

# HAWAII'

Cancer at a Glance  
2009 – 2013





## University of Hawai'i Cancer Center

The University of Hawai'i Cancer Center is one of 69 National Cancer Institute (NCI)-designated Cancer Centers in the United States and the only center in Hawai'i and the Pacific. The Center's mission is to reduce the burden of cancer through research, education, patient care and community outreach with an emphasis on the unique ethnic, cultural, and environmental characteristics of Hawai'i and the Pacific. The Center is a research organization affiliated with the University of Hawai'i at Mānoa with facilities located in downtown Honolulu. Our new world-class facility was completed in early 2013. The Center directly employs 300 faculty and staff, with another 200 affiliate members through the UH Cancer Consortium.

## Hawai'i Tumor Registry

The Hawai'i Tumor Registry (HTR) was established in 1960 by the Hawaii Medical Association, the Hawaii State Department of Health, and the Hawaii Pacific Division of the American Cancer Society. The HTR has been operated by the University of Hawaii Cancer Center since 1973 when it became a funded registry of the National Cancer Institute Surveillance, Epidemiology and End Results (SEER) Program. As one of the eighteen NCI/SEER regions nationwide, the HTR provides complete and confidential cancer reporting for the entire state and serves as a resource for cancer research and cancer control activities in Hawai'i and the U.S. Its data are published, and used for local, national, and international research efforts.

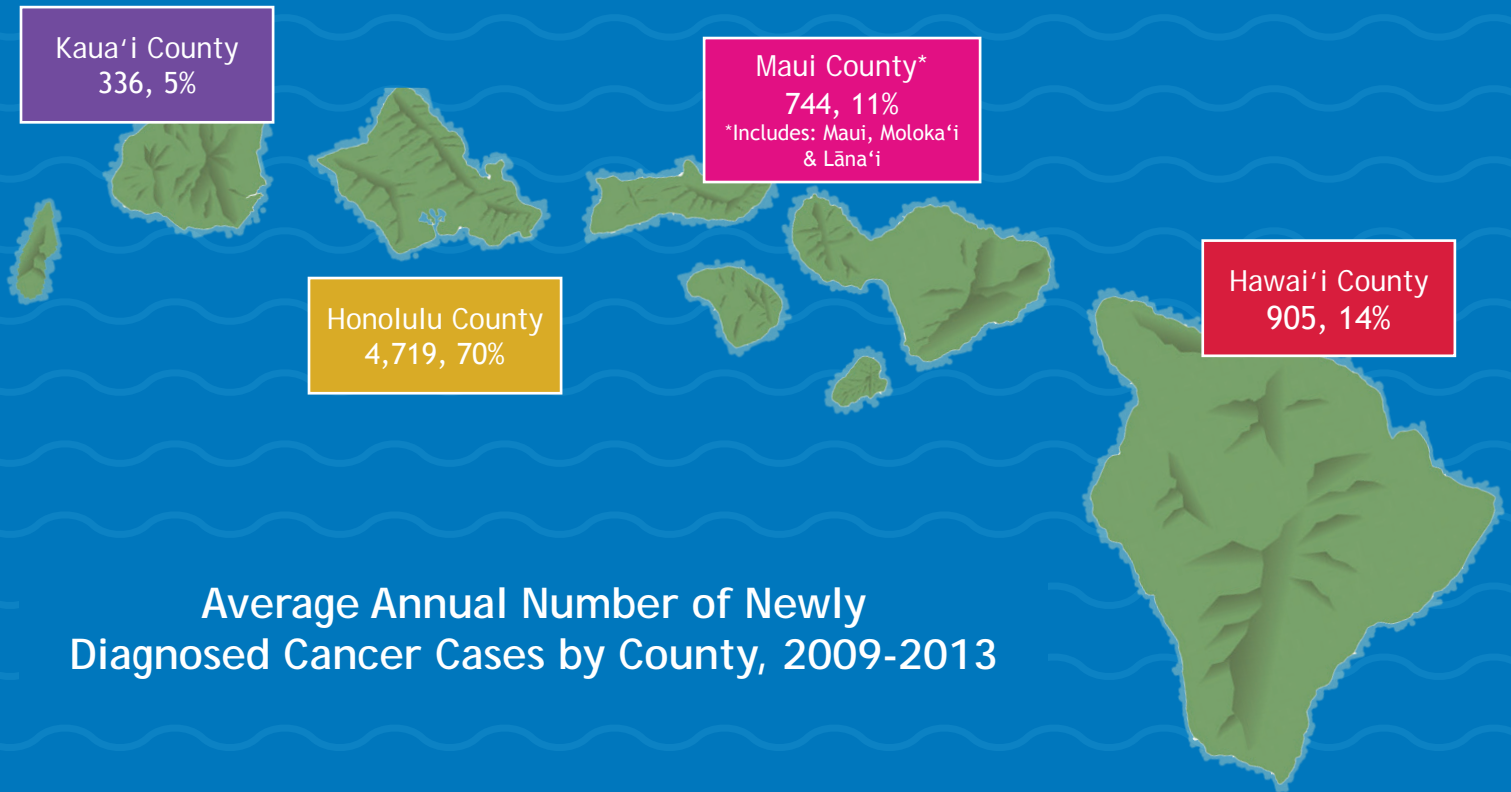


University of Hawai'i Cancer Center  
701 Ilalo Street Honolulu, HI 96813  
Phone: (808) 586-3010

# Overview of Cancer in Hawai'i

- Each year, approximately 6,700 Hawai'i residents are diagnosed with invasive cancer.
- During the period 2009-2013, the statewide average annual incidence rate for all cancers combined was 444 per 100,000 in males and 403 per 100,000 in females.
- Annually, Honolulu County, including all of O'ahu, accounts for the majority of newly diagnosed cancer cases (70%, or 4,719), followed by Hawai'i County (14%, or 905 cases), Maui County, including Maui, Moloka'i & Lāna'i, (11%, or 744 cases), and Kaua'i County (5%, or 336 cases).
- In 2016, there were over 58,000 Hawai'i residents living with cancer including those newly diagnosed and those diagnosed with invasive cancer in the past.
- Cancer is the 2nd leading cause of death (after cardiovascular disease) in Hawai'i residents.
- More than 2,200 Hawai'i residents die of cancer each year.
- During the period 2009-2013, the average annual mortality (death) rate for all cancers combined was 165 per 100,000 in males and 112 per 100,000 in females.
- Each year, residents of Honolulu County account for most cancer deaths (69%, or 1,528), followed by Hawai'i County (15%, or 333 deaths), Maui County (11%, or 241 deaths), & Kaua'i County (6%, or 127 deaths).





**Average Annual Number of Newly Diagnosed Cancer Cases by County, 2009-2013**

County	All Sites		Breast (Female)		Colon & Rectum		Lung & Bronchus		Prostate	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Hawai'i	905	333	145	17	87	29	107	77	76	16
Honolulu	4,719	1,528	787	84	517	153	550	370	556	65
Kaua'i	336	127	51	6	36	15	39	29	47	6
Maui	744	241	125	17	82	26	80	49	64	11

Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive except for bladder cancer which is in situ and invasive.  
 Maui County includes: Maui, Moloka'i & Lāna'i.

## Top Cancers in Hawai'i

- The most common cancer in men is prostate cancer, which accounts for 22% of cases, followed by cancers of the lung & bronchus (13%), colon & rectum (12%), melanoma of the skin (6%), and bladder (5%).
- In women, breast cancer is the most common cancer, comprising 33% of cases, followed by cancers of the lung & bronchus (10%), colon & rectum (9%), uterus/ endometrium (7%), and thyroid (5%).
- The leading cause of cancer mortality in men is lung & bronchus cancer, which accounts for 25% of cancer deaths, followed by cancers of the colon & rectum (10%), prostate (8%), pancreas (8%), and liver (7%).
- Lung & bronchus cancer is also the top cause of cancer death in women (22%) followed by cancers of the breast (12%), colon & rectum (10%), pancreas (9%), and ovary (5%).



