1.5	5.0	7.8	15.3	21.6	22.3	26.7	100.0

# All Sites

## Average Annual Age-Adjusted\* Cancer Incidence Rates, Alaska Natives 1969-1993 and US 1974-1992\*



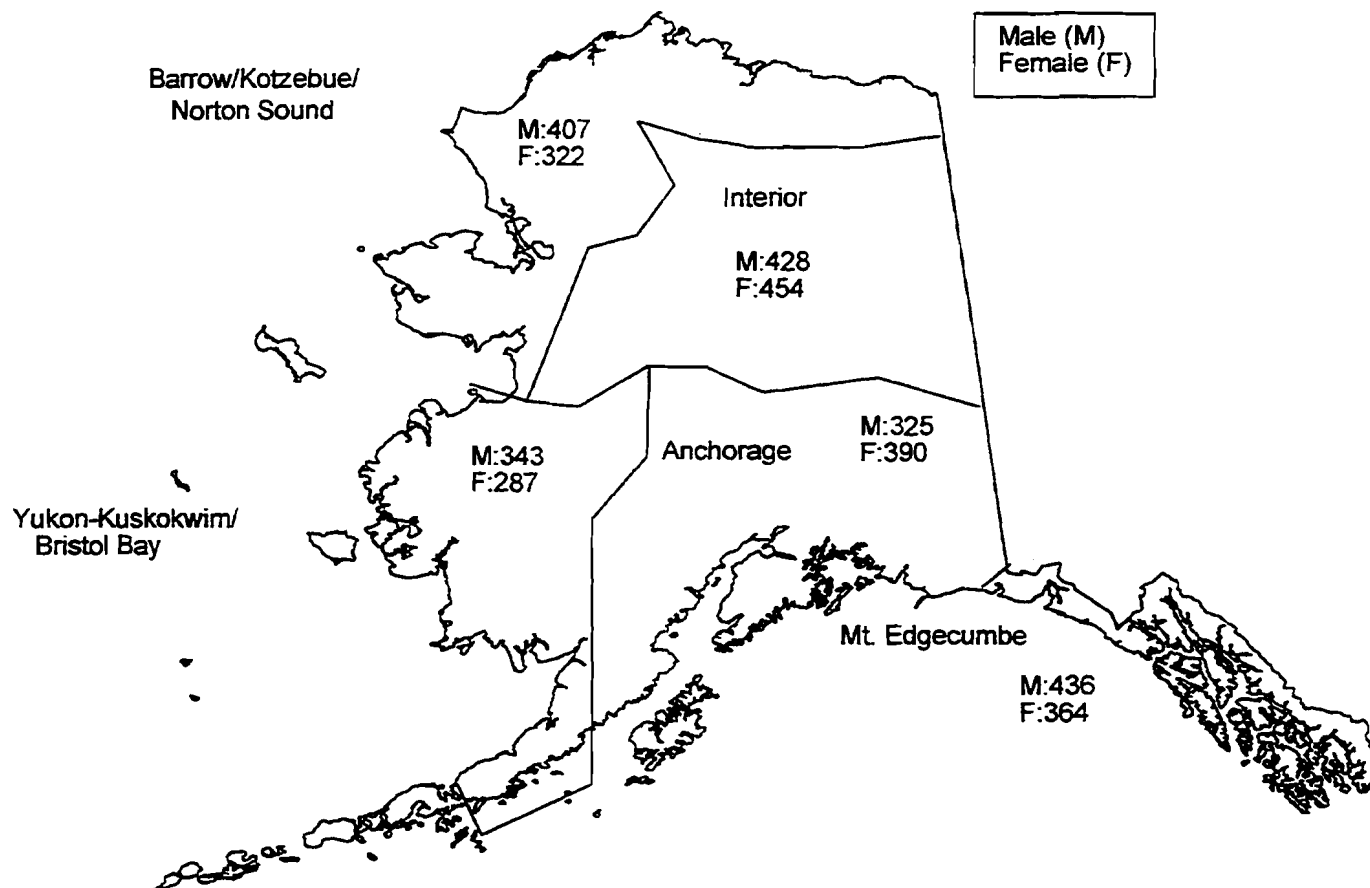
## Average Annual Age-Specific Cancer Incidence Rates Alaska Natives 1969-1993



\* Rates are age-adjusted to the 1970 U.S. standard population.

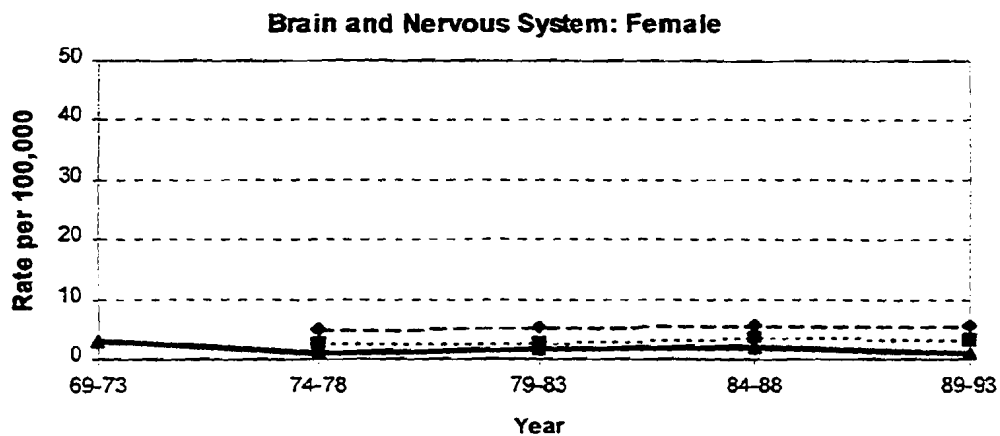
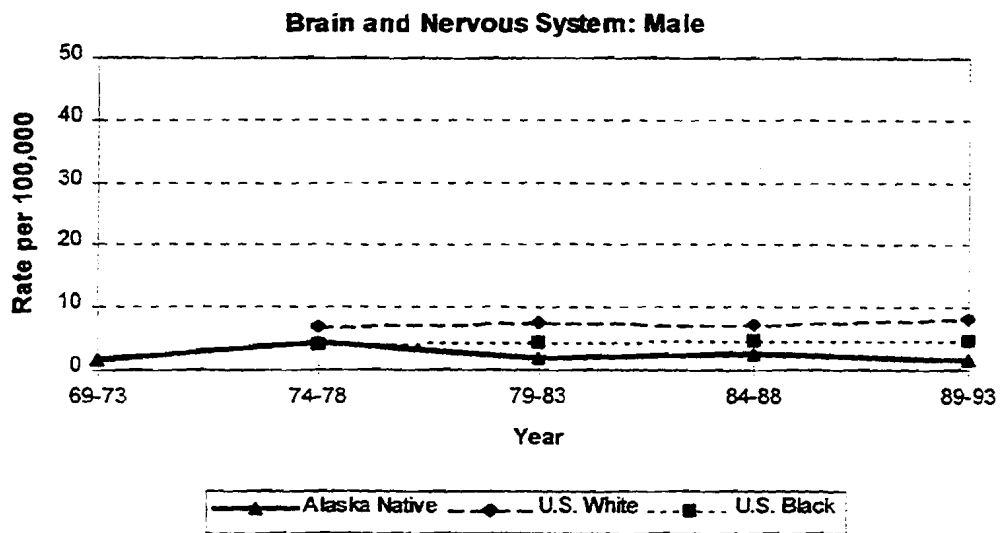
\* U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993  
All Cancer Sites Combined**

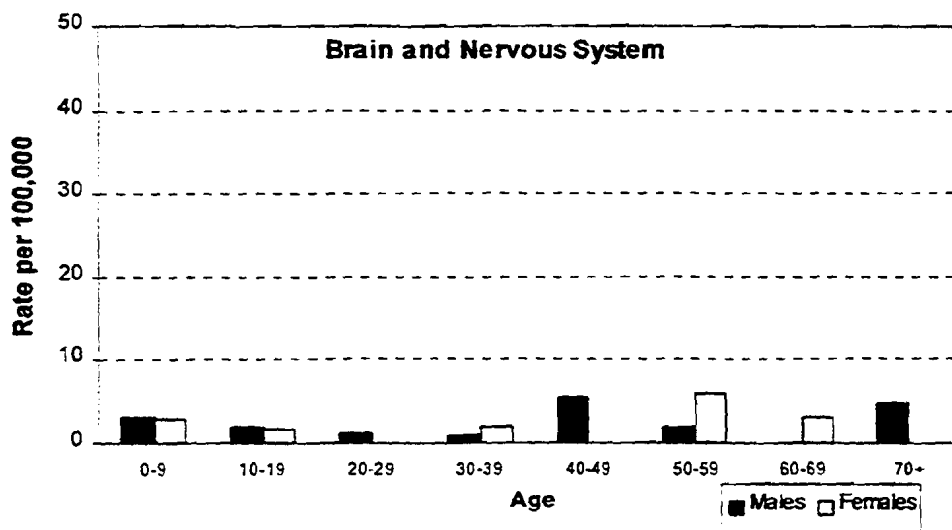


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	413	325	528	390
Barrow/Kotzebue/Norton Sound	347	407	286	322
Yukon-Kuskokwim/Bristol Bay	402	343	367	287
Interior	196	428	234	454
Mt. Edgecumbe	279	436	259	364

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\***



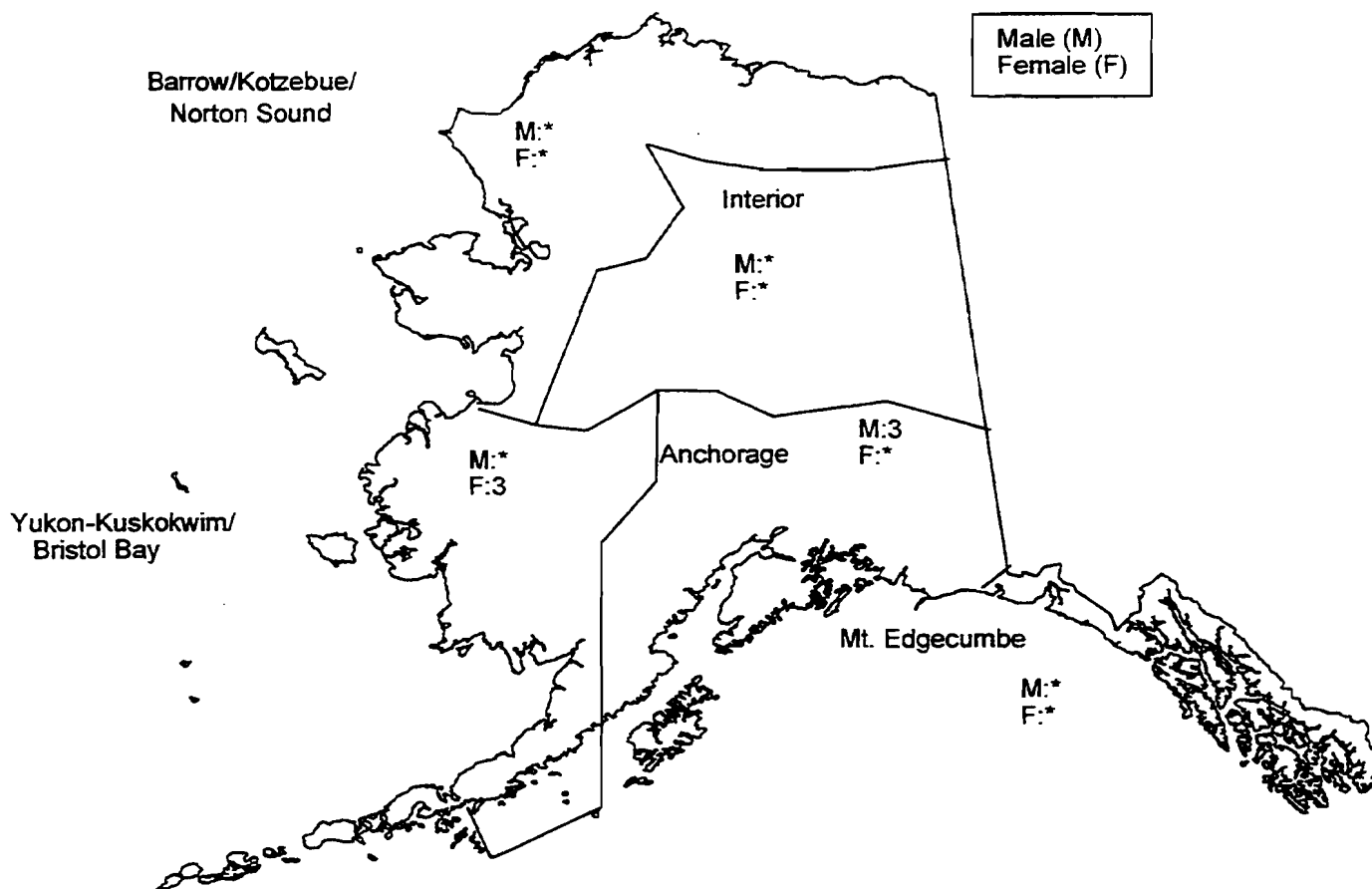
**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**



\* Rates are age-adjusted to the 1970 U.S. standard population.

\* U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates**  
**Alaska Natives 1969-1993**  
**Brain/NS**

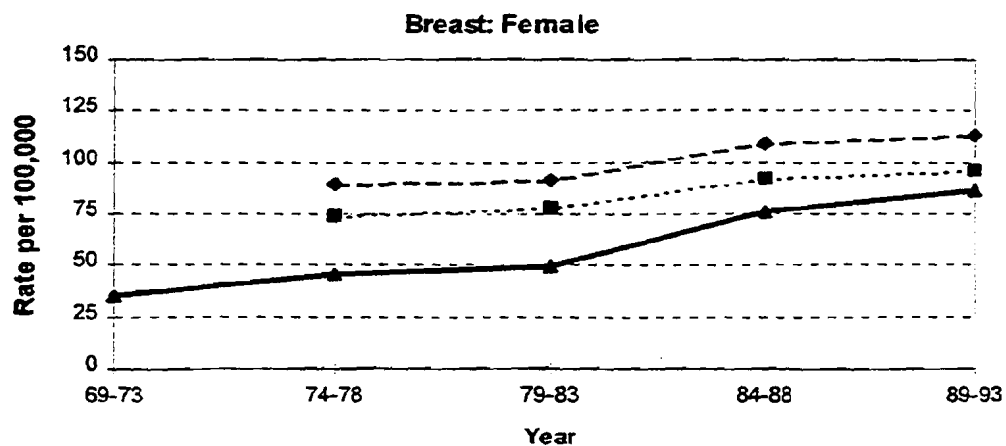
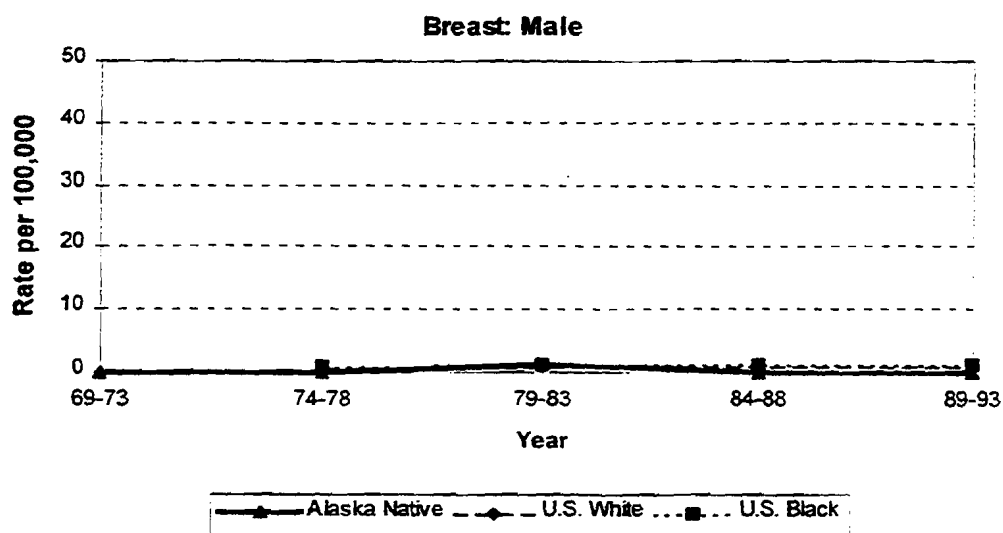


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	8	3	3	*
Barrow/Kotzebue/Norton Sound	3	*	4	*
Yukon-Kuskokwim/Bristol Bay	2	*	5	3
Interior	4	*	0	*
Mt. Edgecumbe	2	*	2	*

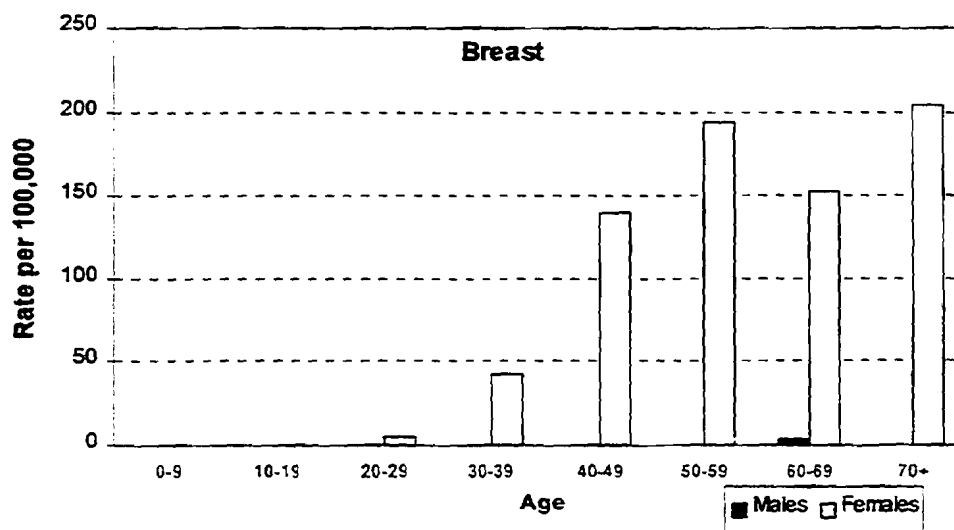
\* Rates not shown for less than five cases

# Breast

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992†**



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**



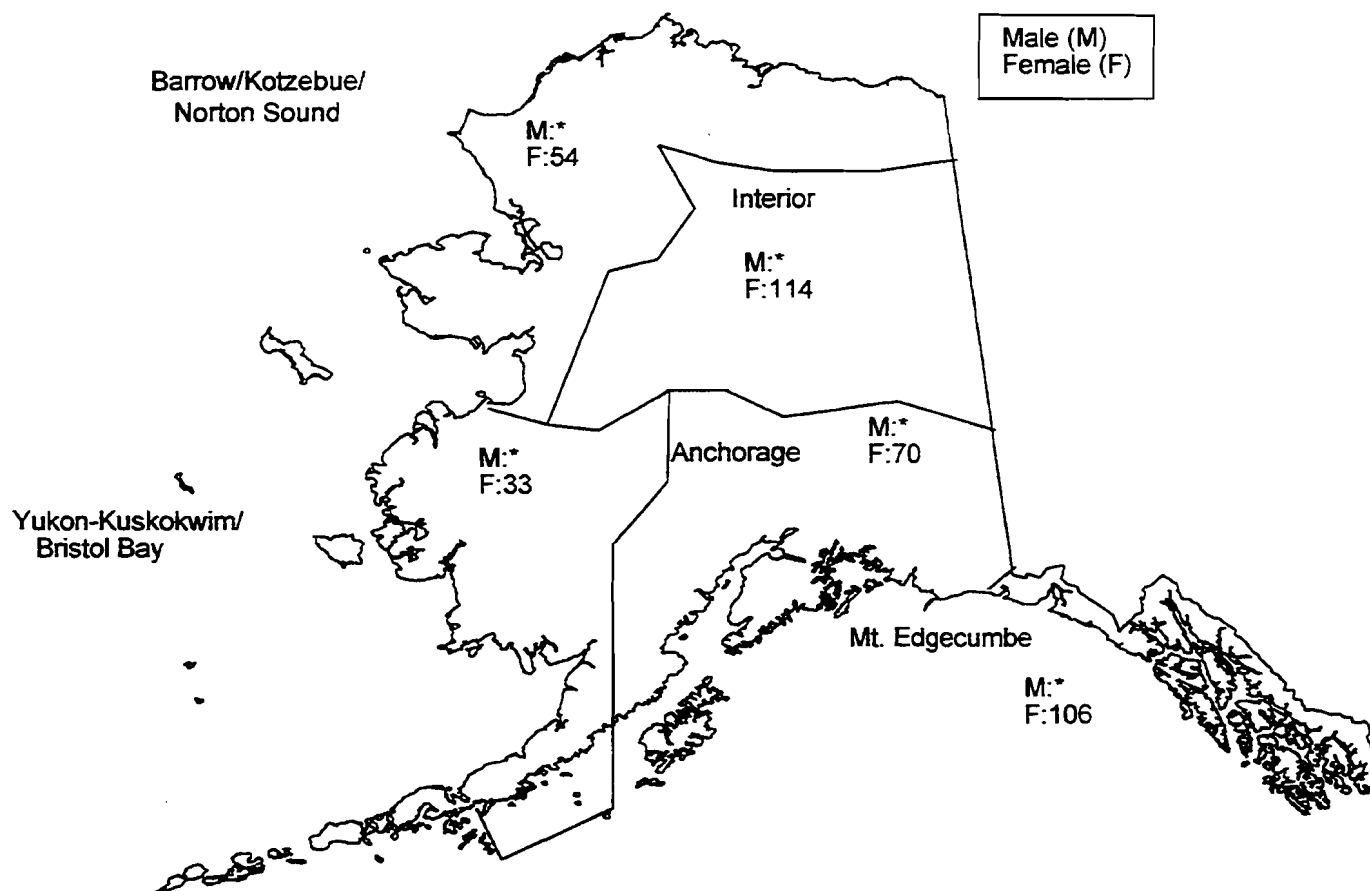
\* Rates are age-adjusted to the 1970 U.S. standard population.

† U.S. data from SEER program, National Cancer Institute, 1974-1992



**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

**Breast**

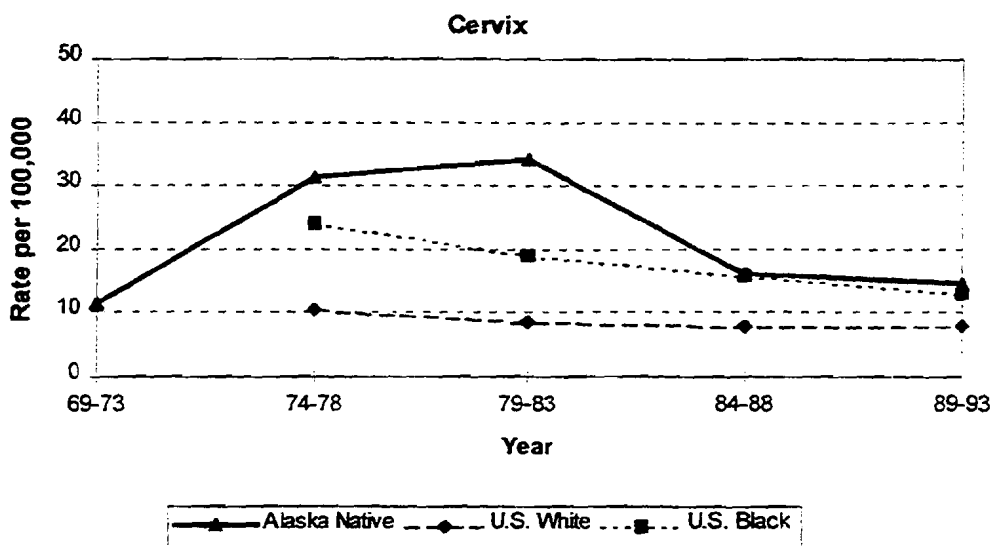


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	0	*	101	70
Barrow/Kotzebue/Norton Sound	0	*	52	54
Yukon-Kuskokwim/Bristol Bay	0	*	46	33
Interior	0	*	65	114
Mt. Edgecumbe	1	*	81	106

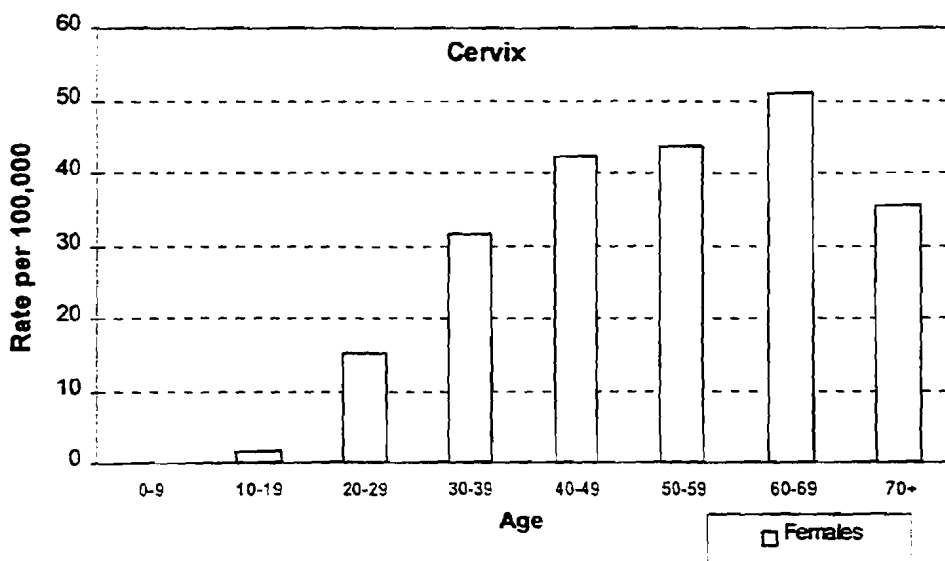
\* Rates not shown for less than five cases

# Cervix

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\***



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**

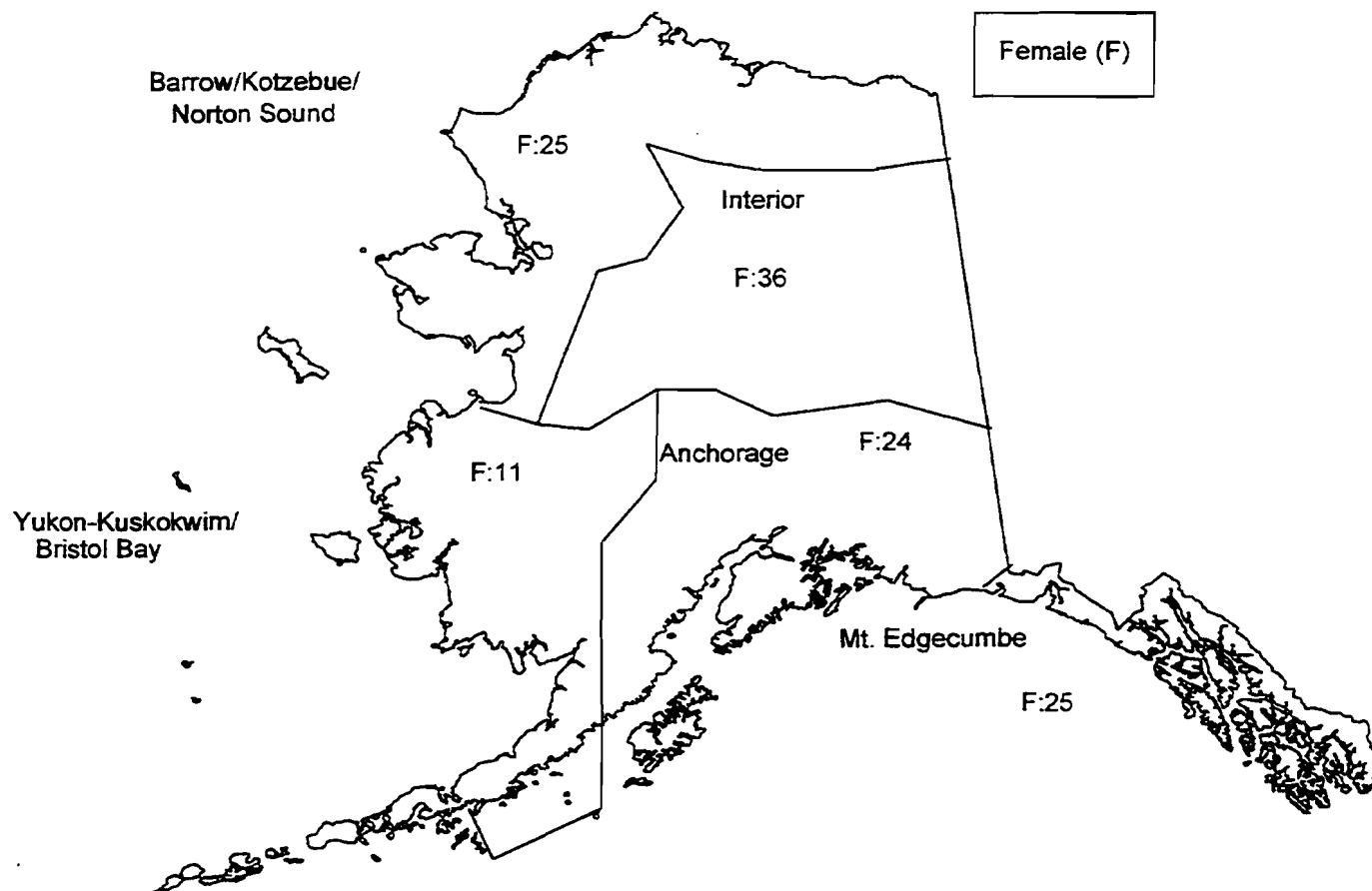


\* Rates are age-adjusted to the 1970 U.S. standard population.

