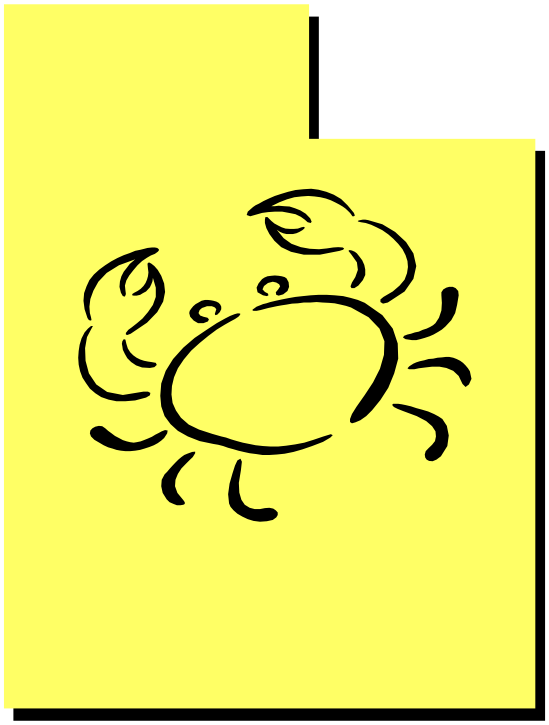
Cancer in Utah

1981-2000



Utah Cancer Registry
and
Utah Department of Health

Cancer In Utah

1981-2000

Cancer in Utah

Table of contents

Acknowledgements	ii
Introduction	001
Methods	002
Oral Cavity and Pharynx	007
Esophagus	013
Stomach	019
Colon and Rectum	025
Liver and Intrahepatic Bile Duct	033
Pancreas	039
Larynx	045
Lung and Bronchus	051
Cutaneous Melanoma	059
Female Breast	065
Cervix Uteri	073
Uterus	081
Ovary	087
Prostate	093
Testis	101
Urinary Bladder	107
Kidney and Renal Pelvis	113
Brain	119
Thyroid	125
Hodgkin's Lymphoma	131
Non-Hodgkin's Lymphoma	137
Multiple Myeloma	143
Acute Lymphocytic Leukemia	149
Chronic Lymphocytic Leukemia	155
Childhood Cancers	161
Appendix 1: Cancer classification scheme	162

Acknowledgements

Cancer surveillance in Utah is made possible by the collaborative efforts of local health care providers, administrators, and cancer registrars. Special thanks go to those individuals and facilities listed in the table below. The Utah Cancer Registry also recognizes the support of our many colleagues in the Utah Comprehensive Cancer Control Initiative.

We want to take this opportunity to gratefully recognize the staff members of the Utah Cancer Registry, past and present, for their many contributions to the success of our organization. Thanks, as well, to our mentors, advisors, and colleagues at the University of Utah.

Finally, the Utah Cancer Registry is proud to be a member of the Surveillance, Epidemiology, and End Results Program. The Utah Cancer Registry is supported by National Cancer Institute Contract No. N01-PC-67000.

Cancer Registrars		
Alta View Hospital Lisa Orr, CTR	American Fork Community Hospital Lisa Orr, CTR	Dixie Medical Center Jodie Barden, CTR Karen Young, CTR
Cottonwood Hospital Medical Center Anne Bradley Vicki Schroepfer, CTR	LDS Hospital Heather Cheney Carol Koehler, CTR Gwen Shepherd, CTR	Logan Regional Medical Center Shirley Prescott
McKay-Dee Hospital Center Barbara Felt, CTR Jennifer McBride Kimberly Story	Ogden Regional Medical Center Alisa Cosper, RHIT, CTR	Primary Children's Medical Center Melissa Billingsley
St. Mark's Hospital Jacque Clarken	University Health Sciences Center Heidi Clark, RHIT Jeanalda McCrom Sandra Reay, CTR Cher Smouse, CMA Jennifer Smith	Utah Valley Regional Medical Center Sandra Lynch, CTR Lynnel Rhodes, CTR
Veteran's Administration Medical Center Carrie Briscoe, CTR		

Health Care Facilities		
• 75th Medical Group (AFMC) • Allen Memorial Hospital • Alta View Hospital • American Fork Community Hospital • Ashley Valley Medical Center • Bear River Valley Hospital • Beaver Valley Hospital • Brigham City Community Hospital • Cache Valley Specialty Hospital • Castleview Hospital • Central Valley Medical Center • Cottonwood Hospital Medical Center • Davis Hospital and Medical Center • Delta Community Medical Center • Dixie Medical Center	• Fillmore Community Medical Center • Garfield Memorial Hospital • Gunnison Valley Hospital • Heber Valley Medical Center • Jordan Valley Hospital • Kane County Hospital • Lakeview Hospital • LDS Hospital • Logan Regional Medical Center • McKay-Dee Hospital Center • Milford Valley Memorial Hospital • Montezuma Creek Health Center • Mountain View Hospital • Ogden Regional Medical Center • Orem Community Hospital • Pioneer Valley Hospital	• Primary Children's Medical Center • Salt Lake Regional Medical Center • San Juan County Hospital • Sanpete Valley Hospital • Sevier Valley Hospital • Shriner's Hospital • St. Mark's Hospital • Timpanogos Regional Hospital • Tooele Regional Medical Center • Uintah Basin Medical Center • University Health Sciences Center • Utah Valley Regional Medical Center • Valley View Medical Center • Veteran's Administration Medical Center

Introduction

The Utah Cancer Registry is a population-based, central cancer registry that has served the State of Utah for 35 years. Cancer was first designated as a reportable disease in Utah in 1948. However, systematic cancer surveillance was not conducted in the state until 1966. That year, Charles Smart, M.D., a prominent surgeon from LDS Hospital in Salt Lake City, founded the Registry under the auspices of the Regional Medical Program. In 1973, the Utah Cancer Registry became one of the original members of the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program. The Registry has continuously participated in the SEER program since that time.

Cancer is presently designated as a reportable disease in the State of Utah (Cancer Reporting Rule, R384-100). As such, all cases of cancer diagnosed or treated in the state must be reported to the Utah Department of Health. Through a letter of agreement between the Utah Department of Health and the University of Utah, the Utah Cancer Registry is designated as the official repository for such data.

Utah Cancer Registry staff members and cancer registrars at local health care facilities identify incident cases of cancer through routine and systematic review of pathology reports, medical records, radiation therapy records, hospital discharge lists, and vital records. Information regarding patient characteristics, cancer diagnosis, and treatment is ascertained primarily from specific statements in the medical record and other sources such as death certificates. Cancer surveillance in Utah is conducted in accordance with standards promulgated by the SEER Program [1, 2] and the North American Association of Central Cancer Registries [3].

This monograph provides a comprehensive review of cancer statistics for the State of Utah for the time period 1981-2000. Nationwide data are also presented for comparison purposes. Incidence rates, mortality rates, risk of developing cancer, survivorship, and stage of disease at diagnosis were calculated from both local and national data sources according to methods summarized in the following section. Additional information may be obtained from the Utah Cancer Registry's web site, *http://www.uuhsc.utah.edu/ucr* or by contacting the Registry at (801) 581-8407.

Methods

Sources of data

Information on all incident cancer cases diagnosed among Utah residents during the period 1981-2000 was provided by the Utah Cancer Registry. This information was used to calculate incidence rates, estimate risk of developing specific types of cancer, calculate survival times, and construct tables according to stage of disease at diagnosis. Comparison data for the United States were obtained from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute [1, 4]. SEER Program data were from nine geographic areas that, together, represented approximately 14 percent of the United States population. At the time of this writing, nationwide data were only available through calendar year 1999.

Information on cancer-related deaths for calculating mortality rates for Utah, 1981-2000, was provided by the Utah Department of Health's Office of Vital Records and Statistics. Comparison mortality data for the United States, 1981-1999, was provided by the National Center for Health Statistics.

Population estimates for calculating incidence and mortality rates in Utah were provided by the Governor's Office of Planning and Budget, State of Utah. Population estimates for nationwide rate calculations were provided by the United States Bureau of the Census.

Information on cancer-related screening behaviors (i.e., mammography, Pap tests, prostate specific antigen tests) and tobacco use were ascertained from the Utah Behavioral Risk Factor Surveillance System. This annual survey is conducted in Utah and other states with funds provided by the Centers for Disease Control and Prevention.

Cancer Primary Site/Type

For the purposes of this monograph, cancers were grouped into the site/type categories defined in Appendix 1. These categories were based on primary cancer site and/or histological type, and are consistent with standard reports of cancer as published by the National Cancer Institute [5].

Methods

Incidence and Mortality Rates

Age-adjusted incidence and mortality rates were calculated by the direct method [6], and were standardized to the age distribution of the 2000 United States population. Confidence intervals for age-adjusted rates were calculated according to the methods of Fay and Feuer [7]. Age-specific incidence and mortality rates were calculated for the following ten-year intervals (i.e., years of age at cancer diagnosis or death, respectively): 00-09, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+). Confidence intervals for age-specific rates were calculated by exact methods, as discussed in [8]. All incidence rates were calculated with the SEER*Stat software system [9] and are expressed per 100,000 person-years.

Risk of Developing a Specific Type of Cancer

As utilized for the purposes of this monograph, "cumulative incidence" provides an estimate of the risk of developing a specified cancer from birth until 79 years of age [10]. For example, if the age-specific, colorectal cancer incidence rates observed during the period 1996-2000 are applied to a hypothetical cohort of newborn boys in Utah, we would expect that one in 21 would develop colorectal cancer by the time they reach 79 years of age (see Summary section on page 25 of this monograph).

A number of limitations should be considered when interpreting the cumulative incidence as a measure of risk. First, it is unlikely that the present incidence rates will remain unchanged over the entire lifetime of a person born today. Second, the cumulative incidence does not account for variation in risk factors among individuals. For example, the risk of lung cancer would be much higher for a person who smokes three packages of cigarettes per day than for a non-smoker, yet the cumulative incidence assumes that everyone in the hypothetical population is at equal risk. Finally, the risk estimates presented in this monograph were not adjusted for competing causes of death and may, therefore, overestimate the true risk of developing a specific type of cancer. Nonetheless, the cumulative incidence provides a measure of disease burden that is readily interpretable for health professionals and the lay public. We urge caution in interpreting these figures.

Methods

Nationwide Number of Incident Cancer Cases and Cancer-Related Deaths

At present, there is no nationwide system of cancer surveillance to enumerate incident cases of cancer diagnosed in the United States. For this reason, we applied age-specific incidence rates from the SEER Program for the period 1996-1999 to estimates of the United States resident population for the same period to calculate the average annual number of incident cancer cases that were diagnosed nationwide during that period.

In contrast, the National Center for Health Statistics oversees a program of death certification that provides reasonably accurate estimates of the number of cancer-related deaths nationwide. The average annual number of deaths reported herein was based on cancer-related deaths reported to the National Center for Health Statistics during the period 1996-99.

Stage of Disease at Diagnosis

The summary stage of disease at diagnosis was coded according to guidelines of the National Cancer Institute's SEER Program. For most cancers, the stage of disease at diagnosis may be roughly summarized as follows:

LOCAL	A tumor that is invasive but is still restricted to the site of origin;
REGIONAL	A tumor that has spread by direct extension to immediately adjacent organs or tissues and/or metastasized to regional lymph nodes and appears to have spread no further;
DISTANT	A tumor that has spread by direct extension beyond the immediately adjacent organs or tissues, and/or metastasized to distant lymph nodes or other distant tissues;
UNKNOWN	Insufficient information was available to determine the stage of disease at diagnosis.

With the exception of cancers of the urinary bladder, all cancer sites/types presented in this monograph were restricted to cases with local, regional, distant, or unknown stages at diagnosis (i.e., in situ cases were excluded). In accordance with prevailing conventions for cancer reporting, both in situ and localized tumors of the urinary bladder were combined and reported as "localized" tumors for the purposes of this monograph.

Methods

Relative Survival

Relative survival provides an estimate of the proportion of patients surviving at annual intervals following their initial diagnosis of cancer, after adjusting for competing causes of death [11]. In this monograph, one-year intervals of survival are plotted in graphs while five-year survival figures are reported in tables.

Readers are cautioned that the relative survival figures presented in this monograph are somewhat crude measures of survival. An individual's survival from cancer is determined by many factors including age, treatment, and other characteristics that are not accounted for in this analysis. Therefore, these figures should not be interpreted as the probability of survival from cancer for a single individual.

Methods

References

01. Hankey BF, Ries LA, Edwards BK. The Surveillance, Epidemiology, and End Results Program: A national resource. Cancer Epidemiol Biomarkers Prev 1999; 8:117-1121.

02. Ries L, Fritz A (Eds). The SEER Program Code Manual. Third Edition. Surveillance Program, Division of Cancer Control and Population Sciences, National Cancer Institute, National Institutes of Health. Bethesda, MD, 1998.

03. North American Association of Central Cancer Registries. Standards for Cancer Registries. Volume III. Standards for completeness, quality, analysis, and management of data. September 2000.

04. Surveillance, Epidemiology, and End Results (SEER) Program Public-Use Data (1973-1999), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2002, based on the November 2001 submission.

05. Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg L, Edwards BK (Eds). *SEER Cancer Statistics Review, 1973-1999*, National Cancer Institute. Bethesda, MD, 2002. Available at: *http://seer.cancer.gov/csr/1973_1999/*.

06. Rothman KJ, Greenland S. Modern Epidemiology. Second Edition. Lippincott-Raven Publishers. Philadelphia, PA, 1998.

07. Fay MP, Feuer EJ. Confidence intervals for directly standardized rates: A method based on the gamma distribution. Statistics in Medicine 1997; 16: 791-801.

08. Johnson NL, Kotz S. Discrete Distributions. Wiley. New York, 1969.

09. SEER*Stat software. Documentation available at: *http://seer.cancer.gov*

10. Day NE. Cumulative rate and cumulative risk. In: Parkin DM, Muir CS, Whelan SL, Gao YT, Ferlay J, Powell J (Eds). Cancer Incidence in Five Continents. Volume VI. IARC Scientific Publications No. 120. Lyon, 1992.

11. Ederer F, Axtell LM, Cutler SJ. The relative survival rate: A statistical methodology. Natl. Cancer Inst Monogr 6: 101-121; 1961.

Oral Cavity & Pharynx

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	12.7	16.7	5.1	6.7
Rank among cancer incidence rates	7	6	13	13
Average annual number of new cases	89	19,700	42	9,840
Percent of all new cancer cases	2.7 %	3.1 %	1.5 %	1.6 %
Lifetime risk of this cancer (00-79 years)	1 in 85	1 in 59	1 in 191	1 in 146
Average annual age-adjusted mortality rates*	2.7	4.5	1.0	1.7
Rank among cancer mortality rates	16	13	18	18
Average annual number of deaths	18	5,160	8	2,640
Percent of all cancer deaths	1.5	1.8	0.8	1.02
* Rates per 100,000 and standardized to the 2000 U.S. population				

Cancers of the oral cavity and pharynx account for less than three percent of all cancers. These tumors are primarily squamous cell carcinomas and occur most commonly on the tongue, lip, and floor of the mouth. Other sites include the soft palate, tonsils, salivary glands, and back of the throat (oral pharynx). Incidence rates for cancers of the oral cavity and pharynx, as a group, declined during the period 1981-2000.

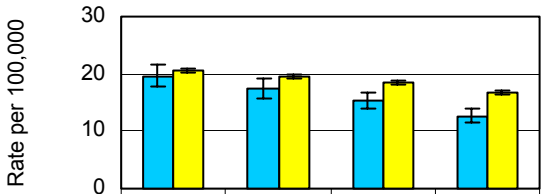
Most oral and pharyngeal tumors in the United States are caused by tobacco and alcohol consumption. Smoking accounts for most of the oral cancers, but chewing and snuff dipping also cause this disease. There is evidence that combined exposure to both alcohol and tobacco increases the risk beyond that which would be expected by simply adding together the separate effects of each exposure. Current evidence suggests that individuals who frequently consume fresh fruits and vegetables are at reduced risk of this disease.

The most important preventive measures for cancers of the oral cavity and pharynx are to avoid exposure to tobacco products and to use alcohol only in moderation. Approximately one-half of all individuals with these tumors are diagnosed at advanced stages and these patients have the worst prognosis. The efficacy of screening for oral cancers has not been adequately evaluated, but examination of the oral cavity for neoplasms could be accomplished at minimal cost during routine dental care and might be beneficial.

Oral Cavity & Pharynx — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

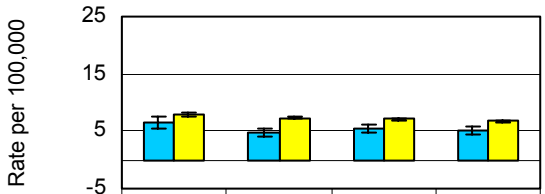
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	19.7	17.3	15.2	12.7
US	20.6	19.6	18.5	16.7

Year of diagnosis

Female



	1981-85	1986-90	1991-95	1996-00*
Utah	6.4	4.7	5.5	5.1
US	7.8	7.3	7.1	6.7

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

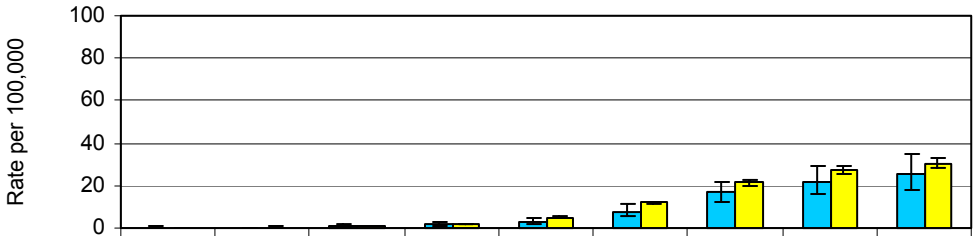
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0.5	1.3	3.1	8.8	26.5	41	37.6	75.7
US	0.2	0.4	0.9	3.7	13.2	34.7	53.7	65.1	69.4

Age at diagnosis

Female



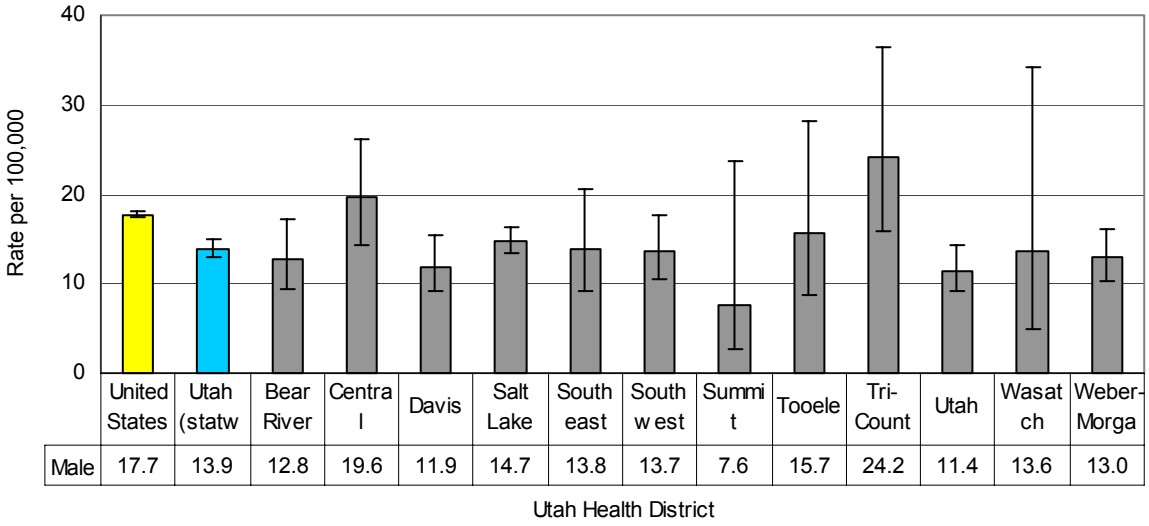
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0	0.9	1.8	3.3	7.7	16.6	22.1	25.5
US	0.1	0.4	1	1.8	4.8	11.8	21.5	27.3	30.2

Age at diagnosis

Oral Cavity & Pharynx — *Incidence*

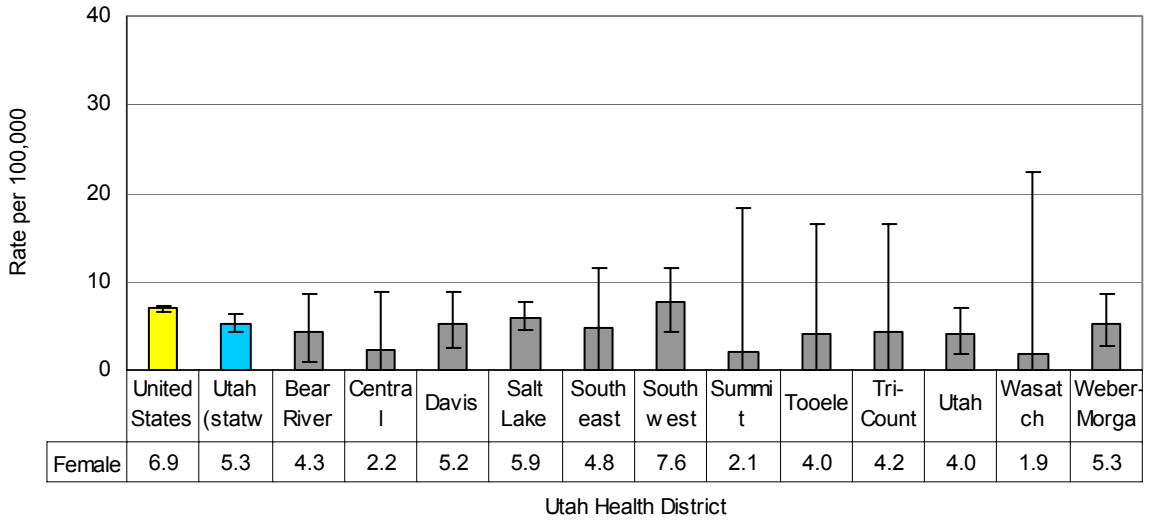
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (statw	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	17.7	13.9	12.8	19.6	11.9	14.7	13.8	13.7	7.6	15.7	24.2	11.4	13.6	13.0

Female

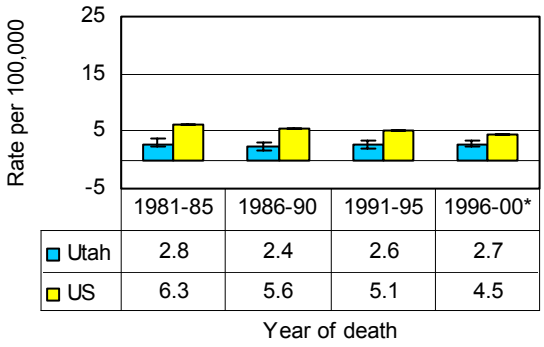


	United States	Utah (statw	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	6.9	5.3	4.3	2.2	5.2	5.9	4.8	7.6	2.1	4.0	4.2	4.0	1.9	5.3

Oral Cavity & Pharynx — *Mortality*

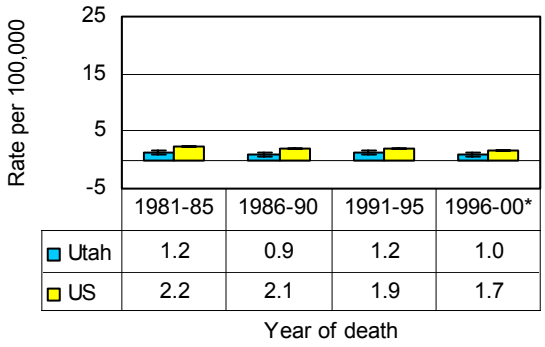
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	2.8	2.4	2.6	2.7
US	6.3	5.6	5.1	4.5

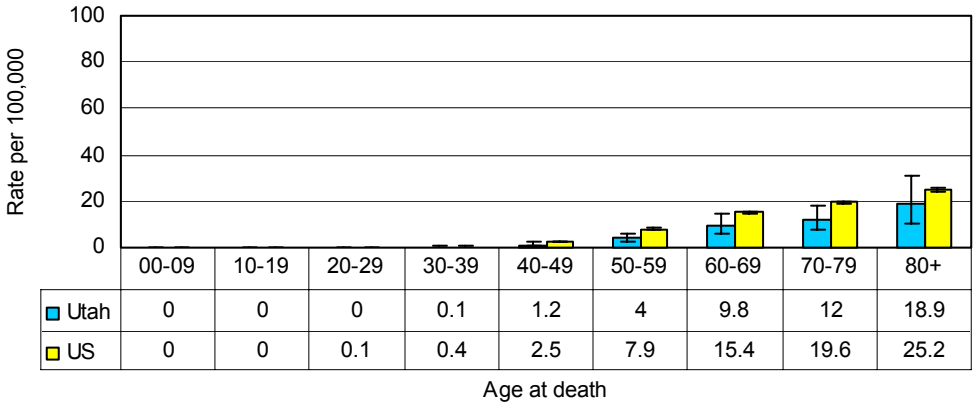
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	1.2	0.9	1.2	1.0
US	2.2	2.1	1.9	1.7

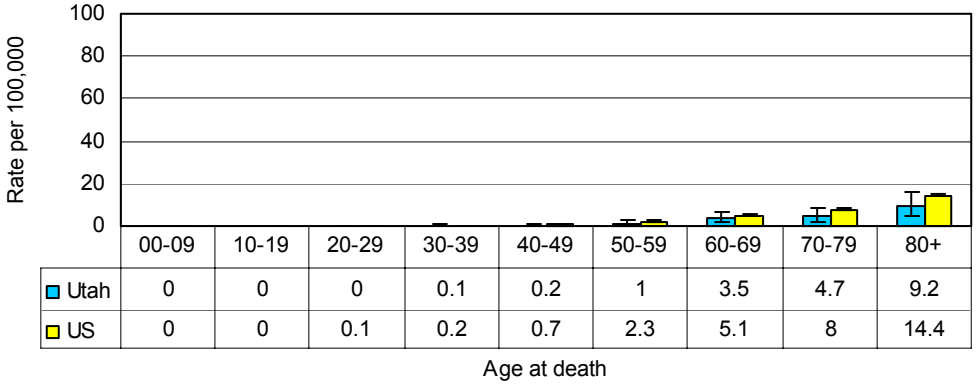
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.1	1.2	4	9.8	12	18.9
US	0	0	0.1	0.4	2.5	7.9	15.4	19.6	25.2

Female

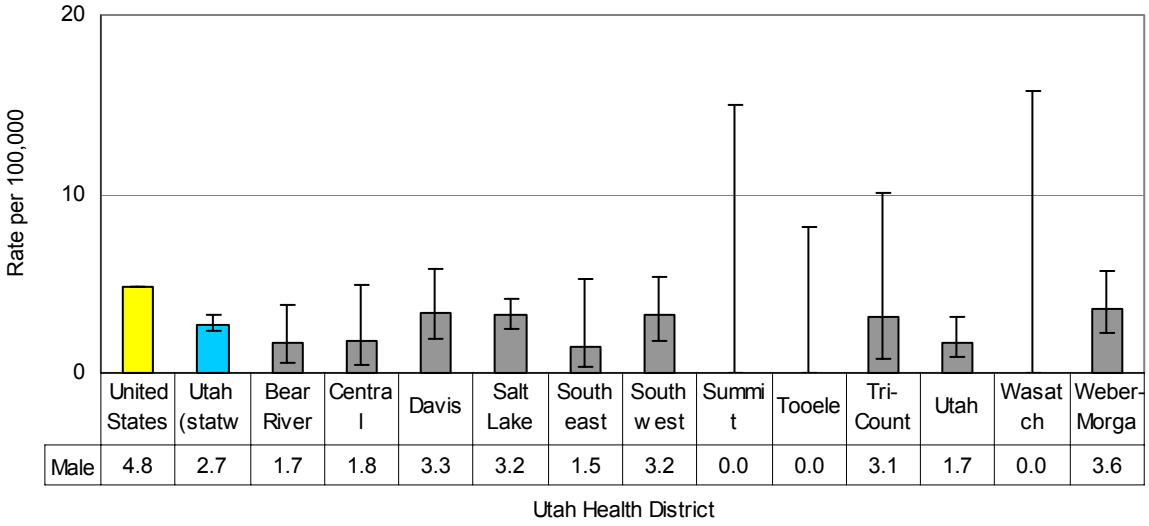


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.1	0.2	1	3.5	4.7	9.2
US	0	0	0.1	0.2	0.7	2.3	5.1	8	14.4

Oral Cavity & Pharynx — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

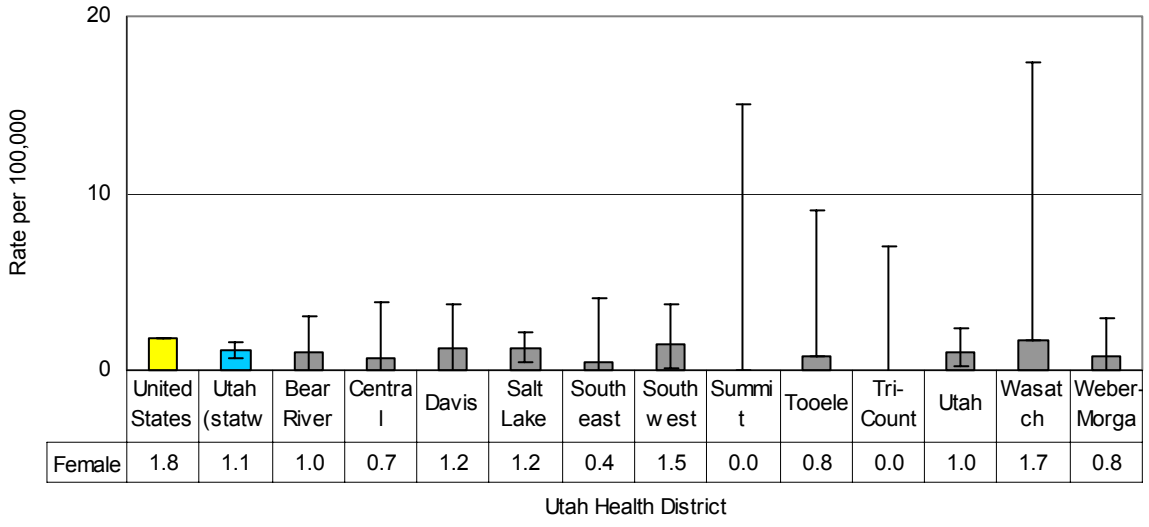
Male



	United States	Utah (statw	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	4.8	2.7	1.7	1.8	3.3	3.2	1.5	3.2	0.0	0.0	3.1	1.7	0.0	3.6

Utah Health District

Female

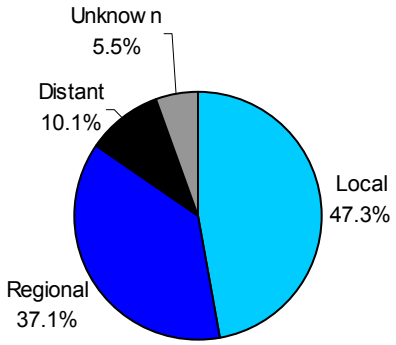


	United States	Utah (statw	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	1.8	1.1	1.0	0.7	1.2	1.2	0.4	1.5	0.0	0.8	0.0	1.0	1.7	0.8

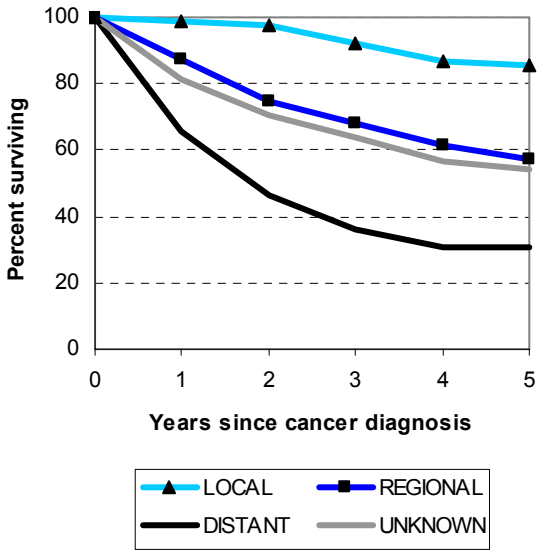
Utah Health District

Oral Cavity & Pharynx — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Esophagus

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	5.1	8.1	1.0	2.1
Rank among cancer incidence rates	14	11	<20	<20
Average annual number of new cases	34	9,340	8	3,250
Percent of all new cancer cases	1.1 %	1.5 %	0.3 %	0.5 %
Lifetime risk of this cancer (00-79 years)	1 in 204	1 in 114	1 in 991	1 in 433
Average annual age-adjusted mortality rates*	4.7	7.6	0.8	1.8
Rank among cancer mortality rates	10	6	20	16
Average annual of deaths	31	8,729	7	2,819
Percent of all cancer deaths	2.6 %	3.1 %	0.6 %	1.1 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Incidence rates for esophageal cancer vary widely throughout the world. Among the highest rates are those reported in an area encompassing northern Iran, Turkmenistan, Kazakhstan, and Uzbekistan, and in Northern and Western China. The risk of this disease in these areas is as much as thirty times that experienced in the United States. These diverse geographic patterns, and a decrease in esophageal cancer rates in migrants who move from a high- to a low-risk area, suggest that environmental factors play an important role in the etiology of this disease.

Incidence rates for esophageal cancer increased in the United States during the period 1981-2000. This increase was more pronounced for males than females. Similar trends were observed in Utah, though the rates of disease were lower here than elsewhere. Much of the increase in men was in rates of adenocarcinomas. The reason for these changes is unknown.

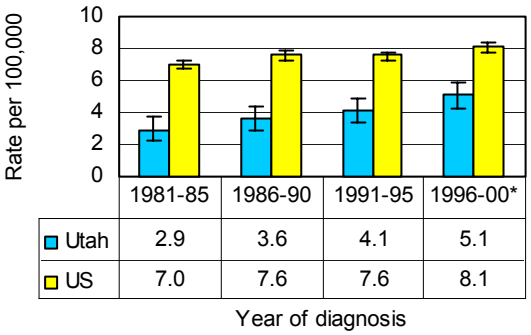
The relative importance of different risk factors for this disease varies by geographic region. Virtually all studies have found an inverse association between socioeconomic status and risk, and a relationship with malnutrition, notably deficiencies of riboflavin, zinc, and vitamins A and C. In the United States and other western countries, alcohol and cigarette consumption account for as much as 75 percent of all cases, but play a less prominent role in Asia, where nutritional and other factors are thought to be the most important determinants of this disease.

In the United States, the most important preventive measures are to limit alcohol consumption and to avoid the use of tobacco. Improving the nutritional status of the population, especially among those at increased risk for the disease, may further reduce risk. The efficacy of screening for this disease has not been established.

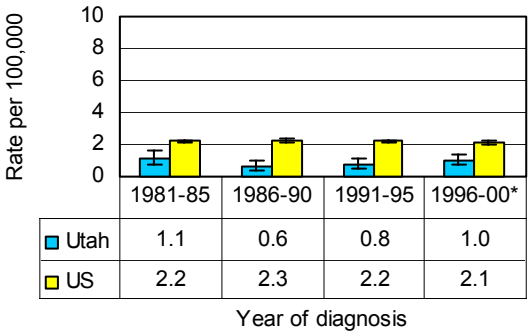
Esophagus — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male

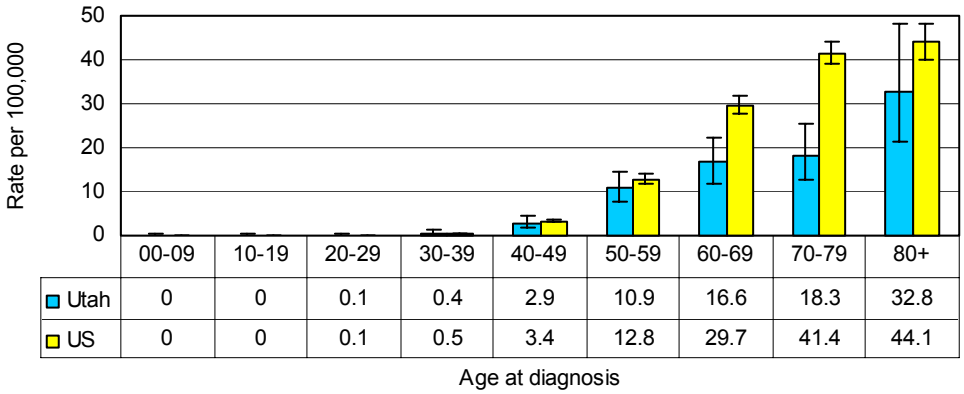


Female

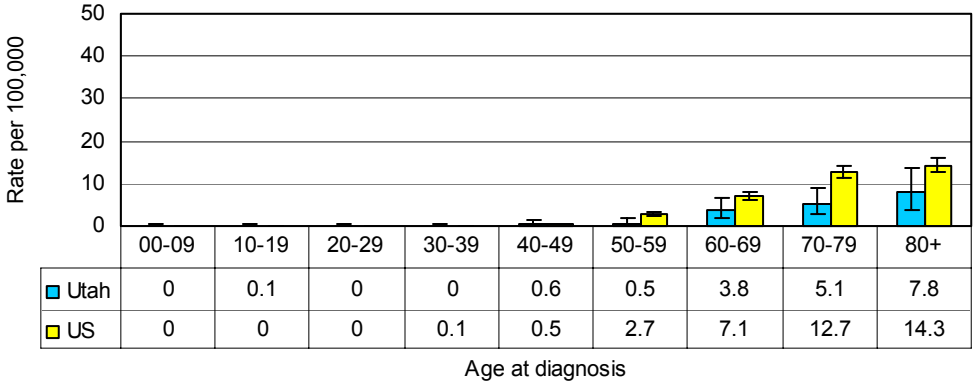


Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



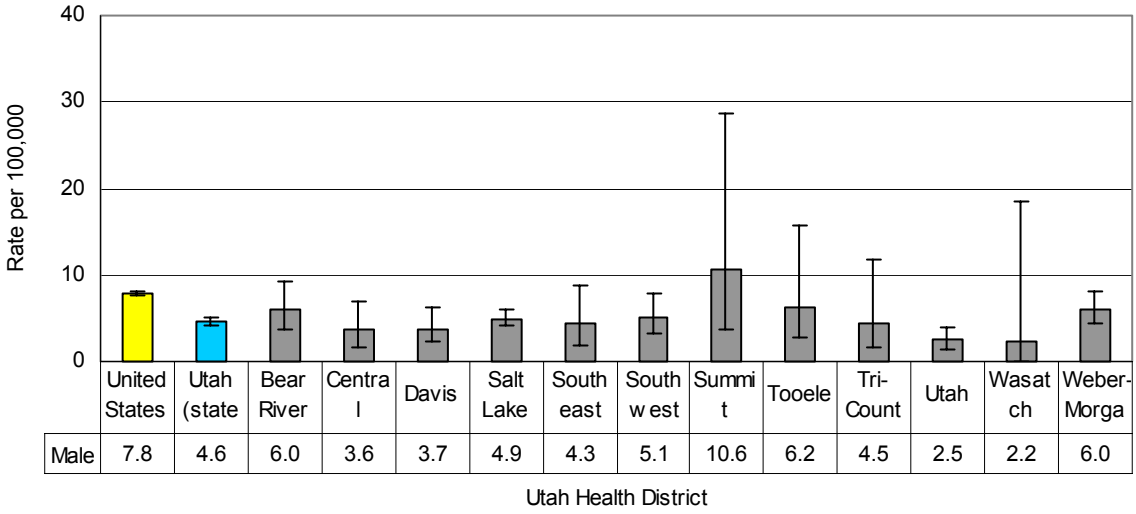
Female



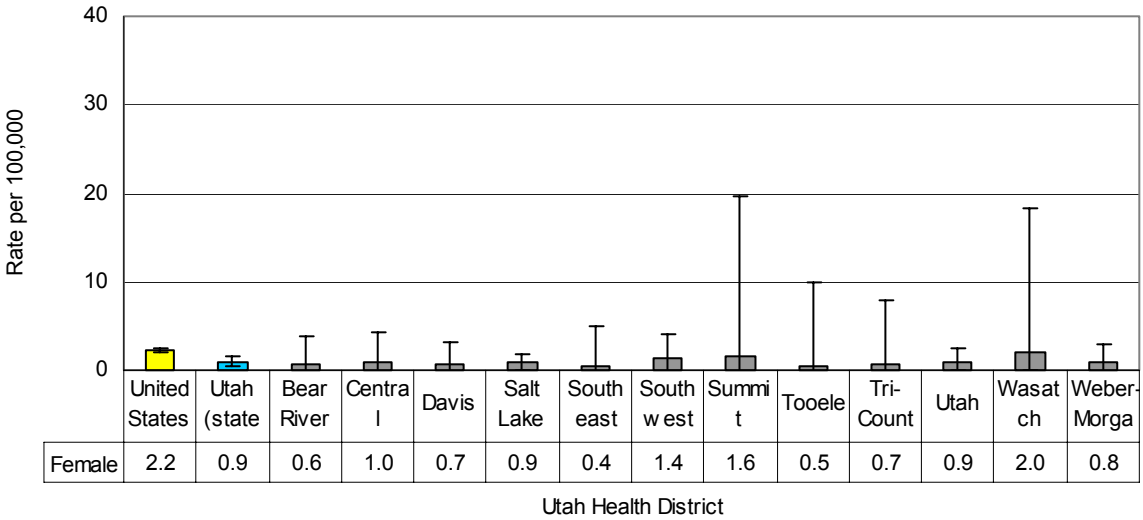
Esophagus | *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



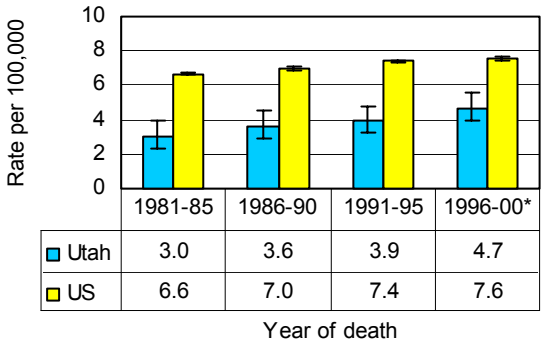
Female



Esophagus — *Mortality*

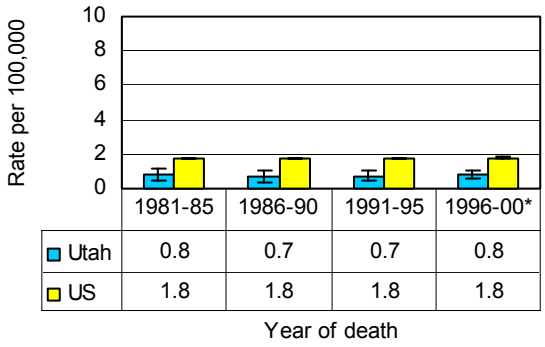
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	3.0	3.6	3.9	4.7
US	6.6	7.0	7.4	7.6

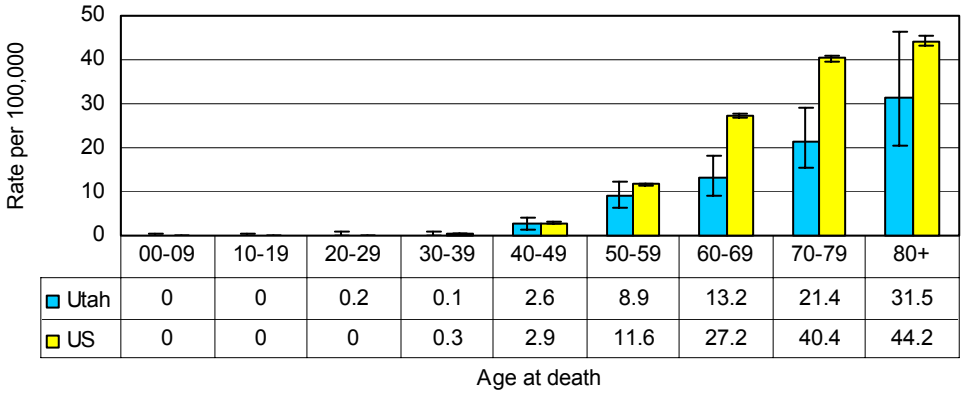
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	0.8	0.7	0.7	0.8
US	1.8	1.8	1.8	1.8

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.2	0.1	2.6	8.9	13.2	21.4	31.5
US	0	0	0	0.3	2.9	11.6	27.2	40.4	44.2

Female

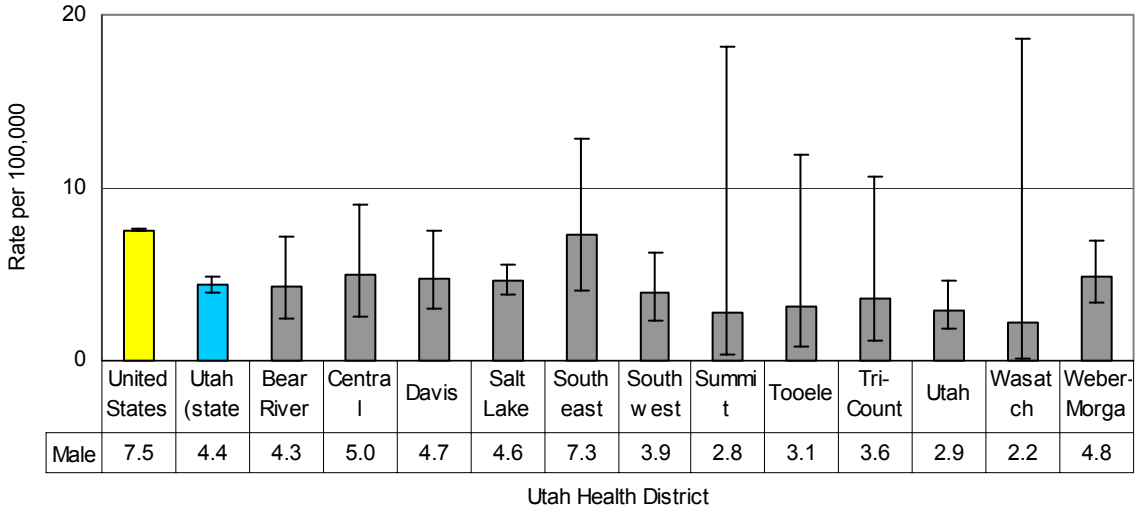


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0	0.5	1	2.4	3	8.5
US	0	0	0	0.1	0.4	2.1	5.8	10.1	15.2

Esophagus — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

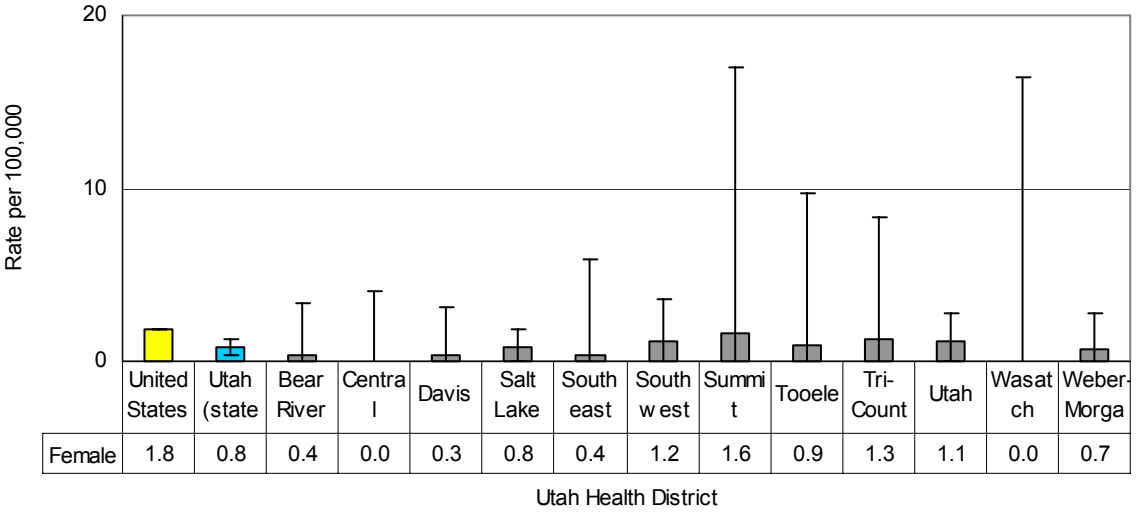
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	7.5	4.4	4.3	5.0	4.7	4.6	7.3	3.9	2.8	3.1	3.6	2.9	2.2	4.8

Utah Health District

Female

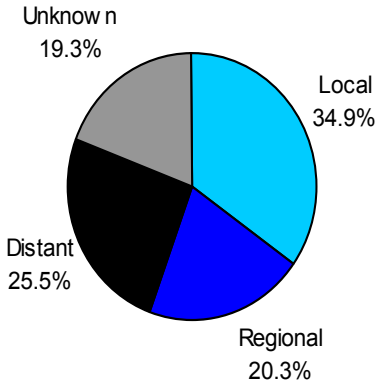


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	1.8	0.8	0.4	0.0	0.3	0.8	0.4	1.2	1.6	0.9	1.3	1.1	0.0	0.7

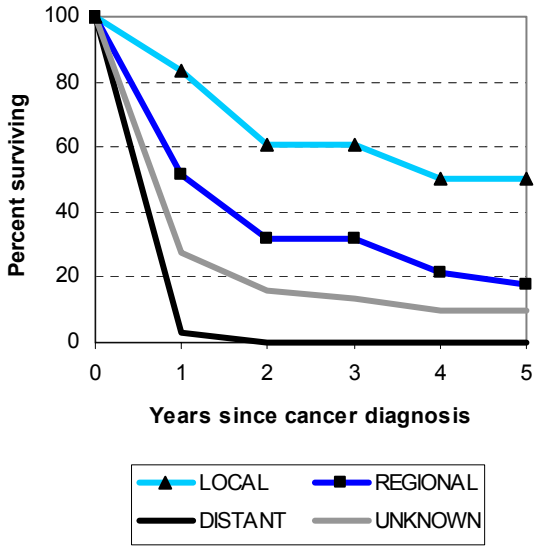
Utah Health District

Esophagus — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Stomach

Summary	Male		Female	
	Utah 1996-2000	US 1996-98	Utah 1996-2000	US 1996-98
Average annual age-adjusted incidence rates*	7.7	12.2	4.3	5.7
Rank among cancer incidence rates	11	9	14	14
Average annual number of new cases	49	13,610	35	8,860
Percent of all new cancer cases	1.5 %	2.1 %	1.2 %	1.4 %
Lifetime risk of this cancer (00-79 years)	1 in 141	1 in 83	1 in 235	1 in 187
Average annual age-adjusted mortality rates*	5.0	7.0	3.1	3.4
Rank among cancer mortality rates	9	8	10	9
Average annual of deaths	30	7,662	25	5,354
Percent of all cancer deaths	2.5 %	2.7 %	2.4 %	2.1 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

In the 1930's, stomach cancer was the leading cause of cancer death for males and the third leading cause for females in the United States. Since that time, the United States has experienced a dramatic decline in the occurrence of this disease. Stomach cancer incidence rates continued to decline in both Utah and the United States during the period 1981-2000.

The bacteria *helicobacter pylori* has emerged as an important etiologic agent for stomach cancer. Nonetheless, the series of events that leads to stomach cancer is still being researched and the precise cause of the decline in incidence and mortality rates in the last century is unknown. Much attention has focused on dietary factors, especially smoked and cured foods high in nitrates. In cooking and through the digestive process, nitrates are converted into a class of compounds called nitrosamines, which are potent carcinogens. A diet rich in fresh fruits and vegetables may reduce the risk of this disease. Smoking and alcohol enhance risk of gastritis, but have not conclusively been related to risk of stomach cancer.

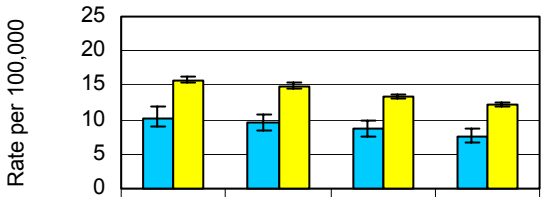
Symptoms of stomach cancer are not often manifest until the disease has spread to other parts of the body. Consequently, a majority of tumors have already reached the regional and distant stages at the time of diagnosis.

Although no specific means of primary prevention are available, it may be beneficial to limit consumption of smoked and cured foods, and to eat a diet rich in fresh fruits and vegetables. Limited evidence from Japan suggests that radiologic screening for stomach cancer may be efficacious, but widespread screening in the United States seems unwarranted due to the low frequency of the disease.

