

Cancer Incidence and Mortality in Alaska, 1996-2001



**Alaska Cancer Registry
Section of Chronic Disease Prevention and Health Promotion
Alaska Department of Health and Social Services**

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Cancer Incidence and Mortality in Alaska, 1996-2001
A report from the Alaska Cancer Registry
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Definitions and Use of Race in this Report

Rates for Whites and Natives are used in this report. These two racial groups make up approximately 91 percent of the population of the state of Alaska during the period 1996-2002 (74 and 17 percent individually). The remaining 9 percent are Asian/Pacific Islander and Blacks (5 and 4 percent individually). Cancer rates for Whites and Natives are the most stable for the comparisons between races because of their larger numbers. Cancer rates for the other races tend to have larger fluctuations from year to year.

AK White: Caucasians in Alaska.

AK Native: Alaskan Natives in Alaska. This includes a small population of Native Americans.

U.S. White: Caucasians, including those living in Alaska, covered by the 13 registries of the U.S. SEER program of the National Cancer Institute.

U.S. Native: Native Americans and Alaska Natives, including those living in Alaska, covered by the 13 registries of the U.S. SEER program of the National Cancer Institute.

Incidence Rate: Rate of occurrence of NEW cancer cases diagnosed in a defined population in a given time frame.

Mortality Rate: Rate of cancer deaths occurring in a defined population during a given time frame.

Crude Rate: The number of new cases of cancer, or cancer deaths, during the year expressed as a rate per 100,000 persons in the population, without regard to the age distribution of the population.

Age-Adjusted Rate: Since cancer rates tend to vary with age, and populations vary with respect to their age-distribution, incidence and mortality rates are age-adjusted to allow comparison of rates between different populations with different age distributions. In this report, age-adjusted rates are calculated by the direct method using the age distribution of the 2000 United States standard population with 19 age groups. All age-adjusted rates are expressed per 100,000 individuals per year.

U.S. Rate: Age-adjusted rate for the population covered by the SEER program of the National Cancer Institute. The 13 SEER registries cover approximately 14 percent of the U.S. population, including Alaska (source: <http://seer.cancer.gov/registries/data.html>).

Introduction

This report presents a summary of cancer incidence and mortality for the 6-year period of 1996 to 2001 for the State of Alaska. The information is presented in a series of tables, graphs, and maps.

Incidence and mortality rates for the seven highest-ranking cancers in Alaska are presented in tables and are ranked by age-adjusted rates during this time period. Rankings are presented for the state population as a whole as well as for Whites and Alaska Natives. Alaska rates are compared to U.S. rates. Graphs illustrate incidence and mortality trends for the highest-ranking cancers by diagnosis year and death year for Alaska and the U.S. Color-coded maps illustrate ranges of incidence and mortality rates for the highest-ranking cancers in Alaska for each borough/census area.

Data Sources

Statistics were generated using the statistical software program SEER*Stat version 6.2.1 (<http://seer.cancer.gov/seerstat/>) from the Surveillance Research Program of the National Cancer Institute.

Cancer incidence data for Alaska were provided by the Alaska Cancer Registry and were formatted for use in SEER*Stat in April 2004.

Cancer incidence data for the U.S. were provided by the SEER program and have the following citation: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER 13 Regs Limited-Use, Nov 2004 Sub for Expanded Races (1992-2002), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2005, based on the November 2004 submission.

Cancer mortality data for Alaska were provided by the Alaska Bureau of Vital Statistics and were formatted for use in SEER*Stat in October 2004.

Cancer mortality data for the U.S. were provided by the SEER program and have the following citation: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. for Expanded Races (1990-2002), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2005. Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

Graphs were generated from the SEER*Stat statistics using Microsoft Excel 2003.

Maps were generated from the SEER*Stat statistics using the geographic information systems (GIS) software MapInfo version 7.0 (<http://www.mapinfo.com/>).

Incidence – Malignant Cancers in Alaska, 1996-2001

The table below shows the highest ranking cancers by incidence rate in Alaska. During this time period, they represent 66.0% of all cancers diagnosed in Alaska. Rates are age-adjusted to the 2000 US standard population.

Type of Cancer	Rate per 100,000	Number of Cases	U.S. Rate
Prostate	165.1	1,578	172.4
Female Breast	140.1	1,862	134.9
Lung and Bronchus	77.5	1,586	62.5
Colorectal	60.9	1,205	53.9
Bladder	24.2	458	20.4
Uterus	21.6	274	24.5
Non-Hodgkin's Lymphoma	20.3	500	19.3

Mortality – Malignant Cancers in Alaska, 1996-2001

The table below shows the highest death rate in Alaska by type of cancer. During this time period, they represent 61.7% of all cancer deaths in Alaska. Rates are age-adjusted to the U.S. year 2000 standard population.

Type of Cancer	Rate per 100,000	Number of Cases	U.S. Rate
Lung and Bronchus	59.3	1,148	56.5
Female Breast	25.1	292	27.4
Prostate	24.9	150	32.2
Colorectal	21.7	368	21.0
Pancreas	11.0	212	10.5
Ovary	8.7	91	8.9
Non-Hodgkin's Lymphoma	8.3	159	8.4

Incidence by Race – Whites vs. Natives, 1996-2001

Incidence rates for Alaska Natives are different than those for Whites.

The table below shows the highest ranking cancers by incidence rate in Alaska for Alaska Natives and compares their rates to those of AK Whites.

Type of Cancer	AK Natives		AK Whites	
	Rate per 100,000	No. of Cases	Rate per 100,000	No. of Cases
Female Breast	129.5	267	148.6	1,486
Colorectal	109.6	343	52.9	791
Lung and Bronchus	92.5	286	76.2	1,206
Prostate	80.3	102	177.7	1,348
Stomach	23.2	81	6.6	97
Kidney and Renal Pelvis	19.0	62	12.7	239
Pancreas	17.5	55	11.2	176

The table below shows the highest ranking cancers by incidence rate in Alaska for Whites and compares their rates to those of Alaska Natives. The ranking for Whites is the same as all races combined.

Type of Cancer	AK Whites		AK Natives	
	Rate per 100,000	No. of Cases	Rate per 100,000	No. of Cases
Prostate	177.7	1,348	80.3	102
Female Breast	148.6	1,486	129.5	267
Lung and Bronchus	76.2	1,206	92.5	286
Colorectal	52.9	791	109.6	343
Bladder	27.6	399	12.4	39
Uterus	24.3	232	13.0	27
Non-Hodgkin's Lymphoma	22.7	421	12.2	51

Mortality by Race – Whites vs. Natives, 1996-2001

Mortality rates for Alaska Natives are different than those for Whites.

The table below shows the highest death rate in Alaska by type of cancer for Alaska Natives and compares their rates to those of AK Whites.

Type of Cancer	AK Natives		AK Whites	
	Rate per 100,000	No. of Cases	Rate per 100,000	No. of Cases
Lung and Bronchus	71.2	211	59.0	882
Colorectal	35.8	99	19.5	249
Prostate	25.1	23	25.0	119
Female Breast	23.3	46	26.2	225
Stomach	17.2	63	4.3	59
Pancreas	15.5	49	10.6	154
Kidney and Renal Pelvis	9.7	28	3.5	53

The table below shows the highest death rate in Alaska by type of cancer for Whites and compares their rates to those of Alaska Natives. The ranking for Whites is the same as all races combined.

Type of Cancer	AK Whites		AK Natives	
	Rate per 100,000	No. of Cases	Rate per 100,000	No. of Cases
Lung and Bronchus	59.0	882	71.2	211
Female Breast	26.2	225	23.3	46
Prostate	25.0	119	25.1	23
Colorectal	19.5	249	35.8	99
Pancreas	10.6	154	15.5	49
Ovary	9.7	74	5.8	11
Non-Hodgkin's Lymphoma	9.6	134	5.3	19

Causes of Cancer

The causes of most cancers are not well understood. However, certain lifestyle choices are known to contribute toward cancer, especially tobacco use, poor diet, and lack of physical activity. The following established causes of cancer are responsible for these estimated total cancer deaths:

Risk Factor	Percentage of Total Cancer Deaths
Tobacco	30
Adult diet/obesity	25
Sedentary lifestyle	10
Occupational factors	5
Family history of cancer	5
Viruses/other biological events	5
Perinatal factors/growth	5
Reproductive factors	5
Alcohol	3
Socioeconomic status	*
Environmental pollution	2
Ionizing/ultraviolet radiation	2
Prescription drugs/medical procedures	2
Salt/other food additives/contaminants	1

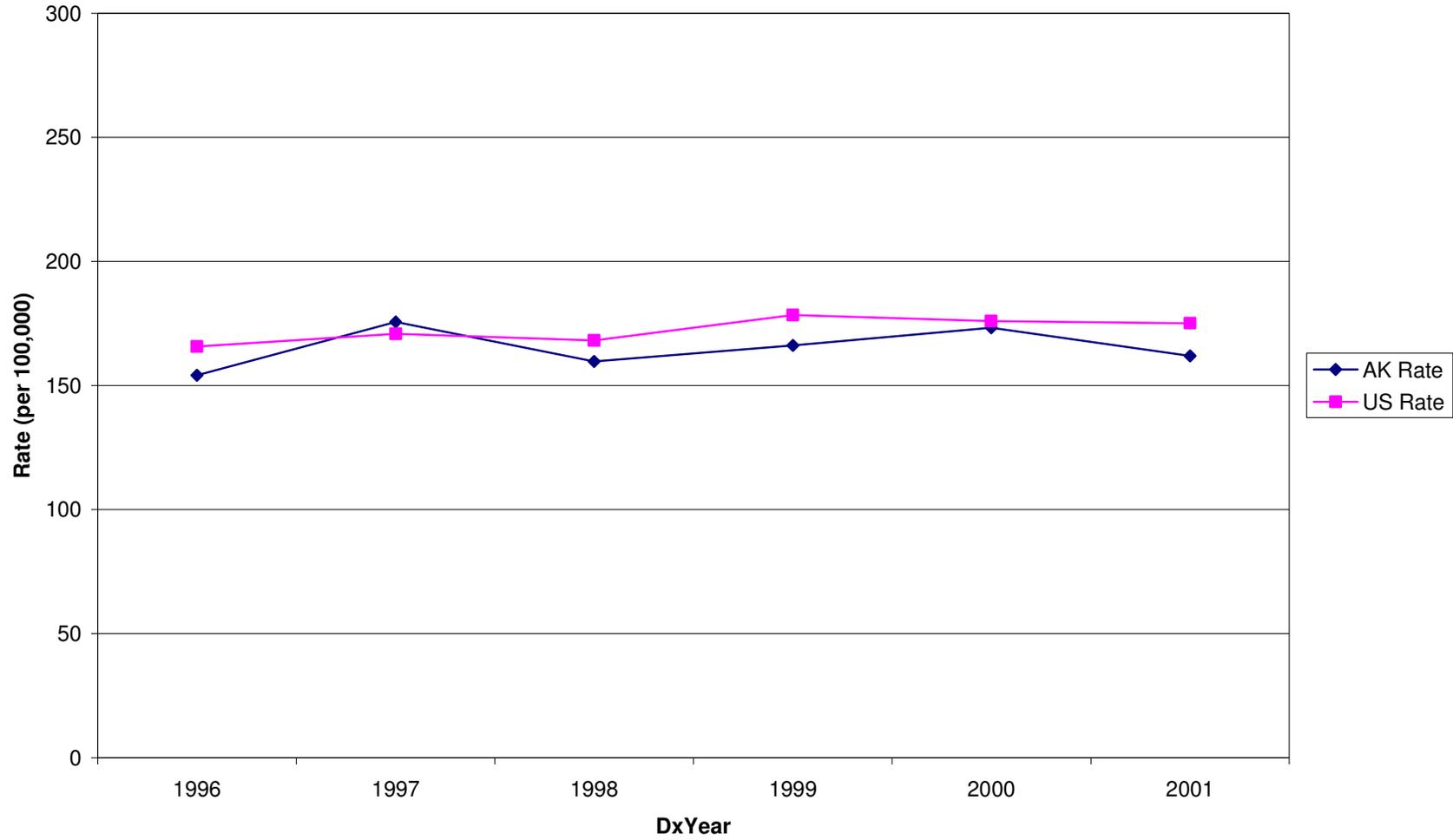
* An important underlying factor operating through other specific causes

Source: W.C. Willett, D. Hunter, and G.A. Colditz, 2000. "Summary – Causes of Cancer". In: *Cancer Prevention: The Causes and Prevention of Cancer, Volume 1*, G.A. Colditz and D. Hunter (eds), Kluwer Academic Publishers, The Netherlands. p.161-171.