▪ U.S. data from SEER program, National Cancer Institute, 1974-1992

Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993

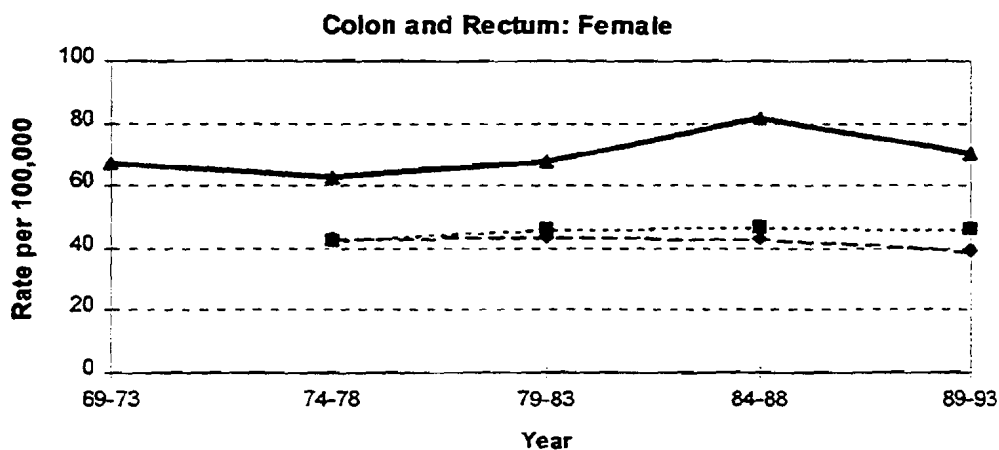
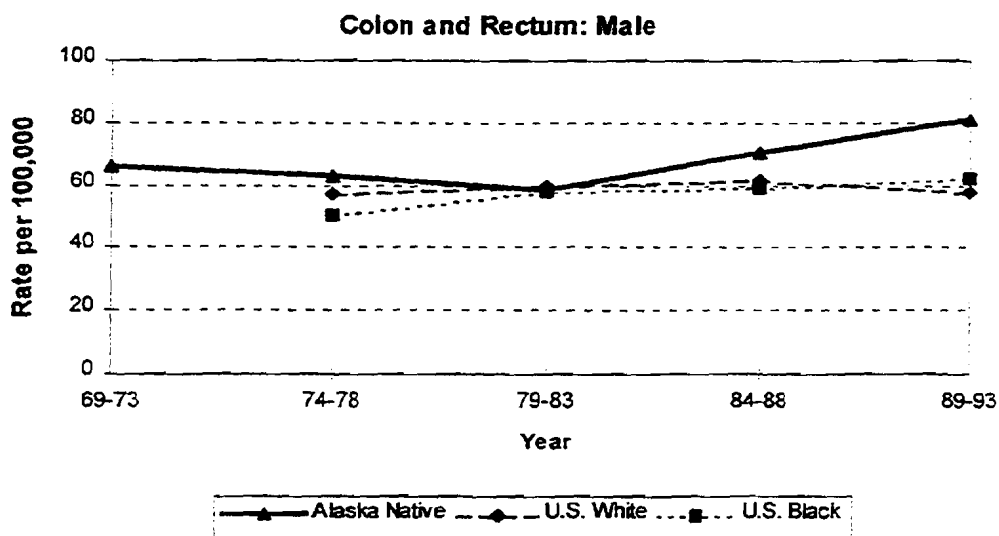
Cervix



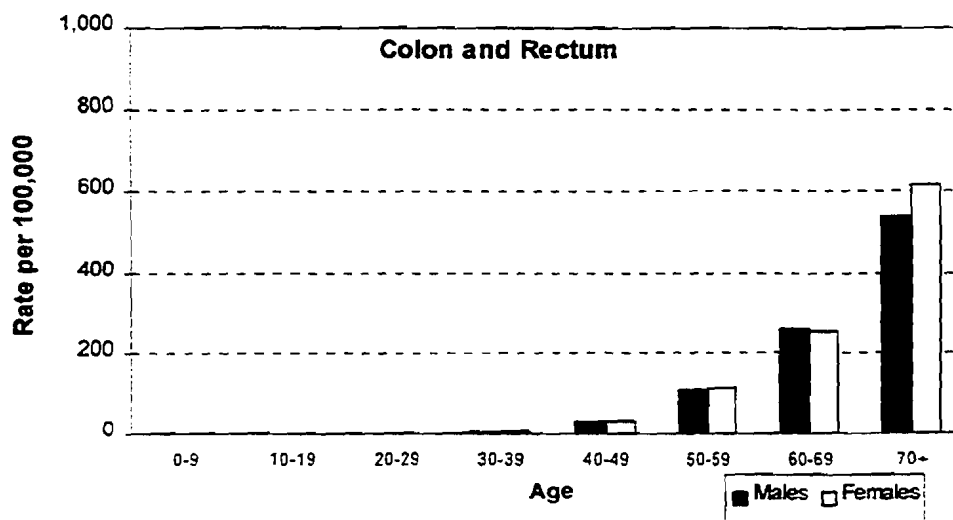
Numbers of Cases and Rates per 100,000		
Service Unit	Female	
	Cases	Rate
Anchorage	43	24
Barrow/Kotzebue/Norton Sound	29	25
Yukon-Kuskokwim/Bristol Bay	19	11
Interior	24	36
Mt. Edgecumbe	22	25

# Colon/Rectum

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993



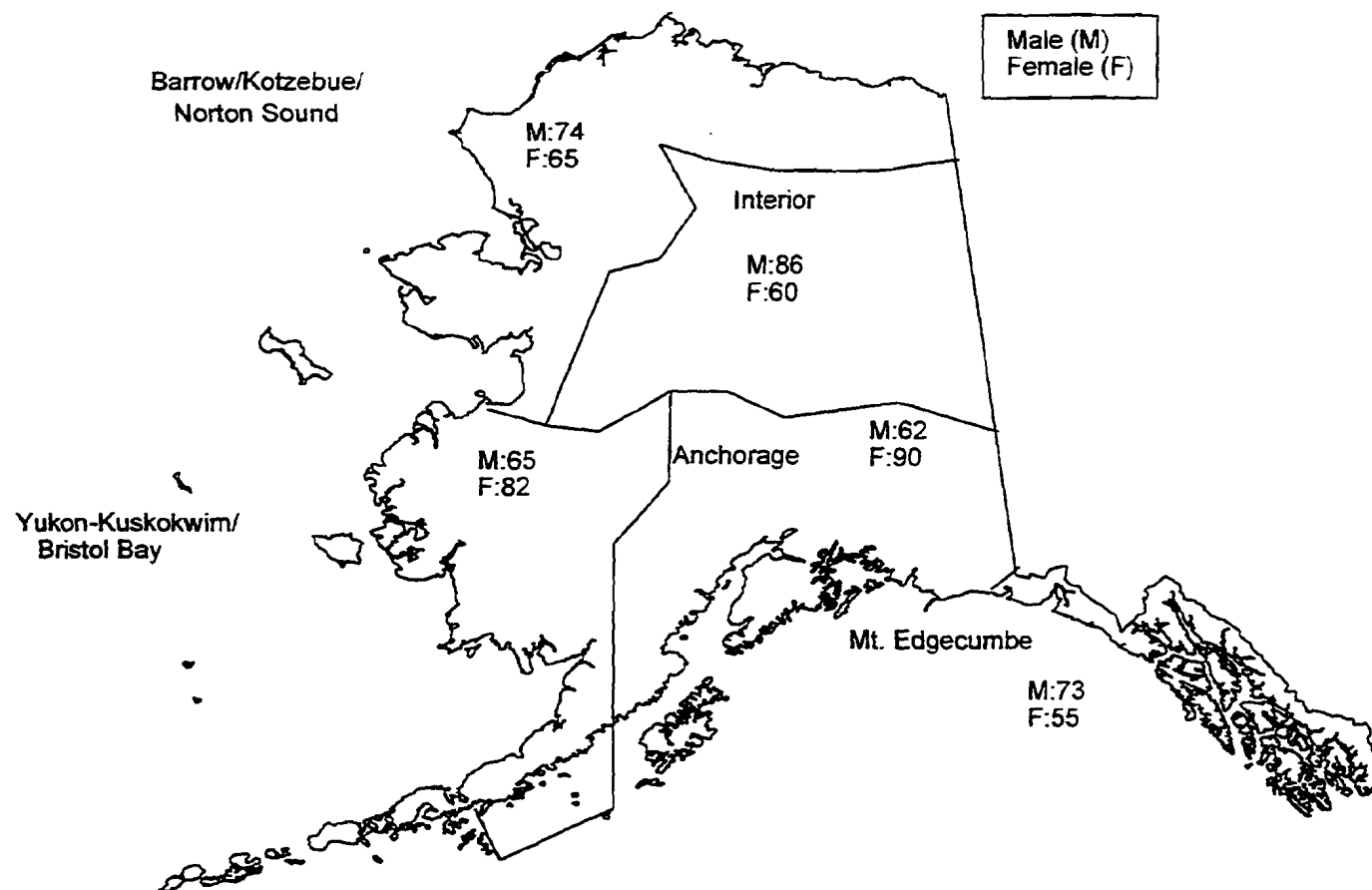
\* Rates are age-adjusted to the 1970 U.S. standard population.

\* U.S. data from SEER program, National Cancer Institute, 1974-1992

## Average Annual Age-Adjusted Cancer Incidence Rates

Alaska Natives 1969-1993

## Colon/Rectum

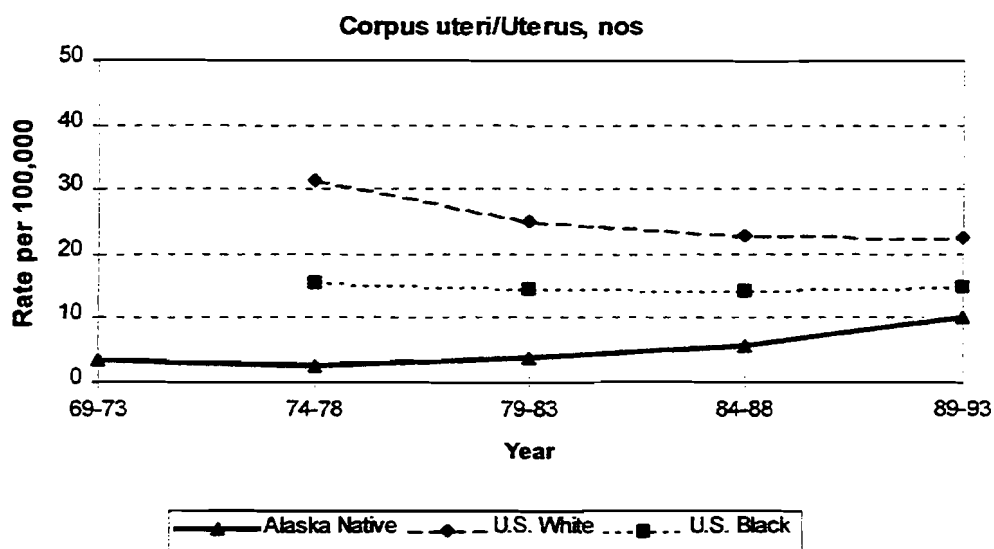


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	71	62	105	90
Barrow/Kotzebue/Norton Sound	57	74	50	65
Yukon-Kuskokwim/Bristol Bay	72	65	92	82
Interior	38	86	26	60
Mt. Edgecumbe	45	73	32	55

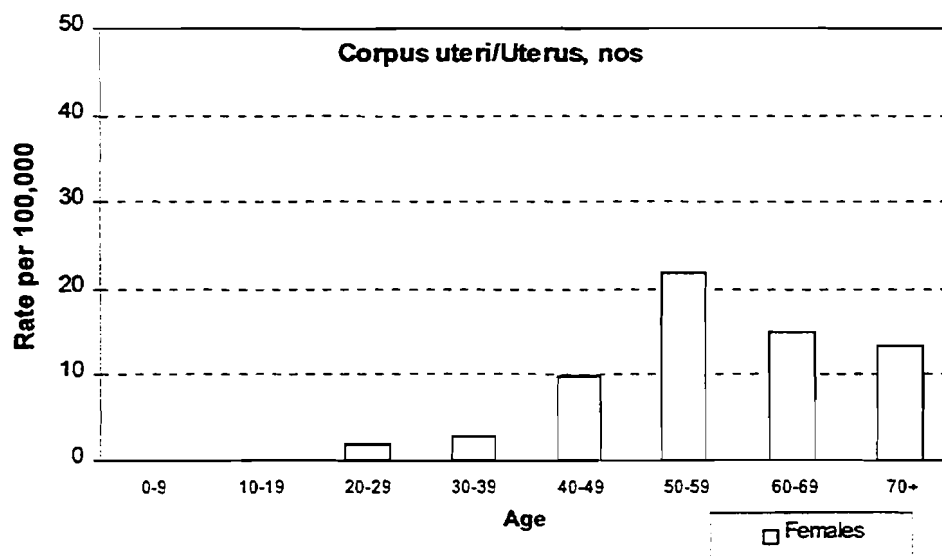
# Uterus

## Average Annual Age-Adjusted\* Cancer Incidence Rates, Alaska Natives 1969-1993 and US 1974-1992\*

The most frequently diagnosed cancers in men and women are colon/rectum, lung, breast, and prostate; comprising more than half of the total cancer burden.



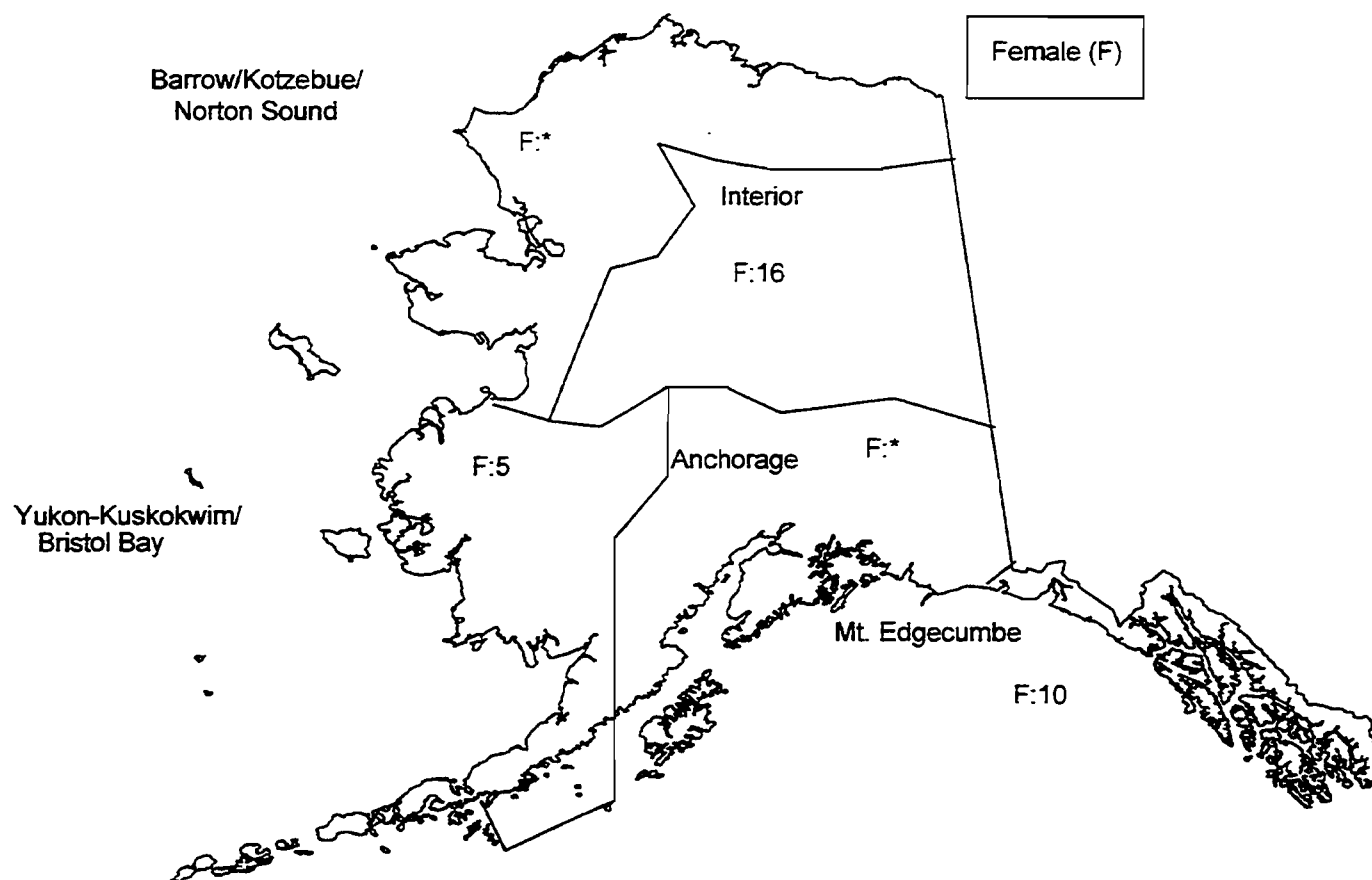
## Average Annual Age-Specific Cancer Incidence Rates Alaska Natives 1969-1993



\* Rates are age-adjusted to the 1970 U.S. standard population.

■ U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993  
Corpus uteri/Uterus, nos**

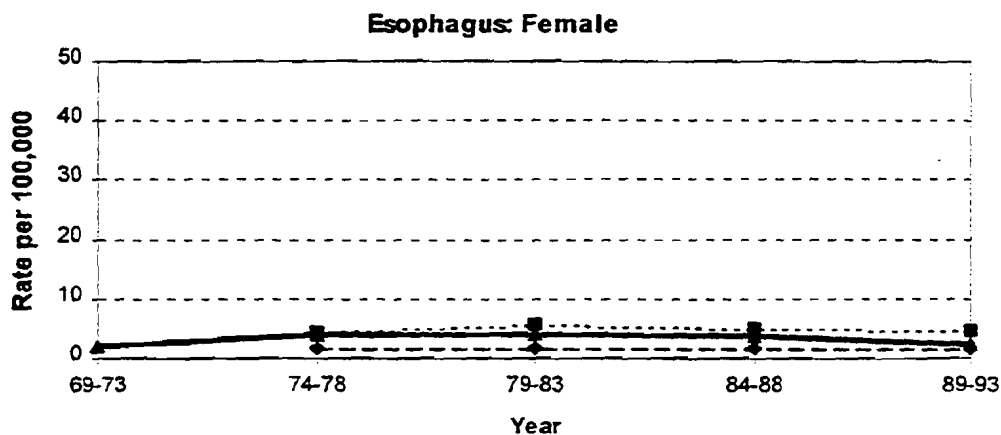
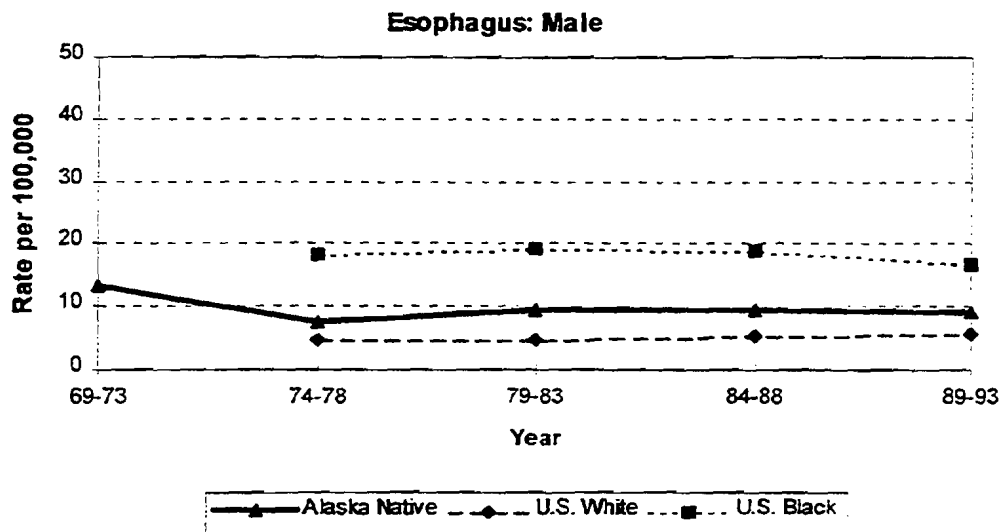


Numbers of Cases and Rates per 100,000		
Service Unit	Female	
	Cases	Rate
Anchorage	4	*
Barrow/Kotzebue/Norton Sound	4	*
Yukon-Kuskokwim/Bristol Bay	7	5
Interior	9	16
Mt. Edgecumbe	8	10

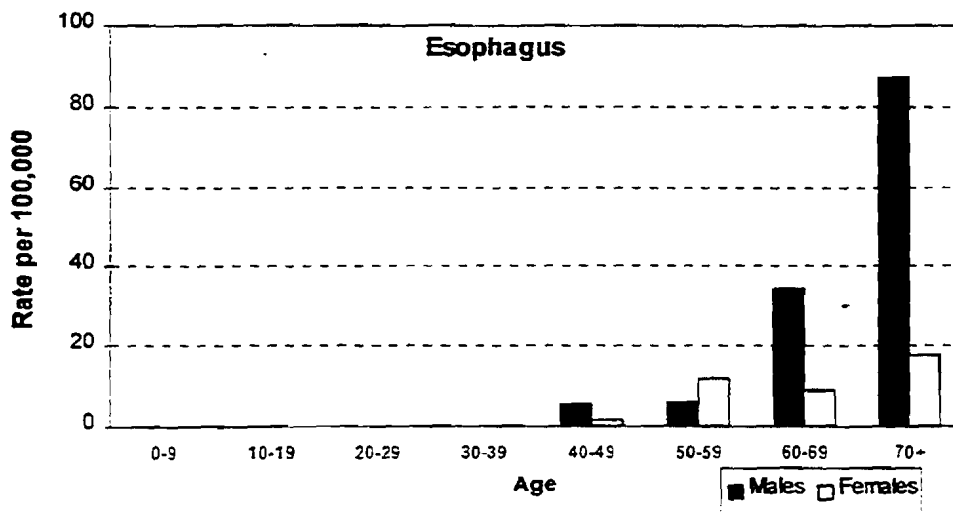
\* Rates not shown for less than five cases

# Esophagus

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992<sup>†</sup>



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993



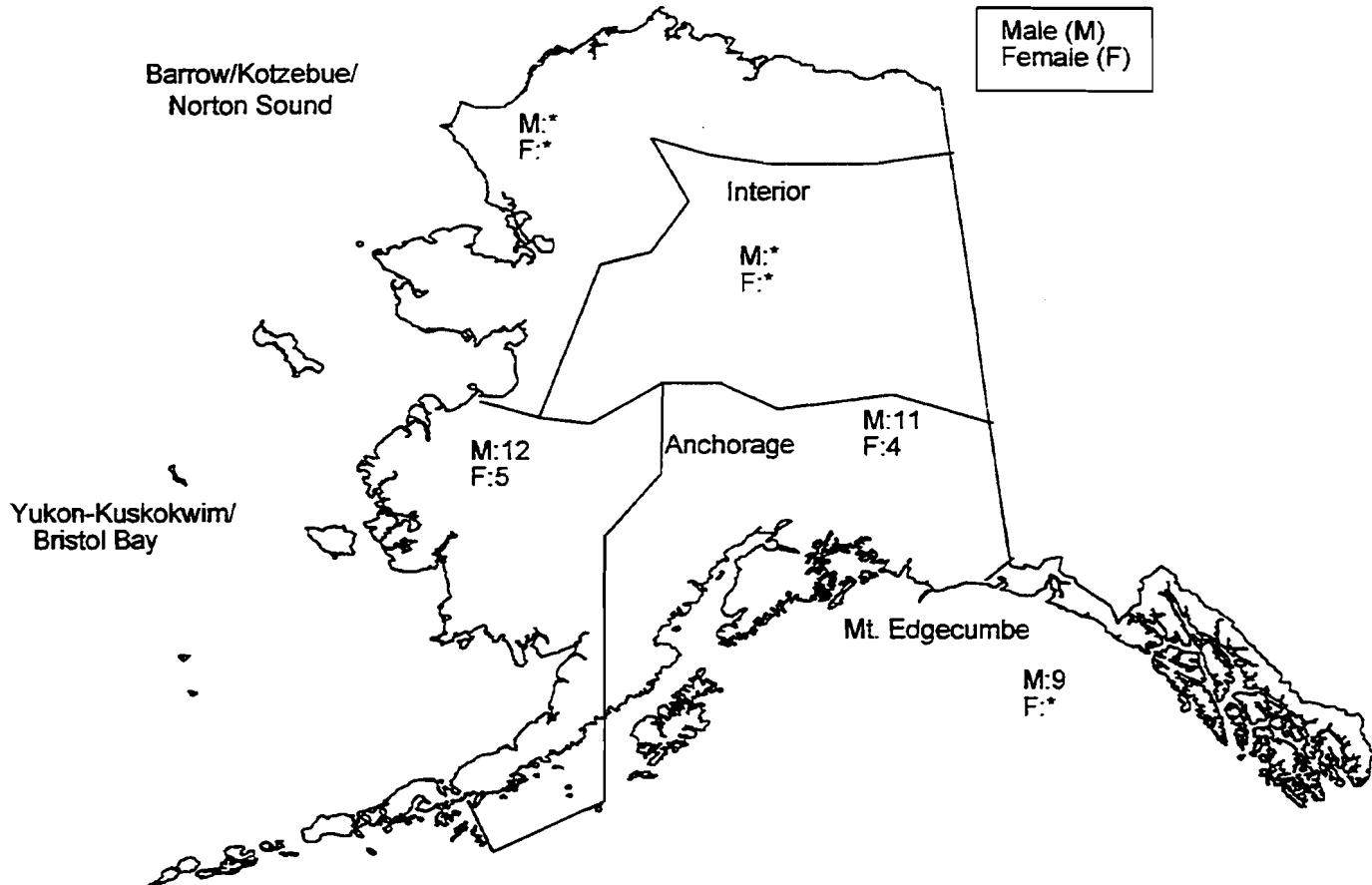
\* Rates are age-adjusted to the 1970 U.S. standard population.

<sup>†</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992



Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993

Esophagus

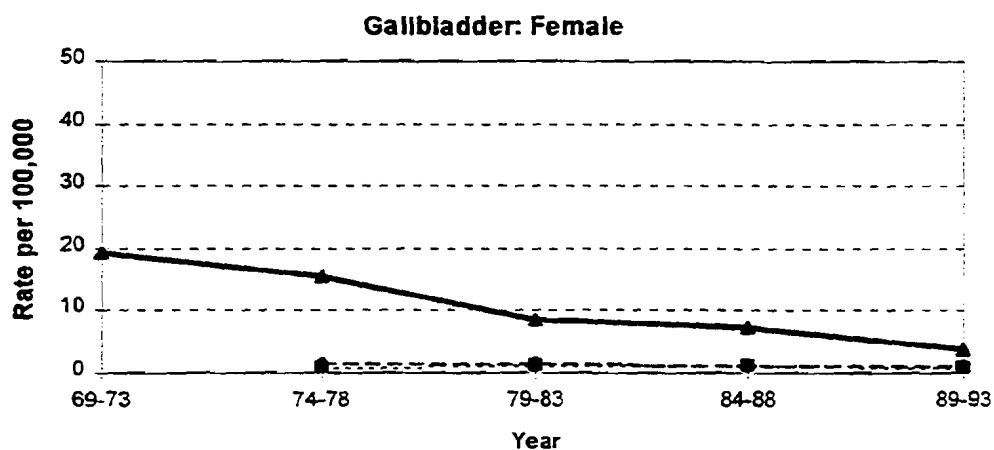
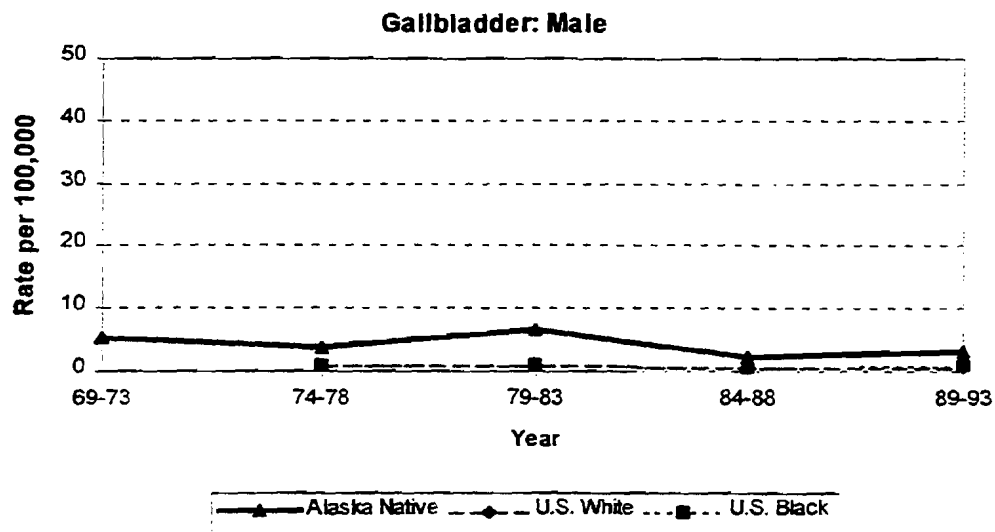


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	14	11	5	4
Barrow/Kotzebue/Norton Sound	3	*	2	*
Yukon-Kuskokwim/Bristol Bay	12	12	5	5
Interior	3	*	1	*
Mt. Edgecumbe	5	9	1	*

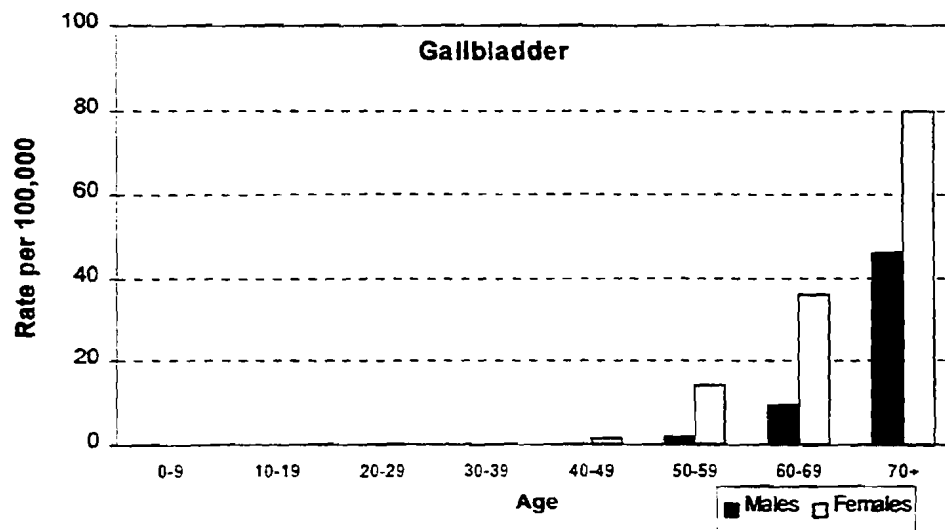
\* Rates not shown for less than five cases

# Gallbladder

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992<sup>†</sup>**



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**

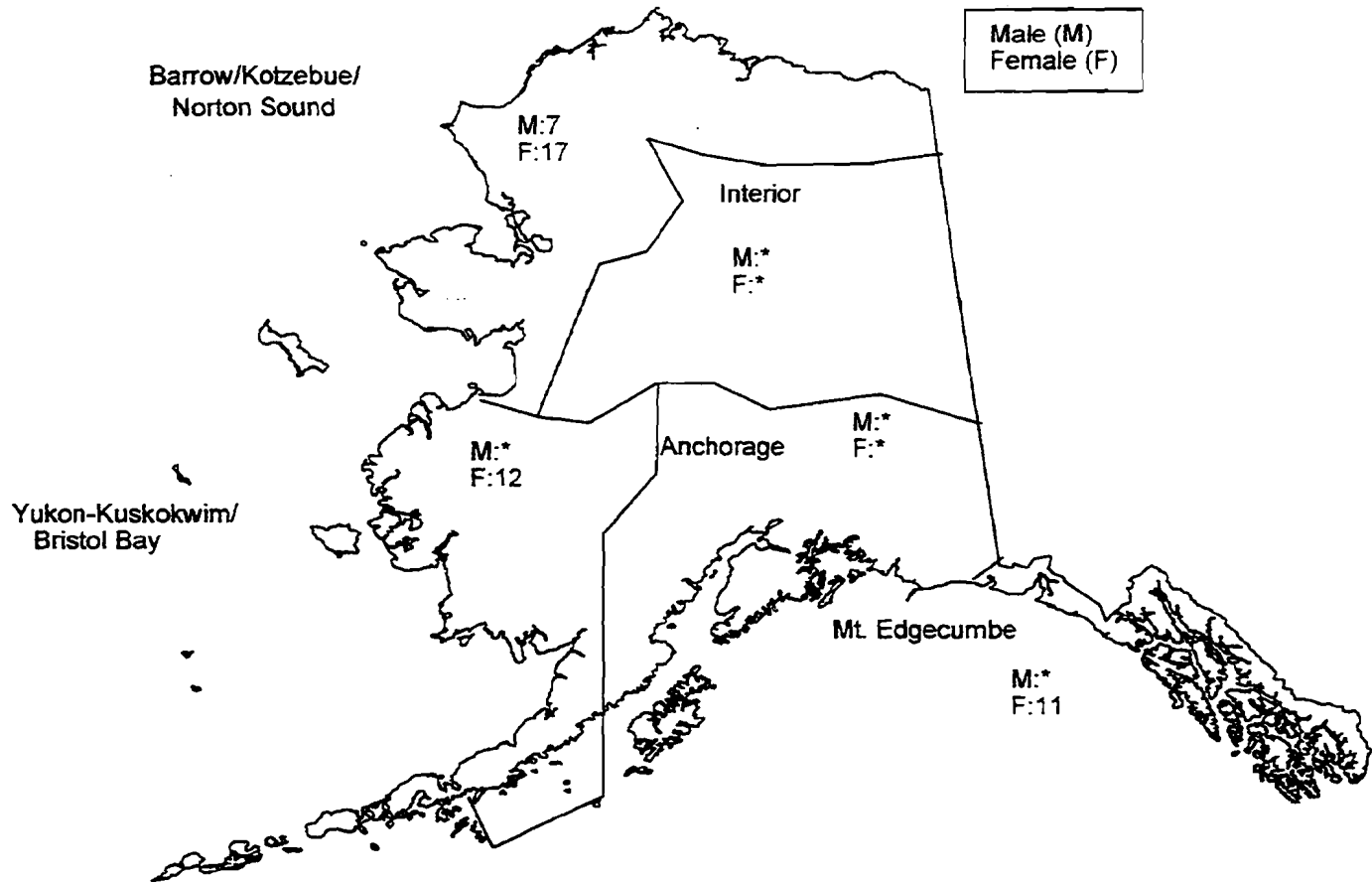


\* Rates are age-adjusted to the 1970 U.S. standard population.