## Top Ten Cancer Sites in Newly Diagnosed Cases & Deaths, Hawai'i, 2009-2013

Incidence Average Number & Percent of Cases per Year				Mortality Average Number & Percent of Cases per Year			
Male		Female		Male		Female	
Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
Prostate		Breast		Lung & Bronchus		Lung & Bronchus	
743	22.2%	1,107	33.0%	303	24.7%	223	22.3%
Lung & Bronchus		Lung & Bronchus		Colon & Rectum		Breast	
435	13.0%	341	10.2%	128	10.4%	125	12.4%
Colon & Rectum		Colon & Rectum		Prostate		Colon & Rectum	
406	12.1 %	315	9.4%	99	8.1%	96	9.5%
Melanoma of the Skin		Uterus/Endometrium		Pancreas		Pancreas	
204	6.1%	248	7.4%	94	7.7%	88	8.7%
Bladder		Thyroid		Liver & Intrahepatic Bile Duct		Ovary	
172	5.1 %	171	5.1%	85	6.9%	47	4.6%
Non-Hodgkin Lymphoma		Non-Hodgkin Lymphoma		Non-Hodgkin Lymphoma		Liver & Intrahepatic Bile Duct	
162	4.8 %	127	3.8%	50	4.1%	41	4.1%
Kidney & Renal Pelvis		Melanoma of the Skin		Leukemia; Stomach*		Uterus/Endometrium	
141	4.2 %	116	3.5%	47	3.8%	38	3.8%
Oral Cavity & Pharynx		Pancreas		Esophagus		Non-Hodgkin Lymphoma	
136	4.1%	108	3.2%	41	3.3%	37	3.7%
Liver & Intrahepatic Bile Duct		Leukemia; Ovary*		Bladder		Stomach	
130	3.9%	76	2.3%	36	2.9%	35	3.5%
Pancreas		Kidney & Renal Pelvis		Kidney & Renal Pelvis		Leukemia	
117	3.5%	74	2.2%	31	2.5%	33	3.3%
Other		Other		Other		Other	
704	21.0%	595	17.7%	265	21.7%	240	24.1%
All sites		All Sites		All Sites		All Sites	
3,350	100.0%	3,354	100.0%	1,225	100.0%	1,003	100.0%

Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive except for bladder cancer which is in situ and invasive.  
 \*Same number of cases for both sites.

## Average Annual Incidence Counts & Rates, Hawai'i, 2009-2013

Cancer Site	All		Male		Female	
	Cases/Year	Rate	Cases/Year	Rate	Cases/Year	Rate
All Sites	6,704	416.9	3,350	444.1	3,354	402.6
Anus, Anal Canal & Anorectum	20	1.3	8	1.0	12	1.5
Bladder	228	13.7	172	23.3	56	6.1
Bones & Joints	11	0.8	6	0.9	< 5	0.6
Brain & Nervous System	63	4.2	35	4.9	28	3.5
Breast (Female)	1,114	70.2	6	0.9	1,107	134.4
Cervix	52	7.4	---	---	52	7.4
Colon & Rectum	722	44.3	406	53.1	316	36.4
Uterus/Endometrium	248	30.4	---	---	248	30.4
Esophagus	57	3.5	47	6.2	10	1.1
Eye & Orbit	10	0.7	5	0.7	< 5	0.6
Gallbladder	16	1.0	7	1.0	8	0.9
Hodgkin Lymphoma	25	1.8	14	2.0	11	1.7
Kidney & Renal Pelvis	215	13.5	141	18.8	74	8.8
Larynx	41	2.4	35	4.4	6	0.6
Leukemia	183	11.9	107	14.9	76	9.5
Liver & Intrahepatic Bile Duct	184	11.0	130	16.6	54	5.9
Lung & Bronchus	776	47.2	435	58.0	341	38.7
Melanoma of the Skin	320	20.2	204	27.0	116	14.6
Myeloma	92	5.6	53	7.1	38	4.3
Non-Hodgkin Lymphoma	289	18.0	162	21.8	127	14.9
Oral Cavity & Pharynx	193	11.9	136	17.5	57	6.8
Other Biliary	29	1.8	16	2.2	13	1.4
Ovary	76	9.7	---	---	76	9.7
Pancreas	225	13.6	117	15.5	108	12.0
Penis	< 5	0.5	< 5	0.5	---	---
Prostate	743	96.5	743	96.5	---	---
Small Intestine	27	1.6	15	2.0	11	1.2
Soft Tissue (including Heart)	52	3.4	29	3.8	23	3.0
Stomach	156	9.4	90	12.1	67	7.3
Testis	36	5.3	36	5.3	---	---
Thyroid	229	15.9	59	8.0	171	24.1
Vagina	5	0.6	---	---	5	0.6
Vulva	18	1.9	---	---	18	1.9

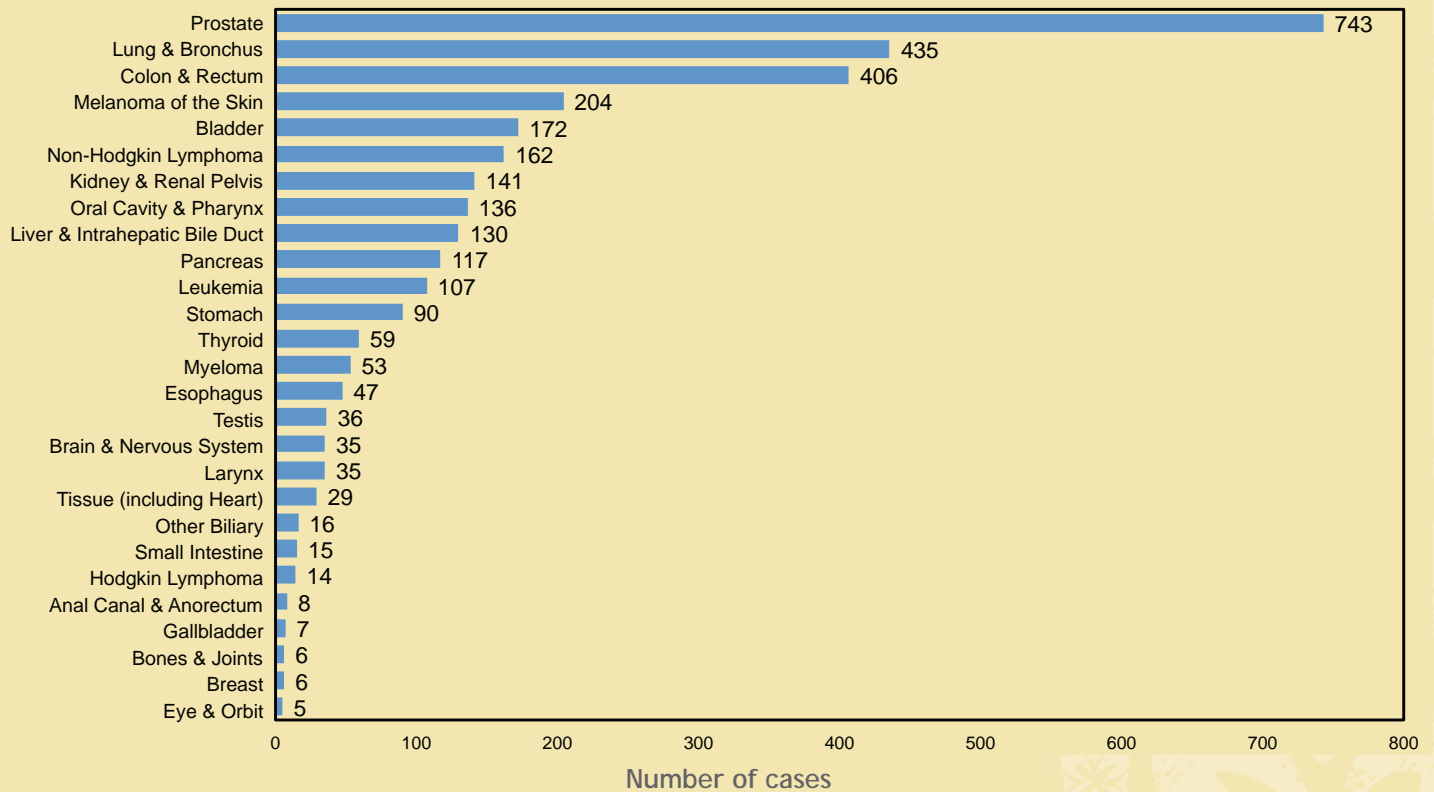
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive except for bladder cancer which is in situ and invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.  
 Cancer case counts are average annual per the 5-year period, 2009-2013.