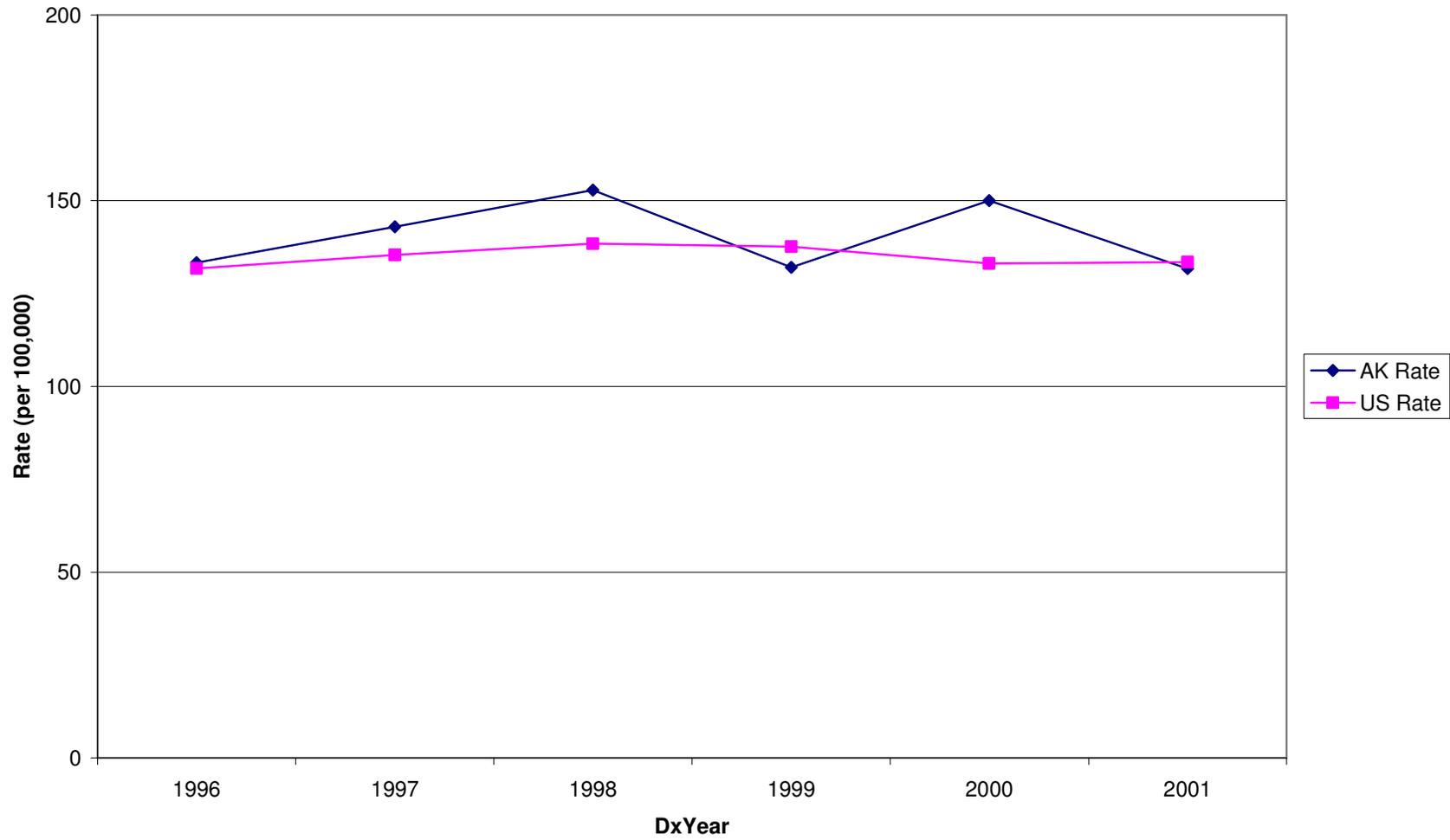
Incidence and Mortality Graphs

The next several pages consist of graphs illustrating incidence and mortality rate trends for Alaska compared to the United States as a whole. The trend data for Alaska shows a larger variation than the U.S. data because Alaska has such a small population and this information only represents a 5-year period.

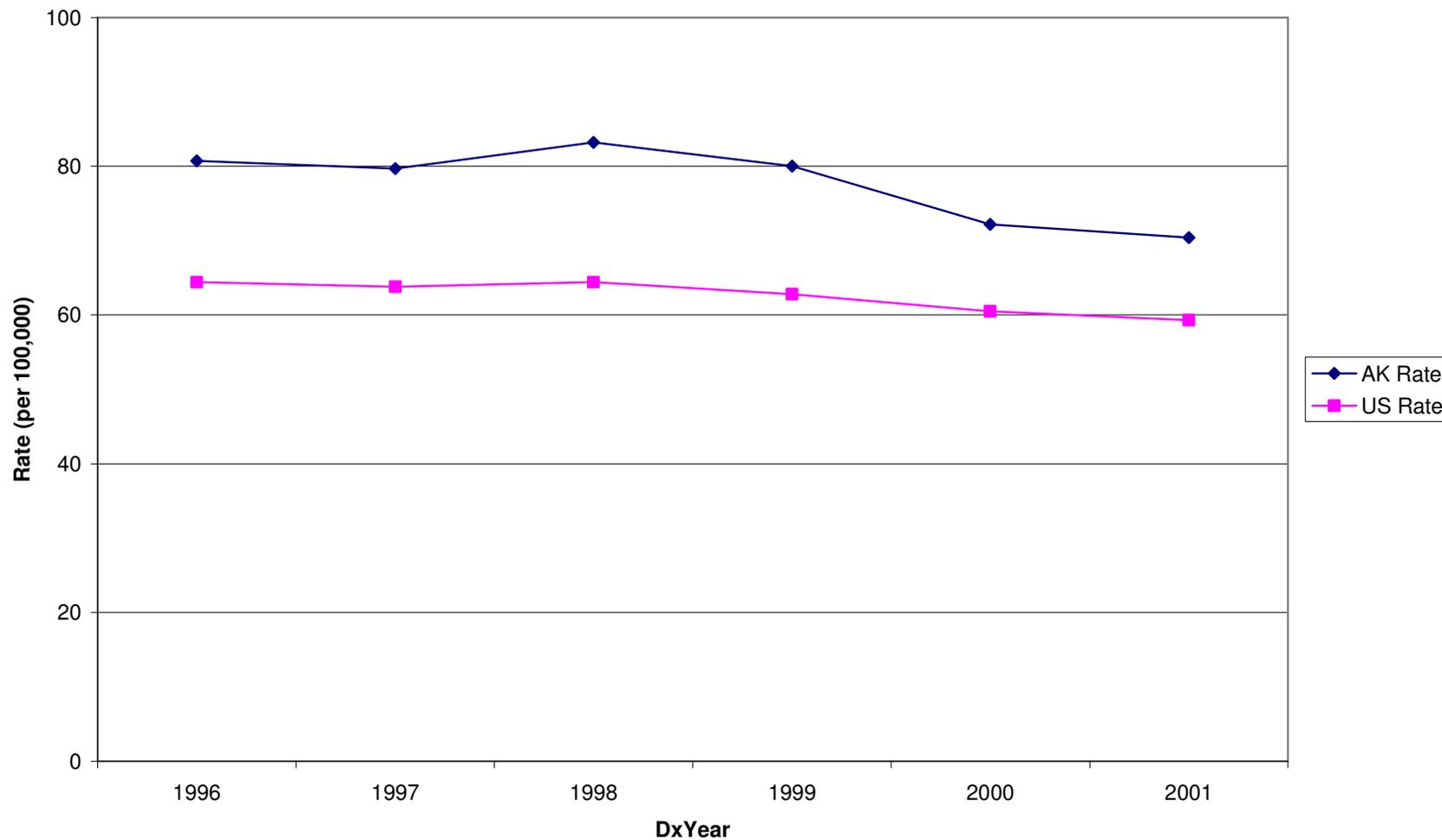
Prostate Cancer Incidence - AK vs. US Rates 1996-2001



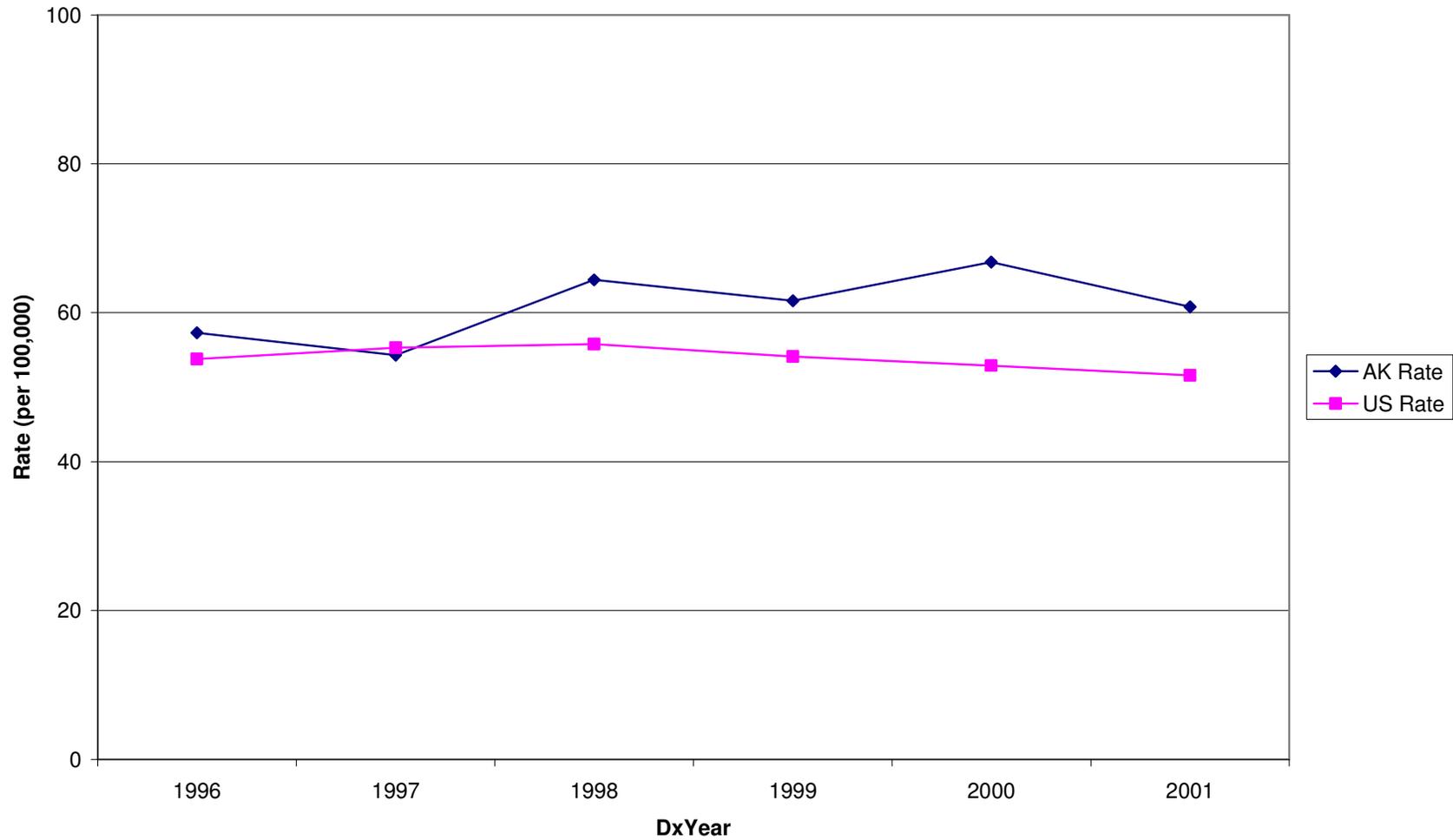
Female Breast Cancer Incidence - AK vs. US Rates 1996-2001



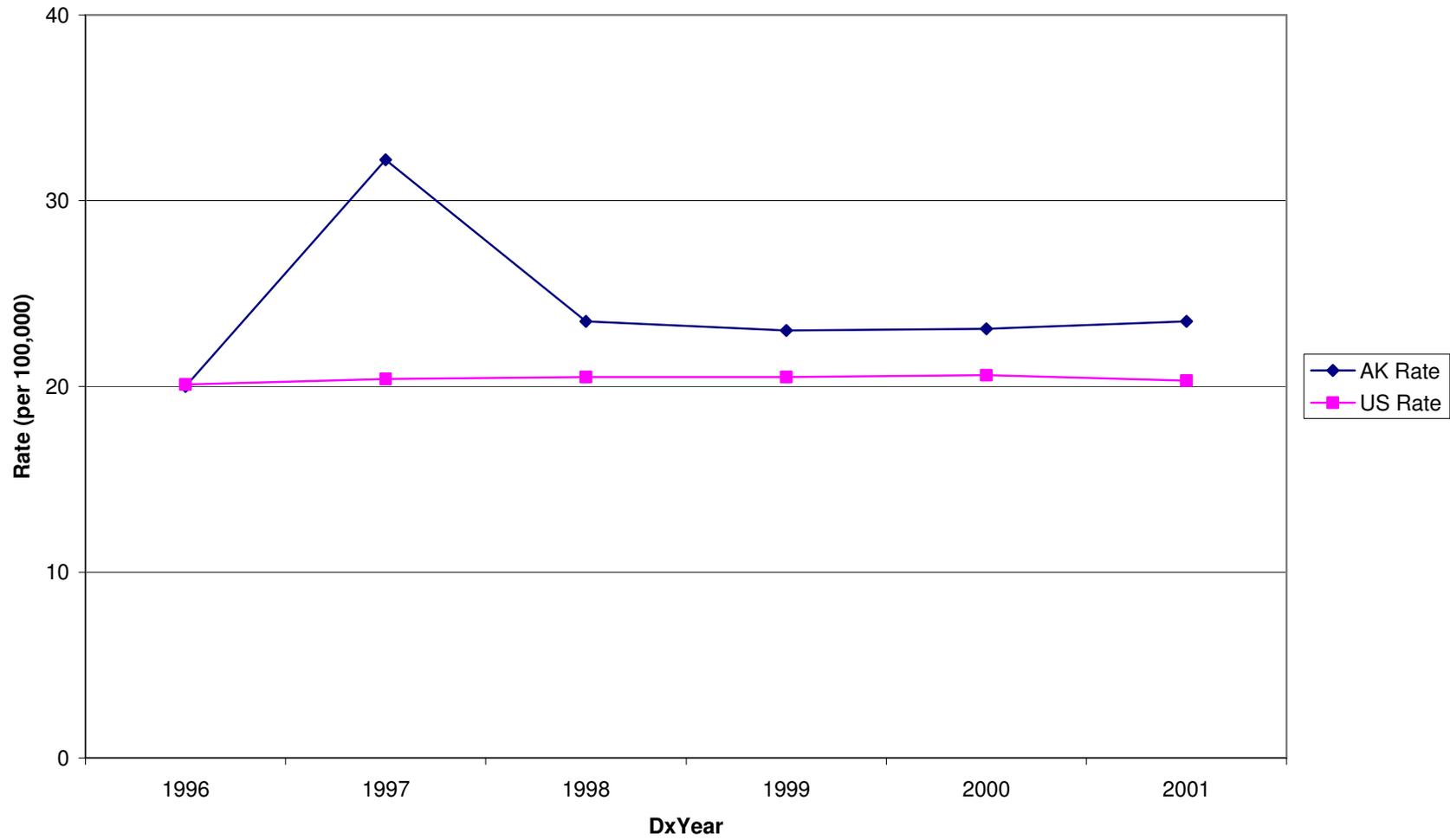
Lung Cancer Incidence - AK vs. US Rates 1996-2001