<sup>†</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

**Gallbladder**

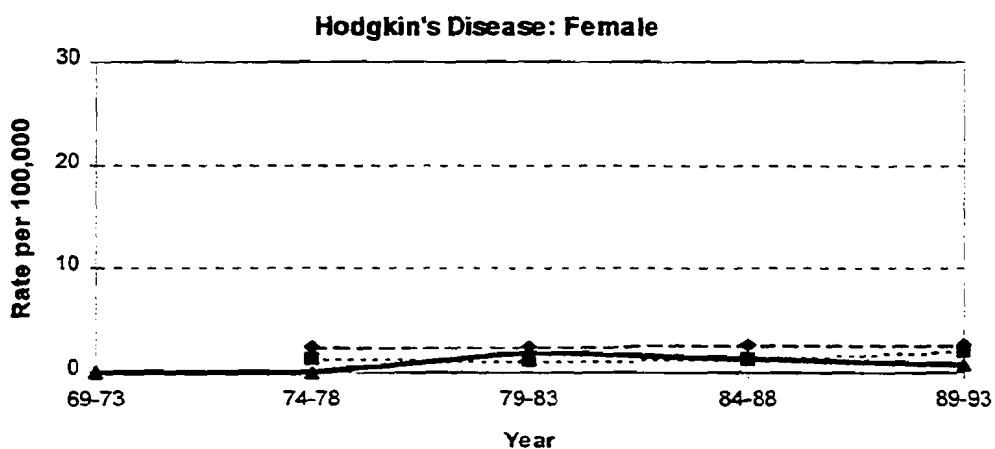
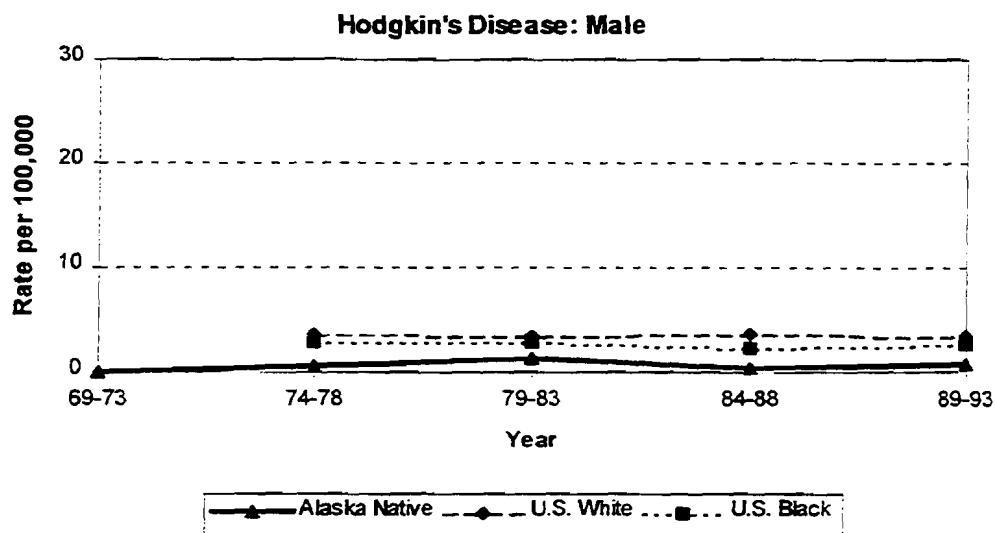


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	2	*	1	*
Barrow/Kotzebue/Norton Sound	5	7	13	17
Yukon-Kuskokwim/Bristol Bay	3	*	13	12
Interior	0	*	4	*
Mt. Edgecumbe	4	*	7	11

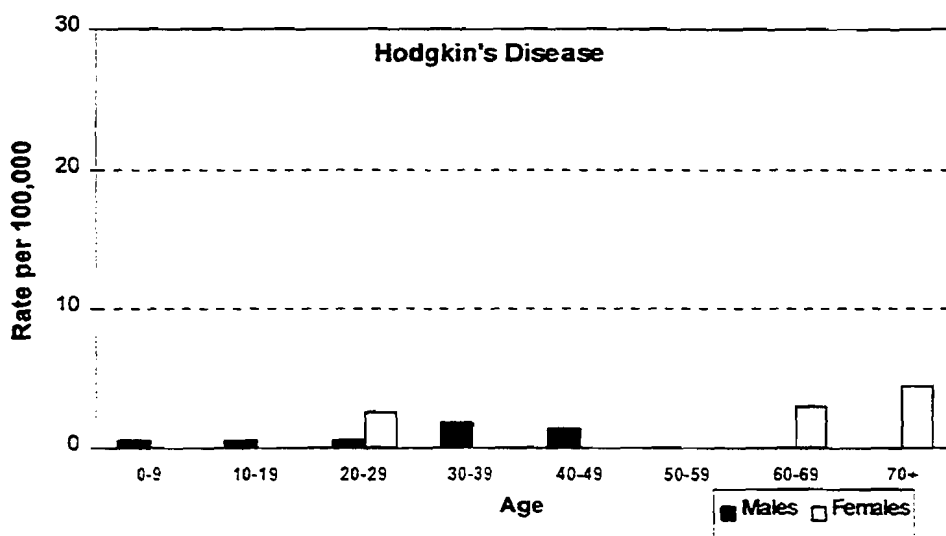
\* Rates not shown for less than five cases

# Hodgkin's Disease

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992†



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993



\* Rates are age-adjusted to the 1970 U.S. standard population.

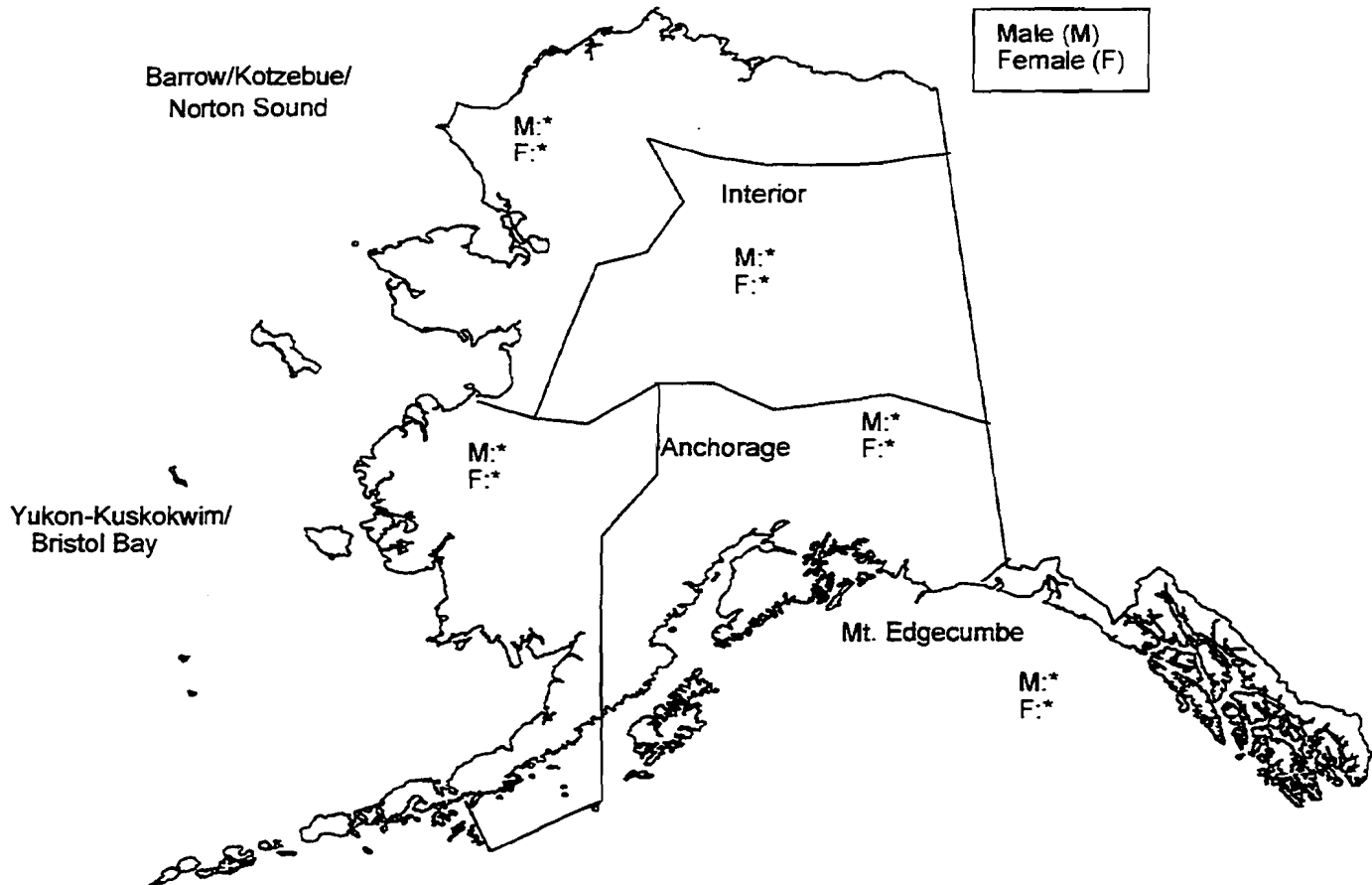
† U.S. data from SEER program, National Cancer Institute, 1974-1992

# Hodgkin's Disease

## Average Annual Age-Adjusted Cancer Incidence Rates

Alaska Natives 1969-1993

### Hodgkin's Disease

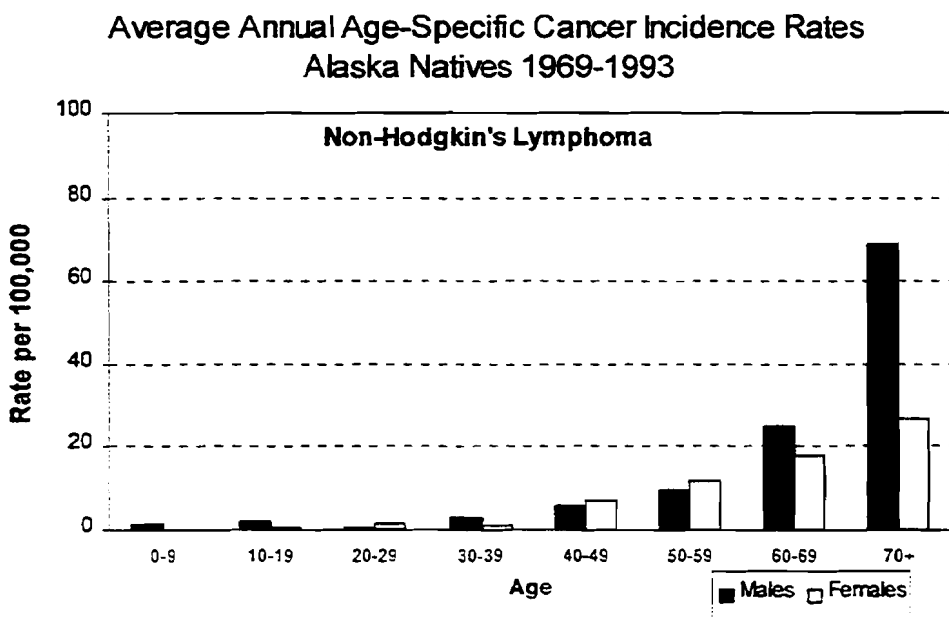
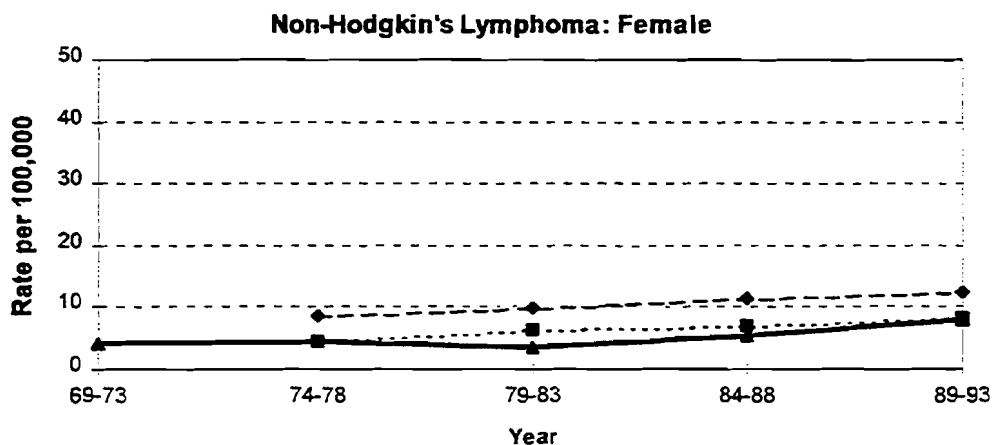
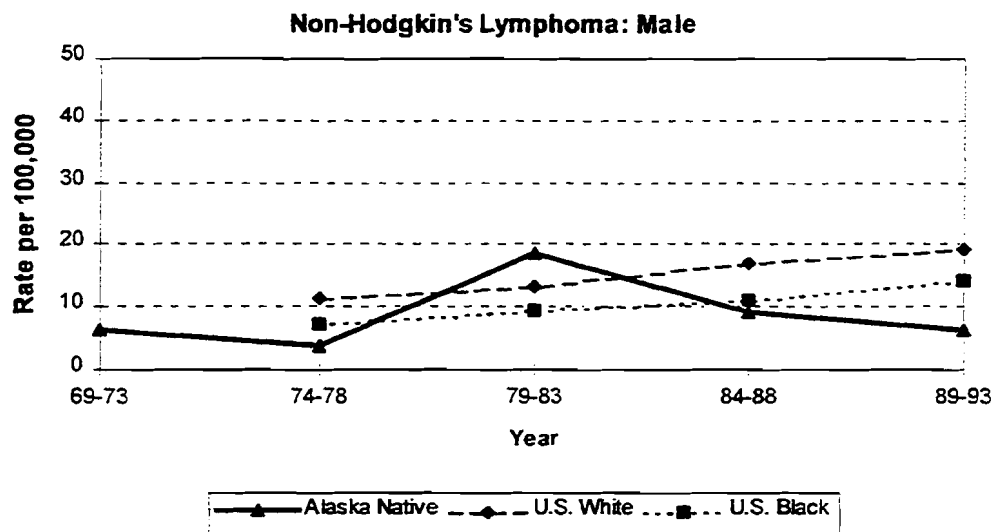


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	3	*	3	*
Barrow/Kotzebue/Norton Sound	1	*	0	*
Yukon-Kuskokwim/Bristol Bay	1	*	2	*
Interior	0	*	0	*
Mt. Edgecumbe	1	*	1	*

\* Rates not shown for less than five cases

# Non-Hodgkin's Lymphoma

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*



\* Rates are age-adjusted to the 1970 U.S. standard population.

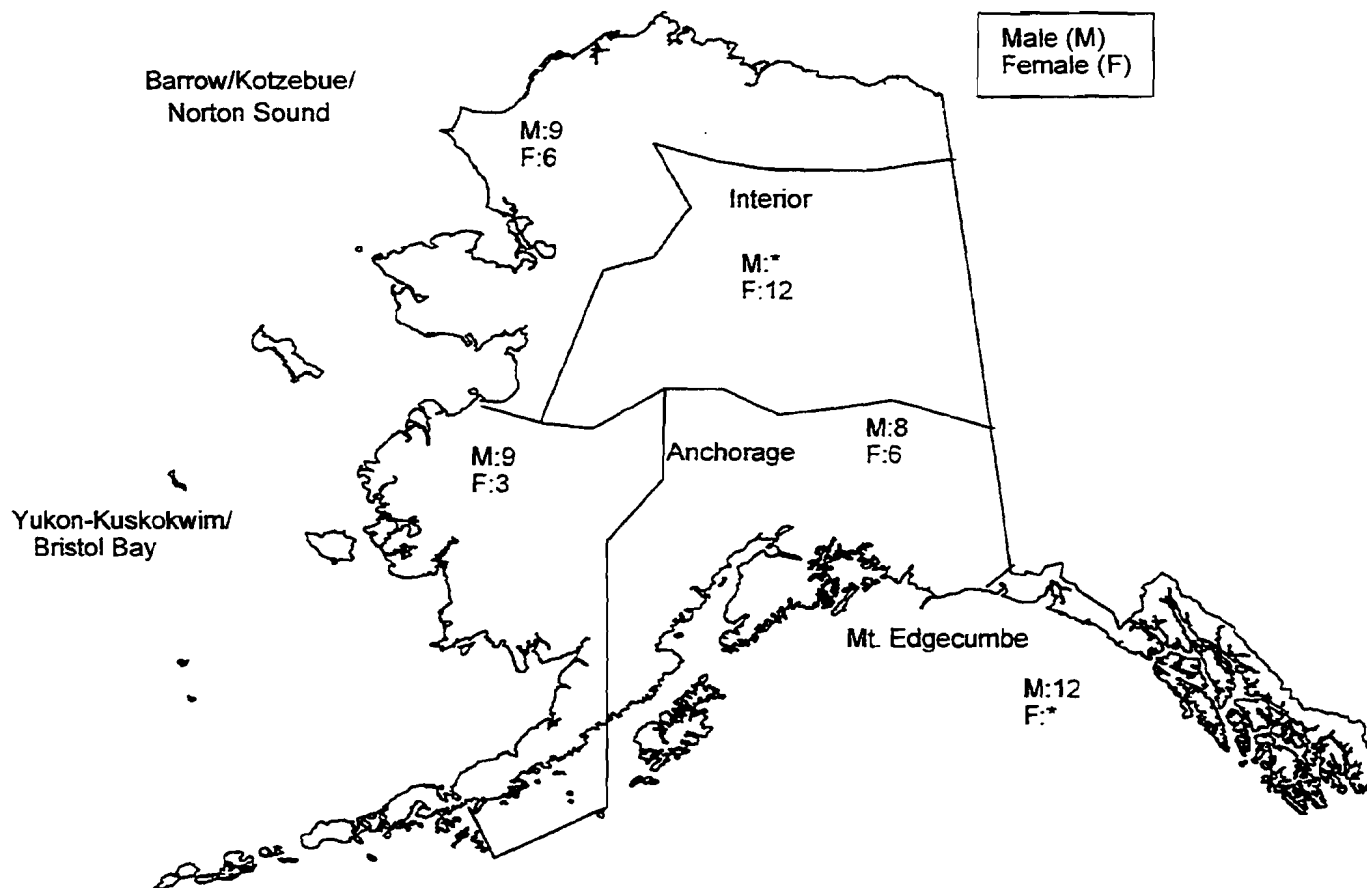
■ U.S. data from SEER program, National Cancer Institute, 1974-1992

# Non-Hodgkin's Lymphoma

## Average Annual Age-Adjusted Cancer Incidence Rates

### Alaska Natives 1969-1993

### Non-Hodgkin's Lymphoma

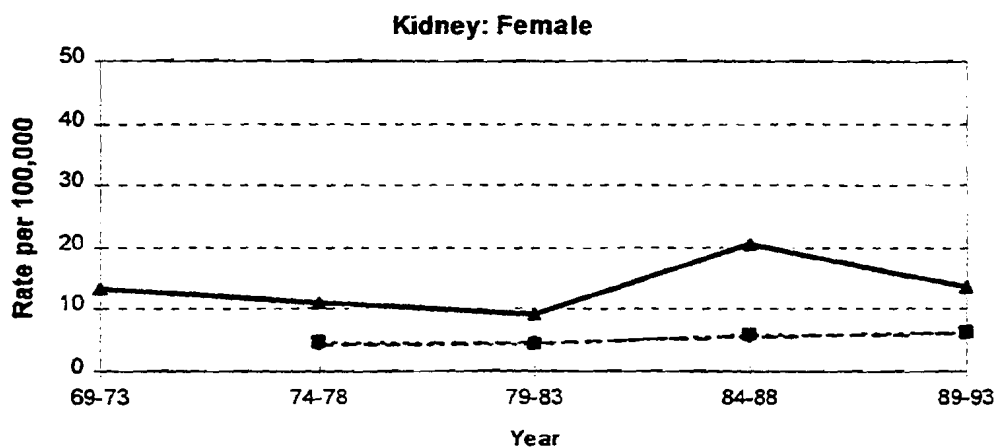
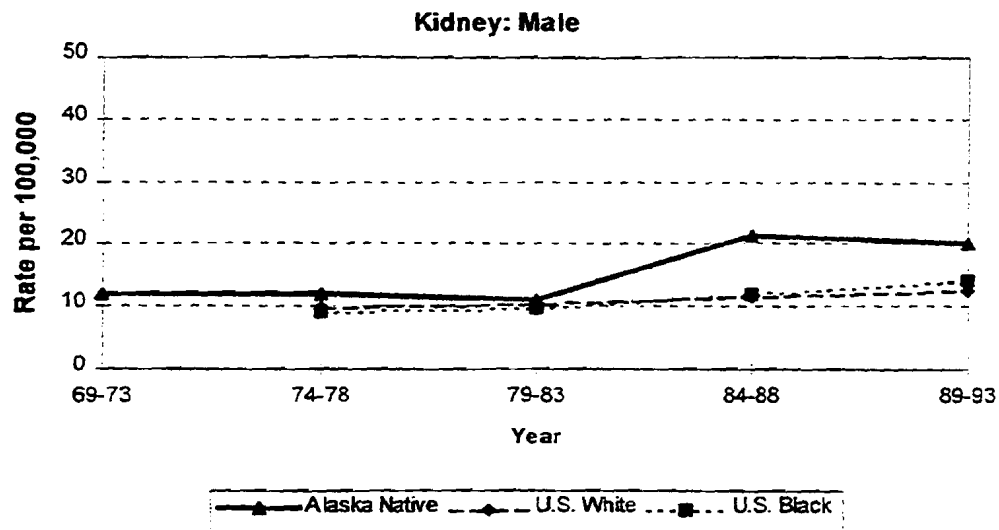


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	13	8	9	6
Barrow/Kotzebue/Norton Sound	9	9	5	6
Yukon-Kuskokwim/Bristol Bay	10	9	5	3
Interior	3	*	5	12
Mt. Edgecumbe	8	12	3	*

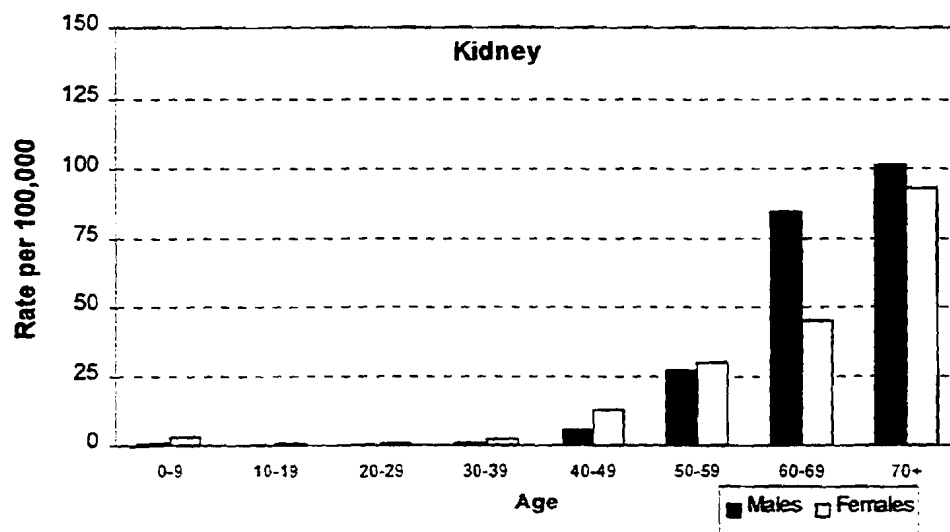
\* Rates not shown for less than five cases

# Kidney

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\***



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**

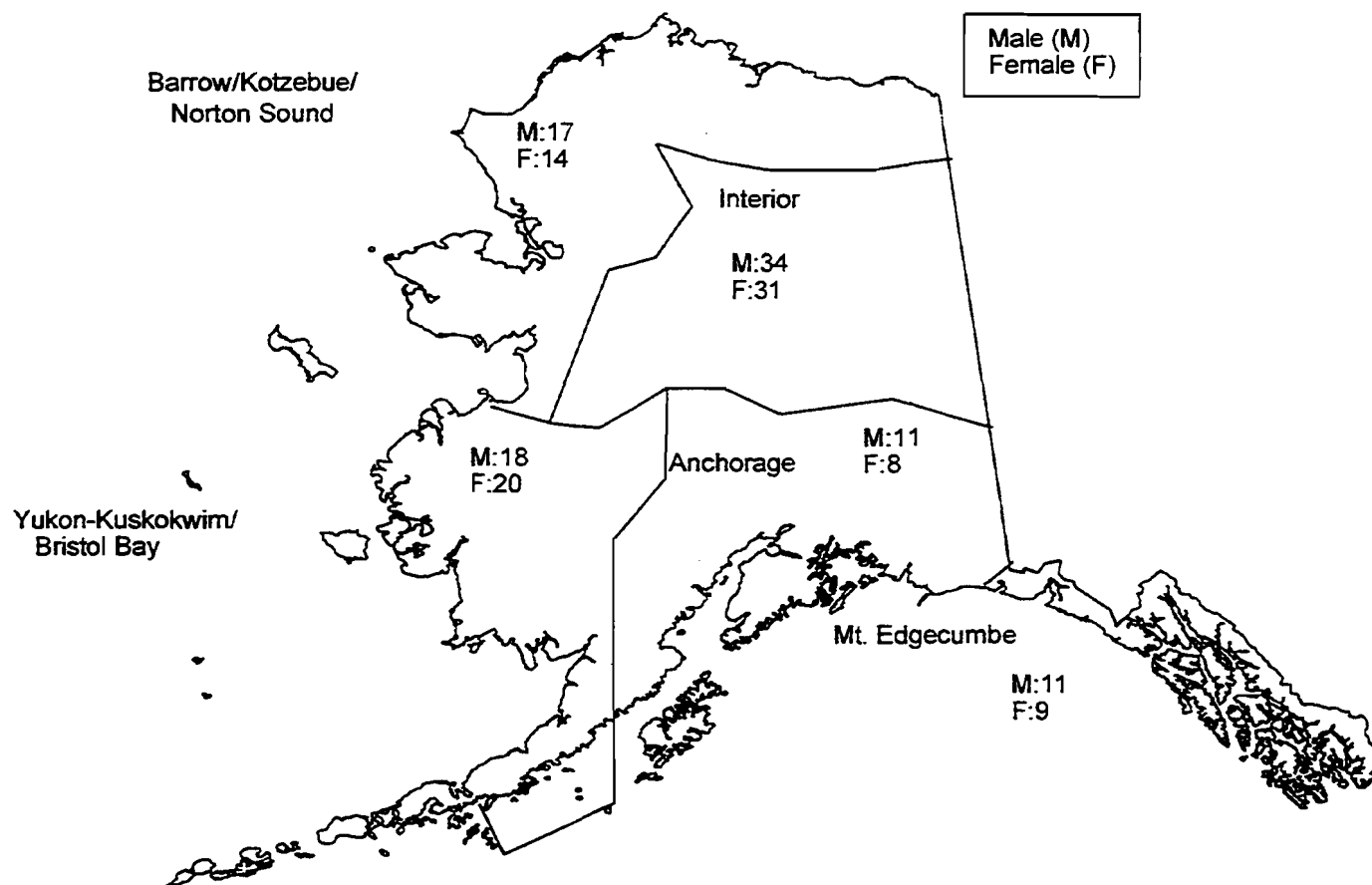


\* Rates are age-adjusted to the 1970 U.S. standard population.