## Average Annual Mortality Counts & Rates, Hawai'i, 2009-2013

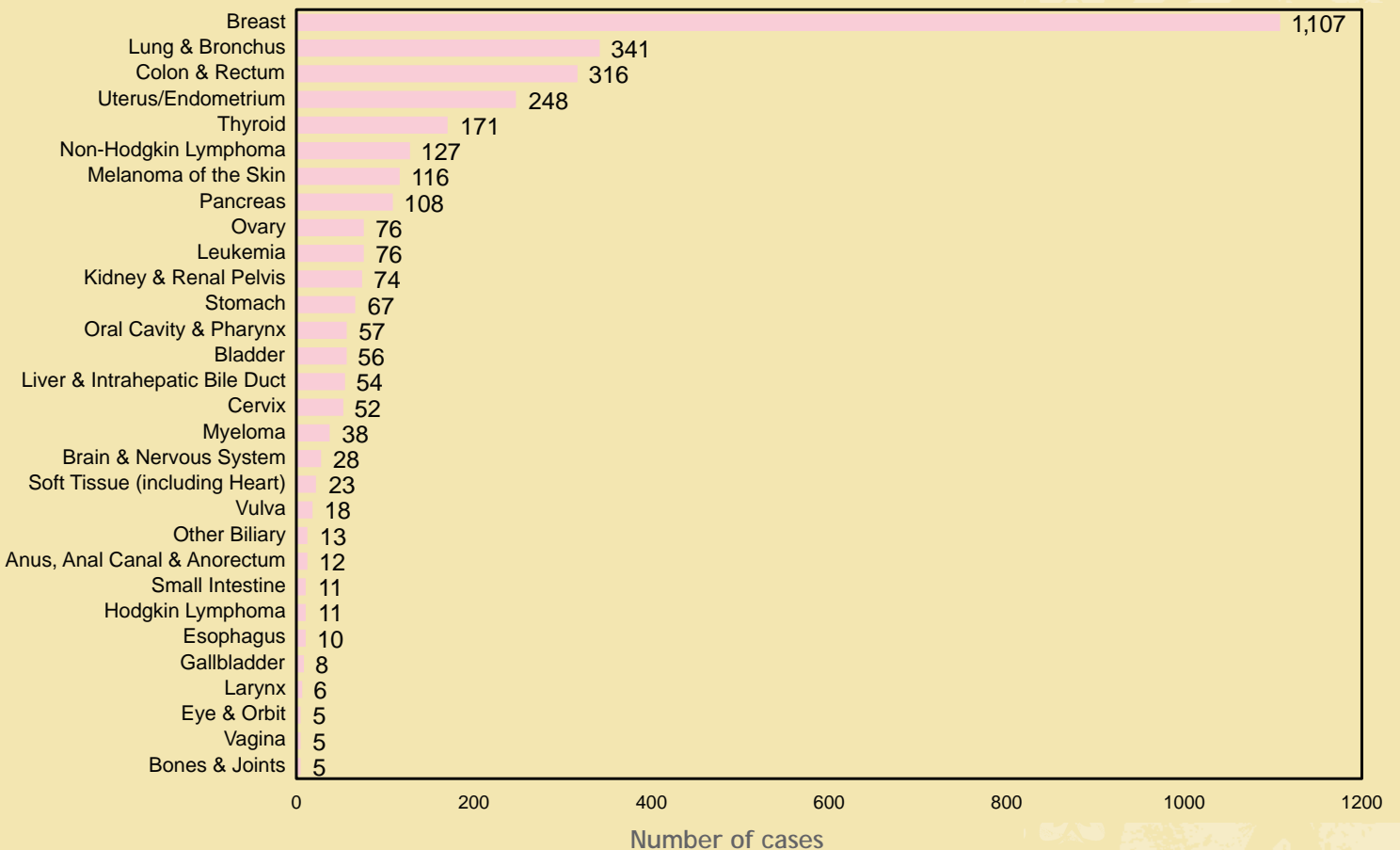
Cancer Site	All		Male		Female	
	Deaths/Year	Rate	Deaths/Year	Rate	Deaths/Year	Rate
All Sites	2,229	134.6	1,226	165.0	1,003	111.5
Anus, Anal Canal & Anorectum	< 5	0.1	^^	^^	^^	^^
Bladder	46	2.7	36	5.0	10	1.0
Bones & Joints	6	0.4	< 5	0.4	< 5	0.4
Brain & Nervous System	41	2.5	23	2.9	18	2.1
Breast (Female)	127	7.9	< 5	0.4	125	14.5
Cervix	16	2.0	---	---	16	2.0
Colon & Rectum	224	13.5	128	17.0	96	10.6
Uterus/ Endometrium	38	4.3	---	---	38	4.3
Esophagus	49	2.9	41	5.4	8	0.8
Eye & Orbit	^^	^^	---	---	^^	^^
Gallbladder	6	0.3	< 5	0.3	< 5	0.3
Hodgkin Lymphoma	< 5	0.2	^^	^^	^^	^^
Kidney & Renal Pelvis	45	2.6	31	4.1	13	1.5
Larynx	13	0.8	12	1.6	^^	^^
Leukemia	80	5.0	47	6.6	33	3.8
Liver & Intrahepatic Bile Duct	126	7.5	85	11.0	41	4.3
Lung & Bronchus	526	31.9	303	41.0	223	24.8
Melanoma of the Skin	26	1.5	17	2.3	9	0.9
Myeloma	39	2.3	24	3.2	15	1.7
Non-Hodgkin Lymphoma	88	5.3	50	6.9	37	4.0
Oral Cavity & Pharynx	41	2.5	28	3.7	13	1.4
Other Biliary	7	0.4	< 5	0.6	< 5	0.3
Ovary	47	5.3	---	---	47	5.3
Pancreas	182	10.9	94	12.4	88	9.5
Prostate	99	13.7	99	13.7	---	---
Small Intestine	6	0.4	< 5	0.4	< 5	0.3
Soft Tissue (including Heart)	23	1.4	11	1.5	12	1.4
Stomach	82	4.9	47	6.5	35	3.6
Thyroid	13	0.8	5	0.7	8	0.9
Vulva	^^	0.3	---	---	< 5	0.3

Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive except for bladder cancer which is in situ and invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.  
 (^^) Deaths fewer than 10 per 5-year period and the corresponding rates are not shown.  
 Cancer deaths are average annual per the 5-year period, 2009-2013.