Stomach — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

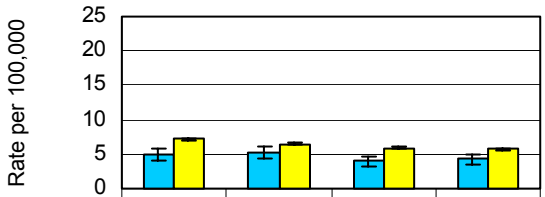
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	10.3	9.5	8.7	7.7
US	15.8	14.9	13.5	12.2

Year of diagnosis

Female

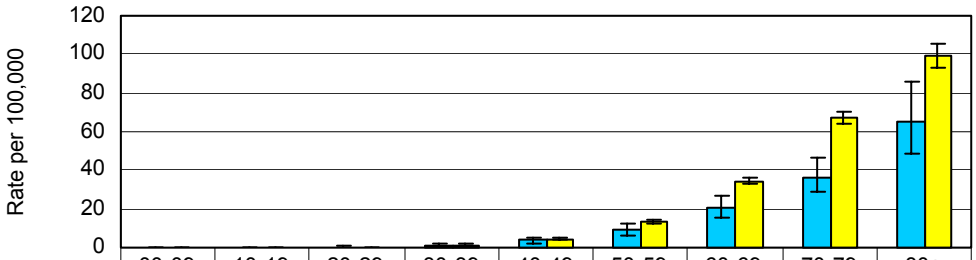


	1981-85	1986-90	1991-95	1996-00*
Utah	4.9	5.1	4.0	4.3
US	7.2	6.5	5.9	5.7

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

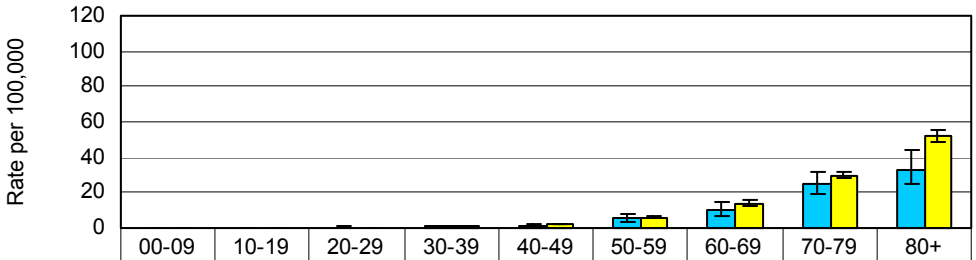
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.4	0.7	3.8	9.2	20.3	36.6	65.6
US	0	0.1	0.3	1.3	4.3	13.4	34.6	67	99.1

Age at diagnosis

Female



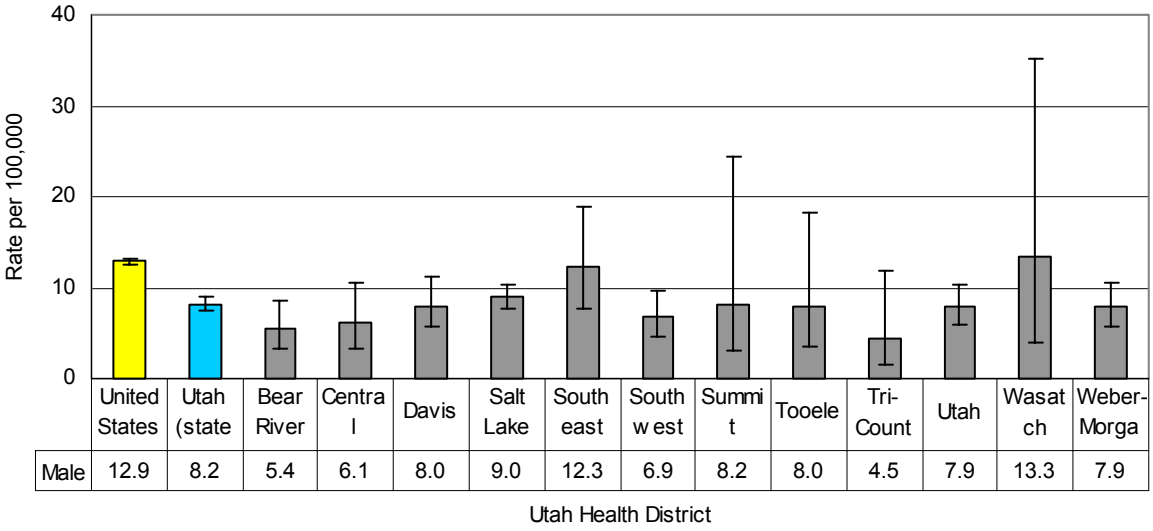
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.1	0.7	1.5	5.3	10.4	24.7	33.3
US	0	0	0.3	1.1	2.4	6	14.1	29.8	52.1

Age at diagnosis

Stomach — *Incidence*

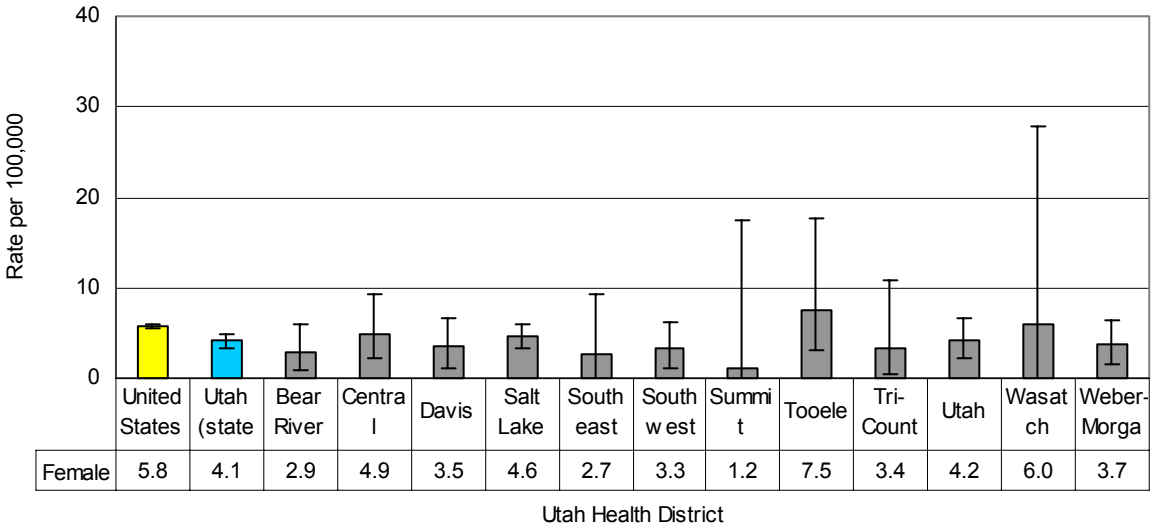
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Male	12.9	8.2	5.4	6.1	8.0	9.0	12.3	6.9	8.2	8.0	4.5	7.9	13.3	7.9

Female

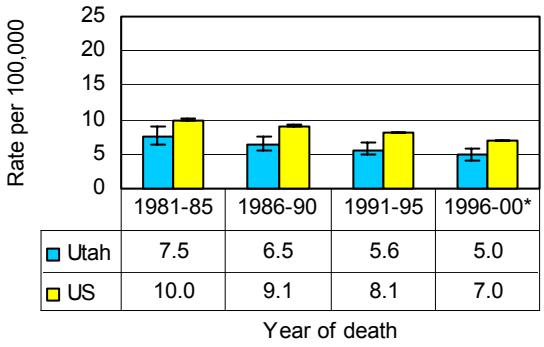


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	5.8	4.1	2.9	4.9	3.5	4.6	2.7	3.3	1.2	7.5	3.4	4.2	6.0	3.7

Stomach — *Mortality*

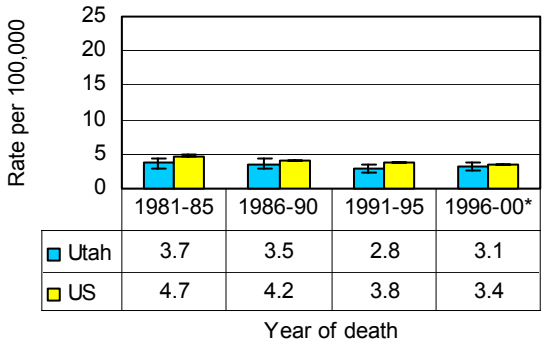
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	7.5	6.5	5.6	5.0
US	10.0	9.1	8.1	7.0

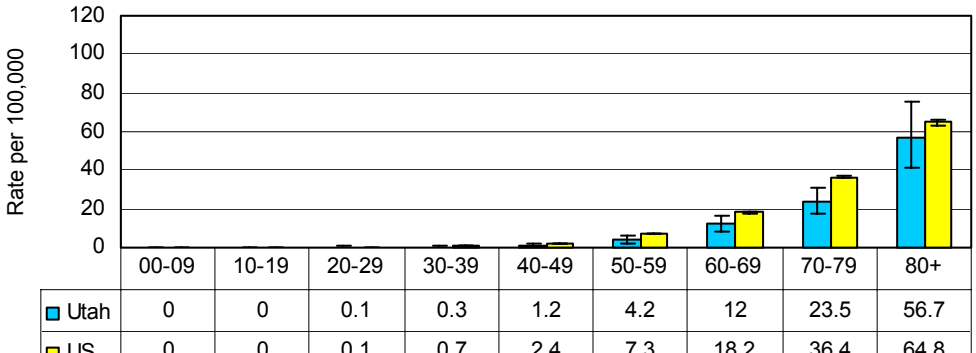
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	3.7	3.5	2.8	3.1
US	4.7	4.2	3.8	3.4

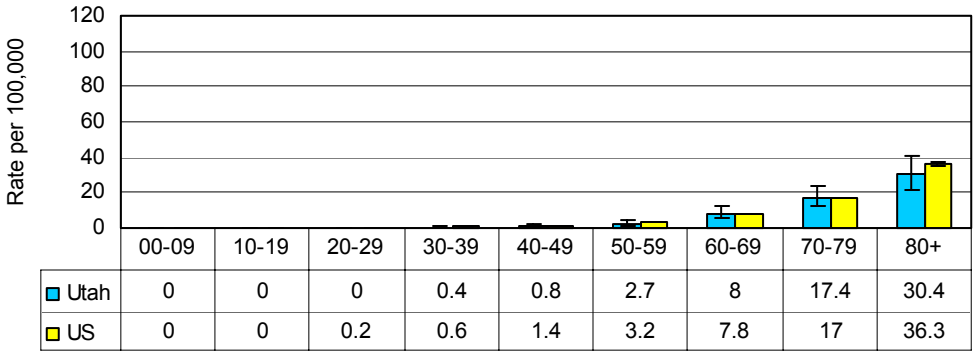
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.1	0.3	1.2	4.2	12	23.5	56.7
US	0	0	0.1	0.7	2.4	7.3	18.2	36.4	64.8

Female

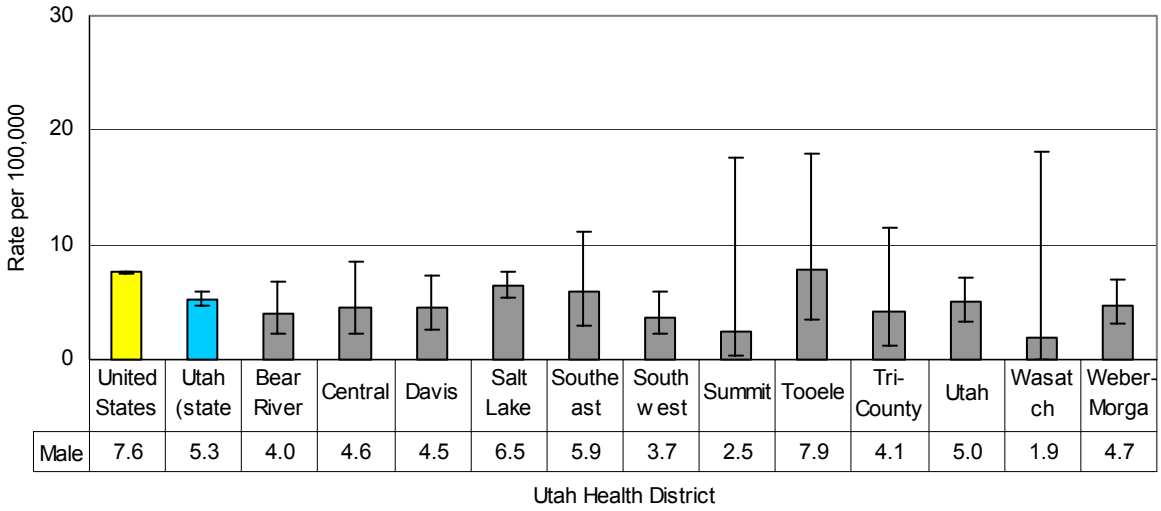


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.4	0.8	2.7	8	17.4	30.4
US	0	0	0.2	0.6	1.4	3.2	7.8	17	36.3

Stomach | *Mortality*

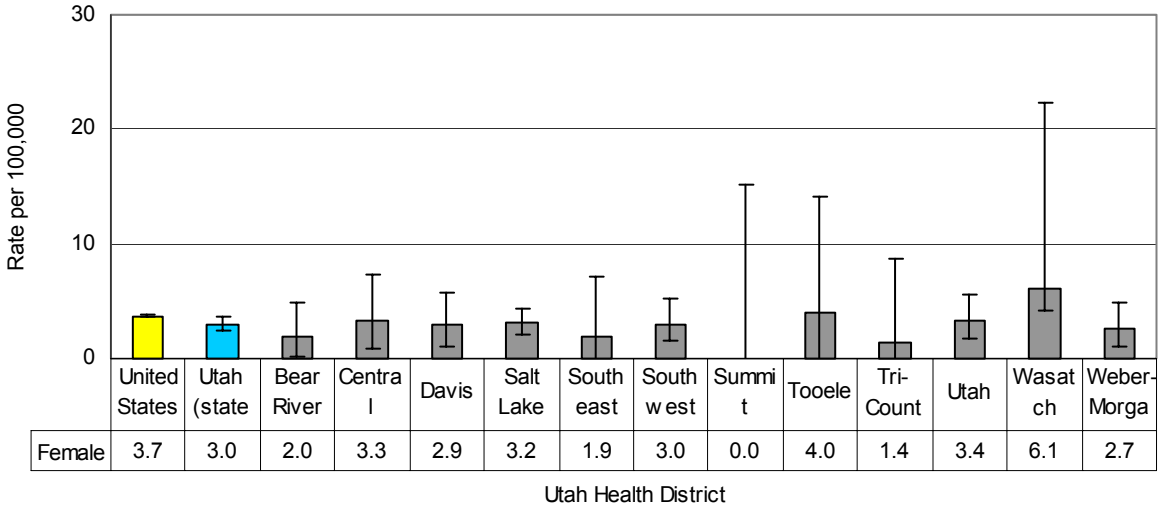
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	7.6	5.3	4.0	4.6	4.5	6.5	5.9	3.7	2.5	7.9	4.1	5.0	1.9	4.7

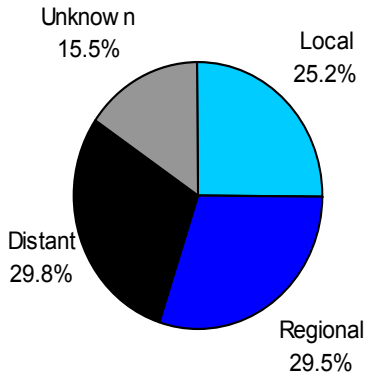
Female



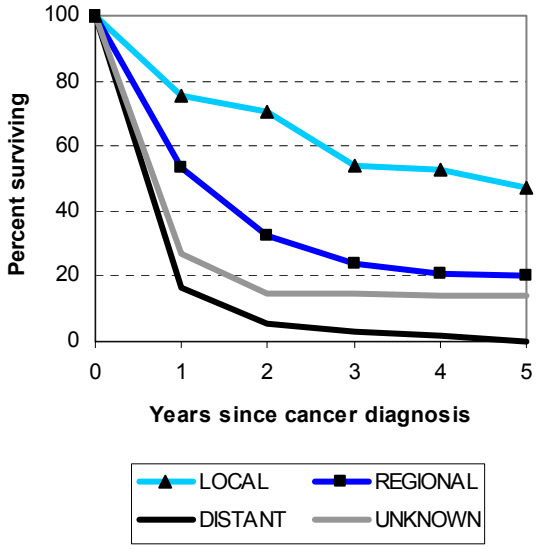
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	3.7	3.0	2.0	3.3	2.9	3.2	1.9	3.0	0.0	4.0	1.4	3.4	6.1	2.7

Stomach — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Colon and Rectum

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	50.5	65.6	38.5	47.7
Rank among cancer incidence rates	2	3	2	3
Average annual number of new cases	326	73,200	312	73,220
Percent of all new cancer cases	9.9 %	11.3 %	10.8 %	11.6 %
Lifetime risk of cancer (00-79 years)	1 in 21	1 in 16	1 in 28	1 in 22
Average annual age-adjusted mortality rates*	19.6	26.0	15.3	18.3
Rank among cancer mortality rates	3	3	3	3
Average annual of deaths	117	28,100	124	28,811
Percent of all cancer deaths	9.8 %	9.9 %	11.6 %	11.1 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Incidence rates for colorectal cancer vary widely throughout the world, with relatively high rates in North America and Western Europe, and low rates in Eastern Europe, Asia, and Africa. Environmental factors are thought to be responsible for the large international variation in rates.

Evidence for environmental causation comes from studies of migrants, who quickly acquire the risk for colorectal cancer in their adopted homelands. Numerous dietary factors have been associated with the occurrence of colorectal cancer. Diets high in meat and fat have been associated with an increased risk of the disease. Conversely, diets high in fiber, fruits, vegetables, legumes, and whole grain products are associated with a lower risk of the disease. There is also evidence that physically active individuals may be at lower risk for colorectal cancer than sedentary individuals.

Genetic factors clearly predispose some individuals to develop colorectal cancer. Individuals with inherited syndromes such as familial adenomatous polyposis coloni (FAP) are at particularly high risk of the disease. Still, the majority of colorectal cancers in the population are unrelated to such syndromes.

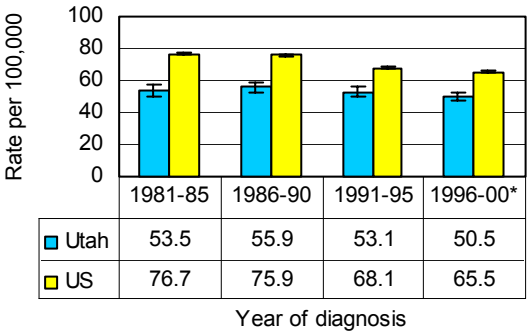
The specific dietary constituents that alter risk of colorectal cancer are not fully understood. Nonetheless, a preponderance of evidence from epidemiological studies suggests that individuals may lower their risk of colorectal cancer by reducing dietary fat and increasing the intake of fruits, vegetables, and whole grain products.

Further, screening for colorectal cancer has been shown to be effective in lowering mortality rates from the disease. Unfortunately, the percentage of Utah residents that have ever been screened for colorectal cancer ranks among the lowest in the United States.

Colon and Rectum — *Incidence*

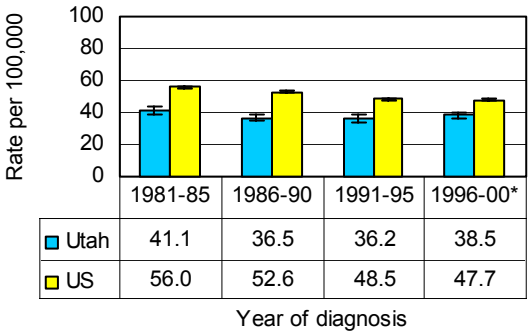
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	53.5	55.9	53.1	50.5
US	76.7	75.9	68.1	65.5

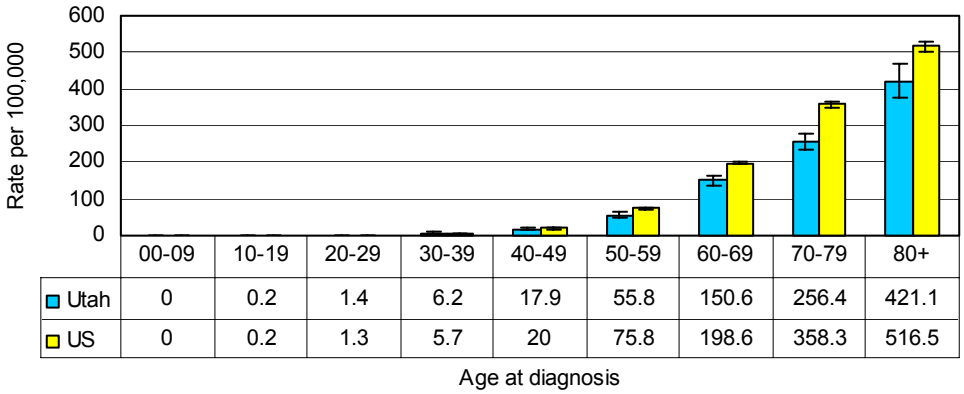
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	41.1	36.5	36.2	38.5
US	56.0	52.6	48.5	47.7

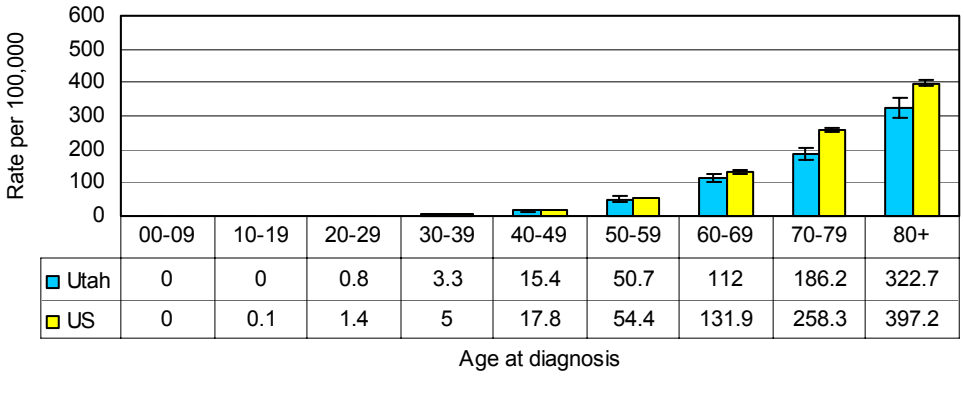
Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.2	1.4	6.2	17.9	55.8	150.6	256.4	421.1
US	0	0.2	1.3	5.7	20	75.8	198.6	358.3	516.5

Female

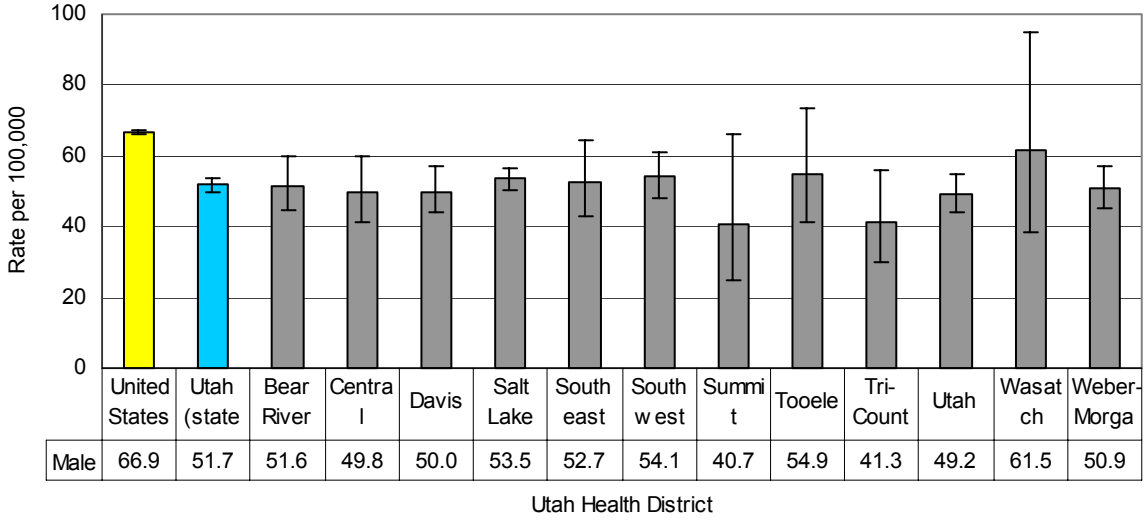


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.8	3.3	15.4	50.7	112	186.2	322.7
US	0	0.1	1.4	5	17.8	54.4	131.9	258.3	397.2

Colon and Rectum — *Incidence*

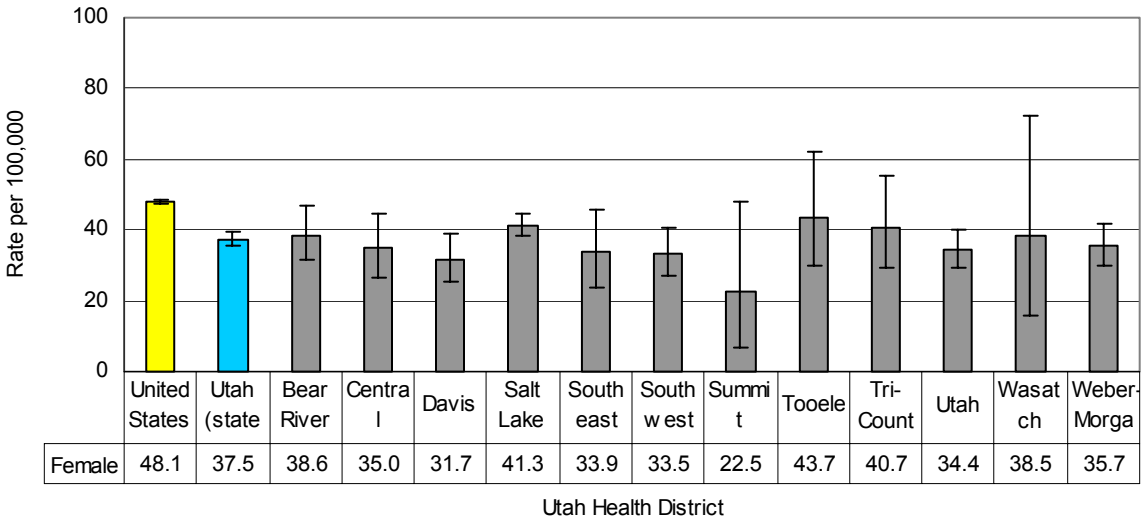
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	66.9	51.7	51.6	49.8	50.0	53.5	52.7	54.1	40.7	54.9	41.3	49.2	61.5	50.9

Female

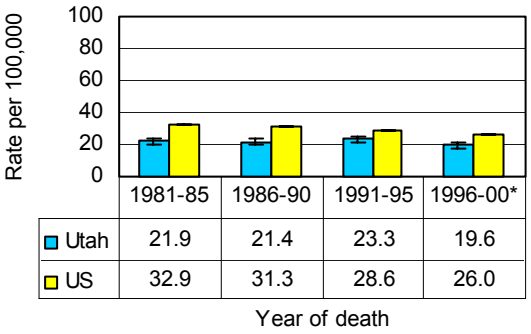


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	48.1	37.5	38.6	35.0	31.7	41.3	33.9	33.5	22.5	43.7	40.7	34.4	38.5	35.7

Colon and Rectum — *Mortality*

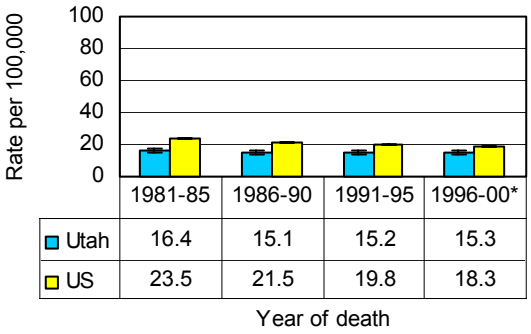
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	21.9	21.4	23.3	19.6
US	32.9	31.3	28.6	26.0

Female



	1981-85	1986-90	1991-95	1996-00*
Utah	16.4	15.1	15.2	15.3
US	23.5	21.5	19.8	18.3

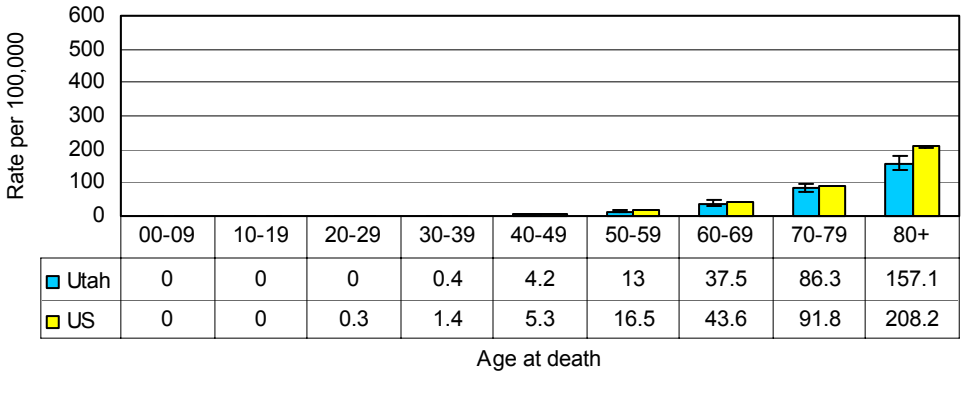
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.2	0.6	1.1	4.5	14.4	43.7	98.2	227
US	0	0	0.4	1.5	6.3	23.8	69.1	137.5	260.1

Female

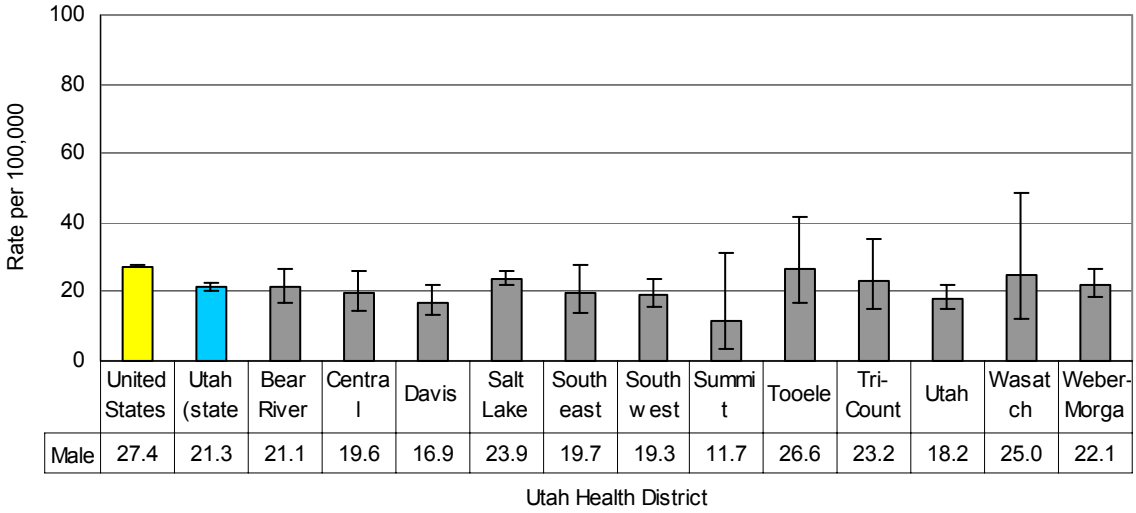


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.4	4.2	13	37.5	86.3	157.1
US	0	0	0.3	1.4	5.3	16.5	43.6	91.8	208.2

Colon and Rectum — *Mortality*

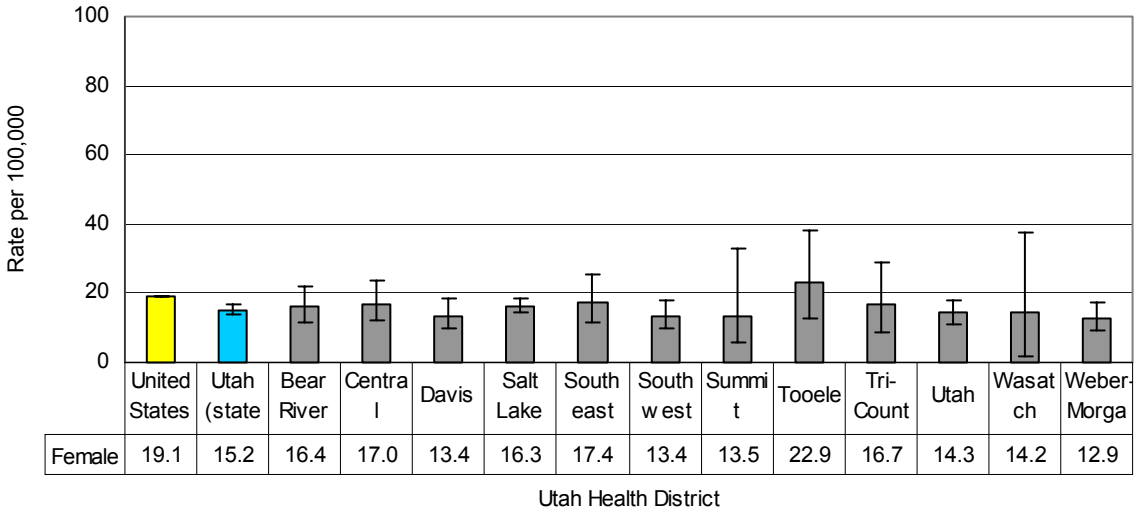
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	27.4	21.3	21.1	19.6	16.9	23.9	19.7	19.3	11.7	26.6	23.2	18.2	25.0	22.1

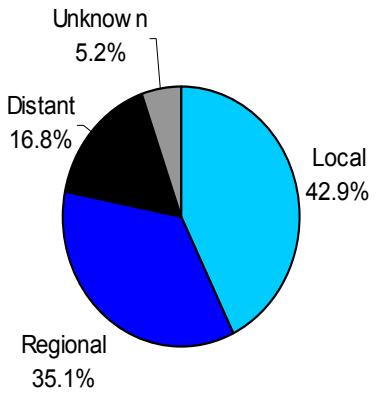
Female



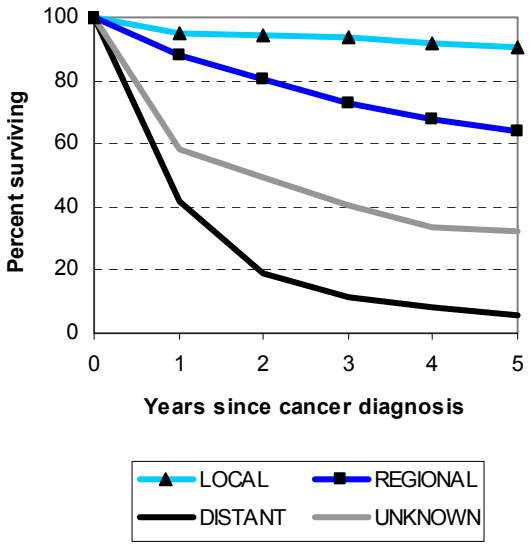
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	19.1	15.2	16.4	17.0	13.4	16.3	17.4	13.4	13.5	22.9	16.7	14.3	14.2	12.9

Colon and Rectum — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000

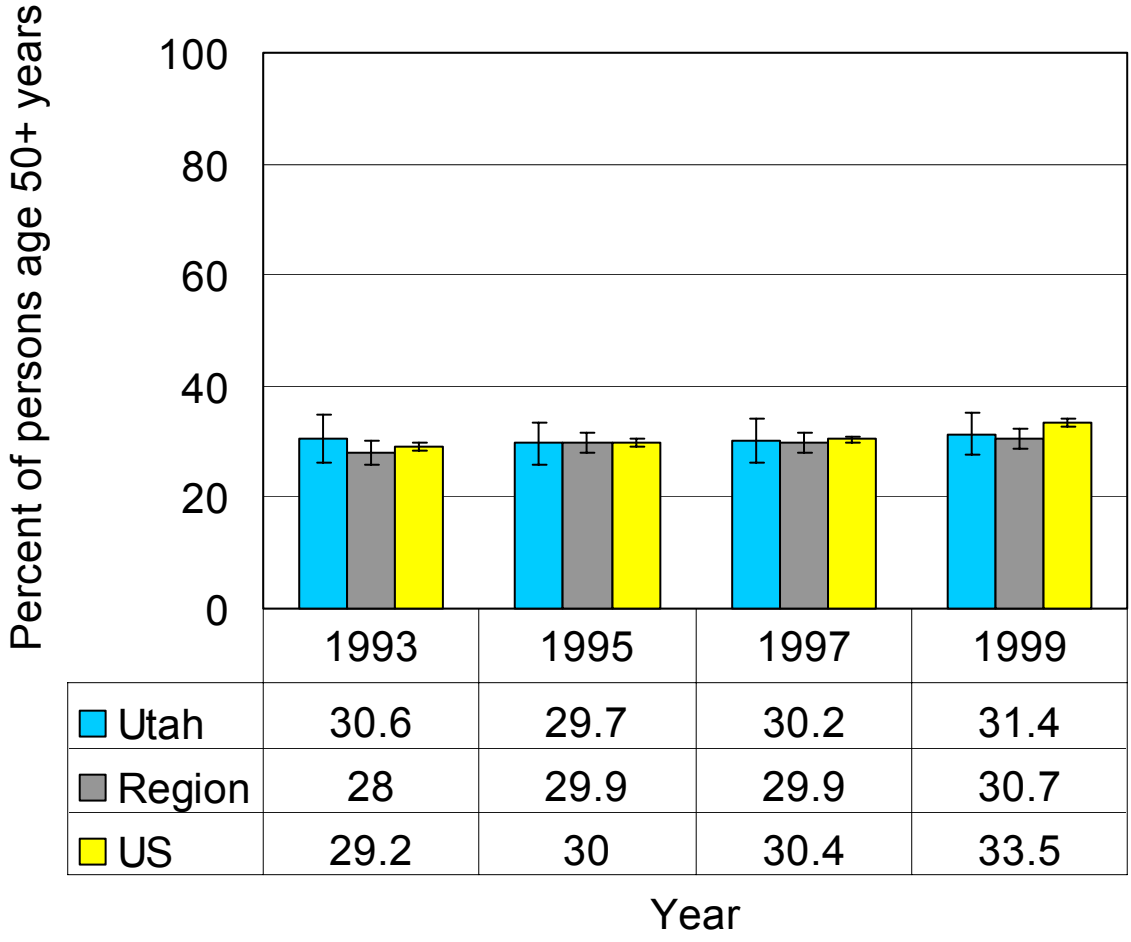


5-year relative survival by stage:
Utah residents diagnosed 1991-95



Colon and Rectum — *Screening*

Percentage of persons who reported having a sigmoidoscopy or colonoscopy within the past five years, adult (ages 50+ years) residents of Utah, Seven Western State Region*, and the United States (Surveys conducted in calendars years 1993, 1995, 1997, and 1999)



	1993	1995	1997	1999
Utah	30.6	29.7	30.2	31.4
Region	28	29.9	29.9	30.7
US	29.2	30	30.4	33.5

* Seven Western States including Arizona, Colorado, Idaho, Nevada, New Mexico, Utah, and Wyoming

Source: Behavioral Risk Factor Surveillance System

This page intentionally blank

Liver & Intrahepatic Bile Duct

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	4.4	8.2	2.3	3.1
Rank among cancer incidence rates	15	10	19	17
Average annual number of new cases	30	9,500	19	4,740
Percent of all new cancer cases	1.0 %	1.5 %	0.7 %	0.7 %
Lifetime risk of this cancer (00-79 years)	1 in 217	1 in 116	1 in 498	1 in 317
Average annual age-adjusted mortality rates*	4.4	6.6	2.6	3.0
Rank among cancer mortality rates	11	9	11	12
Average annual number of deaths	29	7,486	21	4,585
Percent of all cancer deaths	2.4 %	2.7 %	2.0 %	1.8 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Incidence rates for primary liver cancers are relatively low in the United States and western Europe. However, high rates of the disease in the populous countries of Asia and Africa make liver cancer one of the most common cancers in the world. Hepatocellular carcinoma is the most common of the many different types of liver tumors. Primary liver cancer is highly fatal, regardless of stage of disease at diagnosis. For this reason, incidence rates and mortality rates are nearly identical.

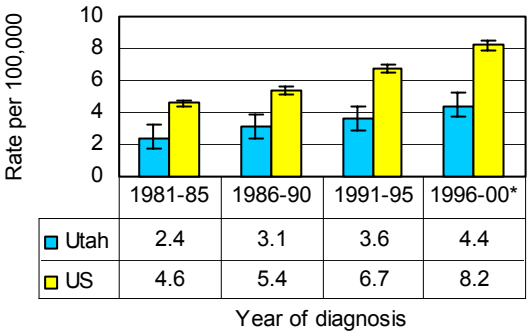
Hepatitis B virus (HBV) and hepatitis C virus (HCV) are both strongly associated with hepatocellular carcinoma and are thought to account for the majority of such cases worldwide. Other environmental factors, notably aflatoxins, alcohol, and vinyl chloride, have also been tied to the etiology of the disease, though they account for a relatively small proportion of cases worldwide.

Primary prevention of viral hepatitis holds promise for lowering the burden of hepatocellular carcinoma. Efficacious vaccines are available for hepatitis B virus, and universal precautions in handling blood and other bodily fluids will lower the risk of HBV and HCV infection. Limiting exposure to carcinogens in the workplace (e.g., vinyl chloride) and diet (e.g., aflatoxins) will also lower the risk of this disease.

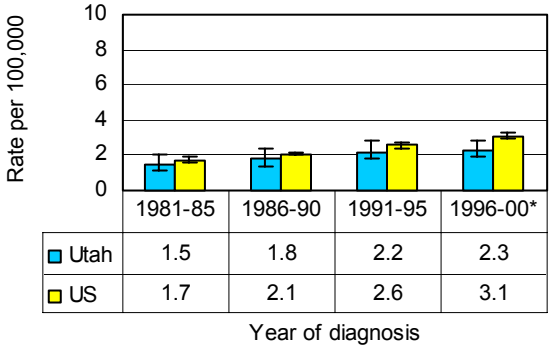
Liver & Intrahepatic Bile Duct — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male

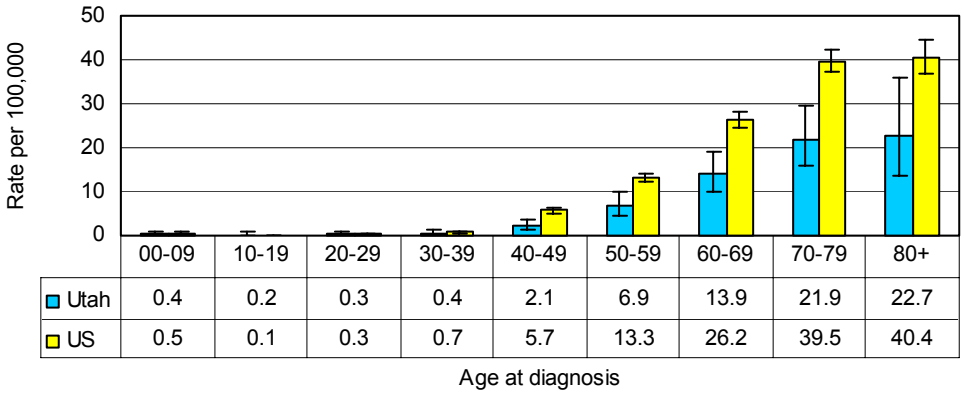


Female

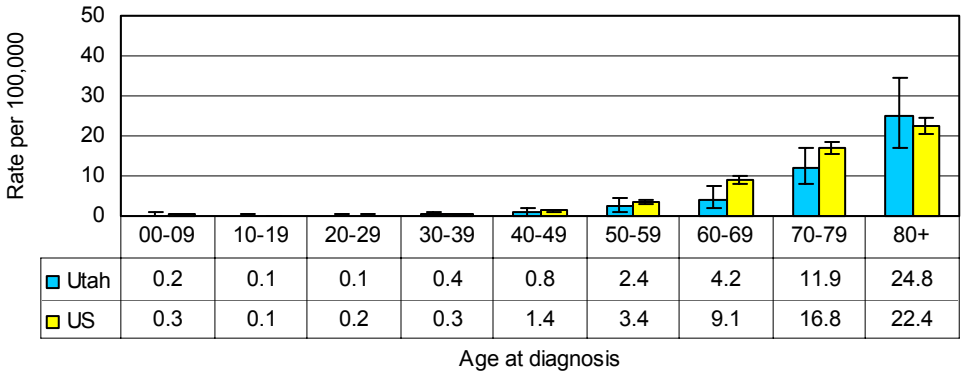


Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



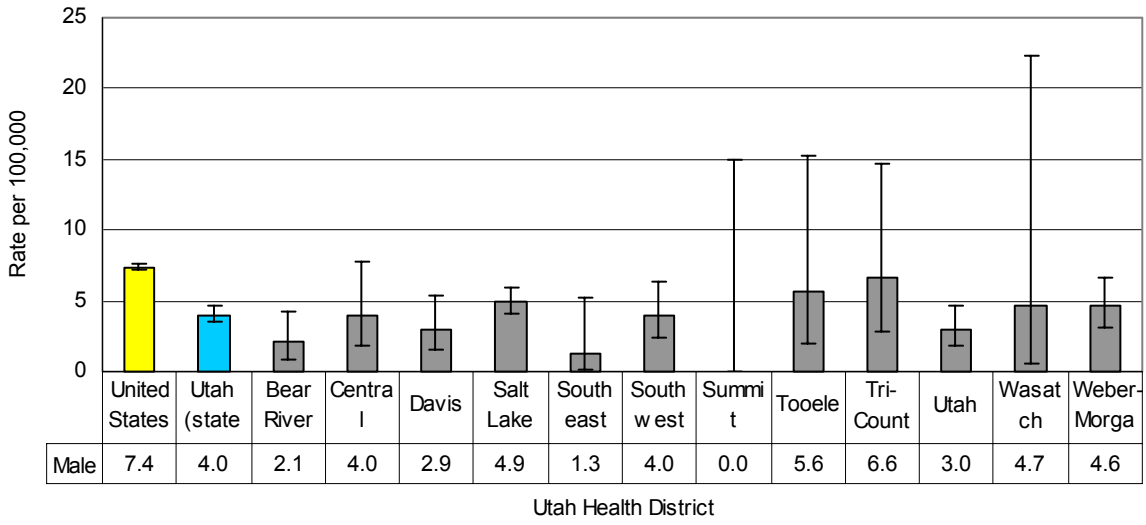
Female



Liver & Intrahepatic Bile Duct — *Incidence*

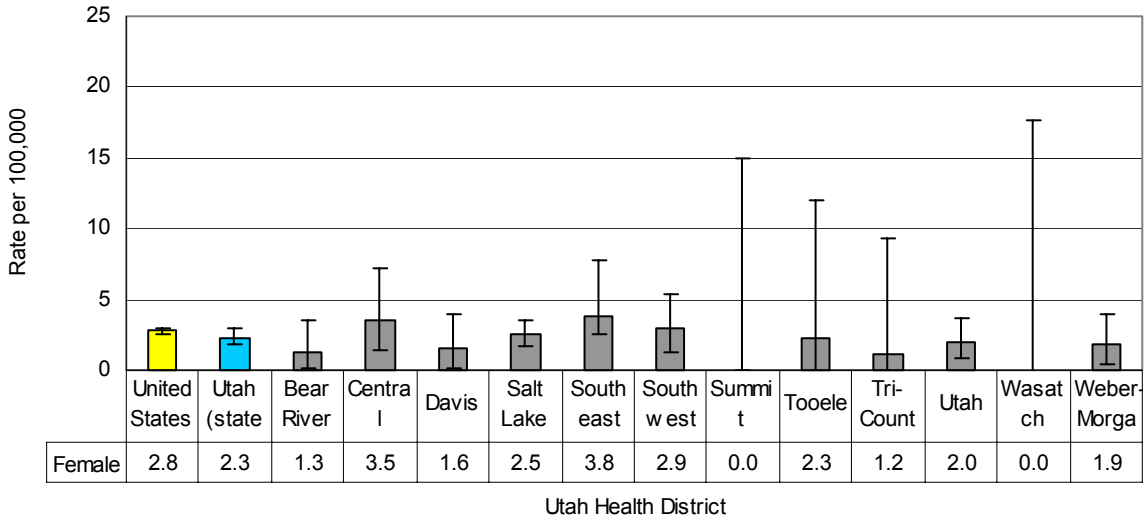
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	7.4	4.0	2.1	4.0	2.9	4.9	1.3	4.0	0.0	5.6	6.6	3.0	4.7	4.6

Female

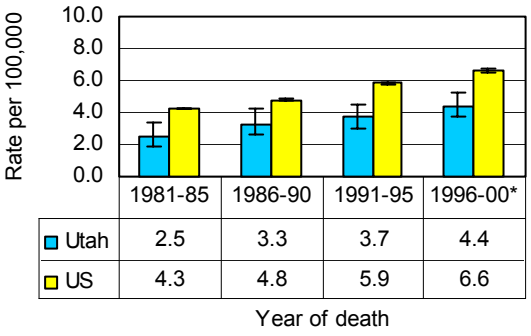


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	2.8	2.3	1.3	3.5	1.6	2.5	3.8	2.9	0.0	2.3	1.2	2.0	0.0	1.9

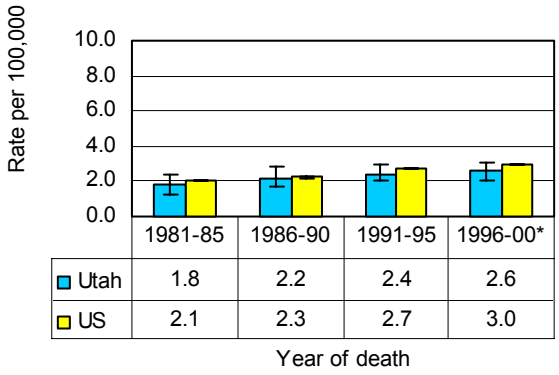
Liver & Intrahepatic Bile Duct — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male

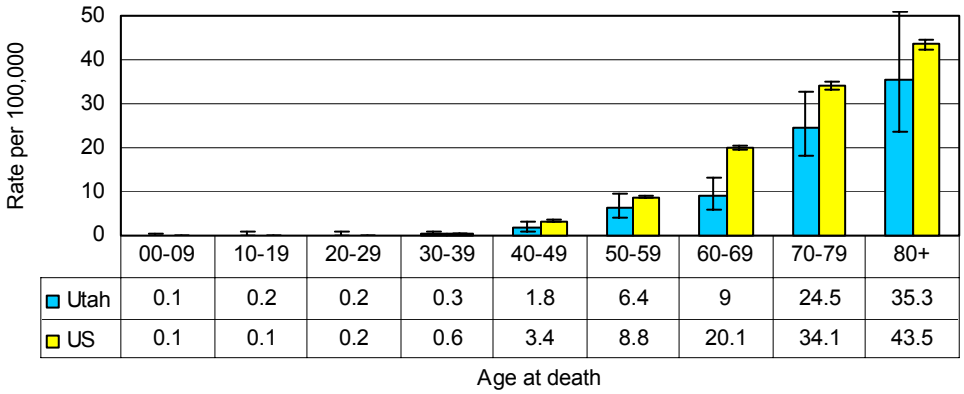


Female

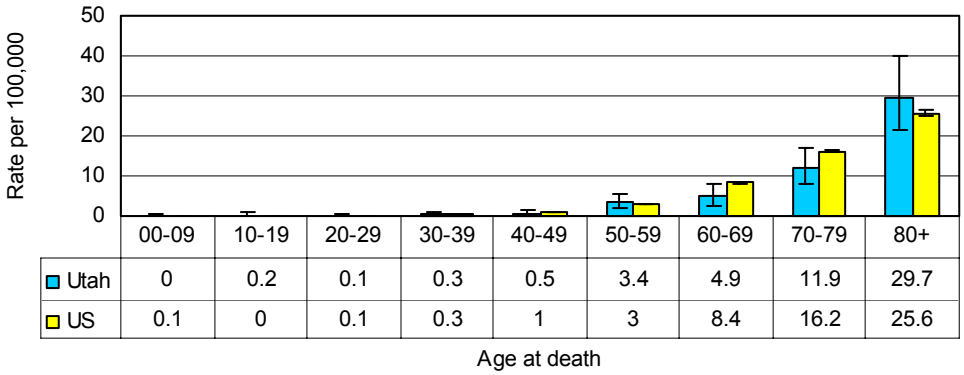


Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



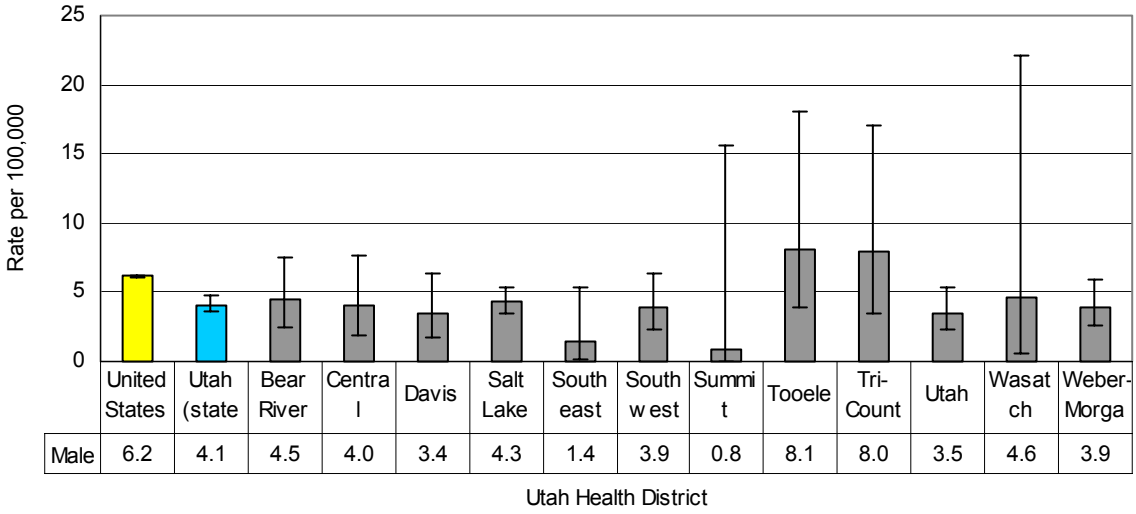
Female



Liver & Intrahepatic Bile Duct — *Mortality*

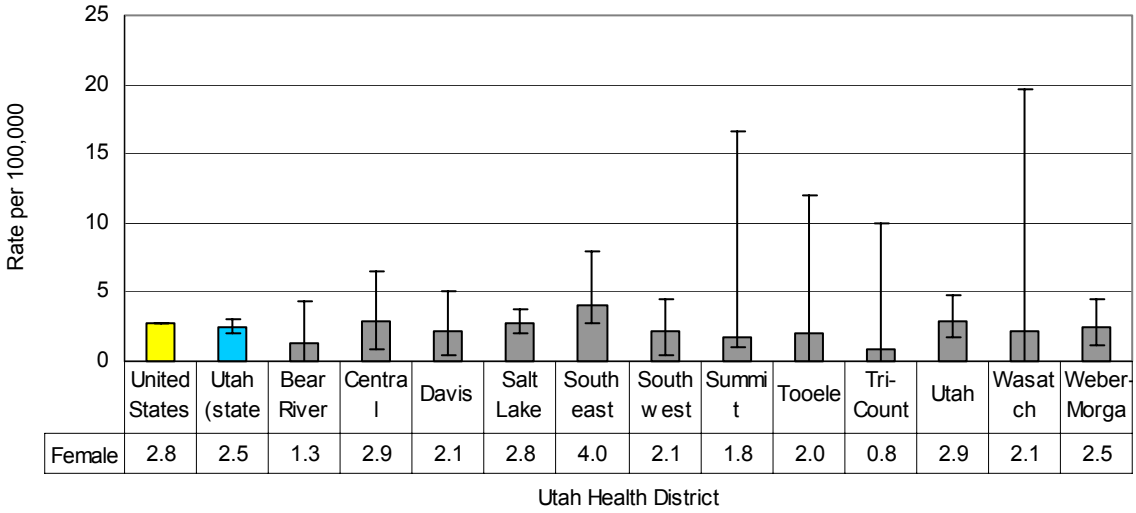
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	6.2	4.1	4.5	4.0	3.4	4.3	1.4	3.9	0.8	8.1	8.0	3.5	4.6	3.9

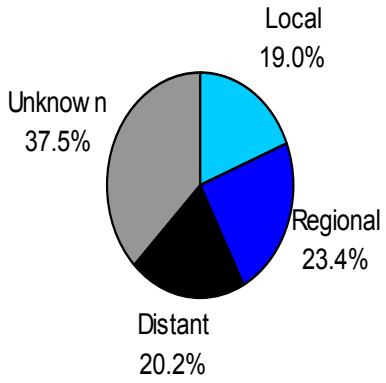
Female



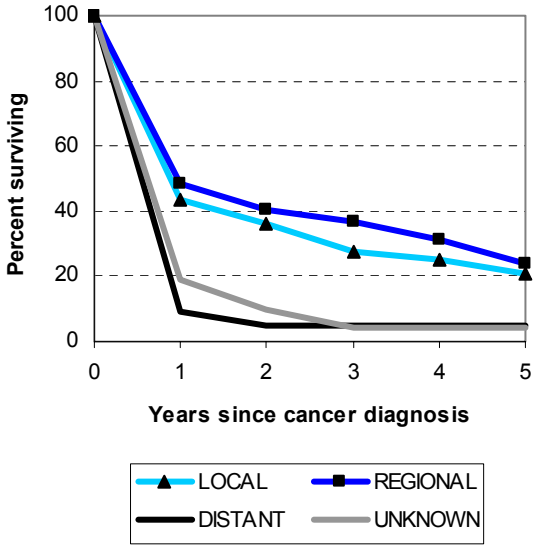
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	2.8	2.5	1.3	2.9	2.1	2.8	4.0	2.1	1.8	2.0	0.8	2.9	2.1	2.5

Liver & Intrahepatic Bile Duct | *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Pancreas

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	10.3	12.6	6.4	9.9
Rank among cancer incidence rates	9	8	11	8
Average annual number of new cases	66	14,220	52	15,300
Percent of all new cancer cases	2.0 %	2.2 %	1.8 %	2.4 %
Lifetime risk of this cancer (00-79 years)	1 in 97	1 in 78	1 in 154	1 in 100
Average annual age-adjusted mortality rates*	10.0	12.2	6.6	9.3
Rank among cancer mortality rates	5	4	6	4
Average annual number of deaths	63	13,619	54	14,468
Percent of all cancer deaths	5.3 %	4.8 %	5.0 %	5.6 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Pancreatic cancer is a highly fatal disease that frequently remains undetected until it has spread well beyond the tissue of origin. The incidence varies by ethnic and racial group in the United States: Blacks, American Indians, Hispanics, and Hawaiians are at higher risk for this disease than Whites.

Age-adjusted incidence rates for pancreatic cancer in Utah were relatively stable during the period 1981-2000 and were uniformly lower than nationwide rates. Age-specific incidence rates increase with age after 35 years, and are highest in those over 80 years of age. Males are at slightly greater risk for this disease than females.

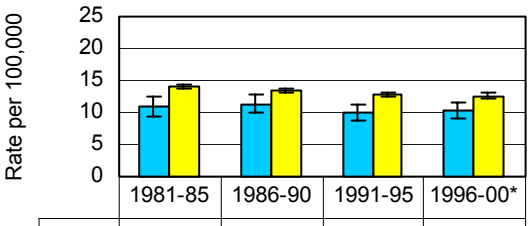
Because most cases of pancreatic cancer are diagnosed with metastatic disease, and because of the typically aggressive nature of this neoplasm, the overall prognosis for persons with this disease is poor.

Cigarette smokers are at higher risk than non-smokers for developing pancreatic cancer, though the increase in risk is not nearly as great as for lung cancer. No other causes of this disease have been firmly established, although alcohol and a high fat diet have been implicated in some studies. Avoidance of tobacco will prevent some cases from occurring; however, no other means to prevent this disease is currently known.