† U.S. data from SEER program, National Cancer Institute, 1974-1992



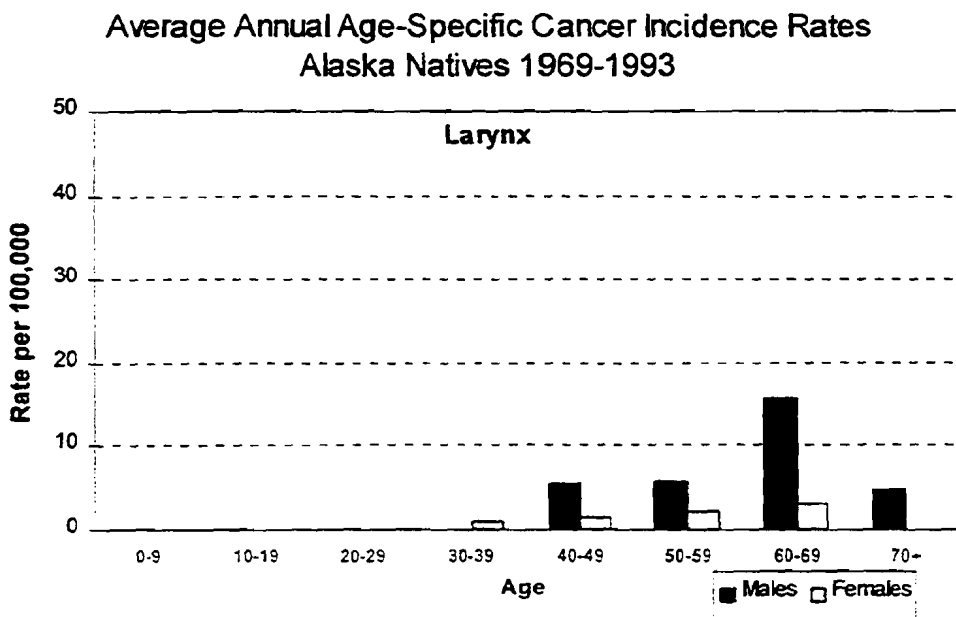
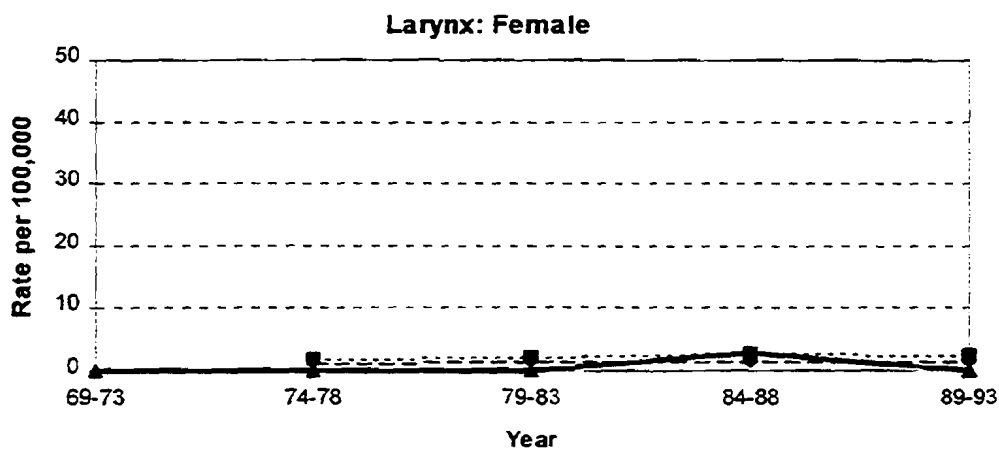
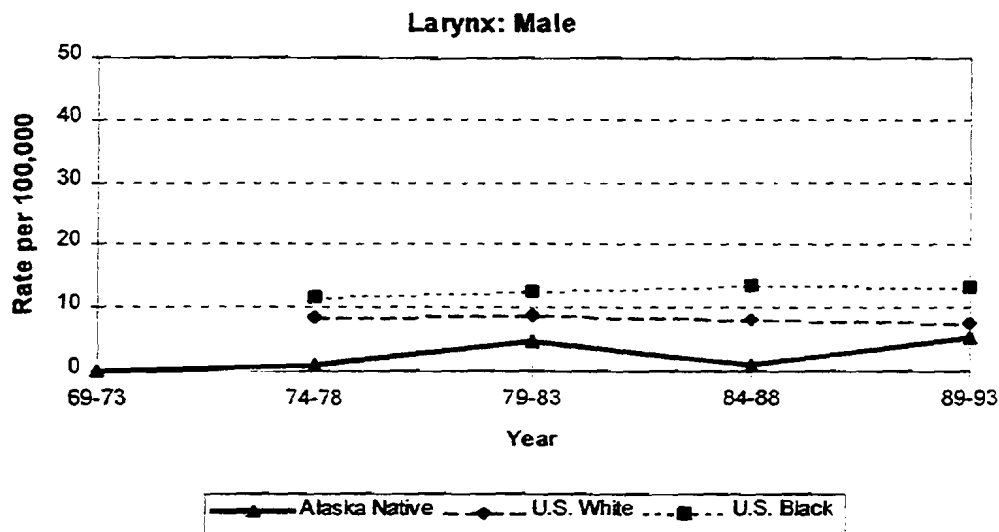
**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993  
Kidney and Renal Pelvis**



Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	13	11	11	8
Barrow/Kotzebue/Norton Sound	13	17	11	14
Yukon-Kuskokwim/Bristol Bay	21	18	27	20
Interior	14	34	13	31
Mt. Edgecumbe	8	11	7	9

# Larynx

## Average Annual Age-Adjusted\* Cancer Incidence Rates, Alaska Natives 1969-1993 and US 1974-1992\*

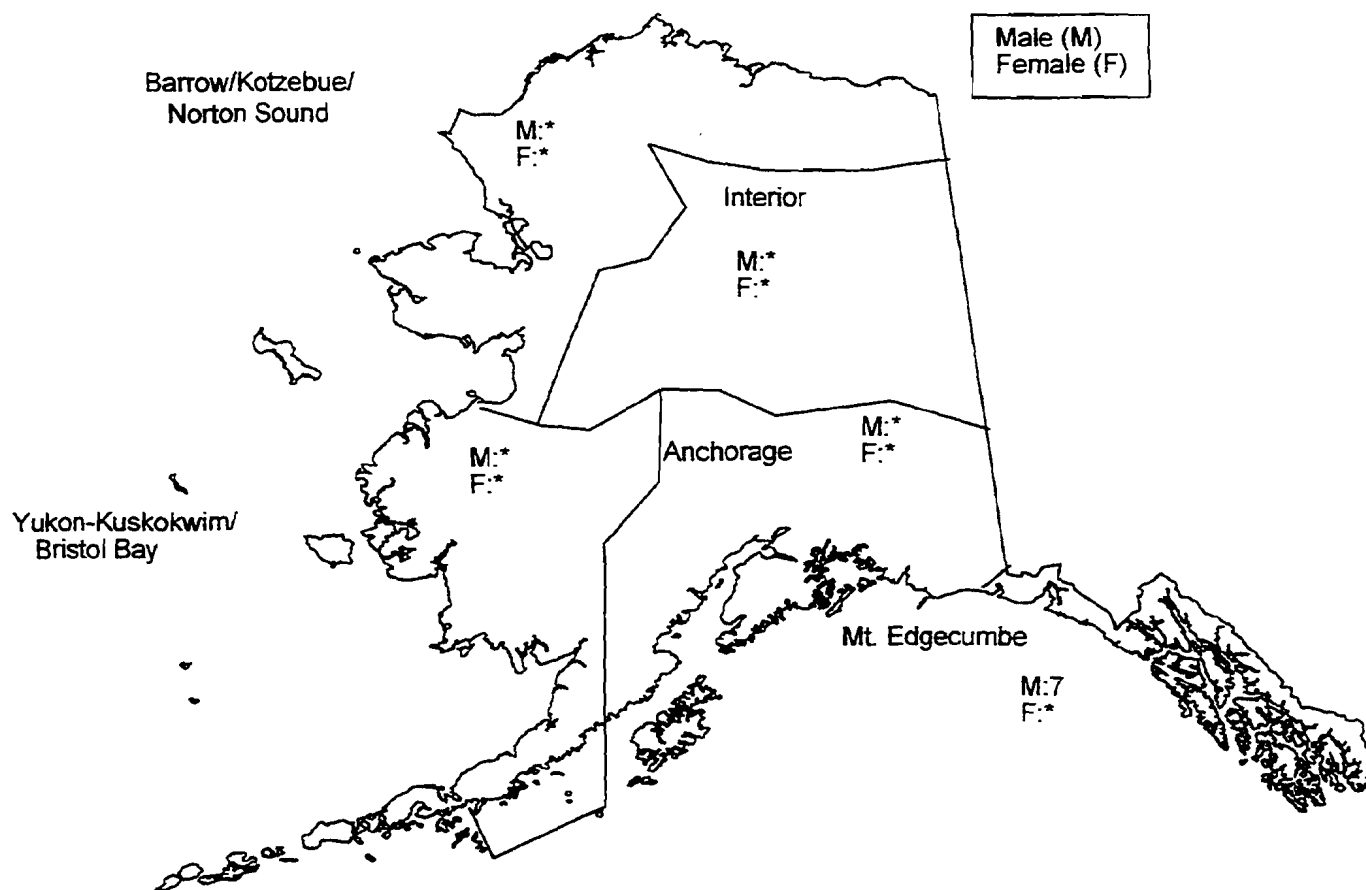


\* Rates are age-adjusted to the 1970 U.S. standard population.

\* U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

**Larynx**

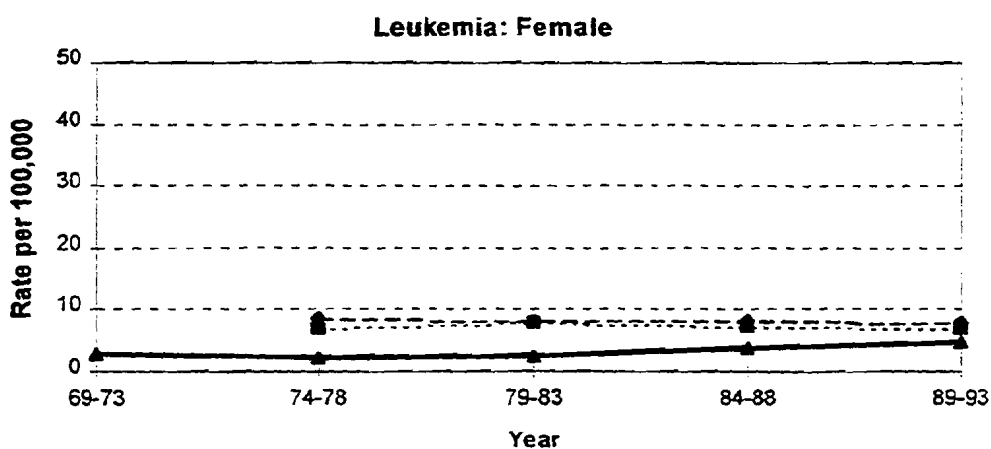
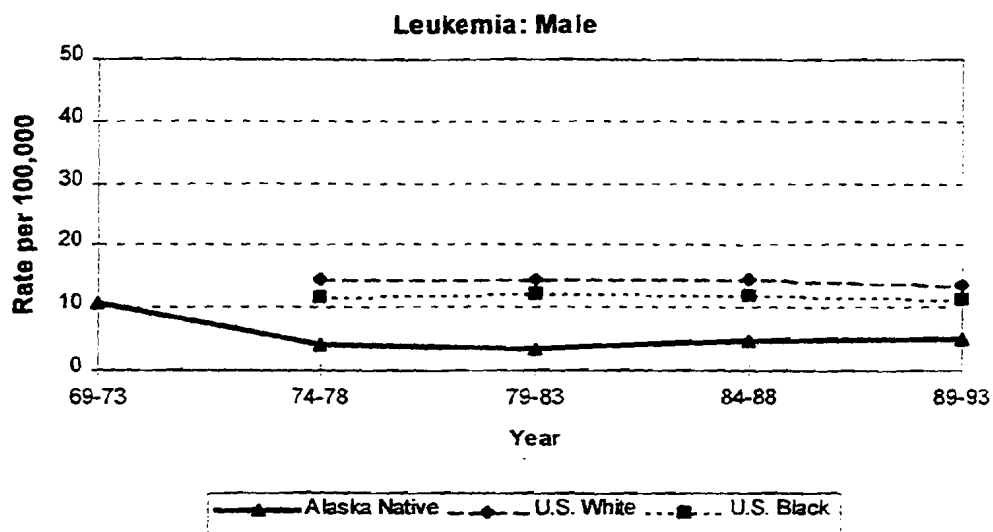


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	4	*	4	*
Barrow/Kotzebue/Norton Sound	2	*	0	*
Yukon-Kuskokwim/Bristol Bay	0	*	0	*
Interior	2	*	0	*
Mt. Edgecumbe	5	7	0	*

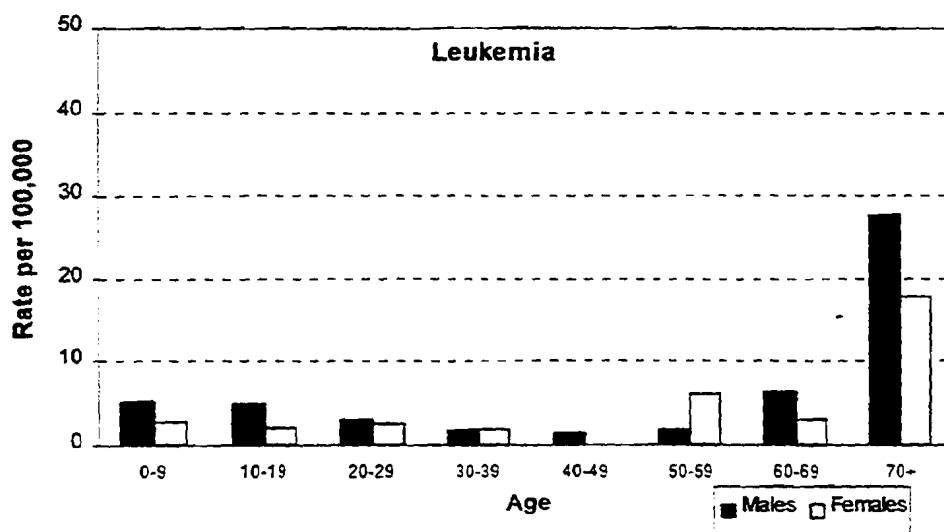
\* Rates not shown for less than five cases

# Leukemia

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992<sup>†</sup>



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993

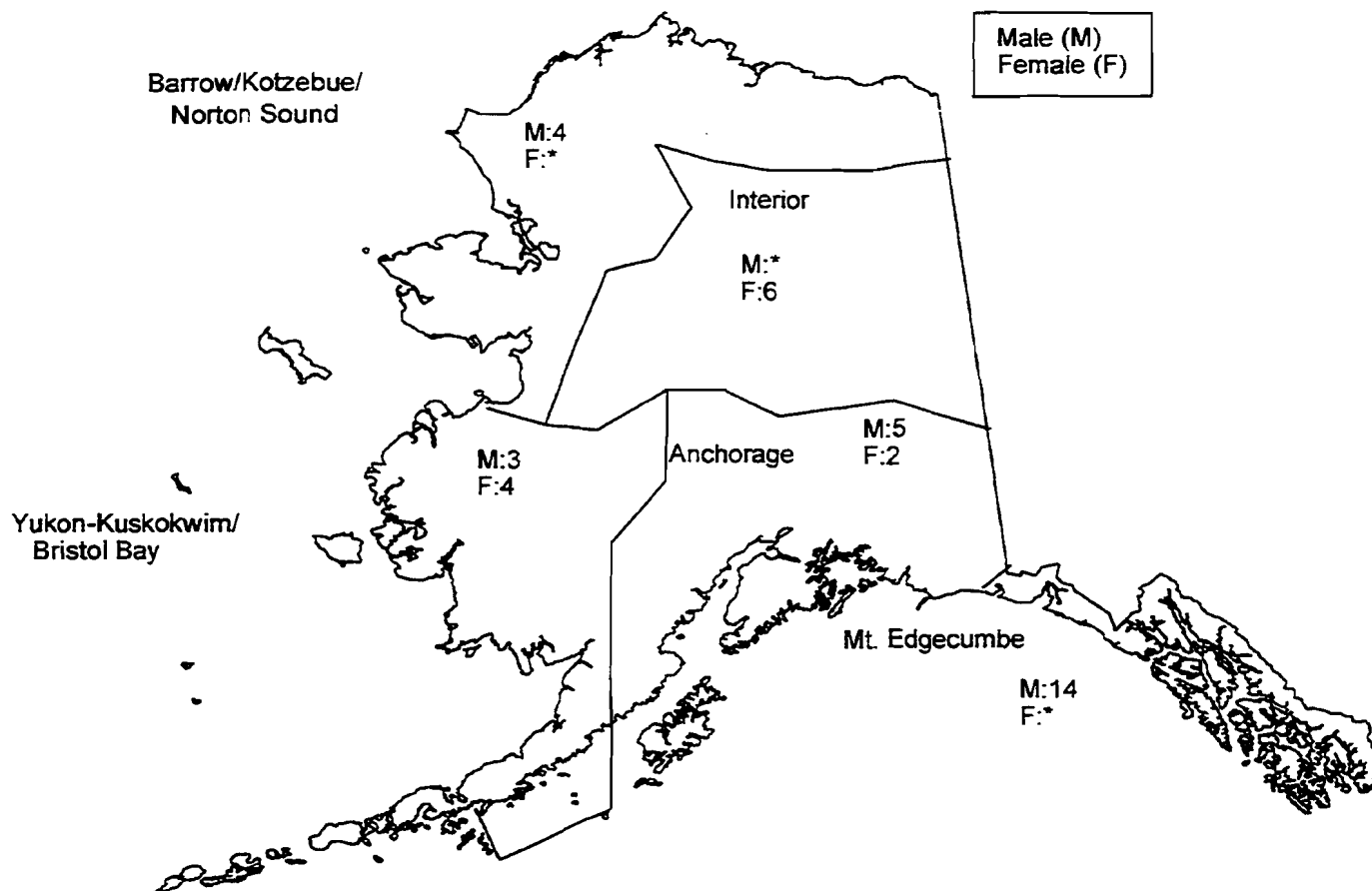


\* Rates are age-adjusted to the 1970 U.S. standard population.

<sup>†</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

**Leukemia**

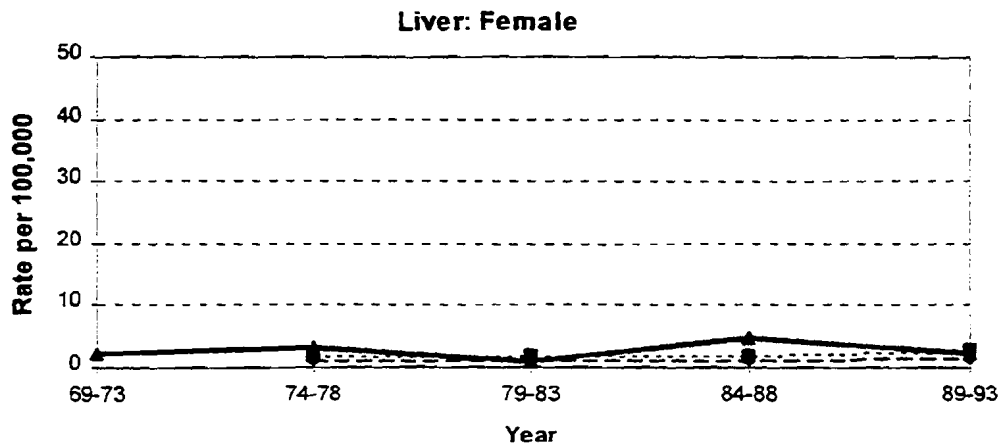
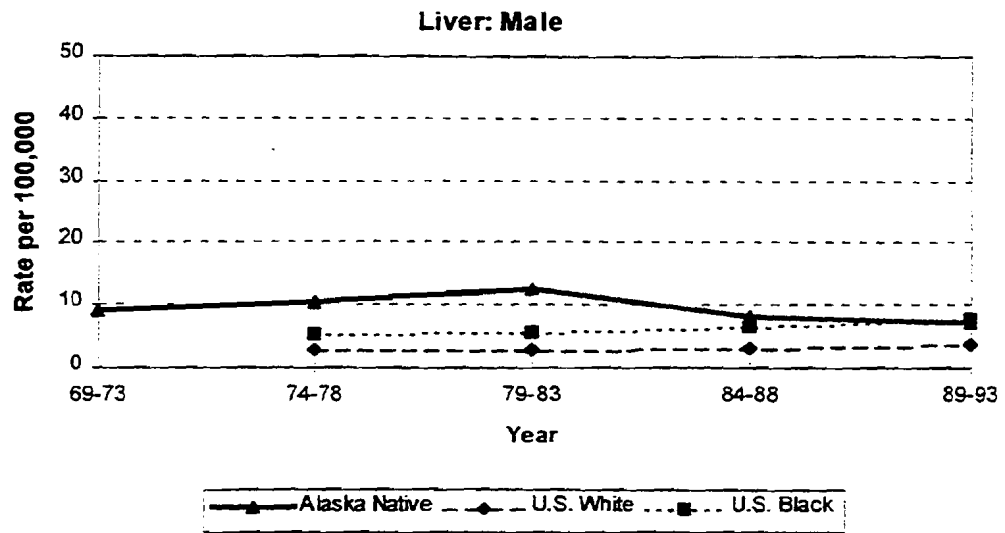


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	11	5	5	2
Barrow/Kotzebue/Norton Sound	8	4	1	*
Yukon-Kuskokwim/Bristol Bay	5	3	8	4
Interior	3	*	5	6
Mt. Edgecumbe	10	14	4	*

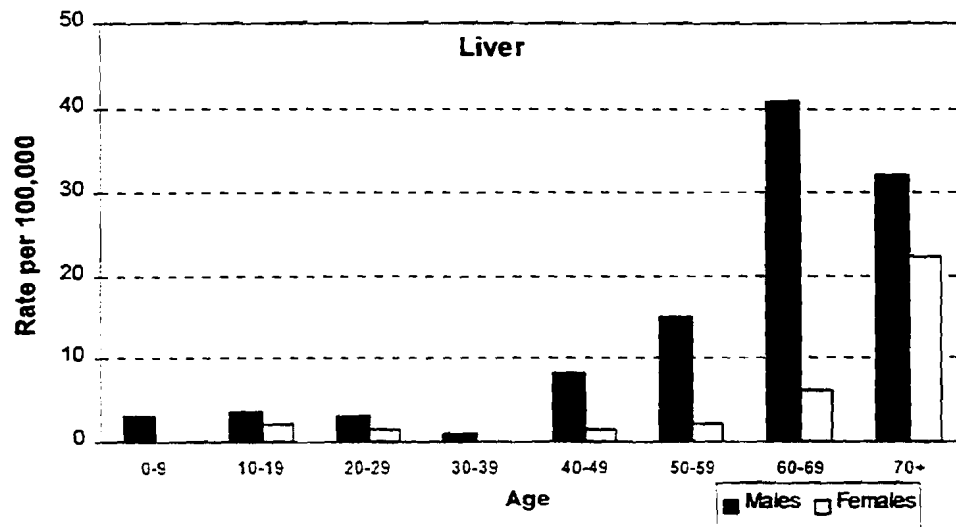
\* Rates not shown for less than five cases

# Liver

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\***



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**



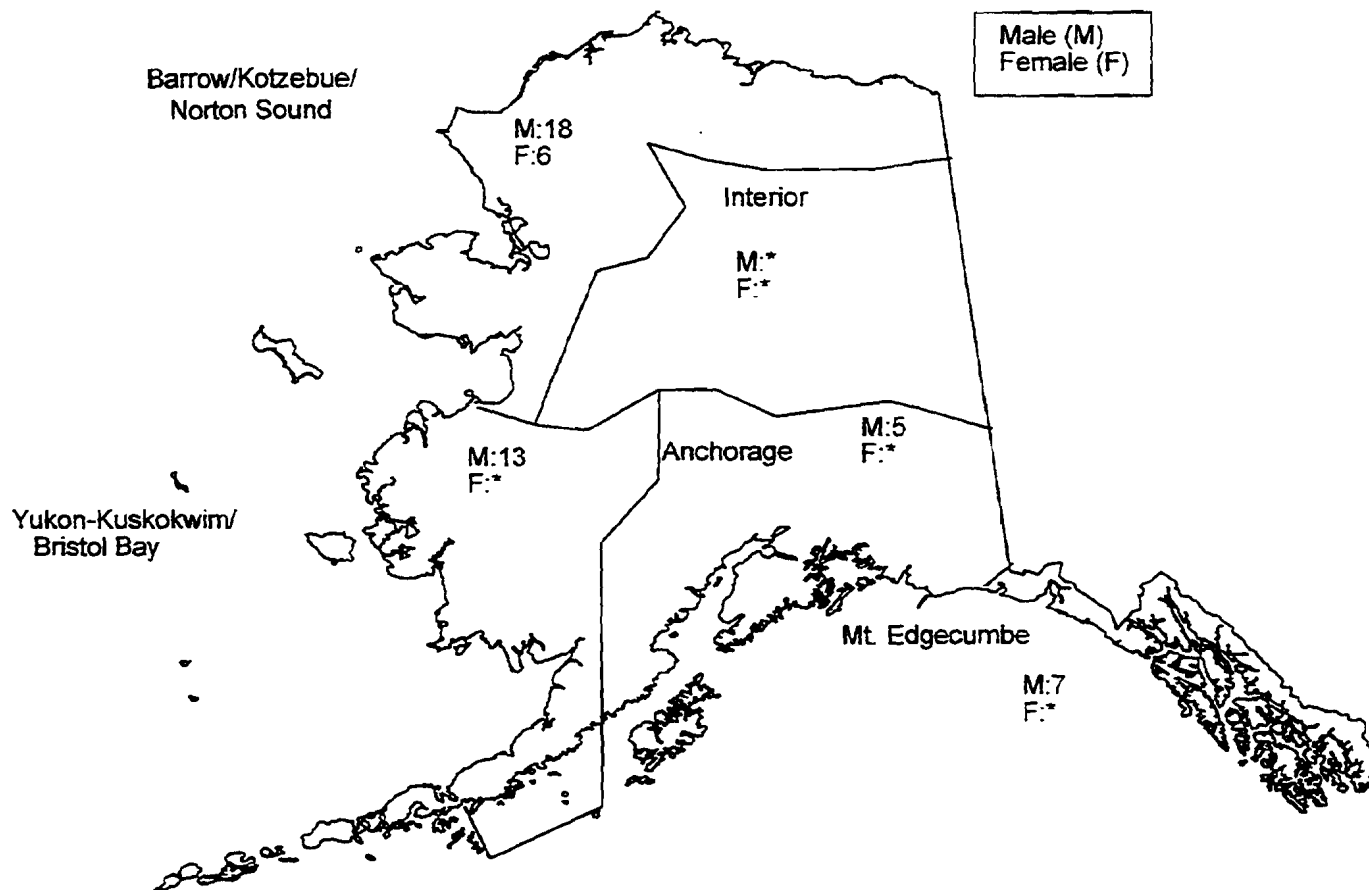
\* Rates are age-adjusted to the 1970 U.S. standard population.

