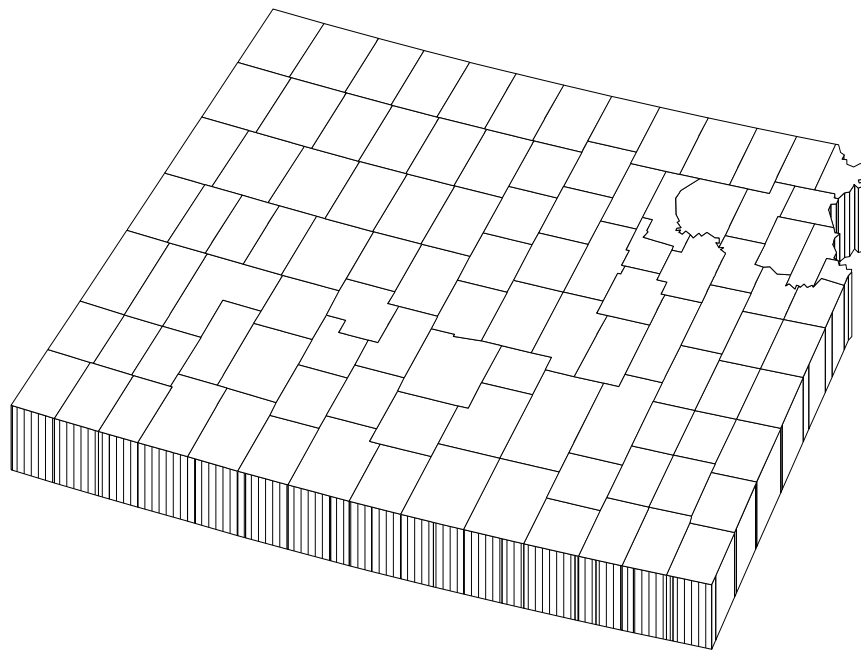


KANSAS CANCER REGISTRY

MULTIPLE YEAR REPORT



CANCER INCIDENCE AND MORTALITY IN KANSAS

1998-2008

Cancer Incidence and Mortality in Kansas, 1998-2008

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Paula Clayton, M.S., Director, Bureau of Chronic Disease and Health Promotion, KDHE.

SPECIAL THANKS to the following Healthcare Institutions in Kansas for their efforts in reporting cancer cases:

Hospitals

Air Force Hospital at McConnell AFB	Hospital District #1 of Rice County	Pawnee Valley Community Hospital
Allen County Hospital	Hospital District #6 of Harper County	Phillips County Hospital
Anderson County Hospital	Irwin Army Community Hospital	Pratt Regional Medical Center
Ashland Health Center	Jefferson County Memorial Hospital	Promise Regional Medical Center
Atchison Hospital	Jewell County Hospital	Providence Medical Center
Bob Wilson Memorial Grant County Hospital	Kansas Heart Hospital	Ransom Memorial Hospital
Central Kansas Medical Center	Kansas Medical Center LLC	Rawlins County Health Center
Cheyenne County Hospital	Kansas Spine Hospital	Republic County Hospital
Children's Mercy South	Kearny County Hospital	Robert J. Dole VA Medical Center
Citizens Medical Center	Kingman Community Hospital	Rooks County Health Center
Clara Barton Hospital	Kiowa County Memorial Hospital	Rush County Memorial Hospital
Clay County Medical Center	Kiowa District Hospital	Russell Regional Hospital
Cloud County Health Center	Labette Health	Sabetha Community Hospital
Coffey County Hospital	Lane County Hospital	Salina Regional Health Center
Coffeyville Regional Medical Center	Lawrence Memorial Hospital	Salina Surgical Hospital
Comanche County Hospital	Lincoln County Hospital	Satanta District Hospital
Community HealthCare System, Inc.	Lindsborg Community Hospital	Scott County Hospital
Community Memorial Healthcare Inc.	Logan County Hospital	Sedan City Hospital
Crawford County Hospital District #1	Manhattan Surgical Hospital	Select Specialty Hospital - Topeka
Cushing Memorial Hospital	McPherson Hospital, Inc.	Shawnee Mission Medical Center
Decatur Health Systems	Meade District Hospital	Sheridan County Health Complex
Doctors Hospital LLC	Medicine Lodge Memorial Hospital	Smith County Memorial Hospital
Dwight D. Eisenhower VAMC	Memorial Hospital of Abilene	South Central Kansas Regional Medical Center
Edwards County Hospital	Menorah Medical Center	Southwest Medical Center
Ellinwood District Hospital	Mercy Health Center	St John Hospital
Ellsworth County Medical Center	Mercy Health Center of Manhattan	St John's Maude Norton Memorial Hospital
Fredonia Regional Hospital	Mercy Hospital of Independence	St Luke Hospital
Galichia Heart Hospital	Mercy Hospital, Inc.	St. Catherine Hospital
Geary Community Hospital	Miami County Medical Center	St. Francis Health Center
Goodland Regional Medical Center	Minneola District Hospital	St. Luke's South
Gove County Medical Center	Mitchell County Hospital Health System	Stafford District Hospital
Graham County Hospital	Morris County Hospital	Stanton County Health Care Facility
Great Bend Regional Hospital	Morton County Health System	Stevens County Hospital
Greeley County Hospital	Munson Army Health Center	Stormont-Vail HealthCare, Inc.
Greenwood County Hospital	NE KS Center for Health & Wellness	Sumner County District #1 Hospital
Grisell Memorial Hospital District #1	Nemaha Valley Community Hospital	Sumner Regional Medical Center
Hamilton County Hospital	Neosho Memorial Regional Medical Center	Susan B. Allen Memorial Hospital
Hanover Hospital	Ness County Hospital	Trego County-Lemke Memorial Hospital
Harper Hospital District #5	Newman Regional Health	University of Kansas Medical Center
Hays Medical Center	Newton Medical Center	Via Christi Hospital Pittsburg, Inc
Heartland Spine and Specialty Hospital	Norton County Hospital	Via Christi Regional Medical Center
Herington Municipal Hospital	Olathe Medical Center	Wamego City Hospital
Hiawatha Community Hospital	Osborne County Memorial Hospital	Washington County Hospital
Hillsboro Community Hospital	Oswego Medical Center	Wesley Medical Center
Hodgeman County Health Center	Ottawa County Health Center	Western Plains Medical Complex
Holton Community Hospital	Overland Park Regional Med Cnt	Wichita County Health Center
		William Newton Hospital
		Wilson County Hospital

Pathology Laboratories

Advanced Dermatology, P.A.
Central Kansas Medical Center Pathology Lab
Cimarron Pathology, P.A.
Coffeyville Regional Medical Center Pathology
Cytocheck Laboratory, LLC
Dermatology Center of Lawrence
Dermatology Laser Center LLC
Free State Dermatology
Heartland Dermatology Center
Heartland Pathology
Johnson County Dermatology
Kansas City Dermatology & Skin Surgery Center
Kansas Pathology Consultants
Lawrence Memorial Hospital Pathology Lab
Midwest Anatomic Pathology Laboratory
Midwest Pathology
Mt Carmel Medical Center Pathology
Newman Regional Health Pathology Lab
Olathe Medical Center Pathology Lab
Overland Park Regional Medical Center Path Lab

Surgical Centers

Advanced Dermatologic Surgery, P.A.
College Park Family Care Center, P.A.
Cotton-O'Neil Clinic Endoscopy Center
Cypress Surgery Center
Derby Ambulatory Surgery Center
Endoscopic Imaging Center
Endoscopic Services, PA
Endoscopy & Surgery Center of Topeka
Heart of America Surgery Center, LLC
Hutchinson Ambulatory Surgery Center LLC
Hutchinson Clinic Endoscopy Center
Kansas Endoscopy
Kansas Surgery & Recovery Center
Midwest Surgery Center, L.C.
Northwest Kansas Surgery Center

Radiation Centers

Central Care Cancer Center (Radiation Facility)
Central Care Cancer Center(Radiation Clinic)
Central Kansas Cancer Institute

Hospices

Allen County Hospital Home Health
Harry Hynes Memorial Hospice
Heartland Hospice
Hospice of Dickinson County
Hospice of Leavenworth
Hospice of Salina
Hospice Palliative Care/Lifeline

Pathology Services, P.A.
Peterson Laboratory Services P.A.
Physicians Reference Laboratory
Promise Regional Medical Center Pathology Lab
Providence Medical Center Pathology
Quest Diagnostics Inc.
Salina Regional Health Center Pathology
Shawnee Mission Medical Center Pathology
Southwest Medical Center Pathology Lab
St. Catherine Hospital Pathology
St. Francis Hospital & Medical Center Pathology
Stormont Vail Regional Medical Center Pathology
The Dermatology Clinic, P.A.
University of Kansas Med Ctr Pathology Lab
Via Christi St. Francis Pathology Lab
Wesley Medical Center Pathology
Western Plains Medical Complex Pathology
William Newton Memorial Hospital Pathology Lab
WPM Pathology Laboratory, Chartered

Overland Park Surgery Center
Ridgewood Surgery & Endoscopy Center LLC
Skin and Moh's Surgery Center
St. Luke's South Surgery Center LLC
Summit Surgical, LLC
Surgery Center of Dodge City
Surgery Center of Leawood, LLC
Surgicare of Wichita Inc
Surgicenter of Johnson County
Tallgrass Surgical Center
The Center for Same Day Surgery
The Endoscopy Center of Lawrence LLC
WestGlen Endoscopy Center
Wichita Clinic Day Surgery

Johnson County Radiation Therapy
Lawrence Cancer Center
Radiation Oncology Center

HospiceCare of Kansas, LLC
Kansas City Hospice
Meadowlark Hospice
Ottawa County Health Department
Solomon Valley Hospice
SouthernCare Lawrence
St. John's RMC Hospice

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INTRODUCTION

The Kansas Cancer Registry, the only population-based source of information on cancer incidence in Kansas, has published annual reports about cancer incidence (new cancer cases) and mortality for Kansans who have been diagnosed with cancers since 1995. Starting this year, the Kansas Cancer Registry publishes a multiple-year (1998 – 2008) cancer incidence and mortality report to alleviate fluctuation on the incidence rate year to year due to a small population size in some counties and varying care seeking behaviors. This report includes detailed information on cases diagnosed between 1998 and 2008, a section describing cancer incidence in the elderly population, and the age-adjusted cancer death rates.

The Kansas Cancer Registry (KCR) has successfully achieved goals and objectives set forth by the CDC National Program for Cancer Registries. It is evident that KCR would not have attained such major accomplishments without the cooperation of hospitals, pathology laboratories, radiation treatment centers, outpatient surgical centers, oncology/chemo clinics, dermatology clinics, physicians, home health and hospices. Also, professional organizations such as the American Cancer Society, Kansas Hospital Association, Kansas Medical Society, and Society for Kansas Pathologists have contributed their support to make the Kansas Cancer Registry a true population-based cancer registry. Currently,

- KCR has registered over 90% of the expected number of Kansans with cancers within 12 months of the close of the diagnosis year and over 95% completeness of reporting within 24 months of the close of the diagnosis year.
- All health care providers including physicians and clinic groups in the state of Kansas proactively report cancer cases to the Kansas Cancer Registry.
- KCR data continued to be certified by NAACCR with gold standards of achievement in completeness, timeliness, and data quality of cancer reporting data.
- KCR website has been updated to include this multiple year incidence report, an interactive query system, and KCR operation manual.
- KCR has conducted data exchange with the following neighboring states, Colorado, Missouri, Nebraska, Oklahoma, Texas, and Washington.
- KCR has released the registry data for cancer cluster investigations, community needs assessments, planning of screening programs, health policy making, and epidemiological studies. Kansas Department of Health and Environment (KDHE) has also used the registry data to estimate possible size of the disabled cancer population, the burden of smoking on a population, and to set the Healthy Kansans 2010 objectives. New clinics and radiation treatment centers were opened after using the registry data to identify needs in communities.
- The registry data have also been included in the Colorectal Cancer Monograph (<http://www3.interscience.wiley.com/journal/112761499/issue>) and the United States

Cancer Statistics, incidence reports published to the Nation since 1999. The publication is a joint effort of the National Program of Cancer Registry, CDC and the National Cancer Institute.

- KCR actively supports the Kansas Statewide Comprehensive Cancer Control Initiative. The registry data have been and will continue to be used for Kansas statewide cancer control activities.

In summary, KCR has devised strategies and implemented mechanisms to increase case reporting from Kansas health care facilities, improve timeliness of reporting through registration of cases from multiple sources, and increase accuracy of the registry data. The main purpose of this report is to provide preliminary cancer data to the general public, researchers, physicians, and health care planning agencies. It is hoped that through continued efforts on case registration and quality control of the data, the data will be used to serve the interests of all Kansans through statewide cancer surveillance, prevention, and control.

TECHNICAL NOTES

Sources of data:

Incidence: Incidence data (new cancer cases) were collected from all health care facilities licensed in the State of Kansas. The majority of cancer cases are identified in hospitals by screening many types of records, such as disease indices, in-hospital pathology reports, and radiation logs. When a cancer case is reported from more than one facility, the information is consolidated into one record. However, names of the reporting hospitals are maintained in the KCR database. Many Kansans with cancers were diagnosed and treated in hospitals outside the State of Kansas. These cancer cases are reported to the KCR by data exchange with the neighboring state registry to which the cases are reported. The reporting time lag in identification of Kansans with cancers from central cancer registries in other states varies widely. Therefore, data included in this report should be subject to change since missed cases are continuously added to the KCR database.

Expected Number of New Invasive Cancer Cases: About 142,704 new cases of invasive cancer were expected to be diagnosed in 1998-2008, in Kansas. Appendix A shows calculation of the expected number of new invasive cancer cases by multiplying IOWA SEER age-sex-race specific average annual invasive cancer incidence rates for 2003-2007 to the 2000 Kansas age-sex-race specific population from US Census. This estimate does not include carcinoma *in situ* of any site but bladder, nor does it include basal and squamous cell cancers of the skin.

Mortality: The data for cancers as a primary cause of death was compiled from the death files generated for Kansas Cancer Registry by KDHE Center for Health and Environment Statistics. The death data presented herein may not include vital events occurring to Kansas residents in other states or Canada. Detailed information of cancer deaths on all Kansans should be referred to Kansas Annual Summary of Vital Statistics. The cancer sites included in this report are based on the 9th (1997-1998) and 10th (1999-current) revisions of the International Classification of Diseases (ICD) codes. Detailed ICD codes are shown in Appendix B.

Population Estimates: The estimates of Kansas total and county-specific populations were obtained from SEER, <http://seer.cancer.gov/popdata/download.html>.

Definitions:

Reportable cancers: All invasive neoplasms (a behavior code of 3), *in situ* cancers (a behavior code of 2) and benign brain tumors are reportable cancers and are registered in the registry database. Carcinoma *in situ* of the cervix, basal and squamous cell carcinoma of the skin are non-reportable cancers. The anatomic site and histology of cancers are coded according to the third revision of the International Classification of Diseases for Oncology (ICD-O-3). Definitions of site-specific cancers are shown in Appendix B.

Stage of disease at diagnosis: The summary staging classification as defined by the National Cancer Institute's Surveillance Epidemiology and End Results (SEER) Program is used to determine stage of disease at diagnosis. The stages are defined as follows:

<i>In situ</i>	A neoplasm with all the characteristics of malignancy except invasion; it has not penetrated the basement membrane nor extended beyond the epithelial tissue.
<i>Localized</i>	An invasive malignant neoplasm confined entirely to the organ of origin. It may include intraluminal extension where specified.
<i>Regional</i>	A malignant neoplasm that 1) has extended beyond the limits of the organ of origin directly into surrounding organs or tissues; 2) involves regional lymph nodes by way of the lymphatic system; or 3) has both regional extension and involvement of regional lymph nodes.
<i>Distant</i>	A malignant neoplasm that has spread to parts of the body remote from the primary tumor either by direct extension or by discontinuous metastasis to distant organs, tissues, or via the lymphatic system to distant lymph nodes.
<i>Unstaged</i>	Insufficient information to determine the stage of disease at diagnosis.

Collaborative Staging: The collaborative staging schema as defined by The American Joint Committee on Cancer (AJCC) and the North American standards setters has been adopted for cases diagnosed January 1, 2004 and forward. Details of the schema can be obtained from <http://www.cancerstaging.org/cstage/index.html> (Revised September 8, 2006).

Age-specific rate: The number of new cancer cases as a rate per 100,000 population in a given age group.

Age-adjusted rate: The number of new cancer cases that would have occurred in a standard population. Rates are calculated per 100,000 standardized to the age distribution of the 2000 U.S. standard population.

Elderly: The elderly population is defined as people aged 65 and older.