## Average Annual Number of Newly Diagnosed Cancer Cases, Males, Hawai'i, 2009-2013



## Average Annual Number of Newly Diagnosed Cancer Cases, Females, Hawai'i, 2009-2013



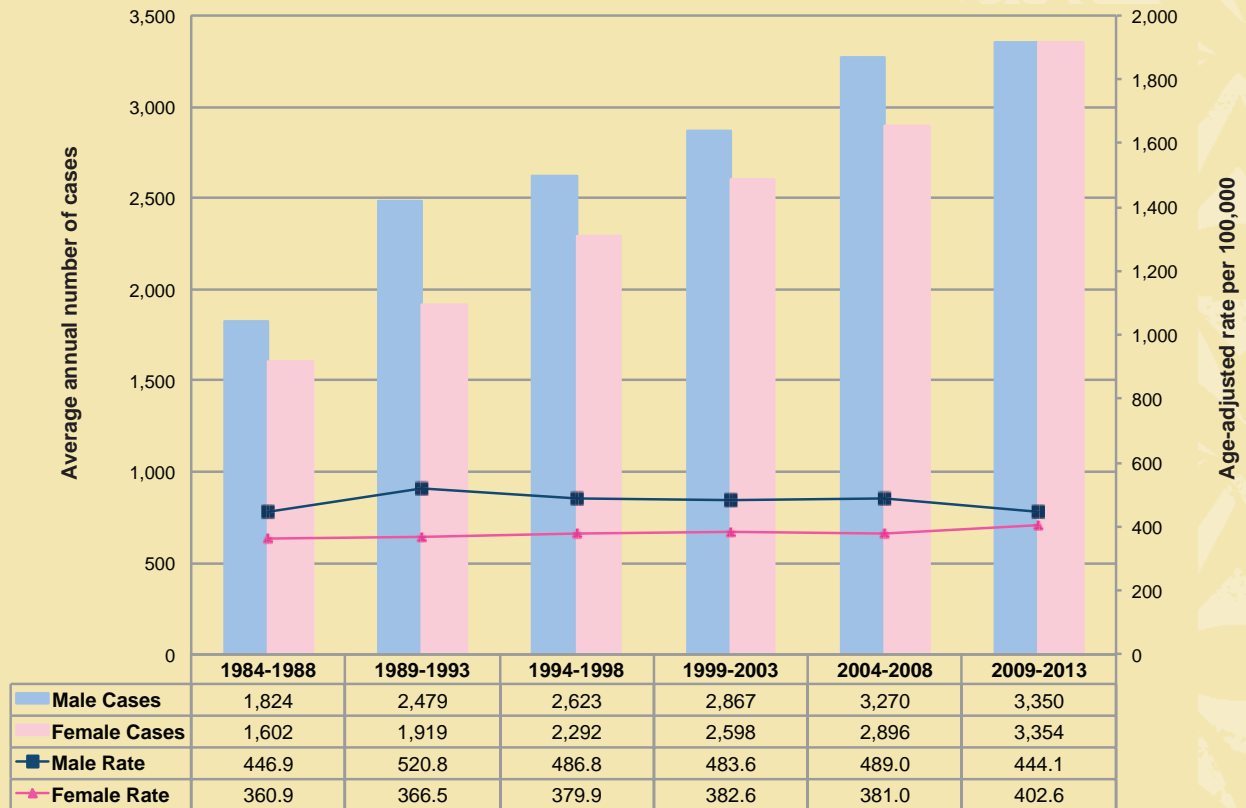
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive except for bladder cancer which is in situ and invasive.

# Trends in Incidence & Mortality in Hawai'i

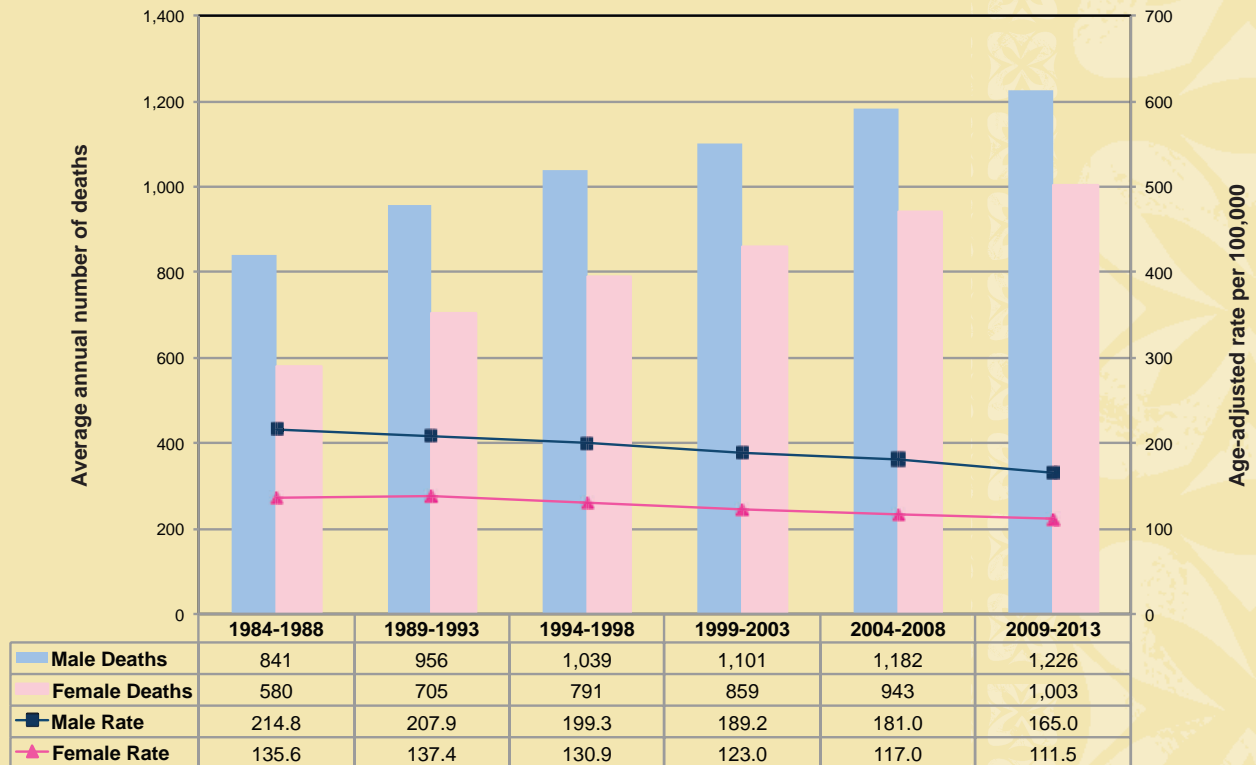
- Over the past 30 years (1984 to 2013), overall cancer incidence rates remained relatively stable in males while increasing in females; overall cancer mortality rates steadily decreased in both sexes.
- Over the past decade (2004 to 2013), overall cancer incidence declined (1.6% per year) in males and increased (0.4% per year) in females; overall cancer mortality rates decreased in both sexes.
- From 2004 to 2013, significant changes in incidence were observed for certain cancers:
  - Cancers of the thyroid, kidney & renal pelvis, liver & intrahepatic bile duct, myeloma, soft tissue (including heart), testis, leukemia, non-Hodgkin lymphoma, and pancreas increased among males.
  - Cancers of the prostate, stomach, lung & bronchus, larynx, and colon & rectum declined in males.
  - Cancers of the thyroid, kidney & renal pelvis, anus, melanoma, breast, soft tissue (including heart), uterus/endometrium, myeloma, liver & intrahepatic bile duct, leukemia, vulva, non-Hodgkin lymphoma, pancreas, and lung & bronchus increased among females.
  - Cancers of the stomach, gallbladder, esophagus, cervix, ovary, and colon & rectum declined in females.