Pancreas | *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

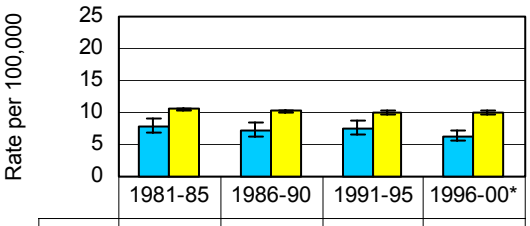
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	10.8	11.4	10.0	10.3
US	14.1	13.4	12.9	12.6

Year of diagnosis

Female

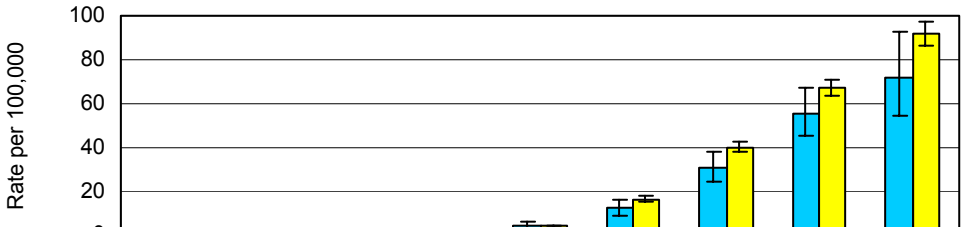


	1981-85	1986-90	1991-95	1996-00*
Utah	7.9	7.3	7.6	6.4
US	10.5	10.2	10.0	9.9

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

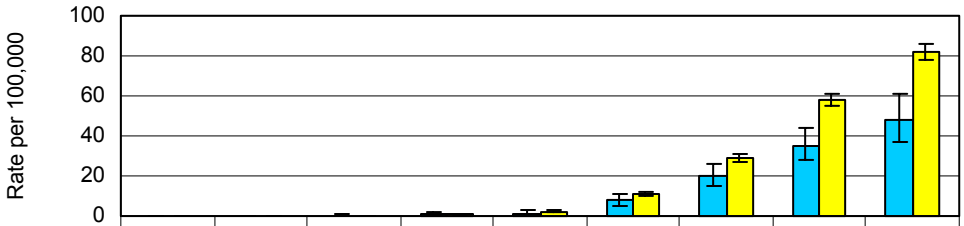
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.2	0	0.7	4.2	12.6	30.9	55.4	71.9
US	0	0	0.1	0.7	4.5	16.6	40.4	67.2	91.6

Age at diagnosis

Female



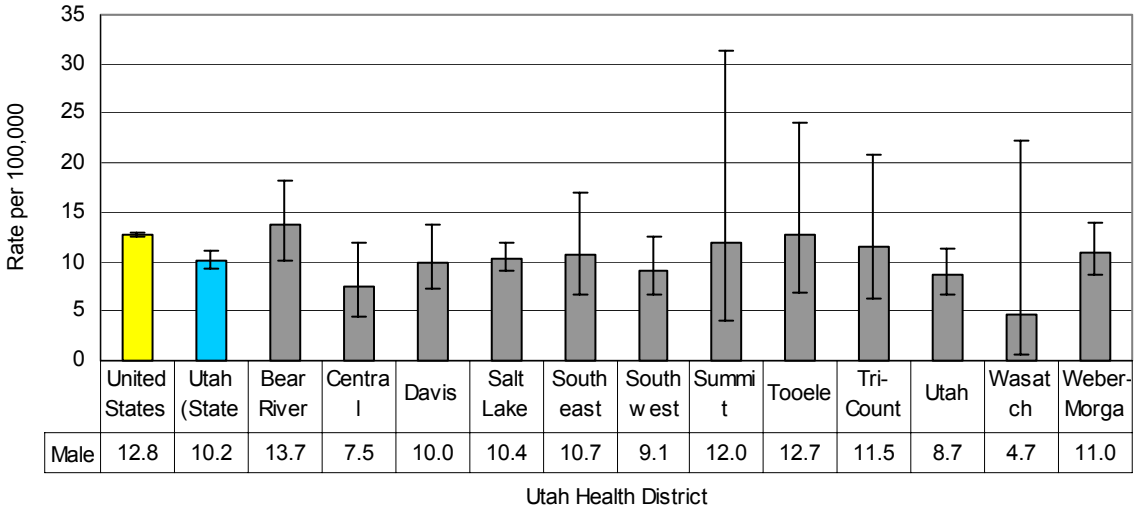
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.3	0.8	1.4	7.7	19.8	35.3	48.1
US	0	0	0.2	0.6	2.5	10.7	28.9	58	82.1

Age at diagnosis

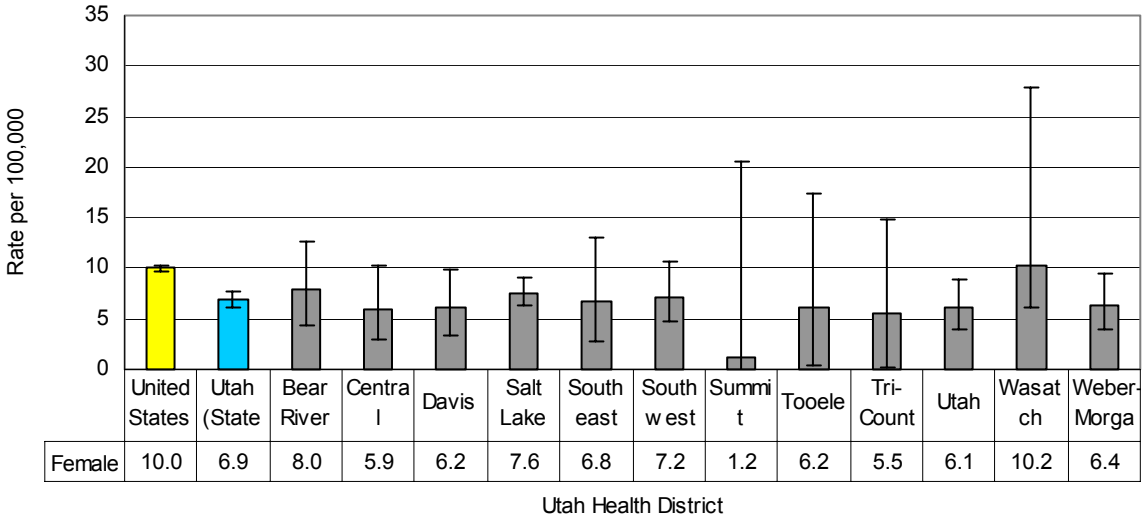
Pancreas — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



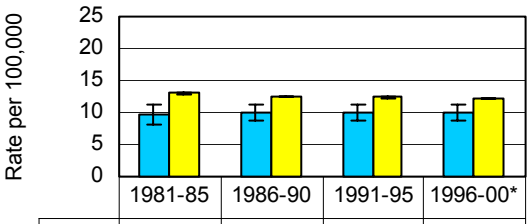
Female



Pancreas — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

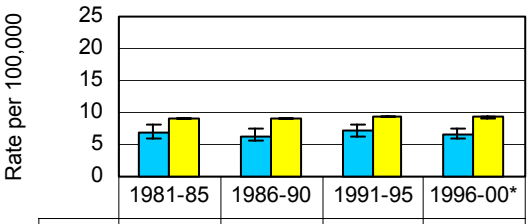
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	9.6	9.9	9.9	10.0
US	13.0	12.5	12.4	12.2

Year of death

Female

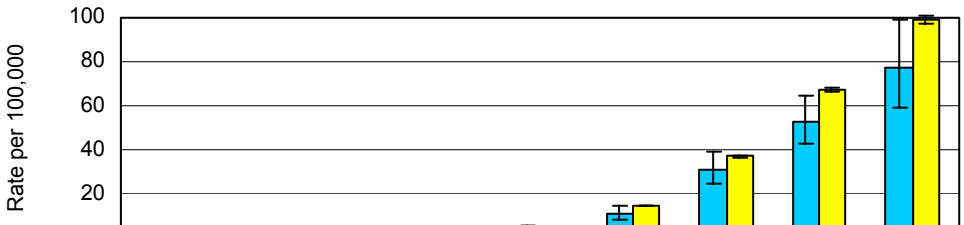


	1981-85	1986-90	1991-95	1996-00*
Utah	7.0	6.4	7.2	6.6
US	9.0	9.2	9.3	9.3

Year of death

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

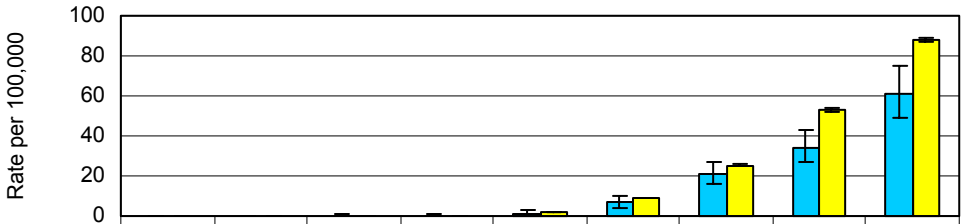
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0	0.4	3.3	10.9	31.2	52.8	76.9
US	0	0	0.1	0.6	3.7	14.4	36.9	67.1	98.7

Age at death

Female



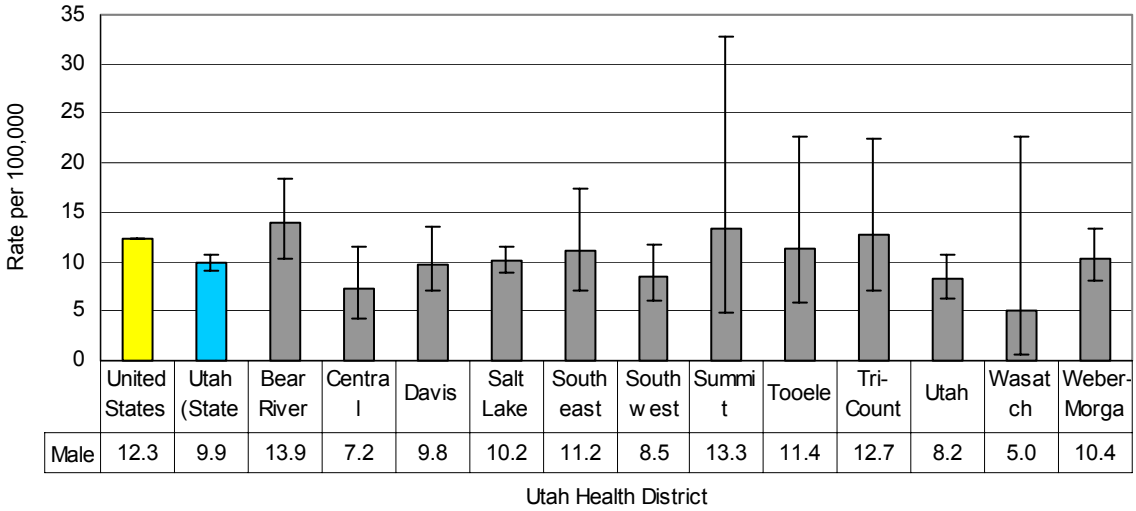
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.1	0.1	1.5	6.8	21.2	34.4	60.9
US	0	0	0	0.4	2.2	8.9	25.5	53.2	88.2

Age at death

Pancreas — *Mortality*

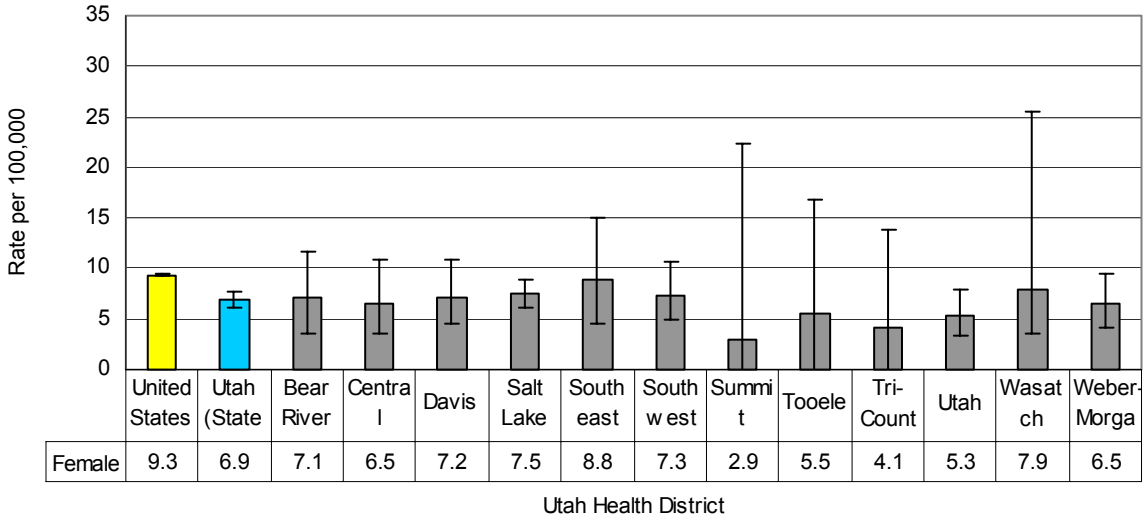
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	12.3	9.9	13.9	7.2	9.8	10.2	11.2	8.5	13.3	11.4	12.7	8.2	5.0	10.4

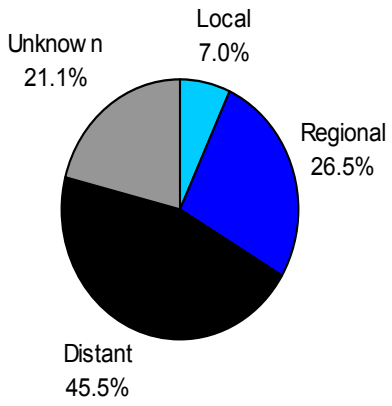
Female



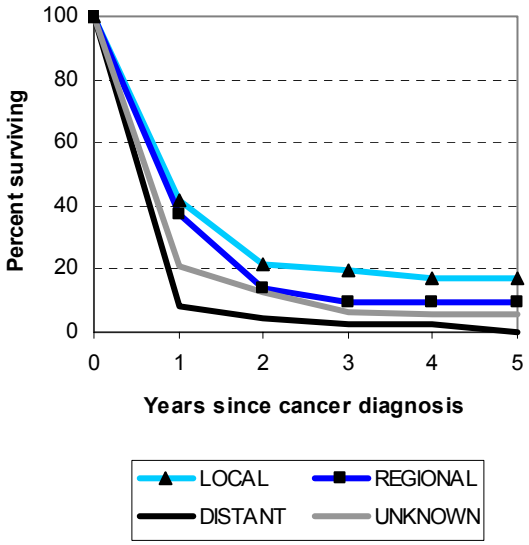
	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	9.3	6.9	7.1	6.5	7.2	7.5	8.8	7.3	2.9	5.5	4.1	5.3	7.9	6.5

Pancreas — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Larynx

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	3.6	7.1	0.9	1.7
Rank among cancer incidence rates	<20	13	<20	<20
Average annual number of new cases	24	8,370	7	2,460
Percent of all new cancer cases	0.7 %	1.3 %	0.2 %	0.4 %
Lifetime risk of cancer (00-79 years)	1 in 268	1 in 123	1 in 1,011	1 in 524
Average annual age-adjusted mortality rates*	1.0	2.7	0.2	0.6
Rank among cancer mortality rates	20	16	<20	<20
Average annual of deaths in Utah	6	3,026	2	826
Percent of all cancer deaths in Utah	0.5 %	1.1 %	0.2 %	0.3 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Virtually all tumors of the larynx are squamous cell carcinomas. Most of these tumors occur in the glottis and supraglottal region, while relatively few arise in the subglottal portion of the larynx. Because tobacco causes both lung and laryngeal tumors, the incidence rates for these two sites tend to follow similar patterns.

Males are at greater risk of laryngeal cancer than females. For both sexes, incidence rates increase with age after age 30 years, then decline after reaching their peak in the eighth decade of life. There was a slight decline in laryngeal cancer incidence rates among men during the period 1981-2000, while rates were relatively stable among women.

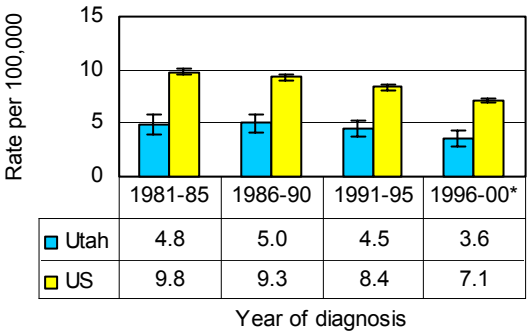
Tobacco and alcohol are the two primary risk factors that have been established for laryngeal cancer. As with oral and esophageal tumors, tobacco and alcohol act synergistically to increase the risk of this disease beyond simply adding the separate risks from each of these exposures. Some occupations have been associated with an increased risk, including those that involve exposure to asbestos, nickel, wood dust, formaldehyde, mustard gas, and alcohol. However, these occupational exposures are relatively rare and probably account for only a small percentage of all cases of laryngeal cancer. Recent studies suggest that consumption of fruits and vegetables may reduce the risk of laryngeal tumors.

Avoidance of tobacco products and drinking alcohol in moderation are the two most important measures to prevent this disease. Increasing one's dietary

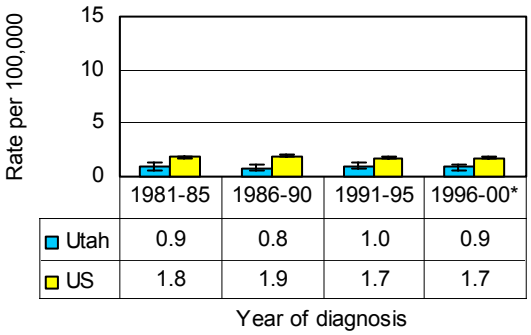
Larynx — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male

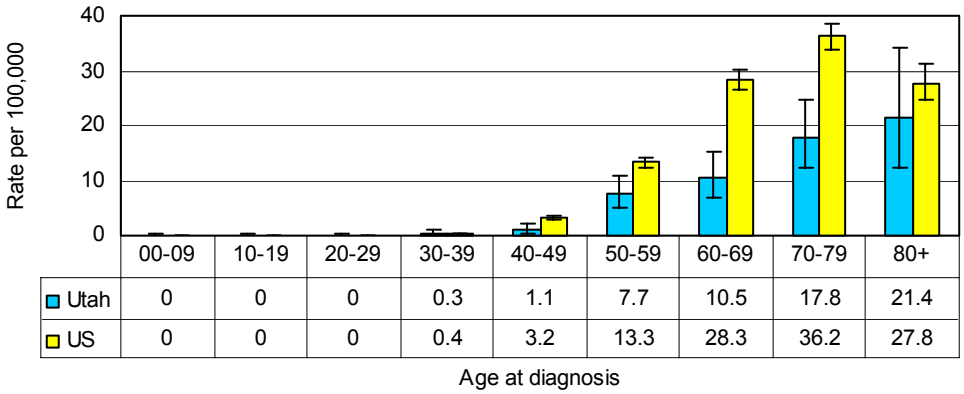


Female

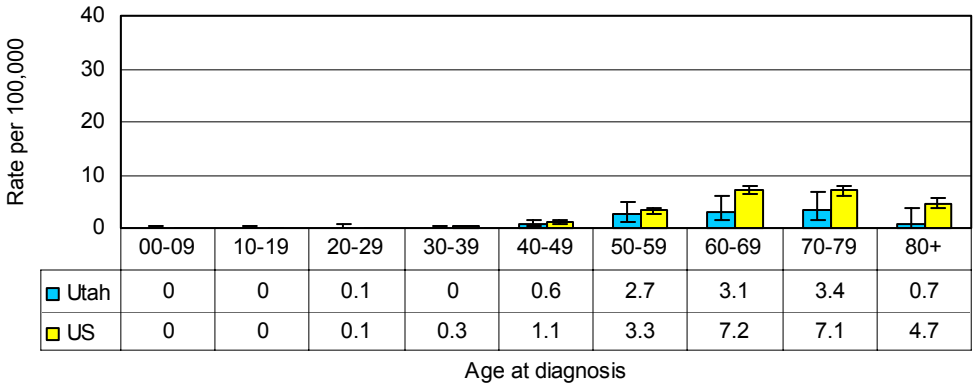


Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



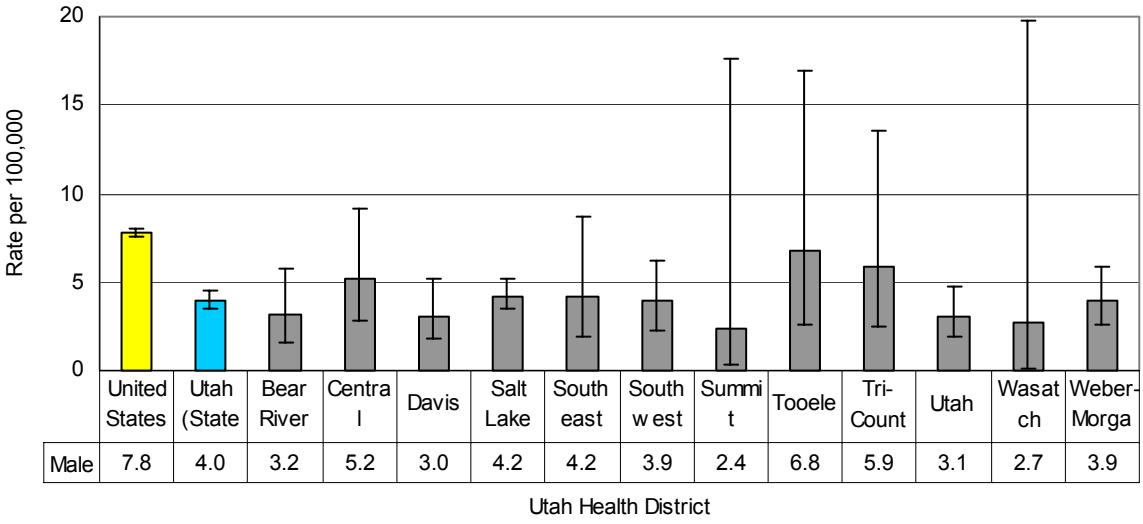
Female



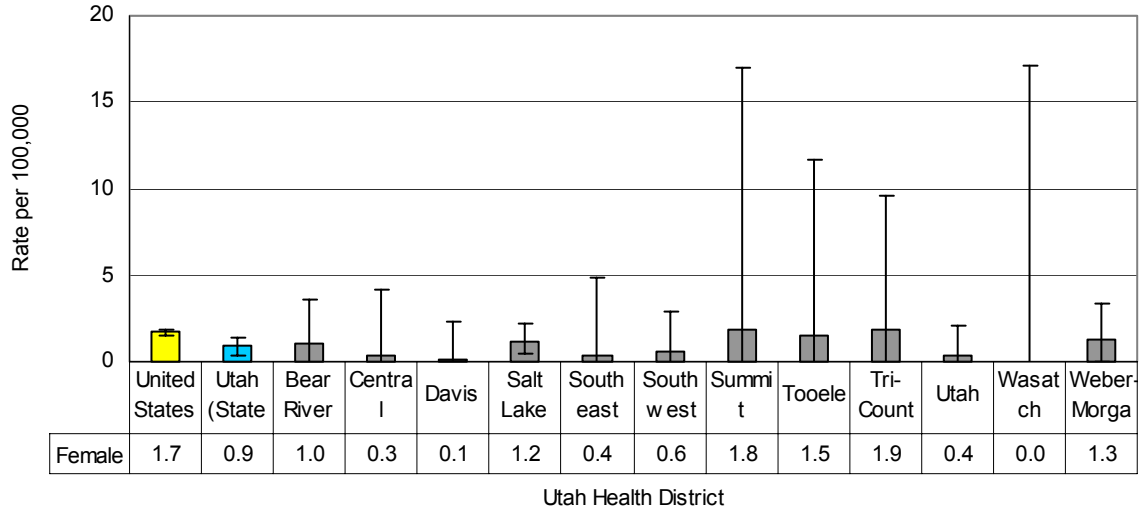
Larynx — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



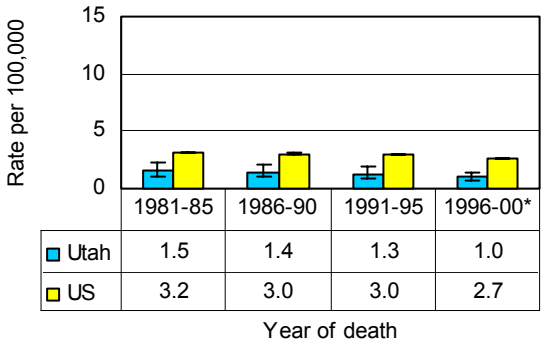
Female



Larynx — *Mortality*

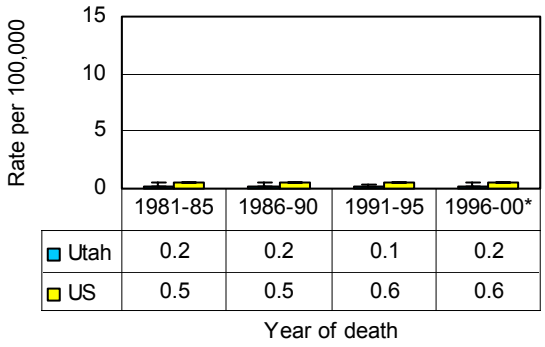
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	1.5	1.4	1.3	1.0
US	3.2	3.0	3.0	2.7

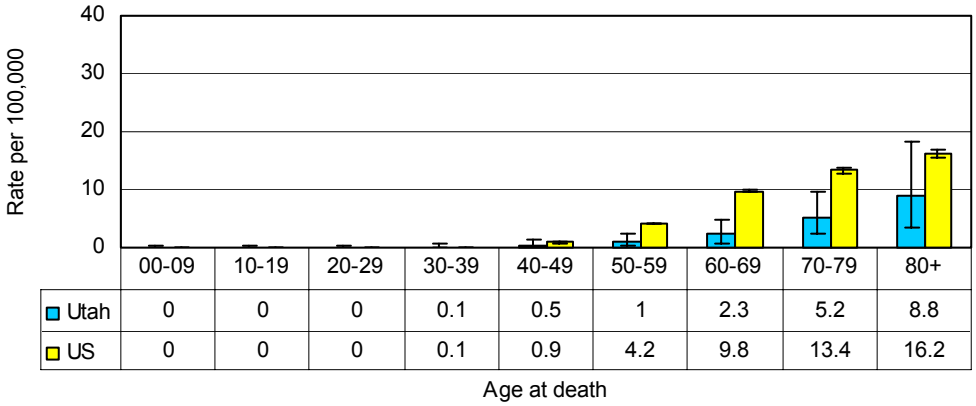
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	0.2	0.2	0.1	0.2
US	0.5	0.5	0.6	0.6

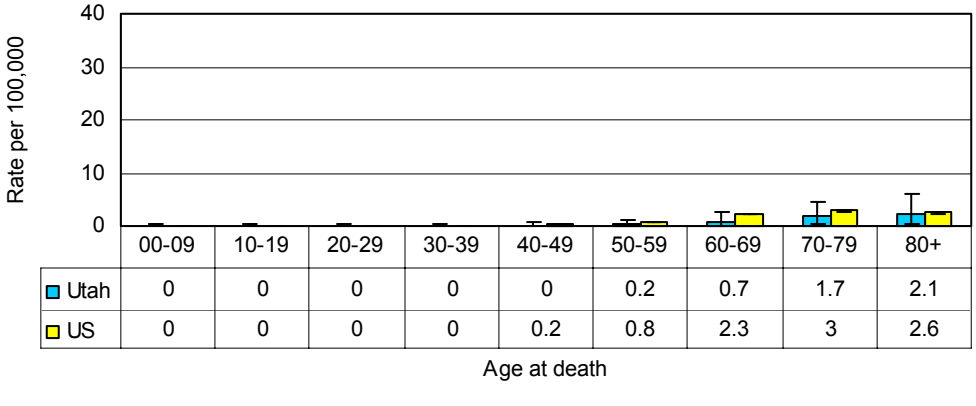
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.1	0.5	1	2.3	5.2	8.8
US	0	0	0	0.1	0.9	4.2	9.8	13.4	16.2

Female

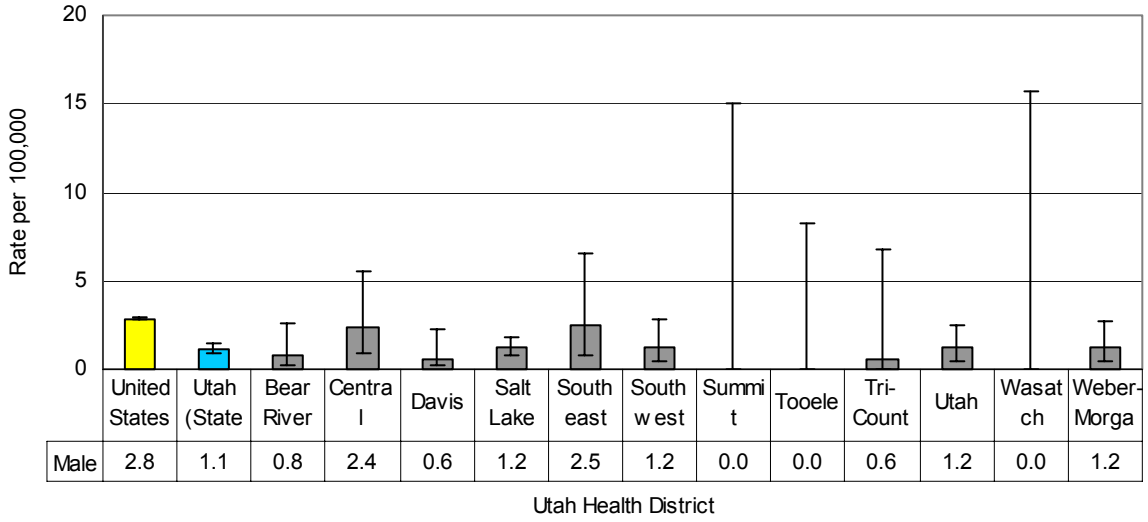


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0	0	0.2	0.7	1.7	2.1
US	0	0	0	0	0.2	0.8	2.3	3	2.6

Larynx — *Mortality*

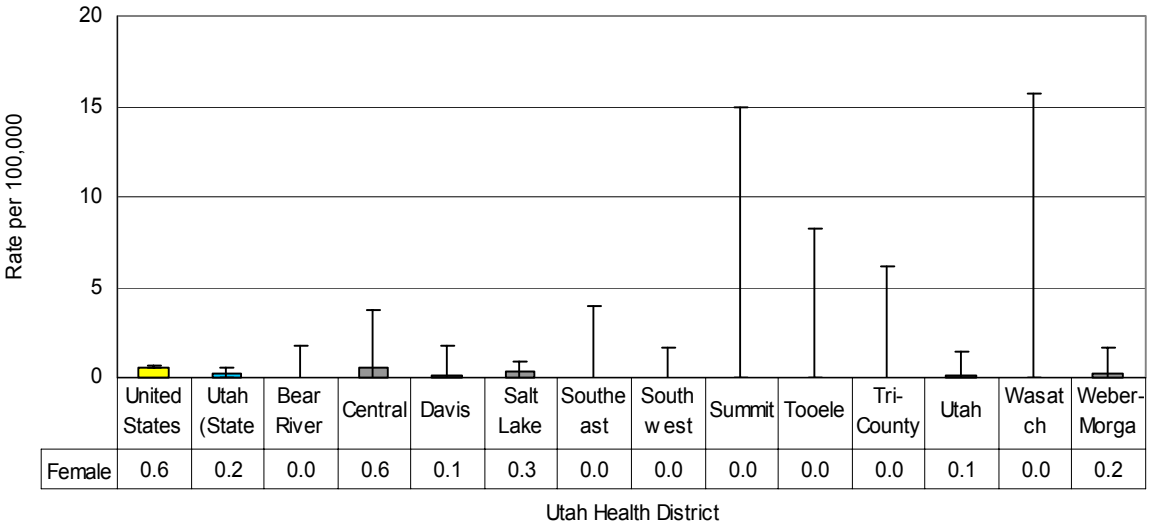
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	2.8	1.1	0.8	2.4	0.6	1.2	2.5	1.2	0.0	0.0	0.6	1.2	0.0	1.2

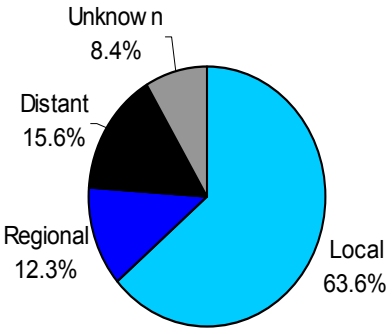
Female



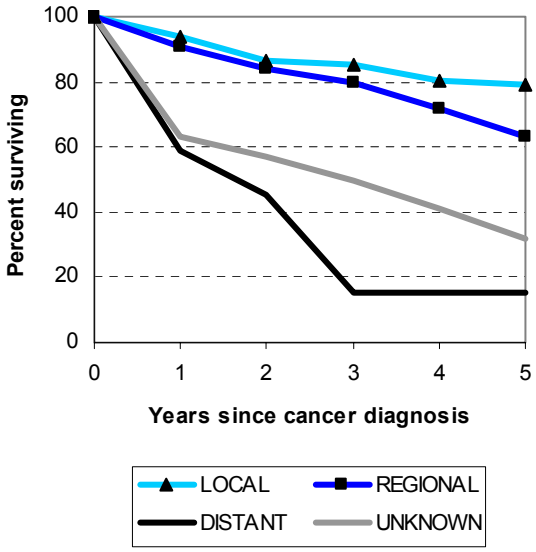
	United States	Utah (State	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	0.6	0.2	0.0	0.6	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2

Larynx — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Lung and Bronchus

Summary	Male		Female	
	Utah 1996-2000	US 1996-98	Utah 1996-2000	US 1996-98
Average annual age-adjusted incidence rates*	42.5	85.1	22.6	51.7
Rank among cancer incidence rates	3	2	4	2
Average annual number of new cases	278	97,090	181	77,220
Percent of all new cancer cases	8.5 %	15.0 %	6.2 %	12.2 %
Lifetime risk of this cancer (00-79 years)	1 in 21	1 in 11	1 in 40	1 in 17
Average annual age-adjusted mortality rates*	37.7	80.4	17.9	41.1
Rank among cancer mortality rates	1	1	2	1
Average annual number of deaths	240	90,907	144	62,002
Percent of all cancer deaths	20.1 %	32.2 %	13.5 %	23.9 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Incidence rates for lung cancer in Utah are among the lowest in the nation and reflect low rates of tobacco use in the State. Declining incidence rates of lung cancer in men since the mid-1980's are due to earlier drops in cigarette consumption. However, increasing lung cancer incidence rates among women reflect growing use of tobacco among women in Utah and in the United States.

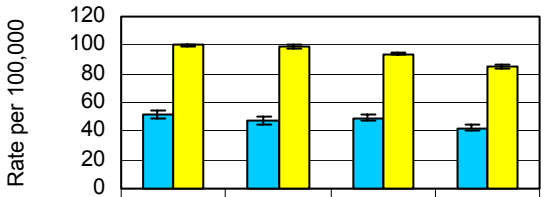
Cigarette smoking is the leading cause of lung cancer in the United States. Over eighty-five percent of lung cancer deaths are attributable to cigarette smoking. A number of studies have shown an increased risk of lung cancer among non-smokers exposed to cigarette smoke, and such passive smoking probably accounts for a portion of the remaining deaths. Although cigarette smoking accounts for the majority of lung cancer cases, other factors have also been implicated in the etiology of this disease, including occupational exposure to asbestos and uranium.

Only a small proportion of lung cancers are diagnosed at an early stage, and overall survival rates for this disease are low. The 1990 Surgeon General's Report focused on the benefits of smoking cessation, and emphasized that the risk of lung cancer among former smokers decreases with time since cessation of smoking. The most important preventive measure for lung cancer is avoidance of cigarettes.

Lung and Bronchus — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

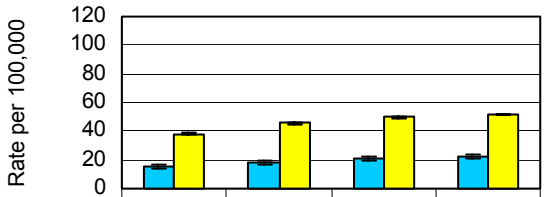
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	51.6	47.0	49.4	42.5
US	100.1	99.0	93.7	85.1

Year of diagnosis

Female

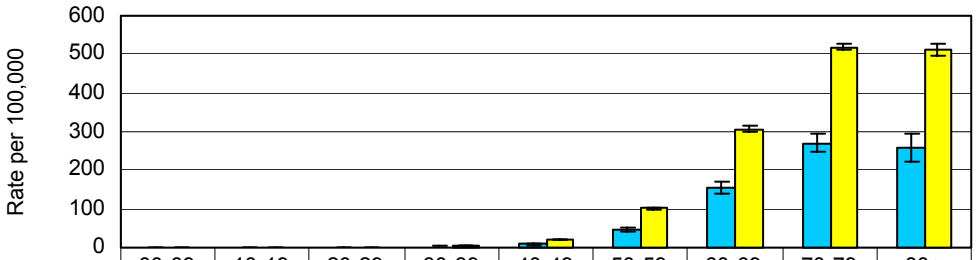


	1981-85	1986-90	1991-95	1996-00*
Utah	15.9	18.6	20.5	22.6
US	37.9	45.4	50.0	51.7

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

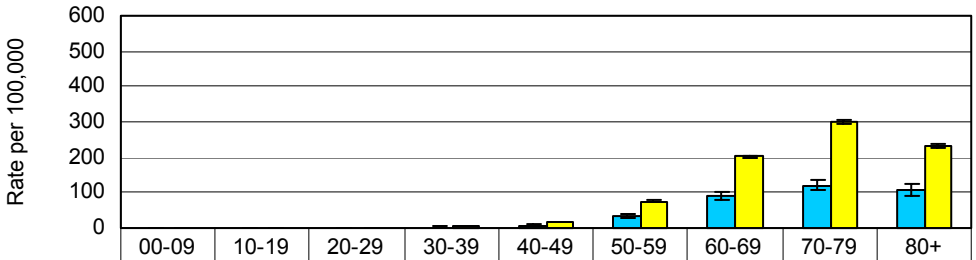
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0.2	2.2	8.8	45.9	152.8	271.1	257.2
US	0	0.1	0.4	3.2	21.1	102.4	307.7	519.2	511.5

Age at diagnosis

Female



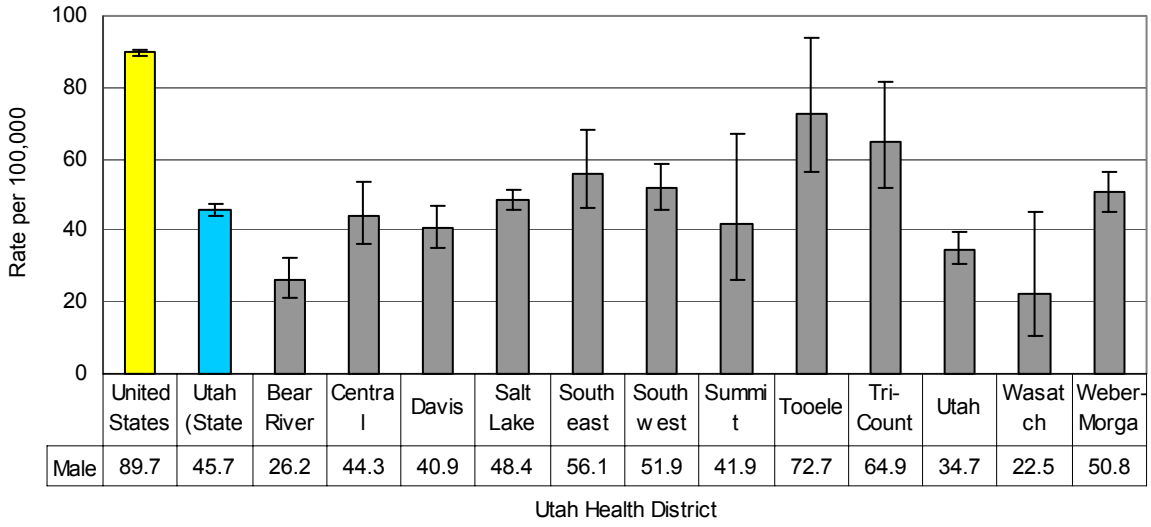
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.3	1.6	7.2	34.5	91.6	121.1	106.1
US	0	0.1	0.5	3.2	16.6	75.5	201.6	300.7	233.2

Age at diagnosis

Lung and Bronchus — *Incidence*

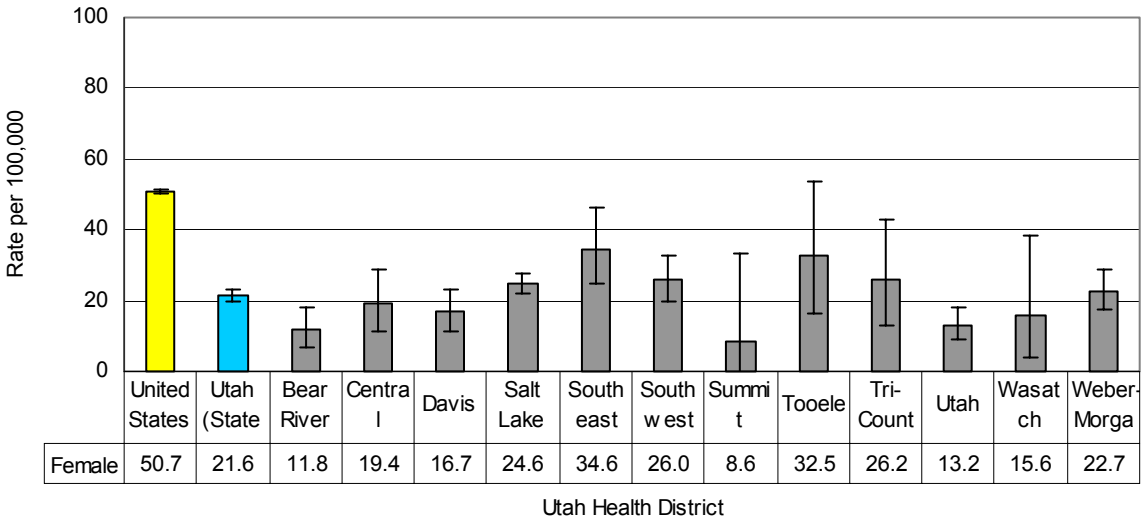
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	89.7	45.7	26.2	44.3	40.9	48.4	56.1	51.9	41.9	72.7	64.9	34.7	22.5	50.8

Female

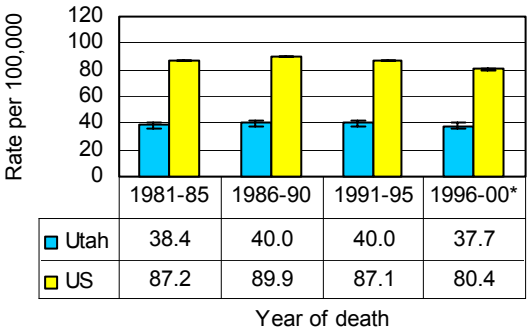


	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	50.7	21.6	11.8	19.4	16.7	24.6	34.6	26.0	8.6	32.5	26.2	13.2	15.6	22.7

Lung and Bronchus — *Mortality*

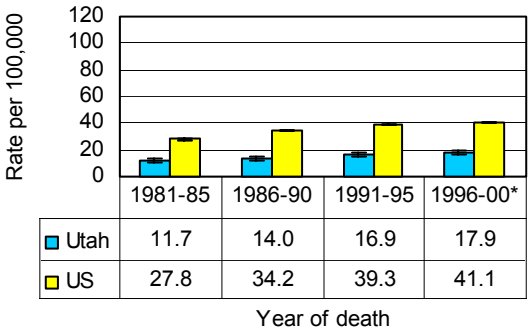
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	38.4	40.0	40.0	37.7
US	87.2	89.9	87.1	80.4

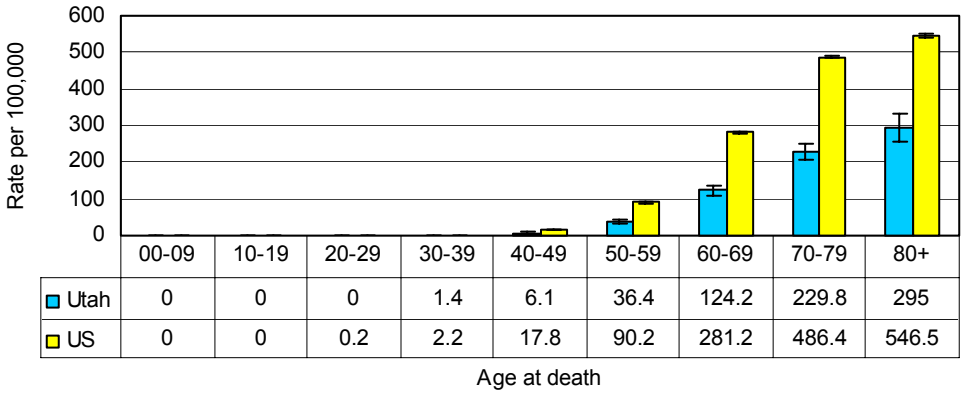
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	11.7	14.0	16.9	17.9
US	27.8	34.2	39.3	41.1

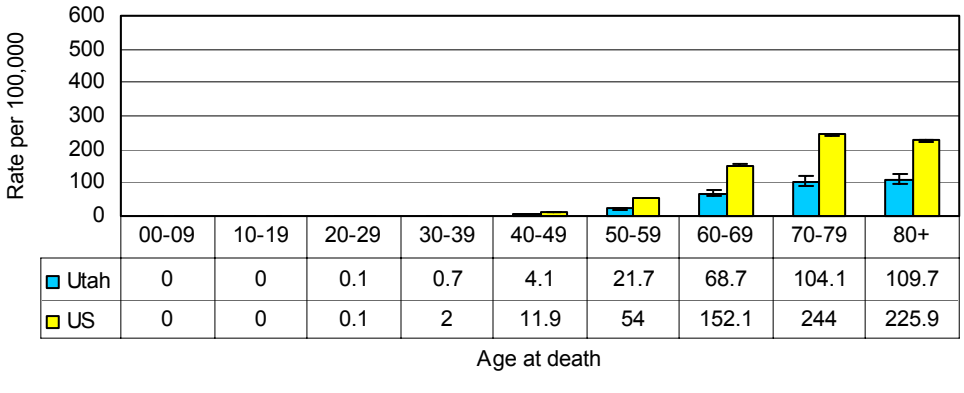
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	1.4	6.1	36.4	124.2	229.8	295
US	0	0	0.2	2.2	17.8	90.2	281.2	486.4	546.5

Female

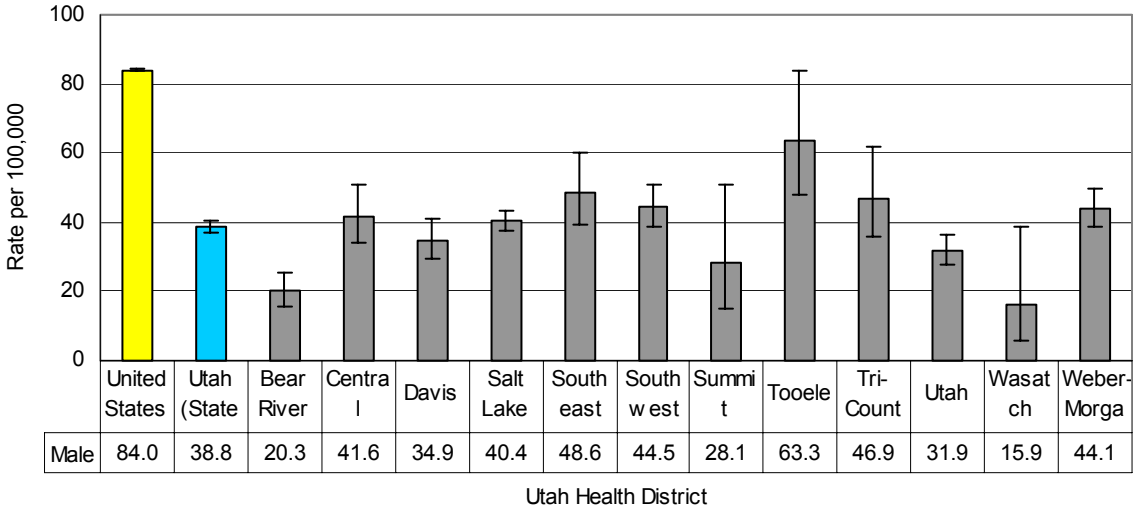


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.1	0.7	4.1	21.7	68.7	104.1	109.7
US	0	0	0.1	2	11.9	54	152.1	244	225.9

Lung and Bronchus — *Mortality*

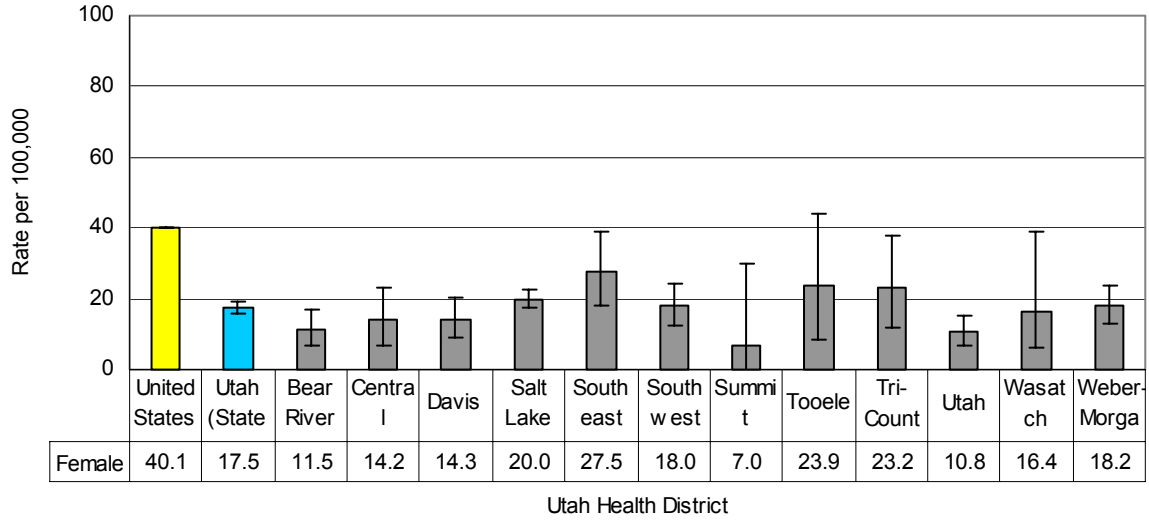
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Male	84.0	38.8	20.3	41.6	34.9	40.4	48.6	44.5	28.1	63.3	46.9	31.9	15.9	44.1

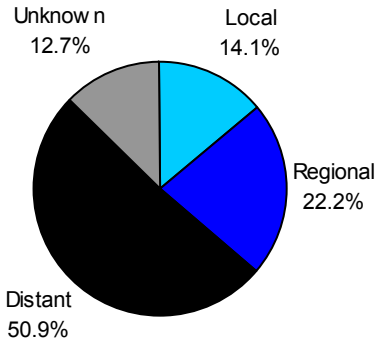
Female



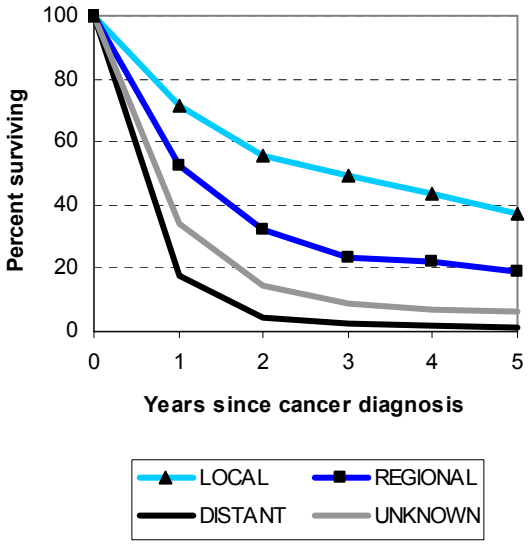
	United States	Utah (State	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	40.1	17.5	11.5	14.2	14.3	20.0	27.5	18.0	7.0	23.9	23.2	10.8	16.4	18.2

Lung and Bronchus — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000

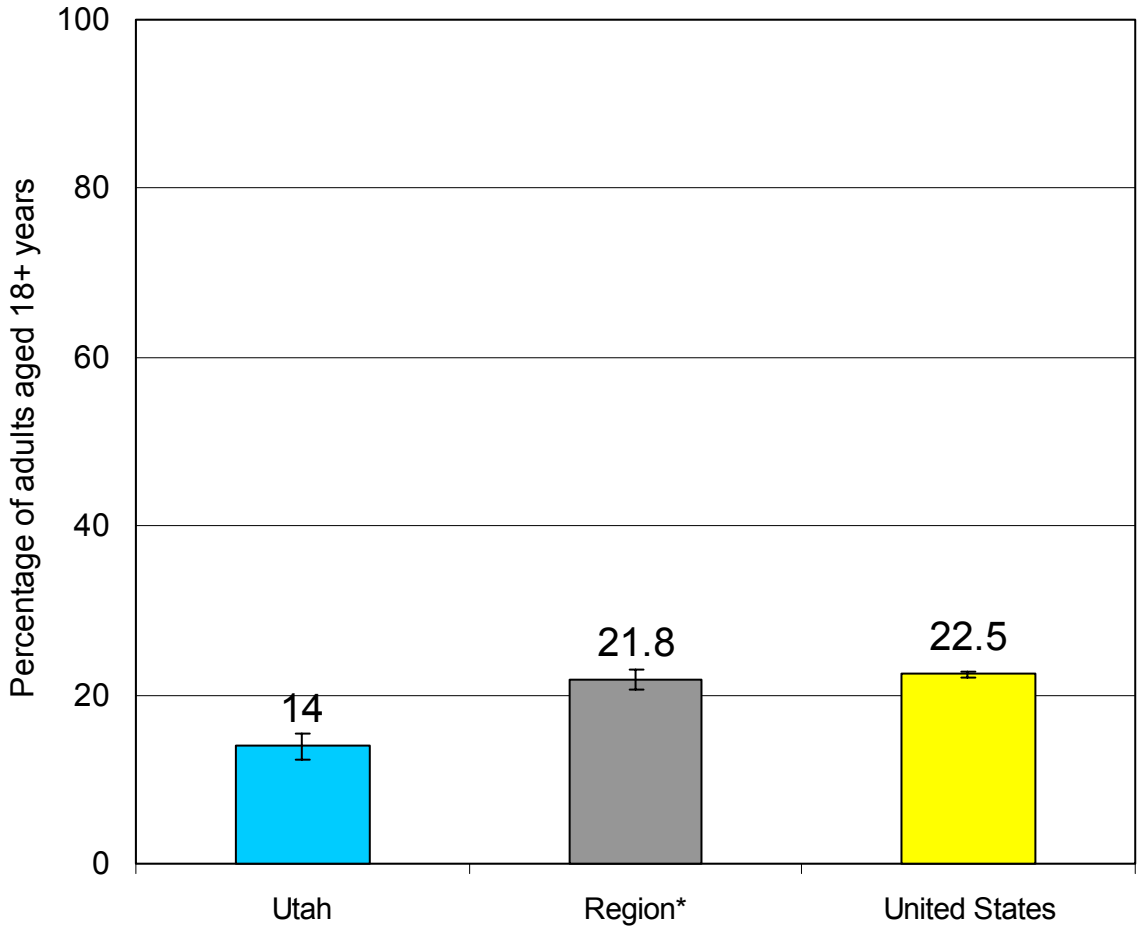


5-year relative survival by stage:
Utah residents diagnosed 1991-95



Lung and Bronchus | *Tobacco Use*

Percentage of Utah adults, 18 years of age and older,
who reported current cigarette smoking
(Survey conducted in calendar year 1999)



* Seven Western States including Arizona, Colorado, Idaho, Nevada, New Mexico, Utah, and Wyoming

Source: Behavioral Risk Factor Surveillance System

This page intentionally blank

Cutaneous Melanoma

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	25.2	21.5	16.7	14.5
Rank among cancer incidence rates	5	6	5	7
Average annual number of new cases	184	25,640	147	20,530
Percent of all new cancer cases	5.6 %	4.0 %	5.1 %	3.4 %
Lifetime risk of this cancer (00-79 years)	1 in 43	1 in 48	1 in 64	1 in 78
Average annual age-adjusted mortality rates*	4.4	4.0	2.1	1.8
Rank among cancer mortality rates	12	14	12	17
Average annual number of deaths	30	4,564	18	2,727
Percent of all cancer deaths	2.5 %	1.6 %	1.7 %	1.1 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Cutaneous malignant melanoma arises from melanocytes, the body's pigment-producing cells. The most common types of skin cancers are basal and squamous cell carcinomas, which are usually slow growing, readily treatable, and rarely pose a significant health problem. Malignant melanoma, while much rarer, is often an aggressive tumor that can spread throughout the body.

In Utah and in the United States, incidence rates of cutaneous malignant melanoma increased during the period 1981-2000. The age-specific incidence rates for melanoma begin to rise shortly after adolescence and reach their peak in those over 70 years of age.

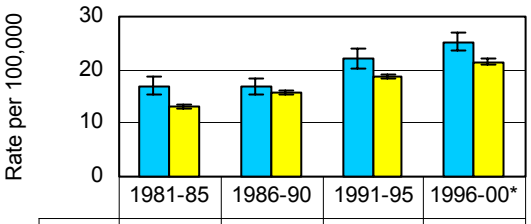
Among white populations, exposure to ultraviolet (UV) radiation is thought to be the primary risk factor for malignant melanoma of the skin. However, cumulative exposure to UV radiation seems to be less important than how the exposure is received. Large, damaging doses that result in blistering sunburns, particularly at an early age, are considered to be the most detrimental exposures. Genetic factors predispose some individuals to develop malignant melanoma. Individuals with fair skin, numerous moles, and a familial history of malignant melanoma are at increased risk for the disease.

Preventive measures for malignant melanoma include use of topical sunscreens or protective clothing, and avoidance of exposure to intense sunlight, especially by the young. Individuals at high risk of melanoma should exercise particular care to avoid intense exposure to sunlight. Early evaluation of suspicious pigmented lesions may also be of use in reducing mortality from this disease.