Regions: For cancer incidence, the patient's usual place of residence at the time the cancer is diagnosed is recorded in the registry database. Due to a small population in most counties in Kansas, these counties are grouped into twelve regions where each region has a population base of at least 100,000. The region assignment which groups counties of similar size and density, referral and business patterns, and proximity of aggregated counties was established in consultation with Dr. Steven Pickard at KDHE and Dr. Bob Nunley from the Kansas Geographic Bureau. These twelve regions encompass the following counties:

REGION	COUNTIES
Region 1	Cheyenne, Decatur, Ellis, Gove, Graham, Logan, Norton, Osborne, Phillips, Rawlins, Rooks, Russell, Sheridan, Sherman, Smith, Thomas, Trego, Wallace
Region 2	Clark, Finney, Ford, Grant, Gray, Greeley, Hamilton, Haskell, Kearney, Lane, Meade, Morton, Scott, Seward, Stanton, Stevens, Wichita
Region 3	Barber, Barton, Comanche, Edwards, Ellsworth, Harper, Hodgeman, Kingman, Kiowa, Ness, Pawnee, Pratt, Rice, Rush, Stafford
Region 4	Clay, Cloud, Dickinson, Jewell, Lincoln, Mitchell, Ottawa, Republic, Saline, Washington
Region 5	Harvey, Reno, McPherson, Sedgwick
Region 6	Butler, Cowley, Sumner
Region 7	Atchison, Brown, Doniphan, Jackson, Jefferson, Leavenworth, Marshall, Nemaha
Region 8	Geary, Pottawatomie, Riley
Region 9	Anderson, Chase, Chautauqua, Coffey, Elk, Greenwood, Linn, Lyon, Marion, Morris, Osage, Wabaunsee
Region 10	Douglas, Franklin, Miami, Shawnee
Region 11	Johnson, Wyandotte
Region 12	Allen, Bourbon, Cherokee, Crawford, Labette, Montgomery, Neosho, Wilson, Woodson

2000 Kansas Population estimates by region, age group, and gender are tabulated in Appendix C.

Data Quality:

The Kansas Cancer Registry works to ensure that the information received is as complete and accurate as possible. Currently, KCR performs visual edits on all abstracted forms received in KCR, computer edits on a minimum number of key data items (e.g., primary site, histology), and re-abstractation on a random sample of medical records. Several quality assurance mechanisms have also been developed and will be implemented to further ensure data quality.

CONFIDENTIALITY OF DATA:

The identities of patients, physicians, and facilities are protected by Kansas State Law. Tight restrictions on access to confidential data ensure the protection of persons who develop cancer.

References:

- KDHE (Kansas Department of Health and Environment) 1988. Kansas Statutes & Regulations Regarding Communicable Disease Control. Bureau of Epidemiology, KDHE.
- SEER (Surveillance, Epidemiology and End Results Program) 1993. Comparative Staging Guide for Cancer - Major Cancer Sites. National Institutes of Health, National Cancer Institute.
- AACCR (American Association of Central Cancer Registries) 1994. Standards for Completeness, Quality, Analysis, and Management of Data. Standards for Cancer Registries, Vol. III, edited by JE Seiffert.
- International Classification of Diseases for Oncology, Third Edition (ICD-O-3) 2000. World Health Organization.
- International Classification of Diseases, Tenth Revision (ICD-10). World Health Organization.
- 2000 Population from U.S. Census Bureau 2001 (Census 2000 Summary File 1)
- Kansas Cancer Registry: Cancer Incidence and Mortality in Kansas, 1995
- Kansas Cancer Registry: Cancer Incidence and Mortality in Kansas, 1996
- Kansas Cancer Registry: Cancer Incidence and Mortality in Kansas, 1997-2003
- Collaborative Staging, <http://www.cancerstaging.org/cstage/index.html> (Revised September 8, 2006)
- CDC Wonder, <http://wonder.cdc.gov/>
- Kansas Information for Communities(KIC), <http://kic.kdhe.state.ks.us/kic/>
- Cancer Control PLANET, <http://cancercontrolplanet.cancer.gov/>

Number of Cancer Cases by Primary Site and Stage Kansas Residents, 1998-2008

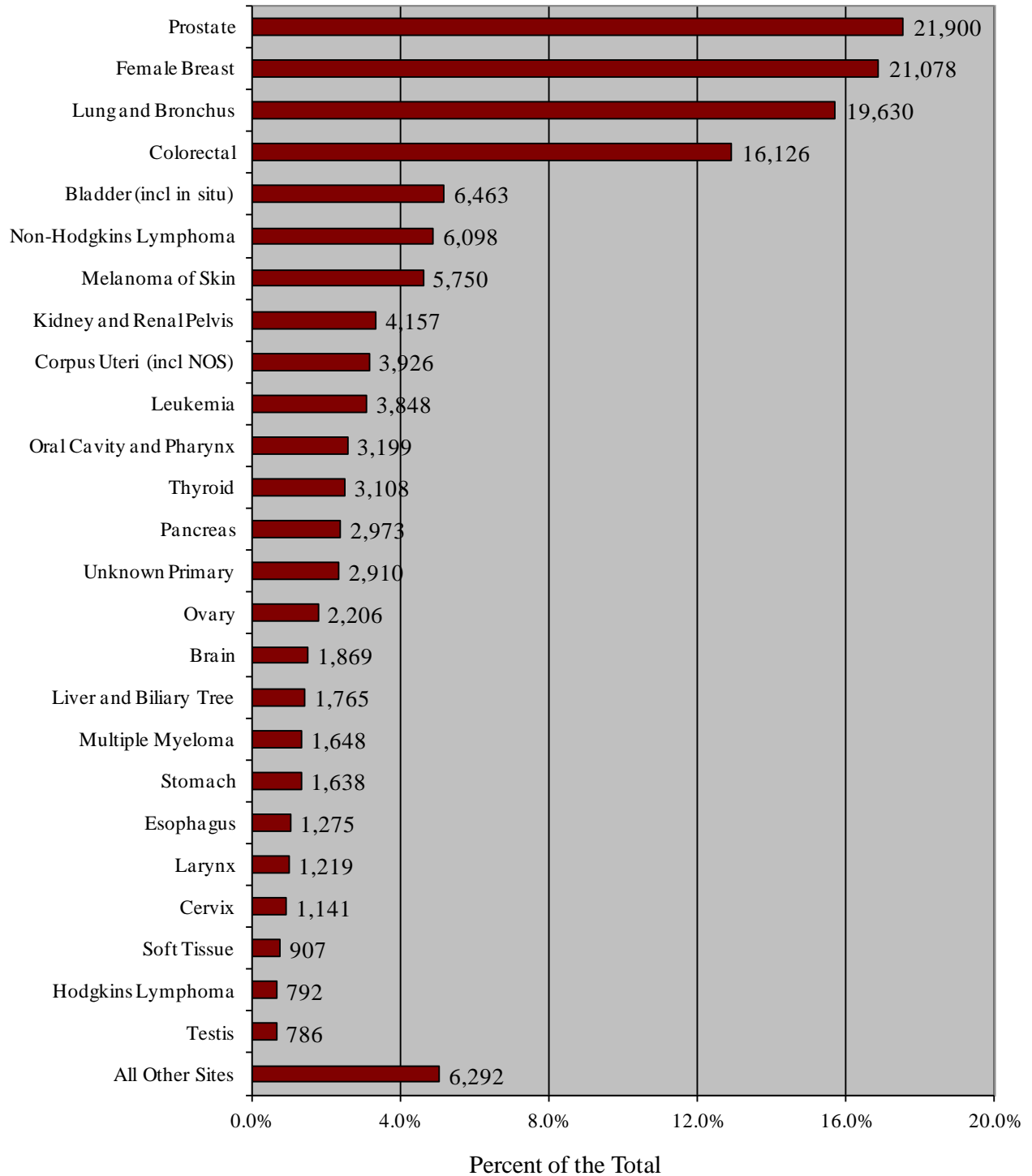
Primary Site	Stage at Diagnosis					
	All Cases	<i>In Situ</i>	Local	Regional	Distant	Unstaged
All Sites	153,148	11,330	66,523	30,547	31,499	13,249
Benign Brain§	1,536	-	-	-	-	-
Bladder (incl <i>in situ</i>)	6,463	2,422	3,009	510	176	346
Brain	1,869	-	1,419	202	27	221
Cervix	1,141	*	580	375	114	72
Colorectal	17,140	1,014	6,381	6,031	2,696	1,018
Corpus Uteri(incl NOS)	3,998	72	2,661	752	296	217
Esophagus	1,299	24	323	366	373	213
Female Breast	25,259	4,181	12,915	6,412	926	825
Hodgkins Lymphoma	792	-	218	281	233	60
Kidney and Renal Pelvis	4,201	44	2,427	742	755	233
Larynx	1,296	77	710	332	99	78
Leukemia	3,848	-	-	-	3,848	-
Liver and Biliary Tree	1,791	26	495	497	417	356
Lung and Bronchus	19,645	15	3,919	4,971	8,806	1,934
Melanoma of Skin	8,543	2,793	4,718	462	231	339
Multiple Myeloma	1,648	-	-	-	1,648	-
Non-Hodgkins Lymphoma	6,098	-	1,824	891	2,434	949
Oral Cavity and Pharynx	3,293	94	1,264	1,417	312	206
Ovary	2,220	14	384	391	1,291	140
Pancreas	2,978	5	311	818	1,456	388
Prostate	21,928	28	17,256	2,420	703	1,521
Soft Tissue	907	0	511	158	121	117
Stomach	1,658	20	388	531	479	240
Testis	787	1	554	126	85	21
Thyroid	3,111	3	2,276	647	101	84
Unknown Primary	2,910	-	-	-	-	2,910
All Other Sites	6,789	497	1,980	1,215	2,336	761

- denotes not applicable

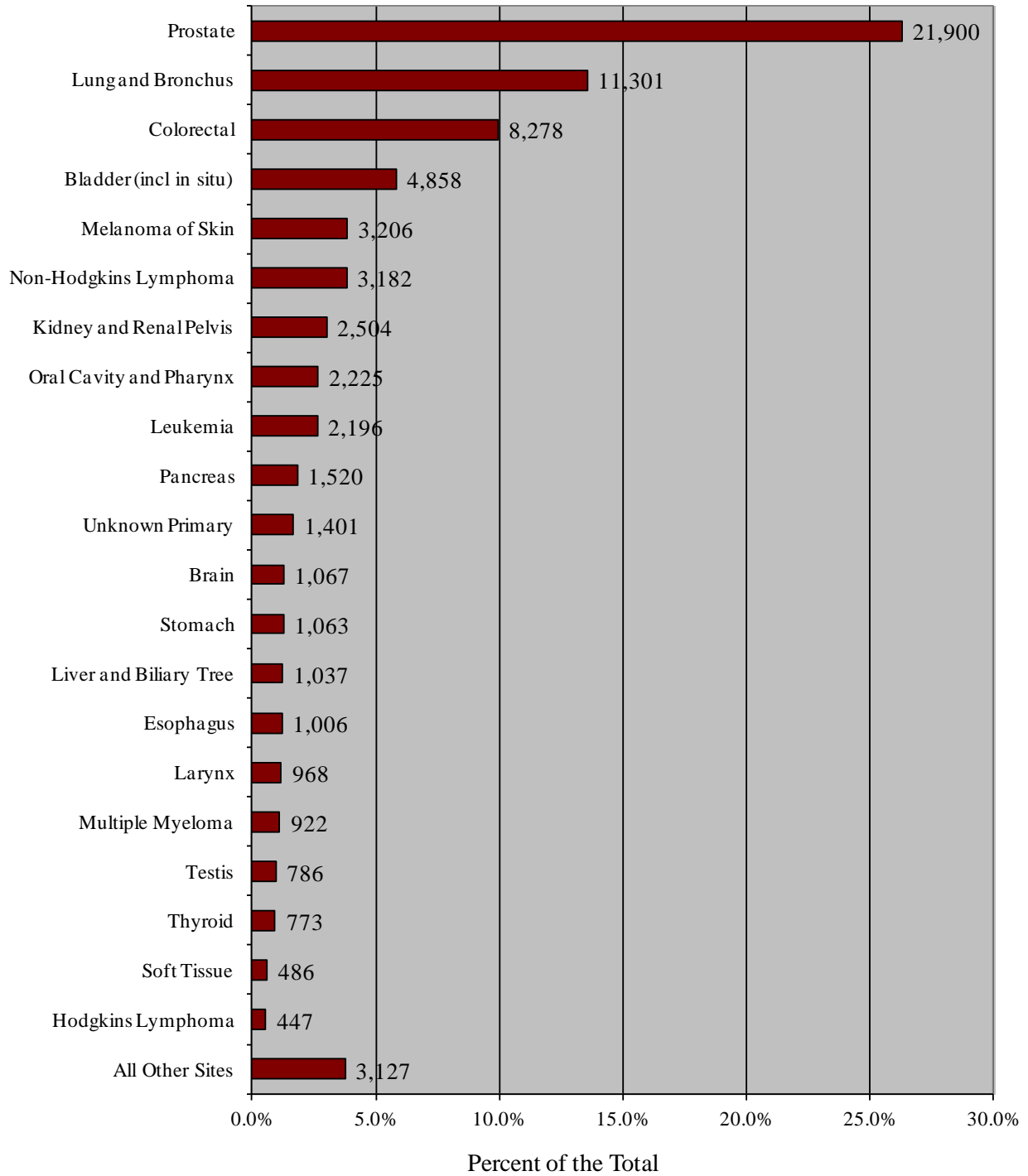
* denotes not reportable

§ benign brain tumor diagnosed in January 2004 and forward

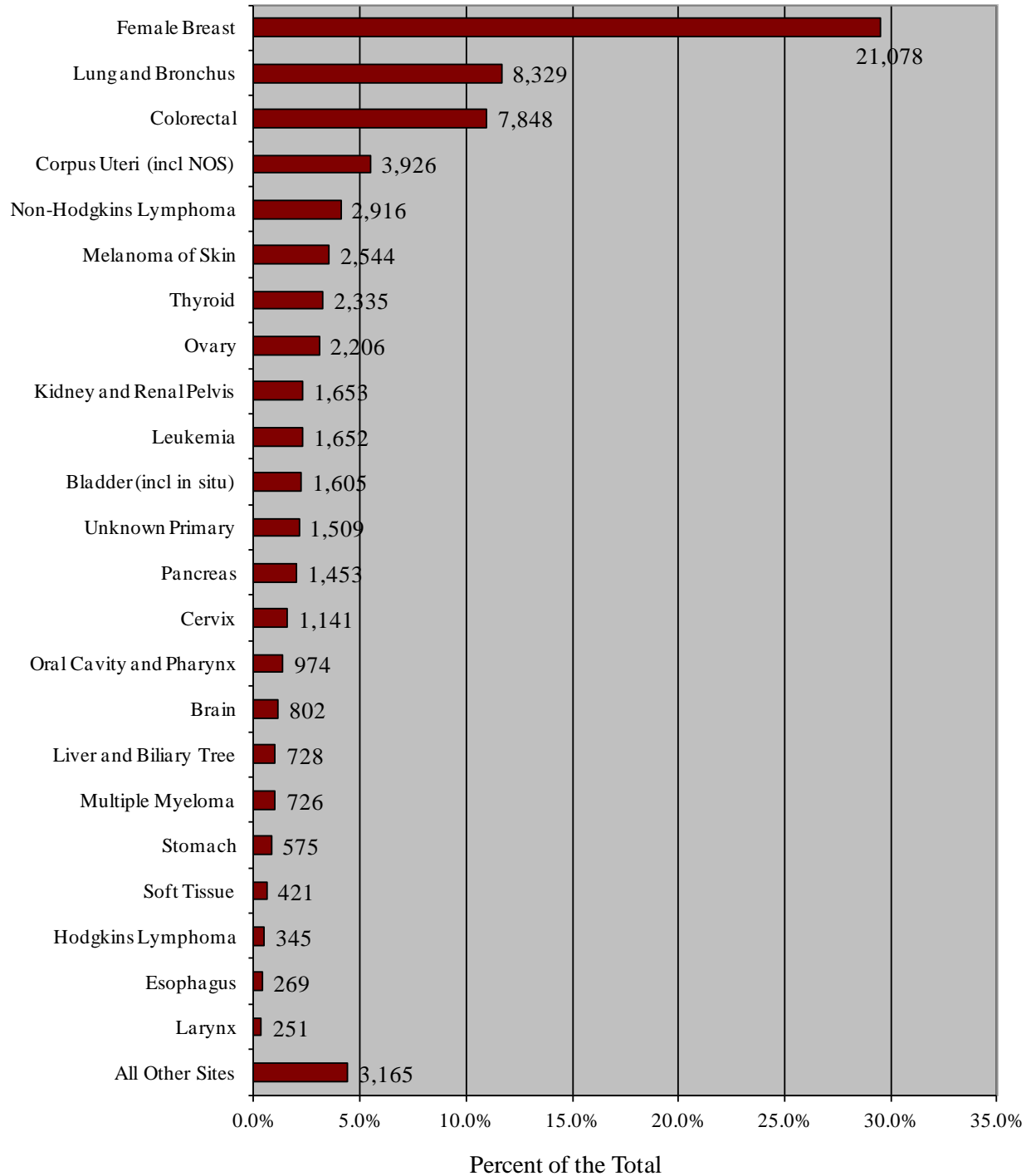
Number and Percent of Invasive Cancer Cases Primary Site, Kansas Residents, 1998-2008



Number and Percent of Invasive Cancer Cases Primary Site, Male Kansas Residents, 1998-2008



Number and Percent of Invasive Cancer Cases Primary Site, Female Kansas Residents, 1998-2008



Number of Invasive Cancer Cases by Primary Site and Age Group Male Kansas Residents, 1998-2008