## Cancer Cases & Incidence Rates, All Cancers, Hawai'i, 1984-2013

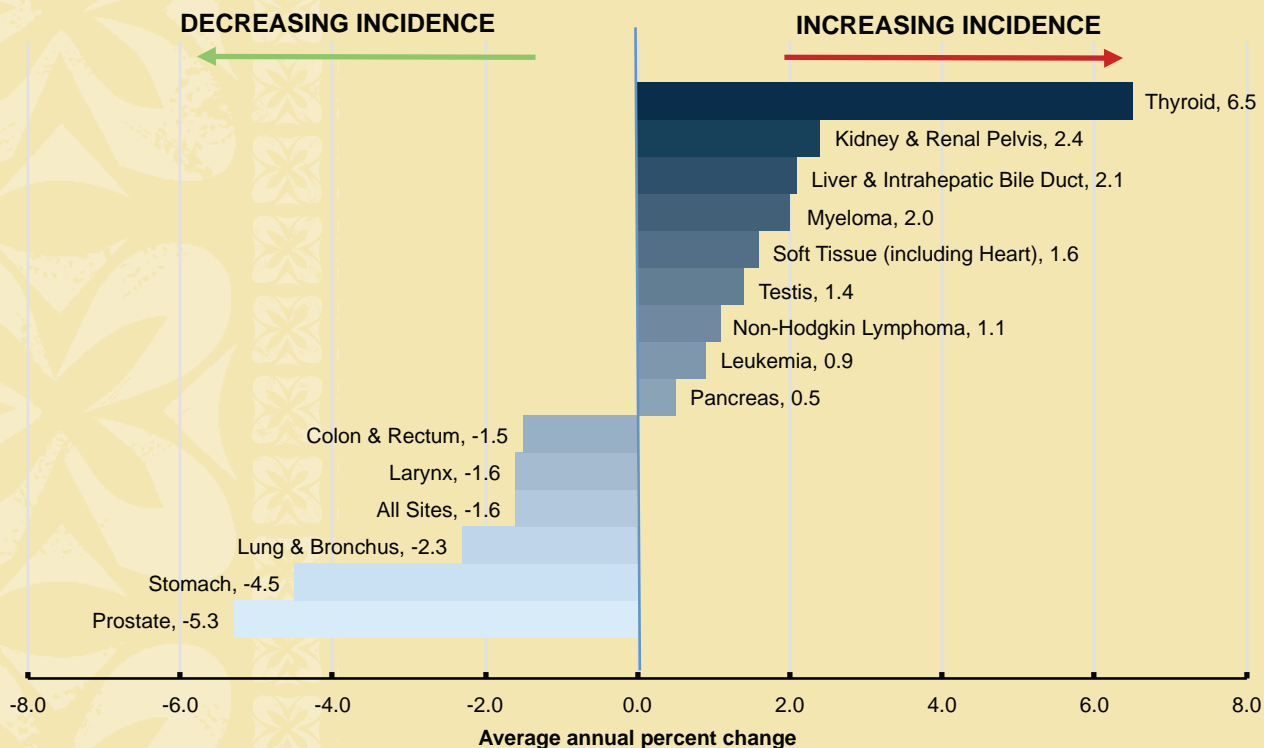


## Cancer Deaths & Mortality Rates, All Cancers, Hawai'i, 1984-2013

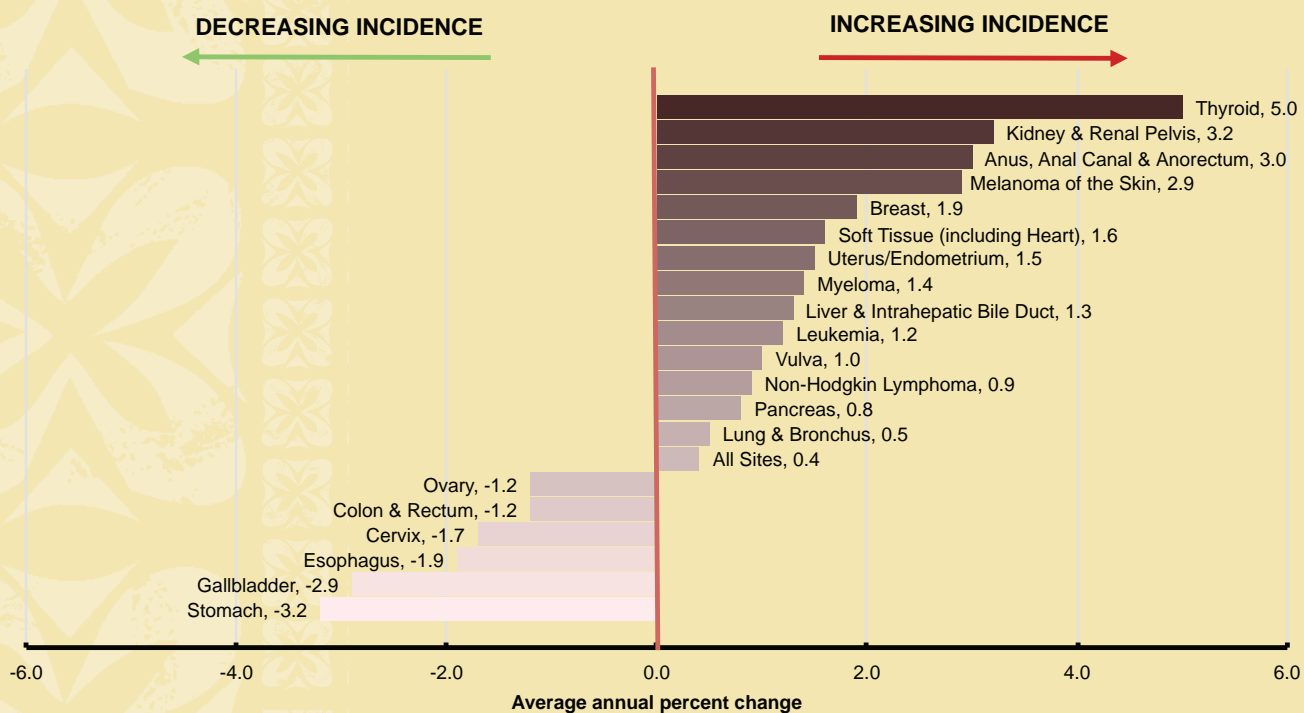


Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive except for bladder cancer which is in situ and invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.  
 Cancer cases and deaths are average annual per the 5-year period, 2009-2013.

## Average Annual Percent Change in Cancer Incidence Rates, Males, Hawai'i, 2004-2013



## Average Annual Percent Change in Cancer Incidence Rates, Females, Hawai'i, 2004-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center. All cases are invasive.

Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

Sites listed are those with significant ( $p < 0.05$ ) changes in age-adjusted incidence rates during time period.

The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint.

The APC is the Annual Percent Change based on rates age-adjusted to the 2000 US Standard Population.

APC is calculated using the Joinpoint Regression Program Version 4.3.1.0, April 2016, National Cancer Institute.

# Comparison of Cancer in Hawai'i & the U.S.

- In 2009-2013, Hawai'i incidence rates were significantly higher than the U.S. overall for cancers of the female breast (in situ and invasive), colon & rectum, liver & intrahepatic bile duct, pancreas, stomach, thyroid, and uterus/endometrium.
- In 2009-2013, cancer incidence rates in Hawai'i were significantly lower than the U.S. overall for all cancer sites combined and for cancers of the bladder, brain & nervous system, esophagus, Hodgkin lymphoma, kidney & renal pelvis, larynx, leukemia, lung & bronchus, myeloma, mesothelioma, non-Hodgkin lymphoma, ovary, and prostate.
- In 2009-2013, mortality rates for cancers of the liver & intrahepatic bile duct, thyroid, and stomach were significantly higher in Hawai'i compared to the U.S. overall.
- In 2009-2013, cancer mortality rates in Hawai'i were significantly lower than the U.S. overall for all cancer sites combined and for cancers of the bladder, brain & nervous system, female breast, colon & rectum, esophagus, Hodgkin lymphoma, kidney & renal pelvis, larynx, leukemia, lung & bronchus, melanoma, mesothelioma, myeloma, non-Hodgkin lymphoma, ovary, and prostate.
- Among all U.S. states, Hawai'i ranks #1 for stomach cancer incidence and mortality, #1 for thyroid cancer mortality, and #2 for liver & intrahepatic bile duct cancer incidence.

## Cancers with Higher Incidence in Hawai'i Compared to the U.S., 2009-2013

Site	Hawai'i Incidence Rate	U.S. Incidence Rate	Rank Among U.S. States
Breast (Female)	134.4	123.3	6
Colon & Rectum	44.3	40.6	11
Liver & Intrahepatic Bile Duct	11.0	7.6	2
Pancreas	13.6	12.3	6
Stomach	9.4	6.7	1
Thyroid	15.9	14.0	10
Uterus/Endometrium	30.4	25.6	10

Sources: Hawai'i Tumor Registry, University of Hawai'i Cancer Center; Centers for Disease Control and Prevention; National Cancer Institute.

All cases are invasive except for bladder cancer which is in situ and invasive.

Cancers with significantly ( $p < 0.05$ ) different rates in Hawai'i compared to U.S. overall are shown.

Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

Rank is based on rates among the 50 U.S. states from the highest (1) to the lowest (50).