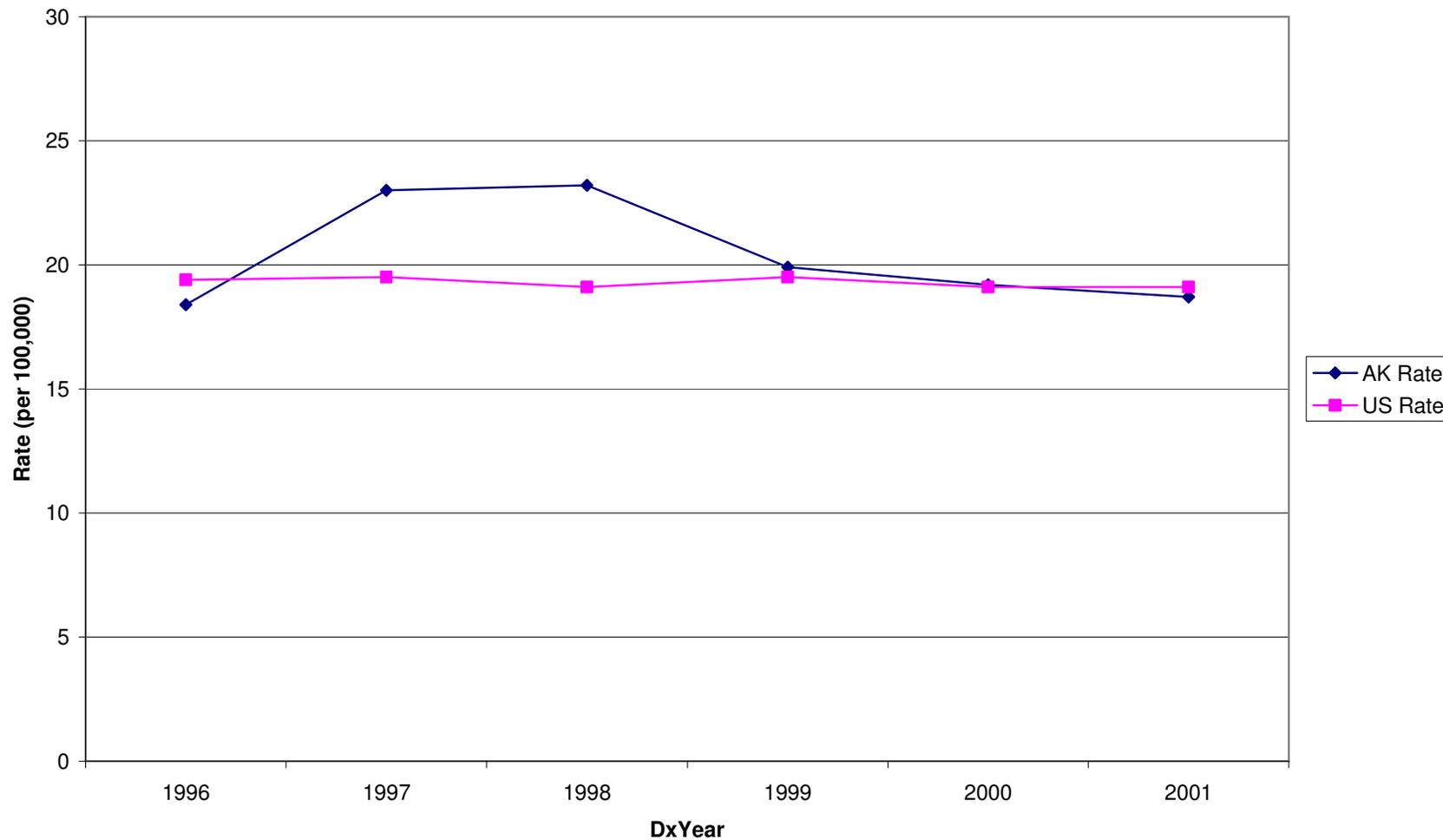
Colorectal Cancer Incidence - AK vs. US Rates 1996-2001



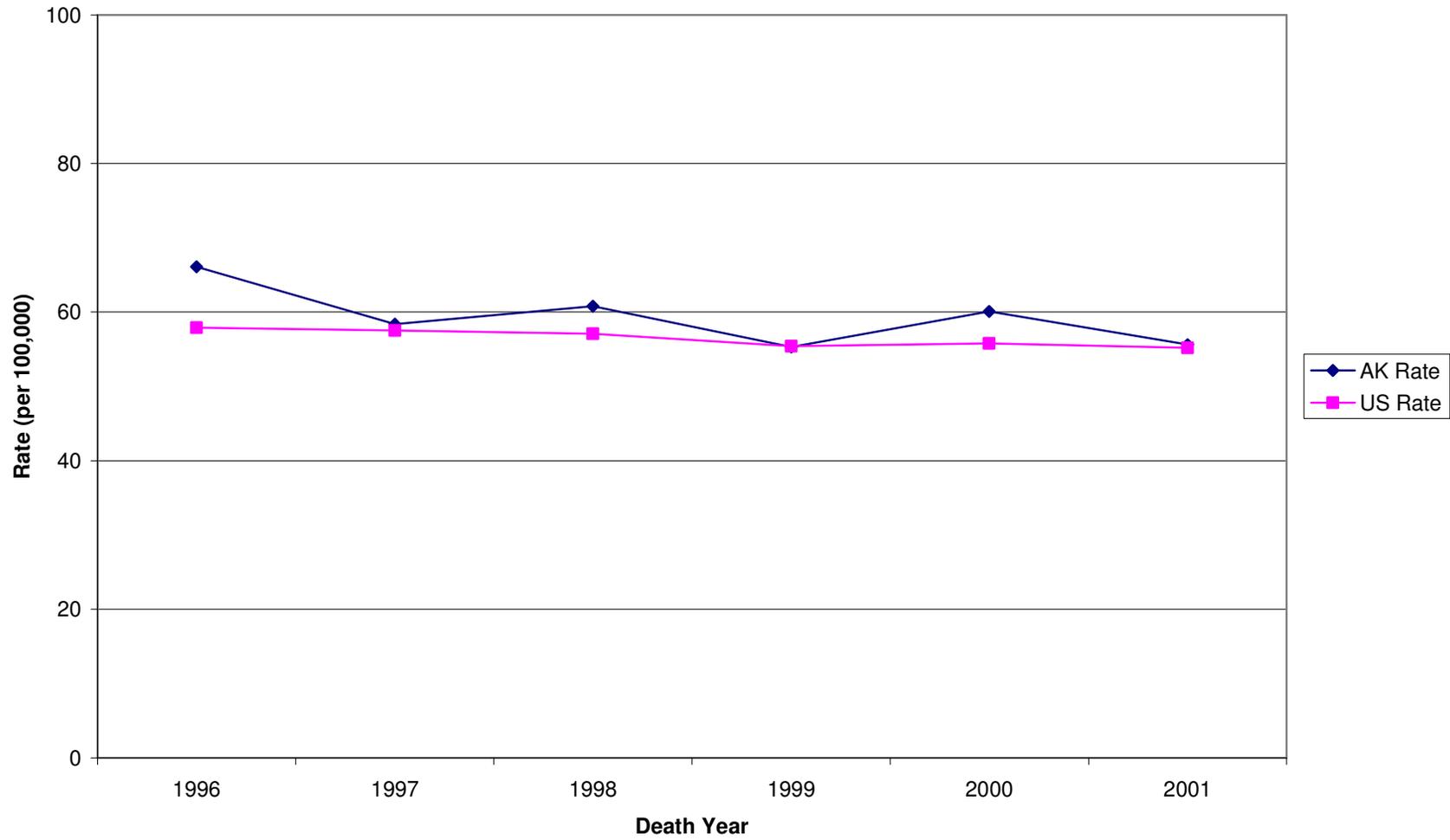
Bladder Cancer Incidence - AK vs. US Rates 1996-2001



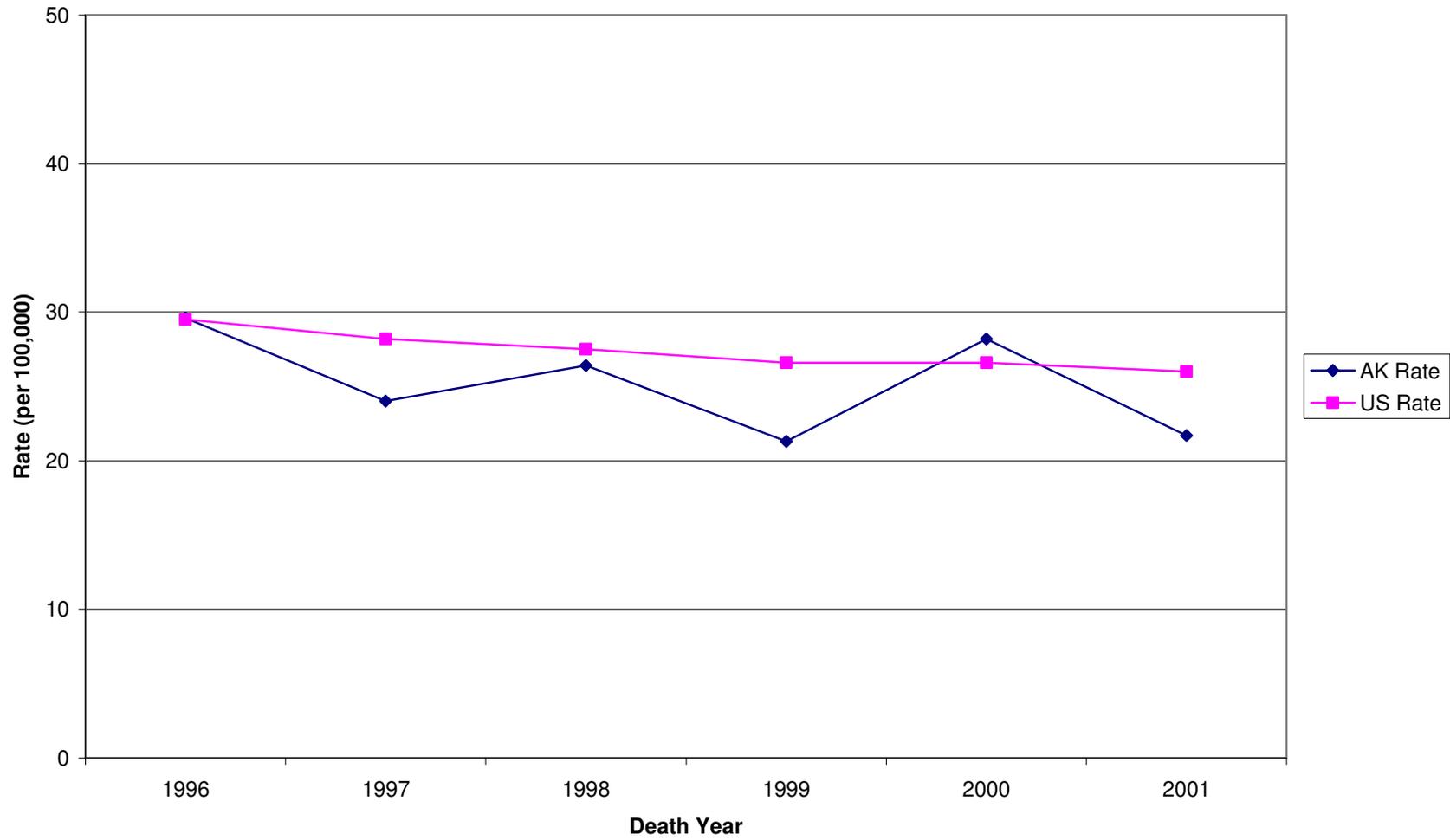
Non-Hodgkin's Lymphoma Incidence Rates - AK vs. US Rates 1996-2001