▪ U.S. data from SEER program, National Cancer Institute, 1974-1992

## Average Annual Age-Adjusted Cancer Incidence Rates

Alaska Natives 1969-1993

## Liver

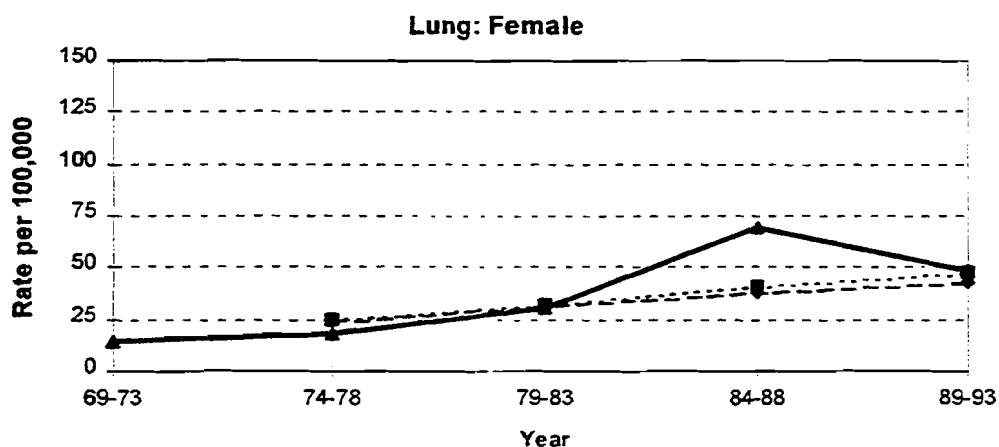
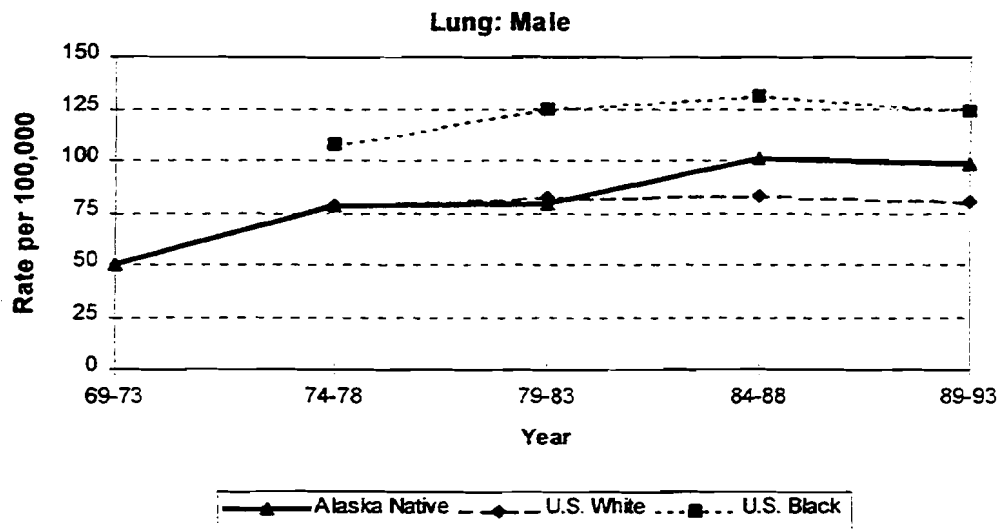


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	9	5	2	*
Barrow/Kotzebue/Norton Sound	18	18	6	6
Yukon-Kuskokwim/Bristol Bay	19	13	2	*
Interior	2	*	2	*
Mt. Edgecumbe	5	7	2	*

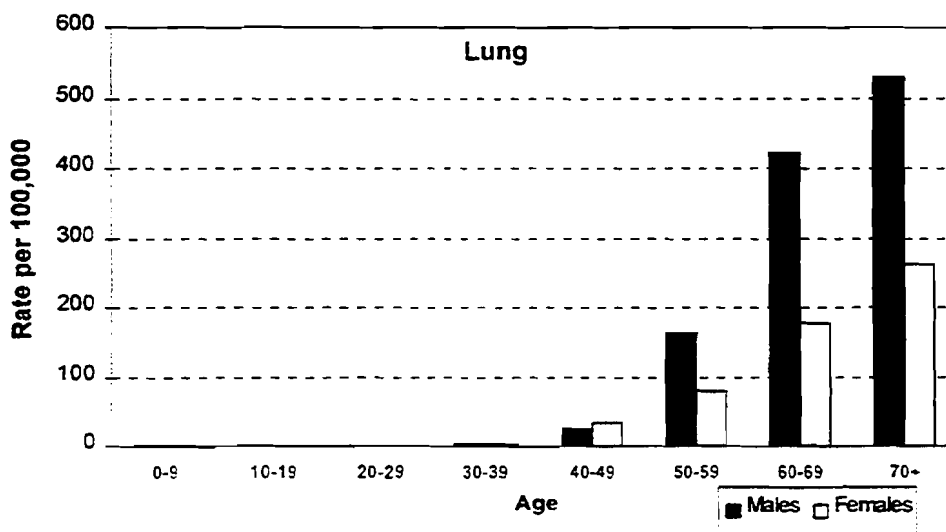
\* Rates not shown for less than five cases

# Lung

**Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\***



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**

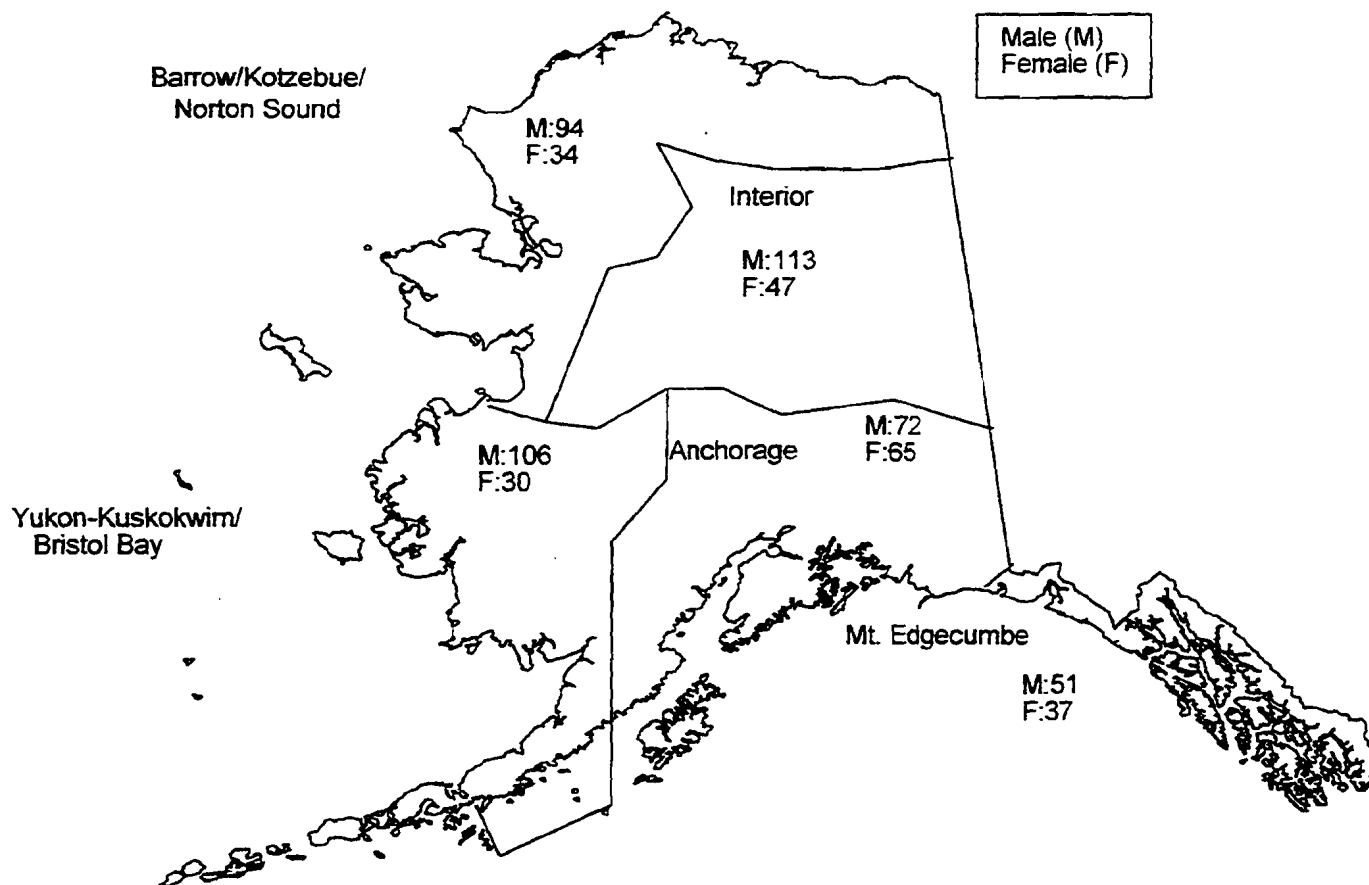


\* Rates are age-adjusted to the 1970 U.S. standard population.

\* U.S. data from SEER program, National Cancer Institute, 1974-1992



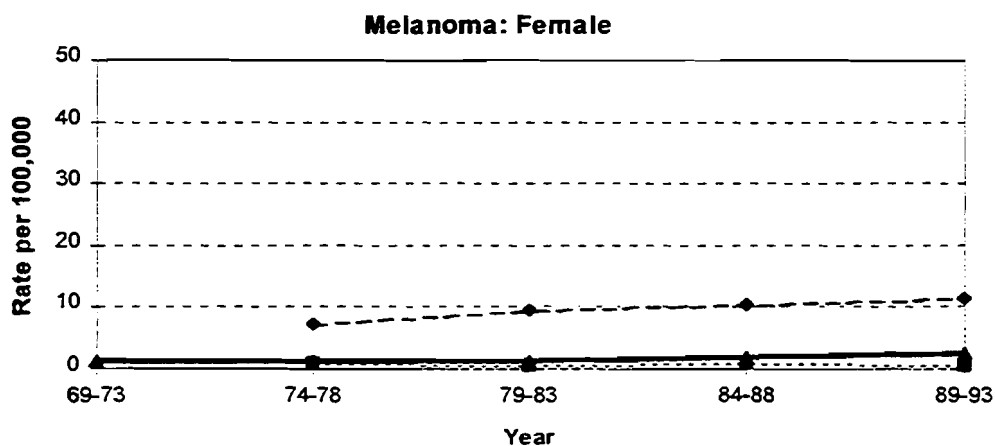
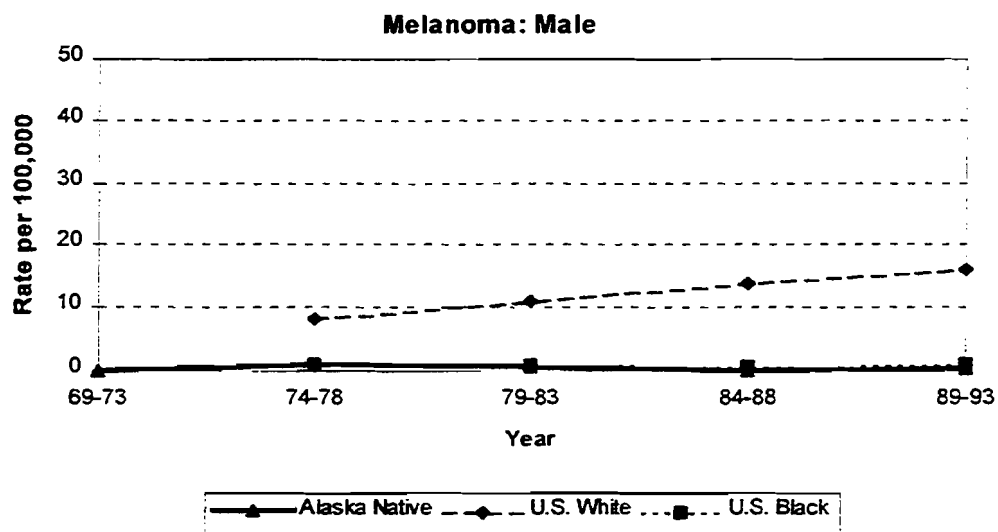
**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993  
Lung and Bronchus**



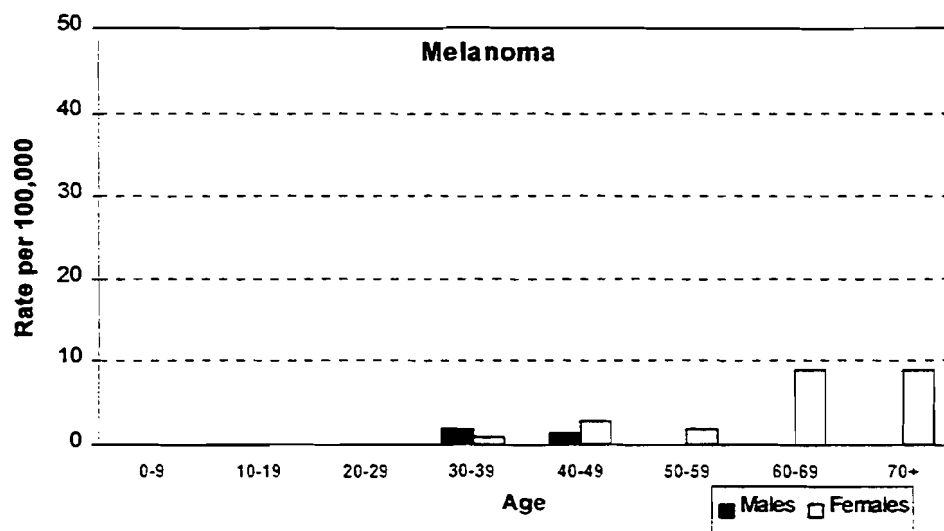
Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	84	72	79	65
Barrow/Kotzebue/Norton Sound	77	94	26	34
Yukon-Kuskokwim/Bristol Bay	116	106	35	30
Interior	47	113	23	47
Mt. Edgecumbe	32	51	23	37

# Melanoma

## Average Annual Age-Adjusted\* Cancer Incidence Rates, Alaska Natives 1969-1993 and US 1974-1992<sup>†</sup>



## Average Annual Age-Specific Cancer Incidence Rates Alaska Natives 1969-1993

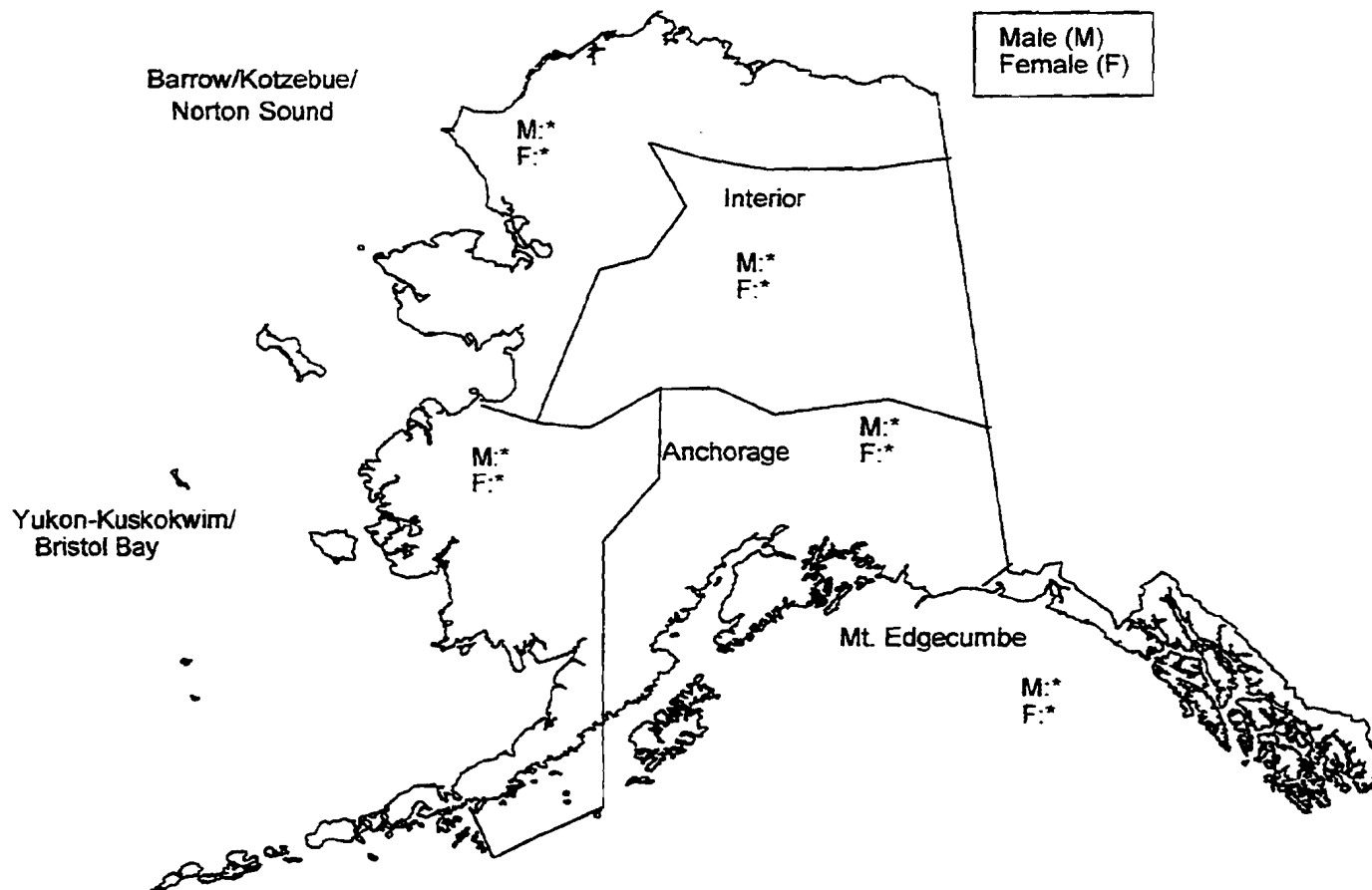


\* Rates are age-adjusted to the 1970 U.S. standard population.

† U.S. data from SEER program, National Cancer Institute, 1974-1992

Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993

**Melanoma**

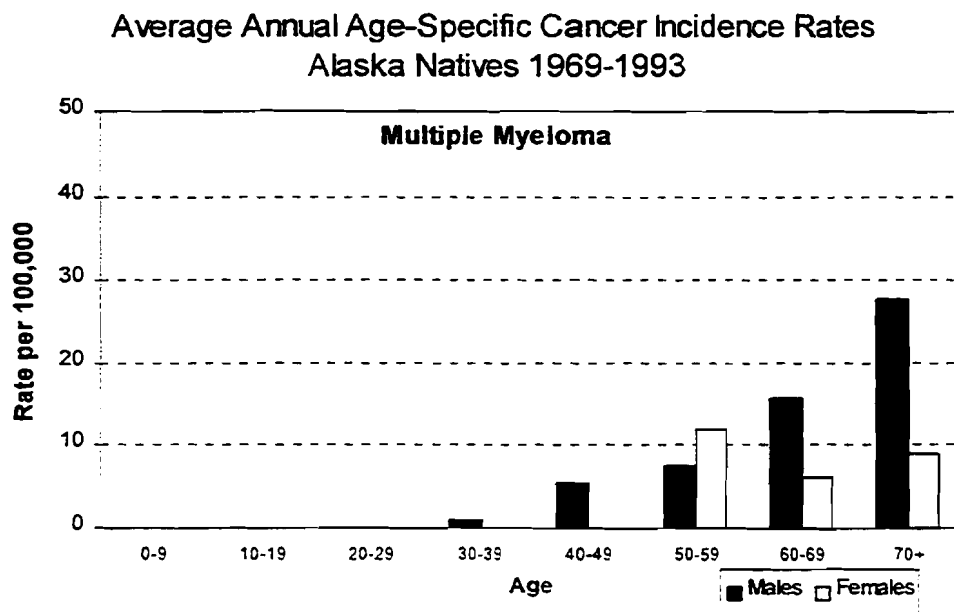
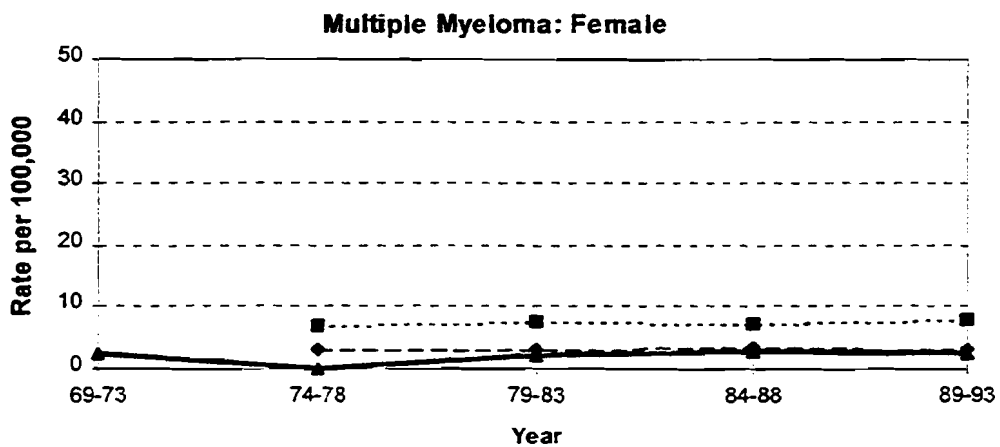
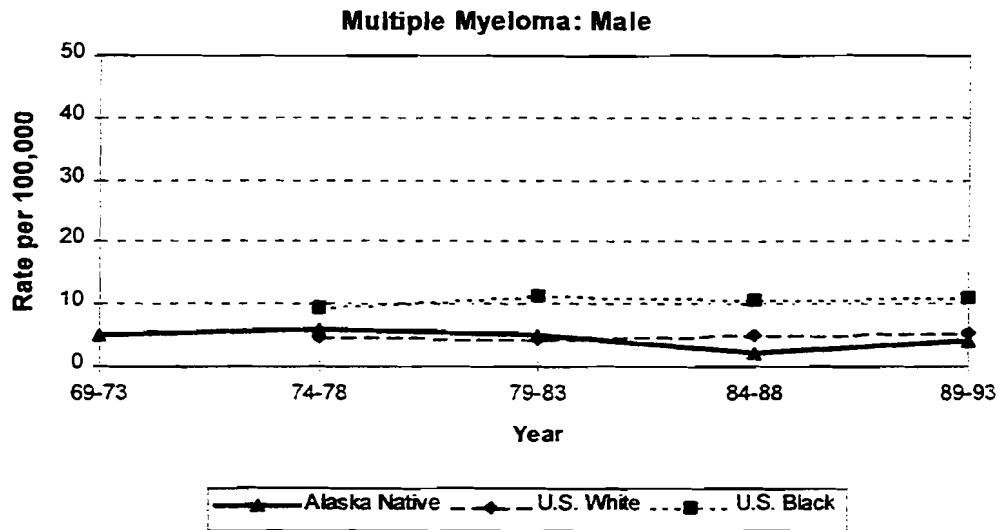


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	1	*	2	*
Barrow/Kotzebue/Norton Sound	1	*	0	*
Yukon-Kuskokwim/Bristol Bay	1	*	3	*
Interior	0	*	0	*
Mt. Edgecumbe	0	*	3	*

\* Rates not shown for less than five cases

# Multiple Myeloma

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992<sup>†</sup>



\* Rates are age-adjusted to the 1970 U.S. standard population.

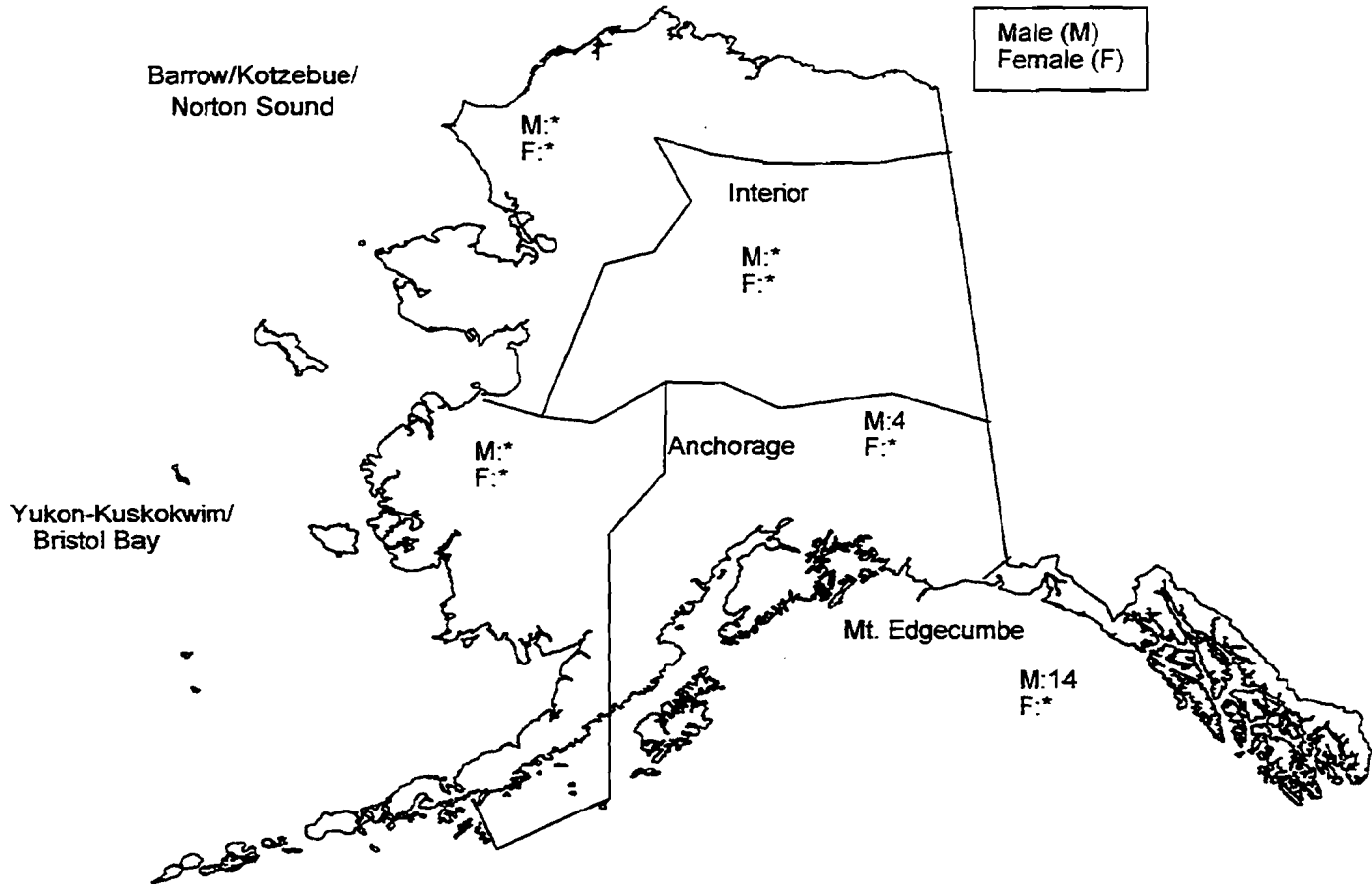
<sup>†</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992

# Multiple Myeloma

## Average Annual Age-Adjusted Cancer Incidence Rates

Alaska Natives 1969-1993

### Multiple Myeloma

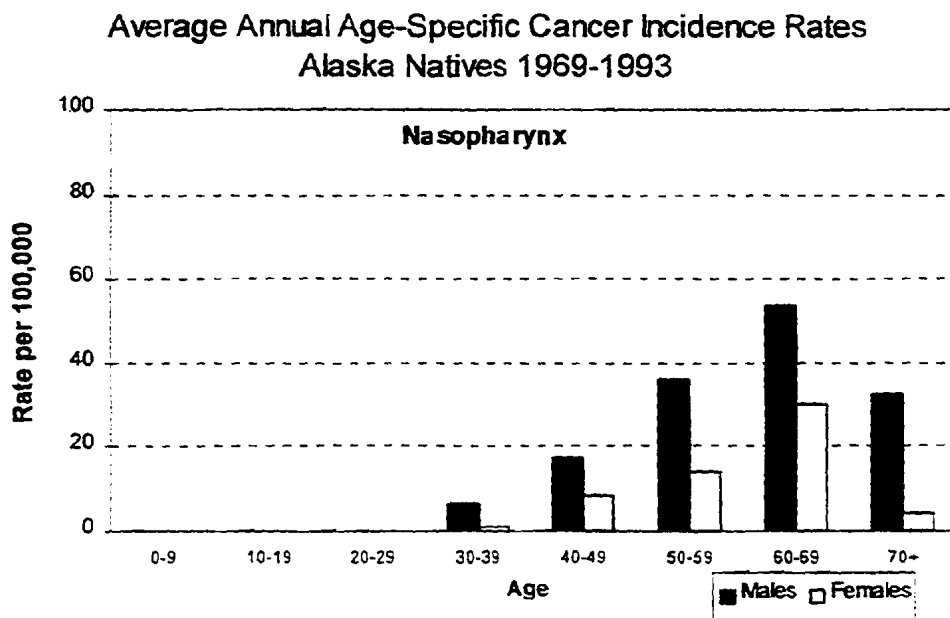
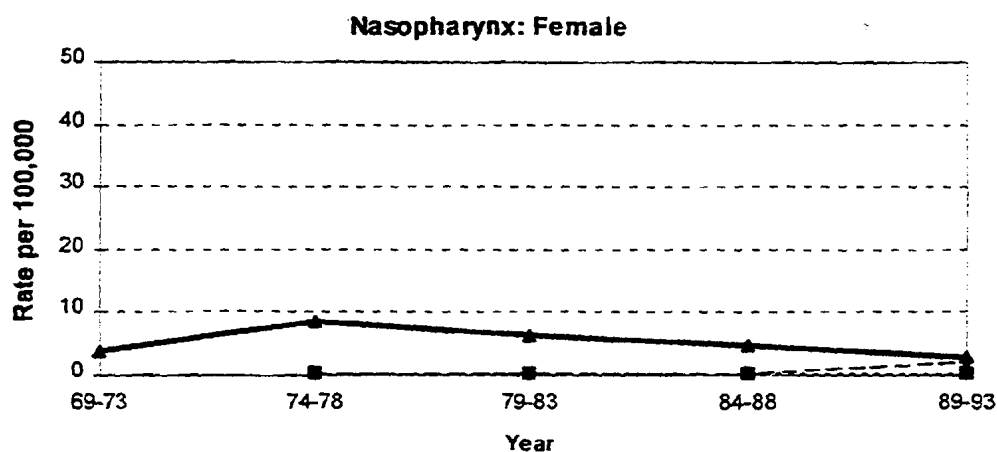
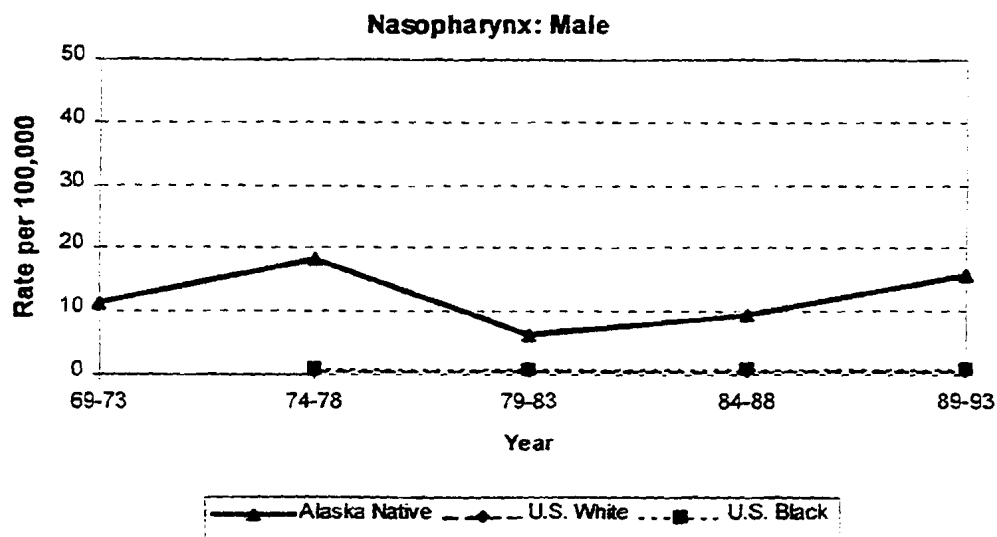


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	5	4	3	*
Barrow/Kotzebue/Norton Sound	3	*	1	*
Yukon-Kuskokwim/Bristol Bay	2	*	1	*
Interior	1	*	2	*
Mt. Edgecumbe	9	14	3	*

\* Rates not shown for less than five cases

# Nasopharynx

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*



\* Rates are age-adjusted to the 1970 U.S. standard population.