Cutaneous Melanoma — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

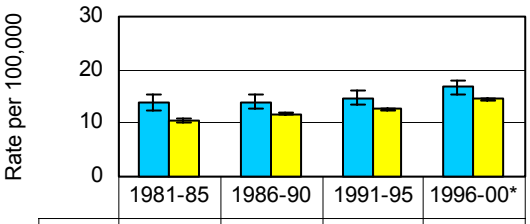
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	16.9	16.7	22.1	25.2
US	13.1	15.9	18.8	21.5

Year of diagnosis

Female

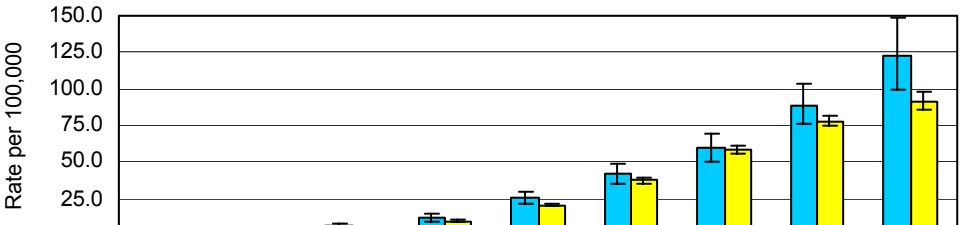


	1981-85	1986-90	1991-95	1996-00*
Utah	13.7	13.9	14.8	16.7
US	10.4	11.7	12.6	14.5

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

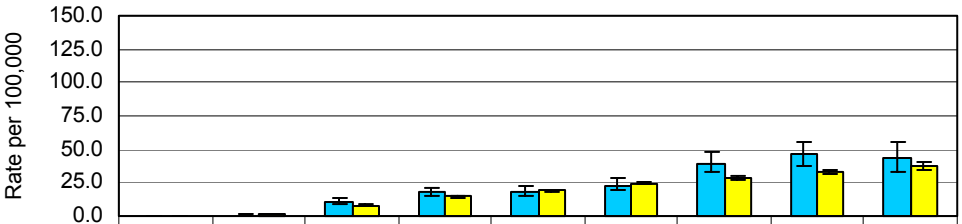
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.0	1.1	6.2	11.9	25.5	42.1	59.8	89.3	122.3
US	0.1	0.7	4.5	10.1	20.8	37.7	58.1	78.2	92.0

Age at diagnosis

Female



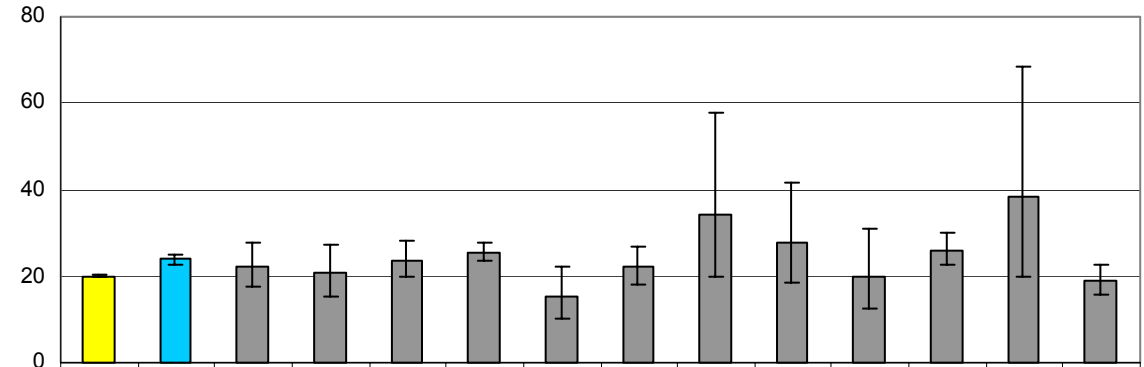
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0.7	11.1	17.3	18.4	23.2	39.5	46.3	43.9
US	0.1	1.0	8.0	14.9	19.2	24.7	28.5	33.0	37.7

Age at diagnosis

Cutaneous Melanoma — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

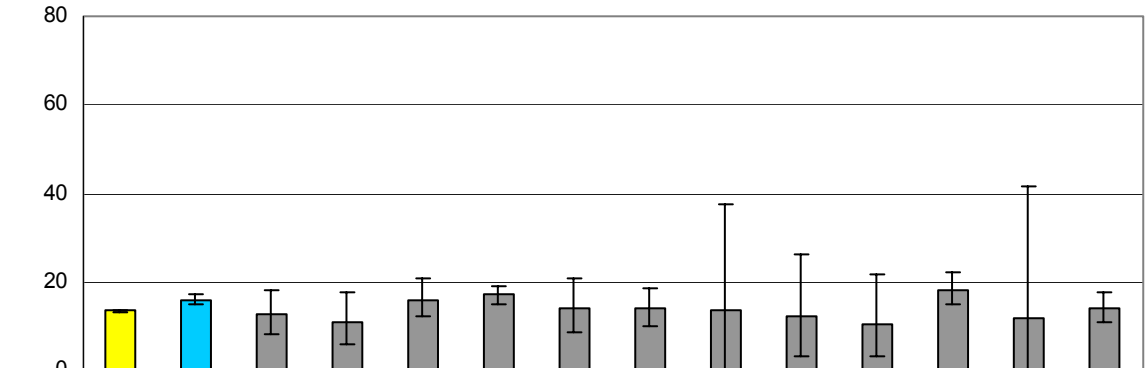
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	20.1	23.9	22.2	20.6	23.7	25.6	15.4	22.1	34.1	27.7	19.8	26.1	38.4	18.8

Utah Health District

Female



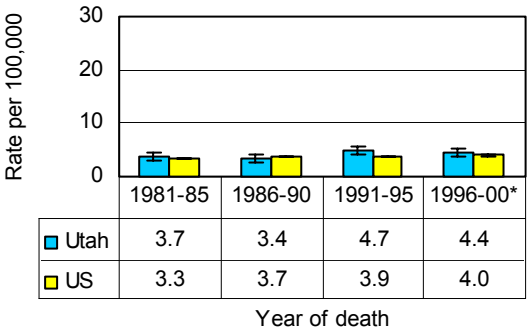
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	13.5	15.9	12.8	11.0	16.0	17.0	13.8	13.9	13.4	12.1	10.3	18.2	11.6	14.0

Utah Health District

Cutaneous Melanoma — *Mortality*

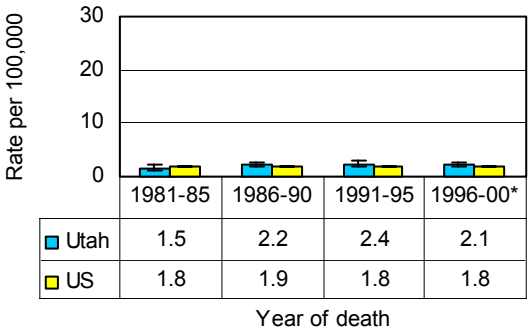
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	3.7	3.4	4.7	4.4
US	3.3	3.7	3.9	4.0

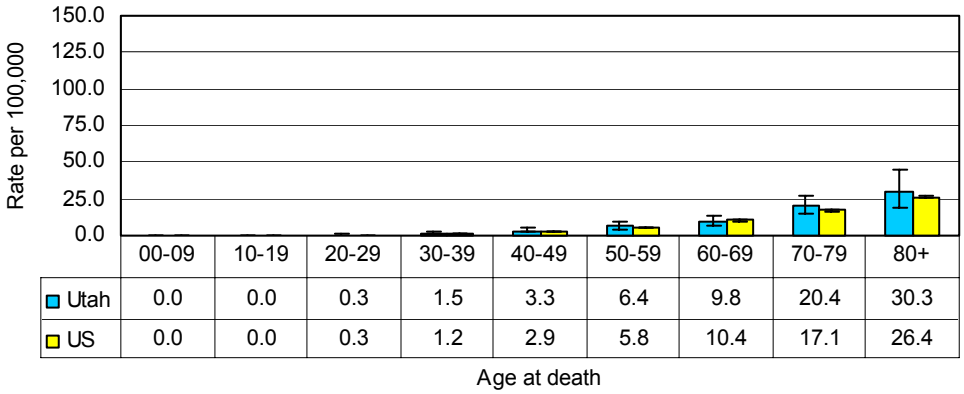
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	1.5	2.2	2.4	2.1
US	1.8	1.9	1.8	1.8

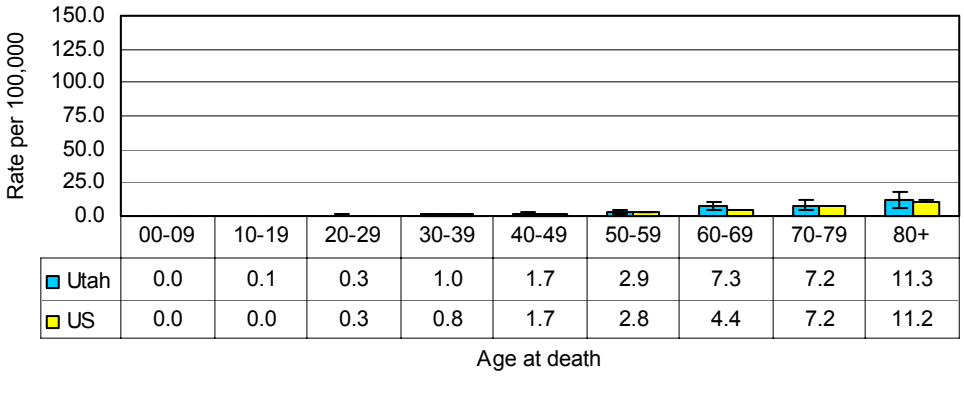
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.0	0.0	0.3	1.5	3.3	6.4	9.8	20.4	30.3
US	0.0	0.0	0.3	1.2	2.9	5.8	10.4	17.1	26.4

Female

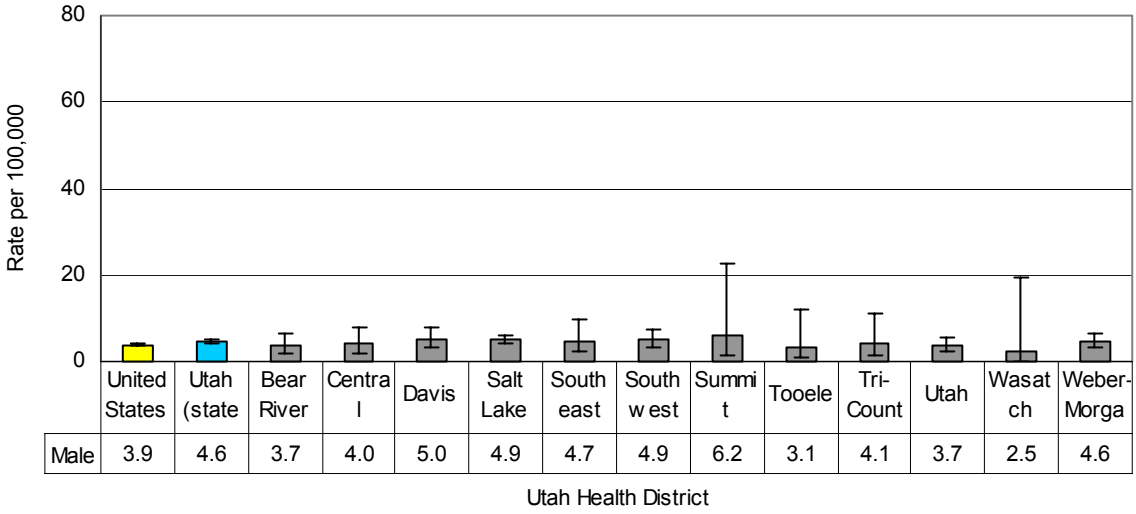


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.0	0.1	0.3	1.0	1.7	2.9	7.3	7.2	11.3
US	0.0	0.0	0.3	0.8	1.7	2.8	4.4	7.2	11.2

Cutaneous Melanoma — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

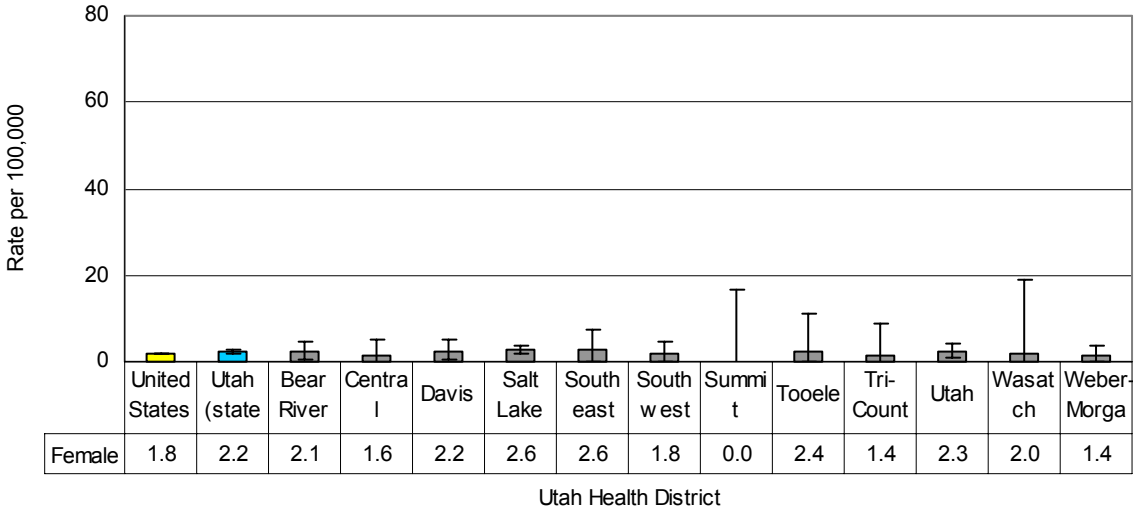
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	3.9	4.6	3.7	4.0	5.0	4.9	4.7	4.9	6.2	3.1	4.1	3.7	2.5	4.6

Utah Health District

Female

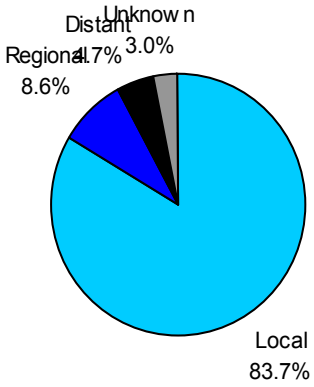


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	1.8	2.2	2.1	1.6	2.2	2.6	2.6	1.8	0.0	2.4	1.4	2.3	2.0	1.4

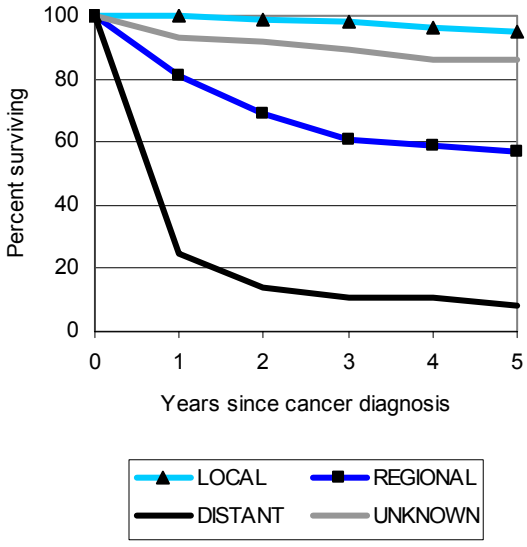
Utah Health District

Cutaneous melanoma — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-99



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Female Breast

Summary	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	119.3	137.7
Rank among cancer incidence rates	1	1
Average annual number of new cases	965	197,820
Percent of all new cancer cases	33.2 %	31.8 %
Lifetime risk of this cancer (00-79 years)	1 in 9	1 in 8
Average annual age-adjusted mortality rates*	24.2	28.3
Rank among cancer mortality rates	1	2
Average annual of deaths	196	41,978
Percent of all cancer deaths	18.4 %	16.2 %
* Rates per 100,000 and standardized to the 2000 U.S. population		

Breast cancer is presently the most common type of malignancy diagnosed among women in Utah and in the United States. However, incidence rates for breast cancer among women in Utah are approximately 10-15 percent lower than comparable nationwide rates.

Genetic factors contribute to the risk of breast cancer. The relatively recent discovery of specific genes that predispose to breast cancer (e.g., BRCA1 and BRCA2) was an important step toward the understanding of breast and other cancers. Nonetheless, it is estimated that BRCA1 and BRCA2 are collectively responsible for less than ten percent of all cases of the disease.

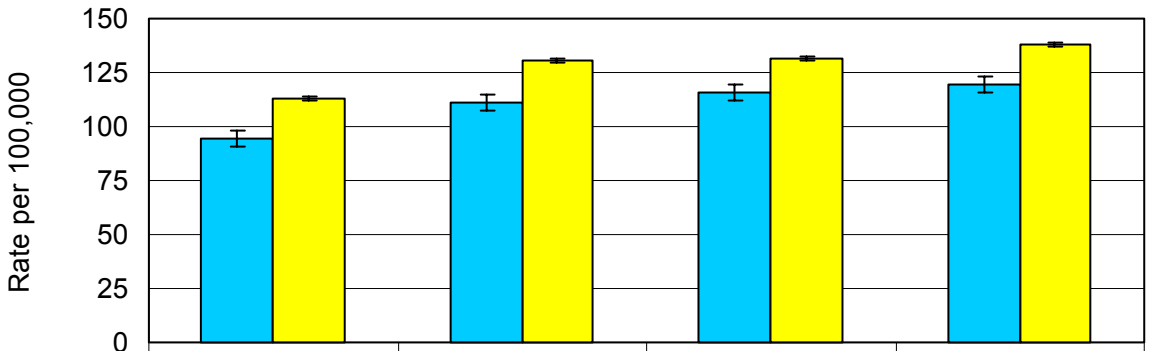
Epidemiological studies have repeatedly shown that women of high socioeconomic status are generally at higher risk for breast cancer than other women. Large international differences in rates of breast cancer have been related to variations in diet, especially dietary fats, although a causal role for these substances has not been firmly established. Risk is higher in nulliparous than parous women and, among the latter, risk increases as the age at which a woman experiences her first term pregnancy increases. Early menarche is also associated with an increased risk of the disease. Utah has one of the highest fertility rates in the US; this high fertility rate may partially account for the relatively low risk of breast cancer in the state.

Radiation exposure is associated with an increased risk of breast cancer, although this is a rare cause of the disease. It should be noted that the current doses of radiation received during mammography are unlikely to appreciably increase the risk of breast cancer.

There are no practical means to prevent the development of breast cancer. However, routine screening for breast cancer has been shown to reduce mortality from the disease. Mammography is considered the best method for detecting breast cancer early. Unfortunately, Utah women are less likely than women nationwide to have had a mammogram. In 1999, for example, approximately 67 percent of women 40 years of age and older reported ever having had a mammogram, compared with 74 percent of women nationwide.

Female Breast — *Incidence*

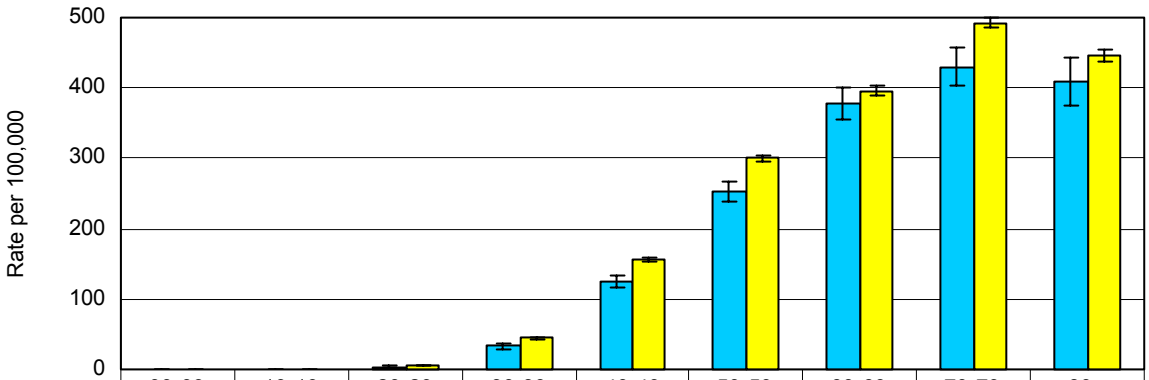
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	94.4	111.1	115.4	119.3
US	112.8	130.2	131.6	137.7

Year of diagnosis

Average annual age-specific incidence rates per 100,000, 1996-2000

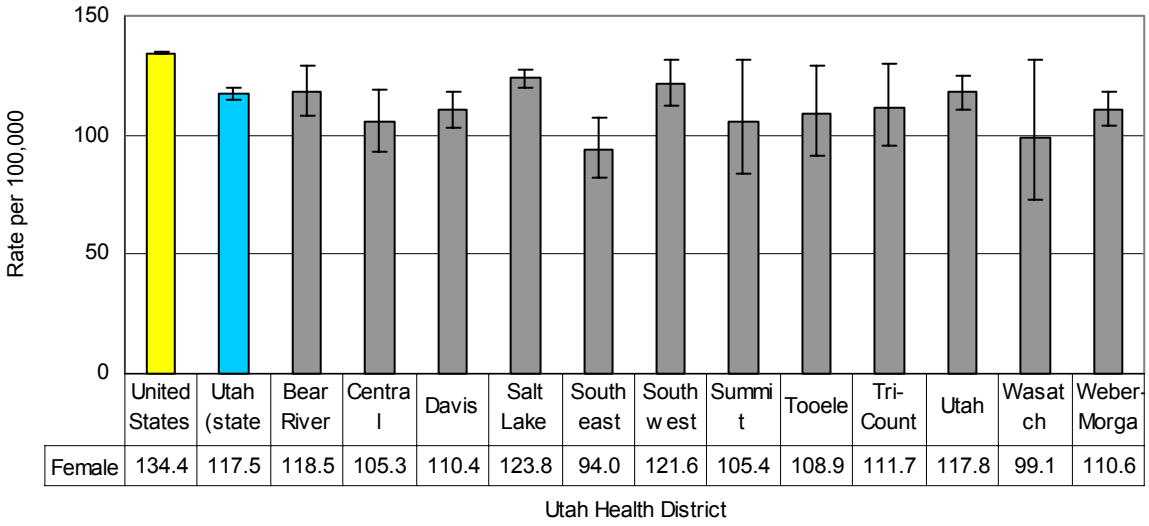


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	3.2	33.5	124.4	252.5	378.1	429.3	409
US	0	0.1	5.1	44.2	156.3	300.5	395.7	492.5	445.8

Age at diagnosis

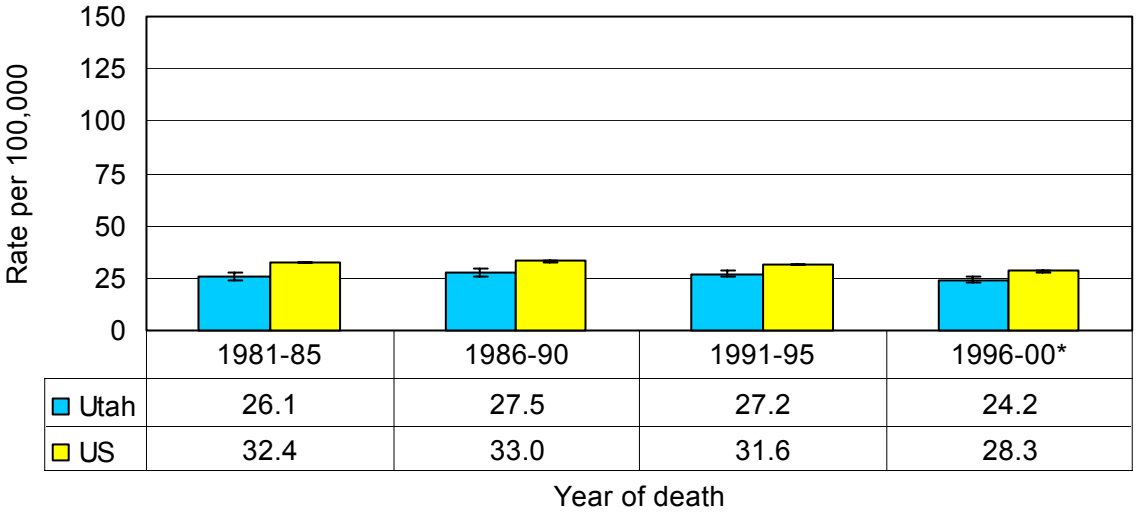
Female Breast — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



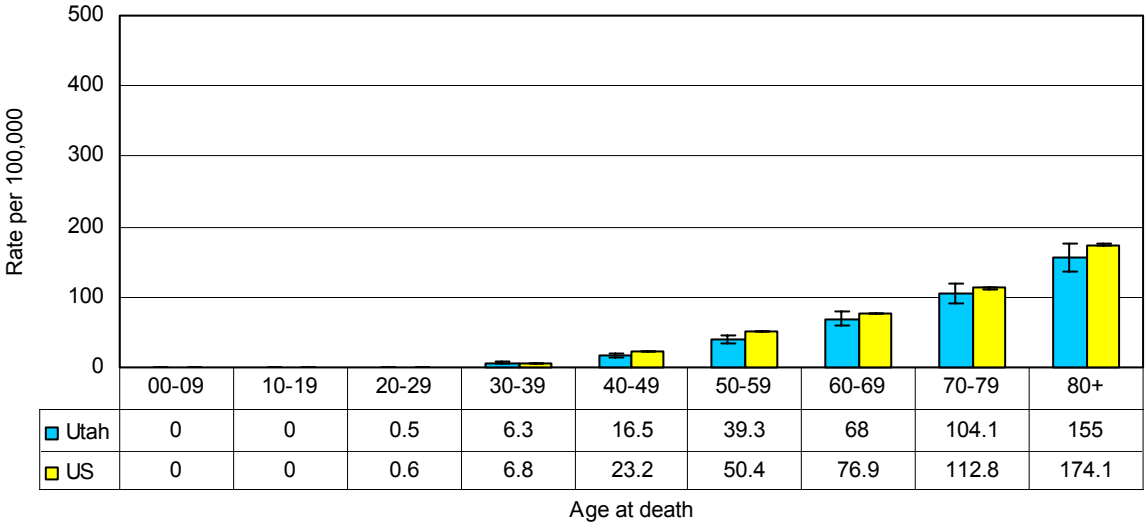
Female Breast — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	26.1	27.5	27.2	24.2
US	32.4	33.0	31.6	28.3

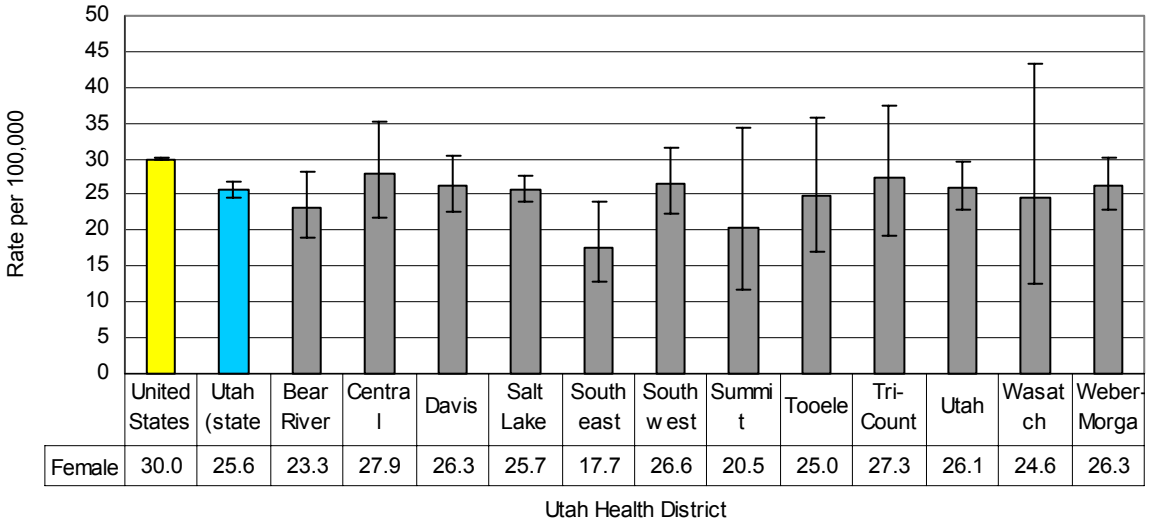
Average annual age-specific mortality rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.5	6.3	16.5	39.3	68	104.1	155
US	0	0	0.6	6.8	23.2	50.4	76.9	112.8	174.1

Female Breast | *Mortality*

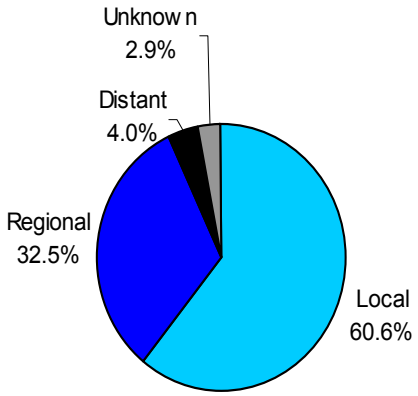
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



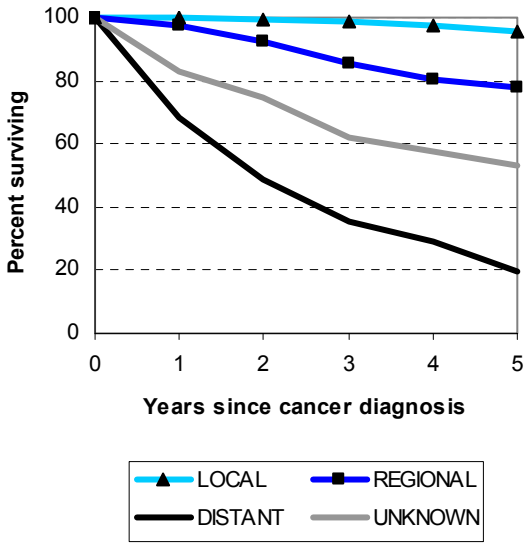
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	30.0	25.6	23.3	27.9	26.3	25.7	17.7	26.6	20.5	25.0	27.3	26.1	24.6	26.3

Female Breast — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000

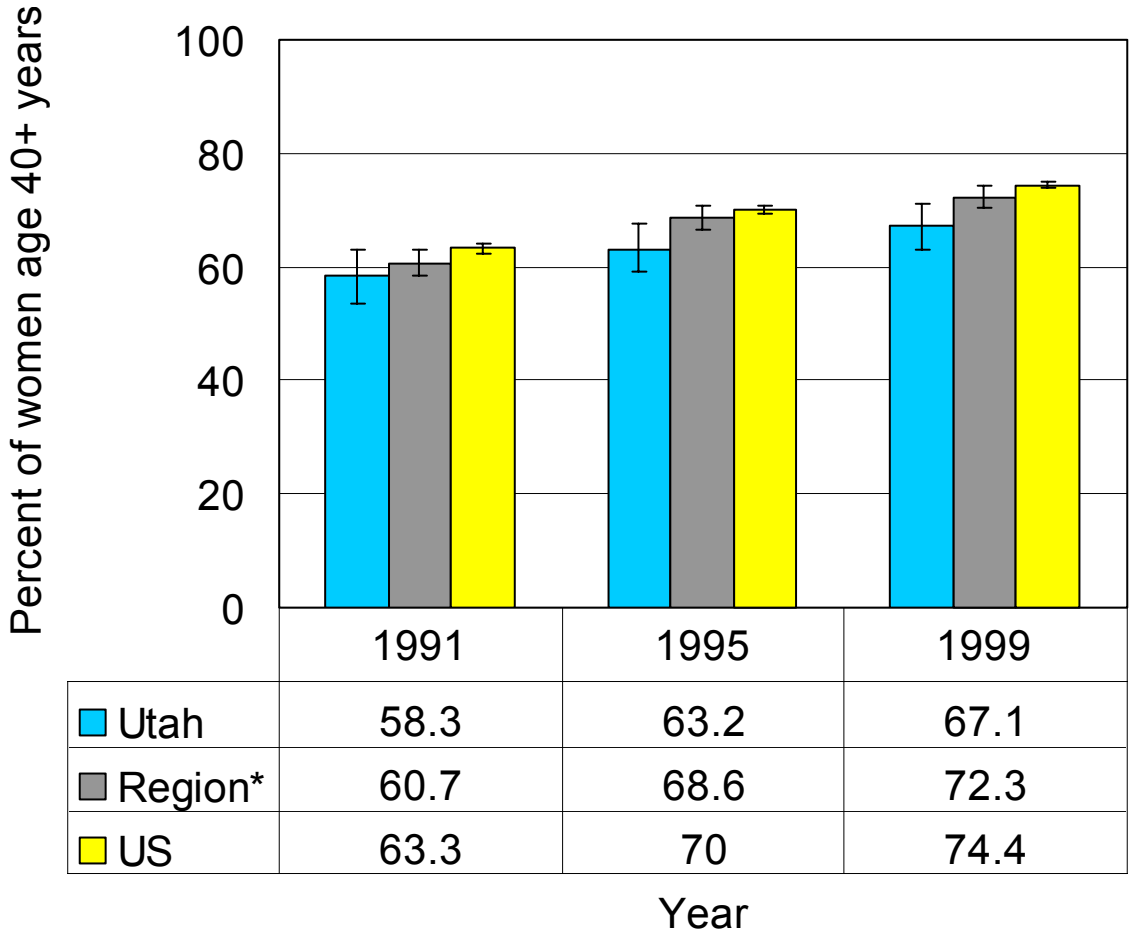


5-year relative survival by stage:
Utah residents diagnosed 1991-95



Female Breast | *Screening*

Percentage of Utah women, 40 years of age and older,
who reported having a mammogram in the past two years
(Surveys conducted in calendar years 1991, 1995, and 1999)



	1991	1995	1999
Utah	58.3	63.2	67.1
Region*	60.7	68.6	72.3
US	63.3	70	74.4

* Seven Western States including Arizona, Colorado, Idaho, Nevada, New Mexico, Utah, and Wyoming

Source: Behavioral Risk Factor Surveillance System

This page intentionally blank

Cervix Uteri

Summary	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	7.1	9.0
Rank among cancer incidence rates	9	11
Average annual number of new cases	63	12,590
Percent of all new cancer cases	2.2 %	2.1 %
Lifetime risk of this cancer (00-79 years)	1 in 181	1 in 131
Average annual age-adjusted mortality rates*	2.0	3.1
Rank among cancer mortality rates	14	11
Average annual number of deaths	17	4,396
Percent of all cancer deaths	1.6 %	1.7 %
* Rates per 100,000 and standardized to the 2000 U.S. population		

Early in the twentieth century, invasive cervical cancer was more common than in situ disease in the United States. However, with the advent of widespread cytologic screening, the rates of invasive cervical cancer have dropped substantially over the past thirty years.

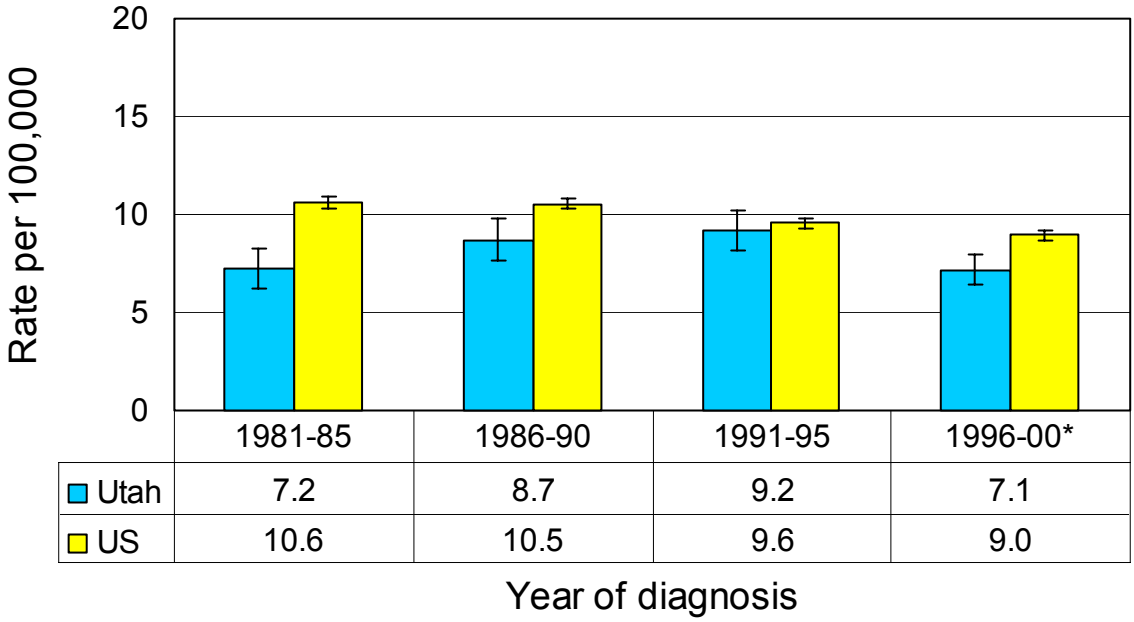
There is now strong evidence that selected types of Human Papilloma Virus (HPV) cause this disease. HPV is transmitted through sexual contact. Therefore, it is not surprising that many studies have found the risk of cervical cancer to be highest in women with multiple sexual partners, in women whose husbands have had multiple partners, and in women with a history of sexually transmitted diseases. Risk is reduced by use of barrier contraceptives. Women who had their first sexual relationship at an early age are also at increased risk. However, women who begin to have sex at an early age may be more likely to have a greater number of sexual partners, and it is not known whether early sexual exposure is an independent risk factor.

Cigarette smoking has been associated with an increase in the risk of cervical cancer in most studies. Conversely, some studies have suggested risk is lower for women who eat more foods rich in vitamins A, C, E, and folic acid, such as some fresh fruits and vegetables.

Cervical cancer is curable when diagnosed at an early stage. Presumably because of cytologic screening, the overwhelming majority of cervical cancer cases in Utah are diagnosed in situ; a majority of invasive cases of disease are diagnosed at localized stage. Routine cytologic screening will likely remain the most effective tool for reducing morbidity and mortality from this disease in the foreseeable future. However, limiting exposure to sexually transmitted diseases will reduce the risk of developing cervical cancer. Risk may also be diminished through consumption of fresh fruits and vegetables and avoidance of smoking.

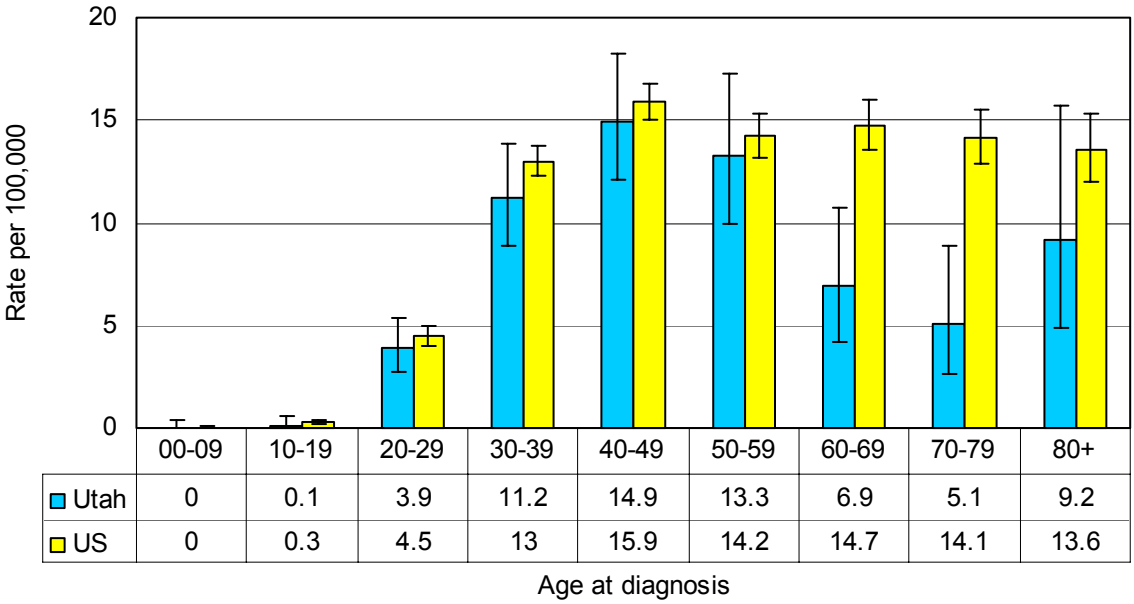
Cervix Uteri — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	7.2	8.7	9.2	7.1
US	10.6	10.5	9.6	9.0

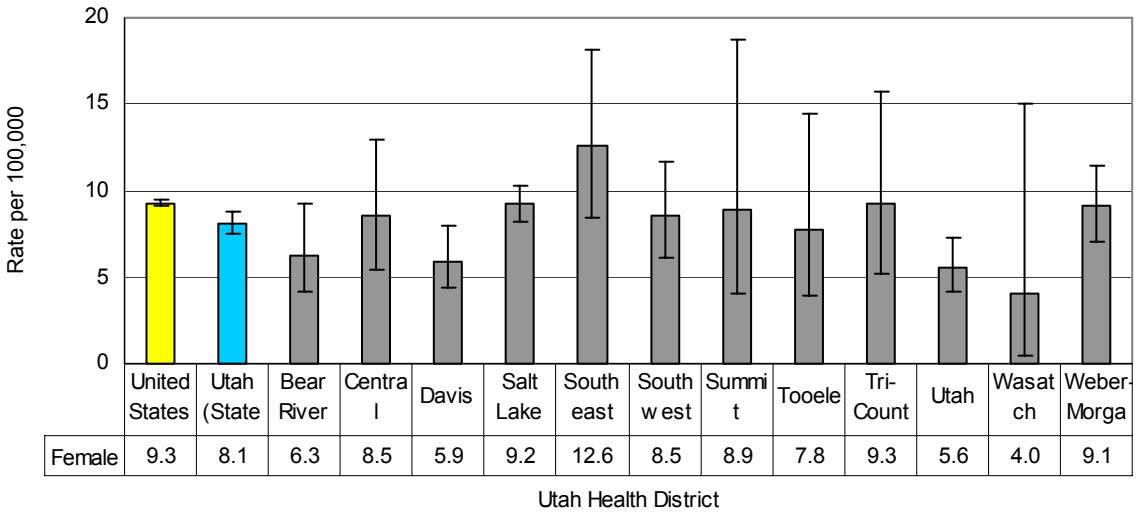
Average annual age-specific incidence rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	3.9	11.2	14.9	13.3	6.9	5.1	9.2
US	0	0.3	4.5	13	15.9	14.2	14.7	14.1	13.6

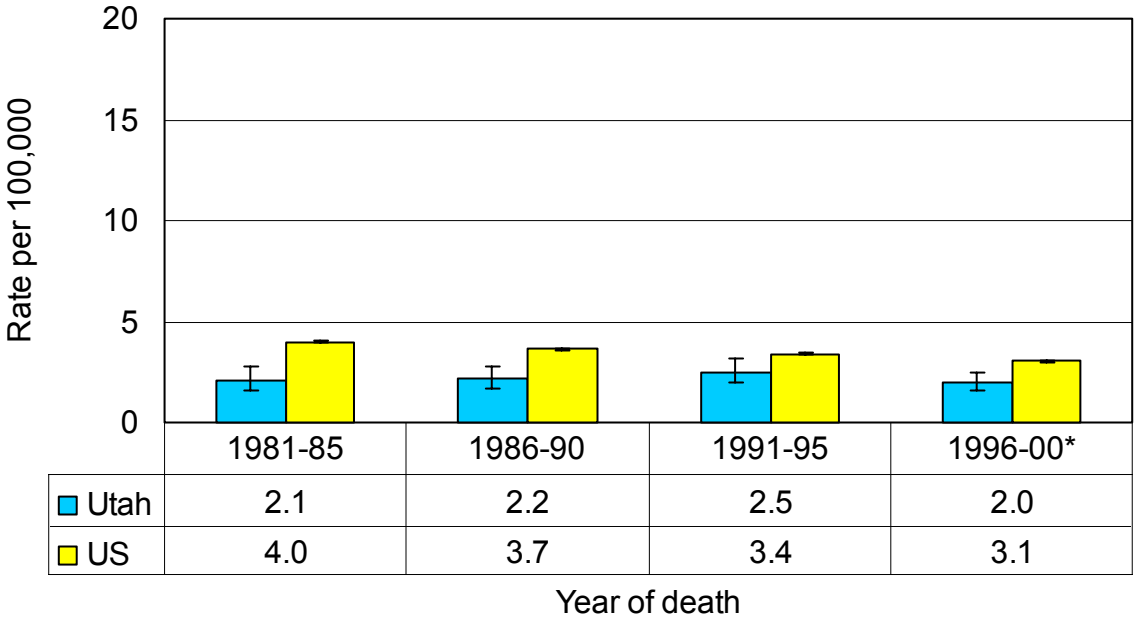
Cervix Uteri | *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



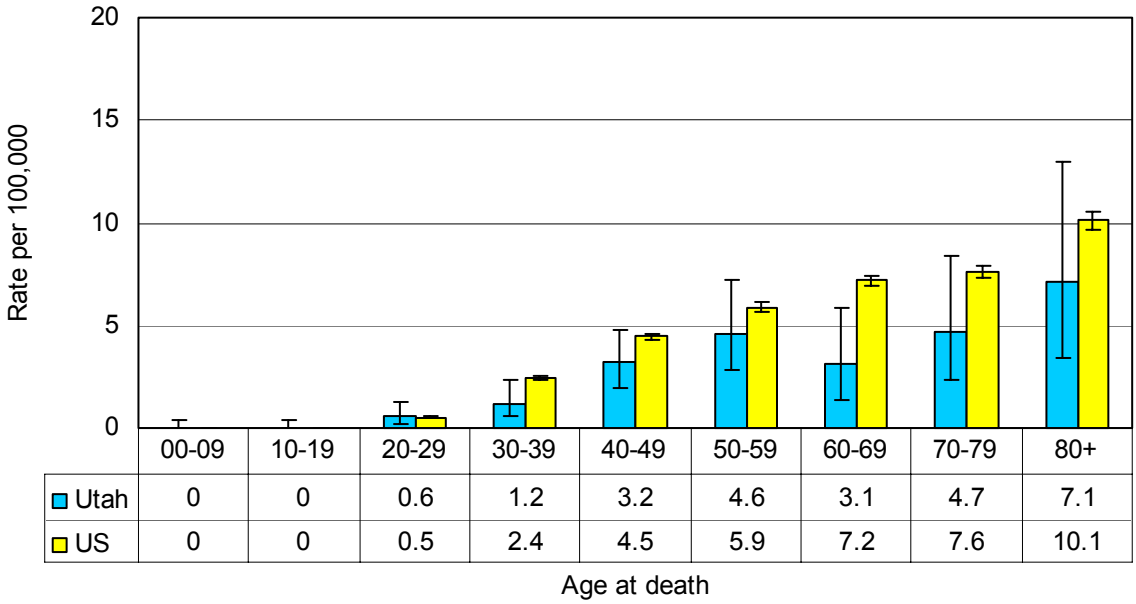
Cervix Uteri — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	2.1	2.2	2.5	2.0
US	4.0	3.7	3.4	3.1

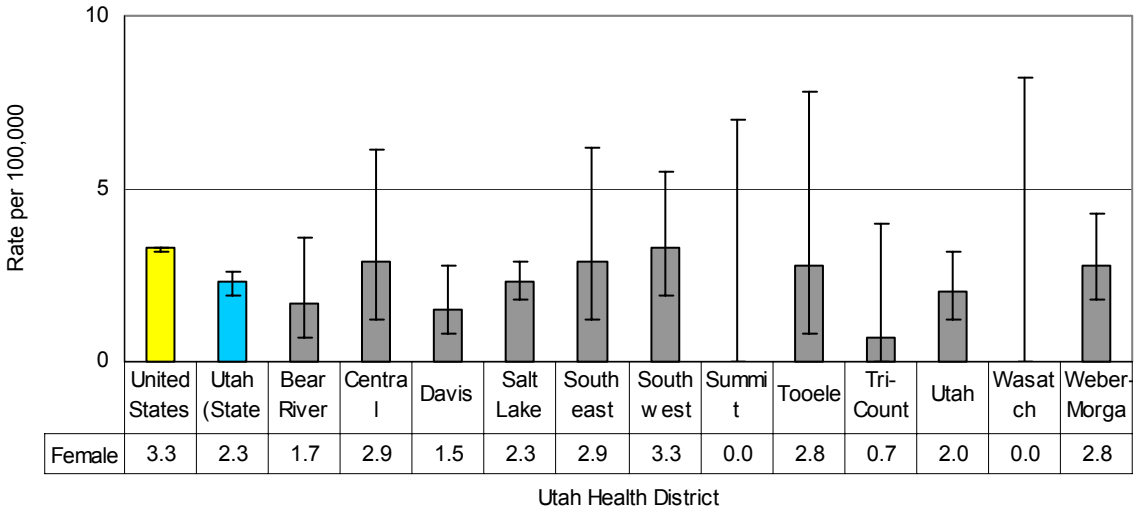
Average annual age-specific mortality rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.6	1.2	3.2	4.6	3.1	4.7	7.1
US	0	0	0.5	2.4	4.5	5.9	7.2	7.6	10.1

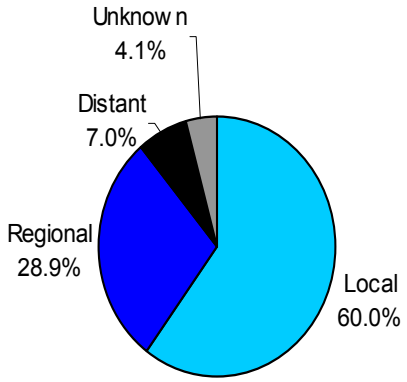
Cervix Uteri | *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison

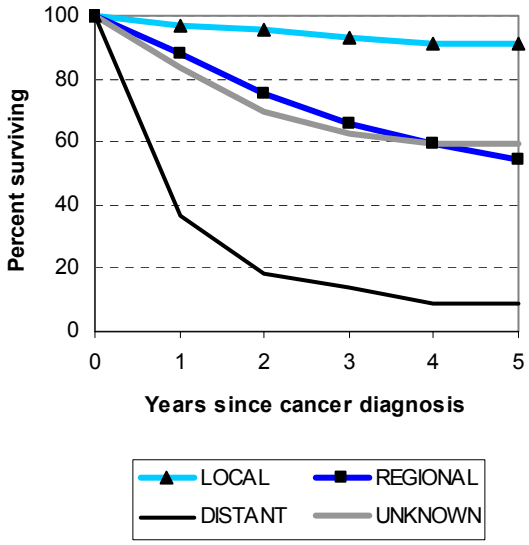


Cervix Uteri — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000

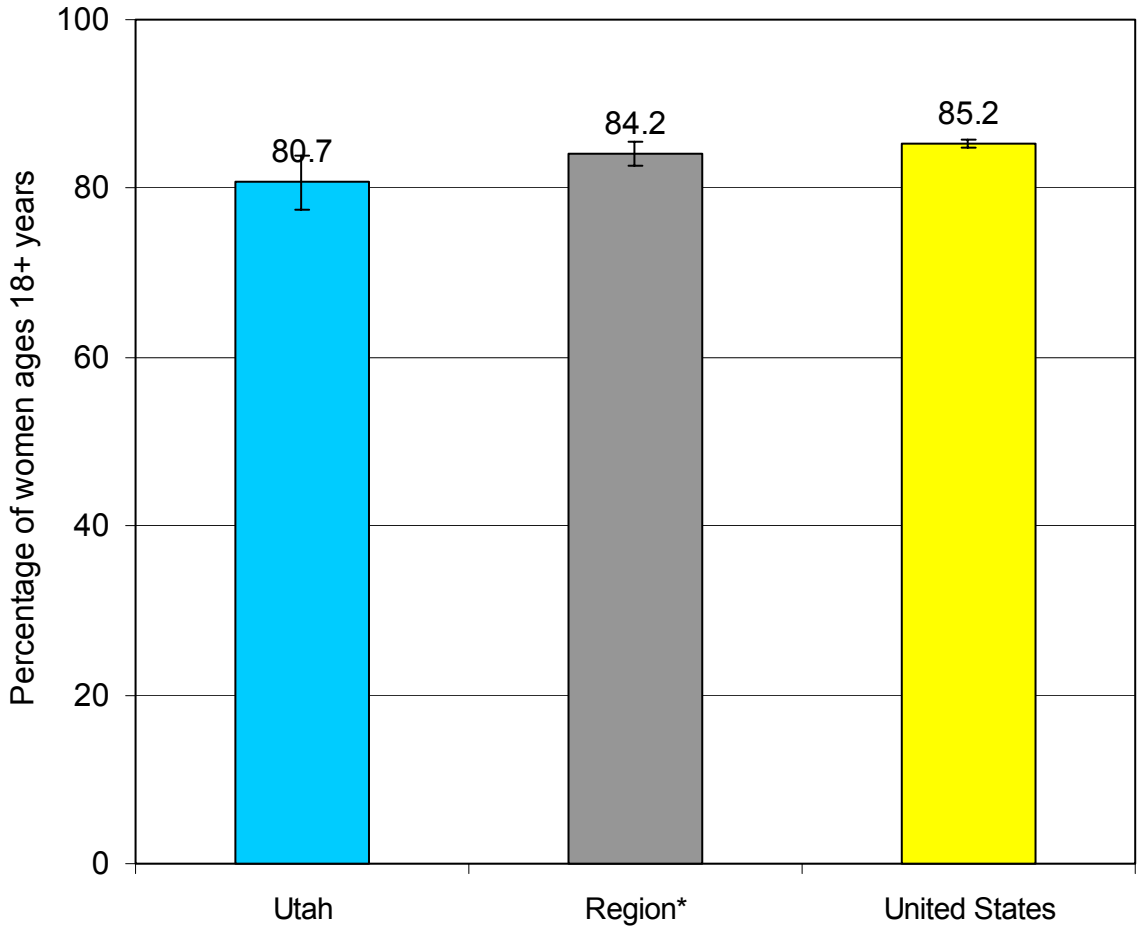


5-year relative survival by stage:
Utah residents diagnosed 1991-95



Cervix Uteri — *Screening*

Percentage of Utah women, 18 years of age and older,
who reported having a Pap Smear within the past three years
(Survey conducted in calendar year 1999)



* Seven Western States including Arizona, Colorado, Idaho, Nevada, New Mexico, Utah, and Wyoming

Source: Behavioral Risk Factor Surveillance System

This page intentionally blank

Uterus

Summary	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	23.9	25.4
Rank among cancer incidence rates	3	4
Average annual number of new cases	193	36,750
Percent of all new cancer cases	6.6 %	5.9 %
Lifetime risk of this cancer (00-79 years)	1 in 40	1 in 37
Average annual age-adjusted mortality rates*	3.8	4.1
Rank among cancer mortality rates	7	7
Average annual number of deaths	31	6,347
Percent of all cancer deaths	2.9 %	2.4 %
* Rates per 100,000 and standardized to the 2000 U.S. population		

In the United States, incidence rates for endometrial cancer were stable from 1940 through 1970. However, from 1970 to 1975, the rates of this disease increased dramatically. After 1975, the rates gradually declined. The epidemic of endometrial cancer in the early 1970's has been shown to have resulted from use of estrogens for treatment of symptoms of menopause.

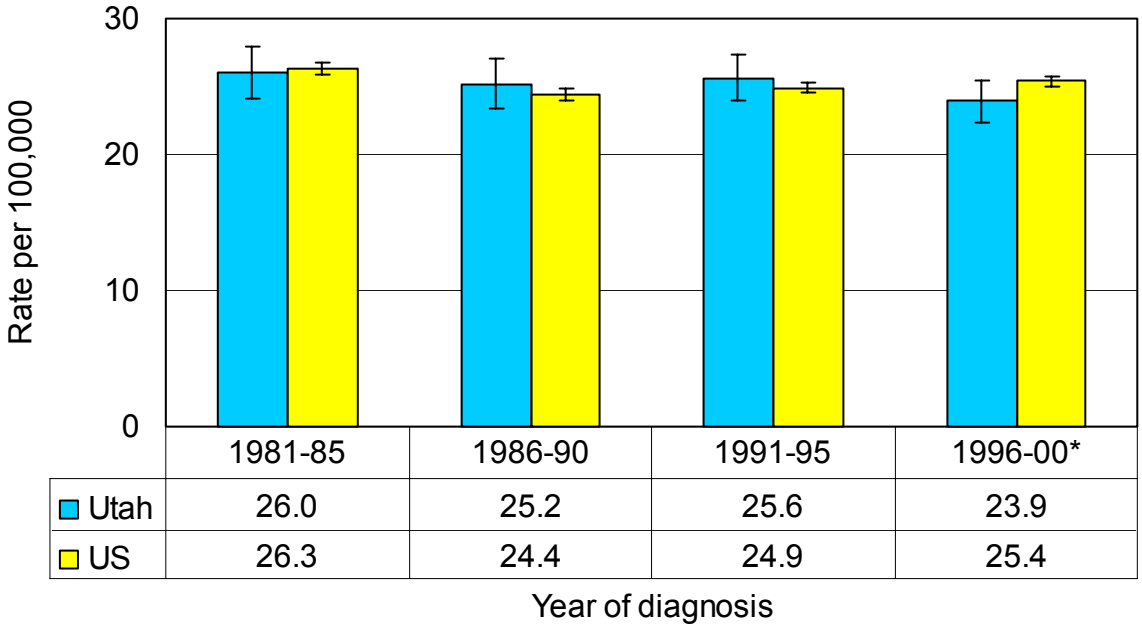
Factors associated with increased estrogen levels or decreased progesterone levels enhance risk of endometrial cancer. During the menstrual cycle, estrogen is responsible for proliferation of endometrial cells while progesterone slows growth and promotes cell differentiation. Nulliparity has been consistently linked with an increased risk of this disease, and risk is inversely related to the number of children borne. Women with diseases that result in increased endogenous estrogen levels, such as polycystic ovaries and estrogen-producing ovarian tumors, are at increased risk for endometrial cancer. Similarly, obesity has been shown to increase endogenous estrogen levels and studies have consistently found obese women to be at increased risk. Evidence from both case-control and cohort studies indicate that women who took exogenous estrogens were at increased risk for endometrial cancer. Risk increases rapidly with increasing duration of estrogen use.

Considering progesterone's effect on growth and differentiation, it is not surprising that progestins with estrogen reduce the risk of endometrial cancer associated with estrogens. Reduction in risk of endometrial cancer has been associated with the use of oral contraceptives and the long-acting progestational contraceptive, depot medroxy progesterone acetate.

Most rate calculations, including those in this monograph, rely on population figures for the denominators. However, many women in Utah over the age of 50 years have had hysterectomies and, therefore, are not at risk of developing endometrial cancer. Thus, the true incidence rates of endometrial cancer in this area are probably higher than presented herein.