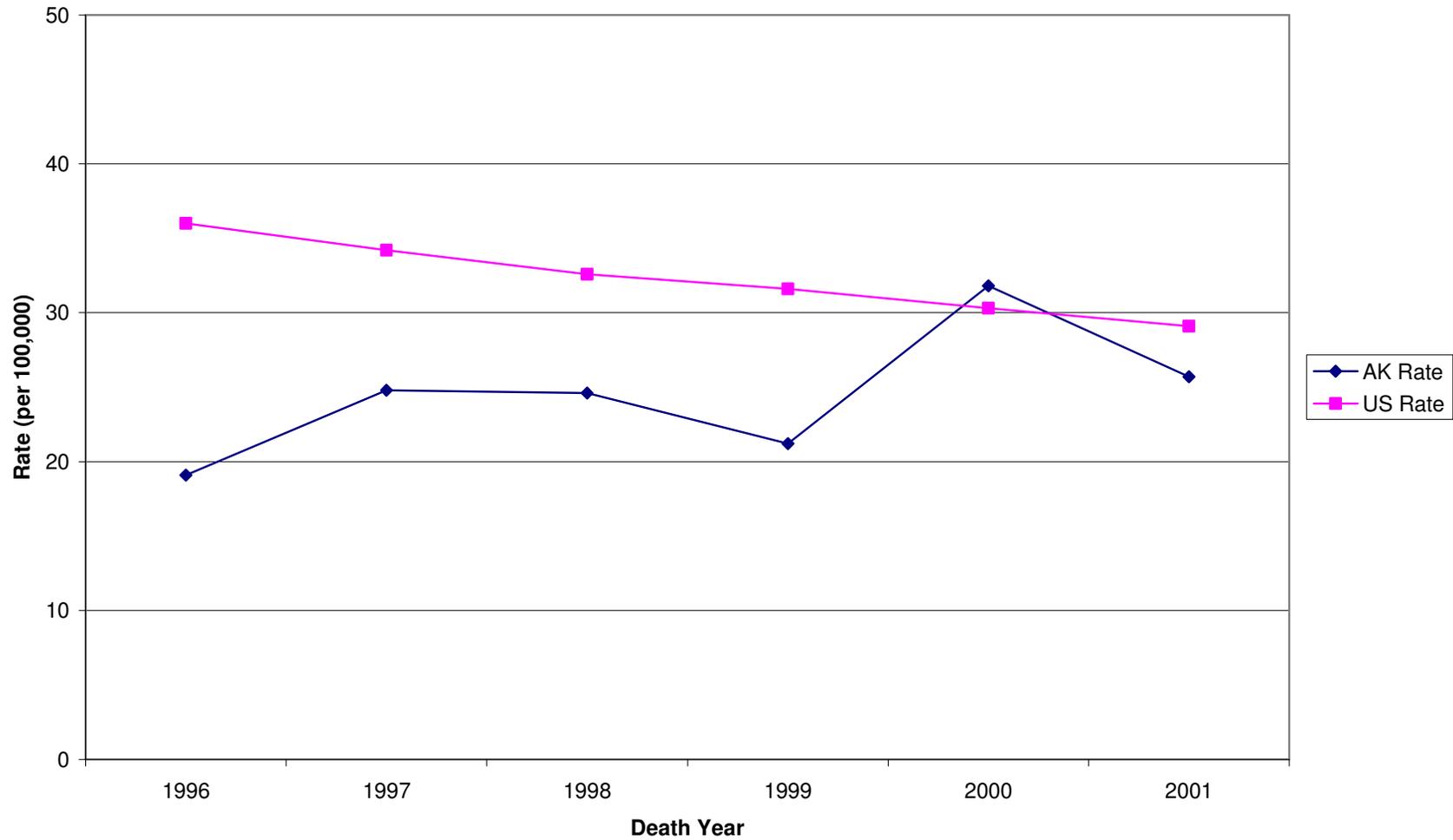
Lung Cancer Mortality - AK vs. US Rates 1996-2001



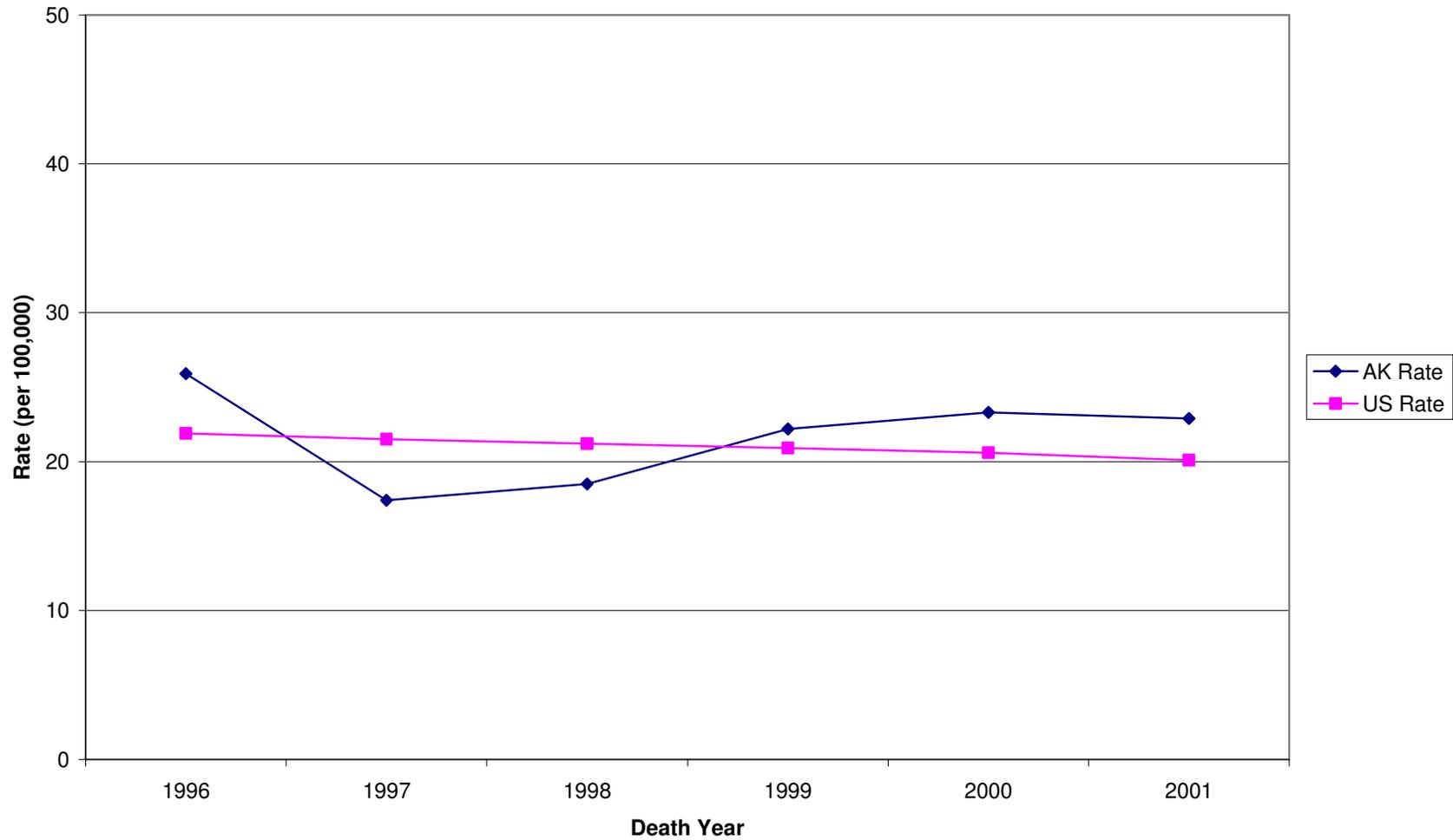
Female Breast Cancer Mortality - AK vs. US Rates 1996-2001



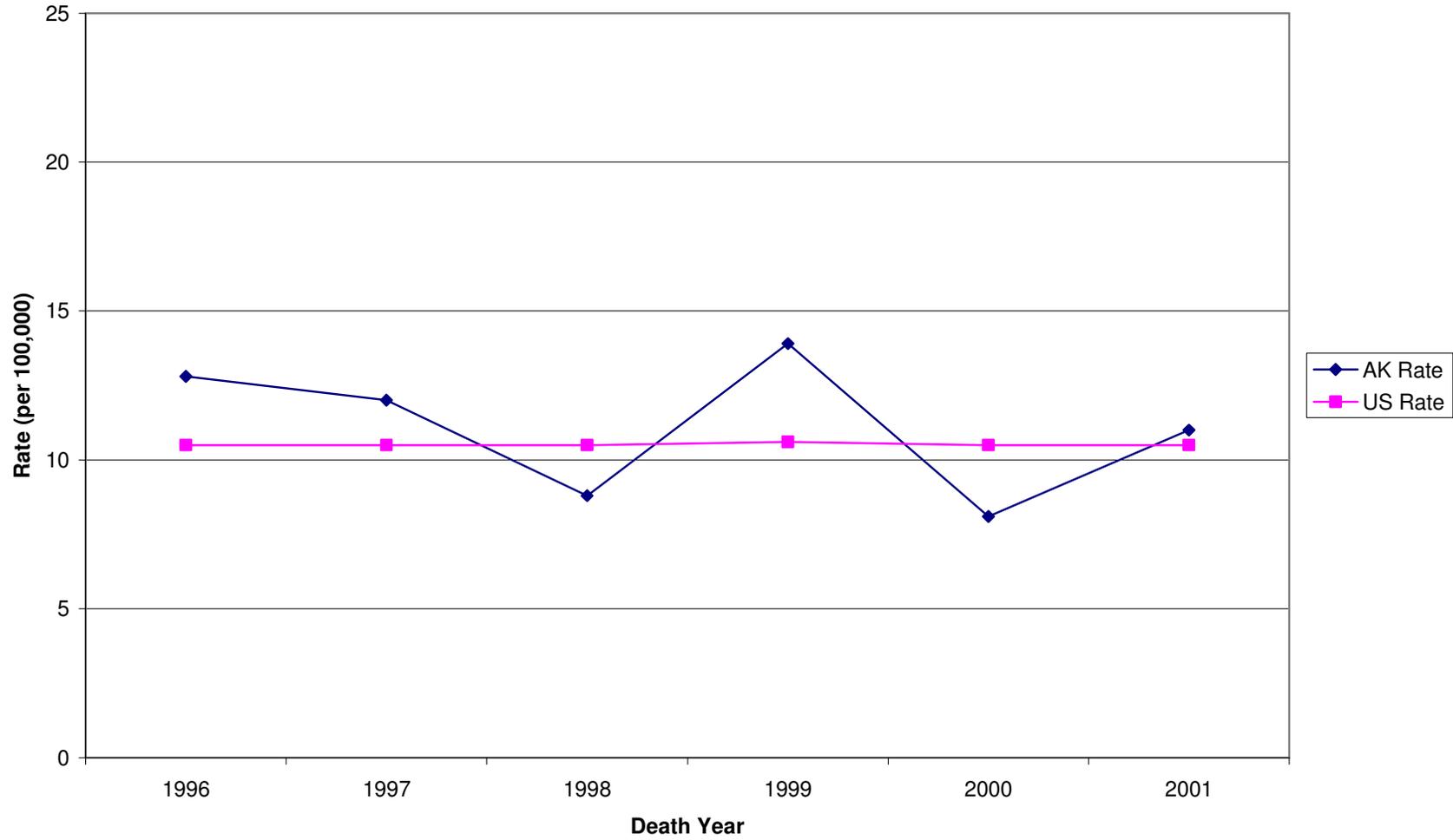
Prostate Cancer Mortality Rates - AK vs. US Rates 1996-2001