Primary Site	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
All Sites	244	126	148	260	369	461	615	970	1,615	3,065	4,992	7,317	8,633	10,606	11,693	10,811	7,331	4,997	74,253
Bladder (incl <i>in situ</i>)	0	0	0	0	3	9	17	28	67	161	231	338	447	638	809	873	681	556	4,858
Brain	30	29	27	26	25	37	41	55	59	79	92	85	105	95	94	89	58	41	1,067
Colorectal	0	0	1	2	5	15	47	95	198	351	557	790	925	1,042	1,298	1,235	931	786	8,278
Esophagus	0	0	0	0	0	1	2	10	13	49	88	129	142	133	152	137	90	60	1,006
Hodgkins Lymphoma	1	4	11	36	49	48	43	36	27	39	30	31	17	25	16	15	10	9	447
Kidney and Renal Pelvis	18	6	1	1	7	14	14	50	106	202	258	320	320	326	303	280	167	111	2,504
Larynx	0	0	0	1	1	1	2	5	21	51	81	123	163	164	156	101	62	36	968
Leukemia	98	44	26	35	30	27	27	34	66	94	154	167	190	230	254	306	223	191	2,196
Liver and Biliary Tree	10	3	1	1	1	3	6	10	26	73	111	134	111	127	119	139	106	56	1,037
Lung and Bronchus	0	0	0	2	3	5	10	49	150	329	600	990	1,378	1,762	2,071	1,943	1,308	701	11,301
Melanoma of Skin	1	1	7	14	35	67	98	145	193	271	305	348	303	303	339	309	264	203	3,206
Multiple Myeloma	0	0	0	0	0	0	0	8	15	47	63	77	101	106	154	152	116	83	922
Non-Hodgkins Lymphoma	12	12	15	30	30	35	55	79	128	188	249	293	290	409	375	406	338	238	3,182
Oral Cavity and Pharynx	2	1	2	6	12	11	14	44	78	196	258	337	274	286	252	201	132	119	2,225
Pancreas	0	0	3	0	0	2	4	8	29	79	119	156	176	227	222	219	168	108	1,520
Prostate	1	1	0	1	0	0	1	8	89	391	1,255	2,351	2,975	3,975	4,216	3,512	2,010	1,114	21,900
Soft Tissue	17	7	11	11	7	11	24	27	25	36	34	41	43	37	42	45	37	31	486
Stomach	0	0	0	0	3	2	5	6	29	53	85	100	128	140	161	138	114	99	1,063
Testis	5	0	6	48	112	121	122	125	95	69	36	17	11	6	7	3	2	1	786
Thyroid	1	0	2	7	15	16	29	57	74	72	93	95	95	75	66	38	28	10	773
Unknown Primary	2	0	0	0	1	4	4	17	37	55	94	135	141	166	202	223	165	155	1,401
All Other Sites	46	18	35	39	30	32	50	74	90	180	199	260	298	334	385	447	321	289	3,127

Number of Invasive Cancer Cases by Primary Site and Age Group Female Kansas Residents, 1998-2008

Primary Site	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
All Sites	215	94	142	226	392	664	1,106	1,851	3,193	4,711	5,641	6,330	6,708	7,377	7,996	8,323	6,883	6,599	68,451
Bladder (incl <i>in situ</i>)	0	0	0	2	3	7	4	14	31	38	90	113	144	177	208	220	258	296	1,605
Brain	30	27	30	17	17	27	22	30	46	58	56	74	54	63	70	75	57	49	802
Cervix	0	0	0	1	11	71	110	150	162	148	99	92	54	62	58	49	37	37	1,141
Colorectal	0	1	0	3	14	18	36	89	162	323	452	484	672	828	1,007	1,197	1,138	1,424	7,848
Corpus Uteri (incl NOS)	0	0	0	0	3	23	45	82	146	285	414	532	511	460	452	436	310	227	3,926
Esophagus	0	0	0	0	0	1	0	0	1	10	11	16	30	36	36	47	45	36	269
Female Breast	0	0	0	1	9	75	259	636	1,336	2,046	2,279	2,414	2,206	2,237	2,205	2,192	1,724	1,459	21,078
Hodgkins Lymphoma	2	0	11	39	39	42	31	30	25	12	16	16	12	18	14	18	10	10	345
Kidney and Renal Pelvis	19	3	5	2	7	6	11	27	56	105	149	166	170	198	213	226	165	125	1,653
Larynx	0	0	0	0	1	0	0	5	11	14	22	35	38	36	39	28	9	13	251
Leukemia	86	31	19	24	26	16	28	29	52	85	96	94	119	146	169	210	199	223	1,652
Liver and Biliary Tree	4	0	1	0	1	1	3	6	14	27	42	68	57	86	98	110	85	125	728
Lung and Bronchus	1	1	0	0	4	2	11	42	167	304	449	715	1,010	1,321	1,446	1,321	961	574	8,329
Melanoma of Skin	5	0	5	30	79	114	163	204	230	260	219	211	173	172	174	173	132	200	2,544
Multiple Myeloma	0	0	0	0	1	0	3	2	14	25	39	60	86	73	125	118	109	71	726
Non-Hodgkins Lymphoma	1	8	14	11	17	33	41	45	82	143	182	222	285	326	392	415	364	335	2,916
Oral Cavity and Pharynx	0	3	2	5	6	10	16	24	43	48	95	94	111	99	98	109	107	104	974
Ovary	2	1	8	10	18	18	47	67	111	176	216	221	238	222	244	250	188	169	2,206
Pancreas	1	0	1	0	1	2	5	8	24	41	74	103	120	160	213	263	215	222	1,453
Soft Tissue	18	4	6	10	11	15	19	20	25	33	26	25	37	29	30	44	32	37	421
Stomach	0	0	0	0	0	5	8	10	21	28	32	29	42	60	70	82	97	91	575
Thyroid	1	0	11	43	90	137	197	233	291	285	271	190	160	138	98	91	52	47	2,335
Unknown Primary	1	0	0	2	2	6	7	15	28	46	71	115	122	137	177	254	234	292	1,509
All Other Sites	44	15	29	26	32	35	40	83	115	171	241	241	257	293	360	395	355	433	3,165

Number of Invasive Cancer Cases by Primary Site Sex, Race and Hispanic Ethnicity, Kansas Residents, 1998-2008

Primary Site	Males				Females			
	White	Black	Other*	Hispanic§	White	Black	Other*	Hispanic§
All Sites	68,562	3,285	2,406	1,375	63,679	2,921	1,851	1,373
Bladder (incl <i>in situ</i>)	4,656	108	94	60	1,512	55	38	12
Brain	1,025	23	19	38	759	33	10	22
Cervix	-	-	-	-	990	81	70	91
Colorectal	7,681	395	202	152	7,270	376	202	146
Corpus Uteri (incl NOS)	-	-	-	-	3,674	150	102	95
Esophagus	941	52	13	16	246	18	5	2
Female Breast	-	-	-	-	19,688	885	505	364
Hodgkins Lymphoma	398	32	17	23	312	22	11	20
Kidney and Renal Pelvis	2,338	117	49	77	1,529	94	30	42
Larynx	892	61	15	18	221	23	7	2
Leukemia	2,044	62	90	66	1,522	56	74	57
Liver and Biliary Tree	908	59	70	52	674	37	17	31
Lung and Bronchus	10,601	579	121	132	7,877	356	96	85
Melanoma of Skin	2,990	5	211	19	2,334	10	200	13
Multiple Myeloma	837	73	12	21	634	76	16	14
Non-Hodgkins Lymphoma	2,995	86	101	81	2,723	94	99	63
Oral Cavity and Pharynx	2,037	98	90	43	906	40	28	13
Ovary	-	-	-	-	2,112	60	34	53
Pancreas	1,408	89	23	32	1,332	94	27	24
Prostate	19,762	1,121	1,017	312	-	-	-	-
Soft Tissue	453	21	12	22	380	33	8	12
Stomach	948	81	34	43	508	47	20	27
Testis	734	16	36	37	-	-	-	-
Thyroid	725	21	27	21	2,140	92	103	94
Unknown Primary	1,296	77	28	36	1,415	69	25	32
All Other Sites	2,893	109	125	74	2,921	120	124	59

* include unknown races

- denotes not applicable

§ Hispanic ethnicity is not mutually exclusive of races

Number of Invasive Cancer Cases and Age-adjusted Incidence Rates Region and Sex, Kansas Residents, 1998-2008

Region	All Cases		Male		Female	
	Cases	Rate	Cases	Rate	Cases	Rate
All Regions	142,704	462.6	74,253	544.6	68,451	407.8
Region 1	6,582	448.6	3,678	550.6	2,904	378.7
Region 2	6,101	427.2	3,213	504.0	2,888	375.1
Region 3	7,357	480.4	3,993	581.7	3,364	412.4
Region 4	7,963	458.2	4,300	548.6	3,663	395.6
Region 5	30,619	474.3	15,840	555.7	14,779	420.8
Region 6	7,043	488.6	3,754	581.7	3,289	422.4
Region 7	8,104	429.2	4,409	512.0	3,695	370.0
Region 8	4,166	448.9	2,251	545.8	1,915	381.0
Region 9	7,563	458.2	4,093	542.3	3,470	395.0
Region 10	16,736	473.5	8,529	548.0	8,207	424.0
Region 11	29,296	457.0	14,286	518.4	15,010	419.0
Region 12	11,174	468.6	5,907	570.4	5,267	403.6

Includes *in situ* bladder cancer;

Rates are per 100,000 population and age adjusted to the 2000 U.S. Standard Population

Number of Invasive Cancer Cases for Selected Sites by County Kansas Residents, 1998-2008

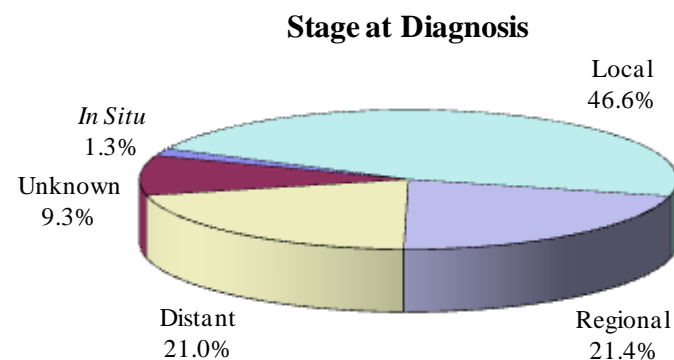
County	Total Cases	Colorectal		Lung and Bronchus		Prostate	Breast	Total Population
		Male	Female	Male	Female	Male	Female	
ALLEN	911	85	59	78	55	129	121	153,114
ANDERSON	587	34	42	47	24	100	74	88,257
ATCHISON	881	59	68	72	55	117	113	183,200
BARBER	403	27	19	38	20	68	54	54,979
BARTON	1,894	136	127	142	99	287	262	307,506
BOURBON	956	68	58	87	55	135	139	166,129
BROWN	673	49	44	54	34	124	97	114,181
BUTLER	3,310	157	158	296	216	530	454	669,314
CHASE	211	12	12	30	11	31	34	32,657
CHAUTAUQUA	275	14	16	29	26	28	36	45,237
CHEROKEE	1,186	87	73	140	90	142	153	241,432
CHEYENNE	229	17	14	19	9	60	22	32,558
CLARK	158	9	9	19	5	23	20	24,907
CLAY	567	37	23	48	32	104	87	95,623
CLOUD	710	40	51	44	29	132	97	107,906
COFFEY	593	32	24	59	32	93	66	95,254
COMANCHE	181	17	10	22	2	30	23	21,238
COWLEY	2,147	138	114	197	129	290	326	388,322
CRAWFORD	2,194	174	179	180	137	290	281	422,939
DECATUR	239	25	15	21	10	49	30	35,735
DICKINSON	1,331	74	70	122	67	252	181	209,742
DONIPHAN	367	33	26	35	15	47	44	87,792
DOUGLAS	3,719	185	182	246	189	537	695	1,170,906
EDWARDS	254	18	12	19	14	42	36	36,082
ELK	246	22	21	25	10	38	28	34,505
ELLIS	1,411	67	68	99	61	314	185	301,320
ELLSWORTH	425	27	29	33	24	74	49	70,058
FINNEY	1,196	78	84	86	62	173	160	443,655
FORD	1,279	95	67	98	78	171	192	356,148
FRANKLIN	1,497	86	78	133	89	225	221	281,060
GEARY	1,280	75	71	112	70	207	180	315,030
GOVE	207	11	9	12	8	54	19	31,408
GRAHAM	249	10	20	20	12	41	41	30,604
GRANT	334	15	18	21	20	42	44	84,363
GRAY	289	21	13	20	11	39	49	64,808
GREELEY	84	7	4	6	2	12	14	15,589
GREENWOOD	610	40	35	61	44	83	60	81,223
HAMILTON	130	10	9	8	11	15	22	28,917
HARPER	498	35	29	49	36	75	60	67,924
HARVEY	2,031	98	122	133	106	373	291	365,982
HASKELL	154	10	5	14	6	21	30	45,612
HODGEMAN	131	11	6	10	8	28	19	22,629
JACKSON	763	56	39	79	40	129	81	142,558
JEFFERSON	1,044	66	61	94	59	162	117	202,724
JEWELL	286	23	19	22	17	57	29	38,227
JOHNSON	21,506	1,015	1,036	1,332	1,208	2,934	3,909	5,336,190
KEARNY	159	17	4	10	14	22	24	48,005
KINGMAN	638	56	45	48	23	90	84	90,893
KIOWA	224	10	15	21	11	37	38	33,325
LABETTE	1,342	94	88	128	85	207	169	245,269
LANE	162	10	15	14	9	26	15	21,543
LEAVENWORTH	2,996	171	138	286	189	391	444	781,050
LINCOLN	266	15	13	16	10	57	40	37,690

Number of Invasive Cancer Cases for Selected Sites by County Kansas Residents, 1998-2008

County	Total Cases	Colorectal		Lung and Bronchus		Prostate	Breast	Total Population
		Male	Female	Male	Female	Male	Female	
LINN	629	37	37	74	44	94	70	105,669
LOGAN	238	16	17	11	11	58	27	31,358
LYON	1,602	101	105	130	97	245	202	392,944
MARION	869	54	56	63	36	141	118	141,584
MARSHALL	743	51	47	50	37	154	96	115,884
MCPHERSON	1,832	114	71	132	70	317	294	321,202
MEADE	265	22	12	22	10	54	30	49,929
MIAMI	1,396	80	82	117	95	158	218	320,817
MITCHELL	503	35	28	34	32	84	72	72,770
MONTGOMERY	2,545	174	138	246	177	387	317	386,725
MORRIS	450	27	28	40	31	79	52	66,020
MORTON	197	11	22	12	11	39	33	36,206
NEMAHA	637	38	49	47	21	123	77	114,275
NEOSHO	1,078	62	64	96	63	181	135	182,167
NESS	302	28	14	21	14	58	31	35,361
NORTON	382	23	20	41	27	62	36	62,786
OSAGE	1,089	52	56	96	86	174	140	182,492
OSBORNE	330	26	12	25	22	76	52	45,852
OTTAWA	381	22	20	34	22	64	43	66,704
PAWNEE	435	32	24	36	34	62	67	74,906
PHILLIPS	413	27	29	29	16	60	64	62,335
POTTAWATOMIE	935	62	50	78	50	164	121	204,964
PRATT	642	36	36	58	26	121	86	104,545
RAWLINS	247	19	8	18	20	53	26	30,371
RENO	4,109	246	225	292	235	660	538	702,206
REPUBLIC	381	23	36	22	19	74	57	59,041
RICE	698	58	41	73	42	103	78	115,165
RILEY	1,951	90	93	131	101	375	311	725,151
ROOKS	400	24	24	32	21	87	55	59,495
RUSH	307	22	19	29	14	57	45	37,296
RUSSELL	620	35	32	51	36	104	85	77,157
SALINE	3,067	178	185	247	184	501	450	591,732
SCOTT	316	29	18	25	17	60	35	53,005
SEDGWICK	22,647	1,249	1,172	1,767	1,381	3,451	3,459	5,082,503
SEWARD	829	48	48	68	41	127	120	247,498
SHAWNEE	10,124	530	544	760	631	1,593	1,435	1,884,502
SHERIDAN	170	13	9	15	8	32	25	28,878
SHERMAN	382	18	21	31	21	83	59	69,332
SMITH	328	18	26	34	14	44	51	46,632
STAFFORD	325	22	24	26	14	46	42	50,403
STANTON	115	7	5	11	4	25	9	25,357
STEVENS	278	15	14	14	21	39	44	58,312
SUMNER	1,586	99	100	119	84	251	228	274,799
THOMAS	411	19	16	27	22	88	62	86,140
TREGO	235	11	6	17	13	58	29	34,483
WABAUNSEE	402	25	23	43	12	64	46	74,658
WALLACE	91	7	3	5	3	24	8	17,639
WASHINGTON	471	36	29	33	12	72	79	67,665
WICHITA	156	14	8	10	7	35	14	26,032
WILSON	678	45	36	68	41	102	93	110,104
WOODSON	284	17	26	22	24	37	35	39,293
WYANDOTTE	7,790	453	474	785	577	963	1,120	1,713,289