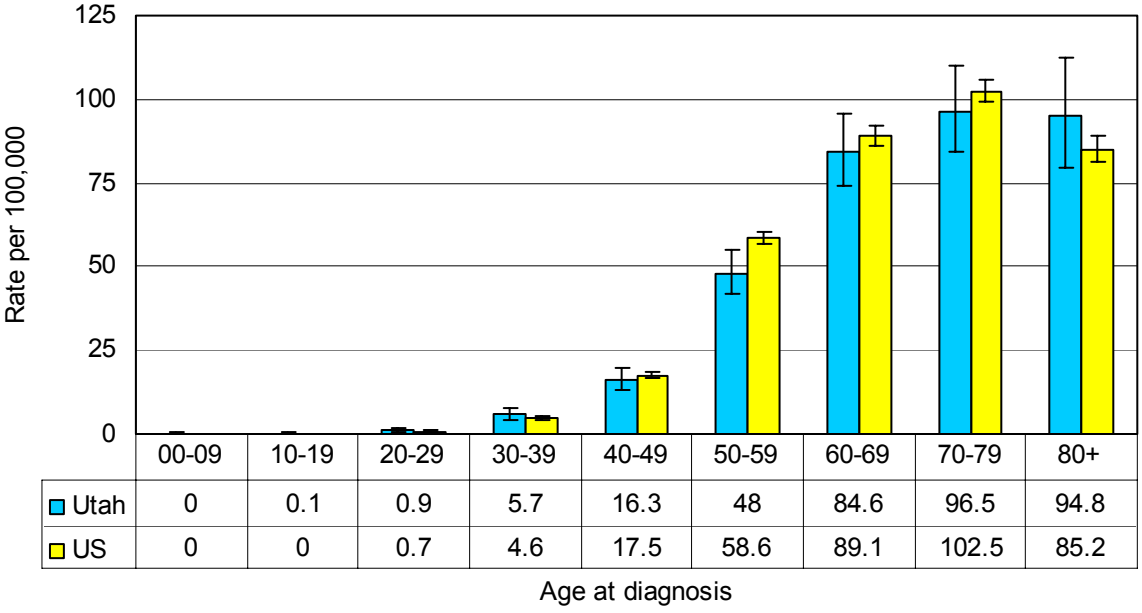
Uterus — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	26.0	25.2	25.6	23.9
US	26.3	24.4	24.9	25.4

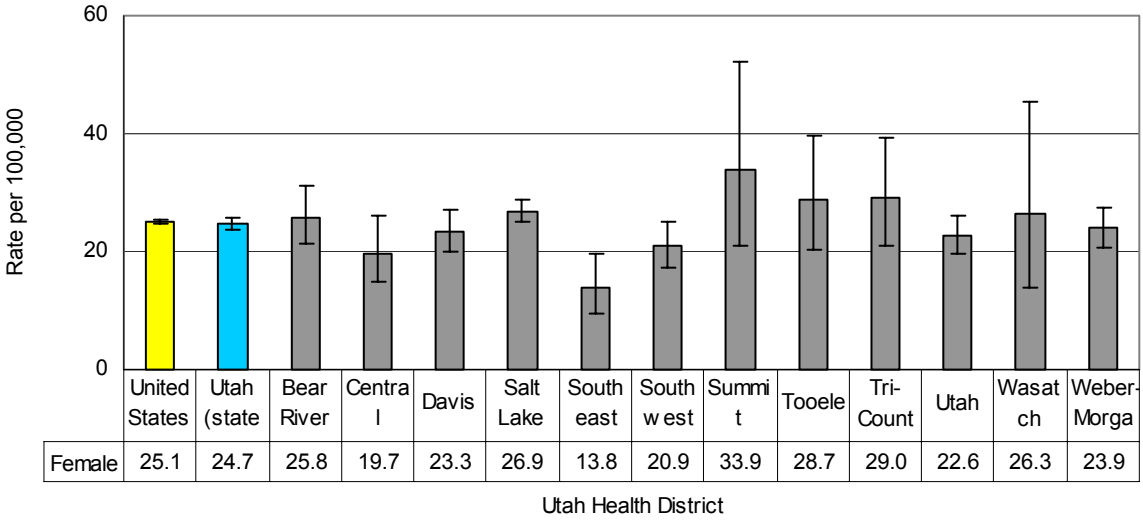
Average annual age-specific incidence rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0.9	5.7	16.3	48	84.6	96.5	94.8
US	0	0	0.7	4.6	17.5	58.6	89.1	102.5	85.2

Uterus | *Incidence*

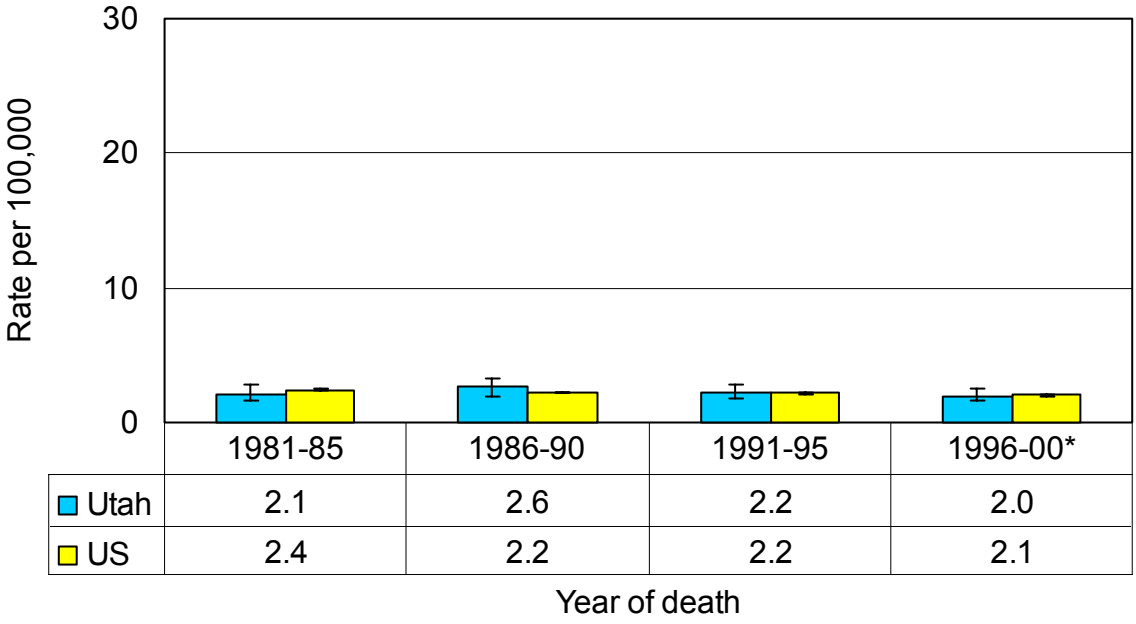
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	25.1	24.7	25.8	19.7	23.3	26.9	13.8	20.9	33.9	28.7	29.0	22.6	26.3	23.9

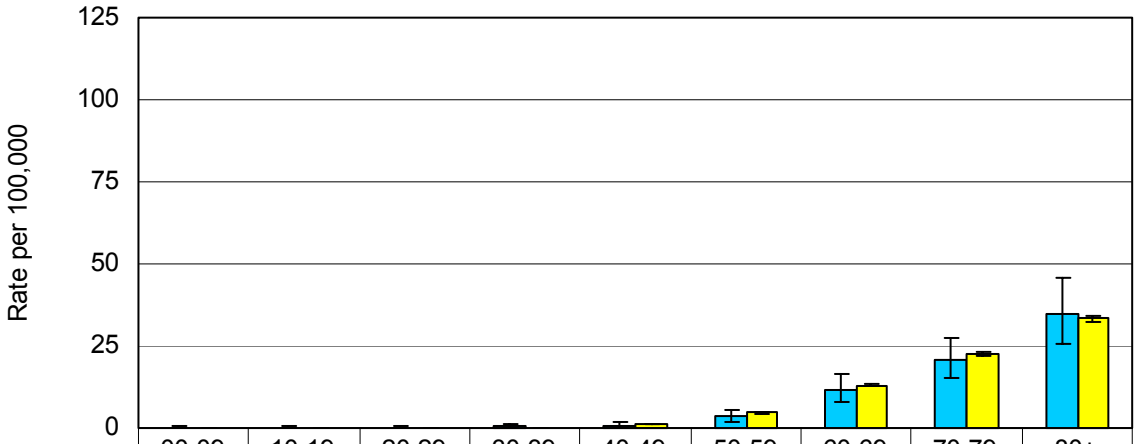
Uterus — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	2.1	2.6	2.2	2.0
US	2.4	2.2	2.2	2.1

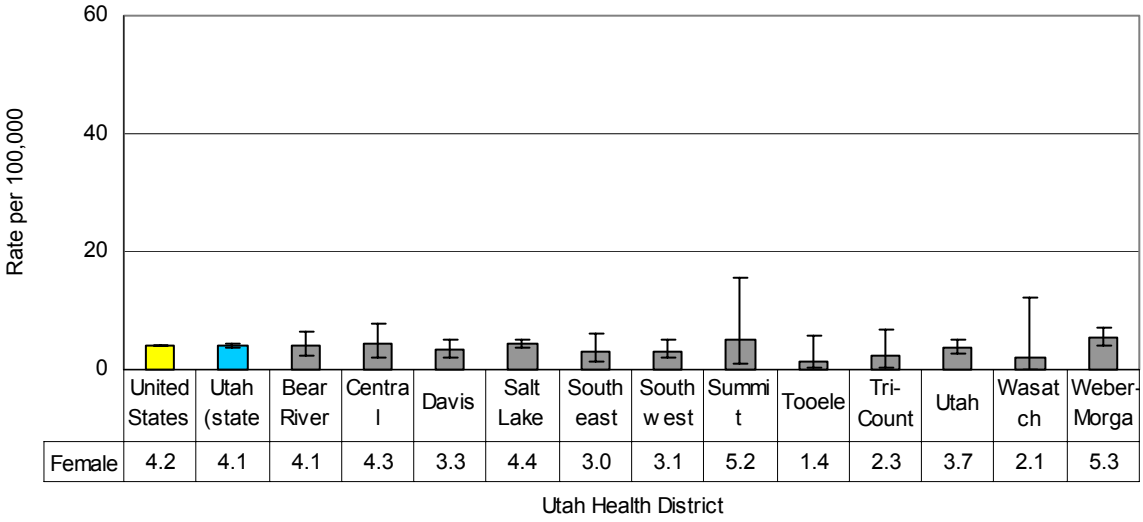
Average annual age-specific mortality rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.4	0.8	3.4	11.8	20.8	34.7
US	0	0	0	0.3	1.2	4.6	13.1	22.7	33.3

Uterus — *Mortality*

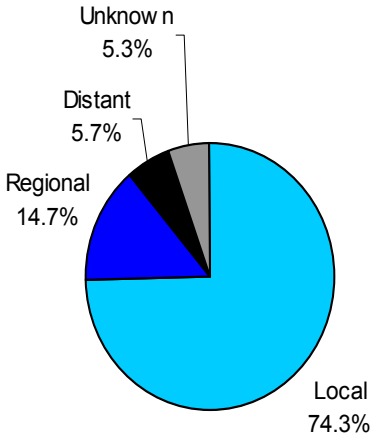
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



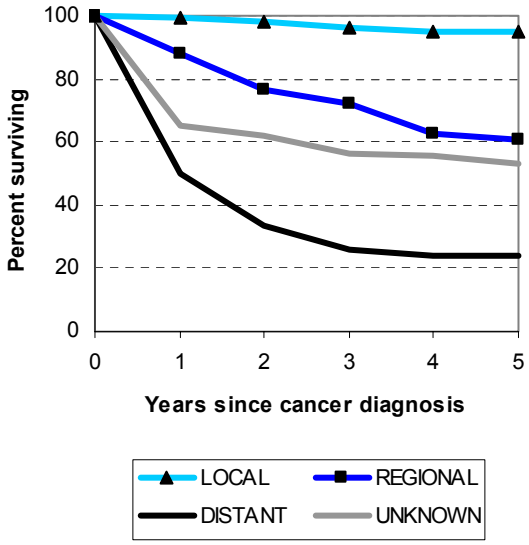
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	4.2	4.1	4.1	4.3	3.3	4.4	3.0	3.1	5.2	1.4	2.3	3.7	2.1	5.3

Uterus — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Ovary

Summary	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	16.6	17.0
Rank among cancer incidence rates	6	5
Average annual number of new cases	139	24,490
Percent of all new cancer cases	4.8 %	3.9 %
Lifetime risk of this cancer (00-79 years)	1 in 61	1 in 59
Average annual age-adjusted mortality rates*	8.9	8.9
Rank among cancer mortality rates	4	5
Average annual number of deaths	72	13,421
Percent of all cancer deaths	6.7 %	5.2 %
* Rates per 100,000 and standardized to the 2000 U.S. population		

While ovarian tumors are not the most common of the gynecologic cancers (cervical, endometrial, fallopian, GTD, ovarian, uterine, vaginal, vulvar), in the United States they are responsible for the most deaths among this group of neoplasms.

As in the rest of the country, average annual age-adjusted incidence rates for cancer of the ovary remained relatively constant from 1981 to 2000 in Utah. Age-specific rates begin to increase among young women and reach their peak between the ages of 65-80 years.

Ovarian tumors often spread throughout the abdomen before they are detected. As a result, over sixty percent of ovarian tumors are diagnosed at regional and distant stages of disease. Over one-half of ovarian cancer patients die within the first five years following diagnosis.

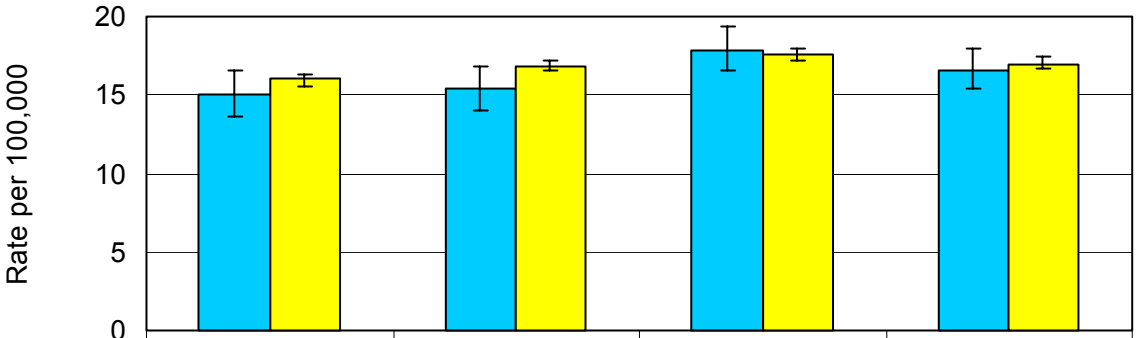
Hormonal factors seem to play an important role in the development of ovarian tumors. Women who have had children are at lower risk than nulliparous women, and the risk of ovarian cancer further decreases as the number of prior pregnancies increases. Use of combined oral contraceptives has been shown to protect against ovarian cancer.

Radiation has been associated with a slight increase in risk for the disease. Women exposed to the atomic bomb at Hiroshima and women who were treated with radiation for pelvic disease were found to have slightly increased risks of ovarian cancer. Talc and asbestos have been associated with an increased risk, though these associations may not be casual.

Risk can be reduced by use of oral contraceptives. Screening for early disease in the general population has not yet been proven beneficial.

Ovary — *Incidence*

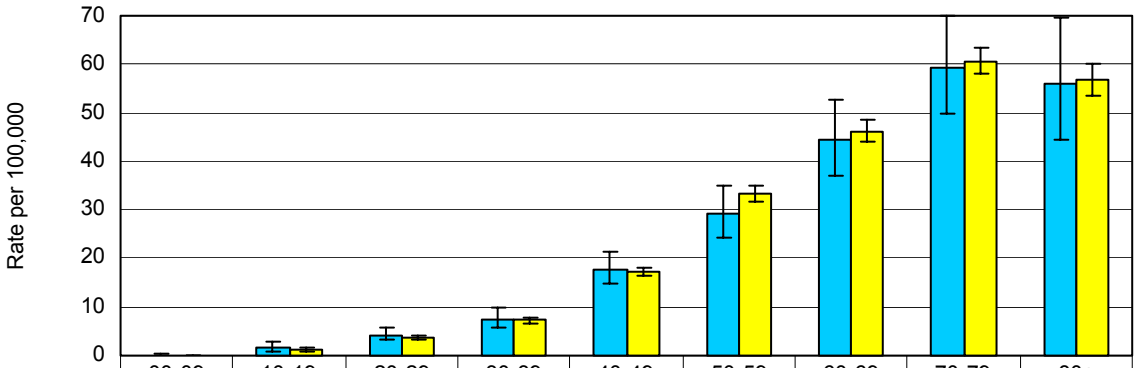
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	15.0	15.4	17.8	16.6
US	16.0	16.8	17.6	17.0

Year of diagnosis

Average annual age-specific incidence rates per 100,000, 1996-2000

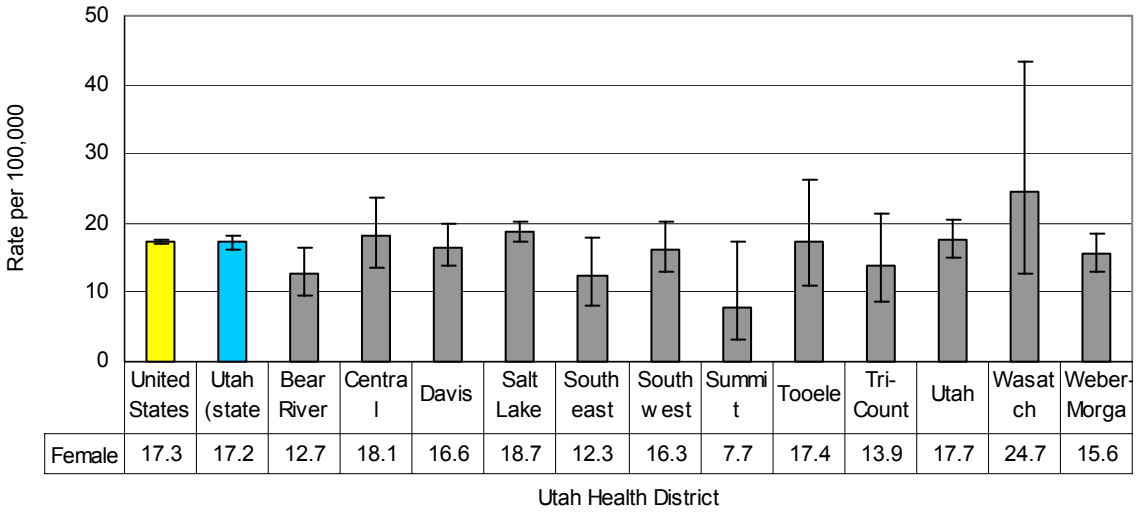


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	1.7	4.3	7.6	17.8	29.4	44.4	59.1	55.9
US	0.1	1.3	3.7	7.3	17.3	33.3	46.2	60.7	56.7

Age at diagnosis

Ovary — *Incidence*

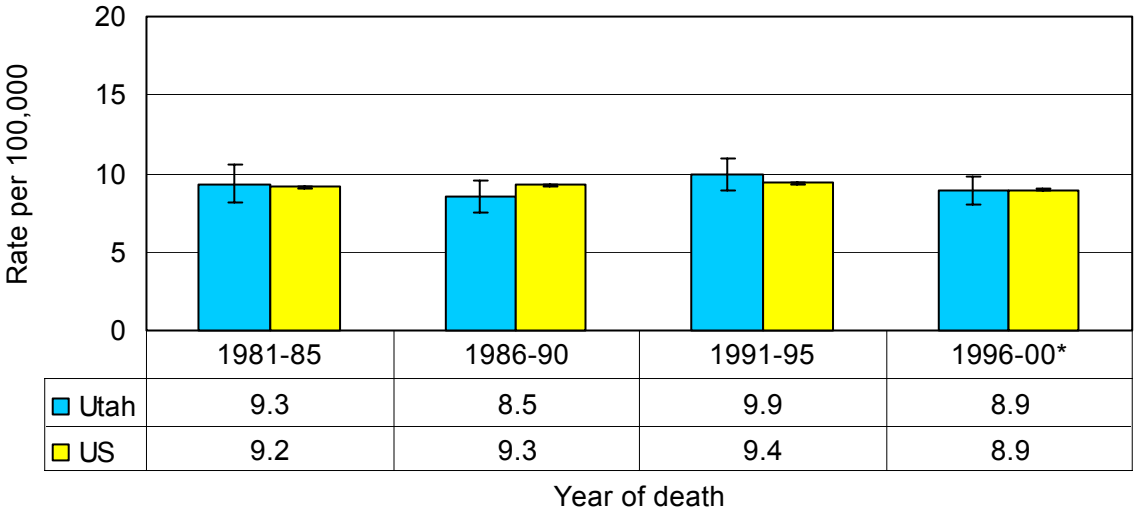
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	17.3	17.2	12.7	18.1	16.6	18.7	12.3	16.3	7.7	17.4	13.9	17.7	24.7	15.6

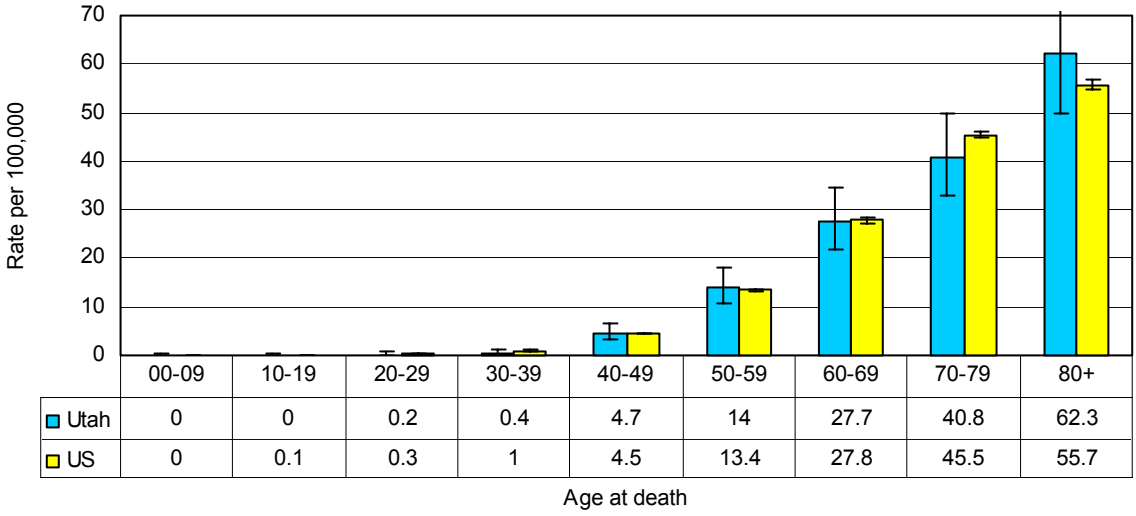
Ovary — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	9.3	8.5	9.9	8.9
US	9.2	9.3	9.4	8.9

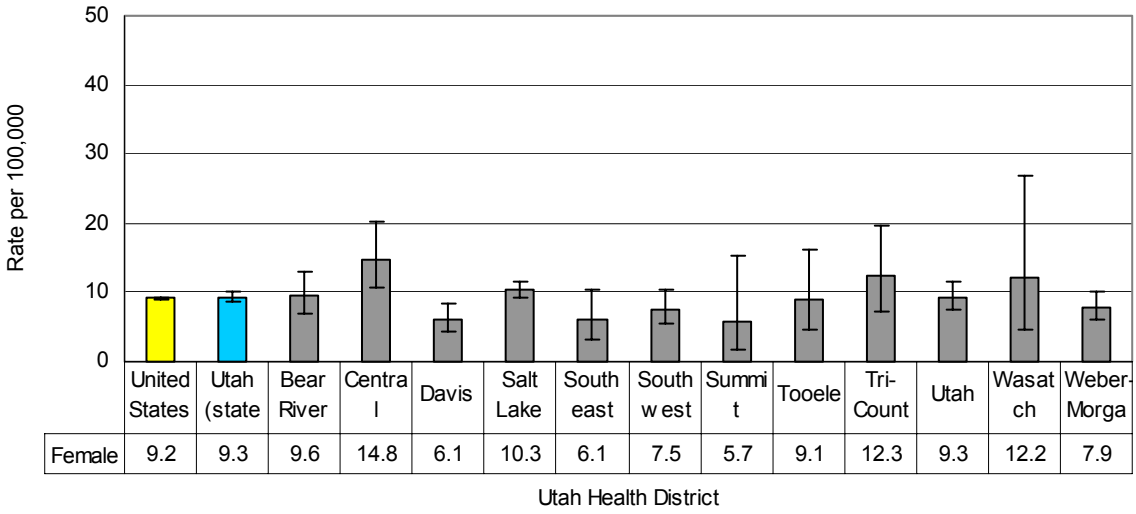
Average annual age-specific mortality rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.2	0.4	4.7	14	27.7	40.8	62.3
US	0	0.1	0.3	1	4.5	13.4	27.8	45.5	55.7

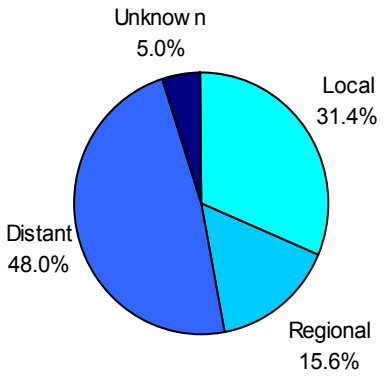
Ovary — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison

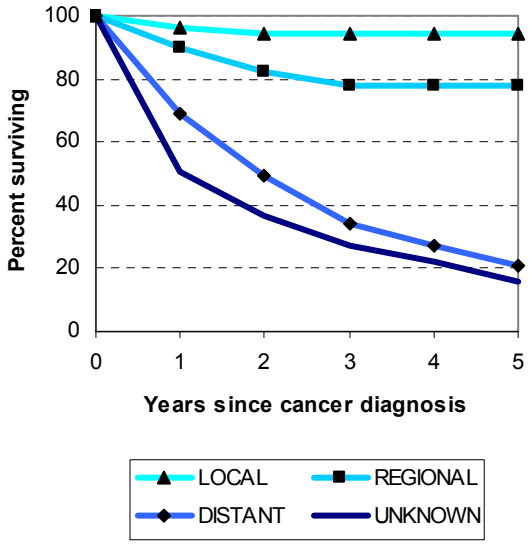


Ovary — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Prostate

Summary	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	180.8	169.3
Rank among cancer incidence rates	1	1
Average annual number of new cases	1,185	194,560
Percent of all new cancer cases	36.1 %	29.9 %
Lifetime risk of this cancer (00-79 years)	1 in 5	1 in 6
Average annual age-adjusted mortality rates*	37.2	33.2
Rank among cancer mortality rates	2	2
Average annual number of deaths	196	32,736
Percent of all cancer deaths	16.4	11.6 %
* Rates per 100,000 and standardized to the 2000 U.S. population		

Prostate cancer is the most common cancer in men. The steep rate of increase in age-specific incidence rates for prostate cancer after age 45 years is greater than for any other cancer. An interesting feature of this neoplasm is the frequent occurrence of latent carcinoma, i.e., asymptomatic lesions confined to the prostate that histologically appear malignant but may not progress to cause clinical disease. The prevalence of these lesions in autopsy series increases with age and approaches 100 percent in older individuals whose prostates are examined systematically by serial sectioning.

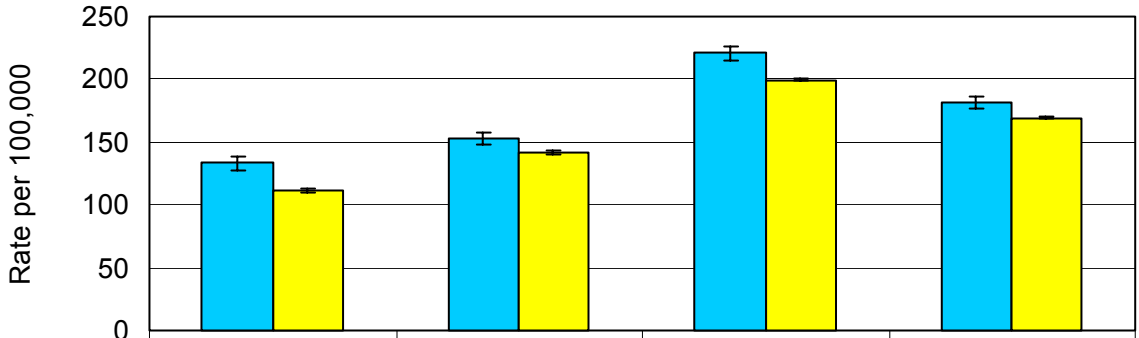
Prostate cancer incidence rates rose dramatically following the widespread introduction of screening for the Prostate Specific Antigen (PSA) in the late 1980's. The greatest increase in rates over time has been for localized tumors, suggesting that the overall rise in incidence was largely due to more aggressive diagnostic practices that identified cases of latent disease that might have previously gone undetected. Prostate cancer incidence rates have now declined to a level slightly higher than was observed prior to the initiation of PSA-based screening.

United States Blacks have the highest reported rate of the disease in the world. In contrast, prostate cancer incidence rates among men in Asia are generally low. However, Japanese men who migrated to the United States are at increased risk of the disease compared to their counterparts in Japan.

Individuals with a family history of prostate cancer are at increased risk of this disease. Dietary fat, certain vitamins, and vasectomy have also been investigated as potential risk factors for prostate cancer, but results from various studies have been inconsistent. No causes of this disease have been clearly identified. To date, there is limited evidence regarding the efficacy of screening for prostate cancer, though this is an important area of current investigation.

Prostate — *Incidence*

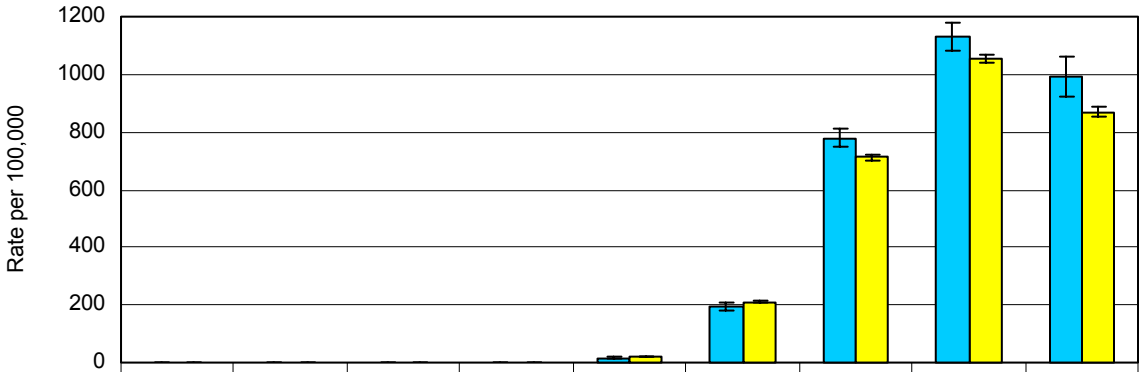
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	133.3	153.0	220.6	180.8
US	111.2	141.5	199.7	169.3

Year of diagnosis

Average annual age-specific incidence rates per 100,000, 1996-2000

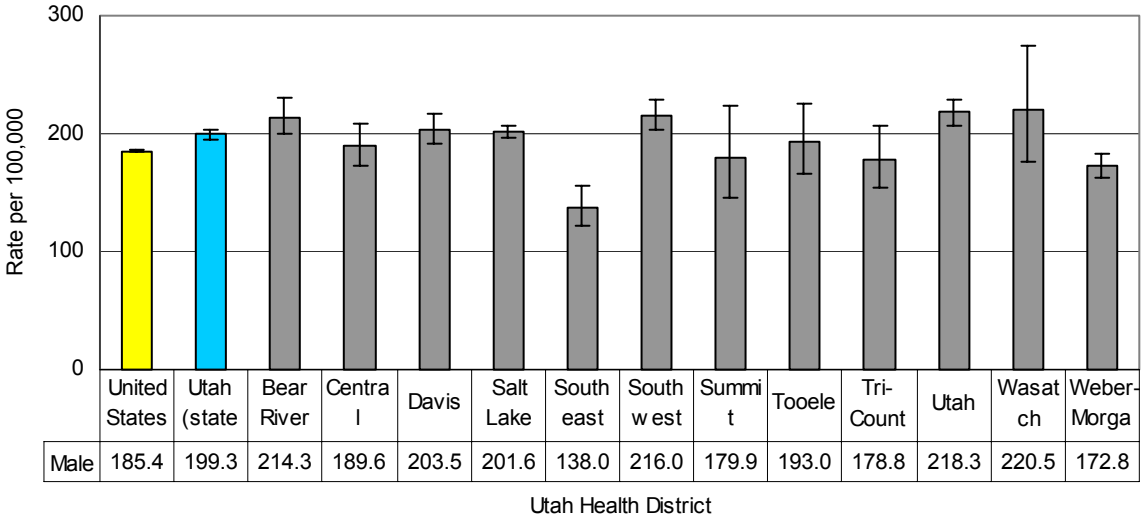


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0	0.1	0.3	16.4	195.9	779.9	1129.7	991
US	0.1	0	0.1	0.4	18.6	210.7	712.6	1056.3	868.5

Age at diagnosis

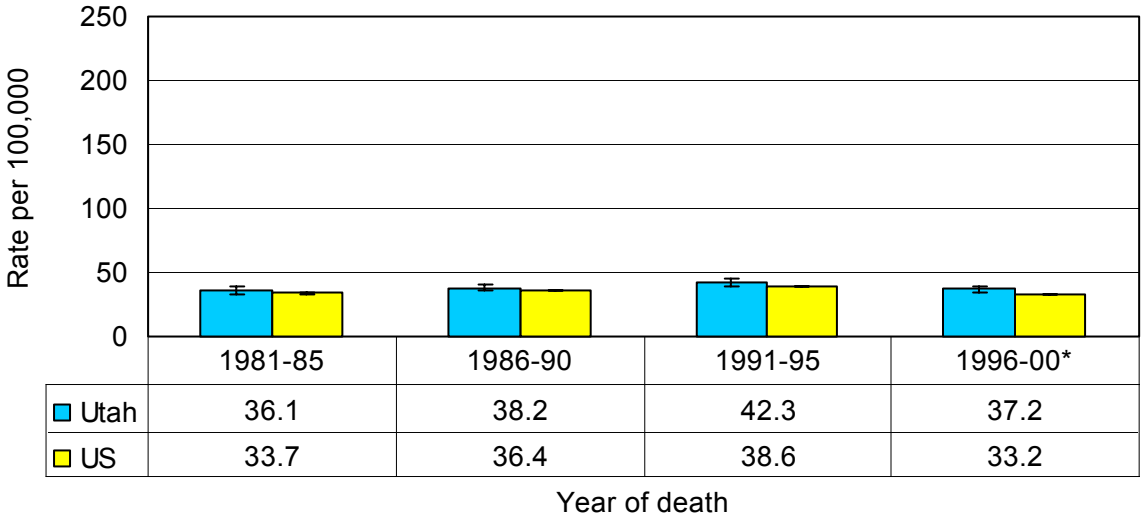
Prostate — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



Prostate — *Mortality*

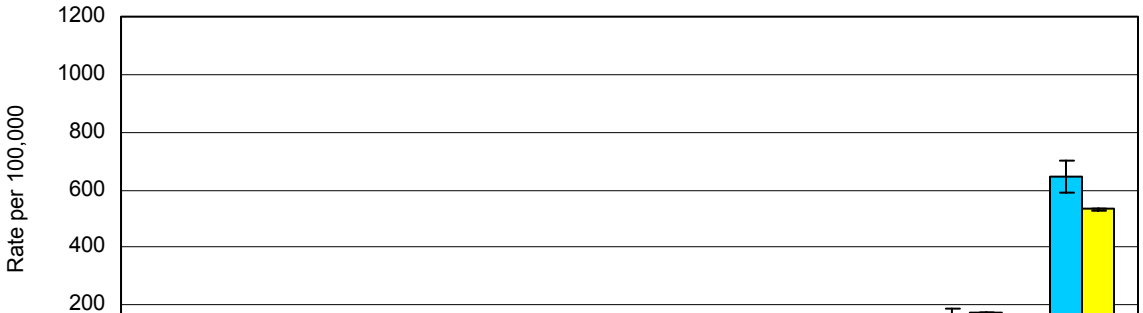
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	36.1	38.2	42.3	37.2
US	33.7	36.4	38.6	33.2

Year of death

Average annual age-specific mortality rates per 100,000, 1996-2000

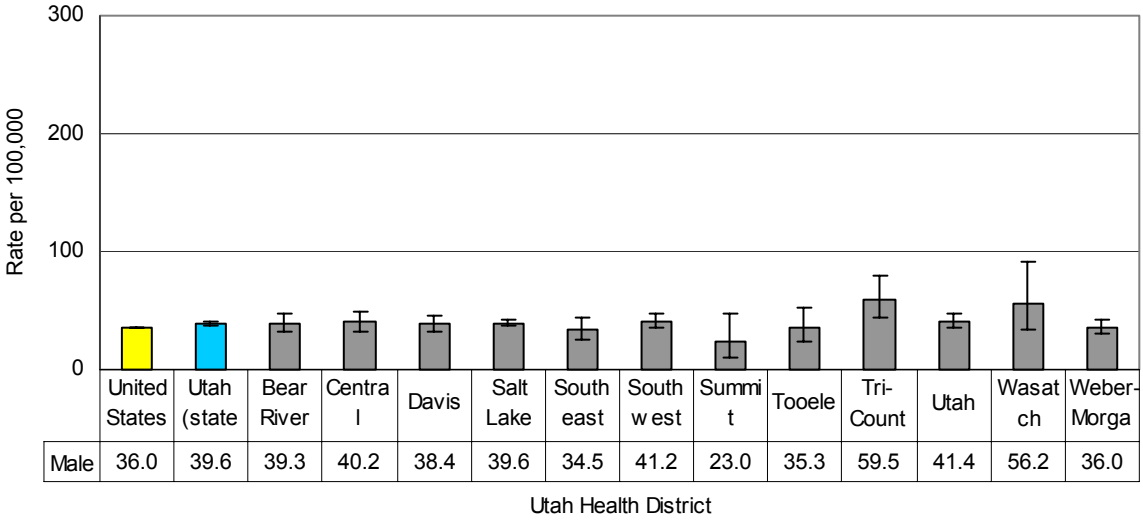


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.1	0	0.5	6.7	42.2	169.2	645.6
US	0	0	0	0	0.6	7.2	46.8	174.6	533.2

Age at death

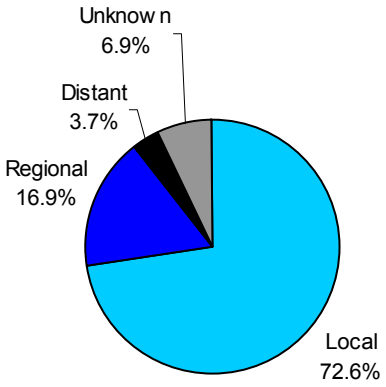
Prostate — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison

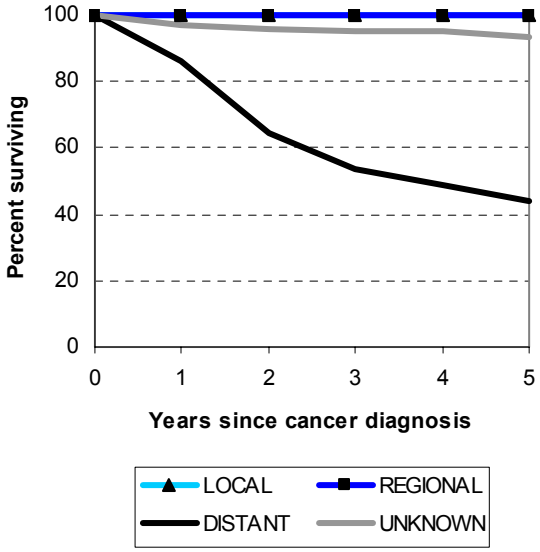


Prostate — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000

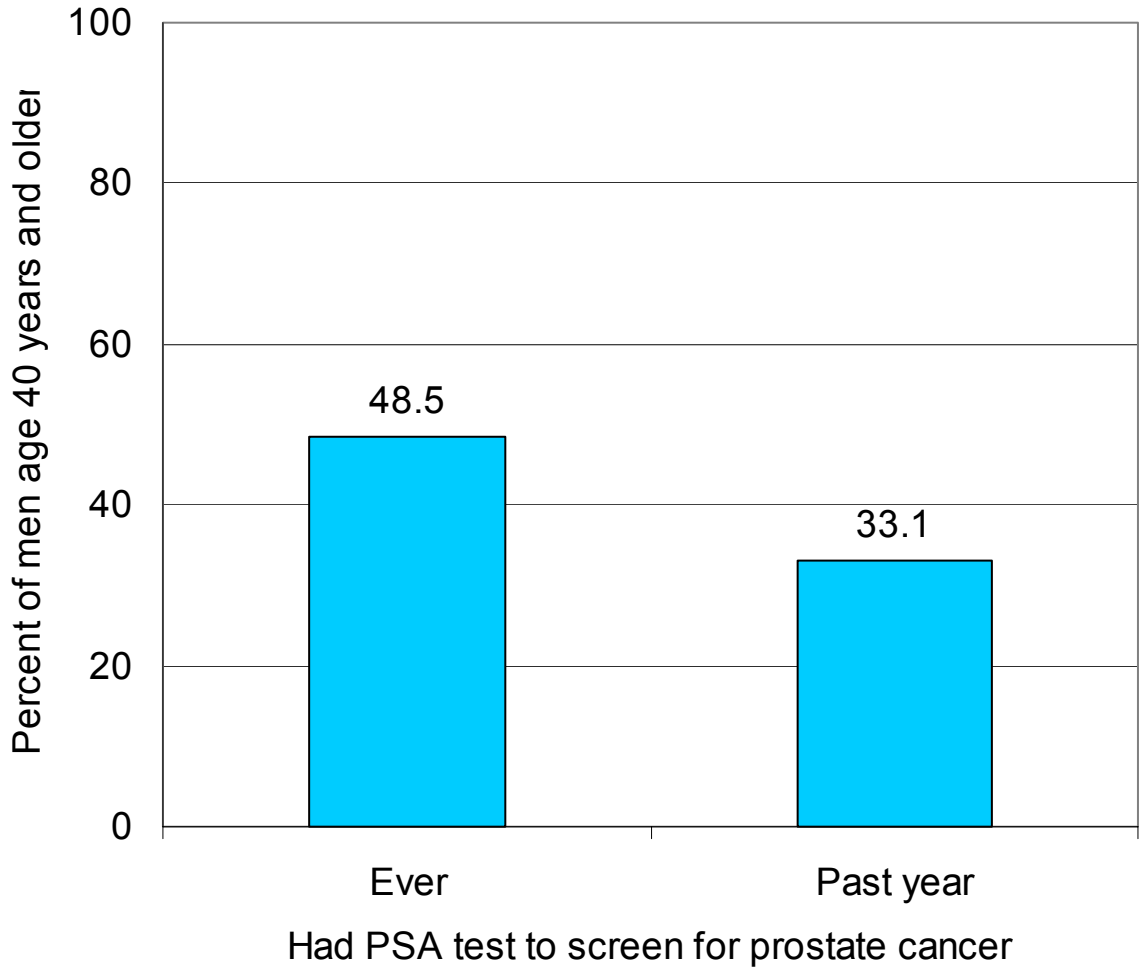


5-year relative survival by stage:
Utah residents diagnosed 1991-95



Prostate *Screening*

Percentage of Utah men, 40 years of age and older,
who reported having a Prostate Specific Antigen (PSA)
test to screen for prostate cancer
(Survey conducted in calendar year 2000)



Source: Behavioral Risk Factor Surveillance System

This page intentionally blank

Testis

Summary	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	5.9	5.5
Rank among cancer incidence rates	13	15
Average annual number of new cases	63	7,530
Percent of all new cancer cases	1.9 %	1.2 %
Lifetime risk of this cancer (00-79 years)	1 in 240	1 in 250
Average annual age-adjusted mortality rates*	0.2	0.3
Rank among cancer mortality rates	<20	<20
Average annual number of deaths	2	352
Percent of all cancer deaths	0.2 %	0.1 %
* Rates per 100,000 and standardized to the 2000 U.S. population		

Testicular cancer is primarily a disease of young men, with peak incidence rates occurring between 20 and 35 years of age. Testicular cancer was once the leading cause of cancer-related deaths in this age group. However, advances in diagnosis and treatment have made it one of the most curable of all cancers, with an overall five-year relative survival rate over 90 percent.

Incidence rates for testicular cancer increased in Utah during the period 1981-95, then fell slightly during the period 1996-2000. Comparable increases were reported among white populations in other areas of the United States and Northern Europe, though the reason for this phenomenon is unknown.

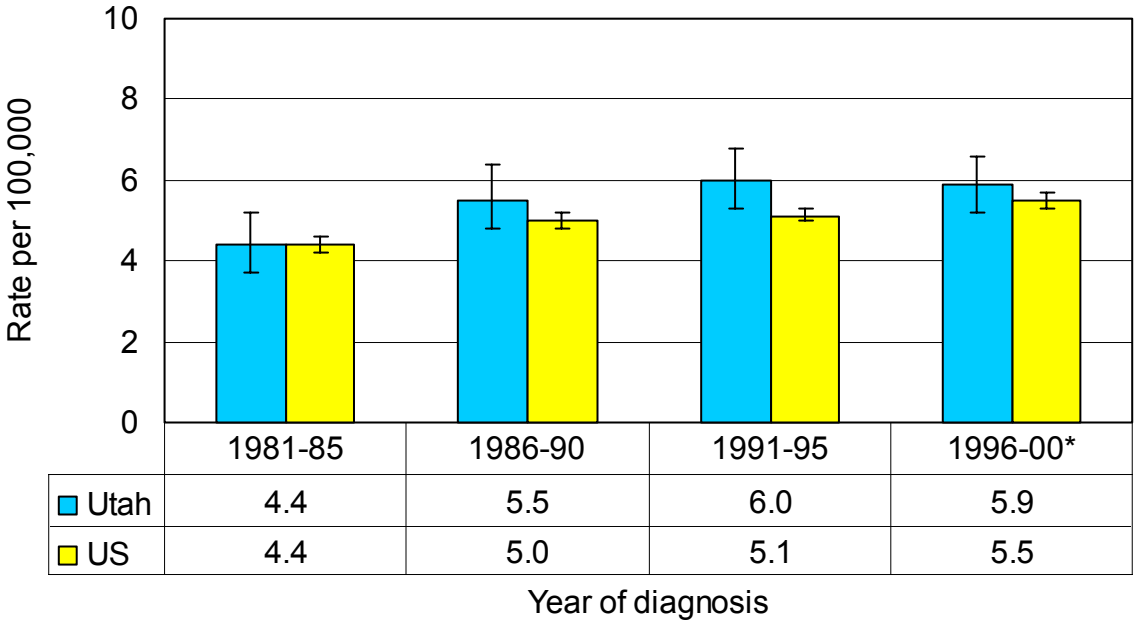
Cryptorchidism (undescended testis) has been consistently associated with an increased risk of testicular cancer, though the precise mechanism of action is not understood. However, it is estimated that cryptorchidism accounts for only 10 percent of all testicular cancers. A small percentage of testicular tumors have also been associated with genetic disorders such as Klinefelter's syndrome and hermaphroditism.

Numerous studies have focused on environmental exposures that may lead to testicular cancer, but no single exposure, either in the individual with cancer or his parents, has consistently been associated with this disease. In utero exposure to diethylstilbestrol (DES) has been linked to testicular abnormalities in sons of women who took the drug to prevent miscarriages.

Early surgical correction of cryptorchidism may prevent the development of cancer in undescended testis. There are no means currently available to prevent neoplasms in scrotal testis. Self-examination for early detection of testicular cancer has been advocated as a screening method.

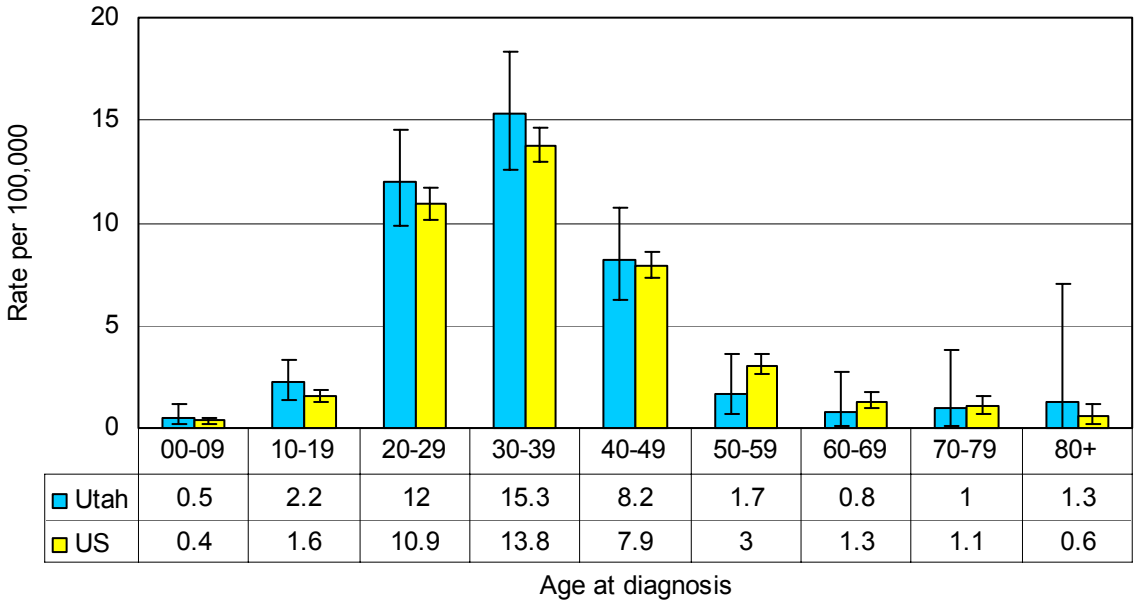
Testis — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	4.4	5.5	6.0	5.9
US	4.4	5.0	5.1	5.5

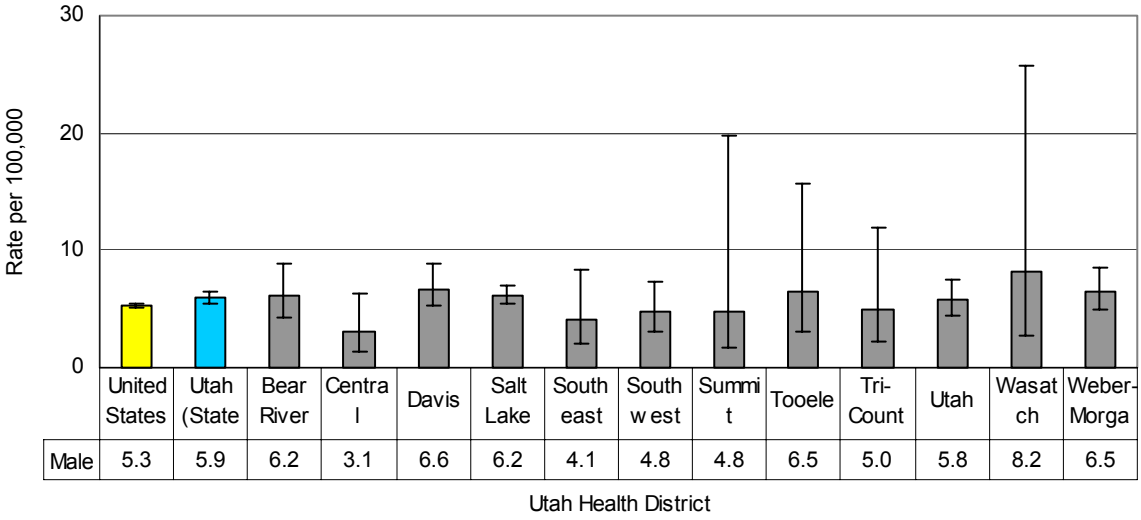
Average annual age-specific incidence rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.5	2.2	12	15.3	8.2	1.7	0.8	1	1.3
US	0.4	1.6	10.9	13.8	7.9	3	1.3	1.1	0.6

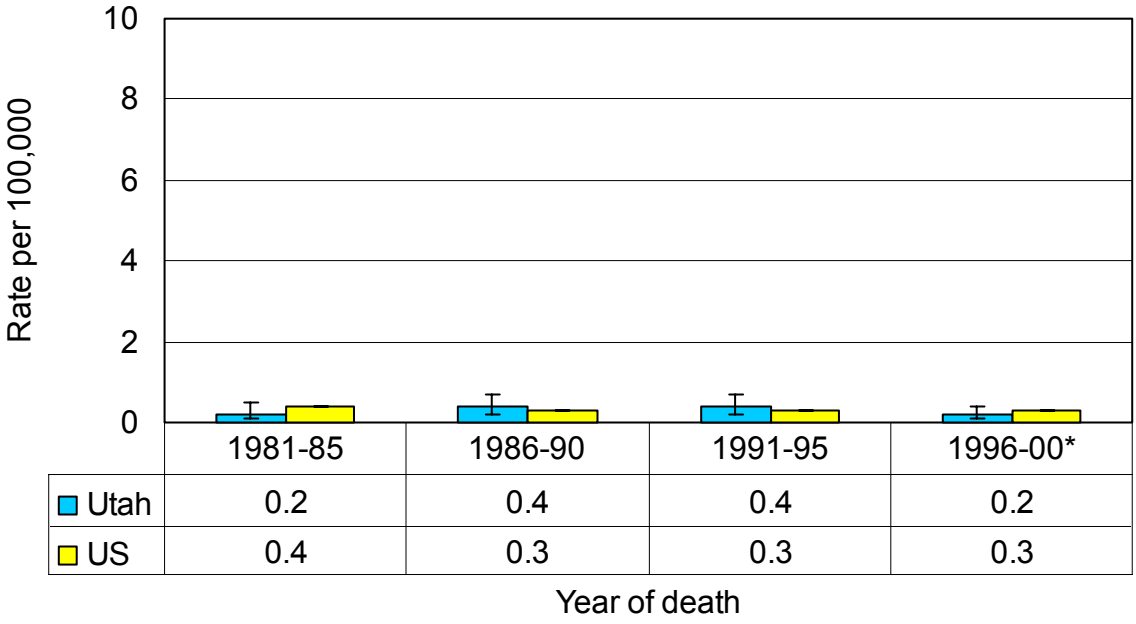
Testis — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison



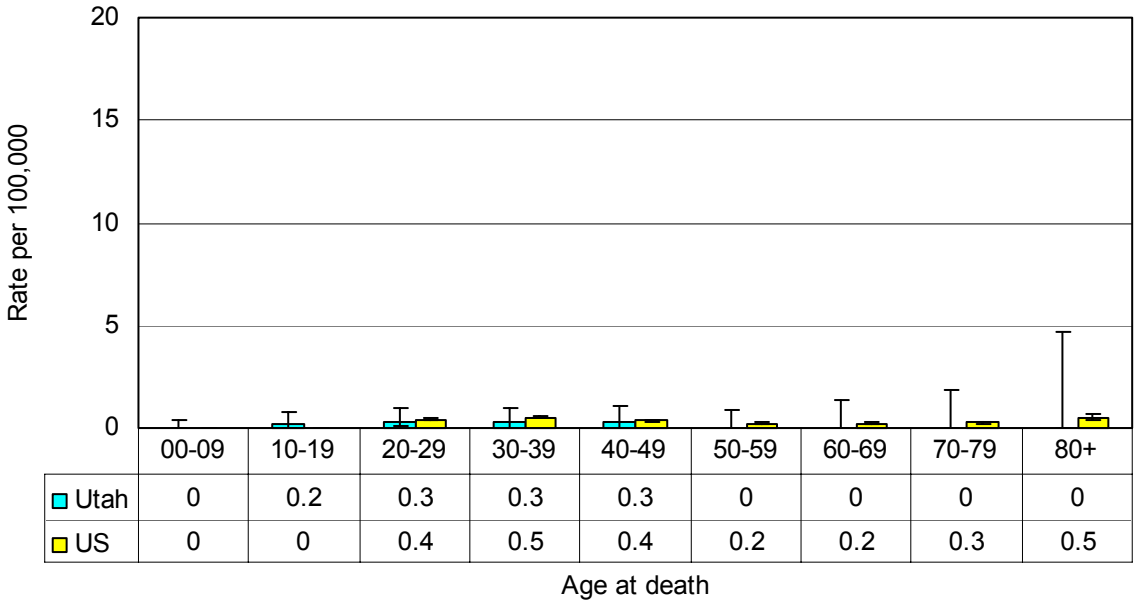
Testis — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period, 1981-2000



	1981-85	1986-90	1991-95	1996-00*
Utah	0.2	0.4	0.4	0.2
US	0.4	0.3	0.3	0.3

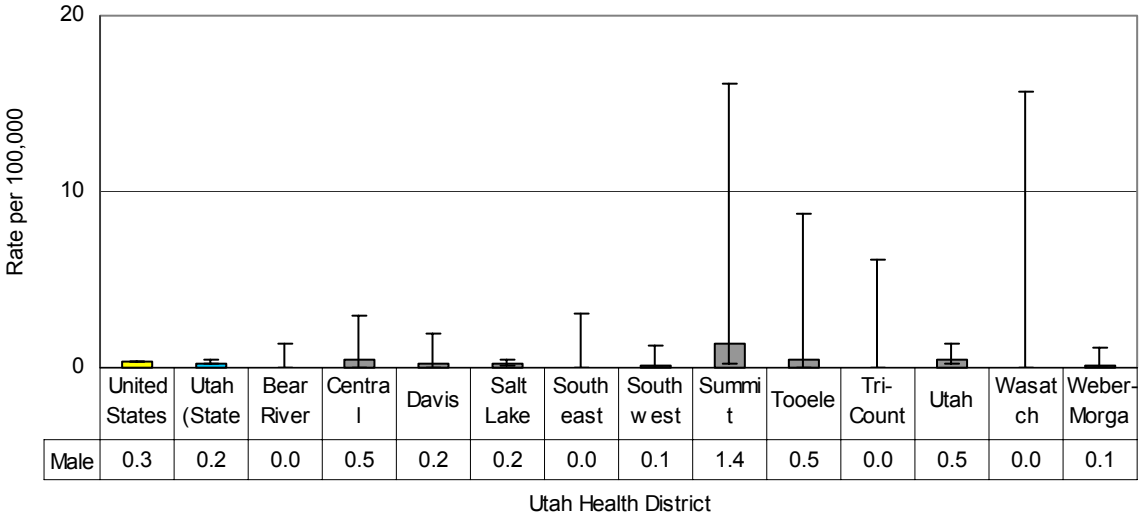
Average annual age-specific mortality rates per 100,000, 1996-2000



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.2	0.3	0.3	0.3	0	0	0	0
US	0	0	0.4	0.5	0.4	0.2	0.2	0.3	0.5

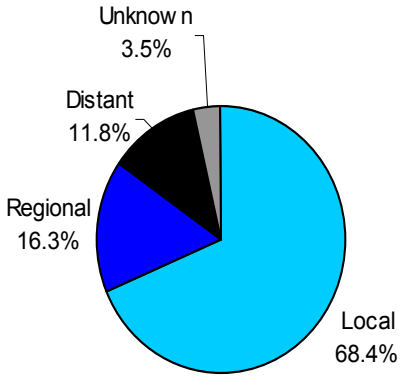
Testis | *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison

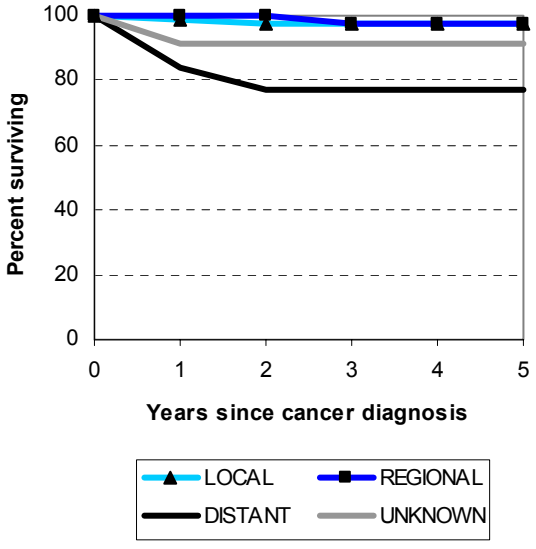


Testis — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Urinary Bladder

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	32.3	36.8	7.3	9.6
Rank among cancer incidence rates	4	4	15	10
Average annual number of new cases	202	40,860	60	14,610
Percent of all new cancer cases	6.2 %	6.3 %	2.1 %	2.3 %
Lifetime risk of this cancer (00-79 years)	1 in 32	1 in 27	1 in 133	1 in 102
Average annual age-adjusted mortality rates*	6.7	7.6	1.9	2.4
Rank among cancer mortality rates	6	7	15	14
Average annual number of deaths	38	7,847	16	3,828
Percent of all cancer deaths	3.2 %	2.8 %	1.5 %	1.5 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Bladder cancer is the most common of the urinary tract cancers. Incidence rates for bladder cancer increased in the United States over the past thirty years, while mortality rates decreased during the same period. These diverging trends probably reflect improvements in diagnostic techniques that have resulted in a higher percentage of new cases being diagnosed at earlier, more favorable, stages of disease. More effective treatment modalities may also be responsible for the declining mortality rates.