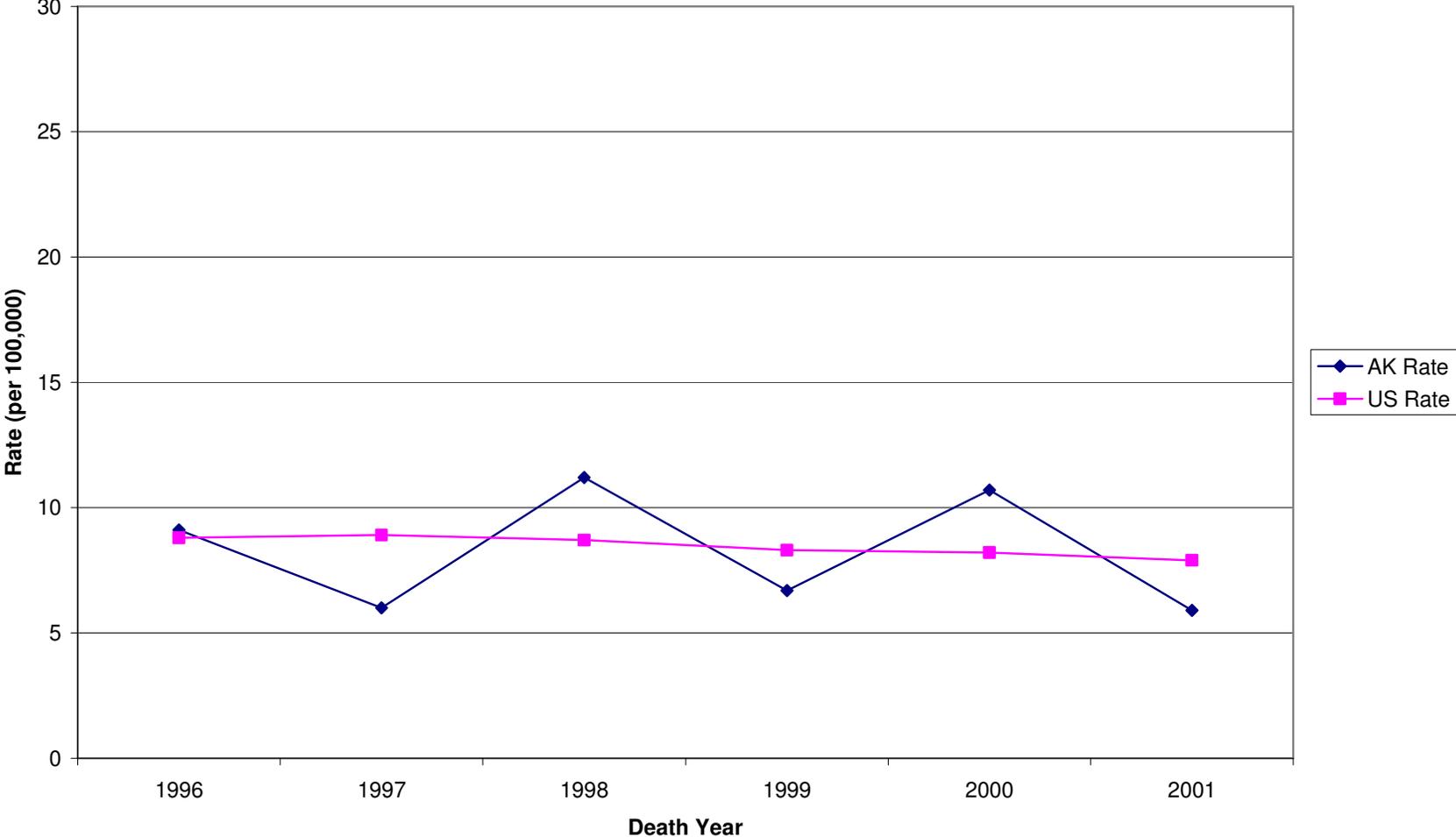
Colorectal Cancer Mortality - AK vs US Rates 1996-2001



Pancreas Cancer Mortality - AK vs. US Rates 1996-2001

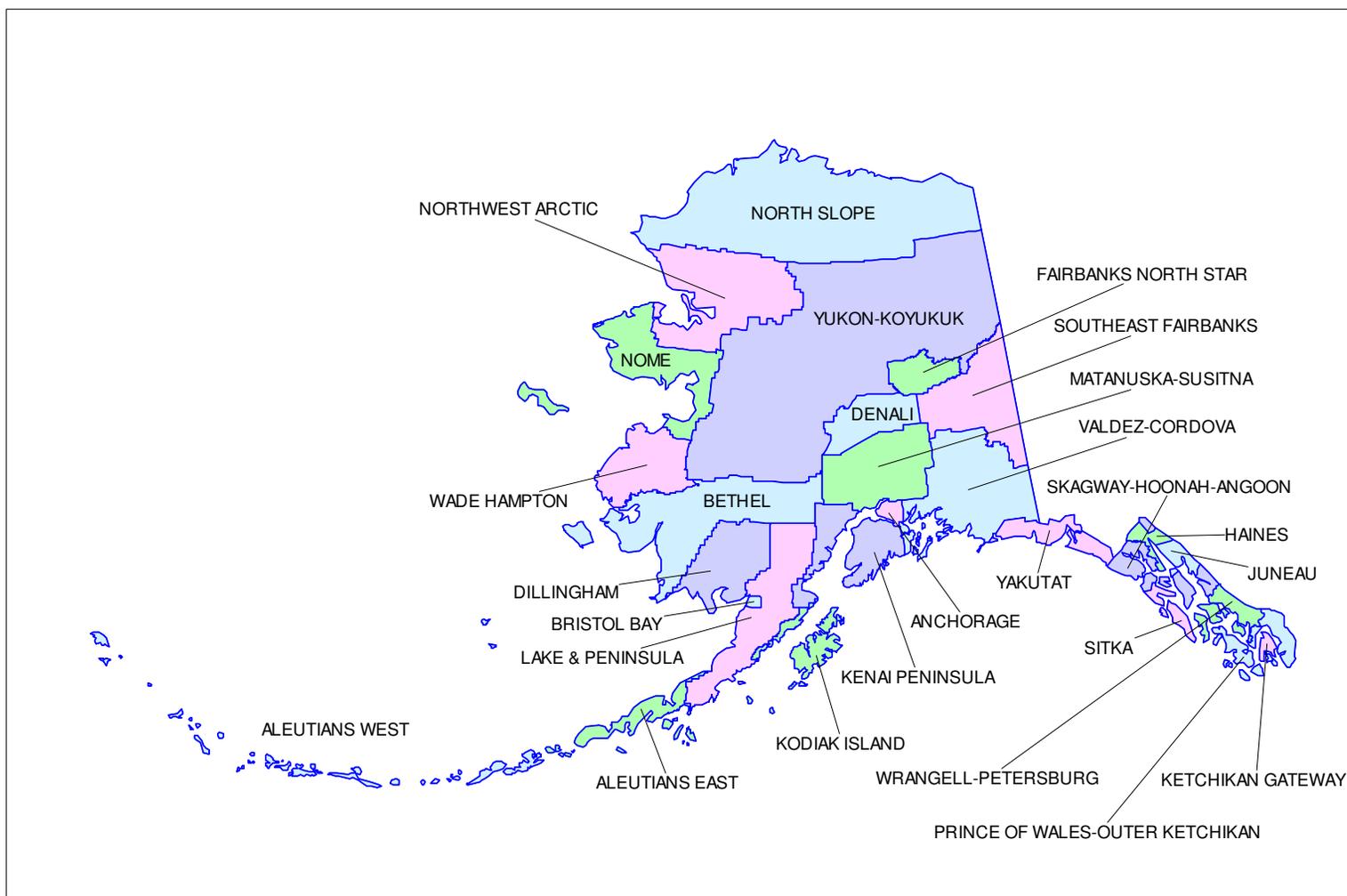


Non-Hodgkin's Lymphoma Mortality - AK vs. US Rates 1996-2001

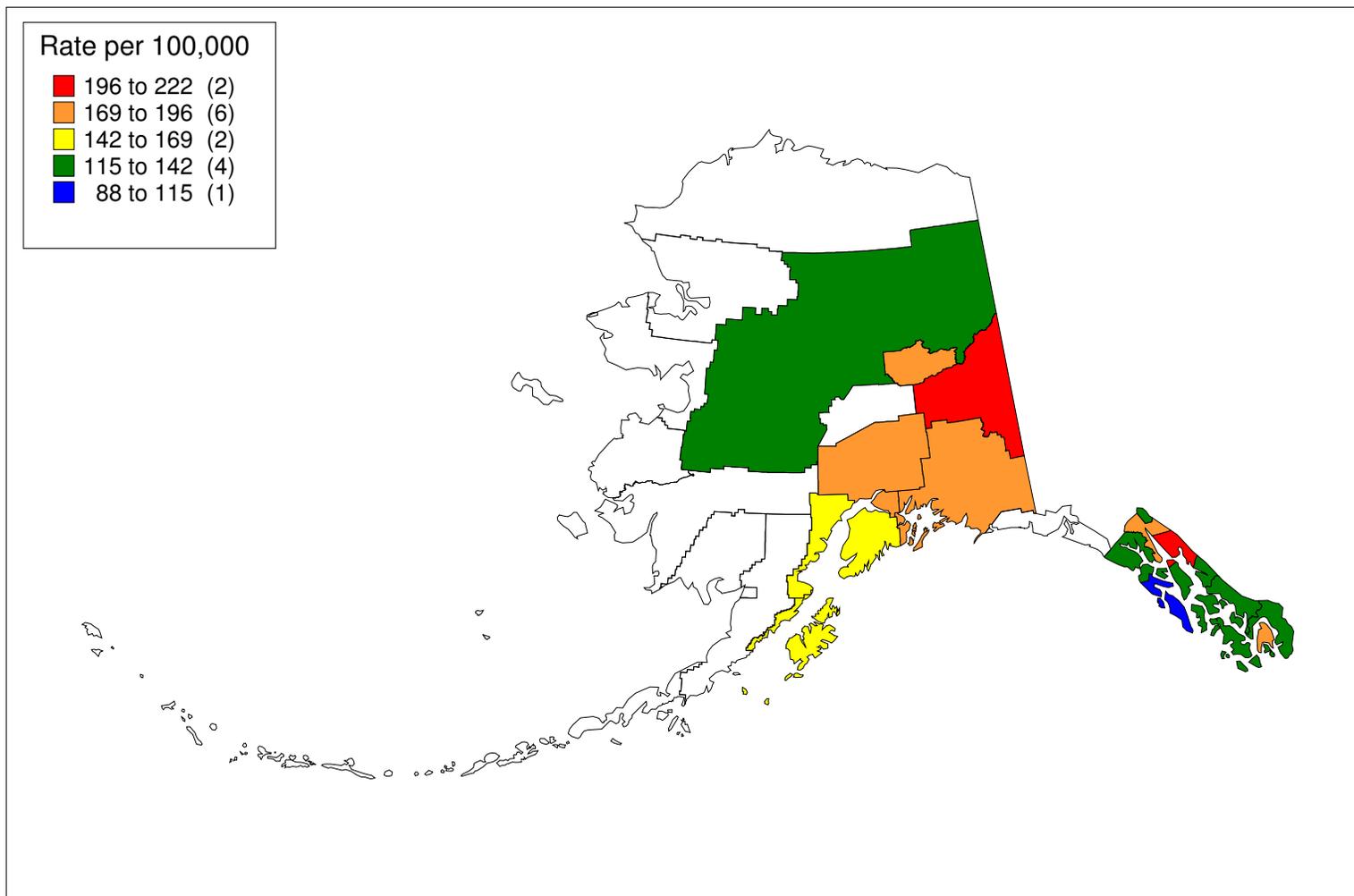


Incidence and Mortality Maps

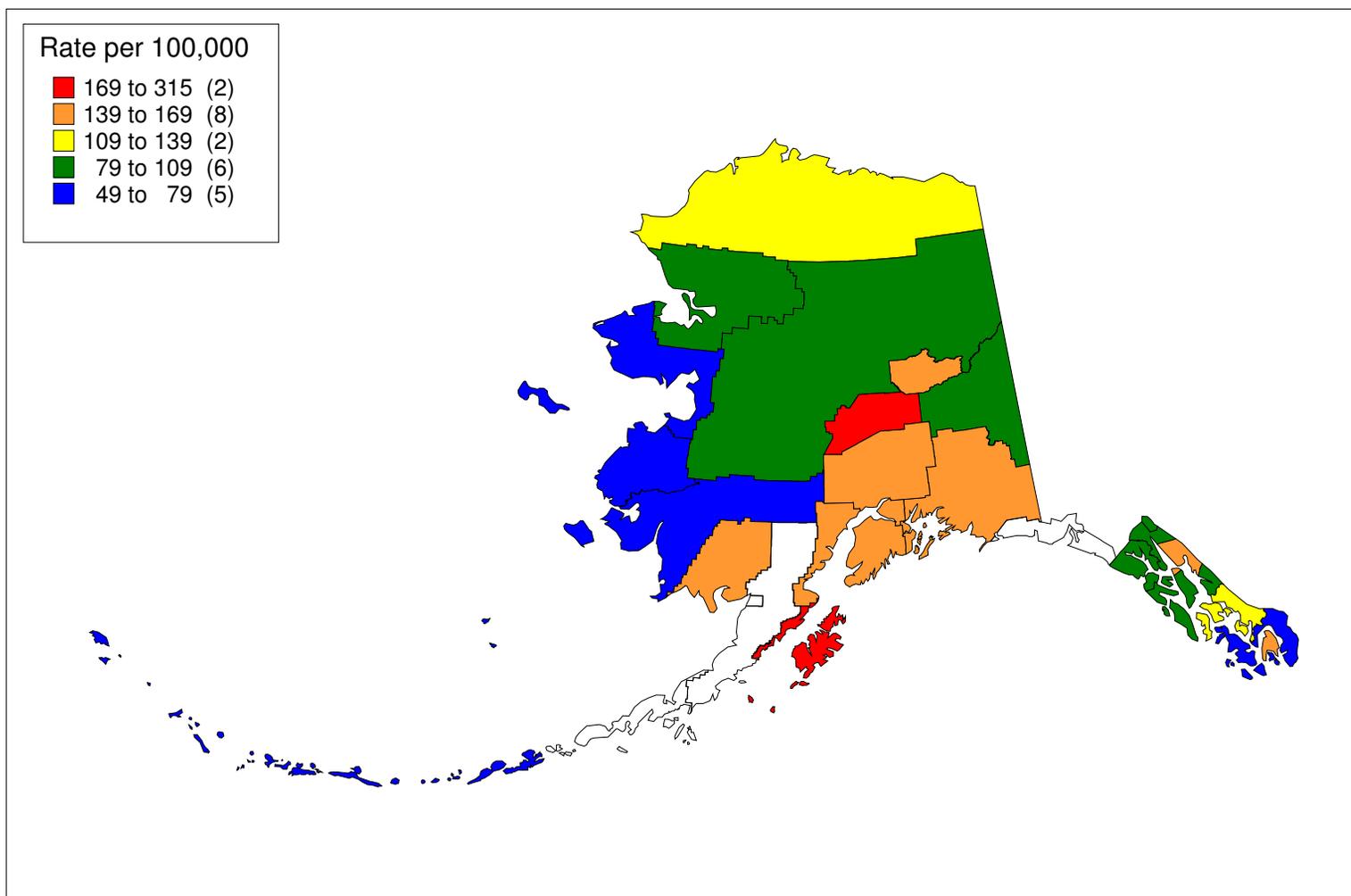
The next several pages consist of color-coded maps of incidence and mortality cancer rates by borough/census area. The color scheme is gradational between red (high rates) and blue (low rates). Blank regions on the map represent areas in which cancer rates were not calculated because there were 5 or fewer cancer cases (or none) in that borough/census area. Numbers in the legend indicate the range of rates represented by a specific color, and the numbers in parentheses indicate the number of borough/census areas in that range.