## Cancers with Lower Incidence in Hawai'i Compared to the U.S., 2009-2013

Site	Hawai'i Incidence Rate	U.S. Incidence Rate	Rank Among U.S. States
Bladder	13.7	20.7	50
Brain & Nervous System	4.2	6.6	50
Esophagus	3.5	4.7	49
Hodgkin Lymphoma	1.8	2.7	50
Kidney & Renal Pelvis	13.5	16.0	49
Larynx	2.4	3.6	47
Leukemia	11.9	13.4	44
Lung & Bronchus	47.2	62.4	46
Myeloma	5.6	6.4	45
Mesothelioma	0.5	1.0	50
Non-Hodgkin Lymphoma	18.1	19.1	33
Ovary	9.7	11.6	50
Prostate	96.5	123.1	49

## Cancers with Higher Mortality in Hawai'i Compared to the U.S., 2009-2013

Site	Hawai'i Mortality Rate	U.S. Mortality Rate	Rank Among U.S. States
Liver & Intrahepatic Bile Duct	7.5	6.1	4
Thyroid	0.8	0.5	1
Stomach	4.9	3.3	1

## Cancers with Lower Mortality in Hawai'i Compared to the U.S., 2009-2013

Site	Hawai'i Mortality Rate	U.S. Mortality Rate	Rank Among U.S. States
Bladder	2.7	4.4	50
Brain & Nervous System	2.5	4.3	50
Breast (Female)	14.5	21.5	50
Colon & Rectum	13.5	15.1	44
Esophagus	2.9	4.1	41
Hodgkin Lymphoma	0.2	0.4	50
Kidney & Renal Pelvis	2.6	3.9	49
Larynx	0.8	1.1	41
Leukemia	5.0	6.9	50
Lung & Bronchus	31.9	46.0	49
Melanoma of the Skin	1.5	2.7	49
Mesothelioma	0.3	0.8	50
Myeloma	2.3	3.3	50
Non-Hodgkin Lymphoma	5.3	6.0	47
Ovary	5.3	7.5	50
Prostate	13.7	20.7	50

Sources: Hawai'i Tumor Registry, University of Hawai'i Cancer Center; Centers for Disease Control and Prevention; National Cancer Institute.

All cases are invasive except for bladder cancer which is in situ and invasive.

Cancers with significantly ( $p < 0.05$ ) lower rates in Hawai'i compared to U.S. overall are shown.

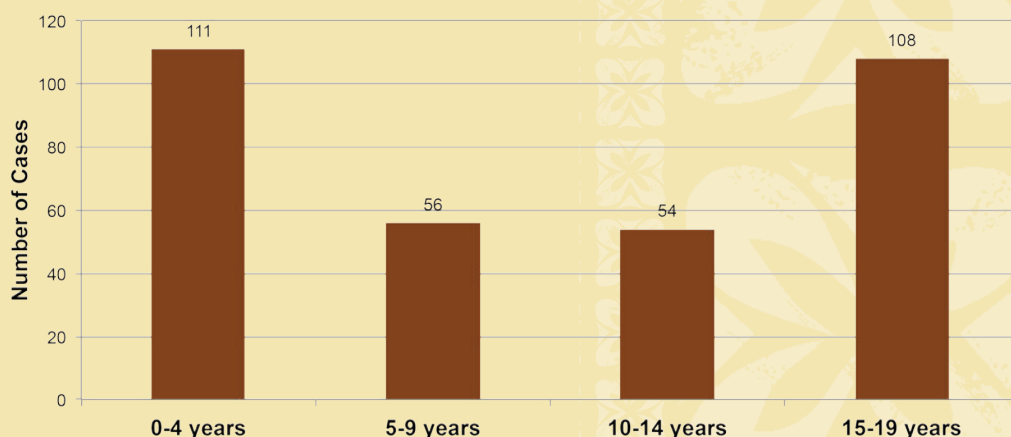
Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

Rank is based on rates among the 50 U.S. states from the highest (1) to the lowest (50).

# Childhood Cancer in Hawai'i

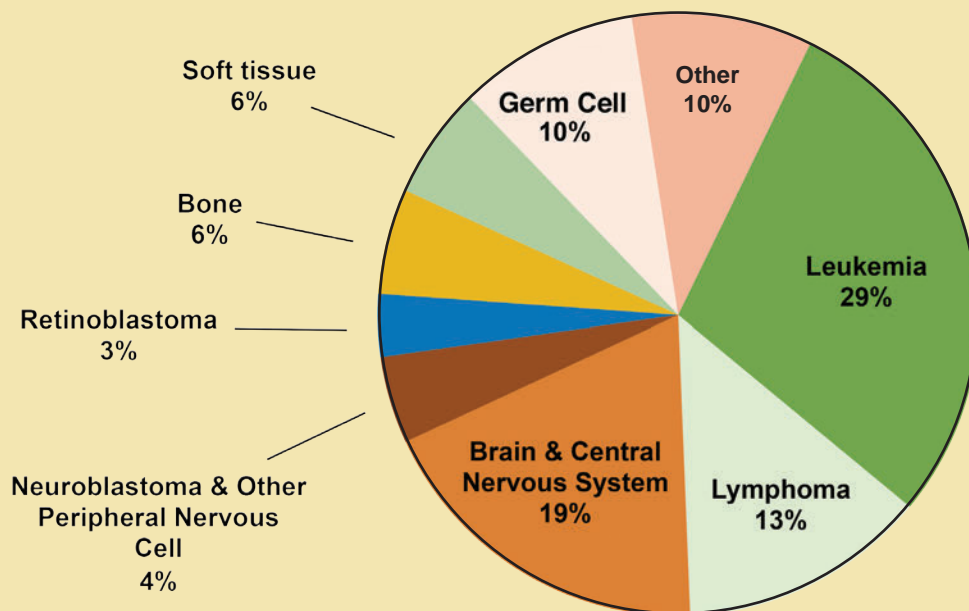
- Childhood cancer is rare with less than one percent of all cancers occurring in individuals ages 19 years and under.
- Approximately 66 children (ages 19 and under) are diagnosed with cancer each year in Hawai'i.
- Cancer is the second leading cause of death in Hawai'i among children ages 1 to 14 years.
- Leukemia is the most common cancer in children comprising 29% of all cases diagnosed in 2009-2013.

## Age Distribution of Childhood Cancers, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center. All cases are invasive except for bladder cancer which is in situ and invasive. Cancer Cases counts are average annual per 5-year period, 2009-2013.

## Cancers in Children Ages 19 & Under, Hawai'i, 2009-2013



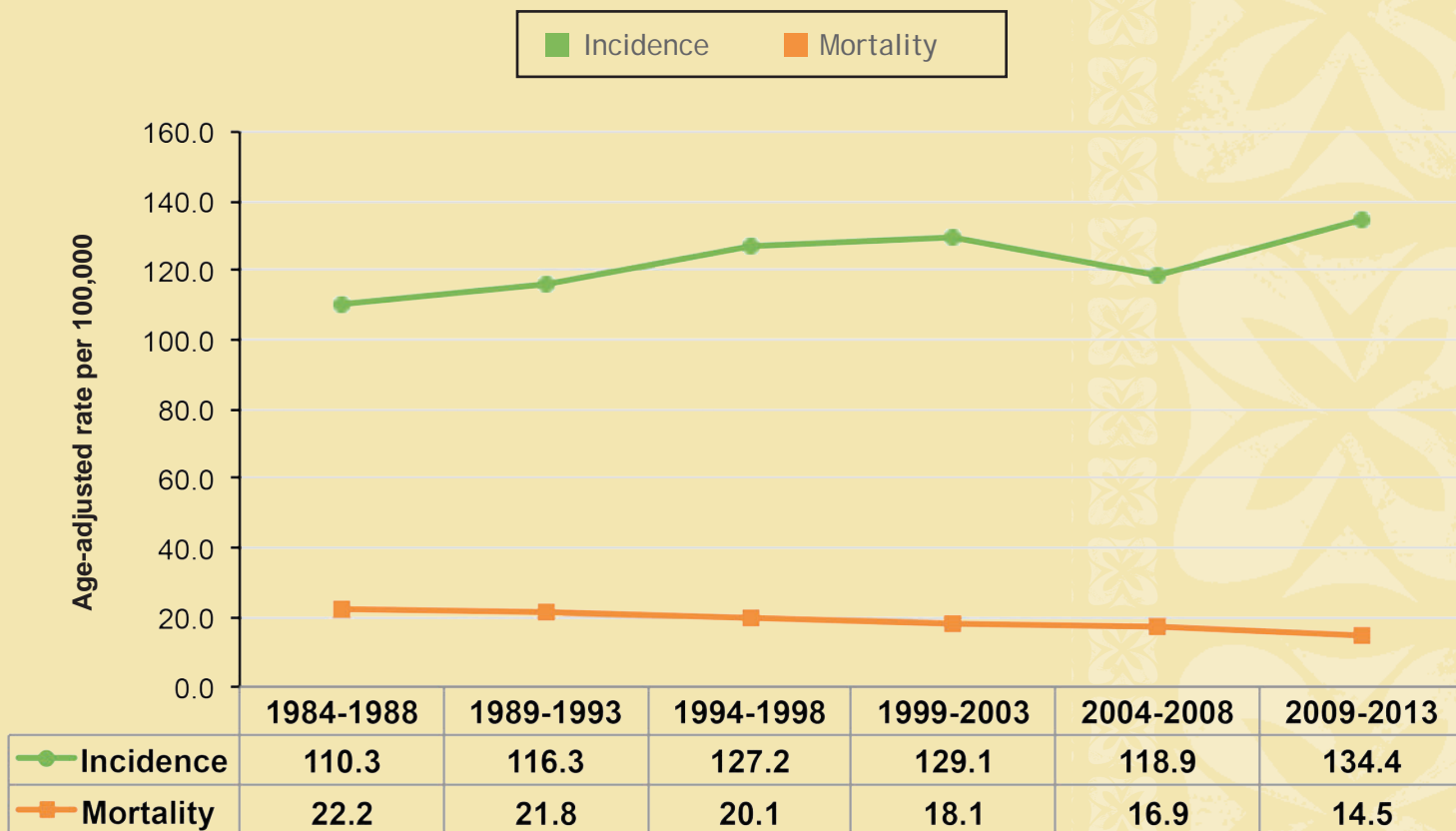
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center. Childhood cancers include 329 cases diagnosed in 2009-2013. All cases are invasive except for bladder cancer which is in situ and invasive. Childhood cancers are classified primarily by histology information based on the International Classification of Childhood Cancers.