Cigarette smoking is the single most important known risk factor for bladder cancer in the United States. Cigarette smokers are at two-to-three times greater risk of bladder cancer than non-smokers. Cigarette smoking is estimated to account for 40 percent of all bladder cancer in men in 30 percent in women.

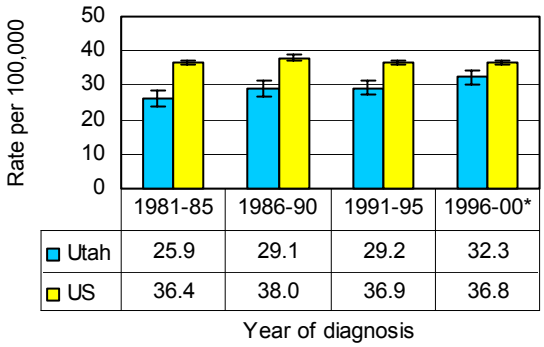
Occupational exposures have also been associated with an increase risk of this disease. In the latter part of the nineteenth century, it was observed that men employed in the dyestuffs industry were at increased risk of bladder cancer. Later research demonstrated that exposure to aromatic amines, especially benzidine and 2-naphthylamine, could increase the risk of bladder cancer. Other occupations associated with an increased risk of bladder cancer include painters and printers, as well as workers in the rubber and leather industries.

Avoiding cigarettes is the single most effective way to prevent bladder cancer. Cytologic screening for bladder cancer has largely been limited to industrial settings; the efficacy of this procedure for the general public has not been established.

Urinary Bladder — *Incidence*

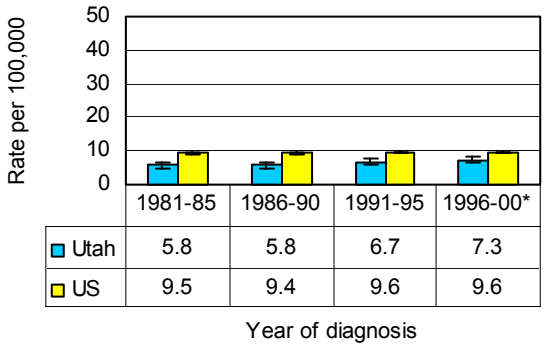
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	25.9	29.1	29.2	32.3
US	36.4	38.0	36.9	36.8

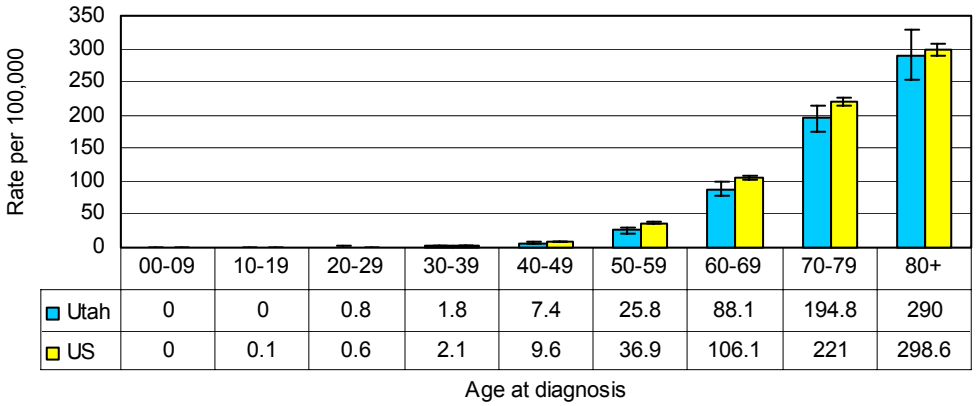
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	5.8	5.8	6.7	7.3
US	9.5	9.4	9.6	9.6

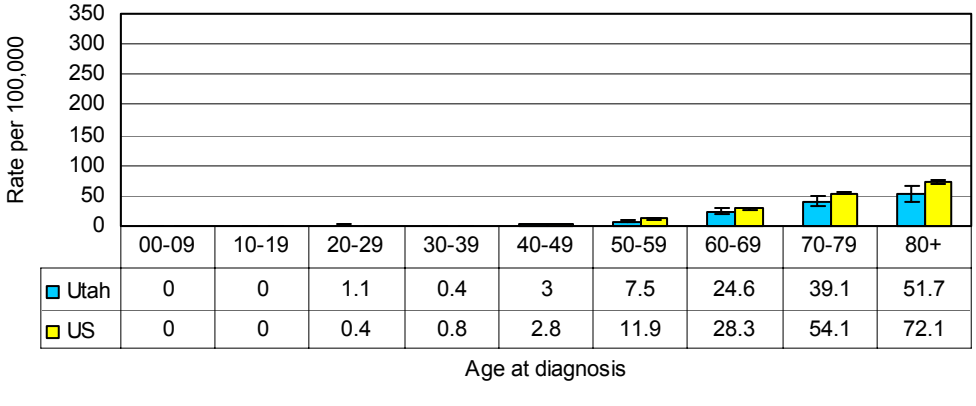
Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.8	1.8	7.4	25.8	88.1	194.8	290
US	0	0.1	0.6	2.1	9.6	36.9	106.1	221	298.6

Female

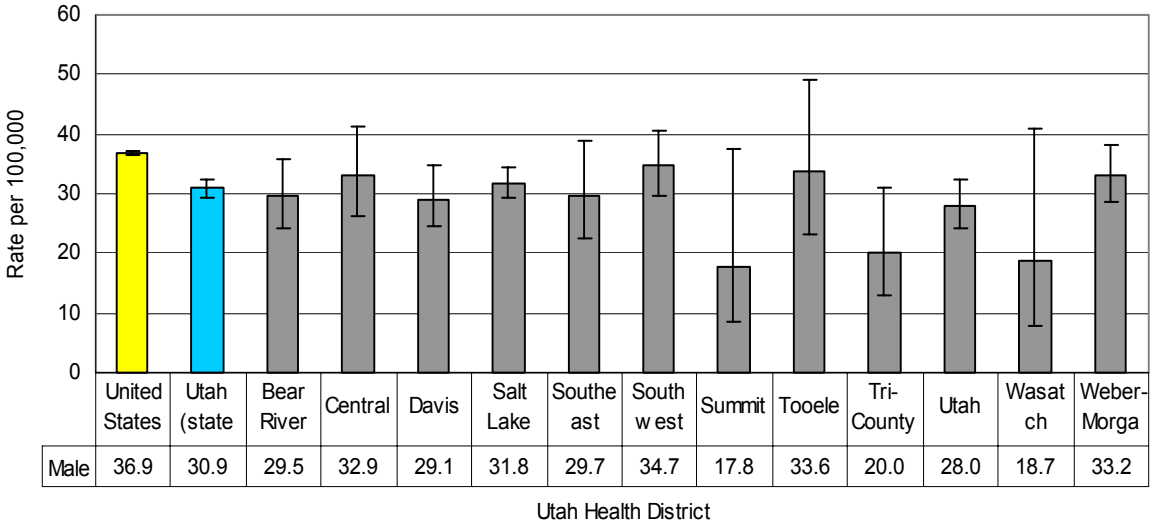


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	1.1	0.4	3	7.5	24.6	39.1	51.7
US	0	0	0.4	0.8	2.8	11.9	28.3	54.1	72.1

Urinary Bladder — *Incidence*

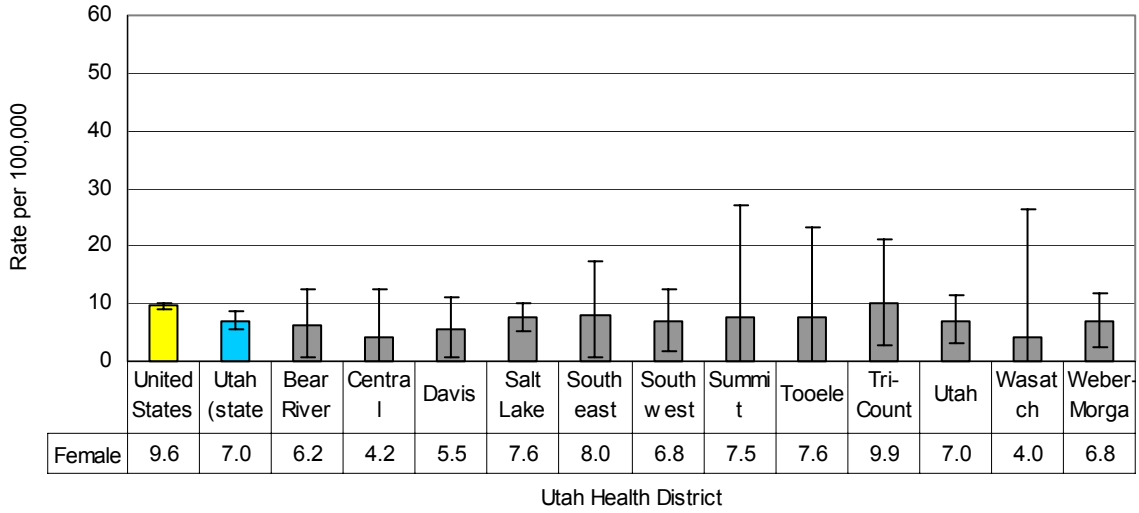
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard)
for twelve Utah Health Districts, by sex, for the time period 1991-2000,
with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	36.9	30.9	29.5	32.9	29.1	31.8	29.7	34.7	17.8	33.6	20.0	28.0	18.7	33.2

Female

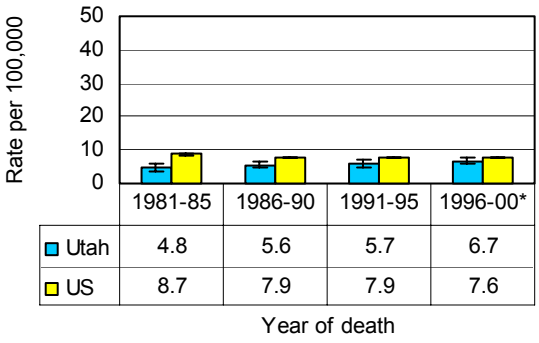


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	9.6	7.0	6.2	4.2	5.5	7.6	8.0	6.8	7.5	7.6	9.9	7.0	4.0	6.8

Urinary Bladder — *Mortality*

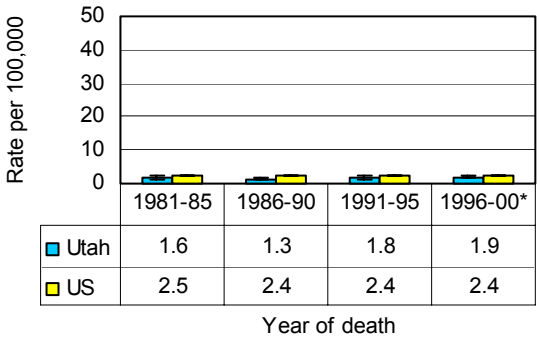
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	4.8	5.6	5.7	6.7
US	8.7	7.9	7.9	7.6

Female



	1981-85	1986-90	1991-95	1996-00*
Utah	1.6	1.3	1.8	1.9
US	2.5	2.4	2.4	2.4

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0	0	0.6	4	15.1	27.7	98.3
US	0	0	0	0.1	0.8	4	14.9	41.1	102.1

Female

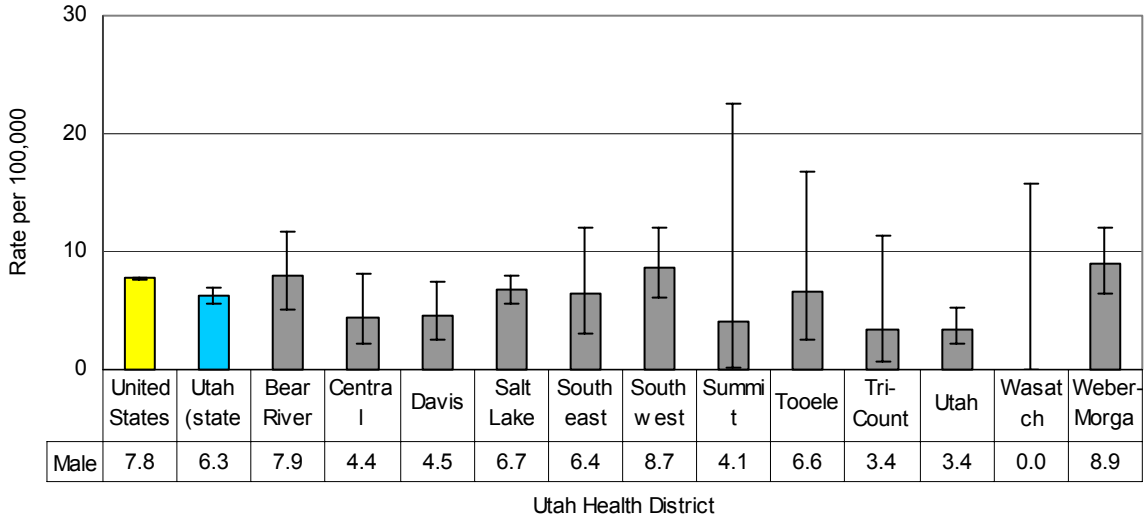


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0	0	0.7	3.8	13.2	23.3
US	0	0	0	0.1	0.3	1.3	4.6	12.6	33.4

Urinary Bladder — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

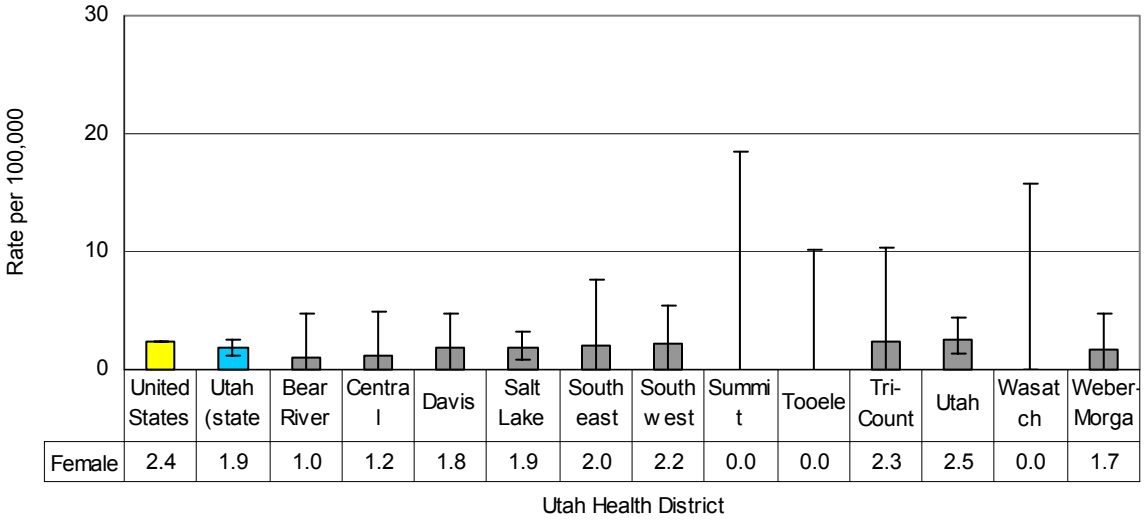
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	7.8	6.3	7.9	4.4	4.5	6.7	6.4	8.7	4.1	6.6	3.4	3.4	0.0	8.9

Utah Health District

Female

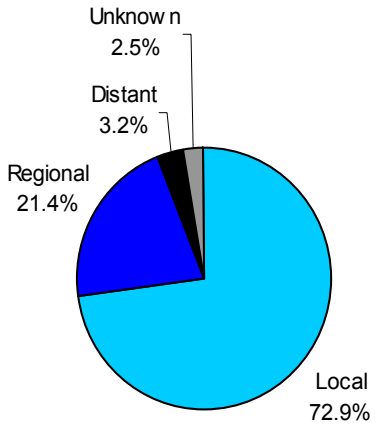


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	2.4	1.9	1.0	1.2	1.8	1.9	2.0	2.2	0.0	0.0	2.3	2.5	0.0	1.7

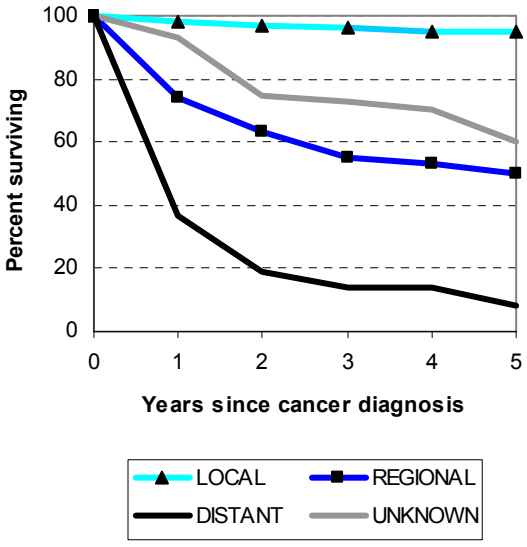
Utah Health District

Urinary bladder — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Kidney and Renal Pelvis

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	11.2	15.5	6.5	7.8
Rank among cancer incidence rates	8	7	10	12
Average annual number of new cases	79	18,050	53	11,550
Percent of all new cancer cases	2.4 %	2.8 %	1.8 %	1.8 %
Lifetime risk of this cancer (00-79 years)	1 in 85	1 in 62	1 in 144	1 in 122
Average annual age-adjusted mortality rates*	4.4	6.1	2.1	2.8
Rank among cancer mortality rates	13	10	13	13
Average annual number of deaths	28	6,919	17	4,329
Percent of all cancer deaths	2.4 %	2.5 %	1.6 %	1.7 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Cancers of the kidney account for one-third of all urinary tract neoplasms. Approximately 85 percent of kidney tumors in adults are renal cell carcinomas, the remaining 15 percent being primarily tumors of the renal pelvis. In children, Wilm's tumor of the kidney represents about 5 percent of all cancers.

Advances in imaging techniques are credited with earlier diagnosis and improved prognosis for kidney cancer patients. In the United States, the overall survival rates for kidney cancer increased by 50 percent between 1950 and 1985. In Utah, over one-half of all kidney cancer patients are alive five years after diagnosis.

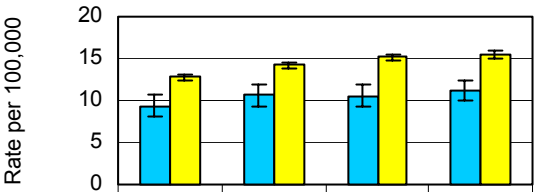
Cigarette smoking is the primary known cause of adult cancers of the kidney and renal pelvis. Smokers are estimated to be at twice the risk of non-smokers, and as many as 30 percent of kidney cancer may be due to cigarette smoking. Prolonged use of phenacetin and acetaminophen has been associated with an increased risk of cancers of the renal pelvis. Elevated risks for kidney cancer have been observed among coke oven workers and insulation workers, suggesting that some occupational exposures may be related to the disease. Obesity has also been associated with an increased risk among women. Although the etiology of Wilm's tumor is not known, genetic factors clearly contribute to the occurrence of the disease in some cases.

With the exception of tobacco avoidance, no means of primary prevention is currently available. No screening method has been proven to be effective.

Kidney and Renal Pelvis — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

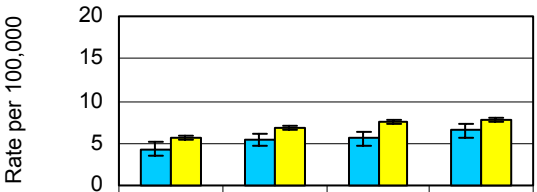
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	9.3	10.6	10.5	11.2
US	12.8	14.2	15.2	15.5

Year of diagnosis

Female

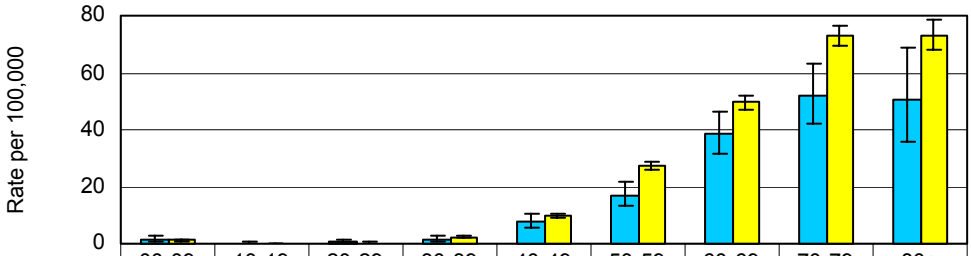


	1981-85	1986-90	1991-95	1996-00*
Utah	4.3	5.3	5.6	6.5
US	5.7	6.9	7.5	7.8

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

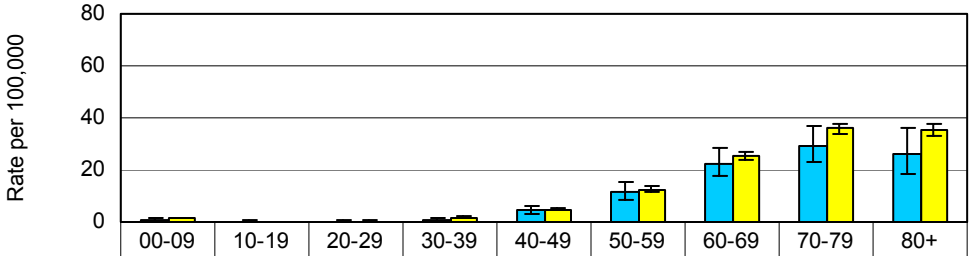
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	1.6	0.2	0.4	1.4	7.7	17.1	38.4	51.7	50.4
US	1.2	0.1	0.3	2.3	9.8	27.4	49.7	72.8	73.2

Age at diagnosis

Female



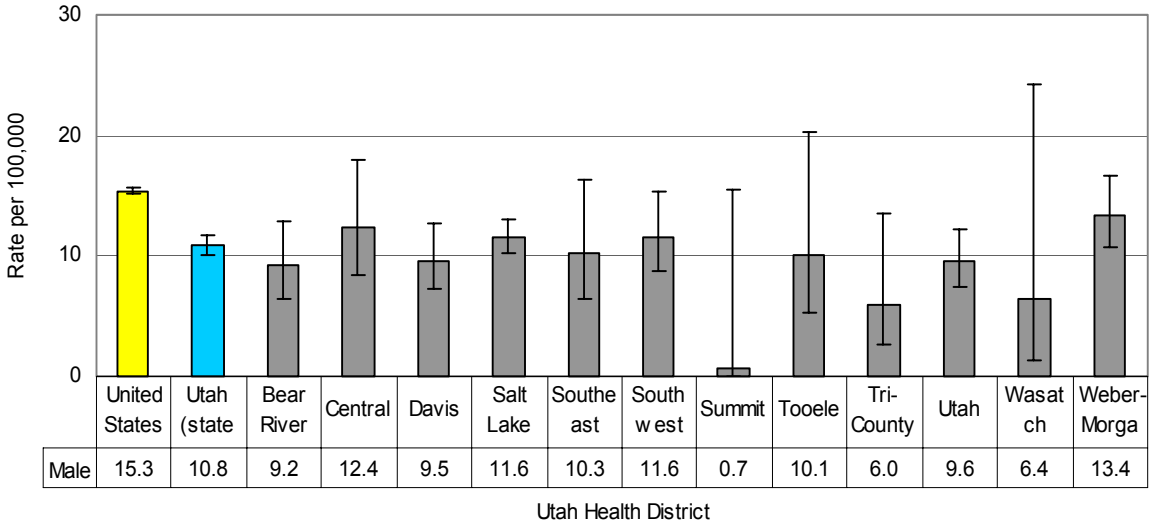
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.7	0.1	0.1	0.8	4.5	11.8	22.5	29.3	26.2
US	1.6	0.1	0.3	1.8	4.8	12.5	25.5	35.9	35.4

Age at diagnosis

Kidney and Renal Pelvis — *Incidence*

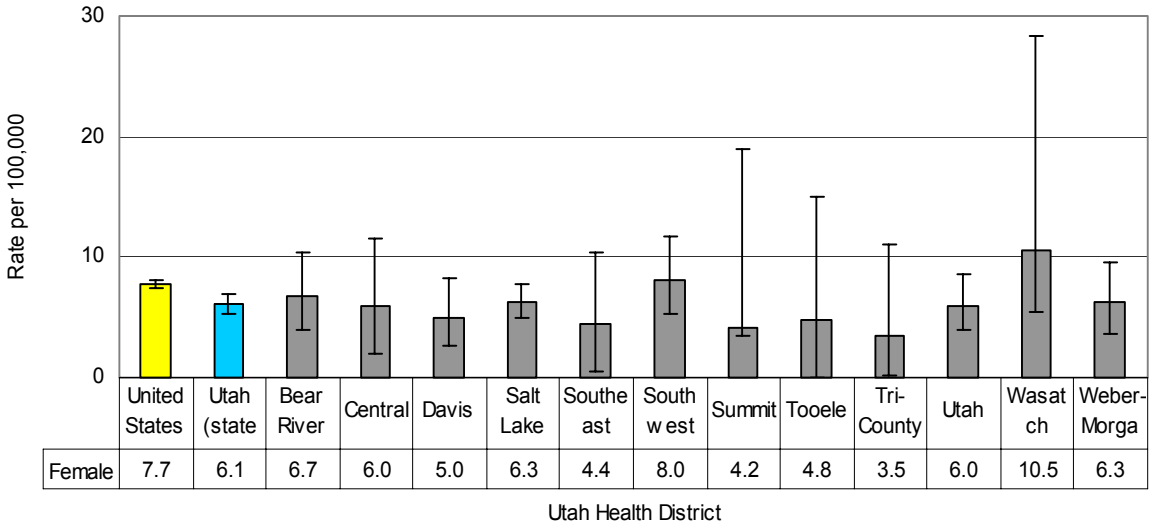
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	15.3	10.8	9.2	12.4	9.5	11.6	10.3	11.6	0.7	10.1	6.0	9.6	6.4	13.4

Female

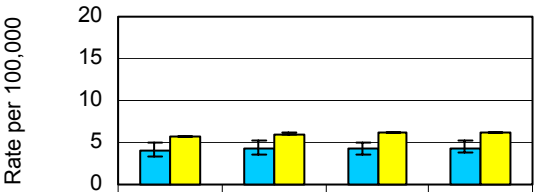


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	7.7	6.1	6.7	6.0	5.0	6.3	4.4	8.0	4.2	4.8	3.5	6.0	10.5	6.3

Kidney and Renal Pelvis — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

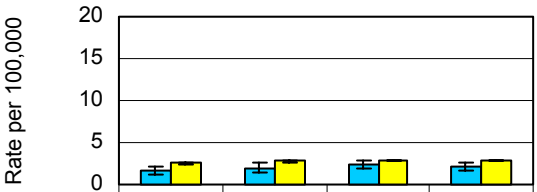
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	4.1	4.3	4.2	4.4
US	5.6	6.0	6.2	6.1

Year of death

Female

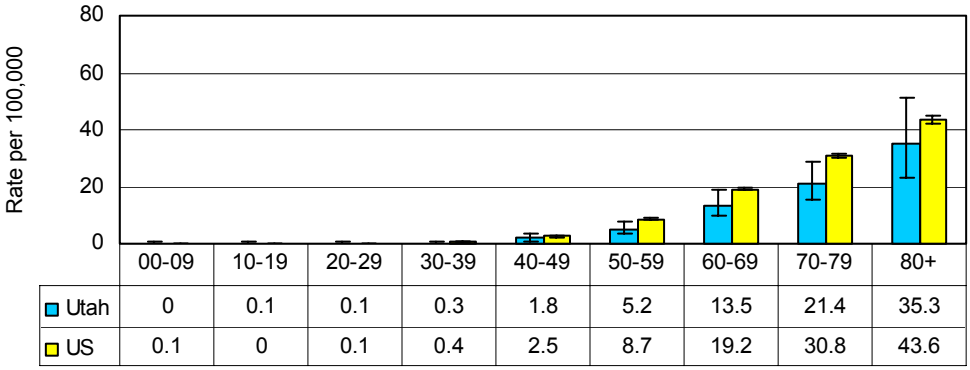


	1981-85	1986-90	1991-95	1996-00*
Utah	1.6	2.0	2.3	2.1
US	2.6	2.8	2.9	2.8

Year of death

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

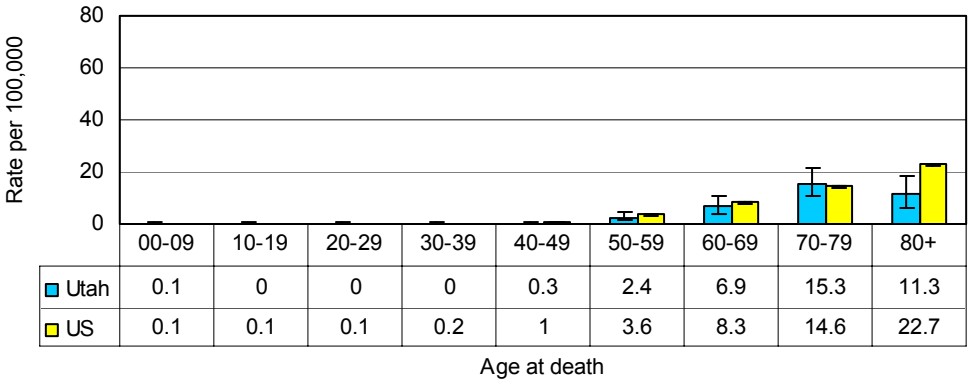
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0.1	0.3	1.8	5.2	13.5	21.4	35.3
US	0.1	0	0.1	0.4	2.5	8.7	19.2	30.8	43.6

Age at death

Female



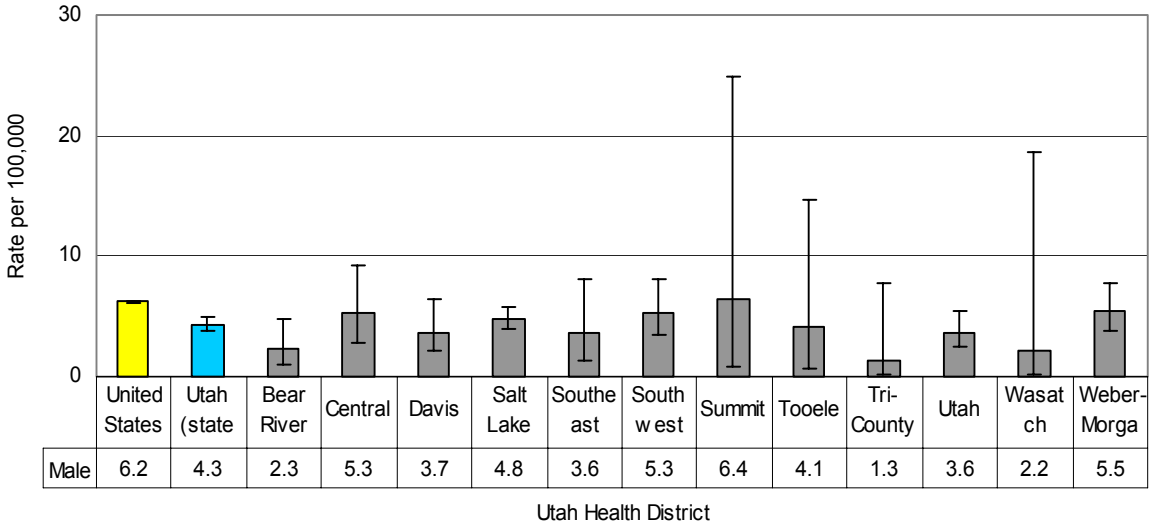
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0	0	0	0.3	2.4	6.9	15.3	11.3
US	0.1	0.1	0.1	0.2	1	3.6	8.3	14.6	22.7

Age at death

Kidney and Renal Pelvis — *Mortality*

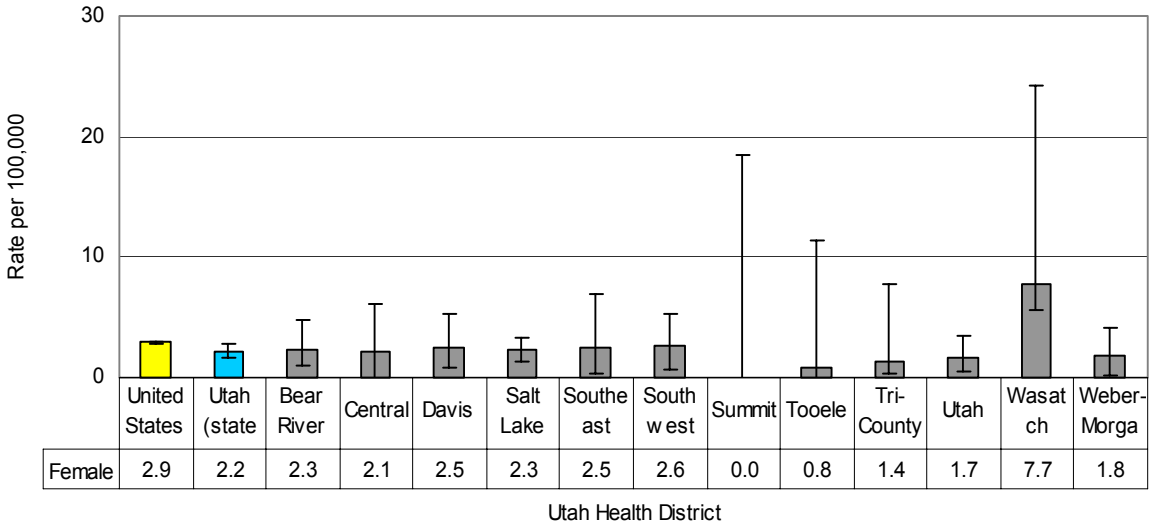
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	6.2	4.3	2.3	5.3	3.7	4.8	3.6	5.3	6.4	4.1	1.3	3.6	2.2	5.5

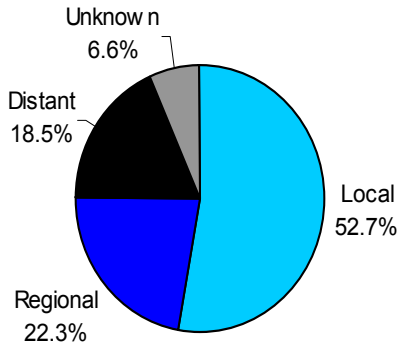
Female



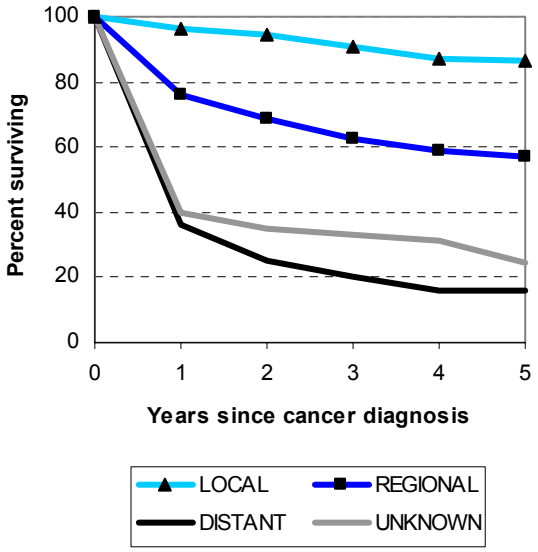
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	2.9	2.2	2.3	2.1	2.5	2.3	2.5	2.6	0.0	0.8	1.4	1.7	7.7	1.8

Kidney and Renal Pelvis — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Brain

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	8.0	7.7	5.9	5.1
Rank among cancer incidence rates	10	12	12	15
Average annual number of new cases	64	9,390	54	7,370
Percent of all new cancer cases	2.0 %	1.5 %	1.9 %	1.2 %
Lifetime risk of this cancer (00-79 years)	1 in 133	1 in 135	1 in 175	1 in 203
Average annual age-adjusted mortality rates*	5.6	5.6	3.7	3.8
Rank among cancer mortality rates	7	11	8	8
Average annual number of deaths	41	6,707	31	5,584
Percent of all cancer deaths	3.5 %	2.4 %	2.9 %	2.2 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Brain tumors account for over 90 percent of all cancers in the central nervous system, and are comprised of numerous histologic types with distinct etiologic characteristics. The most common histologic type of brain cancer among children is medulloblastoma, a tumor of the cerebellum. Glioma, a tumor of neuron-support cells, is the most common form of brain cancer among adults.

The etiology of these neoplams remains unclear. Some chemicals have been found to cause brain tumors in animals, including N-nitrosamins and polycyclic hydrocarbons. In humans, exposures to lead, insecticides, and barbiturates have been associated with an increased risk of brain tumors in some studies, and increased risks have also been observed among workers in the oil and rubber industries, chemists, and pharmaceutical workers. Specific etiologic agents have not been identified, however. High does of ionizing radiation have been shown to increase risk. Immunocompromised individuals are at increased risk of rare lymphomas of the brain.

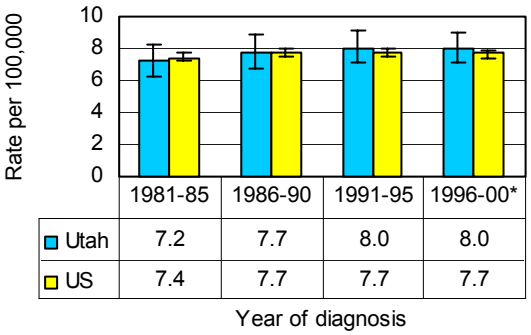
A relatively small number of brain tumors are associated with genetic factors, including retinoblastoma, glomus tumors, Von Recklinghausen's neurofibromatosis, and hemangioblastomas, the latter related to Hippel-Lindau disease.

Because only a small percentage of brain tumors are associated with known risk factors, at this time there is little opportunity for implementing primary preventive measures.

Brain — *Incidence*

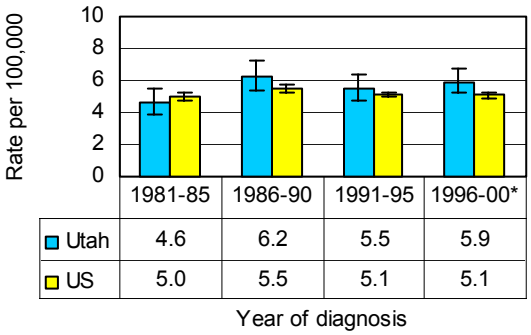
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	7.2	7.7	8.0	8.0
US	7.4	7.7	7.7	7.7

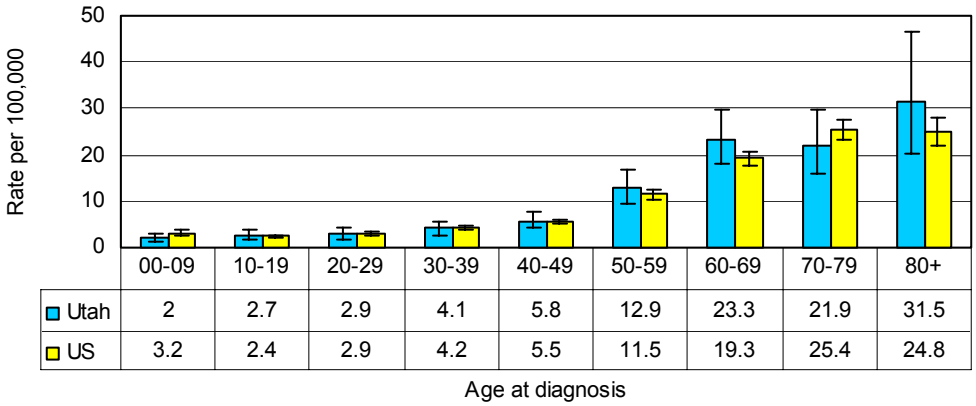
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	4.6	6.2	5.5	5.9
US	5.0	5.5	5.1	5.1

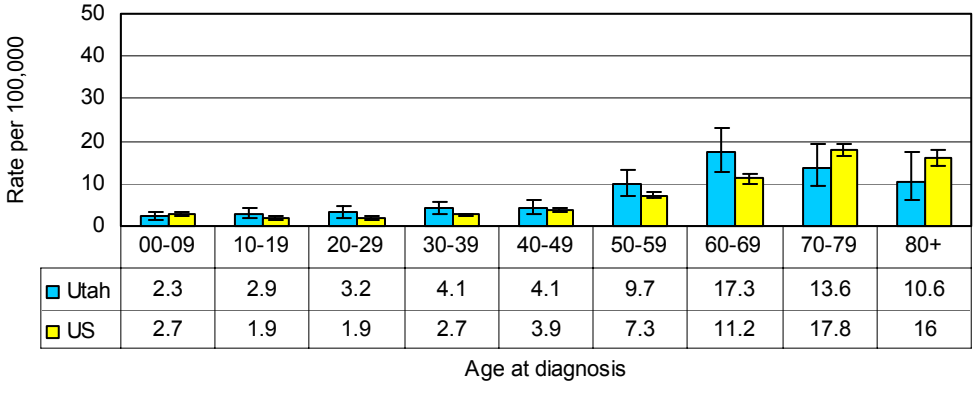
Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	2	2.7	2.9	4.1	5.8	12.9	23.3	21.9	31.5
US	3.2	2.4	2.9	4.2	5.5	11.5	19.3	25.4	24.8

Female

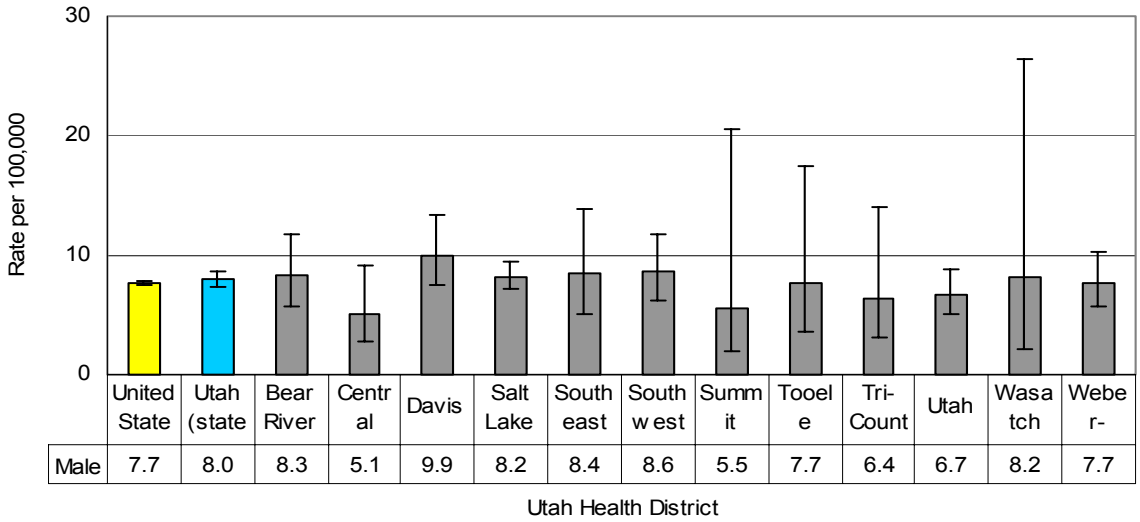


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	2.3	2.9	3.2	4.1	4.1	9.7	17.3	13.6	10.6
US	2.7	1.9	1.9	2.7	3.9	7.3	11.2	17.8	16

Brain — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

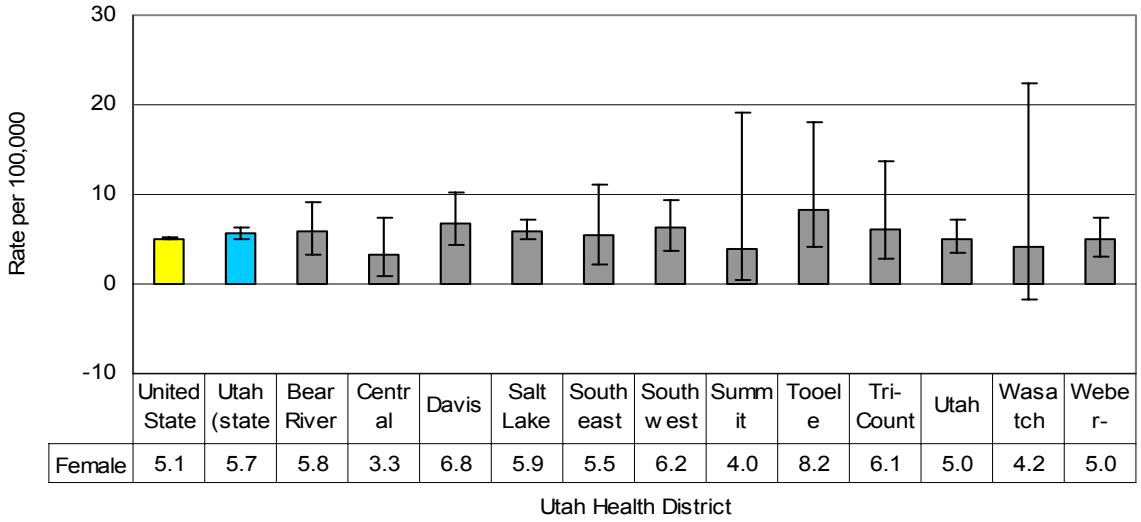
Male



	United State	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-
Male	7.7	8.0	8.3	5.1	9.9	8.2	8.4	8.6	5.5	7.7	6.4	6.7	8.2	7.7

Utah Health District

Female



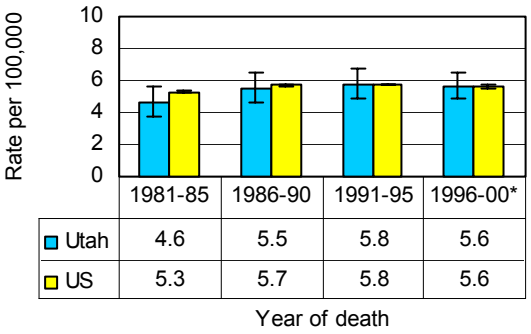
	United State	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-
Female	5.1	5.7	5.8	3.3	6.8	5.9	5.5	6.2	4.0	8.2	6.1	5.0	4.2	5.0

Utah Health District

Brain — *Mortality*

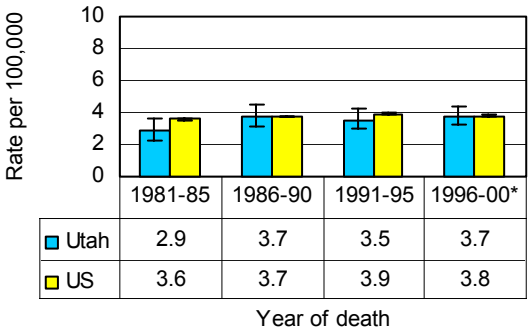
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	4.6	5.5	5.8	5.6
US	5.3	5.7	5.8	5.6

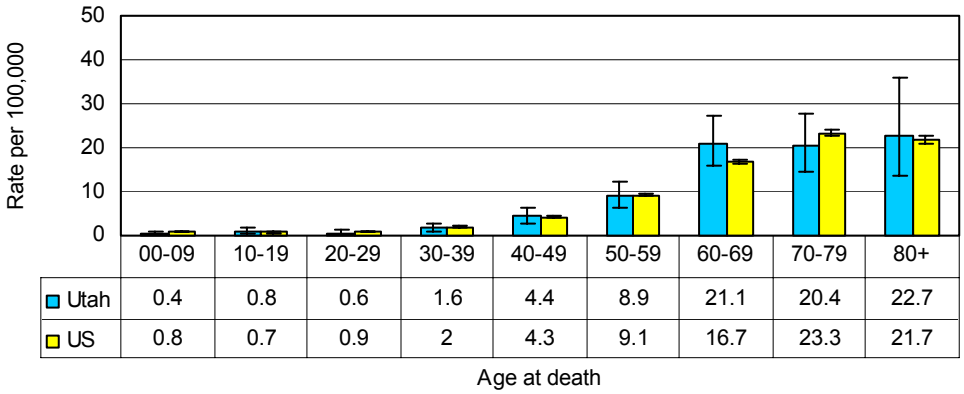
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	2.9	3.7	3.5	3.7
US	3.6	3.7	3.9	3.8

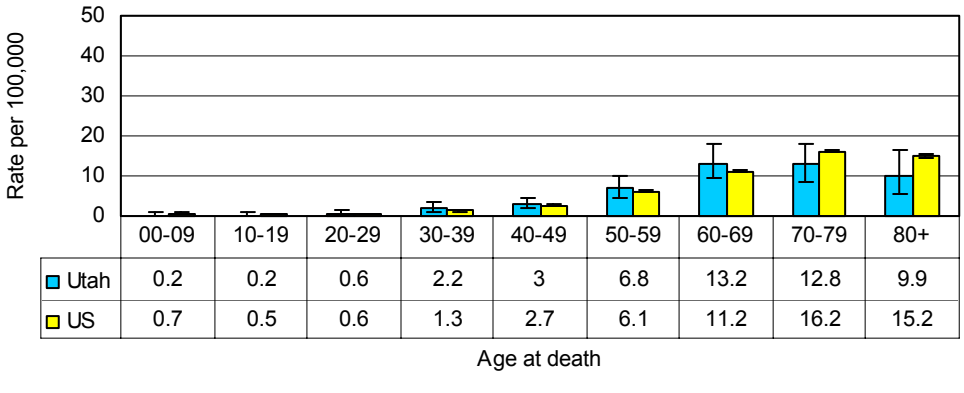
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.4	0.8	0.6	1.6	4.4	8.9	21.1	20.4	22.7
US	0.8	0.7	0.9	2	4.3	9.1	16.7	23.3	21.7

Female

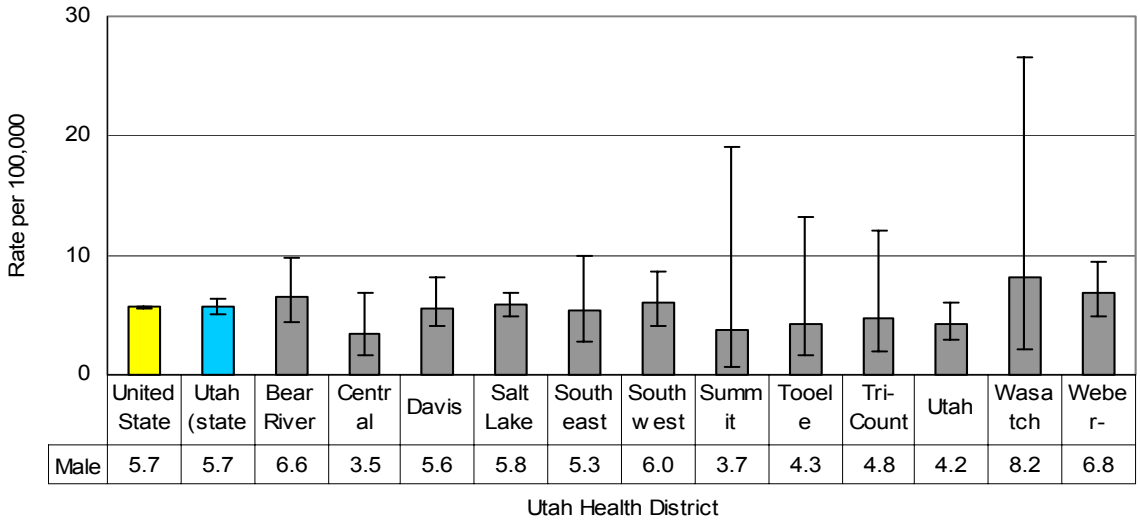


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.2	0.2	0.6	2.2	3	6.8	13.2	12.8	9.9
US	0.7	0.5	0.6	1.3	2.7	6.1	11.2	16.2	15.2

Brain *Mortality*

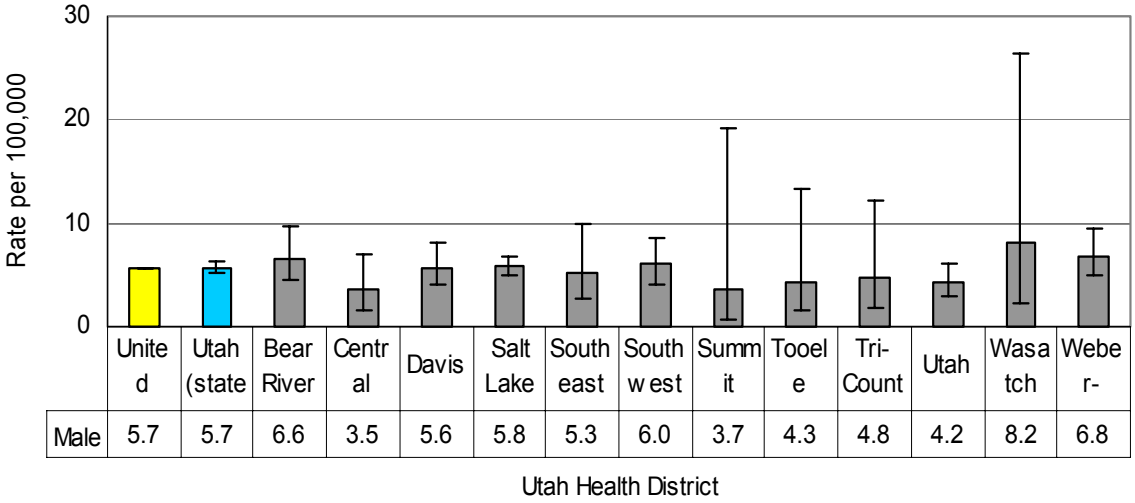
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United State	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-
Male	5.7	5.7	6.6	3.5	5.6	5.8	5.3	6.0	3.7	4.3	4.8	4.2	8.2	6.8

Female



	United	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-
Male	5.7	5.7	6.6	3.5	5.6	5.8	5.3	6.0	3.7	4.3	4.8	4.2	8.2	6.8

This page intentionally blank

Thyroid

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	4.2	3.7	12.4	9.9
Rank among cancer incidence rates	18	20	8	9
Average annual number of new cases	34	4,560	115	13,810
Percent of all new cancer cases	1.0 %	0.7 %	4.0 %	2.3 %
Lifetime risk of this cancer (from birth to 79 years)	1 in 263	1 in 297	1 in 97	1 in 120
Average annual age-adjusted mortality rates*	0.5	0.4	0.5	0.5
Rank among cancer mortality rates	<20	<20	<20	<20
Average annual number of deaths	3	475	4	732
Percent of all cancer deaths	0.3 %	0.2 %	0.4 %	0.3 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Thyroid tumors are relatively rare, though they are among the most common neoplasms diagnosed in adolescents and young adults. The age-adjusted incidence rate for thyroid cancer in females is approximately three times higher than in males. In men, age-specific incidence rates increase gradually and steadily with age until the sixth decade of life. In contrast, incidence rates in women increase dramatically during adolescence and young adulthood, peak in the sixth and seventh decades of life, then decline.

Exposure to radiation has been associated with an increased risk of developing thyroid cancer. An elevated risk of this disease has been observed in atomic bomb survivors, those exposed to fallout from nuclear weapons testing, and individuals who received radiation treatment for certain medical conditions when they were young. Aside from these unique exposures, however, the association between other sources of radiation exposure and thyroid cancer is less clear.