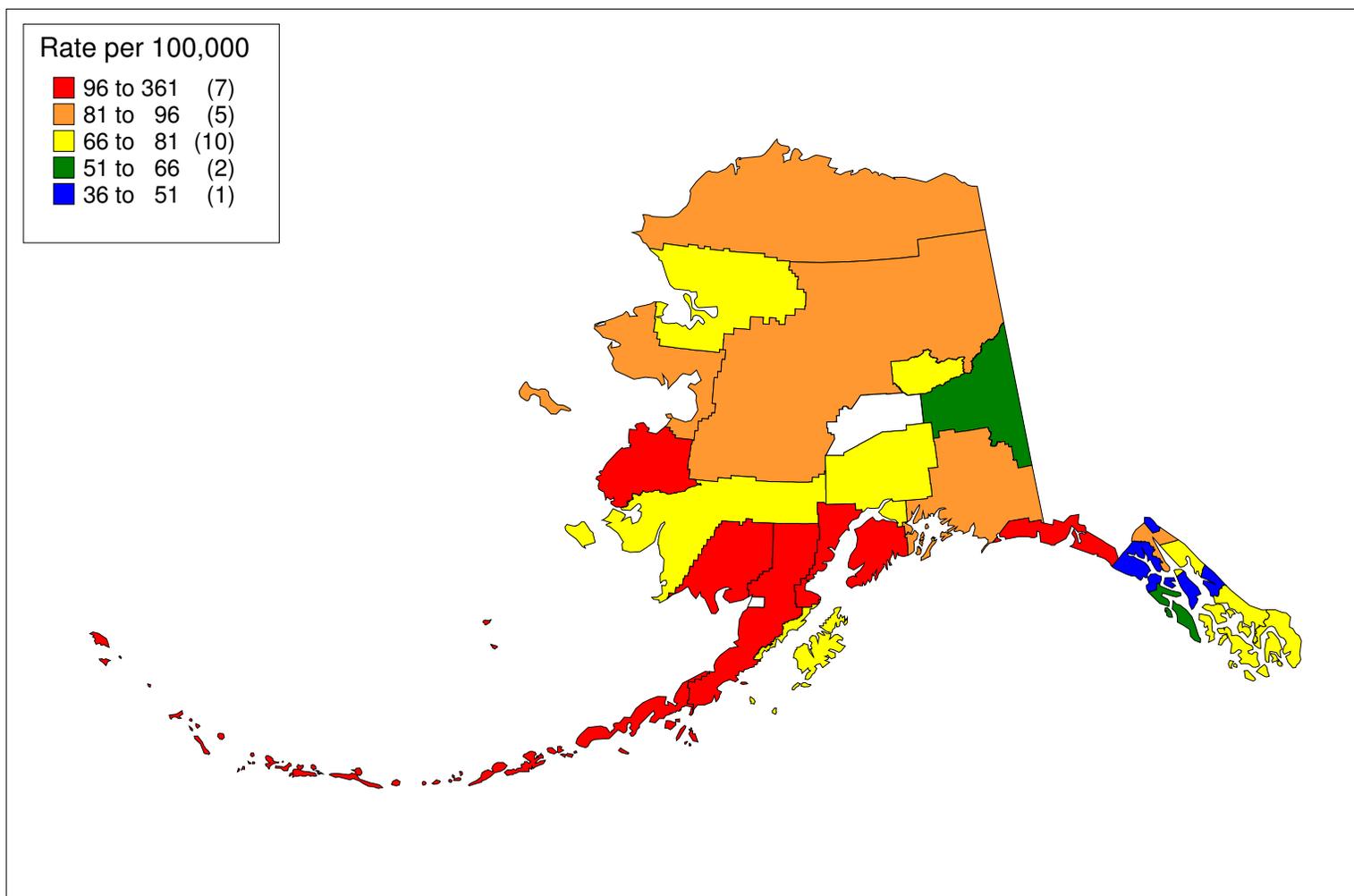
Map of Alaska with Boroughs and Census Areas



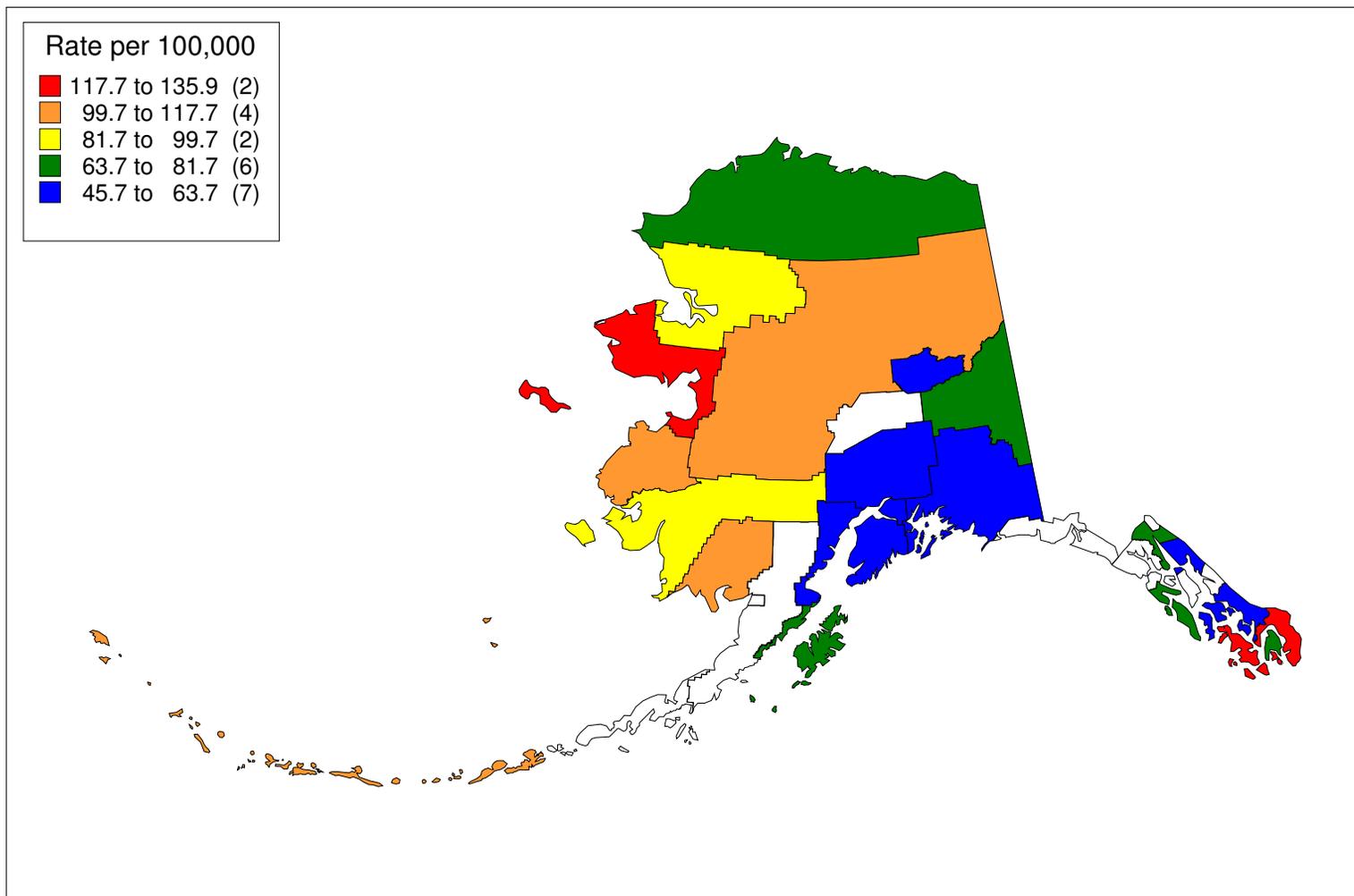
Prostate Cancer Incidence Rates by Borough/Census Area, 1996-2001



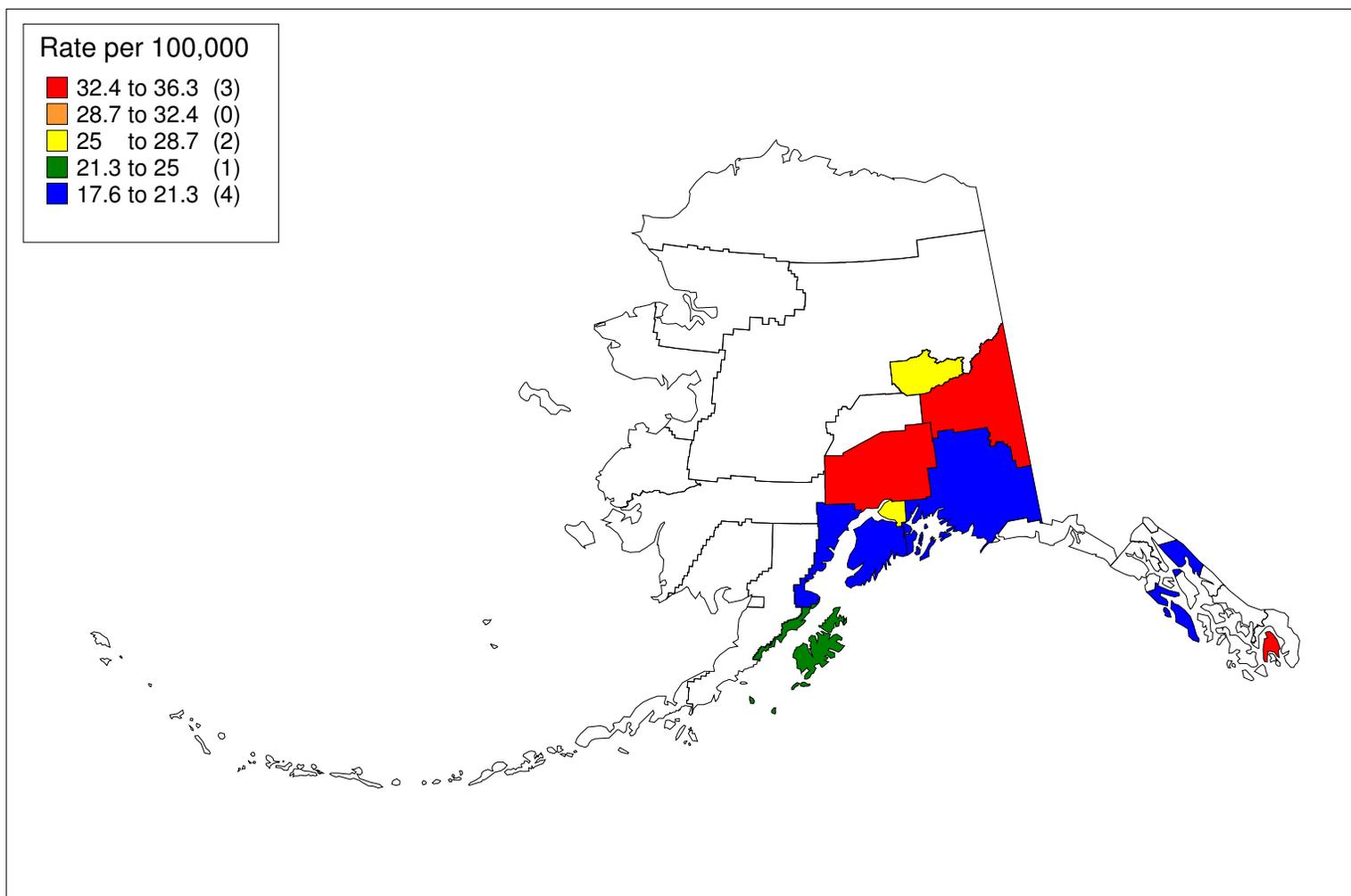
Female Breast Cancer Incidence Rates by Borough/Census Area, 1996-2001