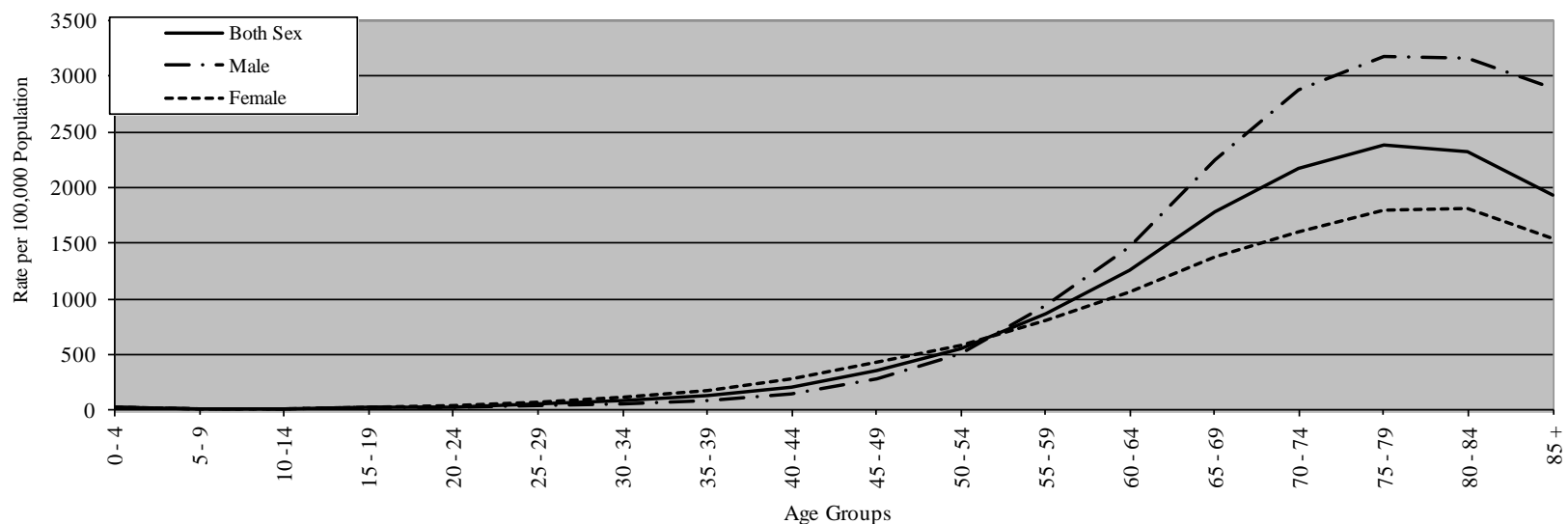
ALL INVASIVE CANCERS COMBINED[†]

		White	Black	Others [‡]	Total
Male	Case	68,562	3,285	2,406	74,253
	Rate*	533.3	623.2		544.6
	(CI)	529.3-537.3	601.0-646.2	np	540.7-548.6
Female	Case	63,679	2,921	1,851	68,451
	Rate*	404.9	407.0		407.8
	(CI)	401.7-408.1	392.3-422.2	np	404.7-410.9
Total	Case	132,241	6,206	4,257	142,704
	Rate*	456.1	492.8		462.6
	(CI)	375.7-458.6	480.4-505.5	np	352.3-465.0



[‡] Includes unknown race. np: not provided. CI: Confidence Interval

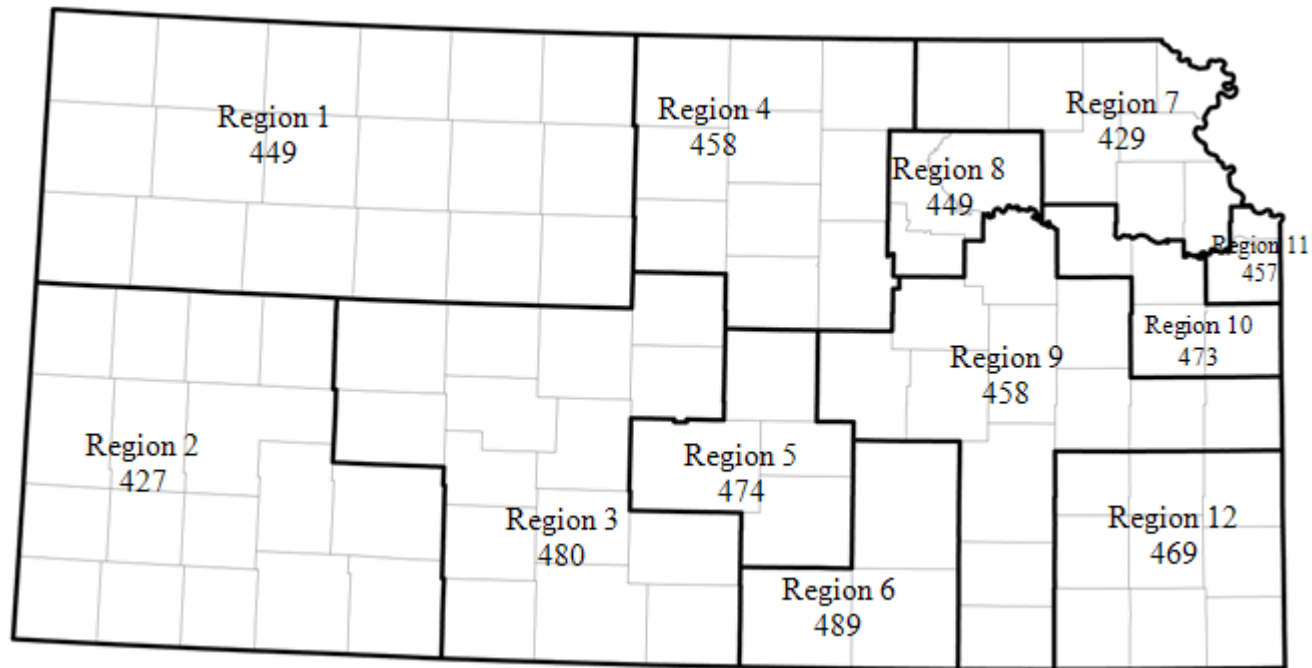
Age-specific Invasive Cancer Incidence Rates by Sex, Kansas Residents



[†]Includes *in situ* bladder cancer

*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

Age-adjusted All Invasive Cancer⁺ Incidence Rates* by Region, Kansas Residents, 1998-2008

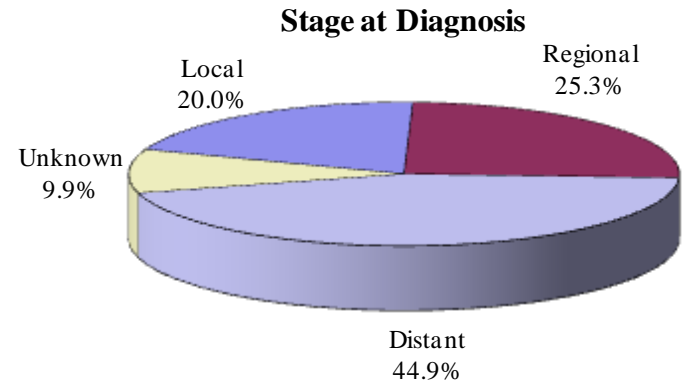


⁺Includes *in situ* bladder cancer

*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

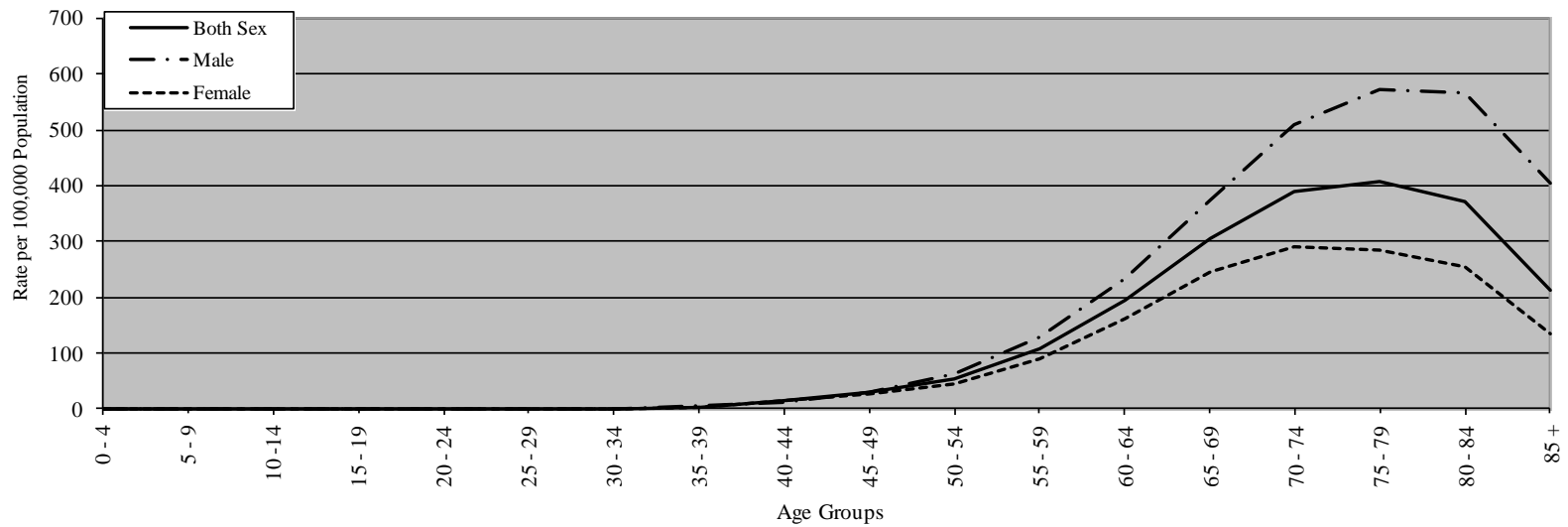
INVASIVE LUNG AND BRONCHUS CANCER

		White	Black	Others [‡]	Total
Male	Case	10,601	579	121	11,301
	Rate*	83.0	114.2	np	83.7
	(CI)	81.4-84.6	104.7-124.5	np	82.2-85.3
Female	Case	7,877	356	96	8,329
	Rate*	49.3	51.7	np	49.1
	(CI)	48.2-50.4	46.5-57.5	np	48.0-50.2
Total	Case	18,478	935	217	19,630
	Rate*	63.5	77.4	np	63.7
	(CI)	62.6-64.4	72.5-82.6	np	62.8-64.6



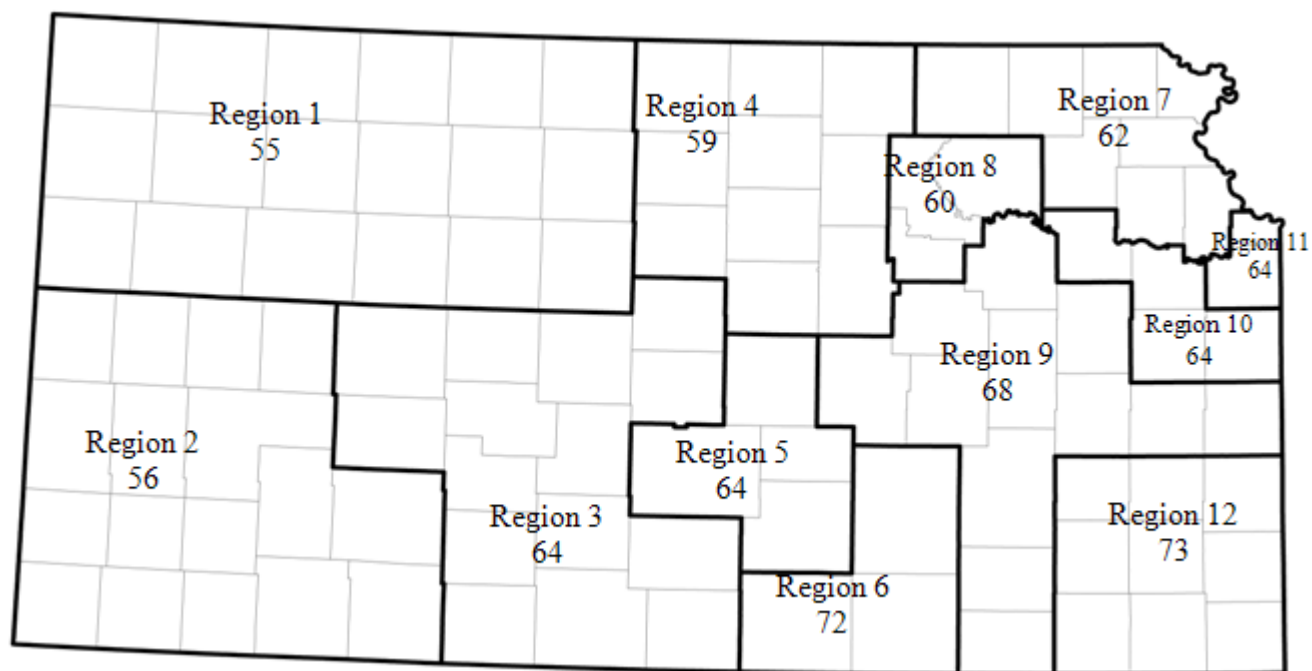
‡ Includes unknown race. np: not provided. CI: Confidence Interval

Age-specific Invasive Cancer Incidence Rates by Sex, Kansas Residents



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

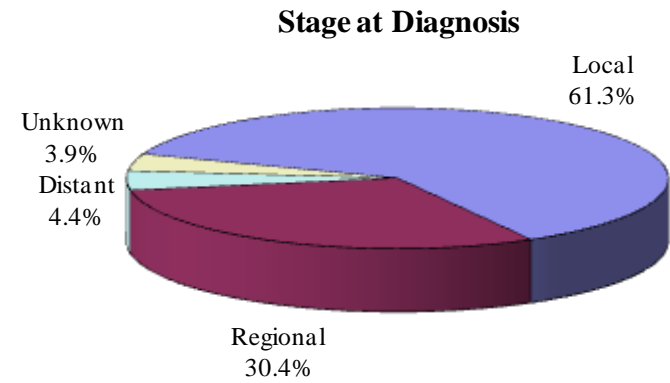
Age-adjusted Invasive Lung and Bronchus Cancer Incidence Rates* by Region, Kansas Residents, 1998-2008



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

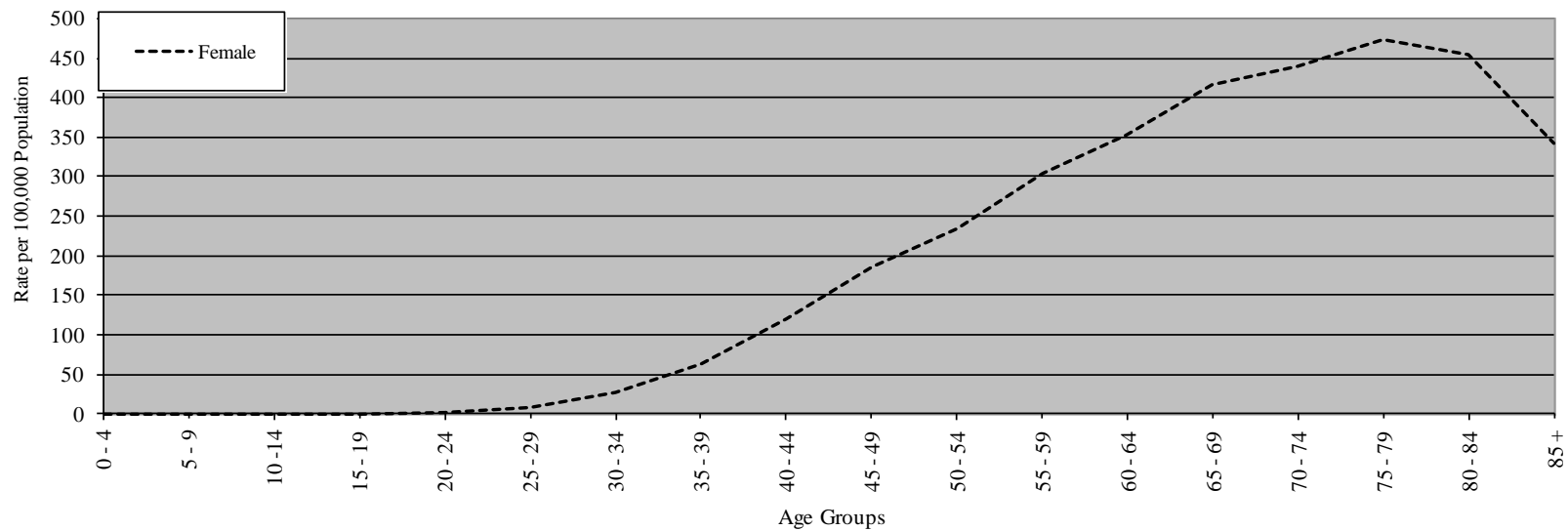
INVASIVE FEMALE BREAST CANCER

		White	Black	Others [‡]	Total
Female	Case	19,688	885	505	21,078
	Rate*	128.1	121.7	np	128.2
	(CI)	126.3-130.0	113.8-130.1	np	126.4-129.9