# Female Breast Cancer in Hawai'i

- Breast cancer is the most common cancer diagnosed in women in Hawai'i.
- Annually, an average of 1,107 women are diagnosed with invasive breast cancer in Hawai'i while another 300 are diagnosed with in situ breast cancer, or very early stage tumors that have not invaded surrounding tissues.
- An average of 125 women die of breast cancer each year in Hawai'i.
- Most breast cancers are diagnosed in women ages 55 and older.
- Invasive breast cancer incidence rates in Hawai'i increased nearly 2% per year over the past 10 years (2004 to 2013).
- Invasive breast cancer mortality rates declined over the past decade.
- Hawai'i ranks #6 in the country for invasive breast cancer incidence: 134.4 per 100,000 in Hawai'i compared to 123.3 per 100,000 in the U.S. overall in 2009-2013.
- Hawai'i has the lowest breast cancer mortality in the country: 14.5 per 100,000 in Hawai'i compared to 21.5 per 100,000 in the U.S. overall in 2009-2013.
- Native Hawaiians have the highest rates of newly diagnosed cases and deaths from breast cancer compared to White, Japanese, Filipino, and Chinese.
- Most breast cancers (73%) are diagnosed at early stages (in situ or localized); 24% are diagnosed at late stages.
- Native Hawaiians have a greater proportion (29%) of late stage breast cancers compared to the other major racial/ethnic groups.

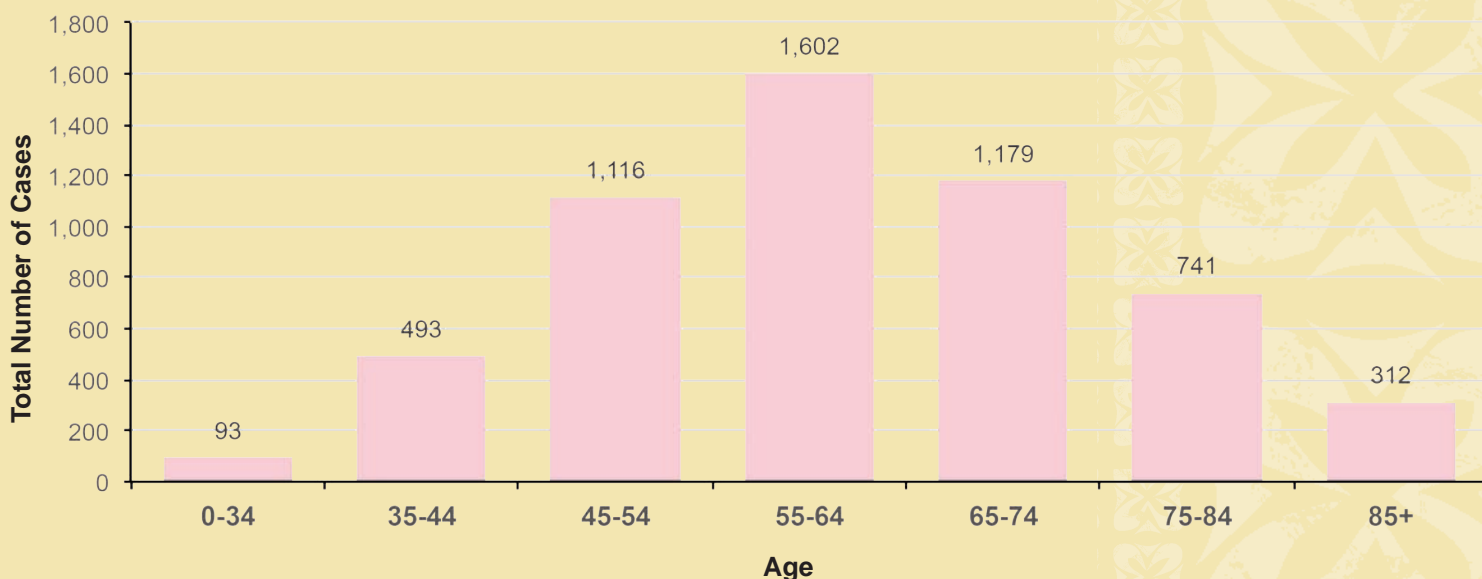


## Female Breast Cancer Incidence & Mortality, Hawai'i, 1984-2013



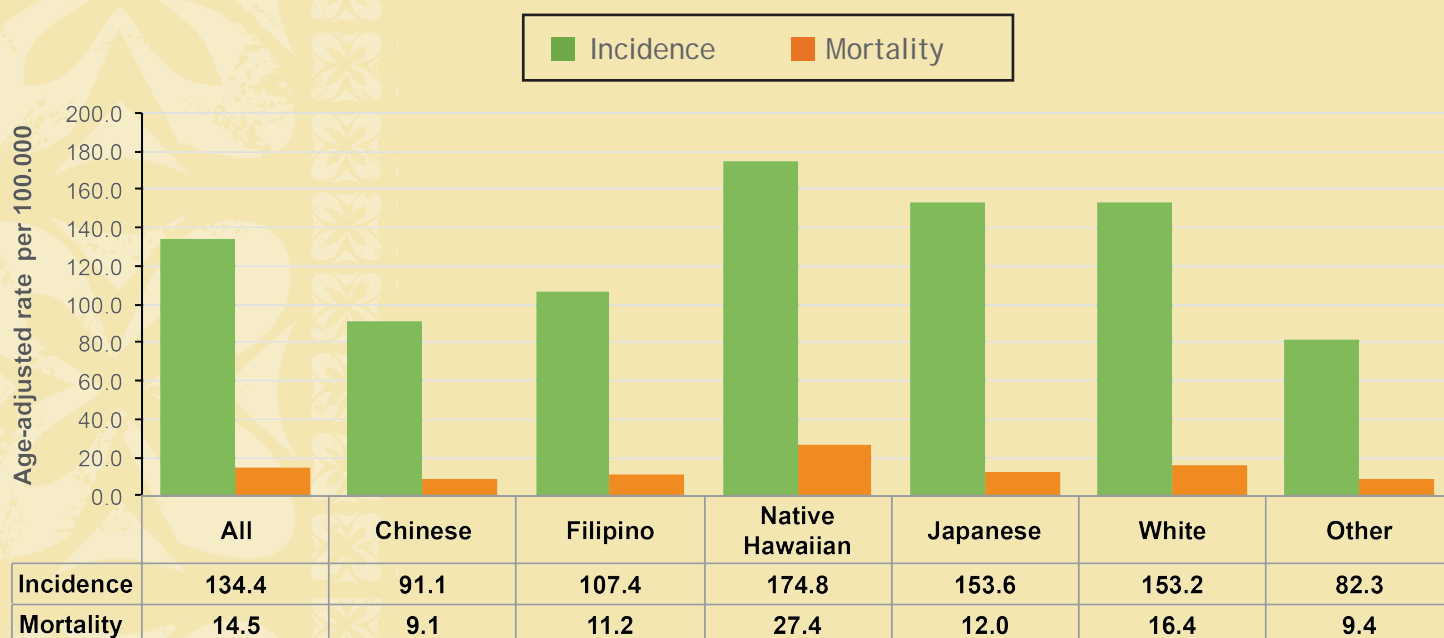
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Female Breast Cancer Cases by Age at Diagnosis, Hawai'i, 2009-2013