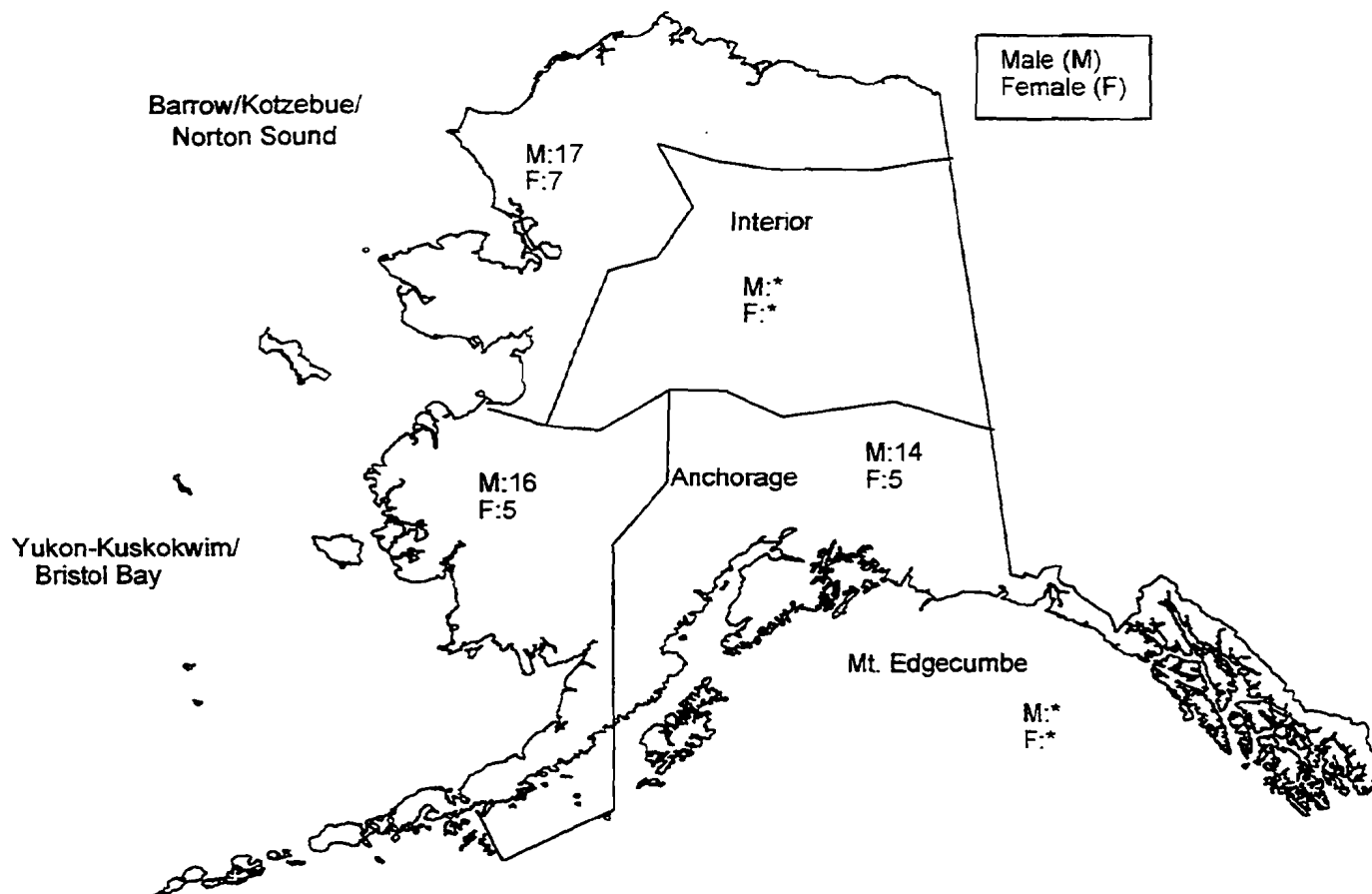
\* U.S. data from SEER program, National Cancer Institute, 1974-1992

# Nasopharynx

## Average Annual Age-Adjusted Cancer Incidence Rates

Alaska Natives 1969-1993

### Nasopharynx

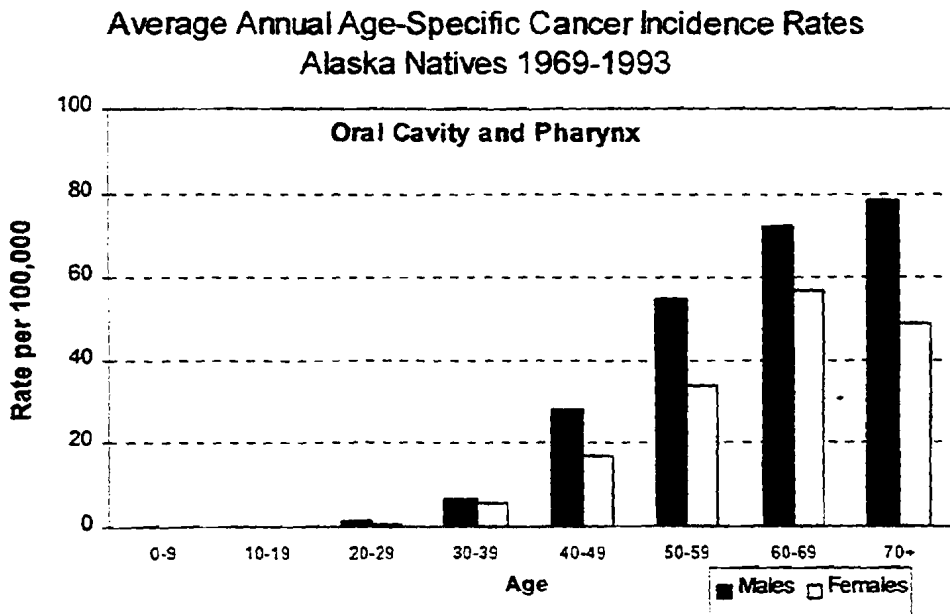
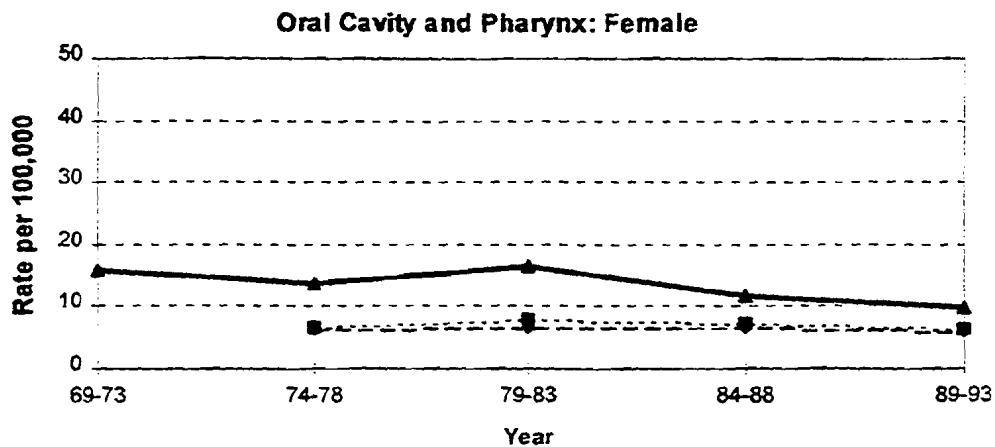
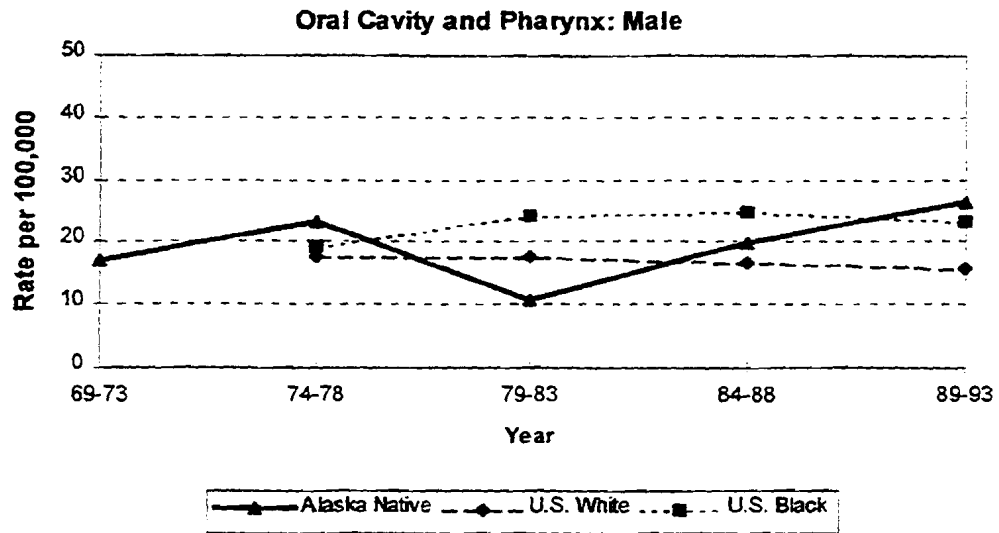


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	19	14	7	5
Barrow/Kotzebue/Norton Sound	18	17	7	7
Yukon-Kuskokwim/Bristol Bay	20	16	6	5
Interior	4	*	2	*
Mt. Edgecumbe	2	*	3	*

\* Rates not shown for less than five cases

# 

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*

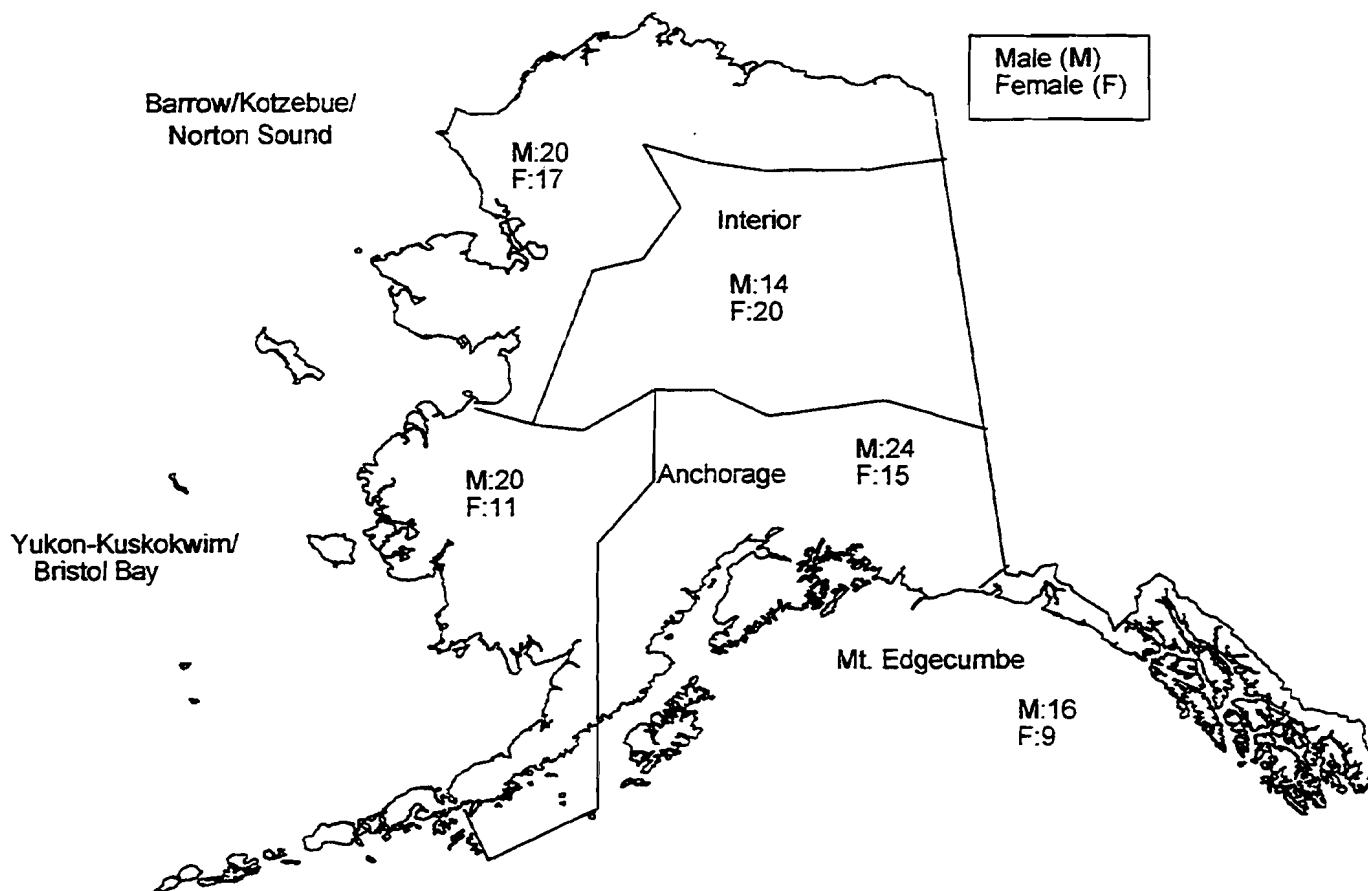


\* Rates are age-adjusted to the 1970 U.S. standard population.

\* U.S. data from SEER program, National Cancer Institute, 1974-1992



Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993  
Oral Cavity and Pharynx<sup>≈</sup>

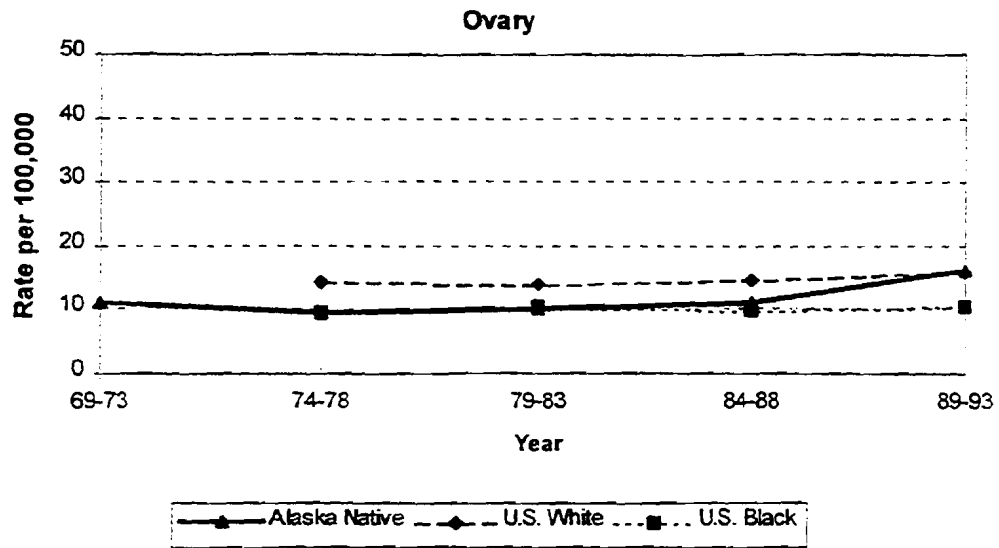


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	32	24	21	15
Barrow/Kotzebue/Norton Sound	22	21	15	17
Yukon-Kuskokwim/Bristol Bay	27	20	14	11
Interior	8	14	10	20
Mt. Edgecumbe	10	16	6	9

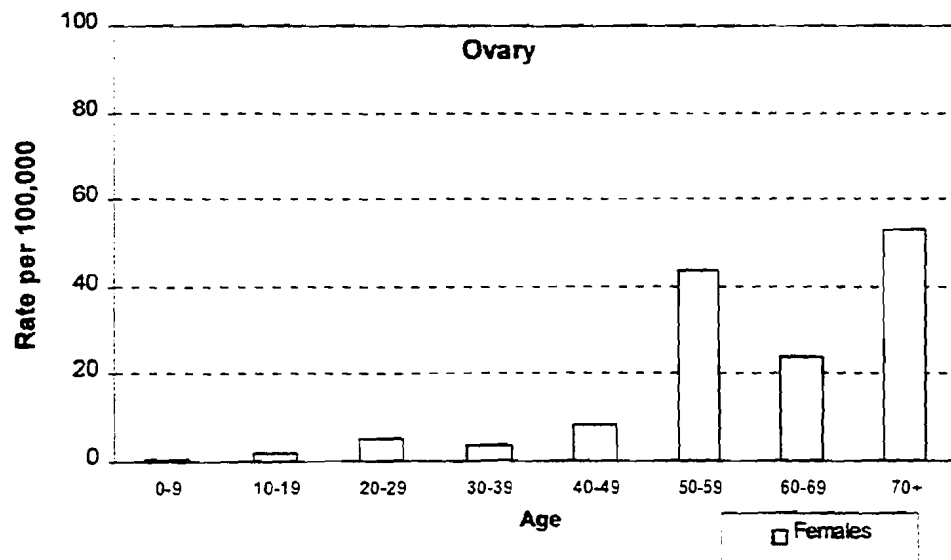
<sup>≈</sup>Oral cavity and pharynx group includes nasopharynx

# Ovary

**Average Annual Age-Adjusted<sup>‡</sup> Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992<sup>‡</sup>**



**Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993**

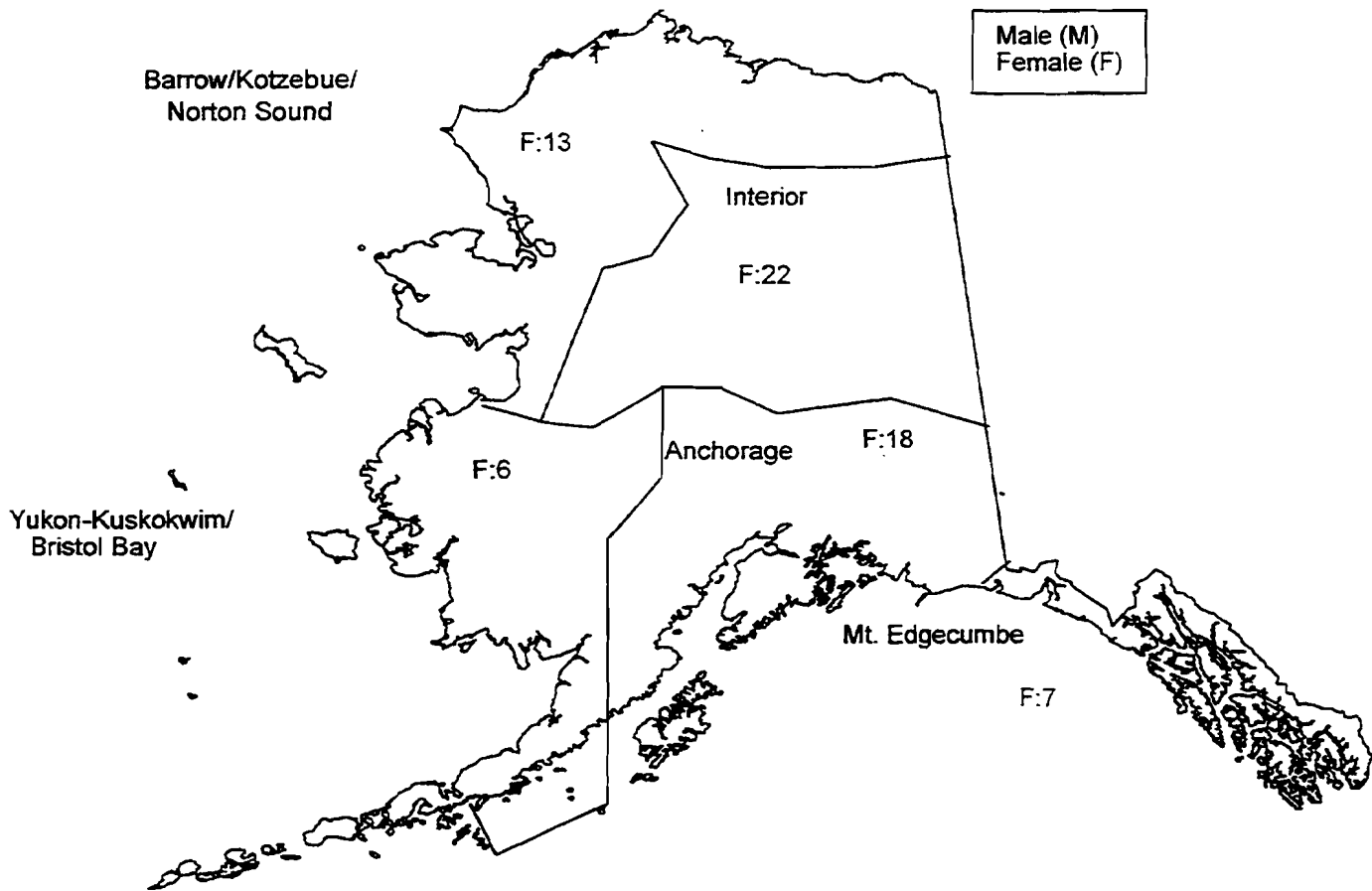


<sup>‡</sup> Rates are age-adjusted to the 1970 U.S. standard population.

<sup>‡</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

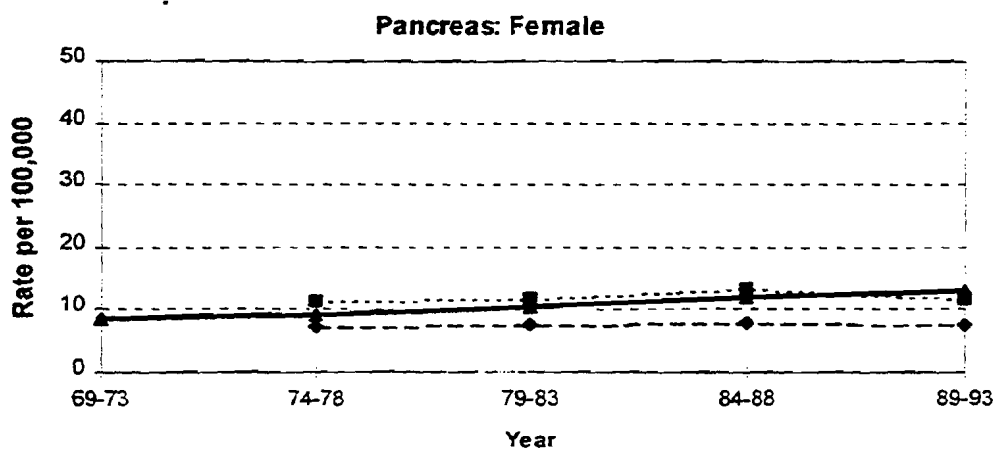
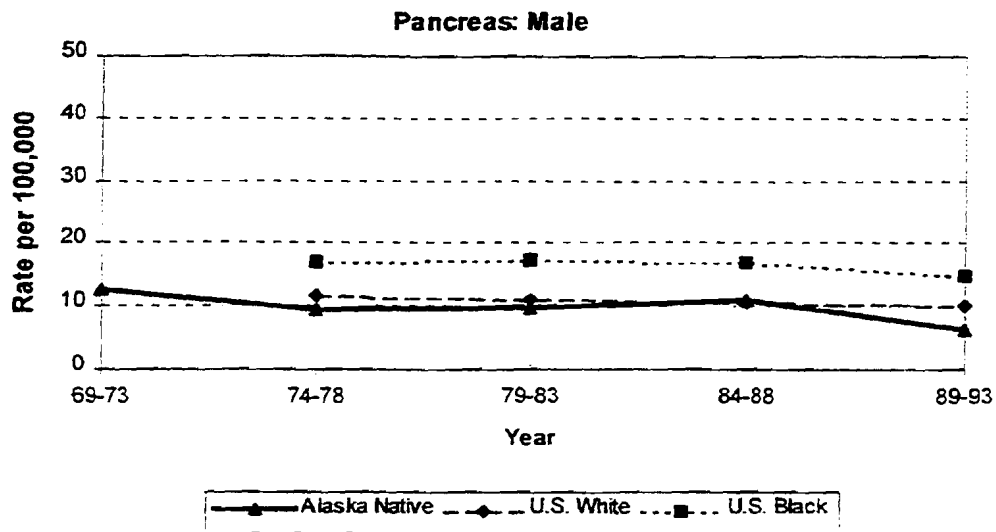
**Ovary**



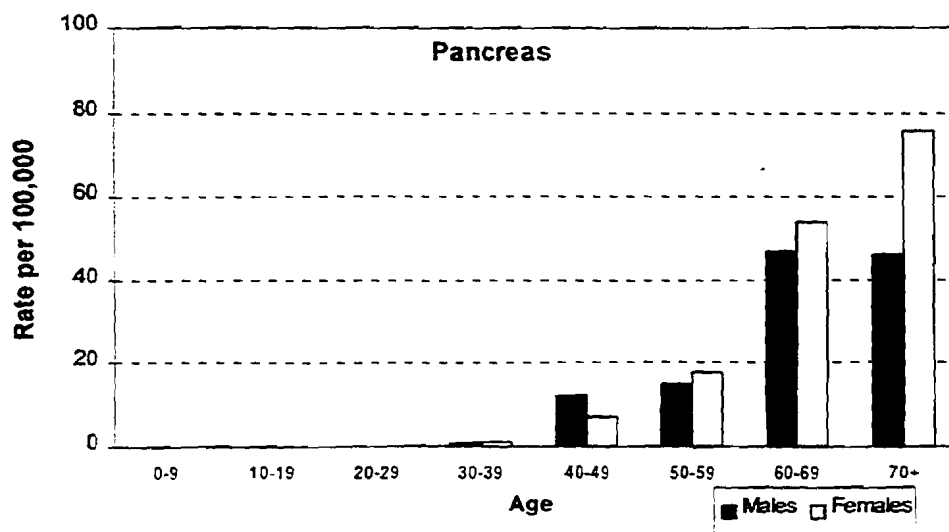
Numbers of Cases and Rates per 100,000		
Service Unit	Female	
	Cases	Rate
Anchorage	29	18
Barrow/Kotzebue/Norton Sound	12	13
Yukon-Kuskokwim/Bristol Bay	9	6
Interior	9	22
Mt. Edgecumbe	6	7

# Pancreas

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992<sup>†</sup>



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993

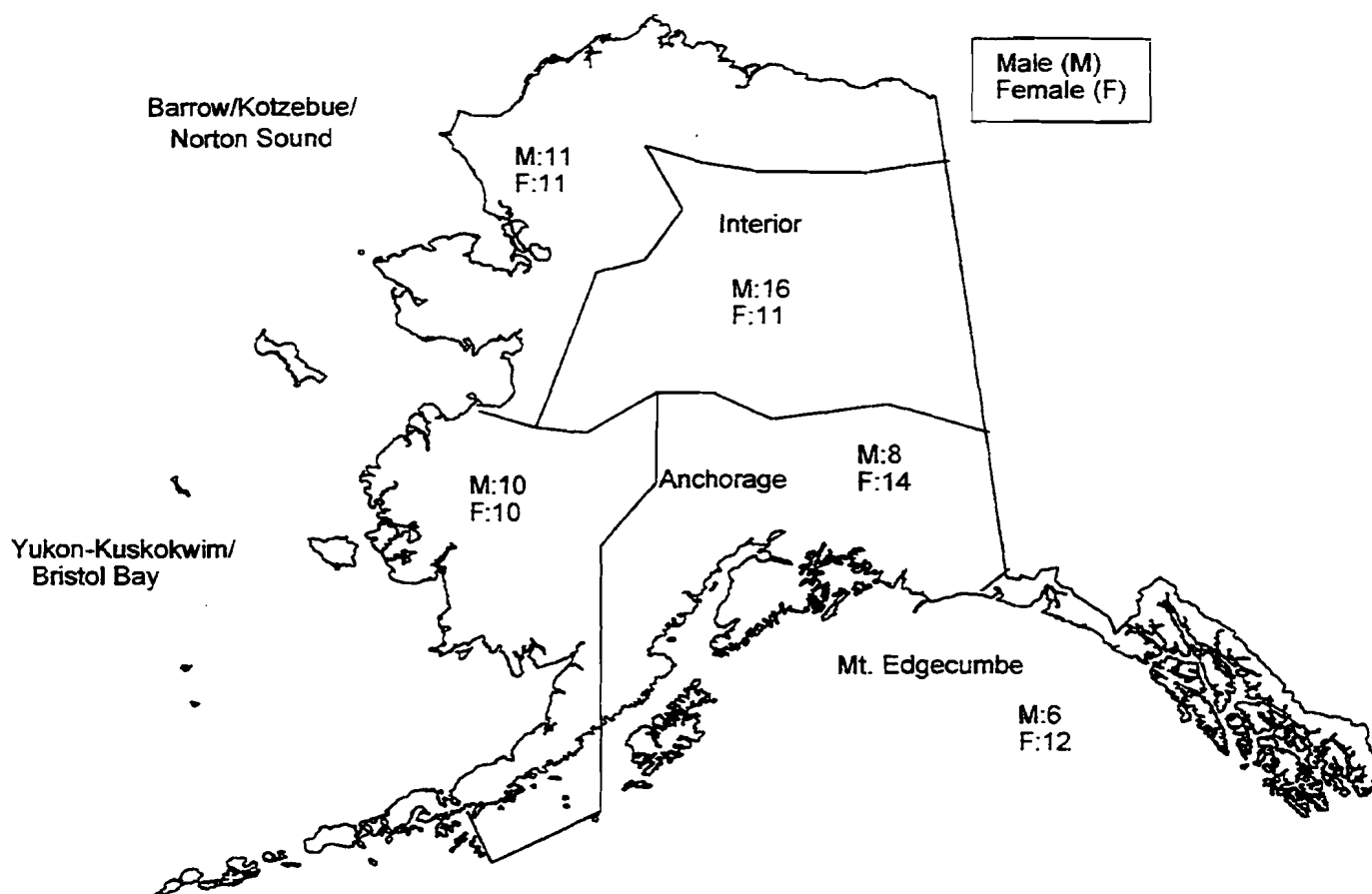


\* Rates are age-adjusted to the 1970 U.S. standard population.