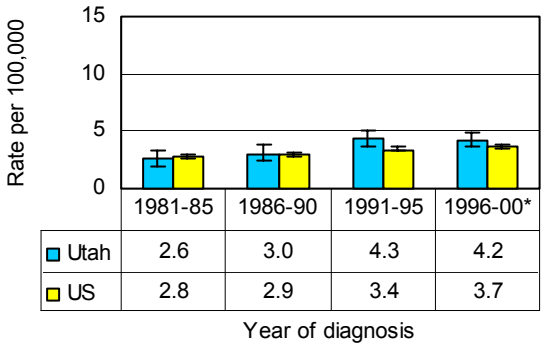
Hormonal factors may play an important role in the development of thyroid cancer. The growth and function of the thyroid is largely controlled by the activity of the pituitary hormone, thyroid stimulating hormone (TSH). TSH has been shown to enhance the growth of some thyroid tumor cells, and factors that influence the production of TSH may similarly influence the development of thyroid cancer. Ovarian hormones reduce levels of active thyroid hormone and thereby enhance production of TSH. This may explain the higher rates of thyroid cancer in women than in men, and the rapid increase in rates in women following menarche. Further, in studies of exposure to radiation from external sources, females were more likely to have developed thyroid cancer than males even when they received comparable doses. Thus, it is possible that different hormonal and exogenous factors interact to influence an individual's risk for this disease.

Exposure to external radiation accounts for only a small percentage of thyroid tumors, and the remaining causes of this disease are insufficiently understood to allow for the implementation of preventive measures.

Thyroid *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

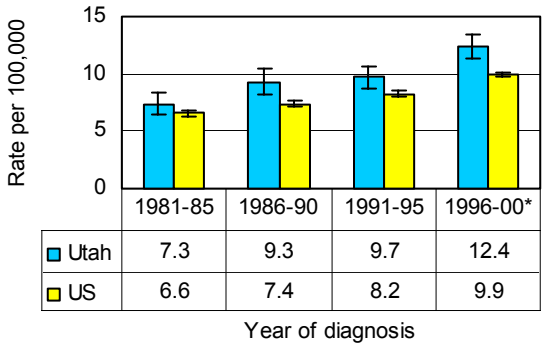
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	2.6	3.0	4.3	4.2
US	2.8	2.9	3.4	3.7

Year of diagnosis

Female

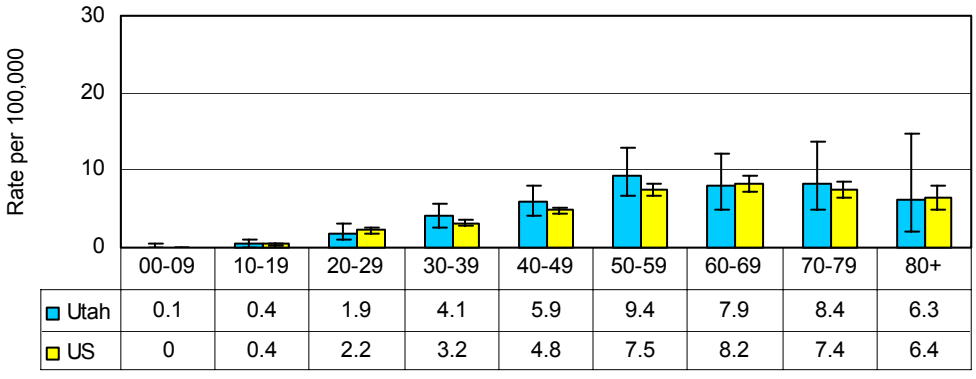


	1981-85	1986-90	1991-95	1996-00*
Utah	7.3	9.3	9.7	12.4
US	6.6	7.4	8.2	9.9

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

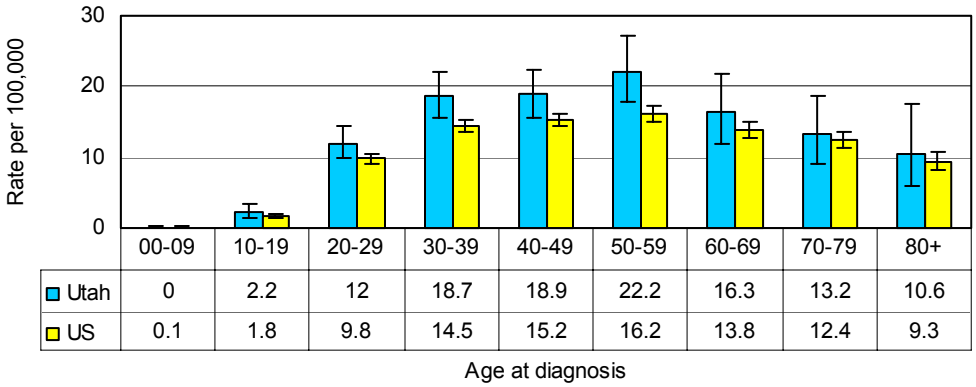
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0.4	1.9	4.1	5.9	9.4	7.9	8.4	6.3
US	0	0.4	2.2	3.2	4.8	7.5	8.2	7.4	6.4

Age at diagnosis

Female



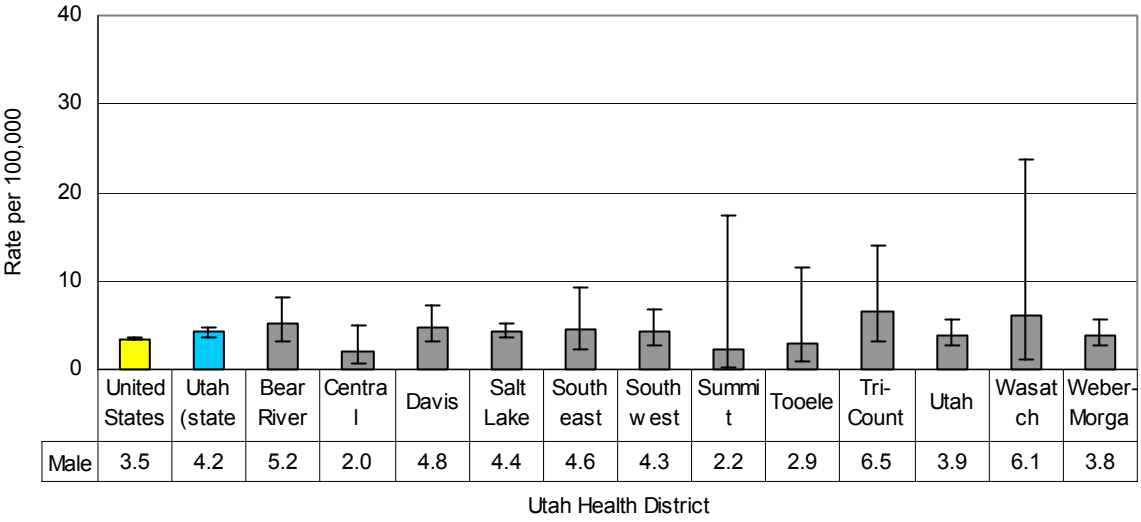
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	2.2	12	18.7	18.9	22.2	16.3	13.2	10.6
US	0.1	1.8	9.8	14.5	15.2	16.2	13.8	12.4	9.3

Age at diagnosis

Thyroid | *Incidence*

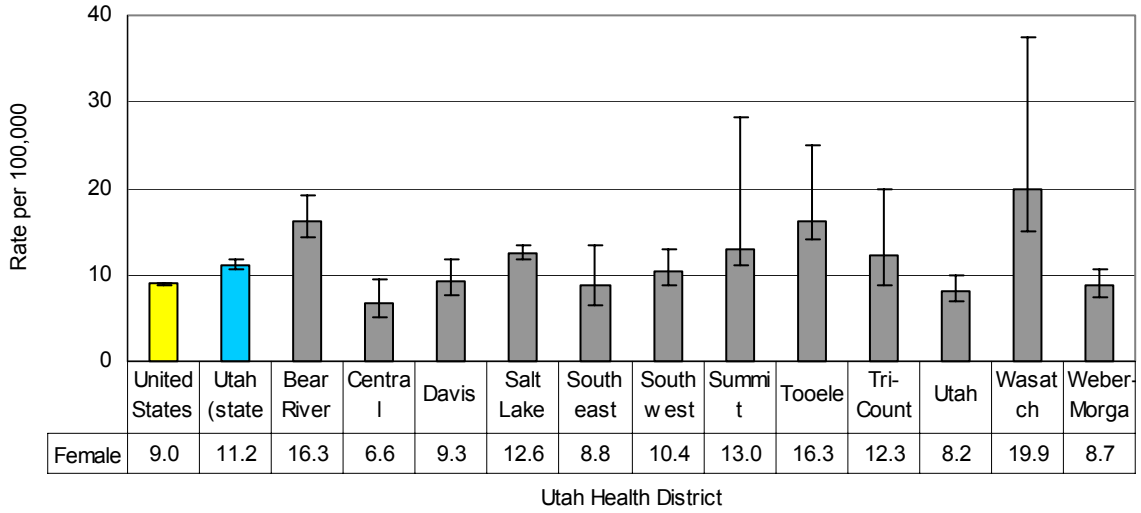
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	3.5	4.2	5.2	2.0	4.8	4.4	4.6	4.3	2.2	2.9	6.5	3.9	6.1	3.8

Female

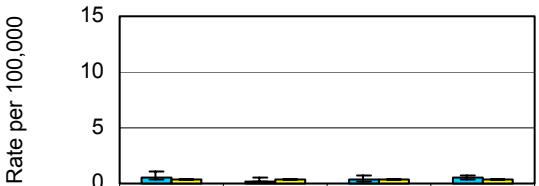


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	9.0	11.2	16.3	6.6	9.3	12.6	8.8	10.4	13.0	16.3	12.3	8.2	19.9	8.7

Thyroid — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

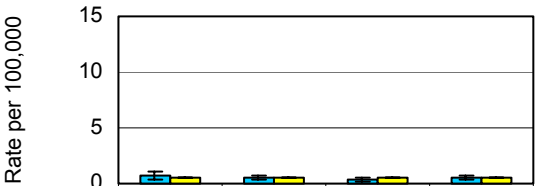
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	0.5	0.2	0.3	0.5
US	0.4	0.4	0.4	0.4

Year of death

Female

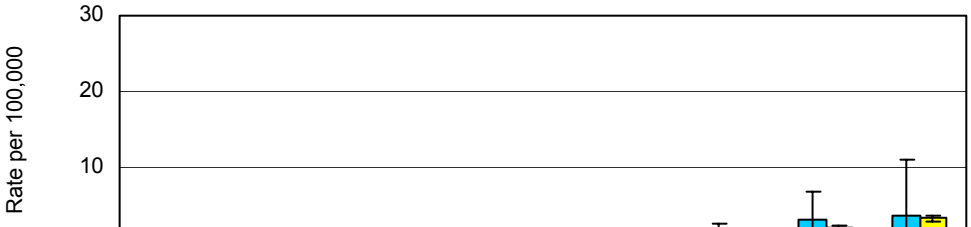


	1981-85	1986-90	1991-95	1996-00*
Utah	0.7	0.5	0.4	0.5
US	0.5	0.5	0.5	0.5

Year of death

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

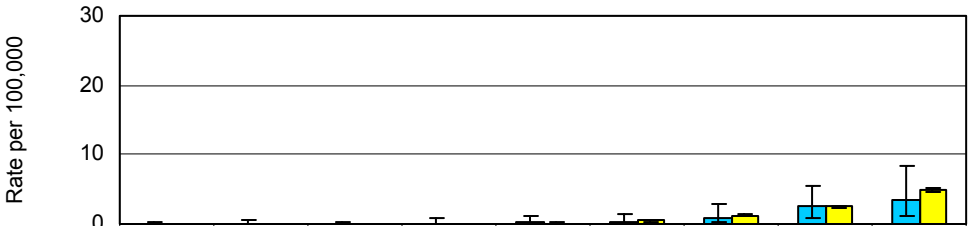
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0	0.5	0.2	0.8	3.1	3.8
US	0	0	0	0	0.1	0.5	1.3	2.2	3.4

Age at death

Female

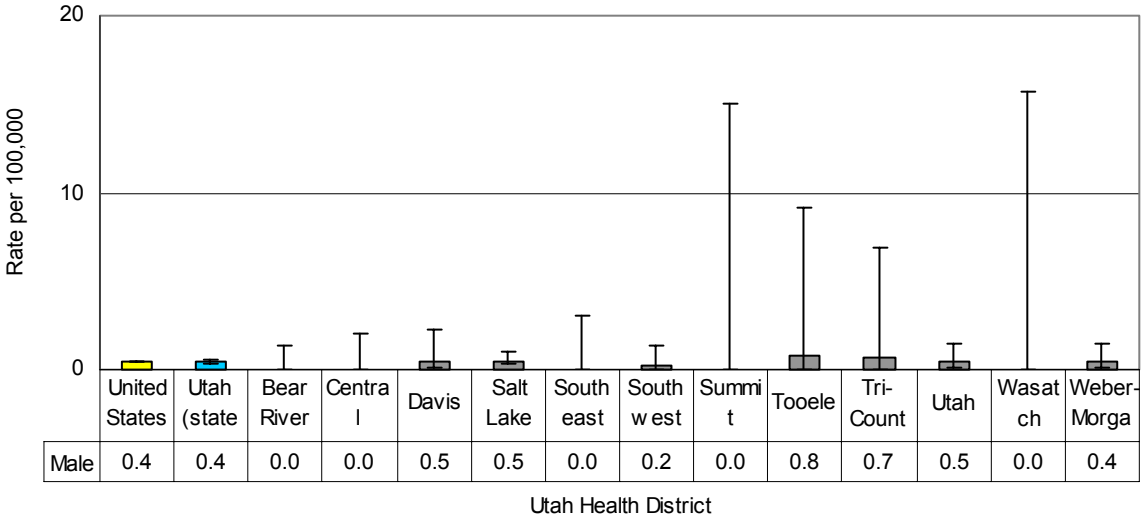


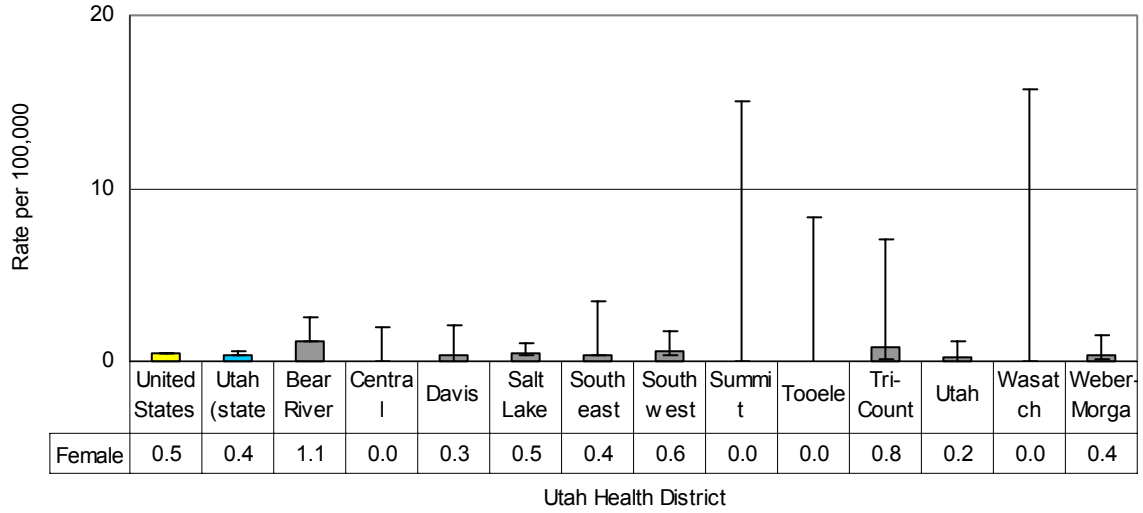
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0	0.1	0.3	0.2	1	2.6	3.5
US	0	0	0	0	0.1	0.5	1.2	2.5	4.8

Age at death

Thyroid — *Mortality*

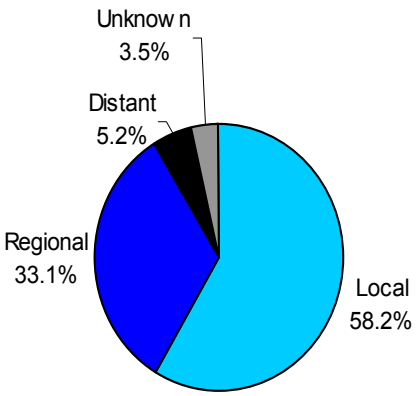
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison



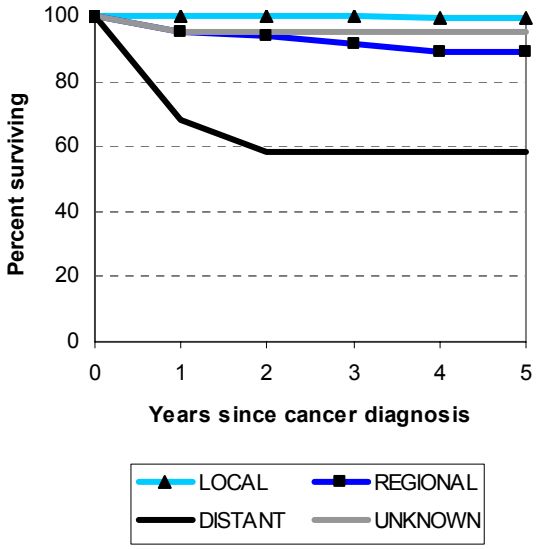


Thyroid — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Hodgkin's Lymphoma

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	2.8	3.1	2.0	2.6
Rank among cancer incidence rates	<20	<20	20	19
Average annual number of new cases	28	4,050	21	3,590
Percent of all new cancer cases	0.9 %	0.7 %	0.7 %	0.6 %
Lifetime risk of this cancer (00-79 years)	1 in 414	1 in 385	1 in 658	1 in 478
Average annual age-adjusted mortality rates*	0.6	0.6	0.3	0.4
Rank among cancer mortality rates	<20	<20	<20	<20
Average annual number of deaths	4	769	2	622
Percent of all cancer deaths	0.4 %	0.3 %	0.2 %	0.2 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

The first case reports of Hodgkin's lymphoma are attributed to the British physician, Thomas Hodgkin, who presented his observations in 1832. Prior to the mid-twentieth century, the disease was highly fatal. Subsequent advances in treatment dramatically improved the chances of survival for patients with this disease. Although rare, Hodgkin's lymphoma is still one of the most common cancers diagnosed in children and young adults.

A distinct epidemiologic characteristic of Hodgkin's lymphoma in the United States is the bimodal pattern in the age-specific incidence curve. The first peak occurs in young adults in their twenties, and the second in those over 65 years of age. Males are generally at greater risk than females, with the largest gender differences in childhood and in those over the age of 30 years. Incidence rates in the United States have changed little since 1981.

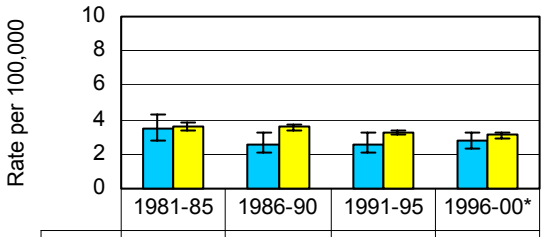
Much attention has been focused on the possibility of an infectious etiologic agent for Hodgkin's lymphoma. In the early 1970's, two studies reported geographic clusters of this disease in Albany and Long Island, New York. However, subsequent studies were unable to replicate the results of the original investigations. Epstein-Barr virus (EBC), the etiologic agent of heterophil-positive infectious mononucleosis, has been associated with a two-to-three fold increase in risk of Hodgkin's lymphoma, and it has been theorized that an infection by this virus after early childhood is of particular etiologic importance. Nonetheless, the roll of infectious agents in the development of Hodgkin's lymphoma remains unclear.

Occupations that have been associated with an increased risk of Hodgkin's lymphoma include chemists, teachers, and workers with exposure to wood and wood products. Results from the occupational studies are not consistent, however, and should be interpreted with caution. A predisposition for Hodgkin's lymphoma has been observed among individuals with rare inherited immunological disorders, suggesting a genetic etiology in a small number of cases. In addition, patients with primary immunodeficiency syndromes have an increased risk of various lymphoreticular neoplasms, including Hodgkin's lymphoma.

Hodgkin's Lymphoma — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

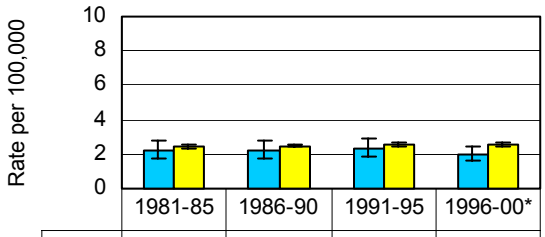
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	3.5	2.6	2.6	2.8
US	3.6	3.6	3.3	3.1

Year of diagnosis

Female

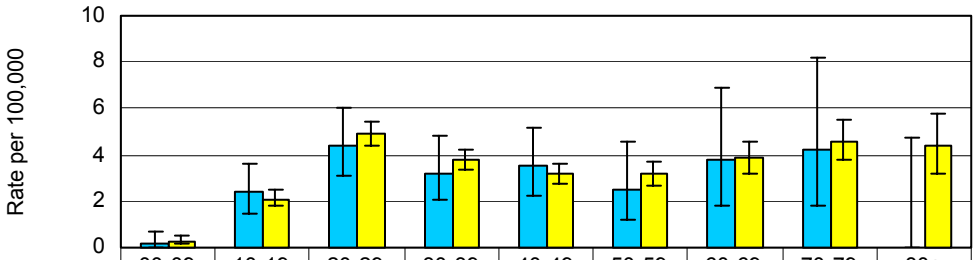


	1981-85	1986-90	1991-95	1996-00*
Utah	2.2	2.2	2.3	2.0
US	2.4	2.5	2.6	2.6

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

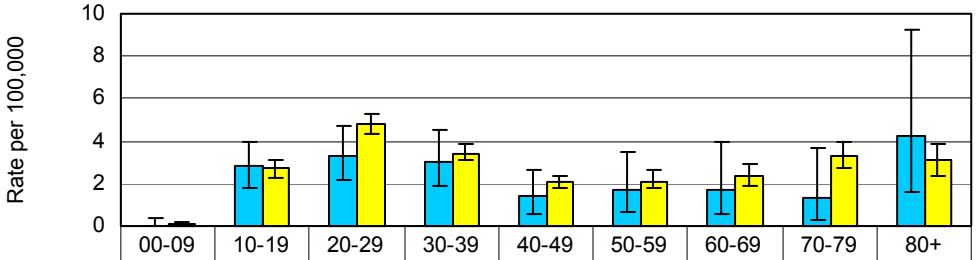
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.2	2.4	4.4	3.2	3.5	2.5	3.8	4.2	0
US	0.3	2.1	4.9	3.8	3.2	3.2	3.9	4.6	4.4

Age at diagnosis

Female



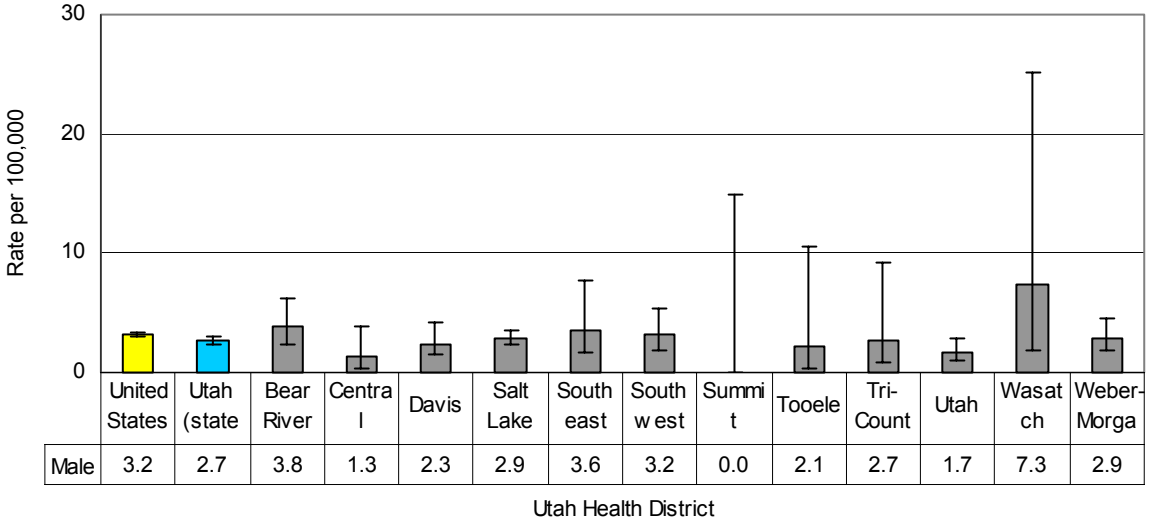
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	2.8	3.3	3	1.4	1.7	1.7	1.3	4.2
US	0.1	2.7	4.8	3.4	2.1	2.1	2.4	3.3	3.1

Age at diagnosis

Hodgkin's Lymphoma — *Incidence*

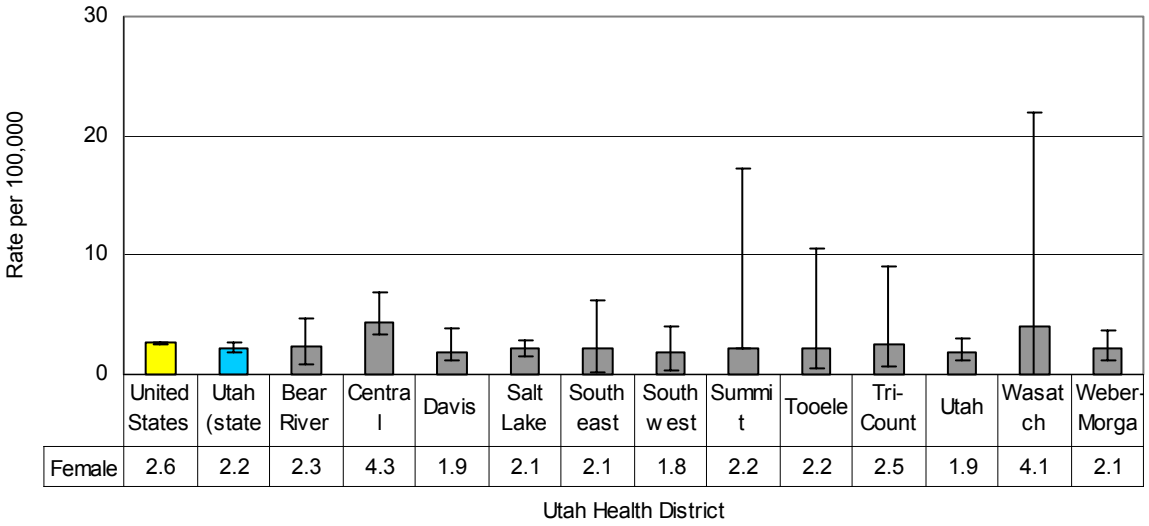
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	3.2	2.7	3.8	1.3	2.3	2.9	3.6	3.2	0.0	2.1	2.7	1.7	7.3	2.9

Female

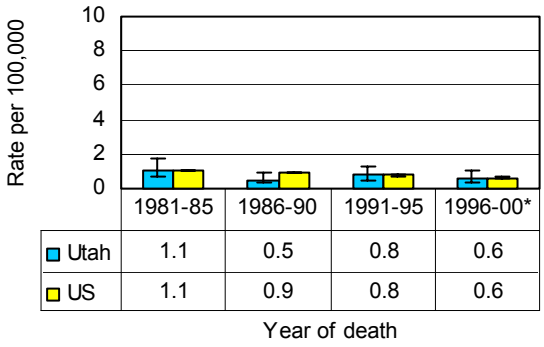


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	2.6	2.2	2.3	4.3	1.9	2.1	2.1	1.8	2.2	2.2	2.5	1.9	4.1	2.1

Hodgkin's Lymphoma — *Mortality*

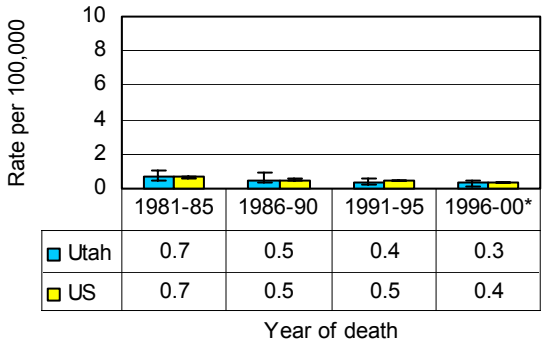
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	1.1	0.5	0.8	0.6
US	1.1	0.9	0.8	0.6

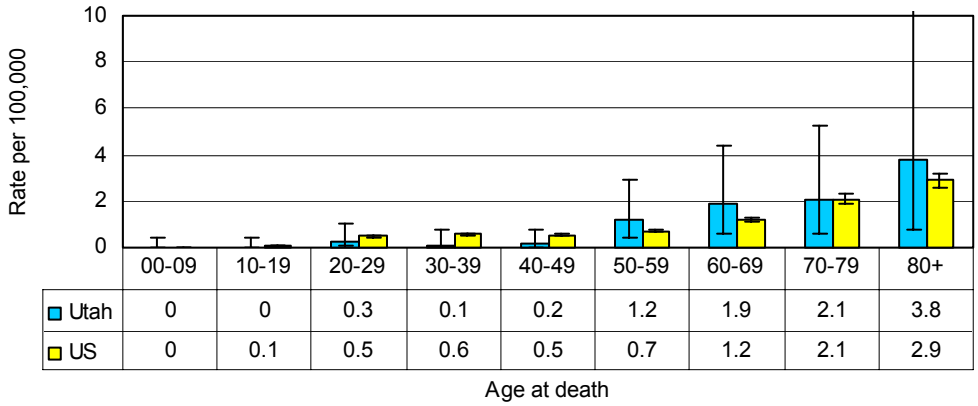
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	0.7	0.5	0.4	0.3
US	0.7	0.5	0.5	0.4

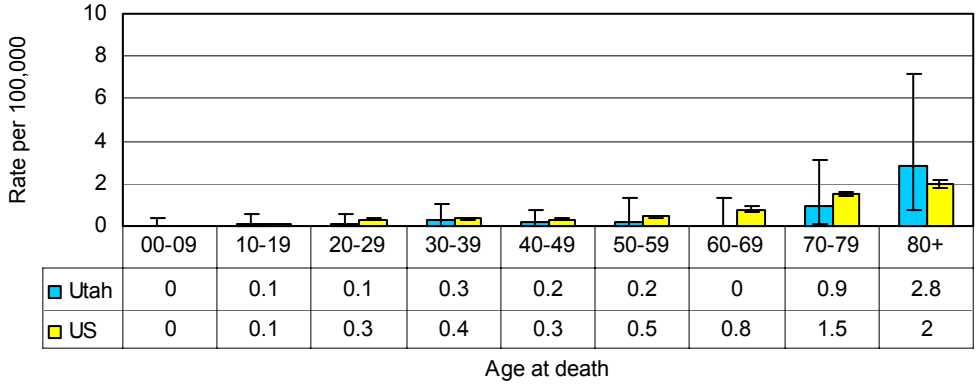
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.3	0.1	0.2	1.2	1.9	2.1	3.8
US	0	0.1	0.5	0.6	0.5	0.7	1.2	2.1	2.9

Female

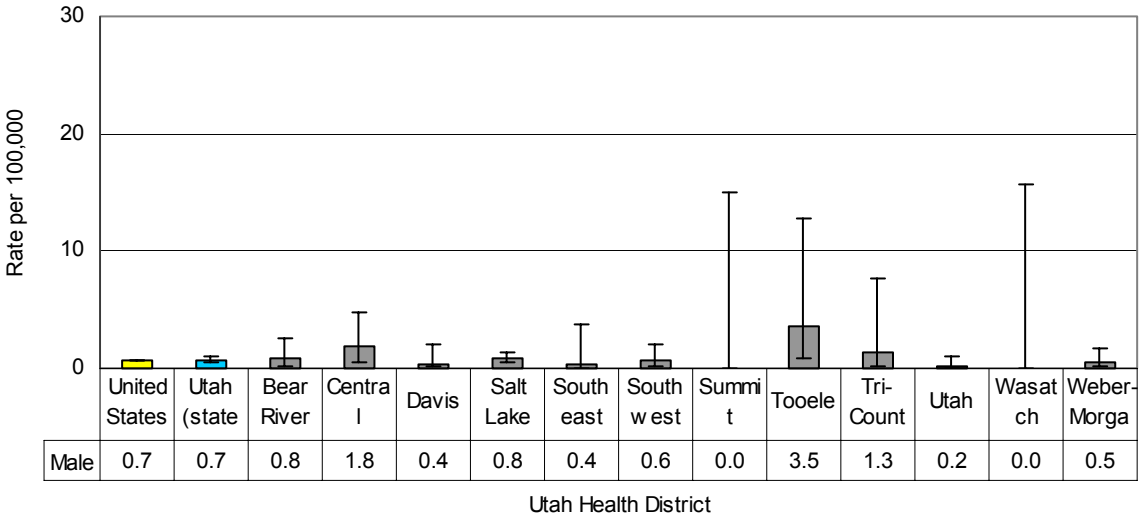


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0.1	0.1	0.3	0.2	0.2	0	0.9	2.8
US	0	0.1	0.3	0.4	0.3	0.5	0.8	1.5	2

Hodgkin's Lymphoma — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

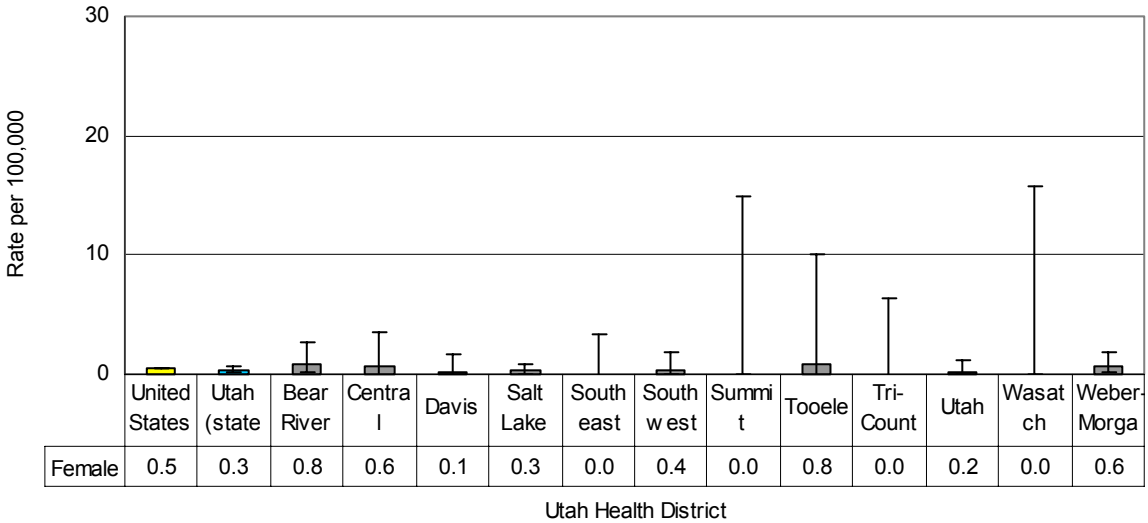
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	0.7	0.7	0.8	1.8	0.4	0.8	0.4	0.6	0.0	3.5	1.3	0.2	0.0	0.5

Utah Health District

Female

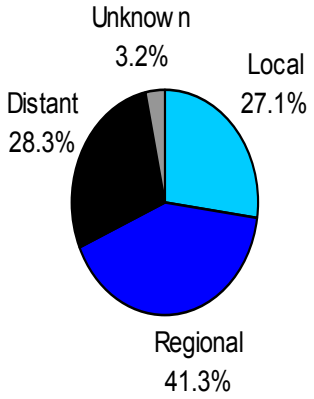


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	0.5	0.3	0.8	0.6	0.1	0.3	0.0	0.4	0.0	0.8	0.0	0.2	0.0	0.6

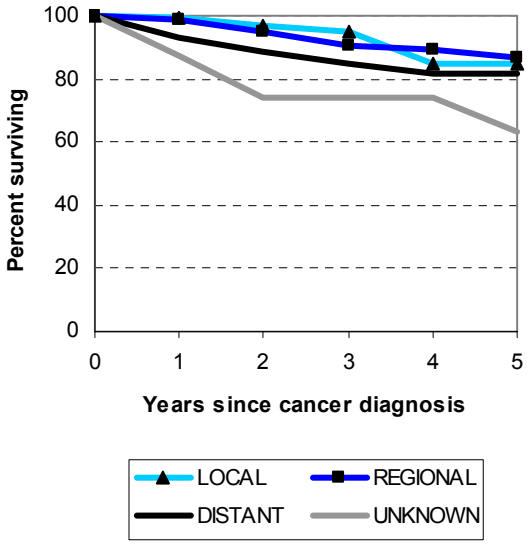
Utah Health District

Hodgkin's lymphoma — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Non-Hodgkin's Lymphoma

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	23.4	23.5	14.3	15.9
Rank among cancer incidence rates	6	5	7	6
Average annual number of new cases	163	27,580	117	23,690
Percent of all new cancer cases	5.0 %	4.3 %	4.1 %	3.8 %
Lifetime risk this of cancer (00-79 years)	1 in 44	1 in 44	1 in 68	1 in 62
Average annual age-adjusted mortality rates*	10.5	10.8	7.1	7.2
Rank among cancer mortality rates	4	5	5	6
Average annual number of deaths	68	12,047	58	11,115
Percent of all cancer deaths	5.7 %	4.3 %	5.5 %	4.3 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Malignant lymphoma is a broad classification used to describe neoplasms of the lymphoreticular system. With the discovery of the Reed-Sternberg cell, Hodgkin's lymphoma was subsequently treated as a separate category of lymphoma. This section of the monograph, therefore, discusses the lymphomas other than Hodgkin's disease.

The average annual age-adjusted incidence rates for non-Hodgkin's lymphoma increased among both males and females in Utah from 1981 to 2000. These increments are consistent with trends in the United States, where incidence rates more than doubled between 1950 and 1985. Nationwide, increases in the overall incidence rates were greatest in those over 65 years of age. Rates among those between the ages of 35-64 years increased to a lesser extent, while rates among those under 35 years of age remained relatively constant over the past thirty years.

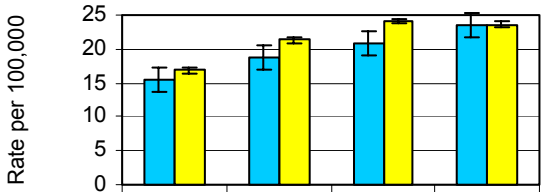
Viruses seem to play an etiologic role in some non-Hodgkin's lymphomas. The Human T-Cell Leukemia Virus (HTLV) is linked with certain types of adult T-cell leukemias and lymphomas that are particularly prevalent in Japan, parts of the Caribbean and Africa, and the southeastern United States. Burkitt's lymphoma is associated with the Epstein-Barr virus. Lymphomas occur at higher rates than expected in those infected with the Human Immunodeficiency Virus (HIV) and in individuals with inherited immunodeficiency syndromes and on immunosuppressive therapy.

Non-Hodgkin's lymphoma has also been associated with treatment by alkylating agents and occupational exposure to some chemicals, including the herbicides phenoxyacetic acid and chlorophenol, although a casual link has not been proven. High doses of ionizing radiation may increase risk for non-Hodgkin's lymphoma, as observed among Japanese survivors of the atomic bombs and individuals exposed to radiation therapy. The large majority of the non-Hodgkin's lymphomas, however, do not occur in individuals with these exposures and are of unknown etiology. There are currently no practical means of primary or secondary prevention.

Non-Hodgkin's Lymphoma — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

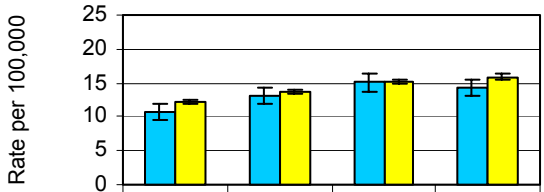
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	15.5	18.7	20.8	23.4
US	16.9	21.3	24.1	23.5

Year of diagnosis

Female

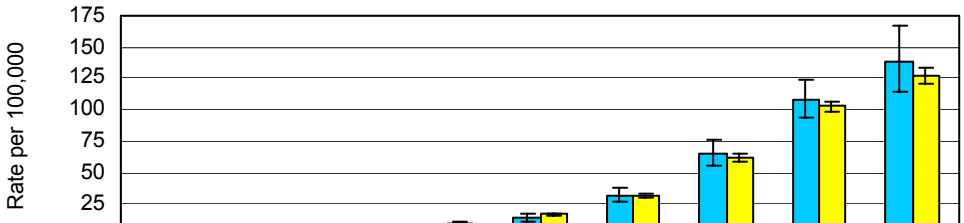


	1981-85	1986-90	1991-95	1996-00*
Utah	10.6	13.1	15.1	14.3
US	12.3	13.8	15.1	15.9

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

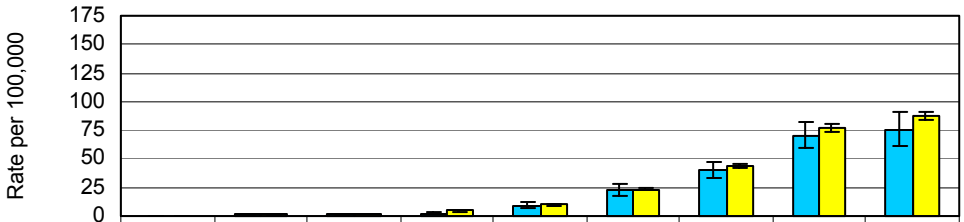
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	1.2	1.9	3.6	6.1	13.8	32	65.1	107.6	138.7
US	1	1.8	4	10.3	17.2	31.9	62	103.1	127.4

Age at diagnosis

Female



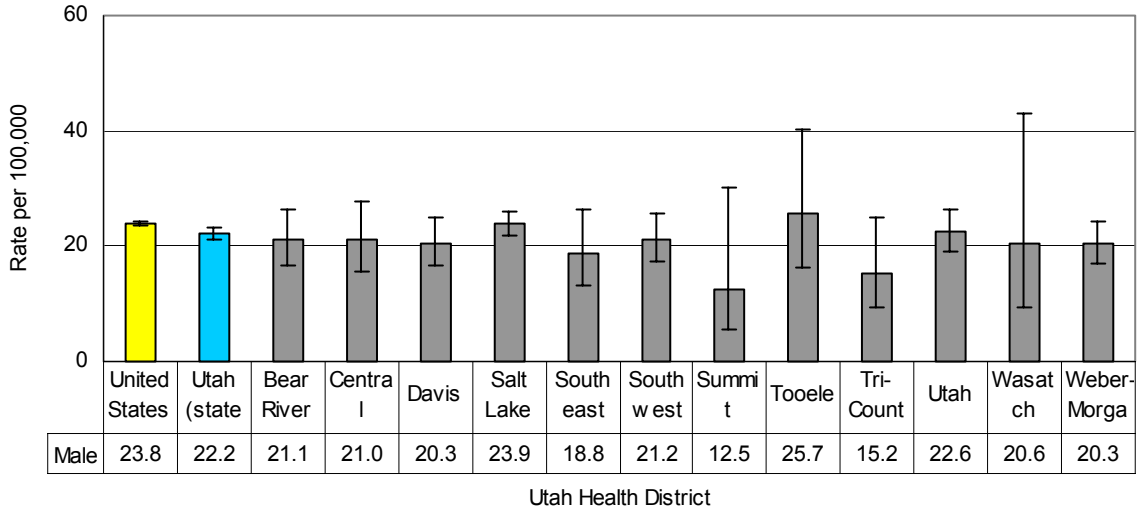
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	1.5	1.1	2.6	9.5	22.2	39.9	70.6	75.7
US	0.3	0.9	2.2	4.6	9.9	23.5	43.9	77	87.1

Age at diagnosis

Non-Hodgkin's Lymphoma — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

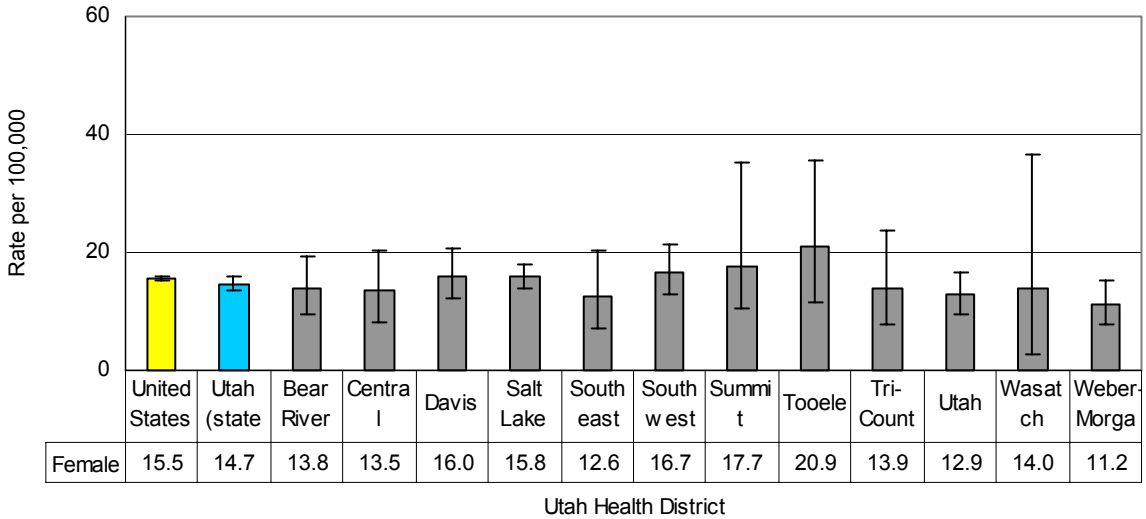
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	23.8	22.2	21.1	21.0	20.3	23.9	18.8	21.2	12.5	25.7	15.2	22.6	20.6	20.3

Utah Health District

Female



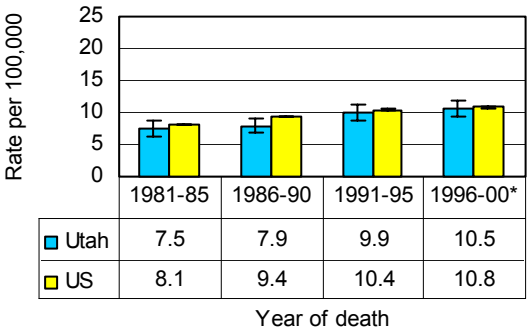
	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	15.5	14.7	13.8	13.5	16.0	15.8	12.6	16.7	17.7	20.9	13.9	12.9	14.0	11.2

Utah Health District

Non-Hodgkin's Lymphoma — *Mortality*

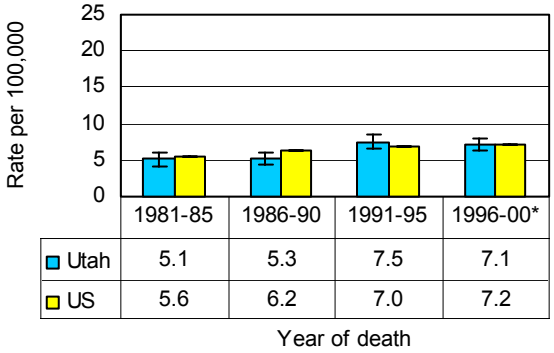
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	7.5	7.9	9.9	10.5
US	8.1	9.4	10.4	10.8

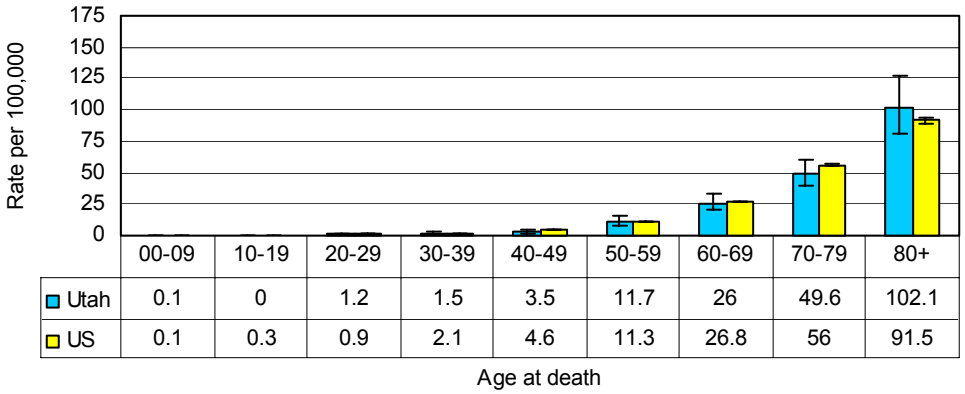
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	5.1	5.3	7.5	7.1
US	5.6	6.2	7.0	7.2

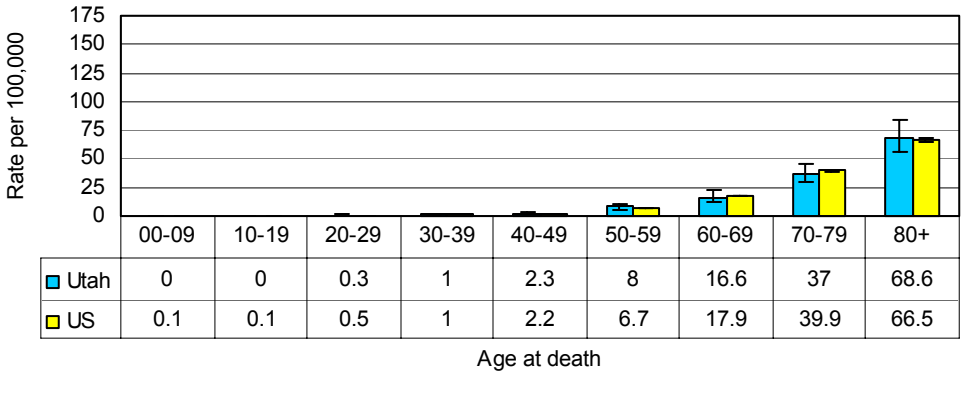
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0	1.2	1.5	3.5	11.7	26	49.6	102.1
US	0.1	0.3	0.9	2.1	4.6	11.3	26.8	56	91.5

Female

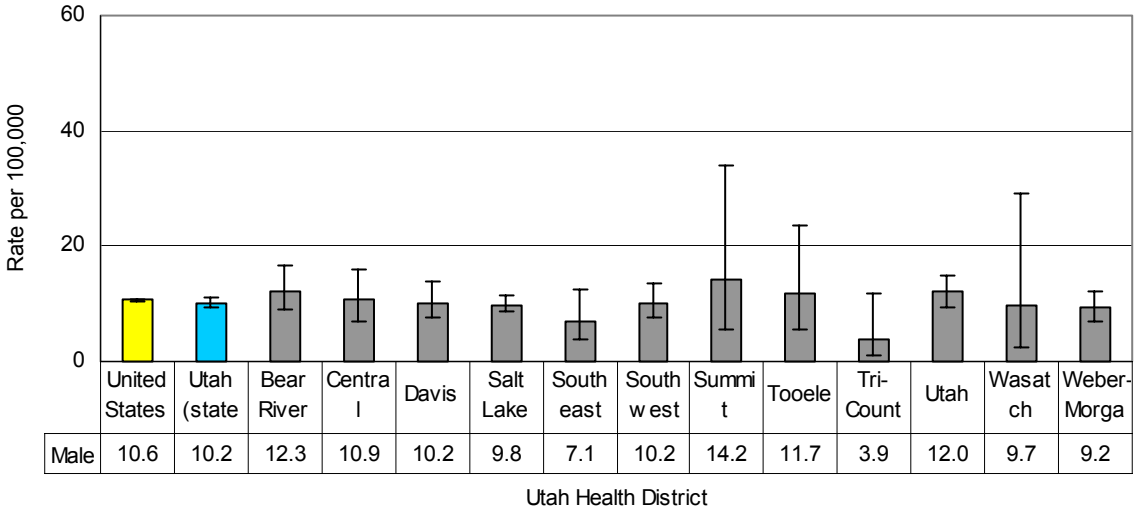


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.3	1	2.3	8	16.6	37	68.6
US	0.1	0.1	0.5	1	2.2	6.7	17.9	39.9	66.5

Non-Hodgkin's Lymphoma — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

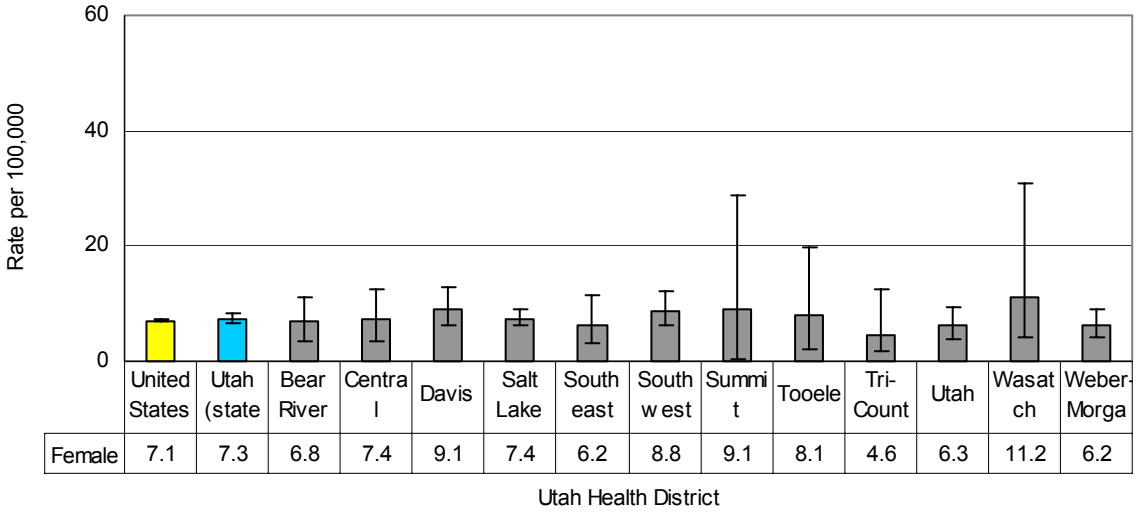
Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	10.6	10.2	12.3	10.9	10.2	9.8	7.1	10.2	14.2	11.7	3.9	12.0	9.7	9.2

Utah Health District

Female

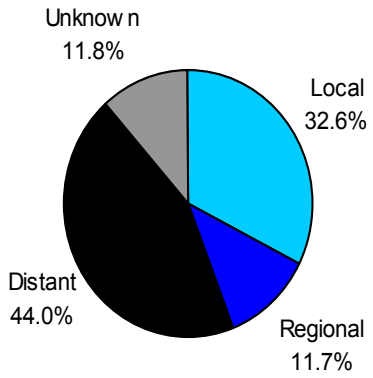


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	7.1	7.3	6.8	7.4	9.1	7.4	6.2	8.8	9.1	8.1	4.6	6.3	11.2	6.2

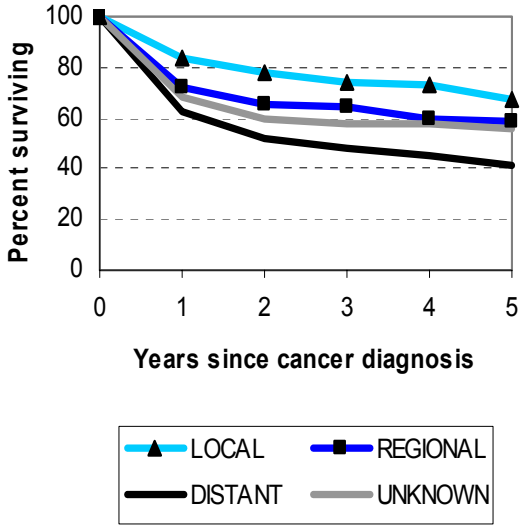
Utah Health District

Non-Hodgkin's lymphoma — *Stage and Survival*

Stage of disease at diagnosis:
Utah residents diagnosed 1996-2000



5-year relative survival by stage:
Utah residents diagnosed 1991-95



Multiple Myeloma

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	7.6	6.8	3.5	4.6
Rank among cancer incidence rates	12	14	16	16
Average annual number of new cases	48	7,710	29	7,000
Percent of all new cancer cases	1.5 %	1.2 %	1.0 %	1.1 %
Lifetime risk of this cancer (00-79 years)	1 in 130	1 in 142	1 in 267	1 in 205
Average annual age-adjusted mortality rates*	5.4	4.8	3.5	3.3
Rank among cancer mortality rates	8	12	9	10
Average annual number of deaths	32	5,286	28	5,057
Percent of all cancer deaths	2.7 %	1.9 %	2.7 %	2.0 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Mulitiple myeloma represents an abnormal proliferation of plasma and plasmacytoid cells and is the second most common neoplasm of the hematopoietic system. Incidence rates vary among racial and ethnic groups. In the United States, African Americans, American Indians, and Hispanic whites have higher rates of the disease than non-Hispanic whites. Conversely, Americans of Asian ancestry are generally at low risk of the disease.

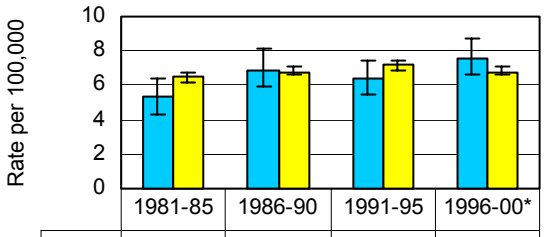
Uncommonly high exposure to radiation has been linked with an increased risk of multiple myeloma. Survivors of the atomic bombs dropped in Hiroshima and Nagasaki had higher than expected rates of multiple myeloma and other hematopoietic malignancies. There is also evidence that individuals with repeated exposure to low levels of radiation may be at increased risk of the disease (e.g., radiologists and individuals who routinely handle radioactive materials). A limited number of occupational exposures (e.g., to specific chemicals and metals) have been associated with the development of multiple myeloma. There is some evidence that heritable factors may increase risk of the disease.