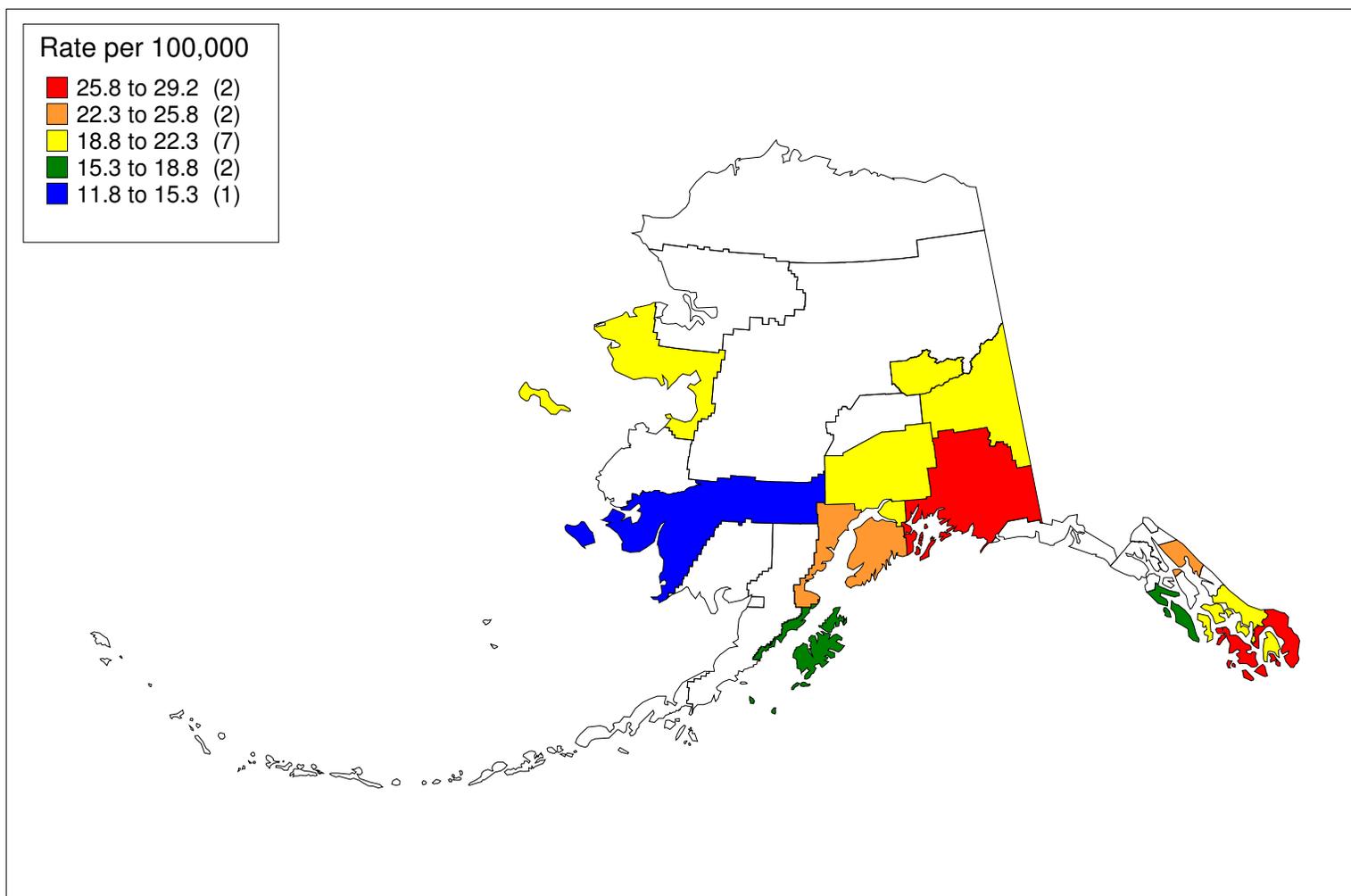
Lung & Bronchus Cancer Incidence Rates by Borough/Census Area, 1996-2001



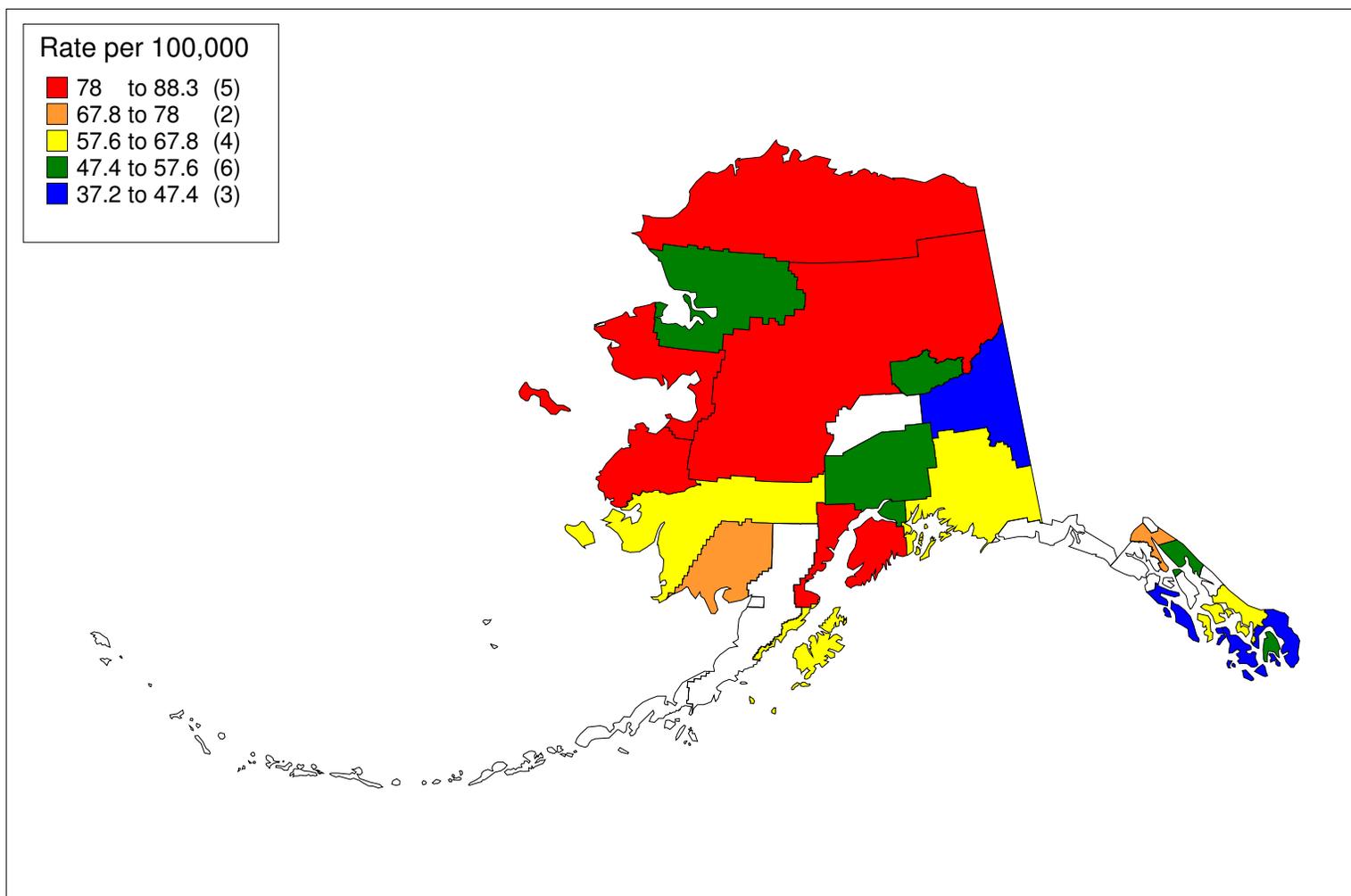
Colorectal Cancer Incidence Rates by Borough/Census Area, 1996-2001



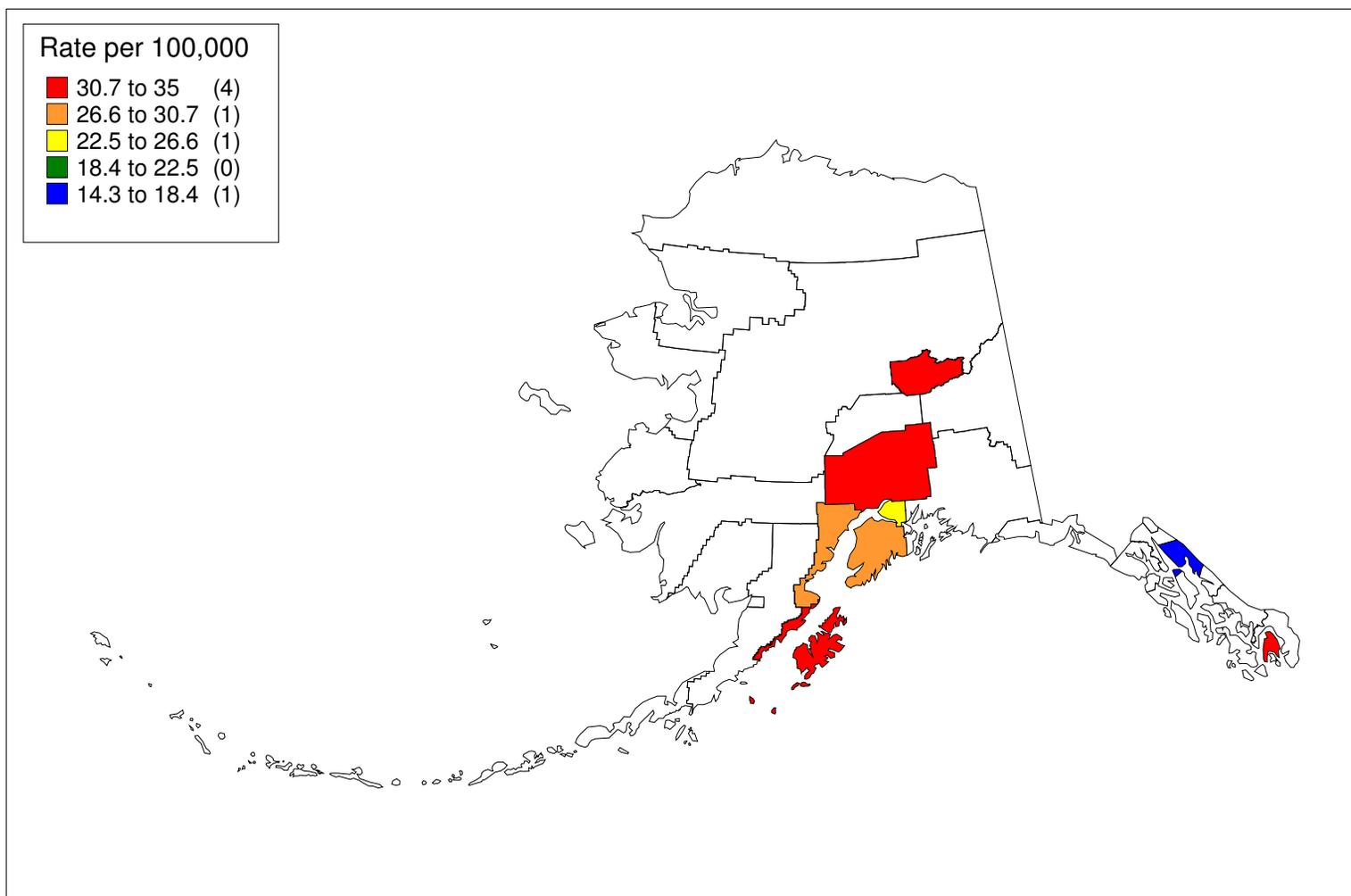
Bladder Cancer Incidence Rates by Borough/Census Area, 1996-2001



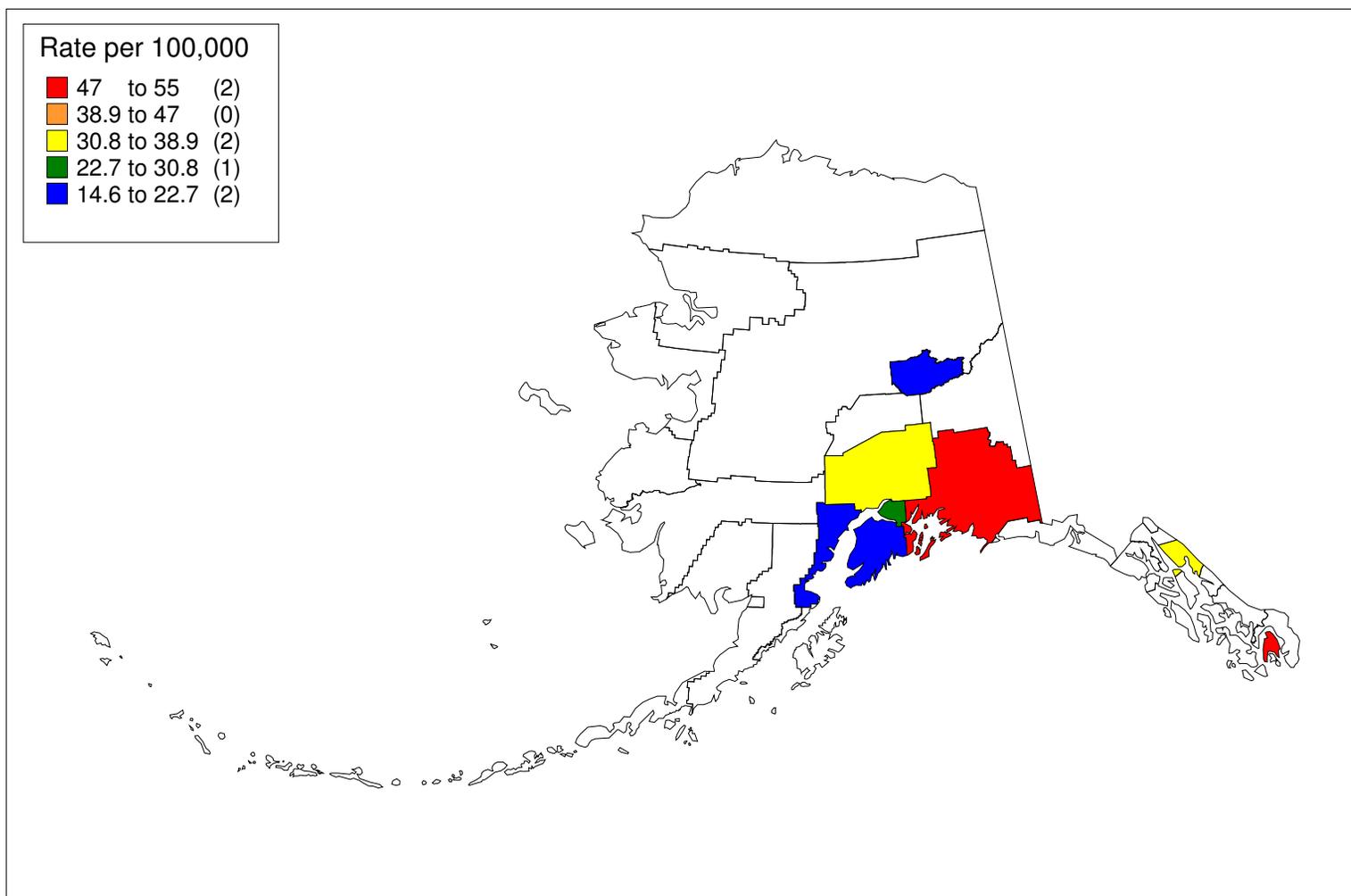
Non-Hodgkin's Lymphoma Incidence Rates by Borough/Census Area, 1996-2001