<sup>†</sup> U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

**Pancreas**

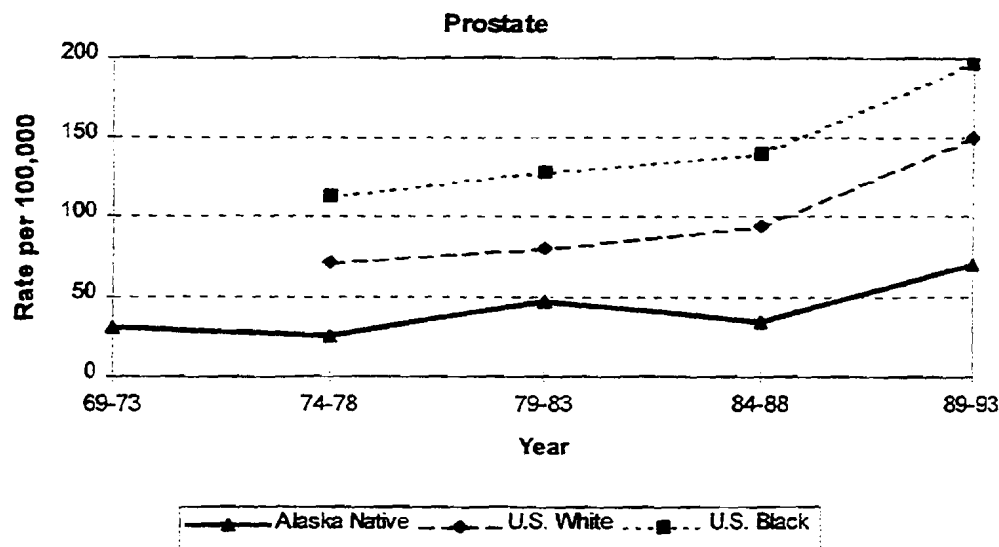


**Numbers of Cases and Rates per 100,000**

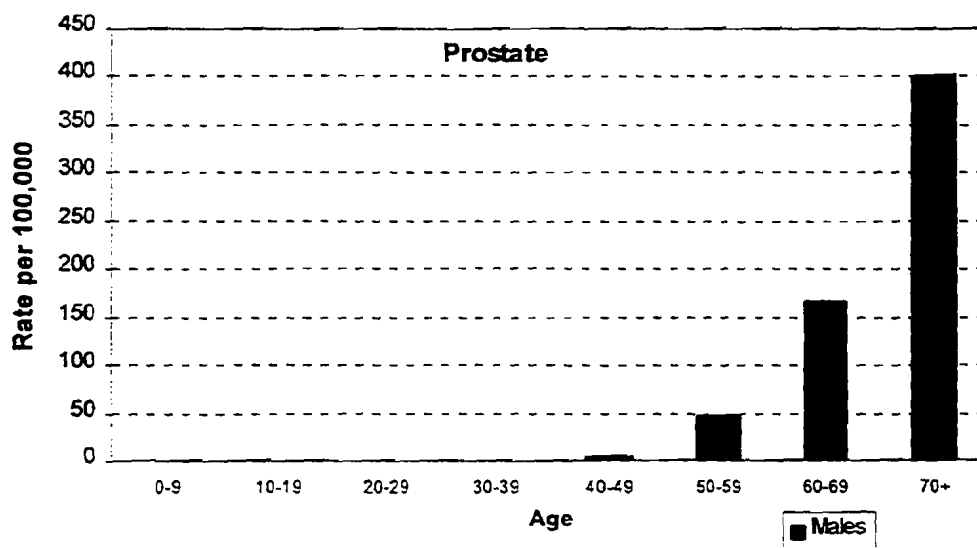
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	8	8	17	14
Barrow/Kotzebue/Norton Sound	9	11	8	11
Yukon-Kuskokwim/Bristol Bay	13	10	12	10
Interior	8	16	5	11
Mt. Edgecumbe	5	6	8	12

# Prostate

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993

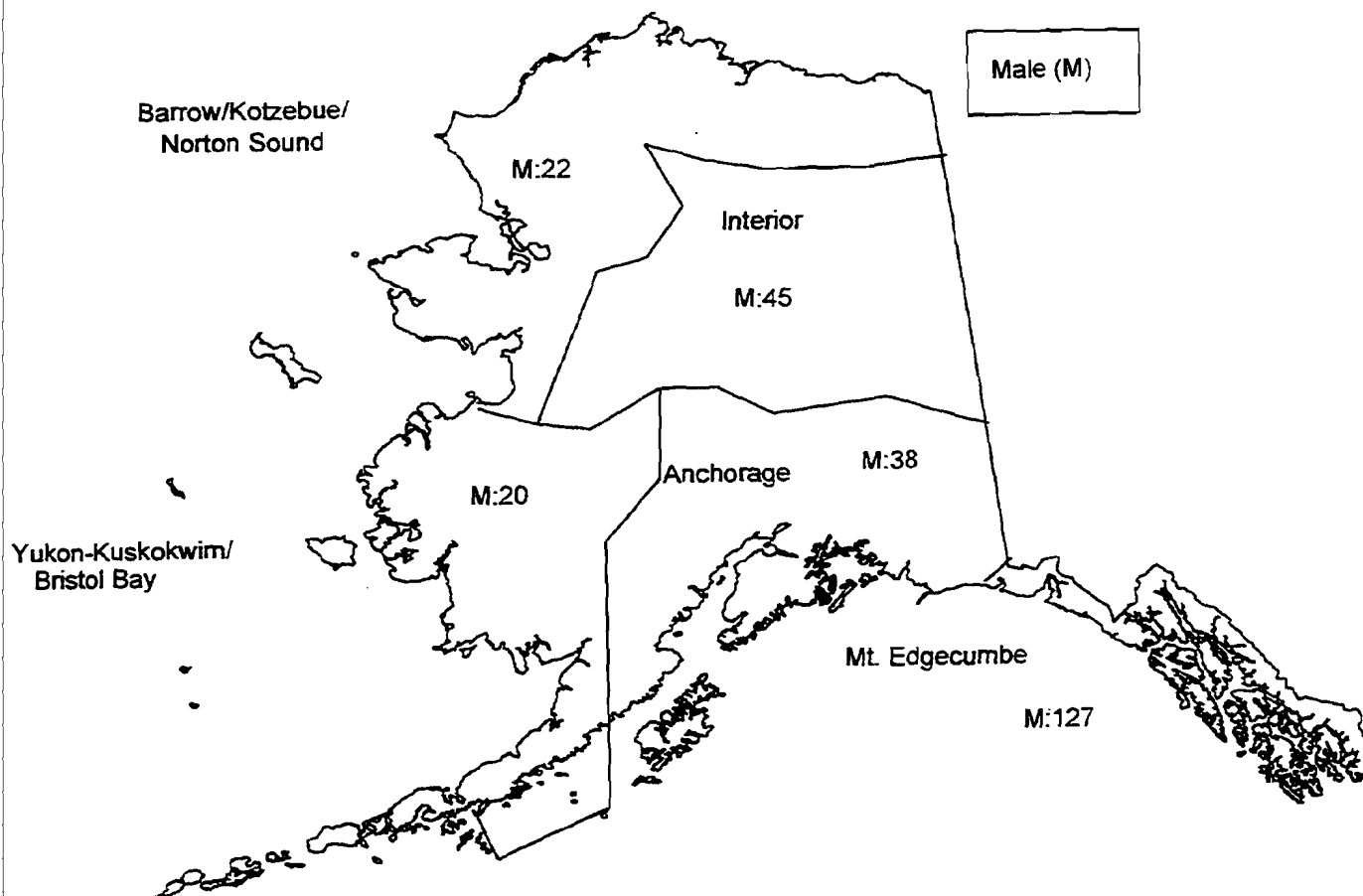


\* Rates are age-adjusted to the 1970 U.S. standard population.

■ U.S. data from SEER program, National Cancer Institute, 1974-1992

Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993

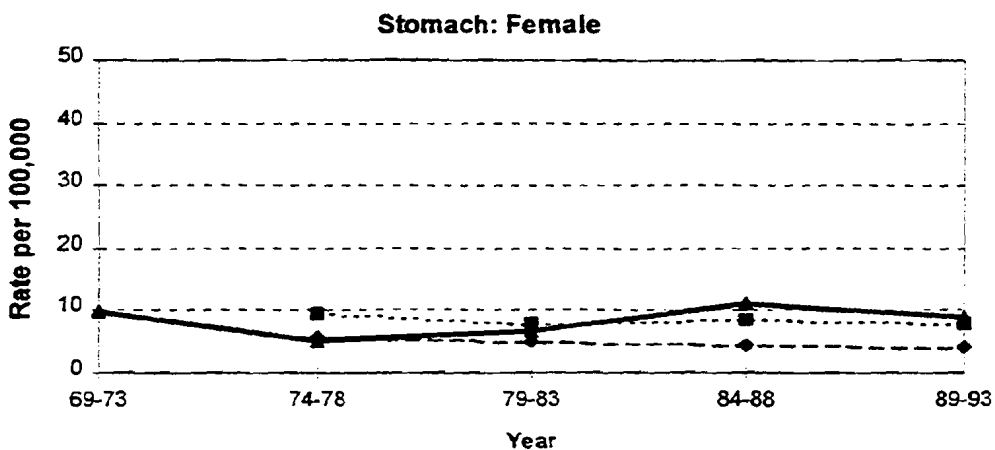
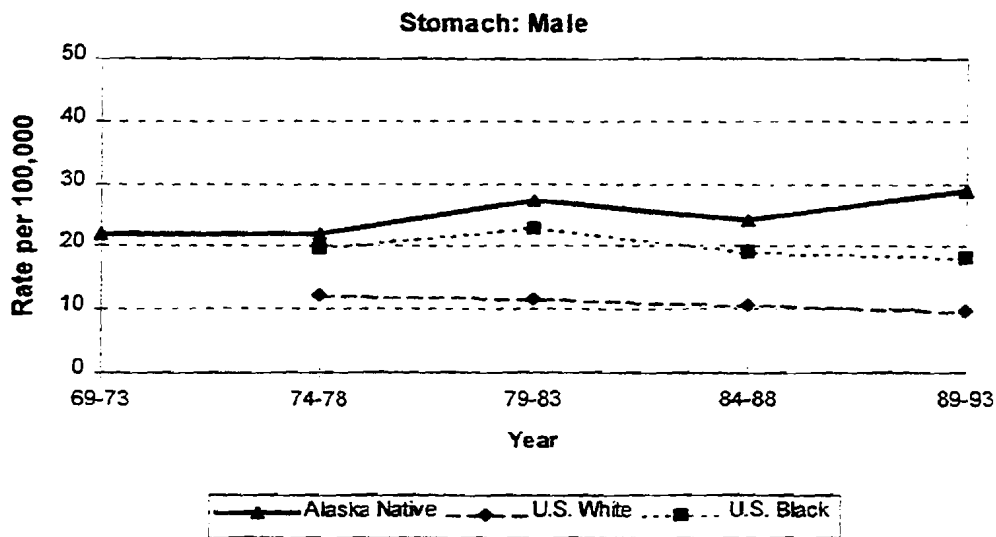
## Prostate



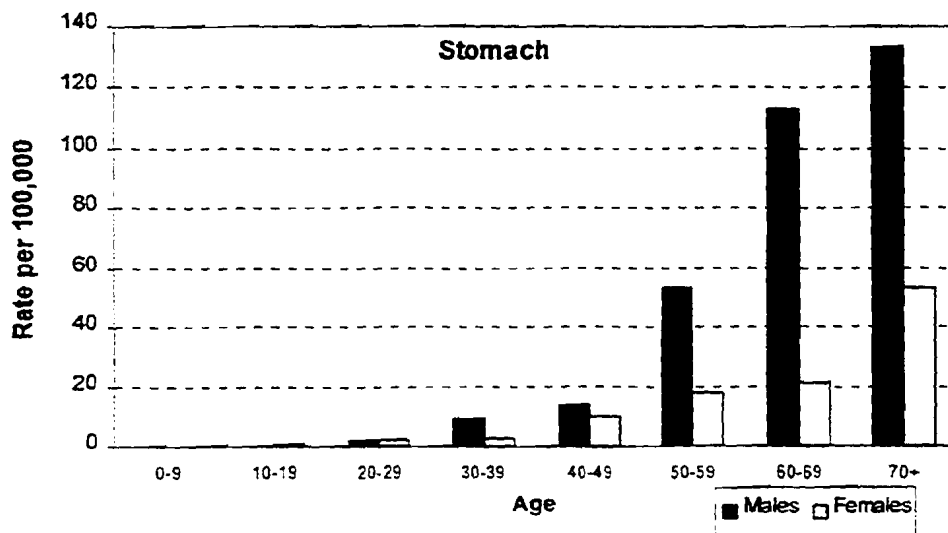
Numbers of Cases and Rates per 100,000		
Service Unit	Male	
	Cases	Rate
Anchorage	40	38
Barrow/Kotzebue/Norton Sound	15	22
Yukon-Kuskokwim/Bristol Bay	21	20
Interior	18	45
Mt. Edgecumbe	75	127

# Stomach

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992†



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993



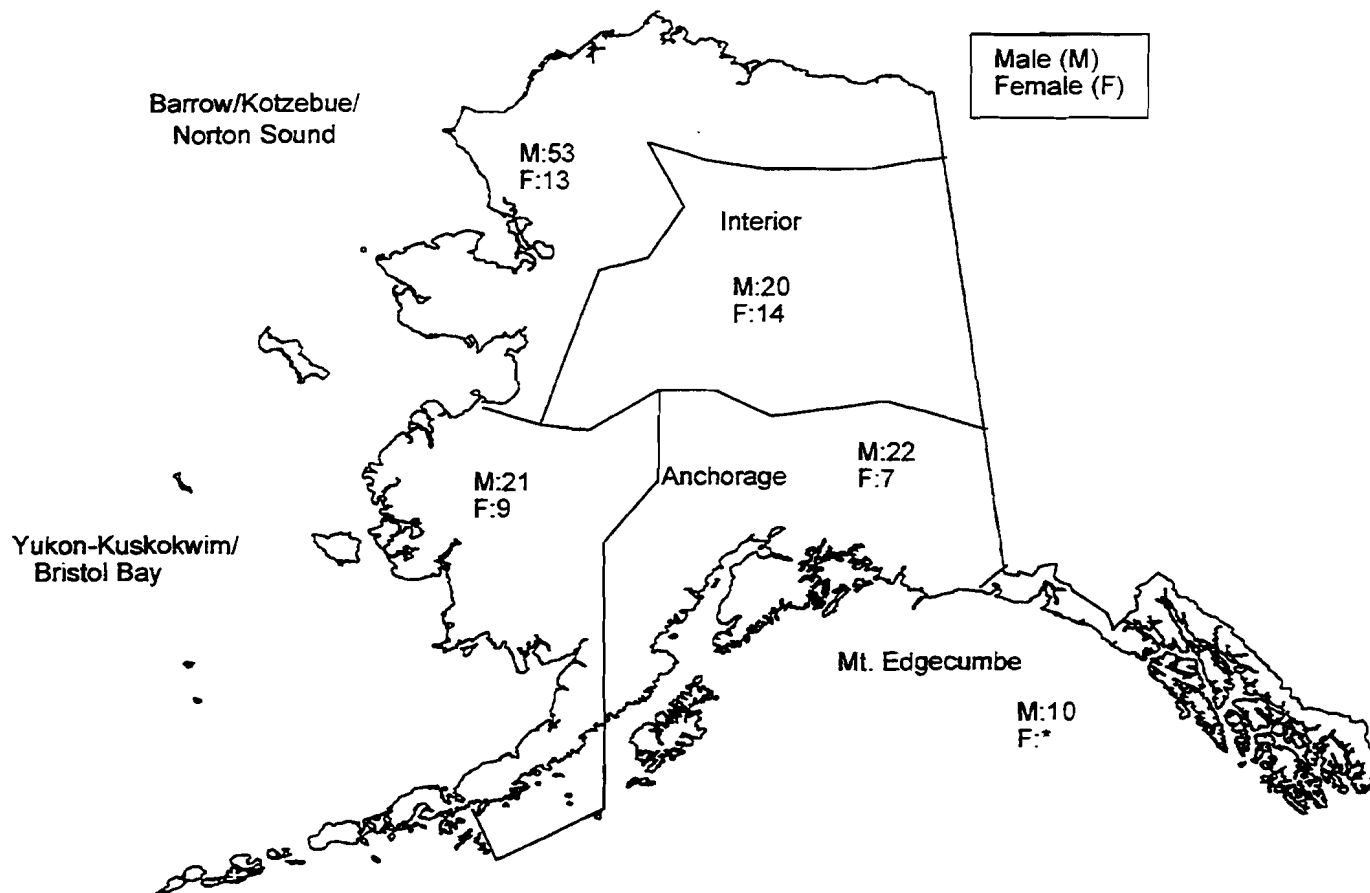
\* Rates are age-adjusted to the 1970 U.S. standard population.

† U.S. data from SEER program, National Cancer Institute, 1974-1992



**Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993**

**Stomach**

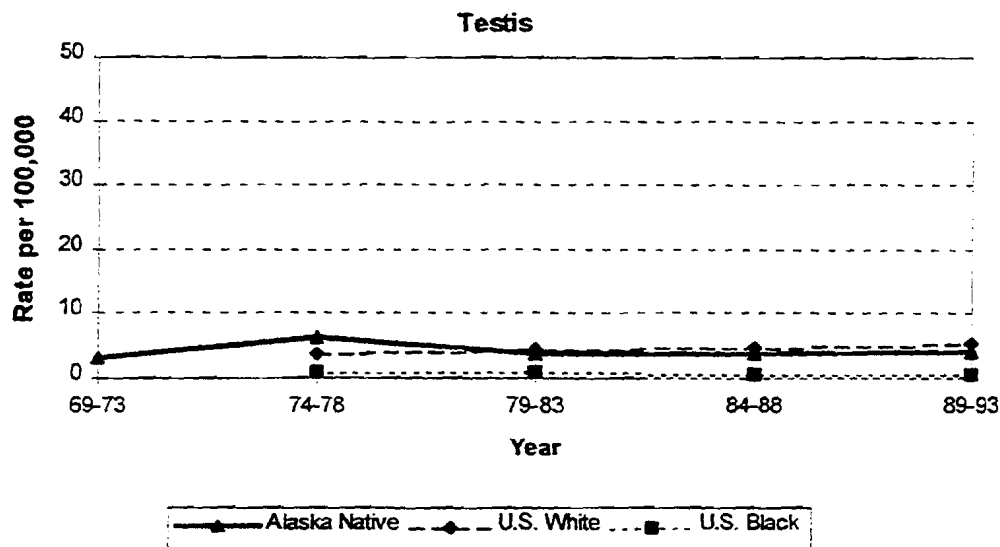


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	28	22	10	7
Barrow/Kotzebue/Norton Sound	45	53	12	13
Yukon-Kuskokwim/Bristol Bay	26	21	10	9
Interior	10	20	7	14
Mt. Edgecumbe	7	10	3	*

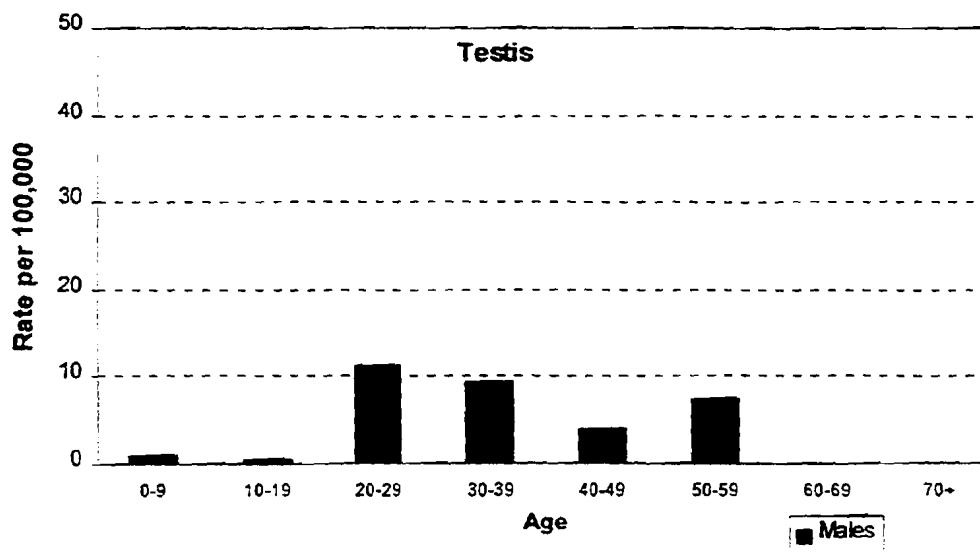
\* Rates not shown for less than five cases

# Testis

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993

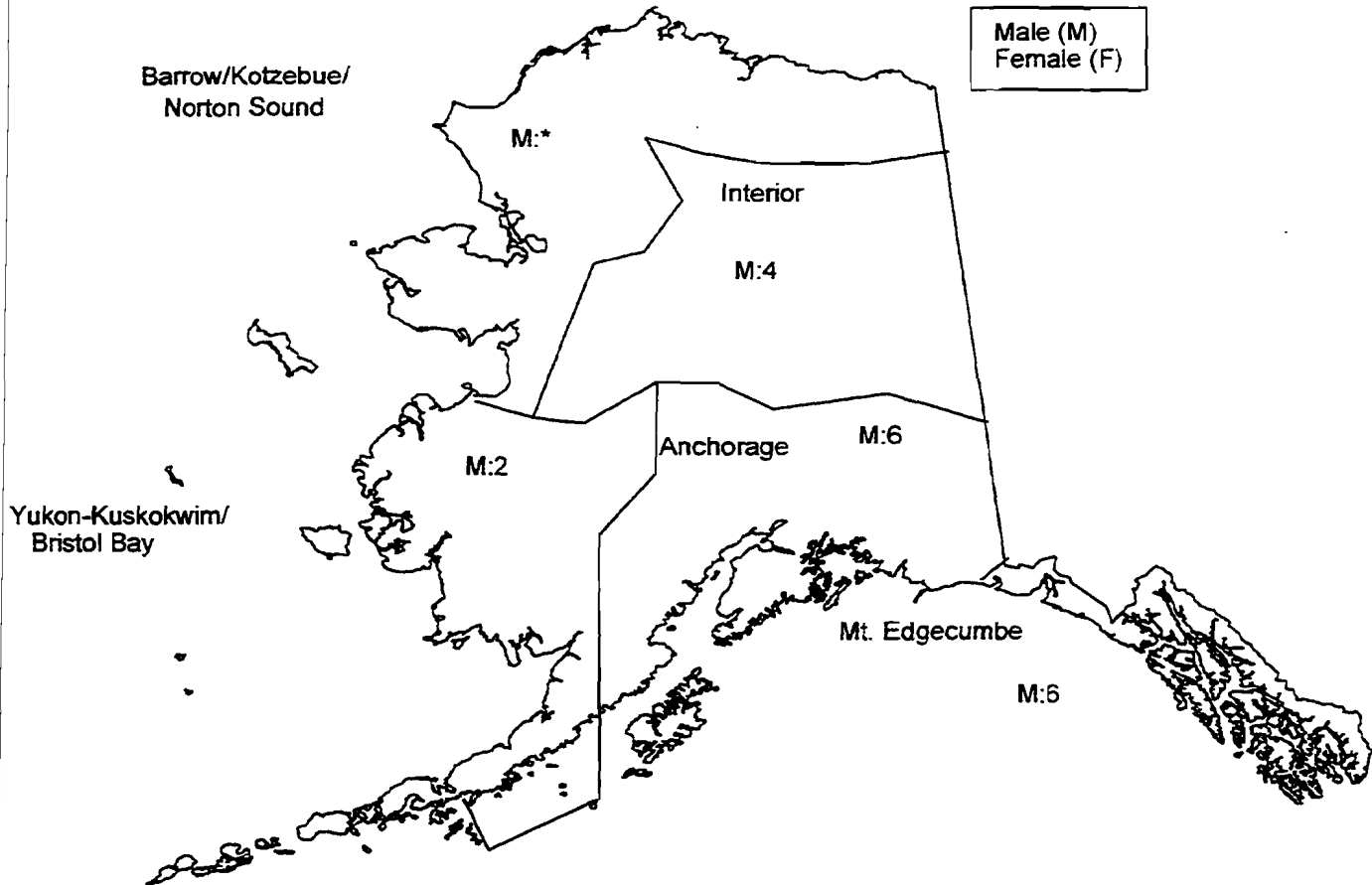


\* Rates are age-adjusted to the 1970 U.S. standard population.

■ U.S. data from SEER program, National Cancer Institute, 1974-1992

Average Annual Age-Adjusted Cancer Incidence Rates  
Alaska Natives 1969-1993

Testis

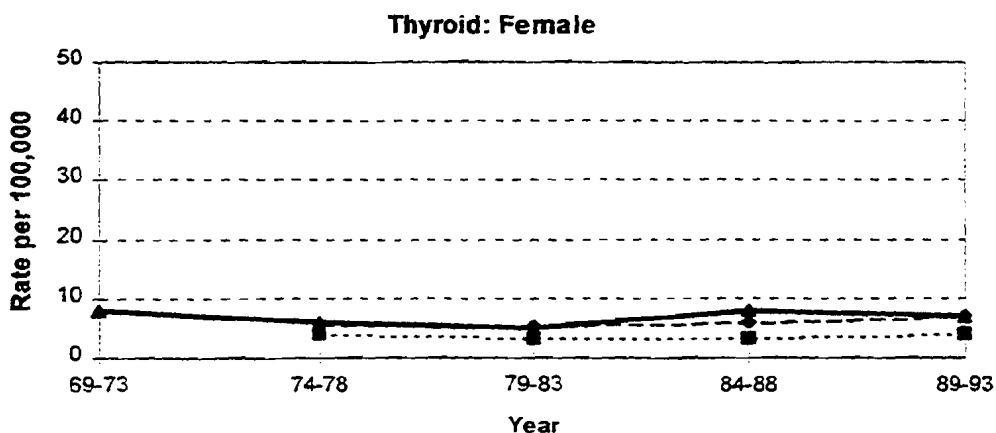
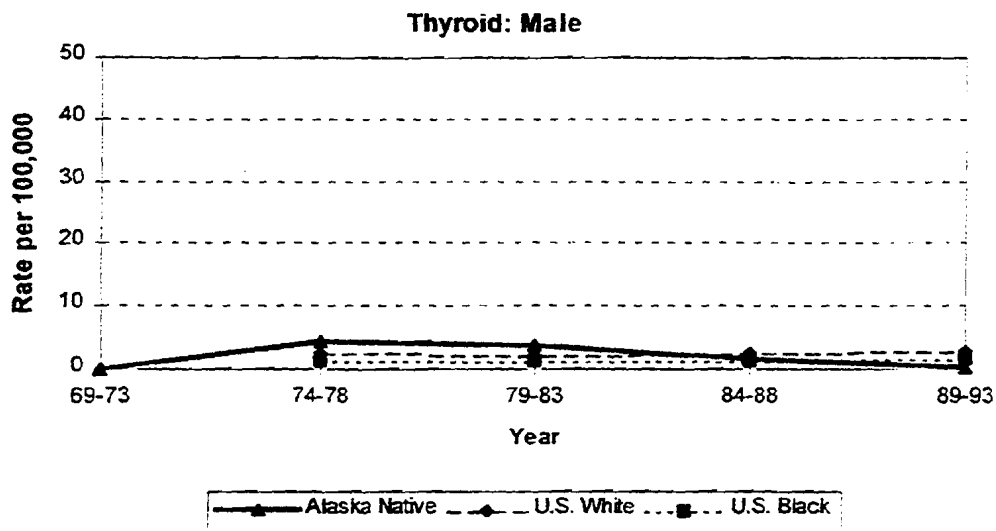


Numbers of Cases and Rates per 100,000		
Service Unit	Male	
	Cases	Rate
Anchorage	14	6
Barrow/Kotzebue/Norton Sound	4	*
Yukon-Kuskokwim/Bristol Bay	6	2
Interior	5	4
Mt. Edgecumbe	8	6

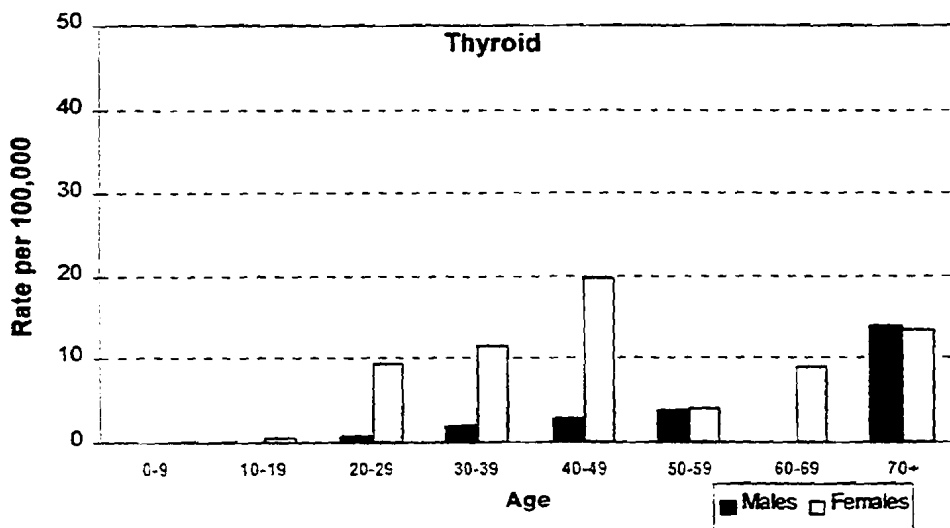
\* Rates not shown for less than five cases

# Thyroid

## Average Annual Age-Adjusted\* Cancer Incidence Rates, Alaska Natives 1969-1993 and US 1974-1992\*



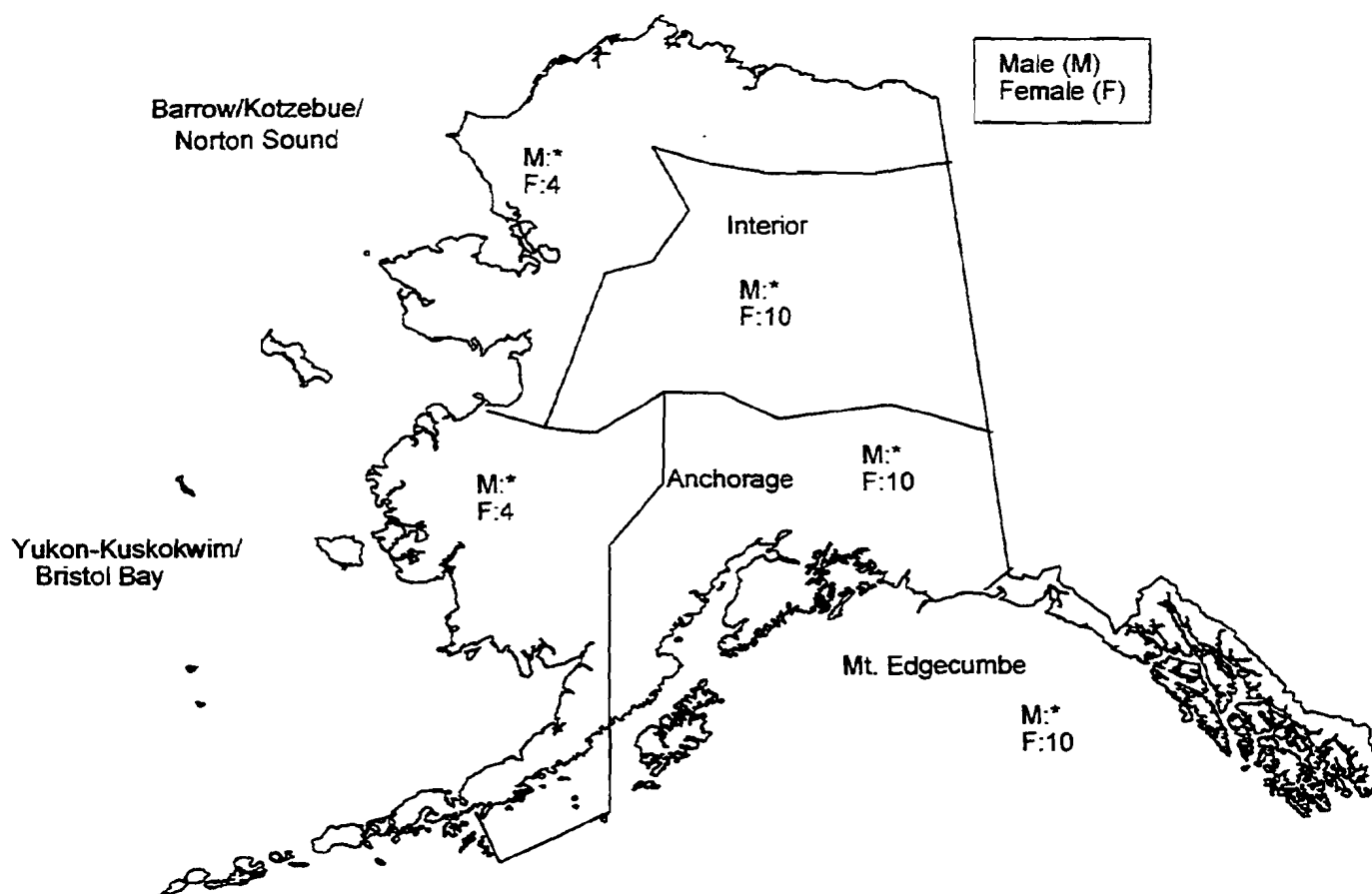
## Average Annual Age-Specific Cancer Incidence Rates Alaska Natives 1969-1993



\* Rates are age-adjusted to the 1970 U.S. standard population.