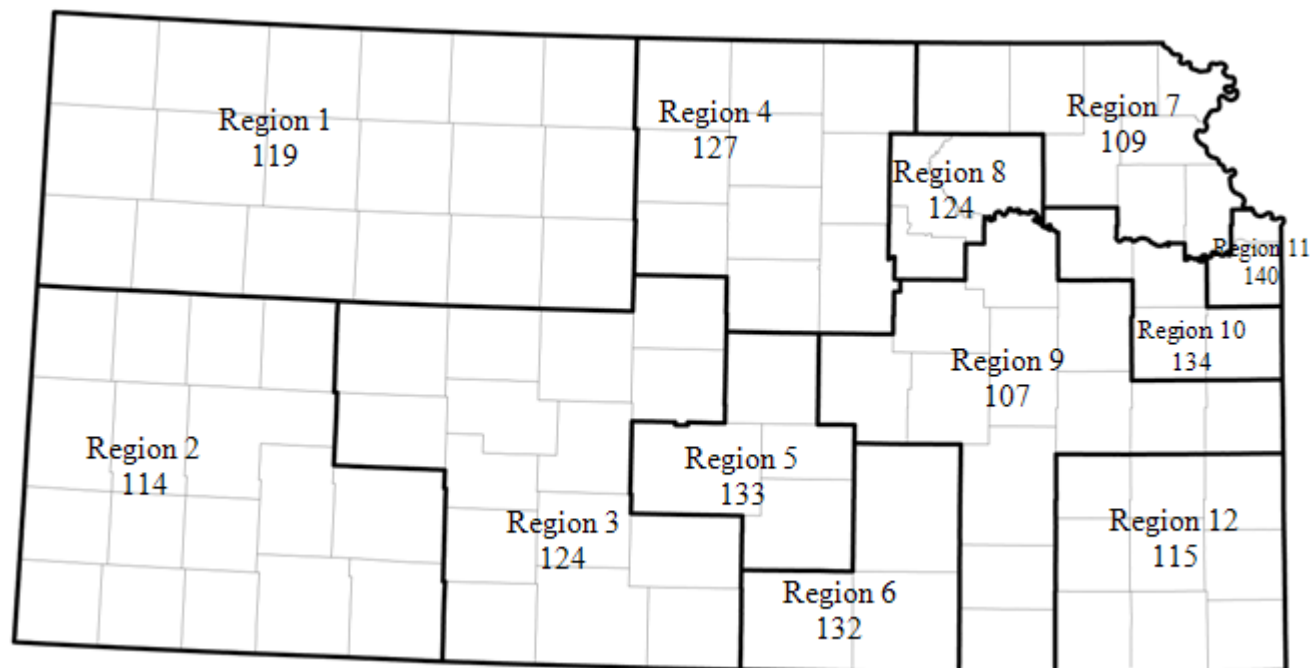
‡ Includes unknown race. np: not provided. CI: Confidence Interval

Age-specific Invasive Cancer Incidence Rates by Sex, Kansas Residents



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

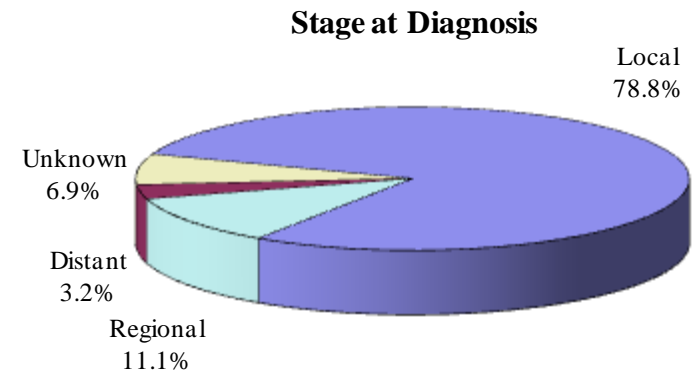
Age-adjusted Invasive Female Breast Cancer Incidence Rates* by Region, Female Kansas Residents, 1998-2008



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

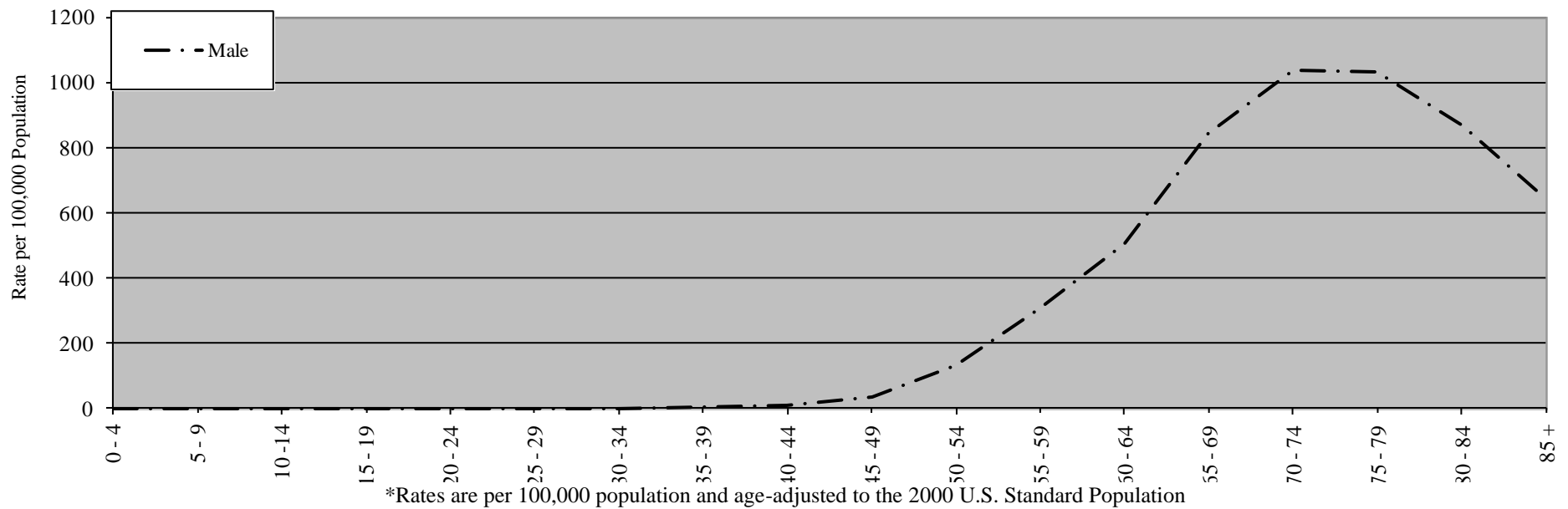
INVASIVE PROSTATE CANCER

		White	Black	Others [‡]	Total
Male	Case	19,762	1,121	1,017	21,900
	Rate*	153.4	219.0		161.0
	(CI)	151.2-155.5	205.9-232.9	np	158.9-163.2

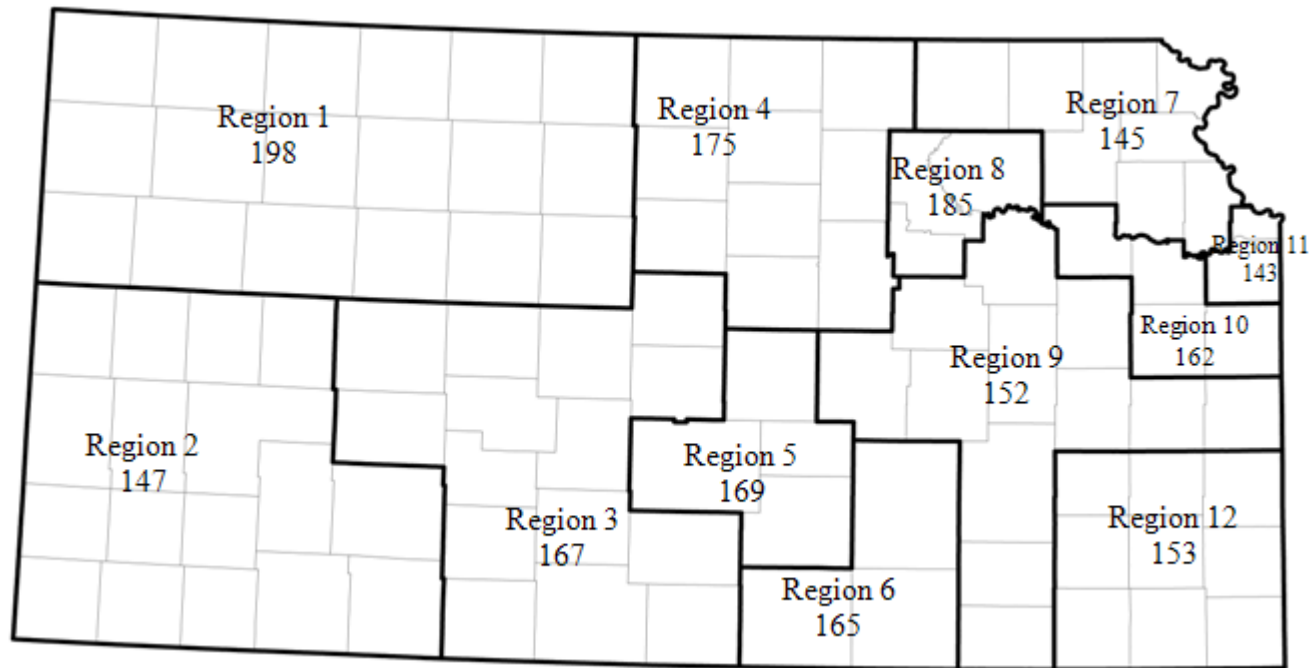


[‡] Includes unknown race. np: not provided. CI: Confidence Interval

Age-specific Invasive Cancer Incidence Rates by Sex, Kansas Residents



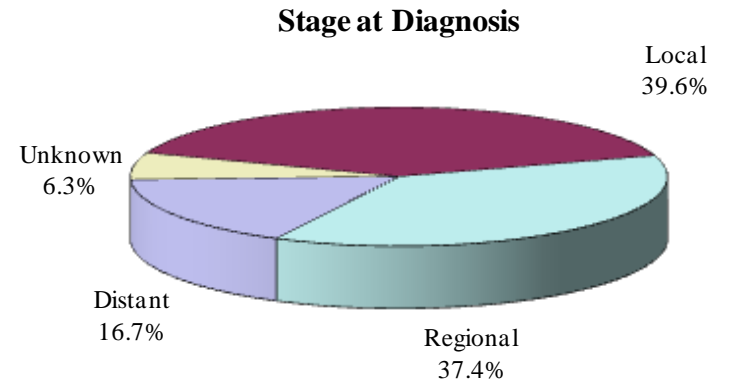
Age-adjusted Invasive Prostate Cancer Incidence Rates* by Region, Male Kansas Residents, 1998-2008



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

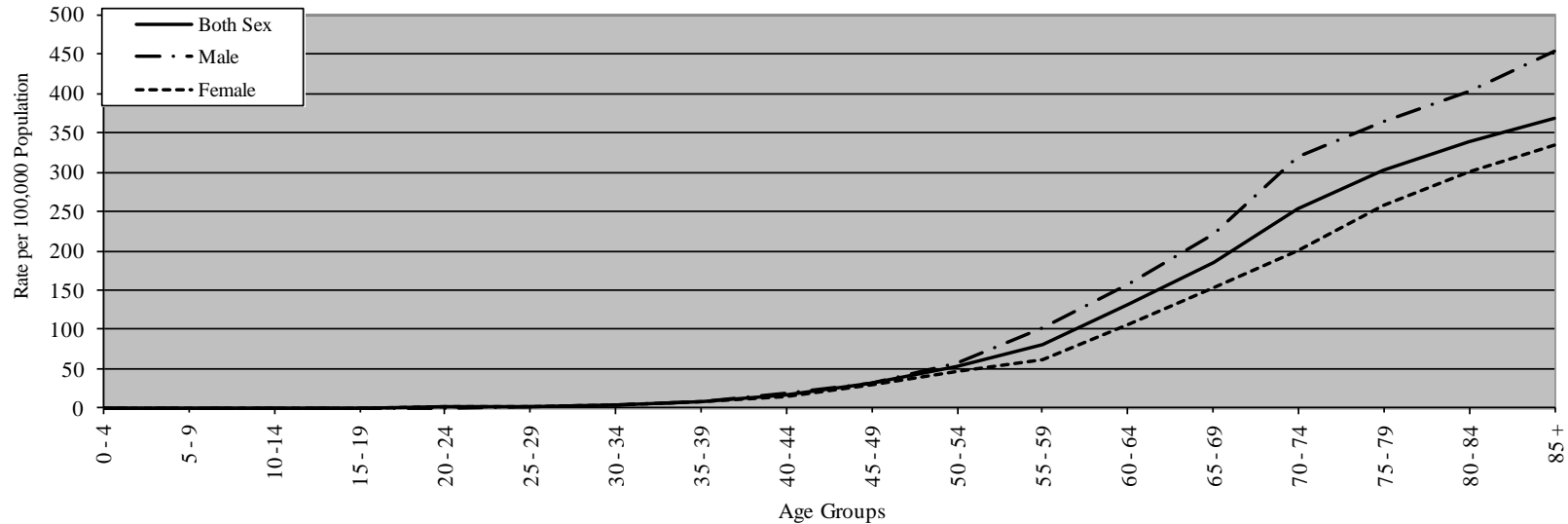
INVASIVE COLORECTAL CANCER

		White	Black	Others [‡]	Total
Male	Case	7,681	395	202	8,278
	Rate*	60.3	78.3		61.4
	(CI)	58.9-61.6	70.3-87.0	np	60.0-62.7
Female	Case	7,270	376	202	7,848
	Rate*	42.7	54.1		43.7
	(CI)	41.7-43.7	48.7-59.9	np	42.7-44.7
Total	Case	14,951	771	404	16,126
	Rate*	50.4	63.9		51.4
	(CI)	49.6-51.2	59.4-68.6	np	50.6-52.2



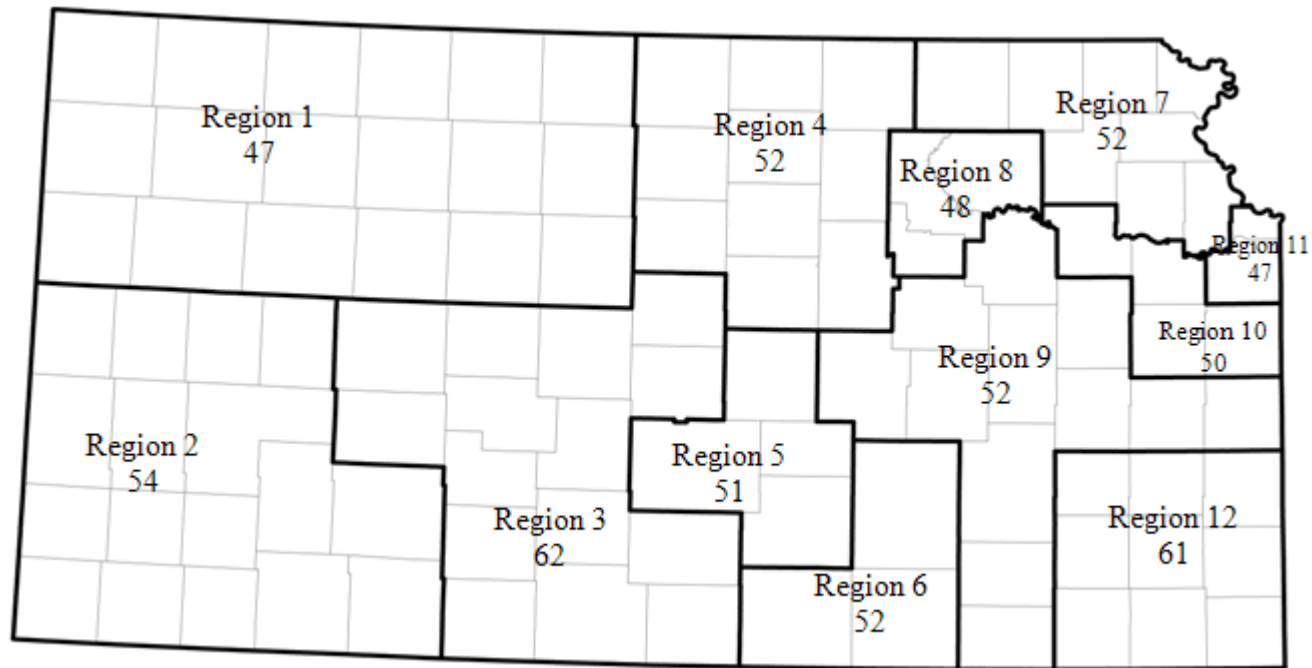
‡ Includes unknown race. np: not provided. CI: Confidence Interval

Age-specific Invasive Cancer Incidence Rates by Sex, Kansas Residents



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

Age-adjusted Invasive Colorectal Cancer Incidence Rates* by Region, Kansas Residents, 1998-2008



*Rates are per 100,000 population and age-adjusted to the 2000 U.S. Standard Population

Number of New Cancer Cases by Primary Site and Stage Elderly Kansas Residents, 1998-2008

Primary Site	Stage at Diagnosis					
	All Cases	<i>In Situ</i>	Local	Regional	Distant	Unstaged
All Sites	87,177	5,704	37,332	16,357	18,577	9,207
Benign Brain§	543	-	-	-	-	-
Bladder (incl <i>in situ</i>)	4,716	1,686	2,251	382	131	266
Brain	691	-	514	74	5	98
Cervix	243	*	86	107	25	25
Colorectal	11,568	682	4,457	4,013	1,667	749
Corpus Uteri(incl NOS)	1,910	25	1,190	390	181	124
Esophagus	787	15	209	215	198	150
Female Breast	11,459	1,642	6,389	2,488	439	501
Hodgkins Lymphoma	145	-	37	33	55	20
Kidney and Renal Pelvis	2,145	31	1,146	403	408	157
Larynx	689	45	411	153	40	40
Leukemia	2,151	-	-	-	2,151	-
Liver and Biliary Tree	1,065	14	286	292	242	231
Lung and Bronchus	13,419	11	2,950	3,298	5,655	1,505
Melanoma of Skin	3,543	1,274	1,802	211	103	153
Multiple Myeloma	1,107	-	-	-	1,107	-
Non-Hodgkins Lymphoma	3,598	-	1,041	512	1,406	639
Oral Cavity and Pharynx	1,552	45	684	557	144	122
Ovary	1,075	2	98	163	724	88
Pancreas	2,020	3	234	553	919	311
Prostate	14,850	23	11,671	1,311	533	1,312
Soft Tissue	364	0	196	74	37	57
Stomach	1,066	14	262	325	276	189
Testis	19	0	12	3	2	2
Thyroid	644	1	412	148	48	35
Unknown Primary	2,005	-	-	-	-	2,005
All Other Sites	3,803	191	994	652	1,538	428