Nonetheless, the risk factors cited above account for only a small proportion of all cases of multiple myeloma. More research is needed to further characterize the etiology of this disease.

Multiple Myeloma | *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

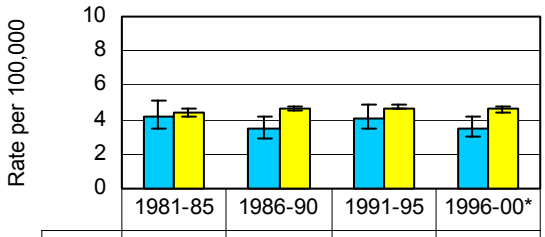
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	5.3	6.9	6.4	7.6
US	6.5	6.8	7.2	6.8

Year of diagnosis

Female



	1981-85	1986-90	1991-95	1996-00*
Utah	4.2	3.5	4.1	3.5
US	4.4	4.7	4.7	4.6

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

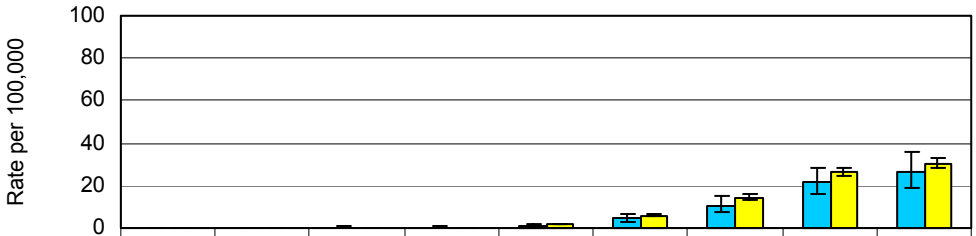
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.4	1.4	7.4	21.8	46	65.6
US	0	0	0.1	0.6	2.4	9.3	20.1	38	48.7

Age at diagnosis

Female



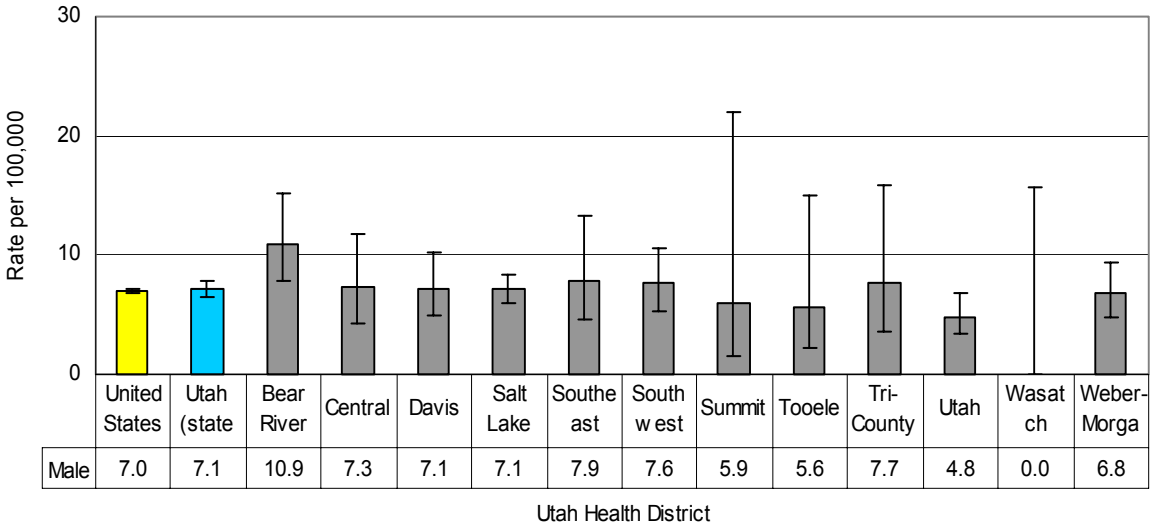
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0.1	0.1	0.6	4.3	10.8	21.7	26.2
US	0	0	0.1	0.3	1.8	6	14.6	26.1	30.5

Age at diagnosis

Multiple Myeloma | *Incidence*

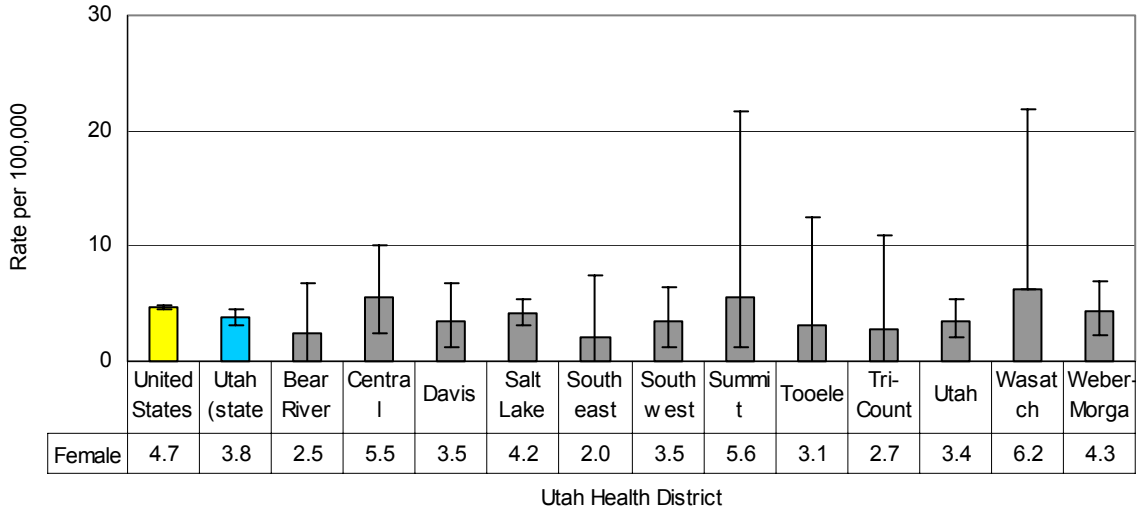
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	7.0	7.1	10.9	7.3	7.1	7.1	7.9	7.6	5.9	5.6	7.7	4.8	0.0	6.8

Female

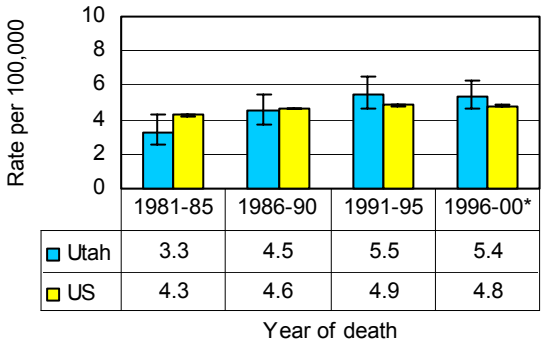


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	4.7	3.8	2.5	5.5	3.5	4.2	2.0	3.5	5.6	3.1	2.7	3.4	6.2	4.3

Multiple Myeloma | *Mortality*

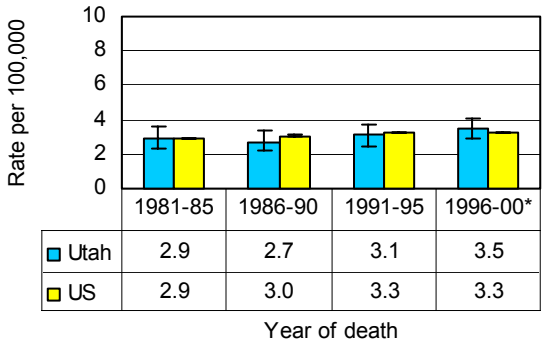
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	3.3	4.5	5.5	5.4
US	4.3	4.6	4.9	4.8

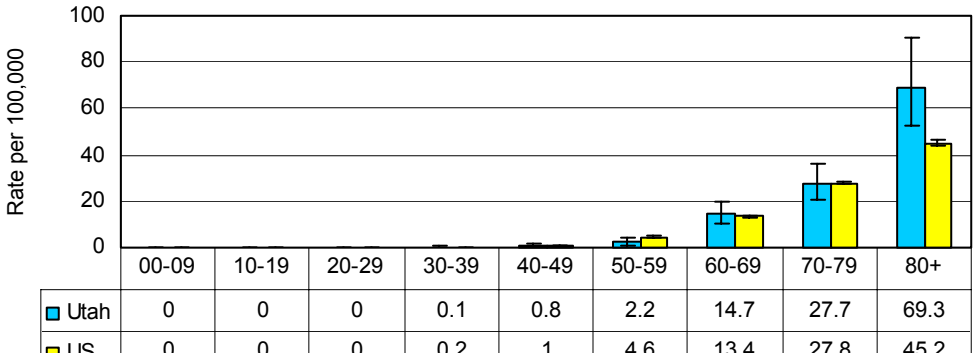
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	2.9	2.7	3.1	3.5
US	2.9	3.0	3.3	3.3

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.1	0.8	2.2	14.7	27.7	69.3
US	0	0	0	0.2	1	4.6	13.4	27.8	45.2

Female

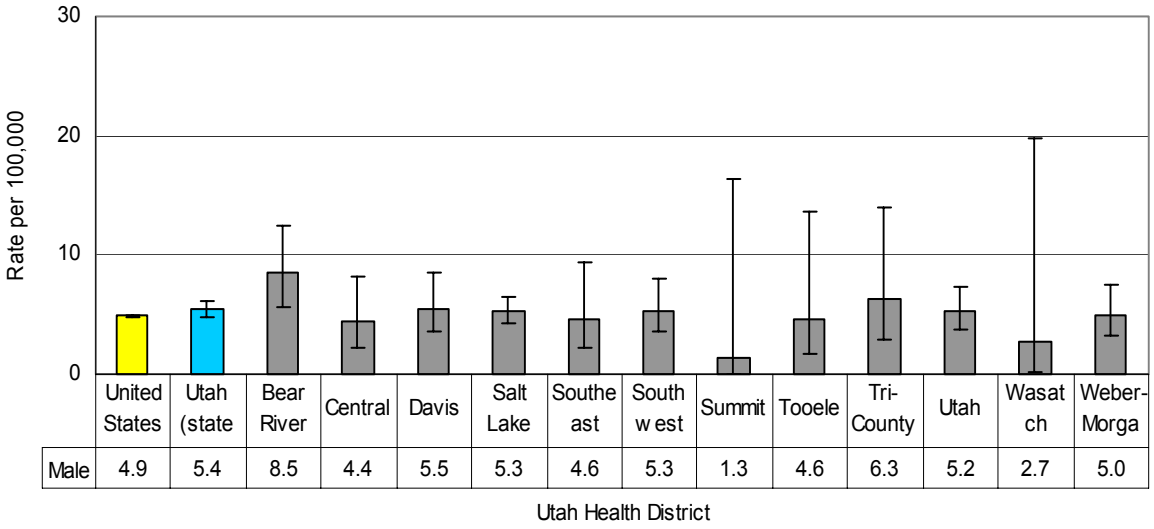


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.1	0.9	2.4	9.7	22.1	31.1
US	0	0	0	0.1	0.7	3.3	9.5	19.8	28

Multiple Myeloma | *Mortality*

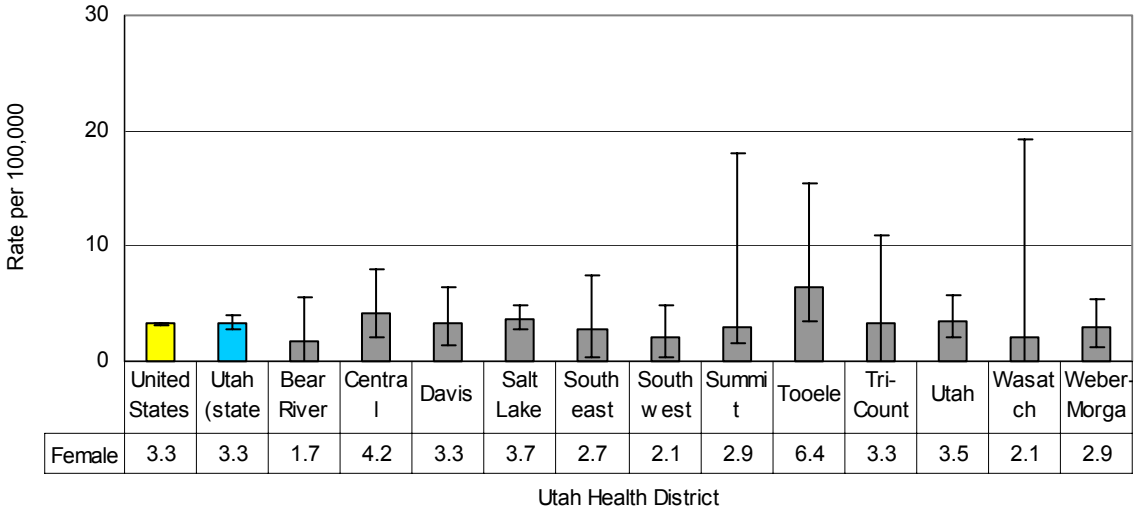
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	4.9	5.4	8.5	4.4	5.5	5.3	4.6	5.3	1.3	4.6	6.3	5.2	2.7	5.0

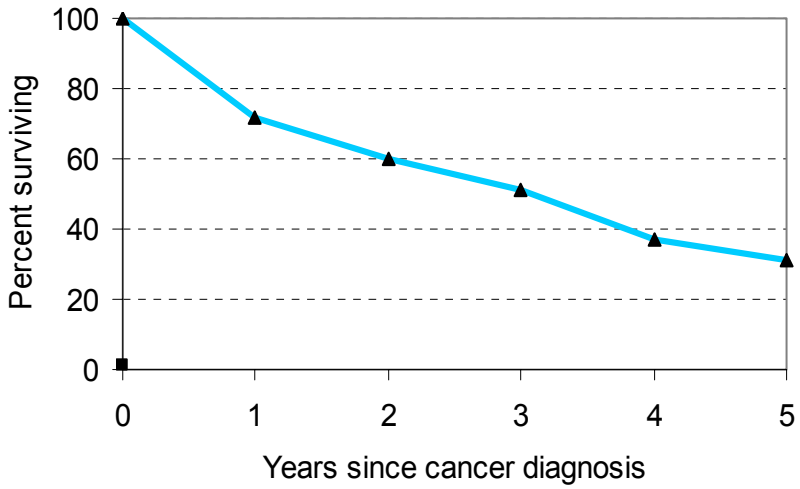
Female



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	3.3	3.3	1.7	4.2	3.3	3.7	2.7	2.1	2.9	6.4	3.3	3.5	2.1	2.9

Multiple Myeloma | *Survival*

5-year relative survival, Utah residents diagnosed 1991-95



Survival by time period

Region	5-year relative survival (percent surviving) by time period		
	1981-85	1986-90	1991-95
Utah	27.9	25.8	31.4
US	28.2	28.8	31.1

Acute Lymphocytic Leukemia

Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	1.3	1.5	1.2	1.2
Rank among cancer incidence rates	<20	<20	<20	<20
Average annual number of new cases	16	2,060	14	1,610
Percent of all new cancer cases	0.5 %	0.3 %	0.5 %	0.3 %
Lifetime risk of this cancer (00-79 years)	1 in 971	1 in 827	1 in 1,000	1 in 1,112
Average annual age-adjusted mortality rates*	0.4	0.6	0.4	0.4
Rank among cancer mortality rates	<20	<20	<20	<20
Average annual number of deaths	4	784	4	611
Percent of all cancer deaths	0.4 %	0.3 %	0.4 %	0.2 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

The term leukemia is used to describe a variety of cancers that arise in the blood and bone marrow cells. There are four predominant types of leukemia: acute lymphocytic, chronic lymphocytic, acute myelocytic, and chronic myelocytic. Leukemias are the most common form of cancer among children under the age of 15 years, accounting for slightly less than half of all cancers in this age group. However, the highest rates of leukemia are found among older adults.

Some of the most notable increases in cancer patient survival have occurred because of improved management of the leukemias. Improvements in survival have been most dramatic among children. A few decades ago, most children diagnosed with leukemia died from their disease. Today, over 80 percent of children with leukemia are alive five years after their diagnosis. The prognosis for adult leukemia patients has also improved, especially for those with acute lymphocytic and chronic lymphocytic leukemias.

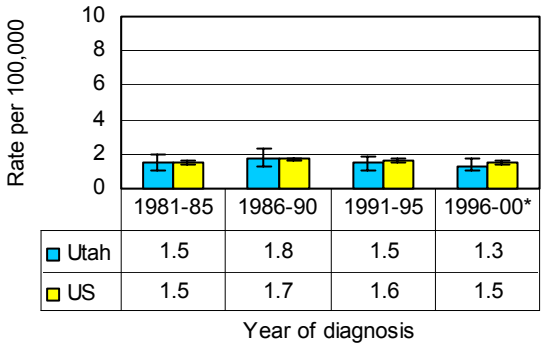
Ionizing radiation has been established as a cause of leukemia. Exposure to some chemicals, especially benzene, have also been associated with an increased risk of the disease. The Human T-Cell Leukemia Virus (HTLV) has been associated with an increased risk of adult T-cell leukemias and lymphomas, and is a likely etiologic agent. Genetic factors play a role in the etiology of the leukemias, as evidenced by the high risk of disease among those with certain chromosomal abnormalities.

Only a small percentage of all leukemias are attributable to the risk factors summarized above. With the exception of avoiding exposure to ionizing radiation

Acute Lymphocytic Leukemia — *Incidence*

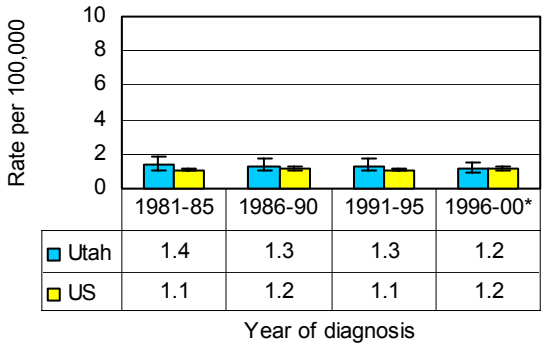
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	1.5	1.8	1.5	1.3
US	1.5	1.7	1.6	1.5

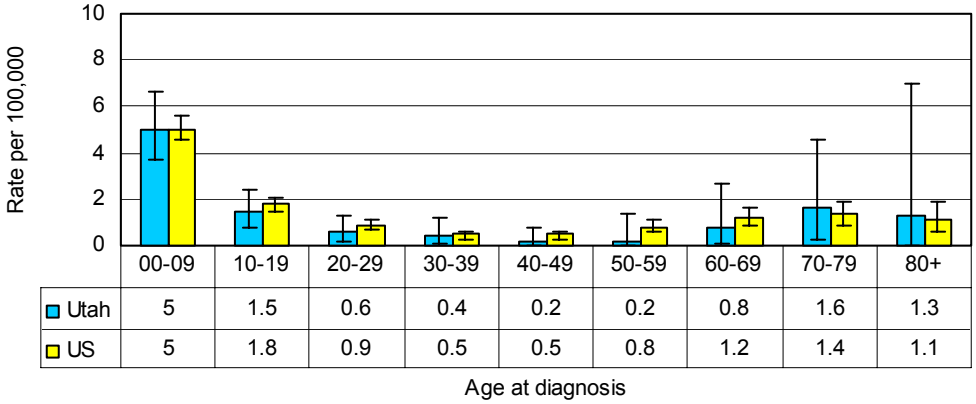
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	1.4	1.3	1.3	1.2
US	1.1	1.2	1.1	1.2

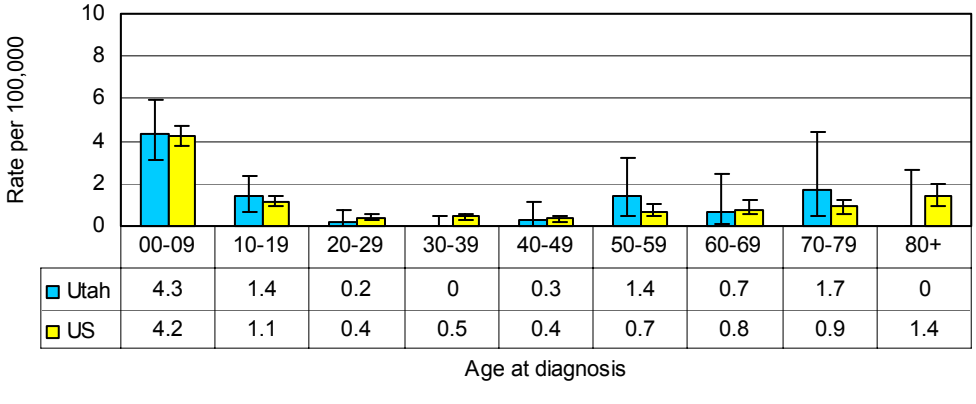
Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	5	1.5	0.6	0.4	0.2	0.2	0.8	1.6	1.3
US	5	1.8	0.9	0.5	0.5	0.8	1.2	1.4	1.1

Female

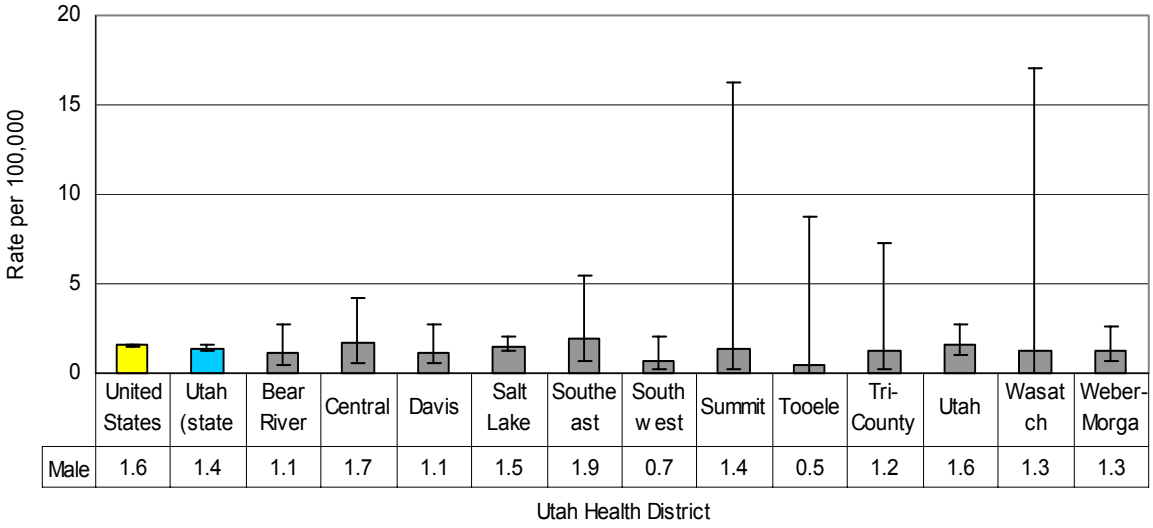


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	4.3	1.4	0.2	0	0.3	1.4	0.7	1.7	0
US	4.2	1.1	0.4	0.5	0.4	0.7	0.8	0.9	1.4

Acute Lymphocytic Leukemia — *Incidence*

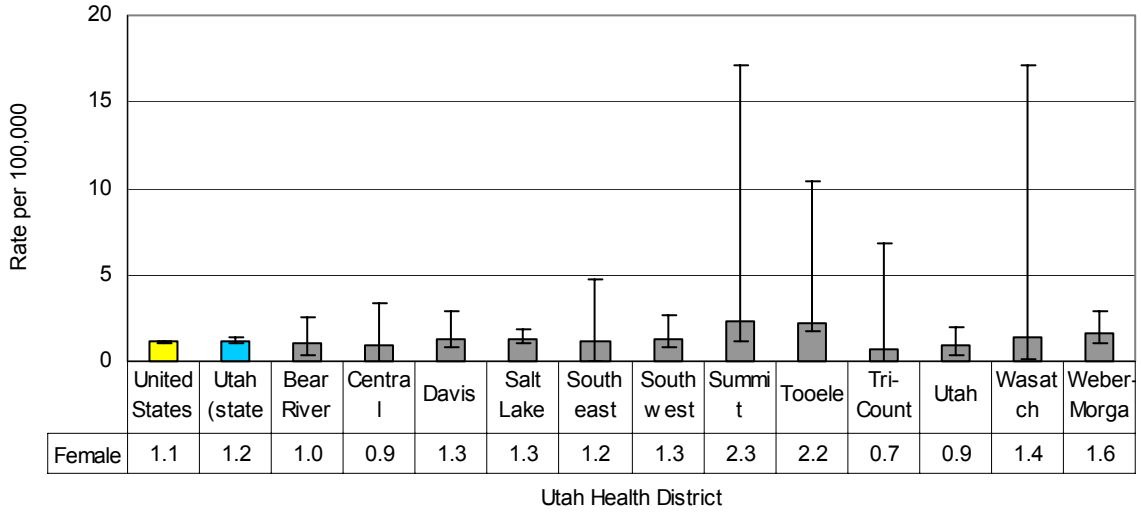
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	Southeast	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	1.6	1.4	1.1	1.7	1.1	1.5	1.9	0.7	1.4	0.5	1.2	1.6	1.3	1.3

Female

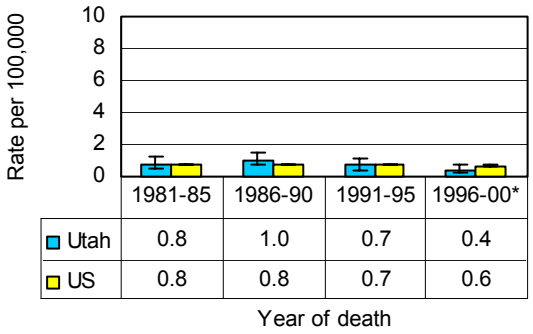


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-Count	Utah	Wasatch	Weber-Morga
Female	1.1	1.2	1.0	0.9	1.3	1.3	1.2	1.3	2.3	2.2	0.7	0.9	1.4	1.6

Acute Lymphocytic Leukemia — *Mortality*

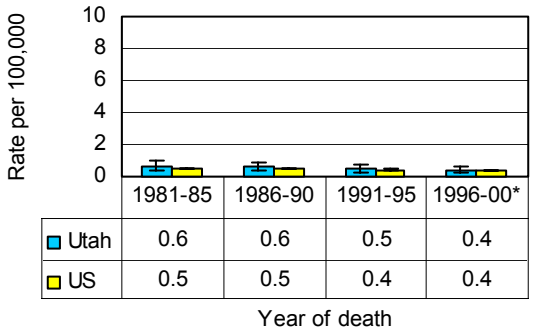
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

Male



	1981-85	1986-90	1991-95	1996-00*
Utah	0.8	1.0	0.7	0.4
US	0.8	0.8	0.7	0.6

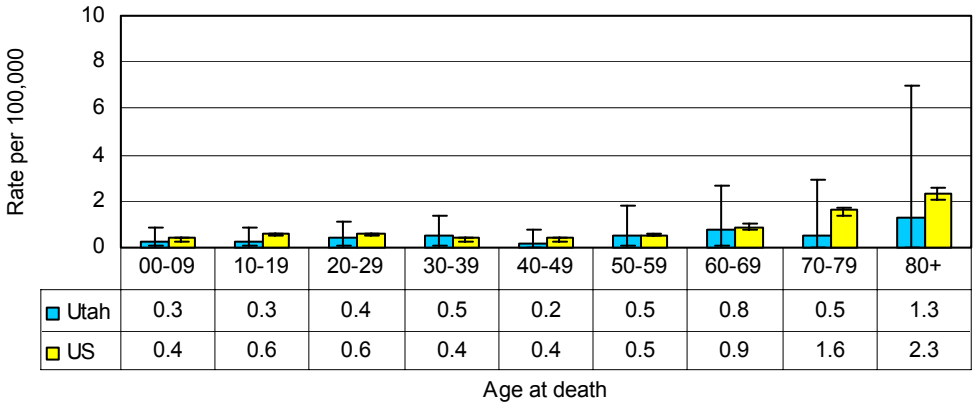
Female



	1981-85	1986-90	1991-95	1996-00*
Utah	0.6	0.6	0.5	0.4
US	0.5	0.5	0.4	0.4

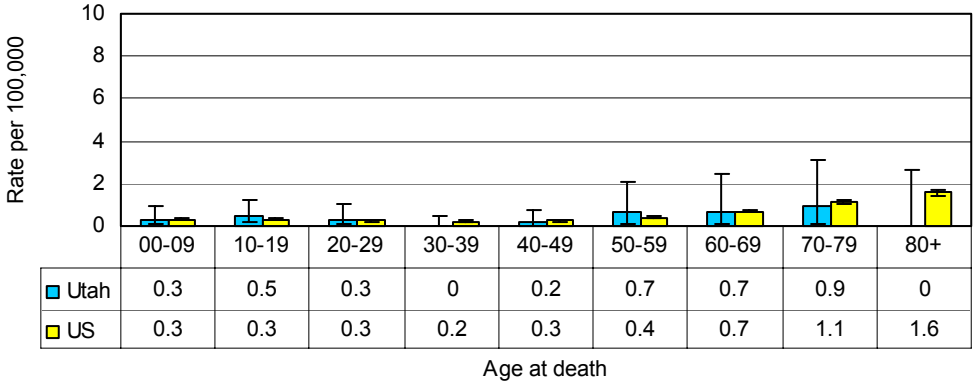
Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.3	0.3	0.4	0.5	0.2	0.5	0.8	0.5	1.3
US	0.4	0.6	0.6	0.4	0.4	0.5	0.9	1.6	2.3

Female

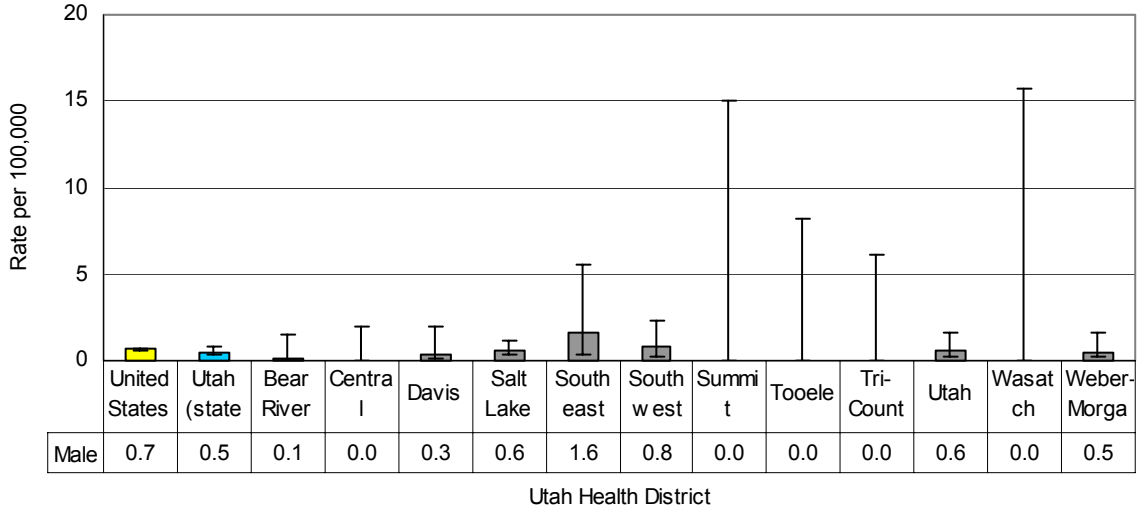


	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.3	0.5	0.3	0	0.2	0.7	0.7	0.9	0
US	0.3	0.3	0.3	0.2	0.3	0.4	0.7	1.1	1.6

Acute Lymphocytic Leukemia — *Mortality*

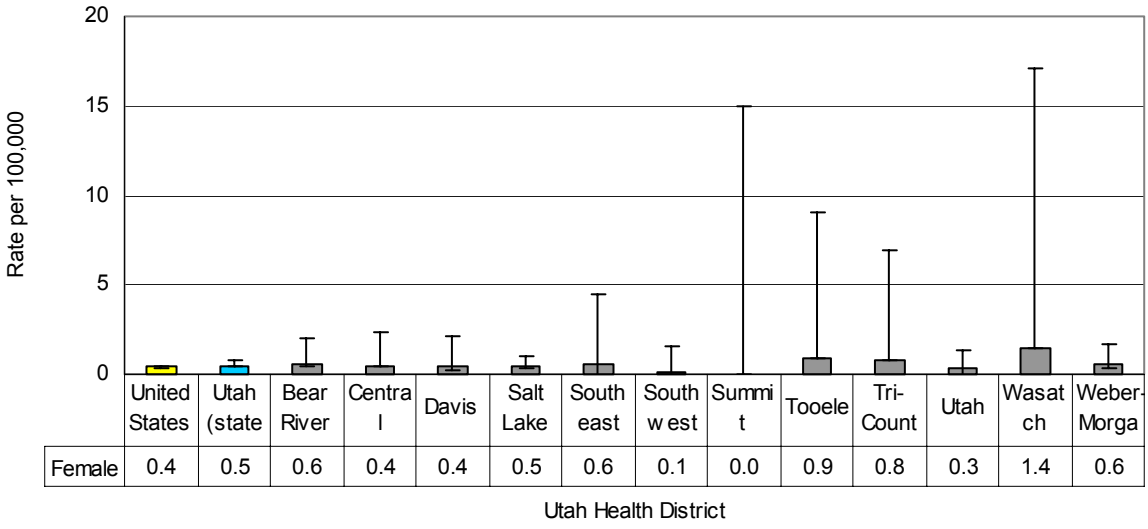
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	0.7	0.5	0.1	0.0	0.3	0.6	1.6	0.8	0.0	0.0	0.0	0.6	0.0	0.5

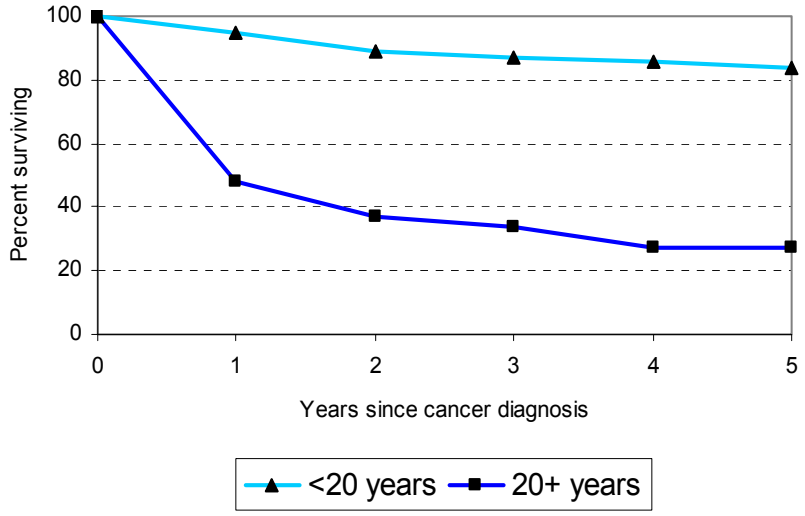
Female



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	0.4	0.5	0.6	0.4	0.4	0.5	0.6	0.1	0.0	0.9	0.8	0.3	1.4	0.6

Acute Lymphocytic Leukemia — *Survival*

5-year relative survival, Utah residents diagnosed 1991-95



Survival by time period

Age at Diagnosis	Region	5-year relative survival (percent surviving) by time period		
		1981-85	1986-90	1991-95
<20 years	Utah	72.5	77.9	83.8
	US	67.3	75.6	80.8
20+ years	Utah	10.6	19.9	27.2
	US	19.2	18.4	24.5

Chronic Lymphocytic Leukemia

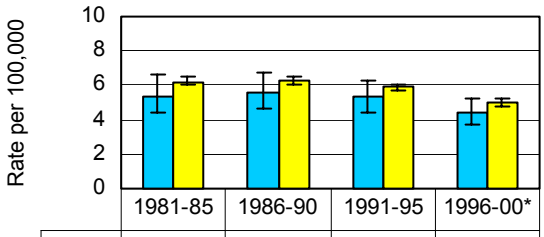
Summary	Male		Female	
	Utah 1996-2000	US 1996-99	Utah 1996-2000	US 1996-99
Average annual age-adjusted incidence rates*	4.4	5.0	1.7	2.5
Rank among cancer incidence rates	16	16	<20	<20
Average annual number of new cases	28	5,560	14	3,860
Percent of all new cancer cases	0.9 %	0.9 %	0.5 %	0.6 %
Lifetime risk of this cancer (00-79 years)	1 in 224	1 in 200	1 in 629	1 in 403
Average annual age-adjusted mortality rates*	2.5	2.4	1.0	1.1
Rank among cancer mortality rates	17	17	19	20
Average annual number of deaths	14	2,468	8	1,820
Percent of all cancer deaths	1.2 %	0.9 %	0.8 %	0.7 %
* Rates per 100,000 and standardized to the 2000 U.S. population				

Please refer to discussion on page 149 of this monograph (i.e., section entitled Acute Lymphocytic Leukemia).

Chronic Lymphocytic Leukemia — *Incidence*

Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

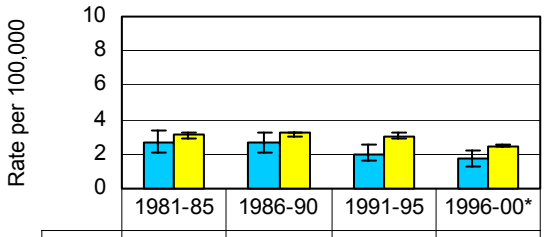
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	5.4	5.6	5.3	4.4
US	6.2	6.3	5.9	5.0

Year of diagnosis

Female



	1981-85	1986-90	1991-95	1996-00*
Utah	2.7	2.7	2.0	1.7
US	3.1	3.2	3.0	2.5

Year of diagnosis

Average annual age-specific incidence rates per 100,000 by sex, 1996-2000

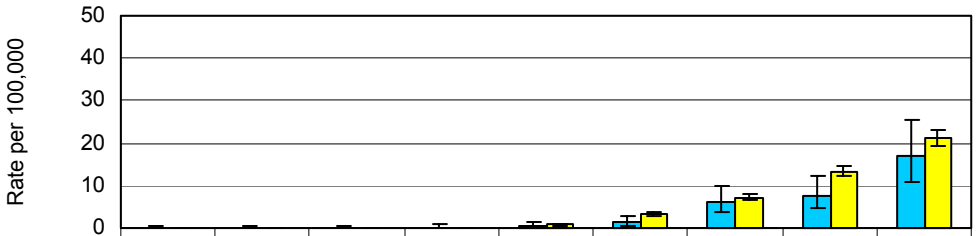
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.4	1.1	8.4	10.9	24	29
US	0	0	0	0.4	1.4	6.3	15.3	26.8	38.9

Age at diagnosis

Female



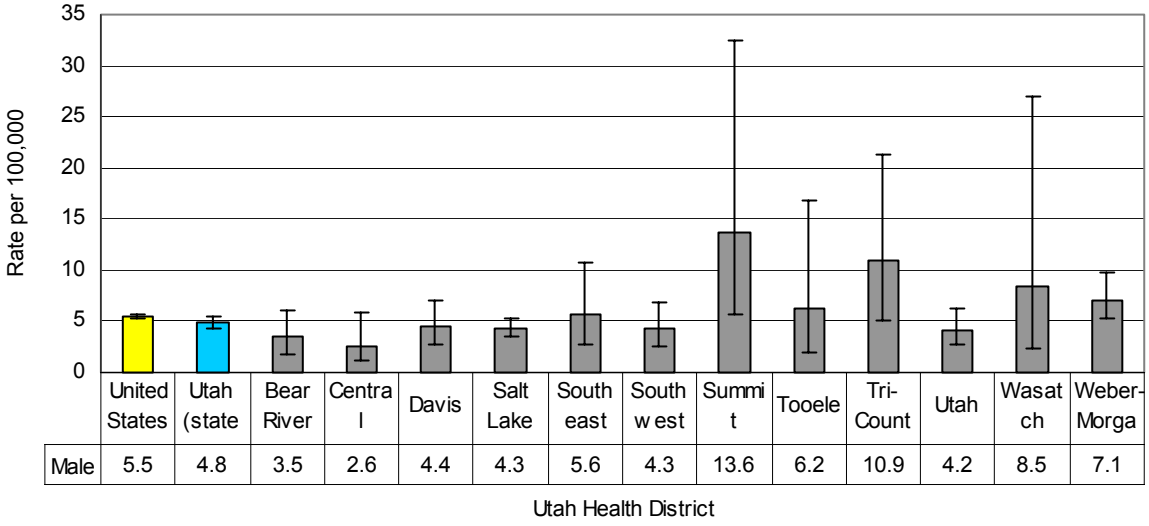
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0.1	0	0.1	0.1	0.5	1.2	6.2	7.7	17
US	0	0	0	0.1	0.8	3.3	7.2	13.4	21.1

Age at diagnosis

Chronic Lymphocytic Leukemia — *Incidence*

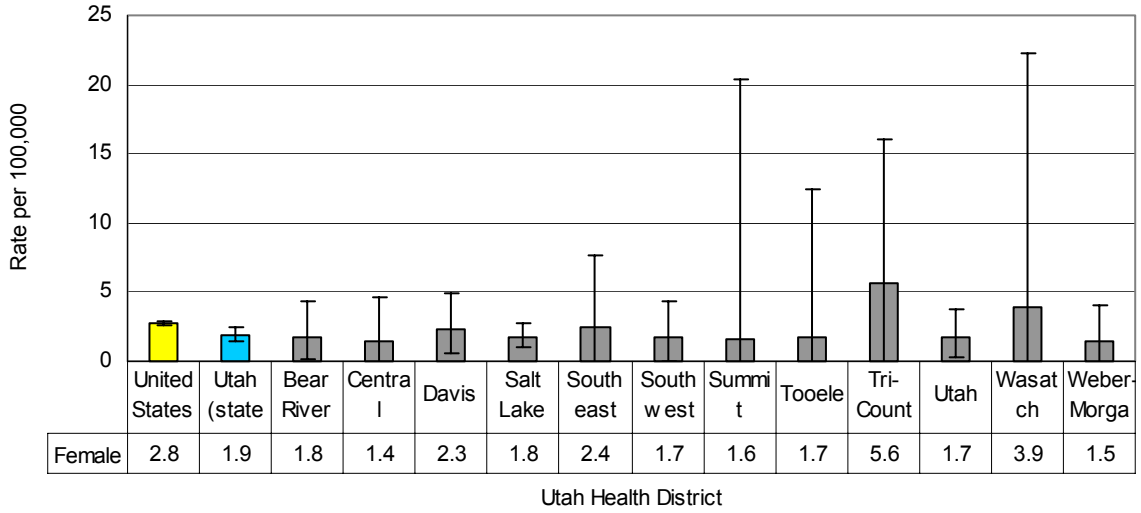
Average annual age-adjusted incidence rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	5.5	4.8	3.5	2.6	4.4	4.3	5.6	4.3	13.6	6.2	10.9	4.2	8.5	7.1

Female

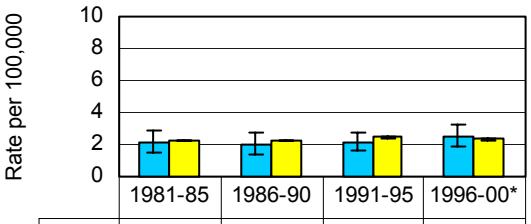


	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	2.8	1.9	1.8	1.4	2.3	1.8	2.4	1.7	1.6	1.7	5.6	1.7	3.9	1.5

Chronic Lymphocytic Leukemia — *Mortality*

Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) by 5-year time period and sex, 1981-2000

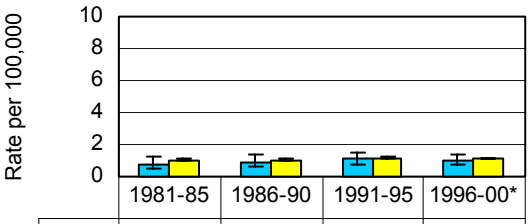
Male



	1981-85	1986-90	1991-95	1996-00*
Utah	2.1	2.0	2.1	2.5
US	2.2	2.3	2.5	2.4

Year of diagnosis

Female

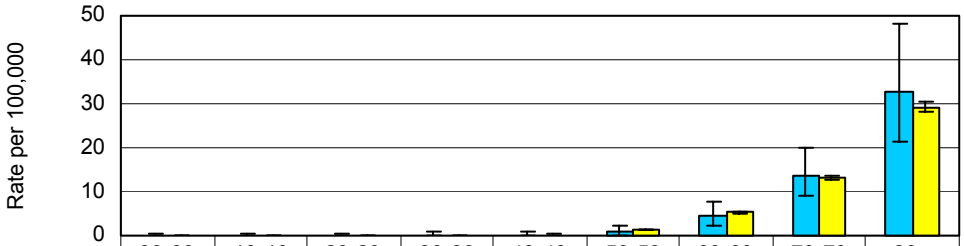


	1981-85	1986-90	1991-95	1996-00*
Utah	0.8	0.9	1.1	1.0
US	1.0	1.0	1.1	1.1

Year of diagnosis

Average annual age-specific mortality rates per 100,000 by sex, 1996-2000

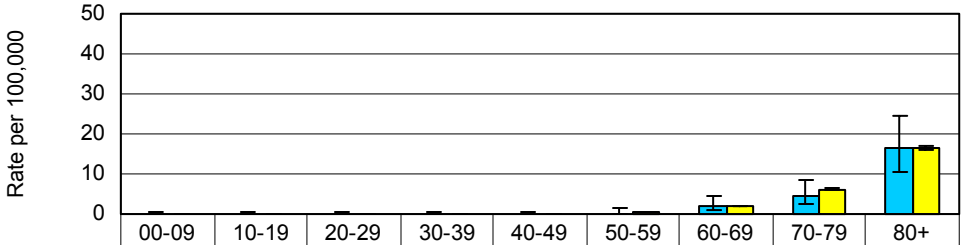
Male



	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0.1	0.2	0.7	4.5	13.6	32.8
US	0	0	0	0	0.2	1.4	5.4	13	29.3

Age at death

Female



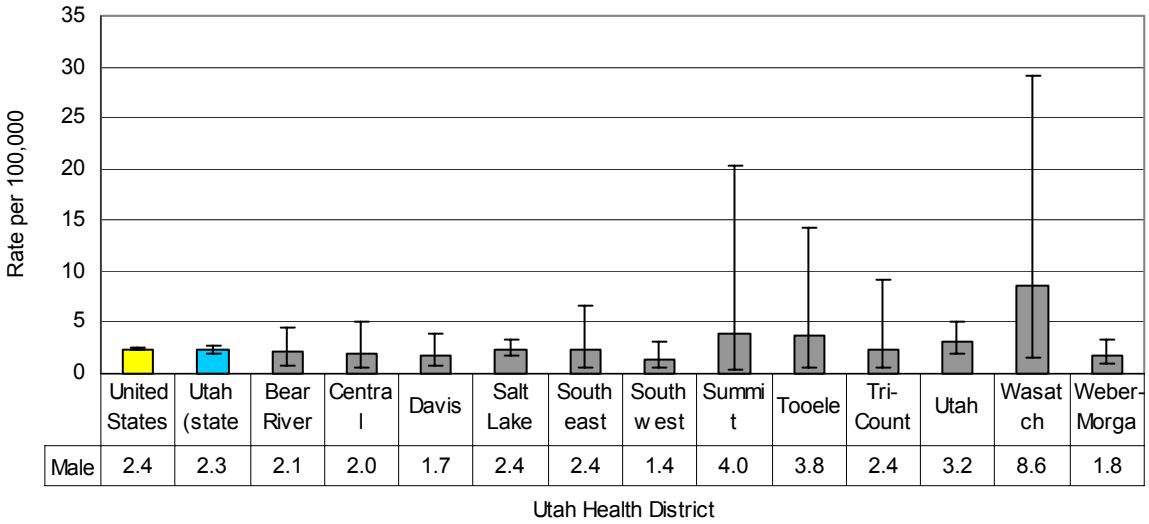
	00-09	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Utah	0	0	0	0	0	0.2	2.1	4.7	16.3
US	0	0	0	0	0.1	0.5	2.1	6	16.6

Age at death

Chronic Lymphocytic Leukemia — *Mortality*

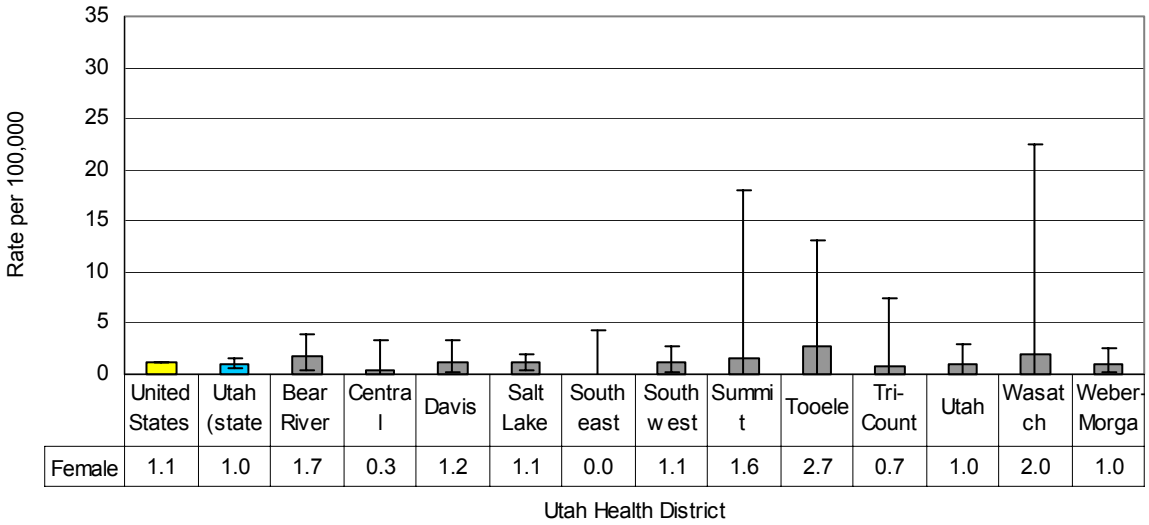
Average annual age-adjusted mortality rates per 100,000 (US 2000 standard) for twelve Utah Health Districts, by sex, for the time period 1991-2000, with rates from Utah (statewide) and the United States for comparison

Male



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Male	2.4	2.3	2.1	2.0	1.7	2.4	2.4	1.4	4.0	3.8	2.4	3.2	8.6	1.8

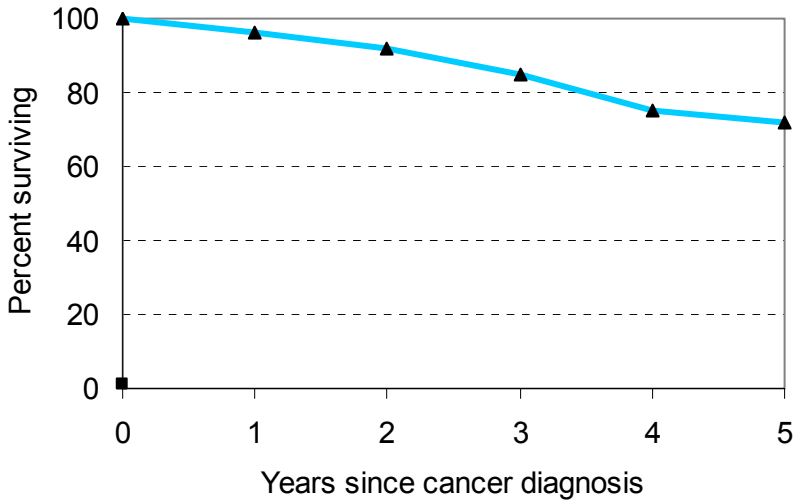
Female



	United States	Utah (state	Bear River	Central	Davis	Salt Lake	South east	South west	Summit	Tooele	Tri-County	Utah	Wasatch	Weber-Morga
Female	1.1	1.0	1.7	0.3	1.2	1.1	0.0	1.1	1.6	2.7	0.7	1.0	2.0	1.0

Chronic Lymphocytic Leukemia — *Survival*

5-year relative survival, Utah residents diagnosed 1991-95



Survival by time period

Region	5-year relative survival (percent surviving) by time period		
	1981-85	1986-90	1991-95
Utah	74.0	66.4	71.8
US	71.0	73.4	74.2

Childhood Cancers — *Incidence*

Average annual age-adjusted incidence rates per 100,000*

Utah children 15 years of age and younger (both sexes) diagnosed with cancer during the period 1990-99

(SEER Program data for comparison**)

Site/type***	Utah	SEER Program
Leukemia	3.9	4.4
Lymphomas and reticuloendothelial neoplasms	1.4	1.4
Central nervous system and miscellaneous intracranial and intraspinal neoplasms	3.0	3.2
Sympathetic nervous system tumors	1.1	1.1
Retinoblastoma	0.4	0.4
Renal tumors	0.9	0.9
Hepatic tumors	0.2	0.2
Malignant bone tumors	0.8	0.7
Soft-tissue sarcomas	1.1	1.0
Germ-cell, trophoblastic, and other gonadal neoplasms	0.5	0.5
Carcinomas and other malignant epithelial neoplasms	0.5	0.6
Other and unspecified malignant neoplasms	0.1	0.1

* Adjusted to the US 2000 standard population

** Comparison data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program, representing combined data from nine geographic areas in the United States.

*** International Classification of Childhood Cancer (ICCC)

Appendix 1
Cancer Classification Scheme

Cancer primary site/type	ICDO-2 sites/types INCLUDED		ICDO-2 sites/types EXCLUDED	
	Sites/Types	ICDO-2 codes	Sites/types	ICDO-2 codes
Oral Cavity and Pharynx	Lip	C00.0-C00.9	Lymphomas	M-9590:9989
	Tongue	C01.9-C02.9	Lymphomas	M-9590:9989
	Salivary glands	C07.9-C08.9	Lymphomas	M-9590:9989
	Floor of mouth	C04.0-C04.9	Lymphomas	M-9590:9989
	Gum and other mouth	C03.0-C03.9, C05.0-C05.9, C06.0-C06.9	Lymphomas	M-9590:9989
	Nasopharynx	C11.0-C11.9	Lymphomas	M-9590:9989
	Tonsil	C09.0-C09.9	Lymphomas	M-9590:9989
	Oropharynx	C10.0-C10.9	Lymphomas	M-9590:9989
	Hypopharynx	C12.9, C13.0-C13.9, C14.1	Lymphomas	M-9590:9989
	Other oral cavity And pharynx	C14.0, C14.2-C14.8	Lymphomas	M-9590:9989
Esophagus	-	C15.0-C15.9	Lymphomas	M-9590:9989
Stomach	-	C16.0-C16.9	Lymphomas	M-9590:9989
Colon and Rectum	Cecum	C18.0	Lymphomas	M-9590:9989
	Appendix	C18.1	Lymphomas	M-9590:9989
	Ascending colon	C18.2	Lymphomas	M-9590:9989
	Hepatic flexure	C18.3	Lymphomas	M-9590:9989
	Transverse colon	C18.4	Lymphomas	M-9590:9989
	Splenic flexure	C18.5	Lymphomas	M-9590:9989
	Descending colon	C18.6	Lymphomas	M-9590:9989
	Sigmoid colon	C18.7	Lymphomas	M-9590:9989
	Large intestine, NOS	C18.8-C18.9, C26.0	Lymphomas	M-9590:9989
	Rectosigmoid junction	C19.9	Lymphomas	M-9590:9989
	Rectum	C20.9	Lymphomas	M-9590:9989
Liver and Intrahepatic Bile Duct	Liver	C22.0	Lymphomas	M-9590:9989
	Intrahepatic bile duct	C22.1	Lymphomas	M-9590:9989
	Other biliary ducts	C24.0-C24.9	Lymphomas	M-9590:9989
Pancreas	-	C25.0-C25.9	Lymphomas	M-9590:9989
Larynx	-	C32.0-C32.9	Lymphomas	M-9590:9989
Lung and Bronchus	-	C34.0-C34.9	Lymphomas	M-9590:9989
Cutaneous Melanoma	-	C44.0-C44.9, M8720:M8790		
Female Breast	-	C50.0-C50.9	Lymphomas	M-9590:9989
Cervix	-	C53.0-C53.9	Lymphomas	M-9590:9989
Uterus	-	C55.9	Lymphomas	M-9590:9989
Ovary	-	C56.9	Lymphomas	M-9590:9989

Appendix 1
Cancer Classification Scheme

Cancer primary site/type	ICDO-2 sites/types INCLUDED		ICDO-2 sites/types EXCLUDED	
	Sites/Types	ICDO-2 codes	Sites/types	ICDO-2 codes
Prostate	-	C61.9	Lymphomas	M-9590:9989
Testis	-	C62.0-C62.9	Lymphomas	M-9590:9989
Urinary Bladder	-	C67.0-C67.9	Lymphomas	M-9590:9989
Kidney and Renal Pelvis	-	C64.9, C65.9	Lymphomas	M-9590:9989
Brain	-	C71.0-C71.9	Lymphomas	M9530:9539, M-9590:9989
Thyroid	-	C73.9	Lymphomas	M-9590:9989
Hodgkin's Lymphoma	Nodal	M9650:M9667, C02.4, C09.8. C09.9, C11.1, C14.2, C37.9, C42.2, C77.0, C77.9		
	Extranodal	all other sites		
Non-Hodgkin's lymphoma	Nodal	M9590:9595, M9670:9717 C02.4, C09.8, C09.9, C11.1, C14.2, C37.9, C42.2, C77.0:C77.9		
	Extranodal	all other sites		
Multiple Myeloma	-	M9731, M9732		
Acute Lymphocytic Leukemia	-	M9821, M9828		
Chronic Lymphocytic Leukemia	-	M9823		