† U.S. data from SEER program, National Cancer Institute, 1974-1992

**Average Annual Age-Adjusted Cancer Incidence  
Alaska Natives 1969-1993  
Thyroid**

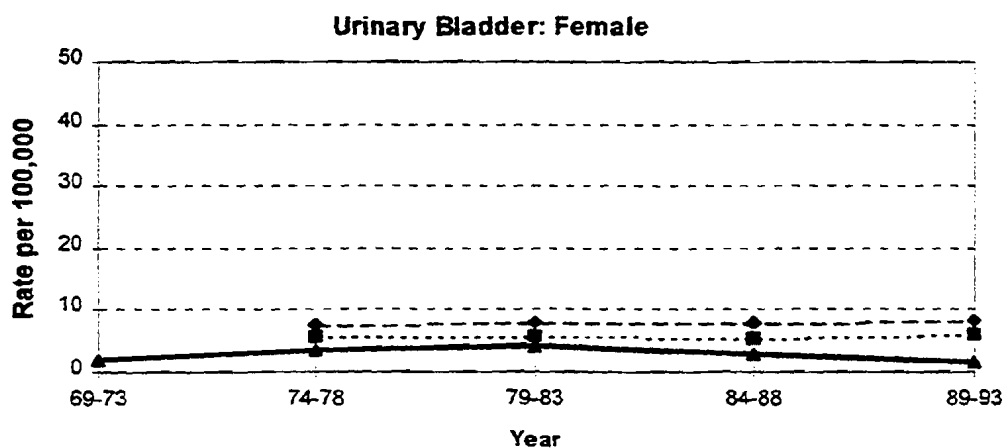
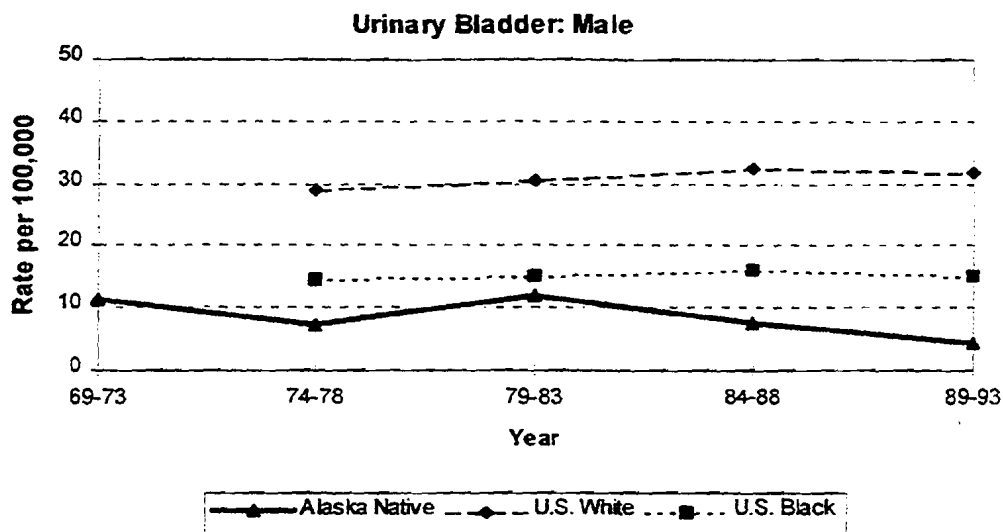


Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	2	*	20	10
Barrow/Kotzebue/Norton Sound	1	*	5	4
Yukon-Kuskokwim/Bristol Bay	1	*	8	4
Interior	3	*	8	10
Mt. Edgecumbe	3	*	9	10

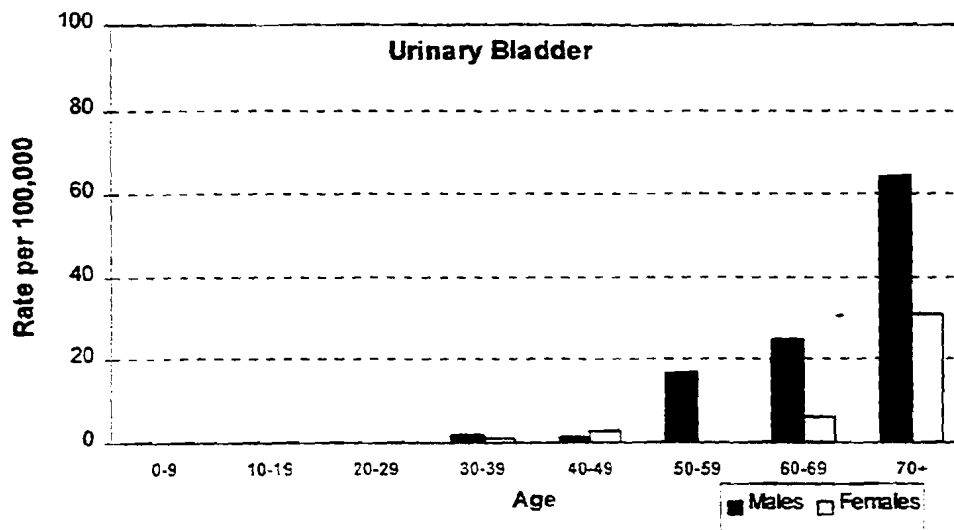
\* Rates not shown for less than five cases

# Urinary Bladder

Average Annual Age-Adjusted\* Cancer Incidence Rates,  
Alaska Natives 1969-1993 and US 1974-1992\*



Average Annual Age-Specific Cancer Incidence Rates  
Alaska Natives 1969-1993



\* Rates are age-adjusted to the 1970 U.S. standard population.

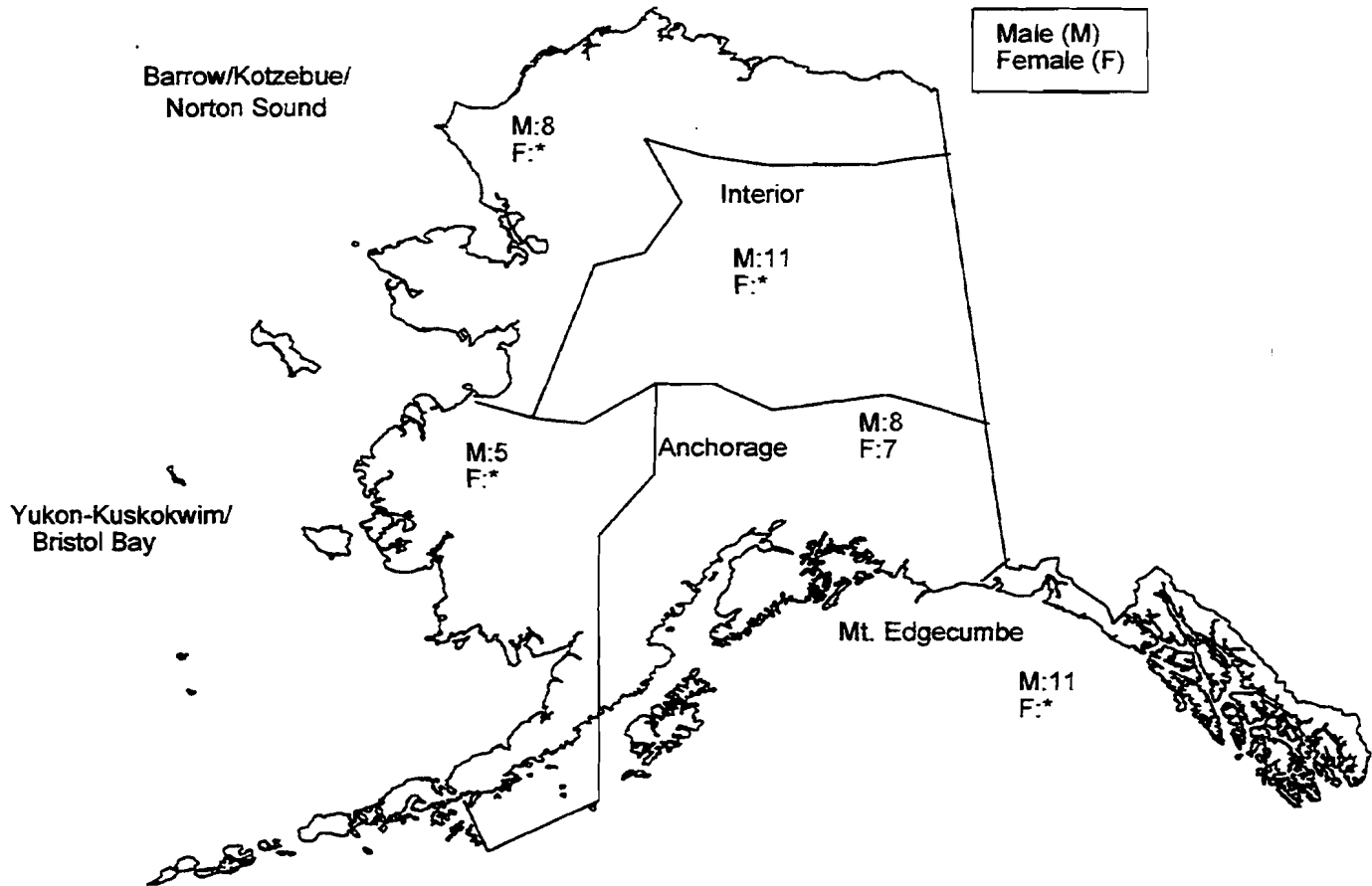
■ U.S. data from SEER program, National Cancer Institute, 1974-1992

# Urinary Bladder

## Average Annual Age-Adjusted Cancer Incidence Rates

Alaska Natives 1969-1993

### Urinary Bladder



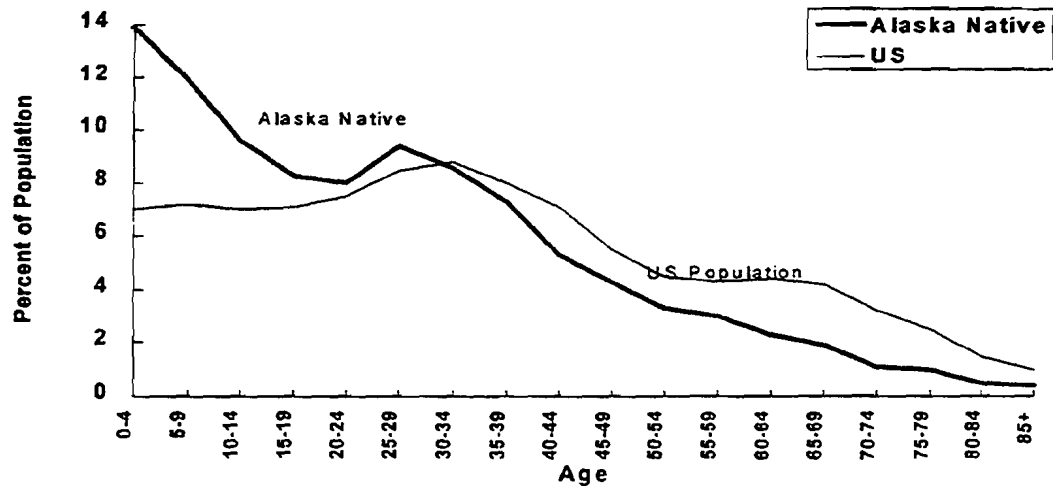
Numbers of Cases and Rates per 100,000				
Service Unit	Male		Female	
	Cases	Rate	Cases	Rate
Anchorage	9	8	8	7
Barrow/Kotzebue/Norton Sound	7	8	2	*
Yukon-Kuskokwim/Bristol Bay	5	5	1	*
Interior	5	11	0	*
Mt. Edgecumbe	7	11	1	*

\* Rates not shown for less than five cases



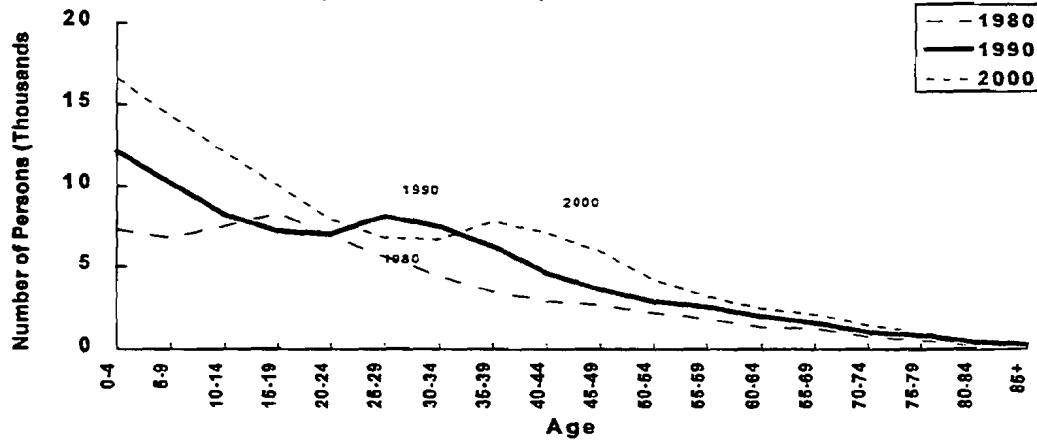


### Alaska Native and US Populations 1990



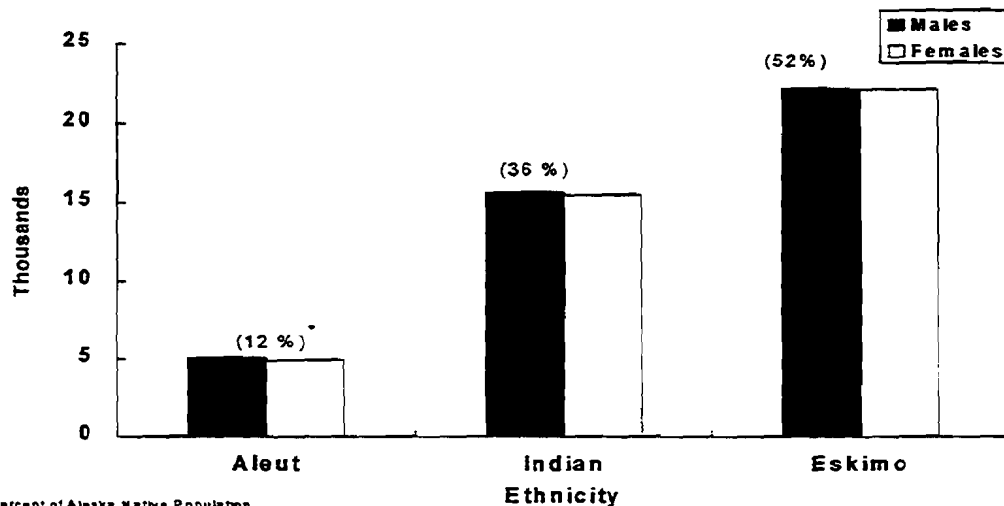
Source: Census 1990.

### Alaska Native Population 1980, 1990, and Population Projection Year 2000



Source: Boedeker B. and Butler S. Trends in Native Death Rates. Division of Planning, Evaluation & Health Statistics, Office of Patient Care Standards, Alaska Area Native Health Service, Anchorage, Alaska, August 28, 1993.

### Native Population by Ethnicity 1990



\* Percent of Alaska Native Population

Source: 1990 Census

## 1970 ALASKA NATIVE POPULATION BY ETHNICITY

AGE	<u>ALEUT</u>			<u>INDIAN</u>			<u>ESKIMO</u>			<u>TOTAL</u>		
	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL
0-4	350	382	732	1115	882	1997	2112	1933	4045	3577	3197	6774
5-9	456	453	909	1317	1149	2466	2469	2289	4758	4242	3891	8133
10-14	522	424	946	1145	1192	2337	2174	2117	4291	3841	3733	7574
15-19	406	297	703	793	866	1659	1504	1757	3261	2703	2920	5623
20-24	279	273	552	504	612	1116	935	1054	1989	1718	1939	3657
25-29	220	157	377	703	618	1321	874	894	1768	1797	1669	3466
30-34	241	251	492	551	394	945	766	815	1581	1558	1460	3018
35-39	167	143	310	394	447	841	610	640	1250	1171	1230	2401
40-44	183	145	328	463	345	808	595	619	1214	1241	1109	2350
45-49	155	131	286	296	299	595	588	434	1022	1039	864	1903
50-54	146	104	250	255	274	529	399	444	843	800	822	1622
55-59	53	83	136	267	249	516	451	373	824	771	705	1476
60-64	91	77	168	211	173	384	219	199	418	521	449	970
65-69	53	54	107	193	143	336	304	139	443	550	336	886
70-74	5	16	21	93	83	176	83	65	148	181	164	345
75+	32	3	35	122	133	255	122	209	331	276	345	621
	3359	2993	6352	8422	7859	16281	14205	13981	28186	25986	24833	50819

## 1980 ALASKA NATIVE POPULATION BY ETHNICITY

AGE	<u>ALEUT</u>			<u>INDIAN</u>			<u>ESKIMO</u>			<u>TOTAL</u>		
	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL
0-4	413	402	815	1301	1172	2473	2066	1966	4032	3780	3540	7320
5-9	397	382	779	1088	1138	2226	1992	1870	3862	3477	3390	6867
10-14	460	454	914	1277	1174	2451	2120	2010	4130	3857	3638	7495
15-19	533	517	1050	1390	1358	2748	2332	2216	4548	4255	4091	8346
20-24	460	455	915	1137	1133	2270	1857	1857	3714	3454	3445	6899
25-29	355	347	702	978	1004	1982	1508	1447	2955	2841	2798	5639
30-34	304	278	582	805	840	1645	1085	1061	2146	2194	2179	4373
35-39	219	230	449	654	634	1288	866	855	1721	1739	1719	3458
40-44	210	192	402	559	515	1074	704	703	1407	1473	1410	2883
45-49	200	170	370	480	449	929	674	681	1355	1354	1300	2654
50-54	178	152	330	357	369	726	569	554	1123	1104	1075	2179
55-59	135	119	254	306	299	605	504	439	943	945	857	1802
60-64	93	99	192	196	244	440	339	336	675	628	679	1307
65-69	74	75	149	188	189	377	337	335	672	599	599	1198
70-74	37	43	80	128	135	263	224	197	421	389	375	764
75+	51	56	107	176	196	372	226	214	440	453	466	919
	4119	3971	8090	11020	10849	21869	17403	16741	34144	32542	31561	64103

## 1990 ALASKA NATIVE POPULATION BY ETHNICITY

AGE	<u>ALEUT</u>			<u>INDIAN</u>			<u>ESKIMO</u>			<u>TOTAL</u>		
	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES	TOTAL
0-4	628	614	1242	1891	1933	3824	3503	3334	6837	6022	5881	11903
5-9	635	570	1205	1768	1701	3469	2751	2751	5502	5154	5022	10176
10-14	470	466	936	1539	1433	2972	2198	2104	4302	4207	4003	8210
15-19	392	373	765	1374	1232	2606	1880	1859	3739	3646	3464	7110
20-24	378	390	768	1196	1190	2386	1899	1843	3742	3473	3423	6896
25-29	495	481	976	1435	1424	2859	2160	2069	4229	4090	3974	8064
30-34	452	423	875	1396	1467	2863	1770	1880	3650	3618	3770	7388
35-39	377	376	753	1308	1231	2539	1494	1486	2980	3179	3093	6272
40-44	306	280	586	924	964	1888	1050	1020	2070	2280	2264	4544
45-49	242	233	475	766	703	1469	839	865	1704	1847	1801	3648
50-54	183	191	374	602	570	1172	629	637	1266	1414	1398	2812
55-59	183	166	349	498	475	973	608	659	1267	1289	1300	2589
60-64	126	120	246	332	388	720	479	504	983	937	1012	1949
65-69	115	117	232	270	279	549	394	415	809	779	811	1590
70-74	46	66	112	154	220	374	232	259	491	432	545	977
75+	60	98	158	259	323	582	357	473	830	676	894	1570
	5088	4964	10052	15712	15533	31245	22243	22158	44401	43043	42655	85698

**1980 Census Population for Alaska Natives  
by Service Unit**

1.	Anchorage		17544
2.	Interior		6759
3.	Mt. Edgecumbe		9782
4.	Yukon-Kuskokwim	13953	
	Bristol Bay	3688	
			17641
5.	Barrow	2600	
	Kotzebue	4547	
	Norton Sound	5174	
			12321
	Total		<u>64074</u>

**1990 Census Population for Alaska Natives  
by Service Unit**

1.	Anchorage		25889
2.	Interior		9968
3.	Mt. Edgecumbe		12831
4.	Yukon-Kuskokwim	17157	
	Bristol Bay	4380	
			21537
5.	Barrow	3529	
	Kotzebue	5796	
	Norton Sound	6148	
			15473
	Total		<u>85698</u>



# Site Recodes Based on ICD-O (Cont.)

Primary Site	Site <sup>1</sup> /Type	Excluding Type
Urinary System:		
Bladder	C670-C679	9590-9970
Kidney & Renal Pelvis	C649-C659	9590-9970
Other Urinary Organs	C669;C680-C689	9590-9970
Eye & Orbit:	C690-C699	9590-9970
Brain & Nervous System:		
Brain	C710-C719	953;9590-9970
Other Nervous System	C700-C709;C710-C719(TYPE 953); C720-C729	9590-9970 9590-9970
Endocrine:		
Thyroid	C739	9590-9970
Other Endocrine	C379;C740-C749;C750-C759	9590-9970
Lymphomas:		
Hodgkin's	TYPES 9650-9667: FOR ALL SITES	
Non-Hodgkin's	TYPES 9590-9595: FOR ALL SITES TYPES 9670-9714: FOR ALL SITES	
Multiple Myeloma	TYPES 9731-9732: FOR ALL SITES	
Leukemia	TYPES 9800-9804;9820-9827;9830; 9840-9842;9850;9860-9864;9866- 9868;9870;9880;9890-9894;9900; 9910;9930-9931;9941	
III Defined & Unspecified:	TYPES 9720-9723;9740;9741; 9760-9764; C760-C768;C809 C420-C424 C770-C779	9950-9989 9590-9970 9590-9940 9590-9750

<sup>1</sup> Site recodes correspond with SEER recodes for primary sites;  
the decimal point has been dropped from the ICD-O topography (site) codes.



Site Recodes Based on ICD-O

Primary Site	Site <sup>1</sup> /Type	Excluding Type
Oral Cavity and Pharynx:		
Salivary Gland	C079-C089	9590-9970
Nasopharynx	C110-C119	9590-9970
Gum & Other Oral Cavity	C030-C039;C050-C059;C060-C069	9590-9970
Other Oral Cavity and Pharynx	C000-C009;C019-C029;C040-C049 C090-C109;C129;C130-139 C140-C148	9590-9970 9590-9970 9590-9970
Digestive System:		
Esophagus	C150-C159	9590-9970
Stomach	C160-C169	9590-9970
Colon excluding rectum	C180-C189;C260	9590-9970
Rectum	C209	9590-9970
Rectosigmoid Junction	C199	9590-9970
Liver	C220	9590-9970
Gallbladder	C239	9590-9970
Other Biliary	C240-249	9590-9970
Pancreas	C250-C259	9590-9970
Other Digestive System	C170-C179;C210-C212;C218 C221;C268-C269;C480-C482;C488	9590-9970 9590-9970
Respiratory System:		
Lung & Bronchus	C340-C349	9590-9970
Larynx	C320-C329	9590-9970
Other Respiratory System	C300-C301;C310-C319;C339;C381-C383 C388;C390;C398;C399	9590-9970 9590-9970
Bones & Joints:	C400-C419	9590-9970
Soft Tissue:	C380;C470-C479;C490-C499	9590-9970
Skin:	C440-C449 (TYPES 872-879) C440-C449 C440-C449	8000-8004; 8010-8012; 8070-8076; 8090-8096; 8720-8790; 9590-9980
Breast:	C500-C509	9590-9970
Female Genital System:		
Cervix uteri	C530-C539	9590-9970
Corpus uteri/Uterus, NOS	C540-C549;C559	9590-9970
Ovary	C569	9590-9970
Other Female Genital Organs	C510-C519;C529;C559;C570-C589	9590-9970
Male Genital:		
Prostate	C619	9590-9970
Testis	C620-C629	9590-9970
Other Male Genial Organs	C600-C609;C630-C639	9590-9970





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## GLOSSARY OF CANCER TERMS

- AGE-ADJUSTED RATES.** Rates have been mathematically weighted to allow comparisons of populations with different age distributions. Adjustment is usually made to a standard population; in this report to the 1970 U.S. population.
- AGE-SPECIFIC RATES.** Rates are calculated using the number of cases occurring in a specified age group, divided by the population for just that age group.
- AVERAGE ANNUAL RATE.** Cases for a given number of years are added together and divided by the numbers of years to give an average annual number. This number of cases is then divided by the population to determine the rate.
- BENIGN.** A growth which is not life threatening.
- CANCER.** A harmful growth of cells that if allowed to keep growing will interfere with body function and eventually cause death. A malignant neoplasm or malignant tumor.
- CARCINOGEN.** A cancer causing substance.
- CORPUS UTERI.** Body of the uterus, in contrast to the cervix. The womb.
- DEFICIT.** When compared to another population, the population under study has fewer cancer cases than the comparison population.
- EXCESS.** When compared to another population, the population under study has more cancer cases than the comparison population.
- INCIDENCE.** New cases of a specific disease occurring in a specified time period, usually expressed as new cases per 100,000 population per year.
- IN SITU.** The growth, tumor, cancer has not extended beyond the level of tissue in which it began.
- INTRAEPITHELIAL NEOPLASM.** See "in situ".
- INVASIVE.** The growth extends beyond where it started, into other tissues and organs in the body.
- MORBIDITY.** Illness.
- MORTALITY.** Numbers of deaths occurring in a certain time period, usually expressed as number of deaths per 100,000 population. Mortality data are based on death certificates.
- NEOPLASM.** Any new growth, benign or malignant. A tumor.
- PRIMARY CANCER.** The organ of the body in which the cancer is thought to have started.
- RATE.** The number of occurrences of a disease in a population in a given time period.
- RATE RATIO.** Comparison of one rate with another to show how many times larger or smaller one is compared to the other. Generally the rate in the population of interest is compared with that of a standard population (for which data are available and published).
- RISK.** An individual's chance of developing cancer.
- RISK FACTORS.** Factors which increase an individual's chance of getting cancer. These may be genetic, environmental, cultural or behavioral.
- SCREENING.** Tests or examinations done to detect cancer very early, before the person is aware of the cancer and has symptoms.
- SEER (STATISTICS, EPIDEMIOLOGY AND END RESULTS).** A program sponsored by the National Cancer Institute designed to collect very detailed information on cancer occurrence, treatment and outcome in select states and regions in the U.S.
- SITE.** In cancer information, site refers to body organ.
- SITE-SPECIFIC RATE.** Rate or risk of developing cancer in a specific site (body organ).
- STAGE OF DISEASE.** The disease (cancer) is categorized how far the disease has spread. Generally, the terms local, regional, distant are used. More detailed staging systems are also available specific to the cancer site.
- SURVIVAL RATE.** The proportion of patients alive following diagnosis of cancer. Often percent of patients alive after five years (five year survival rate) is given.
- TRENDS.** Changes over time.
- TUMOR.** A general term used for a growth, malignant or benign.
- TUMOR REGISTRAR.** The person who collects and reports tumor registry information. Those who have had special training and an examination become Certified Tumor Registrars (CTR).
- TUMOR REGISTRY.** A standard system of collecting information on patients with cancer; benign tumors are usually not registered.