- denotes not applicable

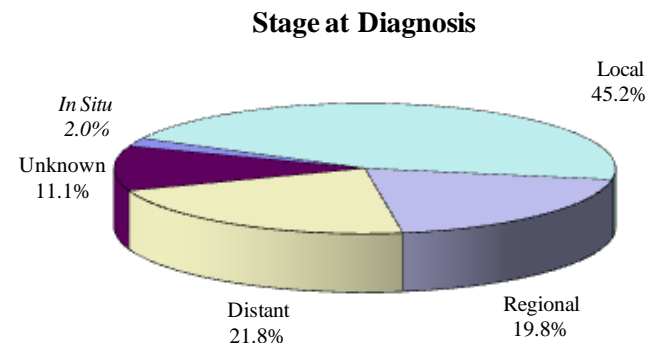
* denotes not reportable

§ benign brain tumor diagnosed in January 2004 and forward

ALL INVASIVE CANCERS COMBINED[†]

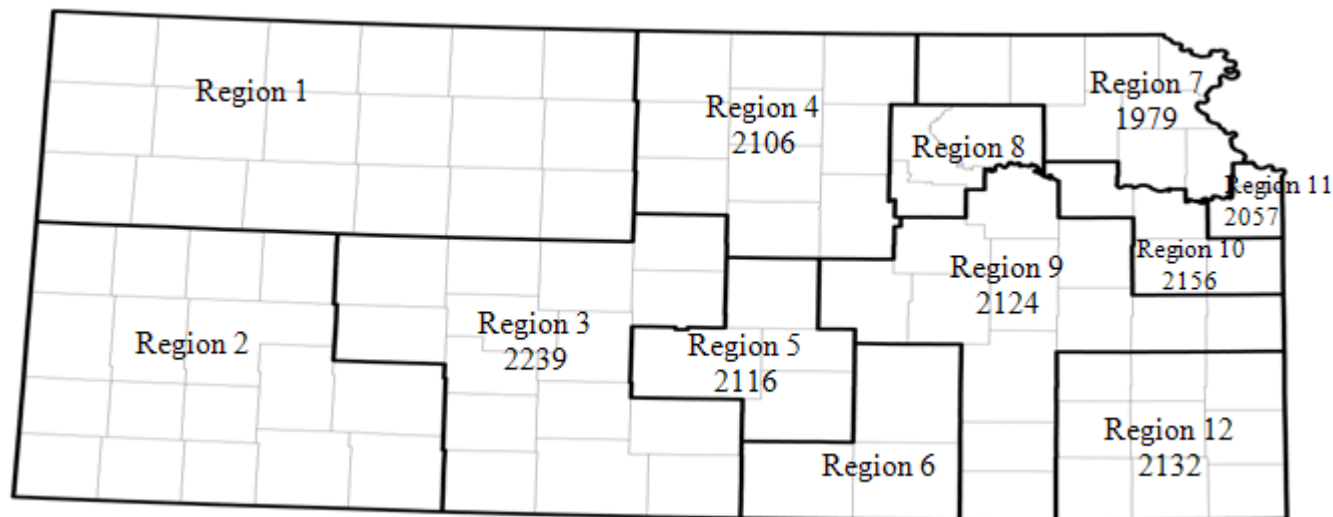
KANSAS ELDERLY, 1998-2008

		White	Black	Others [‡]	Total
Male	Case	42,543	1,635	1,260	45,438
	Rate*	2,761.6	3,083.4		2,815.2
	(CI)	2735.4-2788.0	2932.6-3240.7	np	2789.3-2841.3
Female	Case	35,222	1,311	645	37,178
	Rate*	1,596.4	1,602.6		1,604.5
	(CI)	1579.4-1613.5	1516.9-1692.0	np	1588.0-1621.2
Total	Case	77,765	2,946	1,905	82,616
	Rate*	2,078.8	2,185.7		2,104.9
	(CI)	2064.1-2093.5	2107.2-2266.5	np	2090.5-2119.4



[‡]Includes unknown race. np: not provided. CI: Confidence Interval

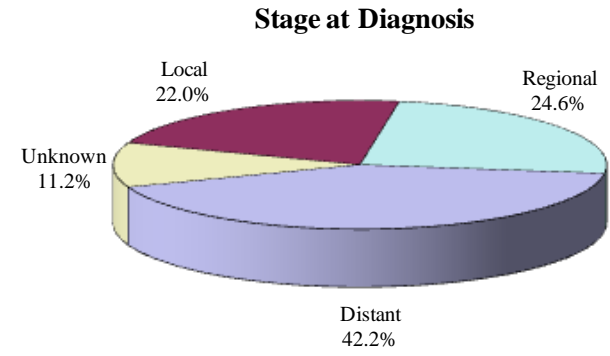
Age-adjusted Incidence Rates* by Regions



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population;
 Rates not shown for regions with elderly average population < 20,000
 †includes *in situ* bladder cancer

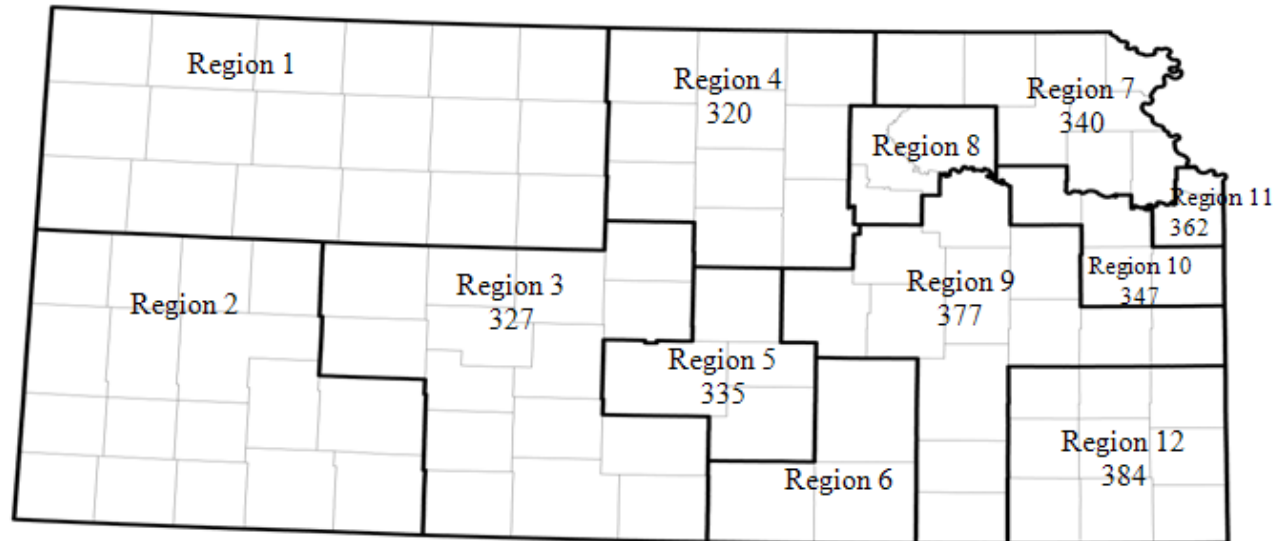
INVASIVE LUNG AND BRONCHUS CANCER KANSAS ELDERLY, 1998-2008

		White	Black	Others [‡]	Total
Male	Case	7,398	319	68	7,785
	Rate*	479.1	598.9		481.2
	(CI)	468.2-490.2	533.7-670.9	np	470.6-492.1
Female	Case	5,366	206	51	5,623
	Rate*	253.8	252.3		252.6
	(CI)	246.9-260.7	219.0-289.4	np	246.0-259.4
Total	Case	12,764	525	119	13,408
	Rate*	345.9	386.1		345.9
	(CI)	339.9-352.0	353.6-420.8	np	340.0-351.8



[‡]Includes unknown race. np: not provided. CI: Confidence Interval

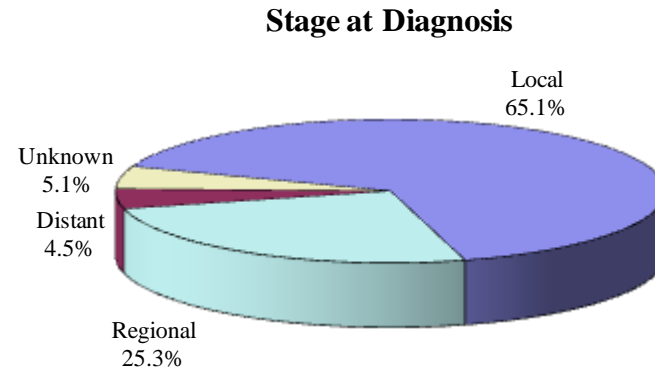
Age-adjusted Incidence Rates* by Regions



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population;
Rates not shown for regions with elderly average population < 20,000

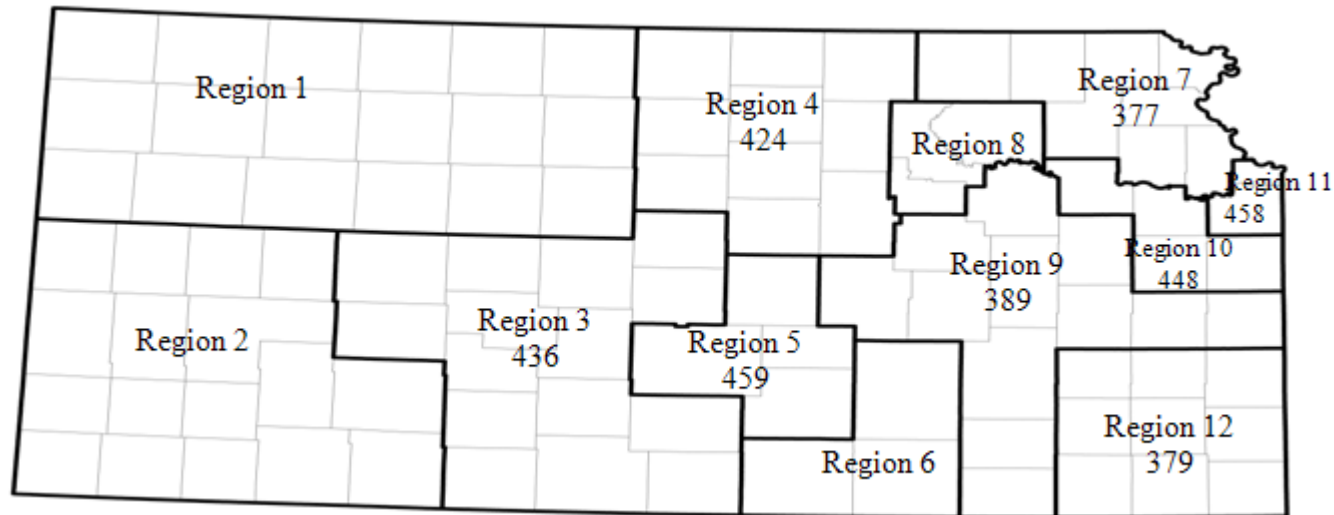
INVASIVE FEMALE BREAST CANCER KANSAS ELDERLY, 1998-2008

		White	Black	Others [‡]	Total
Female	Case	9,330	309	178	9,817
	Rate*	431.0	378.1		431.1
	(CI)	422.2-440.0	337.0-422.8	np	422.5-439.8



[‡] Includes unknown race. np: not provided. CI: Confidence Interval

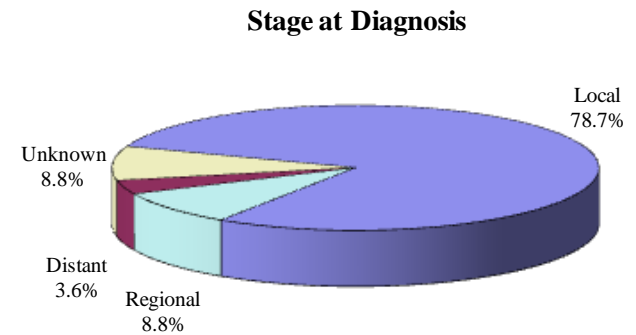
Age-adjusted Incidence Rates* by Regions



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population;
Rates not shown for regions with elderly average population < 20,000

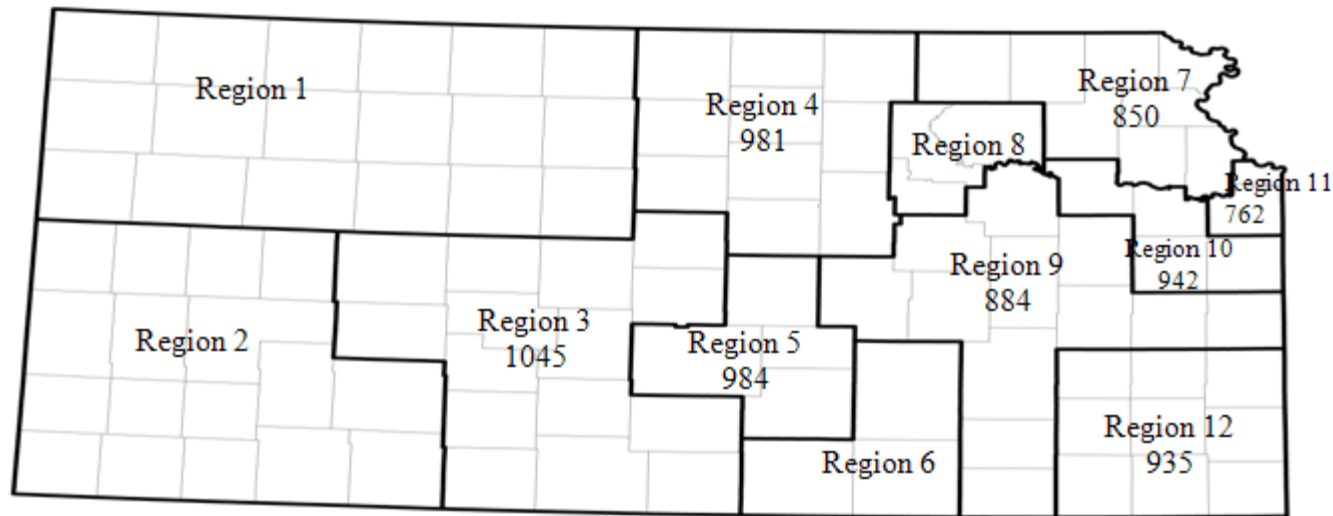
INVASIVE PROSTATE CANCER KANSAS ELDERLY, 1998-2008

		White	Black	Others [‡]	Total
Male	Case	13,456	623	748	14,827
	Rate*	868.0	1,142.9	np	912.1
	(CI)	853.3-882.8	1053.2-1239.1	np	897.4-926.9



[‡] Includes unknown race. np: not provided. CI: Confidence Interval

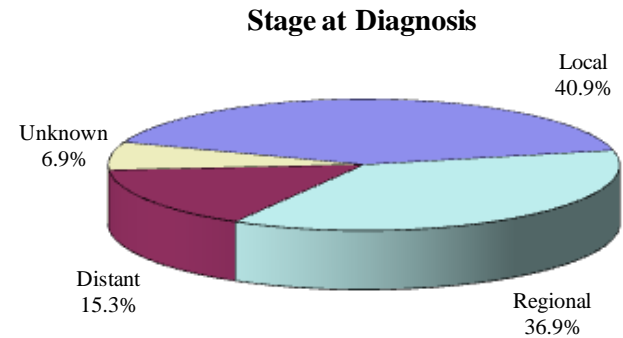
Age-adjusted Incidence Rates* by Regions



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population;
Rates not shown for regions with elderly average population < 20,000

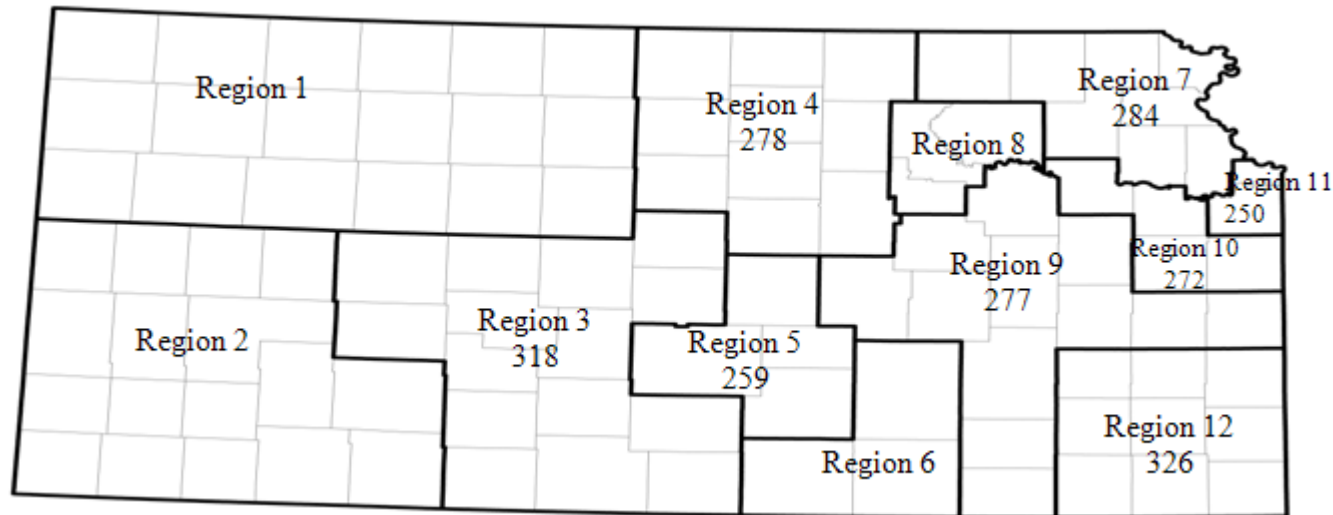
INVASIVE COLORECTAL CANCER KANSAS ELDERLY, 1998-2008