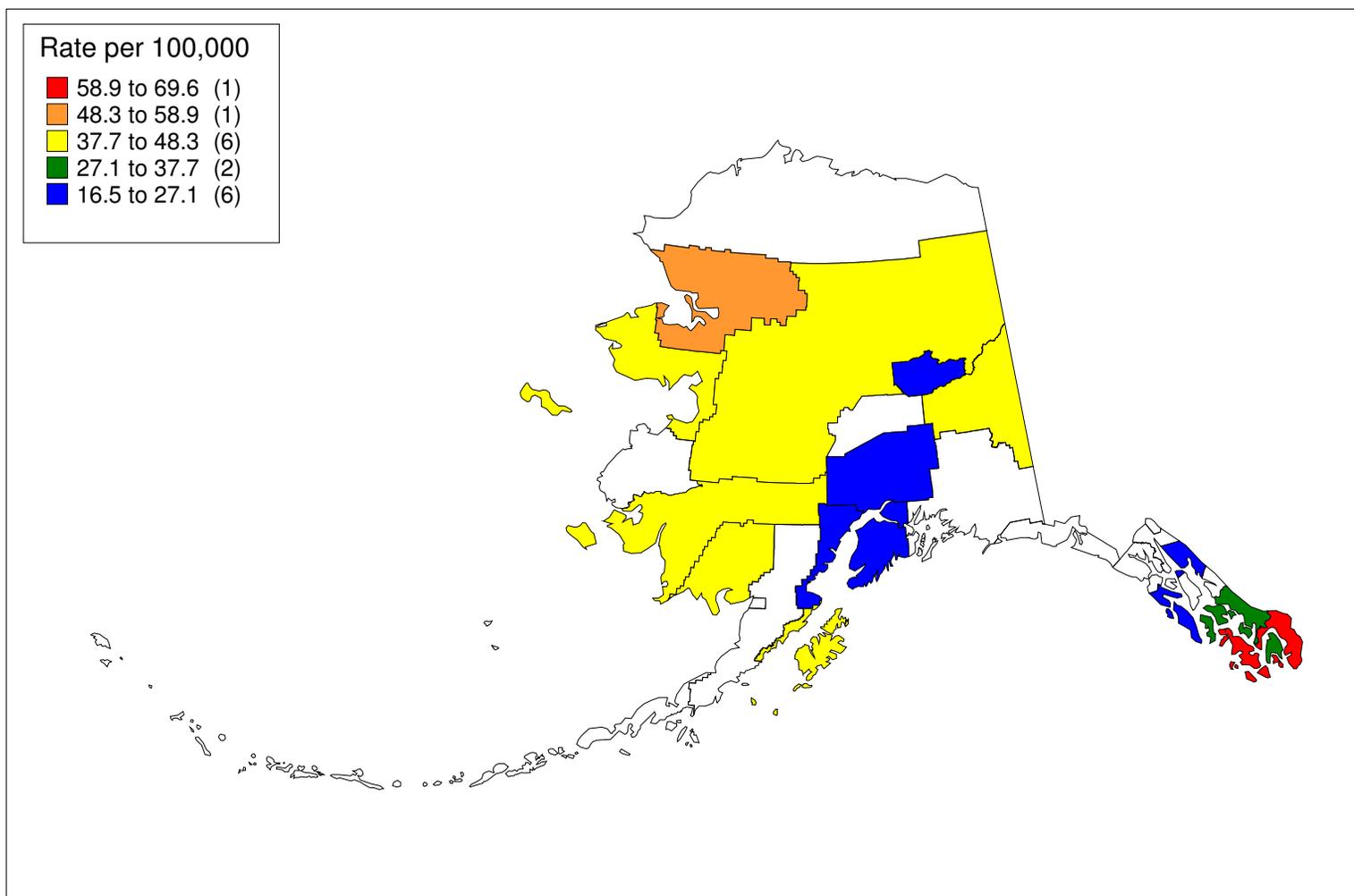
Lung & Bronchus Cancer Mortality Rates by Borough/Census Area, 1996-2001



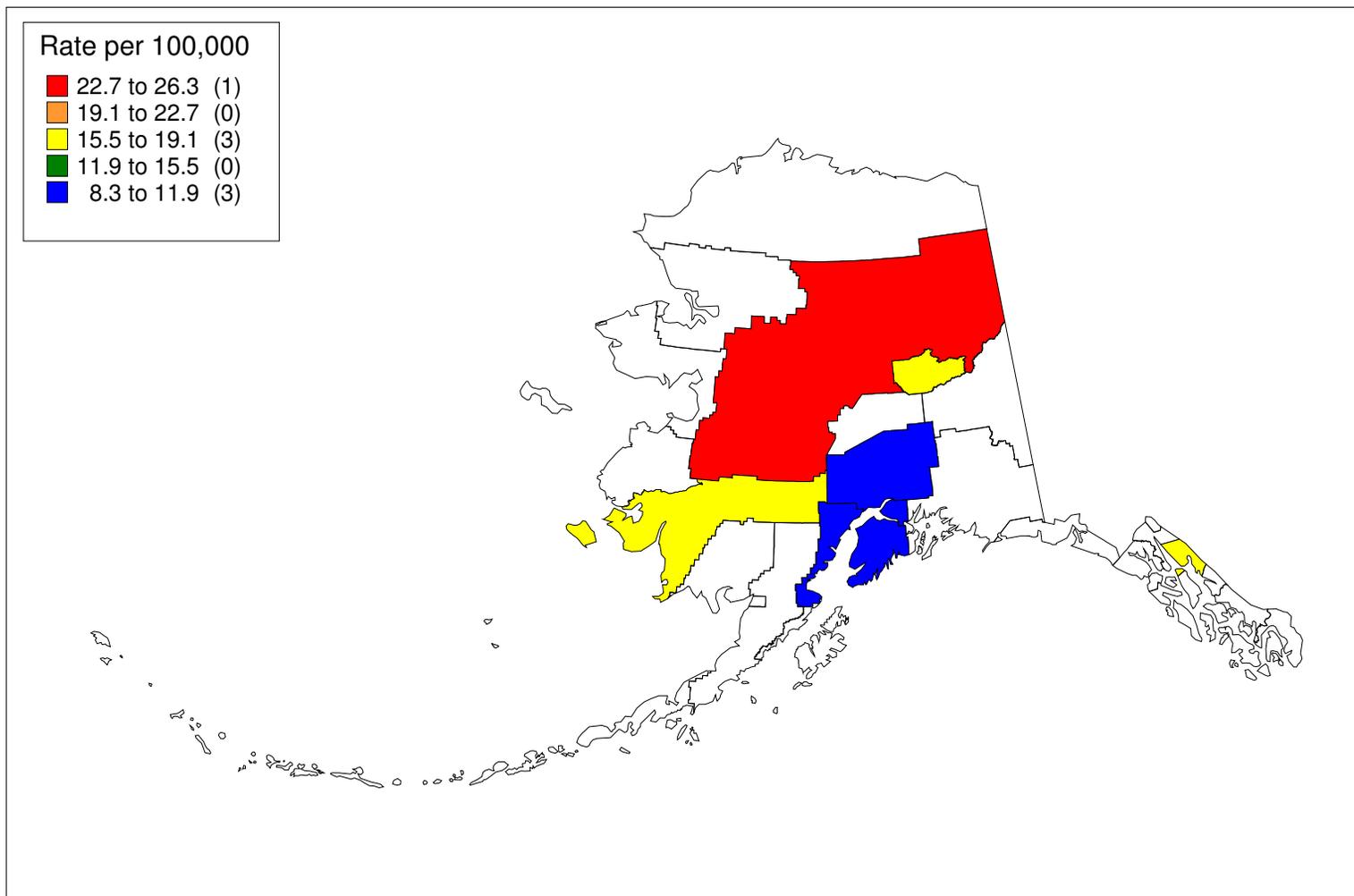
Female Breast Cancer Mortality Rates by Borough/Census Area, 1996-2001



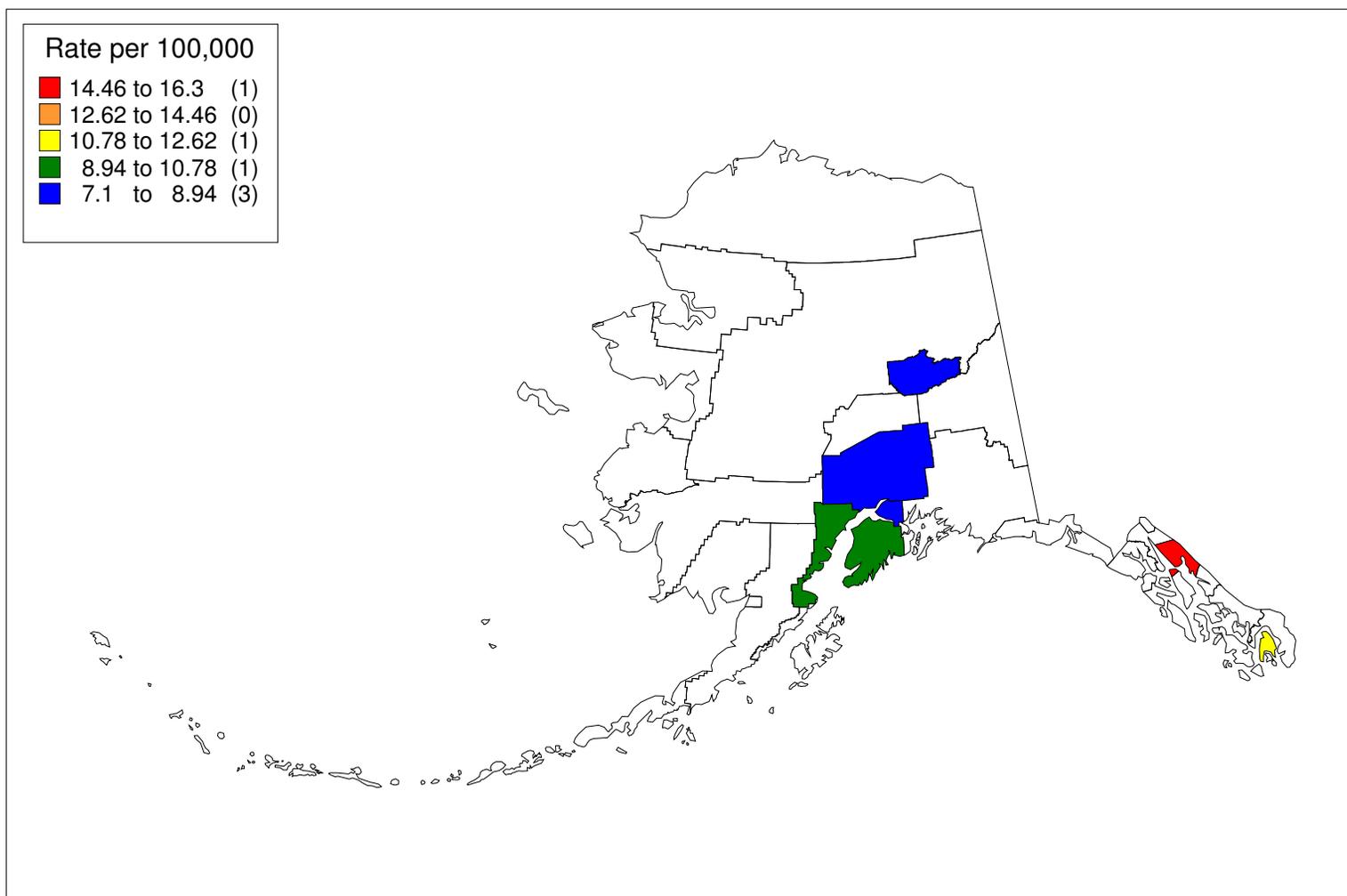
Prostate Cancer Mortality Rates by Borough/Census Area, 1996-2001



Colorectal Cancer Mortality Rates by Borough/Census Area, 1996-2001



Pancreas Mortality Rates by Borough/Census Area, 1996-2001



Non-Hodgkin's Lymphoma Mortality Rates by Borough/Census Area, 1996-2001