		White	Black	Others [‡]	Total
Male	Case	4,995	207	90	5,292
	Rate*	326.5	406.6	np	330.5
	(CI)	317.5-335.7	351.9-468.2	np	321.6-339.5
Female	Case	5,294	213	87	5,594
	Rate*	228.9	259.4	np	231.0
	(CI)	222.6-235.3	225.6-296.8	np	224.9-237.3
Total	Case	10,289	420	177	10,886
	Rate*	269.2	316.3	np	272.0
	(CI)	264.0-274.5	286.7-348.2	np	266.9-277.2



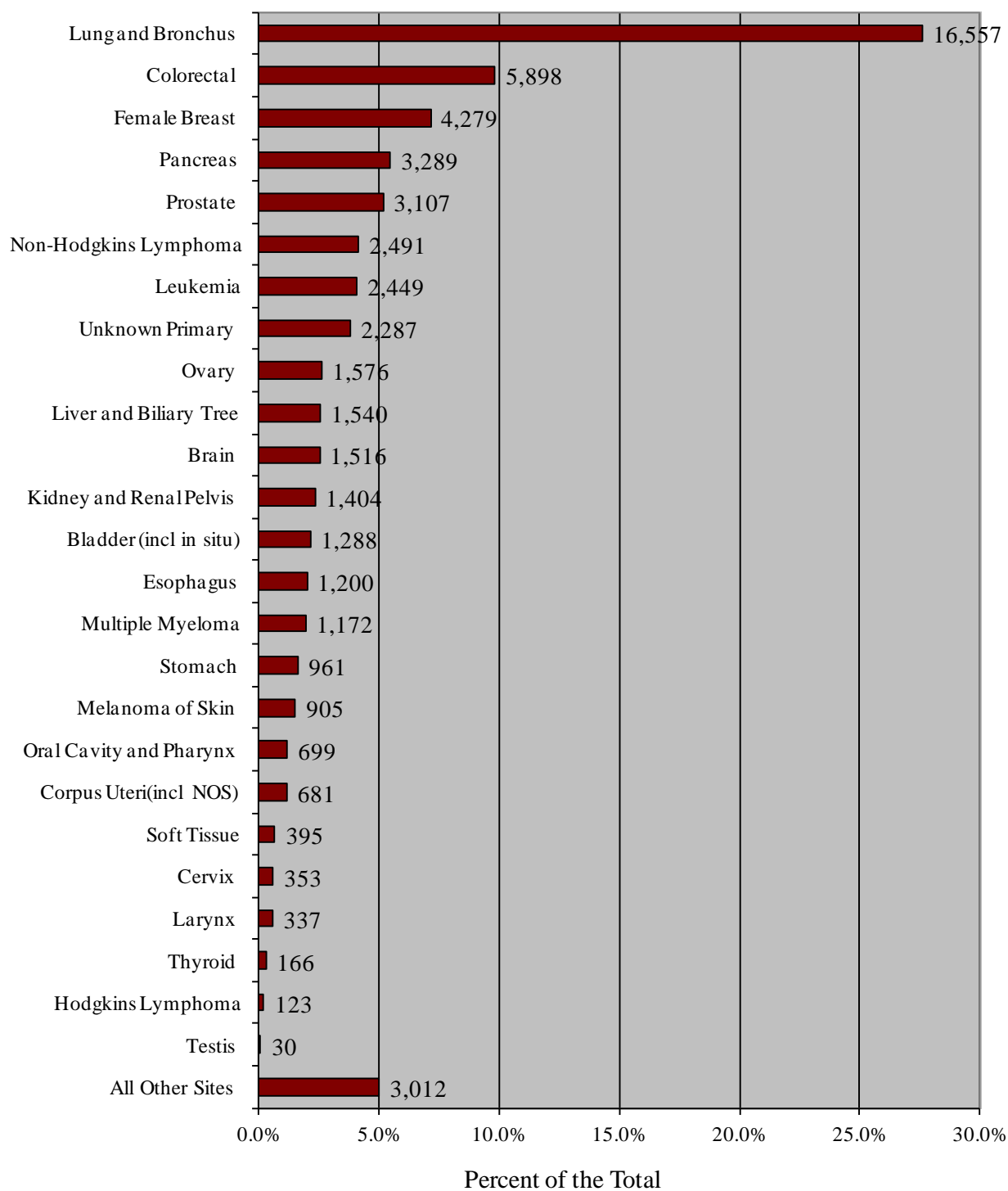
[‡] Includes unknown race. np: not provided. CI: Confidence Interval

Age-adjusted Incidence Rates* by Regions

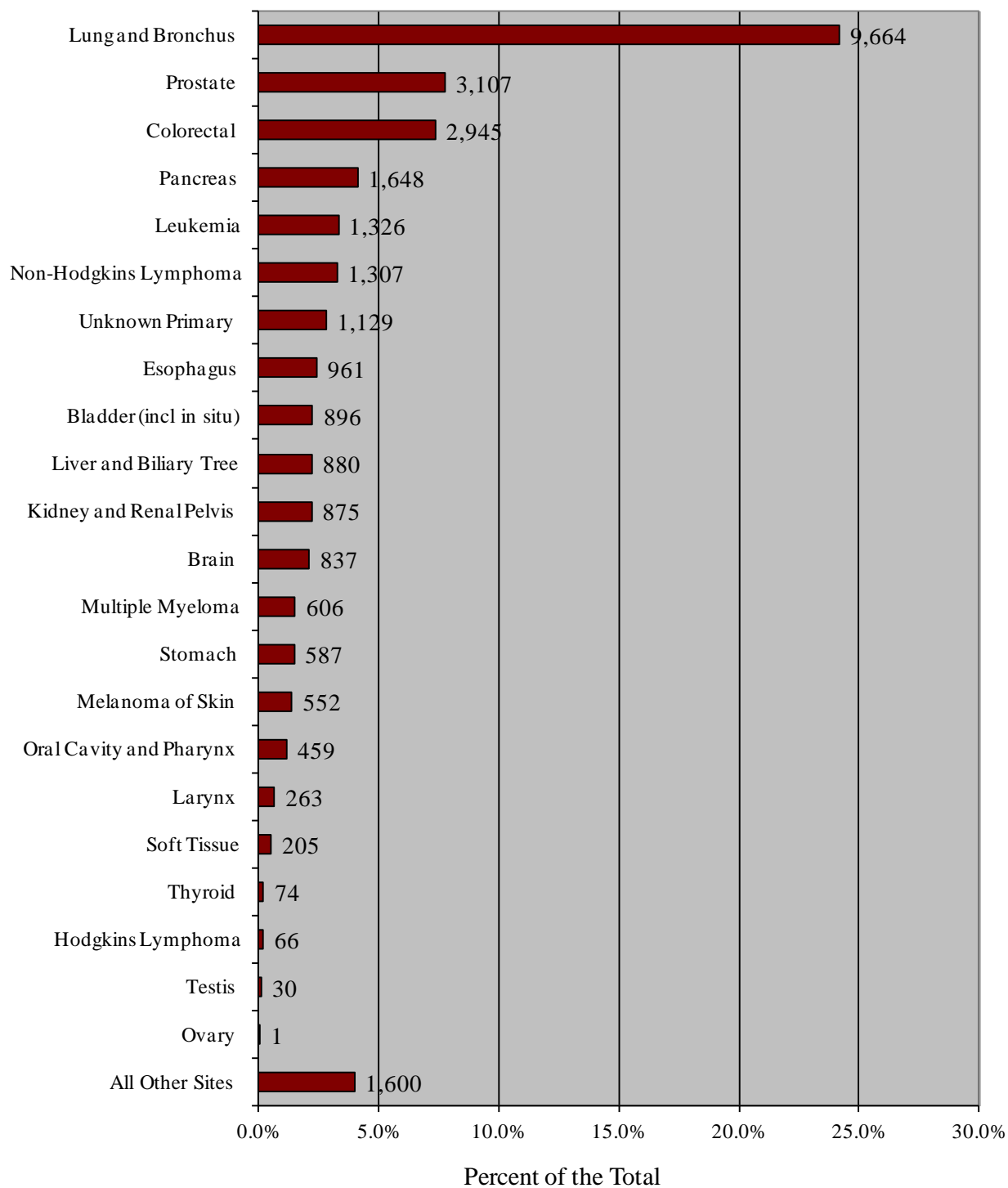


*Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population;
Rates not shown for regions with elderly average population < 20,000

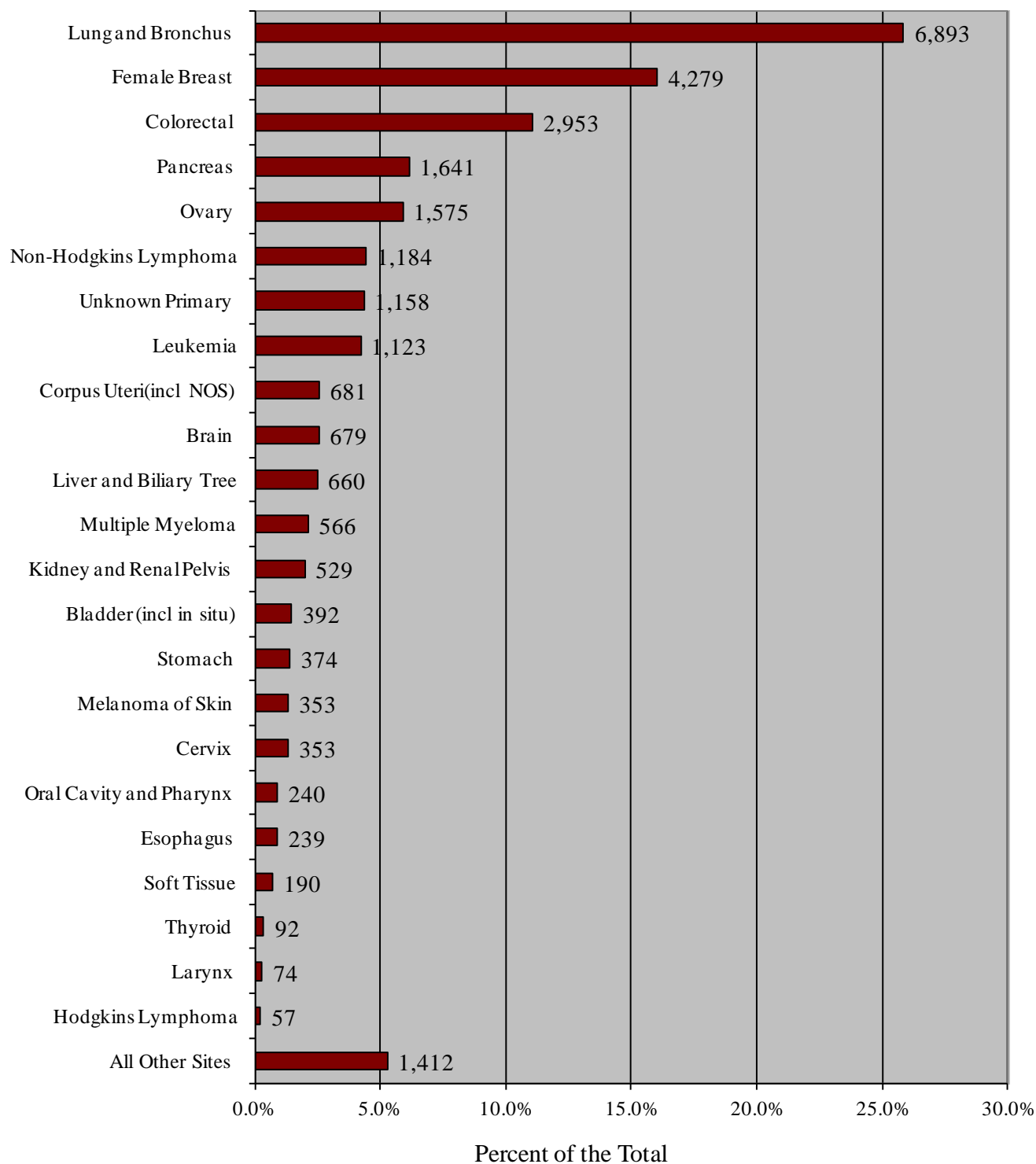
Number and Percent of Invasive Cancer Deaths by Underlying Cause of Death, Kansas Residents, 1998-2008



Number and Percent of Invasive Cancer Deaths by Underlying Cause of Death, Male Kansas Residents, 1998-2008



Number and Percent of Invasive Cancer Deaths by Underlying Cause of Death, Female Kansas Residents, 1998-2008



Number of Cancer Deaths by Underlying Cause of Death, Sex and Race, Kansas Residents, 1998-2008

Primary Site	All Cases	Males				Females			
		All Races	White	Black	Other	All Races	White	Black	Other
All Sites	57,715	30,018	27,856	1,587	575	27,697	25,847	1,350	500
Bladder (incl <i>in situ</i>)	1,288	896	860	21	15	392	370	19	3
Brain	1,516	837	800	23	14	679	646	22	11
Cervix	353	-	-	-	-	353	313	30	10
Colorectal	5,898	2,945	2,708	173	64	2,953	2,747	160	46
Corpus Uteri(incl NOS)	681	-	-	-	-	681	624	45	12
Esophagus	1,200	961	899	50	12	239	214	19	6
Female Breast	4,279	-	-	-	-	4,279	3,948	246	85
Hodgkins Lymphoma	123	66	59	6	1	57	52	5	0
Kidney and Renal Pelvis	1,404	875	813	36	26	529	491	29	9
Larynx	337	263	237	24	2	74	61	11	2
Leukemia	2,449	1,326	1,277	36	13	1,123	1,070	37	16
Liver and Biliary Tree	1,540	880	776	56	48	660	611	33	16
Lung and Bronchus	16,557	9,664	9,001	485	178	6,893	6,477	283	133
Melanoma of Skin	905	552	548	1	3	353	348	2	3
Multiple Myeloma	1,172	606	555	42	9	566	511	51	4
Non-Hodgkins Lymphoma	2,491	1,307	1,244	34	29	1,184	1,137	34	13
Oral Cavity and Pharynx	699	459	418	26	15	240	227	11	2
Ovary	1,576	-	-	-	-	1,575	1,497	52	26
Pancreas	3,289	1,648	1,521	96	31	1,641	1,509	101	31
Prostate	3,107	3,107	2,817	254	36	-	-	-	-
Soft Tissue	395	205	191	12	2	190	167	19	4
Stomach	961	587	512	53	22	374	330	28	16
Testis	30	30	27	3	0	-	-	-	-
Thyroid	166	74	70	2	2	92	87	3	2
Unknown Primary	2,287	1,129	1,042	68	19	1,158	1,075	53	30
All Other Sites	3,012	1,600	1,480	86	34	1,412	1,335	57	20

- denotes not applicable

Number of Cancer Deaths and Age-adjusted Death Rates by Site, Kansas Residents, 1998-2008

Primary Site	Number of Deaths	Rate
All Sites	57,715	181.4
Bladder (incl <i>in situ</i>)	1,288	3.9
Brain	1,516	4.9
Cervix	353	1.2
Colorectal	5,898	18.2
Corpus Uteri(incl NOS)	681	2.1
Esophagus	1,200	3.8
Female Breast	4,279	13.4
Hodgkins Lymphoma	123	0.4
Kidney and Renal Pelvis	1,404	4.4
Larynx	337	1.1
Leukemia	2,449	7.6
Liver and Biliary Tree	1,540	4.9
Lung and Bronchus	16,557	53.0
Melanoma of Skin	905	2.9
Multiple Myeloma	1,172	3.7
Non-Hodgkins Lymphoma	2,491	7.8
Oral Cavity and Pharynx	699	2.2
Ovary	1,576	5.0
Pancreas	3,289	10.3
Prostate	3,107	9.3
Soft Tissue	395	1.3
Stomach	961	3.0
Testis	30	0.1
Thyroid	166	0.5
Unknown Primary	2,287	7.1
All Other Sites	3,012	9.3

*Rates are per 100,000 population and age adjusted to the 2000 U.S. Standard Population

APPENDIX – A

Expected Number of Invasive Cancers by Race and Age, Kansas, 1998-2008

Age Group in Years	White Female			White Male			Total
	Kansas ¹ Population	Iowa SEER Rates per 100,000 ²	Expected Cases	Kansas ¹ Population	Iowa SEER Rates per 100,000 ²	Expected Cases	Expected Cases
0 - 4	897,277	23	206	943,364	23	217	423
5 - 9	894,566	6	54	945,215	14	132	186
10 -14	930,781	13	121	986,222	10	99	220
15 - 19	983,568	18	177	1,044,790	24	251	428
20 - 24	972,608	37	360	1,042,811	36	375	735
25 - 29	818,482	84	688	860,077	48	413	1,100
30 - 34	824,370	111	915	855,055	73	624	1,539
35 - 39	925,148	180	1,665	942,188	83	782	2,447
40 - 44	1,018,981	296	3,016	1,016,221	153	1,555	4,571
45 - 49	1,015,056	428	4,344	1,010,713	276	2,790	7,134
50 - 54	898,647	570	5,122	903,276	533	4,814	9,937
55 - 59	733,531	780	5,722	722,802	883	6,382	12,104
60 - 64	584,964	1,055	6,171	551,709	1,447	7,983	14,155
65 - 69	502,747	1,429	7,184	444,074	2,210	9,814	16,998
70 - 74	473,100	1,639	7,754	386,171	2,669	10,307	18,061
75 - 79	442,083	1,943	8,590	325,359	3,194	10,392	18,982
80 - 84	364,126	1,987	7,235	223,361	3,260	7,282	14,517
85 +	412,973	1,792	7,400	167,296	3,017	5,047	12,448
Total	13,693,008		66,725	13,370,704		69,259	135,985

¹2000 Population from U.S. Census Bureau 2001 (Census 2000 Summary File 1)

²Iowa SEER age-sex-race specific average annual rate per 100,000 for 1994-1998

Age Group in Years	Black Female			Black Male			Total
	Kansas ¹ Population	Iowa SEER Rates per 100,000 ²	Expected Cases	Kansas ¹ Population	Iowa SEER Rates per 100,000 ²	Expected Cases	Expected Cases
0 - 4	94,008	12	11	97,995	8	8	19
5 - 9	91,261	4	4	95,653	12	11	15
10 -14	88,001	14	12	92,566	9	8	21
15 - 19	83,005	16	13	92,889	5	5	18
20 - 24	78,980	30	24	91,393	14	13	36
25 - 29	66,708	45	30	72,375	18	13	43
30 - 34	61,392	46	28	65,954	50	33	61
35 - 39	64,745	132	85	68,769	108	74	160
40 - 44	67,034	264	177	68,395	195	133	310
45 - 49	59,481	427	254	58,890	331	195	449
50 - 54	47,345	536	254	45,962	856	393	647
55 - 59	36,234	698	253	32,554	1,304	425	677
60 - 64	27,682	1,354	375	23,302	2,221	518	892
65 - 69	23,689	1,269	301	18,384	2,881	530	830
70 - 74	20,083	1,596	321	14,427	2,913	420	741
75 - 79	16,068	1,861	299	10,510	3,745	394	693
80 - 84	11,505	2,357	271	6,159	3,254	200	472
85 +	10,736	1,843	198	4,442	2,983	133	330
Total	947,957		2,910	960,619		3,506	6,415

¹2000 Population from U.S. Census Bureau 2001 (Census 2000 Summary File 1)

²Iowa SEER age-sex-race specific average annual rate per 100,000 for 1994-1998

Age Group in Years	Other Races Female			Other Races Male			Total
	Kansas ¹ Population	Iowa SEER Rates per 100,000 ²	Expected Cases	Kansas ¹ Population	Iowa SEER Rates per 100,000 ²	Expected Cases	Expected Cases
0 - 4	44,196	28	12	44,581	14	6	19
5 - 9	39,763	16	6	40,305	16	6	13
10 -14	36,617	9	3	38,080	0	0	3
15 - 19	39,104	9	4	41,676	0	0	4
20 - 24	47,778	39	19	52,452	7	4	22
25 - 29	46,248	31	14	48,706	23	11	26
30 - 34	44,305	65	29	45,592	39	18	47
35 - 39	40,509	139	56	40,793	37	15	71
40 - 44	36,969	268	99	34,773	71	25	124
45 - 49	33,117	312	103	29,843	218	65	168
50 - 54	28,209	326	92	24,853	247	61	153
55 - 59	21,508	469	101	18,837	637	120	221
60 - 64	14,737	752	111	13,108	600	79	189
65 - 69	10,360	530	55	9,024	1,062	96	151
70 - 74	7,416	1,218	90	5,729	2,030	116	207
75 - 79	4,983	1,310	65	3,506	2,866	100	166
80 - 84	3,089	1,231	38	1,903	1,919	37	75
85 +	2,624	1,031	27	1,371	2,260	31	58
Total	501,532		925	495,132		790	1,716

¹2000 Population from U.S. Census Bureau 2001 (Census 2000 Summary File 1)

²Iowa SEER age-sex-race specific average annual rate per 100,000 for 2003-2007

Appendix – B

Primary Site	ICD-O-3⁺	ICD-9	ICD-10
Oral Cavity and Pharynx	C00.0 - C14.8	140-149	C00.0 – C14.8
Esophagus	C15.0 – C15.9	150	C15.0 – C15.9
Stomach	C16.0 – C16.9	151	C16.0 – C16.9
Colorectal	C18.0 – C18.9 C19.9 C20.9 C26.0	152-154	C18.0 – C18.9 C19.9 C20.9 C26.0
Liver and Biliary Tree	C22.0 – C22.1 C23.9 C24.0 – C24.9	155-156	C22.0 – C22.9 C23.9 C24.0 – C24.9
Pancreas	C25.0 – C25.9	157	C25.0 – C25.9
Larynx	C32.0 – C32.9	161	C32.0 – C32.9
Lung and Bronchus	C34.0 – C34.9	162	C34.0 – C34.9
Soft Tissue	C47.0 – C47.9 C49.0 – C49.9	192 171	C47.0 – C47.9 C49.0 – C49.9
Melanoma of Skin	C44.0 – C44.9 & M8720 – M8780	172	C43.0 – C43.9
Female Breast	C50.0 – C50.9 (Sex = 2)	174	C50.0 – C50.9
Cervix	C53.0 – C53.9	180	C53.0 – C53.9
Corpus Uteri	C54.0 – C54.9 C55.9	182 179	C54.0 – C54.9 C55.9
Ovary	C56.9	183	C56.9
Prostate	C61.9	185	C61.9
Testis	C62.0 – C62.9	186	C62.0 – C62.9
Bladder	C67.0 – C67.9	188	C67.0 – C67.9
Kidney and Renal Pelvis	C64.9 C65.9	189	C64.9 C65.9
Brain	C71.0 – C71.9	191	C71.0 – C71.9
Thyroid	C73.9	193	C73.9
Hodgkins Lymphoma*	M9650 – M9667	201	C81.0 – C81.9
Non-Hodgkins Lymphoma*	M9590 – M9596 M9670 – M9719 M9727 – M9729 M9823 and M9827	202	C82.0 – C82.9 C83.0 – C83.9 C84.0 – C84.9 C85.0 – C85.9

SITE CODES USED FOR MAJOR SITE HEADINGS			
Primary Site	ICD-O-3⁺	ICD-9	ICD-10
Multiple Myeloma*	M9731 – M9732	203	C90.0 C90.2
Leukemia*	M9800 – M9948	204-208	C91.0 – C91.9 C92.0 – C92.9 C93.0 – C93.9 C94.0 – C94.9 C95.0 – C95.9
Unknown Primary	C80.9	199	C80.9
Ill-Defined Sites	N/A	195	C76.0 – C76.8
Skin, non-melanoma	N/A	173	C44.0 – C44.9
All Other Sites	Includes all ICD-O-3 site codes not specified above	Includes all ICD-9 site codes not specified above	Includes all ICD-10 site codes not specified above

⁺ At all sites, only morphologies with a behavior code of “3” under ICD-0-3, indicating invasive malignancy, are included in tables listing **invasive** cancers. *In situ* bladder cancer is an exception to this rule; the behavior code is “2”, but it is listed with invasive cancers.

* For those sites defined by histology (leukemia, lymphoma, and multiple myeloma), the cancers are listed under the appropriate histology and not under the site at which they occurred.

Appendix – C

2000 Kansas Population* by Region, Age and Gender

Region	Age Group	Males	Females	Total
Region 1	0-4	2,879	2,727	5,606
	5-9	3,310	3,005	6,315
	10-14	3,863	3,613	7,476
	15-19	4,584	4,044	8,628
	20-24	3,600	3,288	6,888
	25-29	2,643	2,308	4,951
	30-34	2,643	2,450	5,093
	35-39	3,571	3,513	7,084
	40-44	3,930	3,833	7,763
	45-49	3,840	3,557	7,397
	50-54	3,068	2,856	5,924
	55-59	2,310	2,567	4,877
	60-64	2,216	2,387	4,603
	65-69	2,260	2,617	4,877
	70-74	2,164	2,591	4,755
	75-79	1,774	2,389	4,163
80-84	1,195	1,984	3,179	
85 +	986	2,423	3,409	
	All Ages	50,836	52,152	102,988

Region 2	0-4	7,069	6,663	13,732
	5-9	6,950	6,428	13,378
	10-14	6,814	6,129	12,943
	15-19	6,687	6,042	12,729
	20-24	5,399	4,745	10,144
	25-29	5,567	5,142	10,709
	30-34	5,671	5,083	10,754
	35-39	5,867	5,525	11,392
	40-44	5,649	5,314	10,963
	45-49	4,925	4,596	9,521
	50-54	3,892	3,635	7,527
	55-59	2,862	2,923	5,785
	60-64	2,401	2,356	4,757
	65-69	1,938	2,312	4,250
	70-74	1,786	2,095	3,881
	75-79	1,415	1,911	3,326
80-84	872	1,459	2,331	
85 +	708	1,708	2,416	
	All Ages	76,472	74,066	150,538

Region	Age Group	Males	Females	Total
Region 3	0-4	3,154	2,900	6,054
	5-9	3,436	3,356	6,792
	10-14	4,112	4,009	8,121
	15-19	4,471	4,146	8,617
	20-24	2,789	2,381	5,170
	25-29	2,435	2,277	4,712
	30-34	2,649	2,547	5,196
	35-39	3,734	3,621	7,355
	40-44	4,234	4,123	8,357
	45-49	4,065	3,648	7,713
	50-54	3,200	3,012	6,212
	55-59	2,553	2,647	5,200
	60-64	2,424	2,612	5,036
	65-69	2,340	2,714	5,054
	70-74	2,205	2,538	4,743
	75-79	1,844	2,510	4,354
	80-84	1,177	2,182	3,359
85 +	961	2,454	3,415	
	All Ages	51,783	53,677	105,460

Region 4	0-4	3,874	3,613	7,487
	5-9	4,341	4,008	8,349
	10-14	4,768	4,621	9,389
	15-19	5,125	4,534	9,659
	20-24	3,316	2,927	6,243
	25-29	3,263	3,114	6,377
	30-34	3,638	3,505	7,143
	35-39	4,542	4,561	9,103
	40-44	4,887	4,768	9,655
	45-49	4,563	4,505	9,068
	50-54	3,912	3,833	7,745
	55-59	3,073	3,170	6,243
	60-64	2,667	2,850	5,517
	65-69	2,561	2,849	5,410
	70-74	2,413	2,973	5,386
	75-79	1,947	2,702	4,649
	80-84	1,372	2,210	3,582
85 +	1,088	2,720	3,808	
	All Ages	61,350	63,463	124,813

Region	Age Group	Males	Females	Total
Region 5	0-4	22,497	21,252	43,749
	5-9	22,880	21,789	44,669
	10-14	22,819	21,675	44,494
	15-19	21,824	21,122	42,946
	20-24	19,714	19,028	38,742
	25-29	20,229	19,278	39,507
	30-34	20,046	19,123	39,169
	35-39	22,777	22,191	44,968
	40-44	23,928	23,368	47,296
	45-49	21,104	20,808	41,912
	50-54	17,271	17,061	34,332
	55-59	12,385	12,960	25,345
	60-64	9,588	10,552	20,140
	65-69	8,675	10,325	19,000
	70-74	7,933	9,939	17,872
	75-79	6,497	9,303	15,800
	80-84	3,956	6,741	10,697
85 +	2,720	6,724	9,444	
	All Ages	286,843	293,239	580,082

Region 6	0-4	4,128	4,040	8,168
	5-9	4,686	4,511	9,197
	10-14	5,303	4,933	10,236
	15-19	5,196	4,962	10,158
	20-24	3,507	3,052	6,559
	25-29	3,315	3,072	6,387
	30-34	3,665	3,634	7,299
	35-39	4,829	4,671	9,500
	40-44	5,176	5,013	10,189
	45-49	4,687	4,411	9,098
	50-54	3,779	3,610	7,389
	55-59	2,788	2,749	5,537
	60-64	2,260	2,475	4,735
	65-69	2,037	2,270	4,307
	70-74	1,916	2,254	4,170
	75-79	1,468	2,106	3,574
	80-84	940	1,721	2,661
85 +	708	1,847	2,555	
	All Ages	60,388	61,331	121,719

Region	Age Group	Males	Females	Total
Region 7	0-4	5,351	5,061	10,412
	5-9	5,697	5,651	11,348
	10-14	6,463	6,063	12,526
	15-19	6,520	5,878	12,398
	20-24	4,552	3,729	8,281
	25-29	4,656	3,790	8,446
	30-34	5,325	4,782	10,107
	35-39	7,188	6,286	13,474
	40-44	6,972	6,123	13,095
	45-49	6,169	5,471	11,640
	50-54	5,048	4,642	9,690
	55-59	3,830	3,748	7,578
	60-64	3,124	3,152	6,276
	65-69	2,602	2,854	5,456
	70-74	2,474	2,814	5,288
	75-79	2,003	2,607	4,610
	80-84	1,162	2,018	3,180
85 +	988	2,410	3,398	
	All Ages	80,124	77,079	157,203

Region 8	0-4	3,944	3,628	7,572
	5-9	3,581	3,321	6,902
	10-14	3,504	3,381	6,885
	15-19	5,748	5,398	11,146
	20-24	11,318	8,531	19,849
	25-29	5,085	3,957	9,042
	30-34	3,616	3,220	6,836
	35-39	3,559	3,461	7,020
	40-44	3,343	3,442	6,785
	45-49	2,996	2,926	5,922
	50-54	2,411	2,400	4,811
	55-59	1,729	1,812	3,541
	60-64	1,377	1,497	2,874
	65-69	1,198	1,373	2,571
	70-74	1,053	1,317	2,370
	75-79	859	1,176	2,035
	80-84	579	848	1,427
85 +	419	992	1,411	
	All Ages	56,319	52,680	108,999

Region	Age Group	Males	Females	Total
Region 9	0-4	3,915	3,711	7,626
	5-9	4,378	4,096	8,474
	10-14	4,874	4,587	9,461
	15-19	5,048	4,950	9,998
	20-24	3,892	3,873	7,765
	25-29	3,288	3,160	6,448
	30-34	3,358	3,274	6,632
	35-39	4,425	4,596	9,021
	40-44	4,814	4,640	9,454
	45-49	4,419	4,150	8,569
	50-54	3,820	3,683	7,503
	55-59	3,188	3,188	6,376
	60-64	2,702	2,806	5,508
	65-69	2,439	2,618	5,057
	70-74	2,262	2,589	4,851
	75-79	1,849	2,373	4,222
	80-84	1,233	2,076	3,309
85 +	1,090	2,501	3,591	
	All Ages	60,994	62,871	123,865

Region 10	0-4	10,590	10,102	20,692
	5-9	10,870	10,462	21,332
	10-14	11,545	10,814	22,359
	15-19	13,481	13,410	26,891
	20-24	16,565	15,980	32,545
	25-29	11,274	10,891	22,165
	30-34	10,675	10,453	21,128
	35-39	11,471	12,373	23,844
	40-44	12,142	12,690	24,832
	45-49	11,390	11,878	23,268
	50-54	9,900	9,845	19,745
	55-59	7,077	7,463	14,540
	60-64	5,533	5,962	11,495
	65-69	4,772	5,376	10,148
	70-74	4,185	5,284	9,469
	75-79	3,342	4,683	8,025
	80-84	1,996	3,383	5,379
85 +	1,387	3,724	5,111	
	All Ages	158,195	164,773	322,968

Region	Age Group	Males	Females	Total
Region 11	0-4	23,872	22,528	46,400
	5-9	24,114	22,660	46,774
	10-14	23,995	22,851	46,846
	15-19	21,635	20,347	41,982
	20-24	17,657	18,043	35,700
	25-29	22,212	22,145	44,357
	30-34	23,272	23,069	46,341
	35-39	25,777	26,601	52,378
	40-44	24,944	26,615	51,559
	45-49	22,356	24,019	46,375
	50-54	19,392	20,152	39,544
	55-59	13,175	14,082	27,257
	60-64	9,507	10,359	19,866
	65-69	7,703	9,227	16,930
	70-74	6,767	8,960	15,727
	75-79	5,584	8,083	13,667
	80-84	3,264	5,880	9,144
85 +	2,174	5,947	8,121	
	All Ages	297,400	311,568	608,968

Region 12	0-4	5,739	5,471	11,210
	5-9	6,190	5,854	12,044
	10-14	6,921	6,361	13,282
	15-19	7,721	7,245	14,966
	20-24	6,458	5,823	12,281
	25-29	5,067	4,807	9,874
	30-34	5,052	5,128	10,180
	35-39	6,194	6,216	12,410
	40-44	6,375	6,479	12,854
	45-49	6,030	6,166	12,196
	50-54	5,428	5,618	11,046
	55-59	4,553	4,813	9,366
	60-64	3,767	4,034	7,801
	65-69	3,116	3,909	7,025
	70-74	3,151	4,168	7,319
	75-79	2,775	3,925	6,700
	80-84	1,850	3,320	5,170
85 +	1,383	3,708	5,091	
	All Ages	87,770	93,045	180,815
Total Population		1,328,474	1,359,944	2,688,418

*2000 Population from U.S. Census Bureau 2001 (Census 2000 Summary File 1)