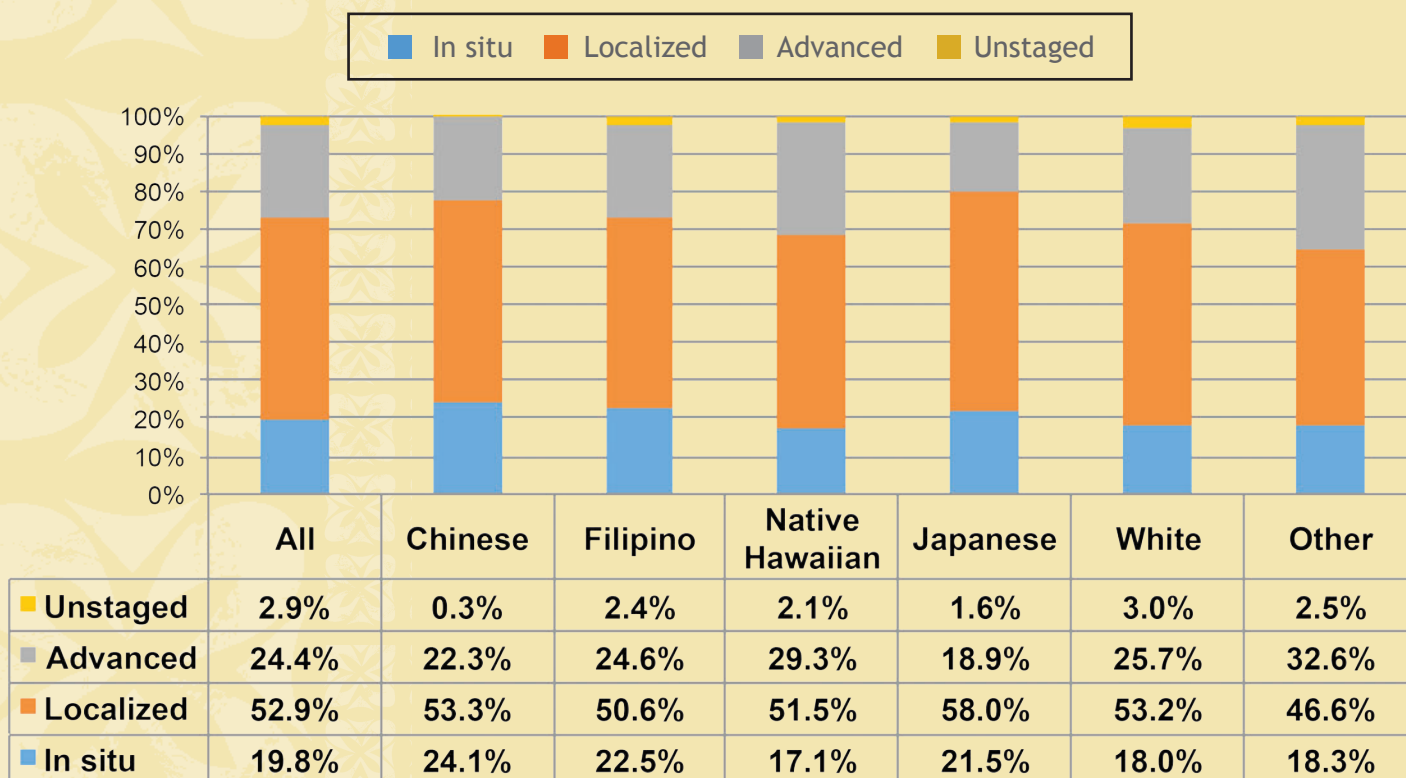
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Cancer case counts are average annual per the 5-year period, 2009-2013.

## Female Breast Cancer Incidence & Mortality, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Female Breast Cancer Stage Distribution, Hawai'i, 2009-2013



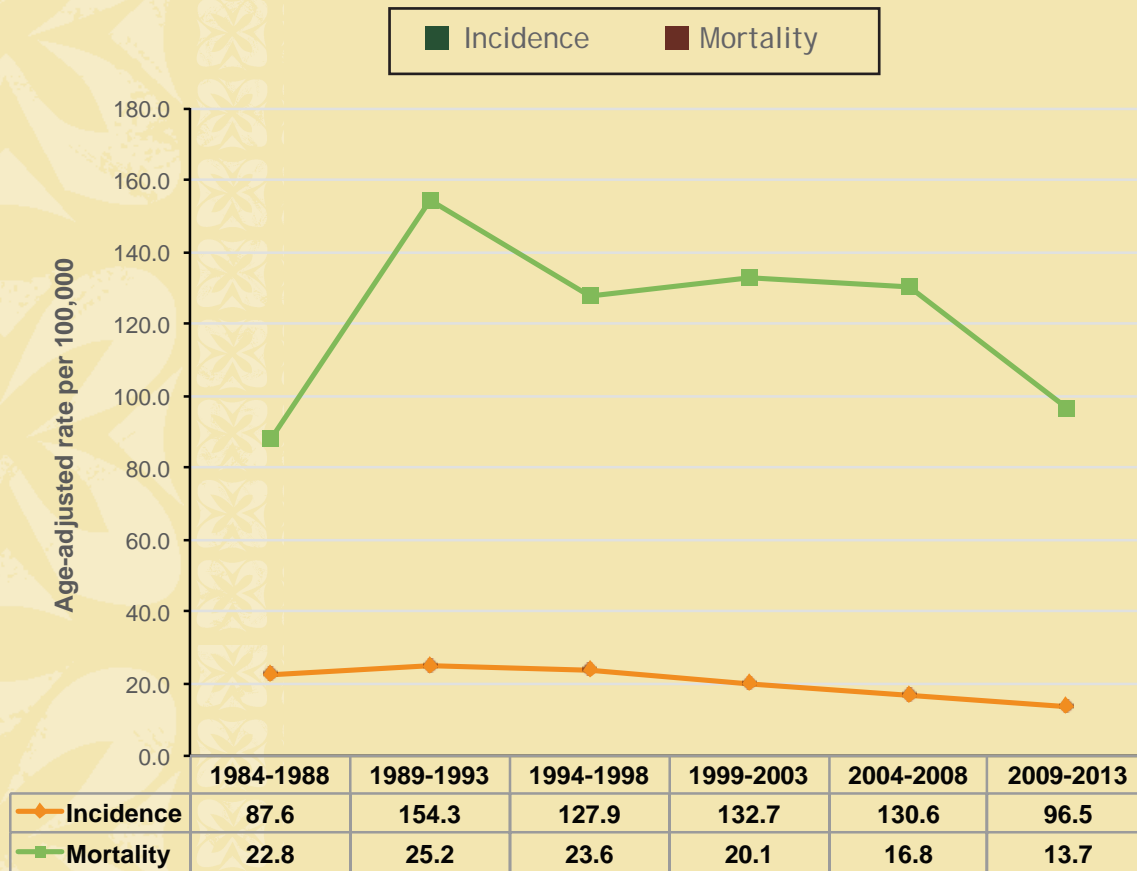
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.

# Prostate Cancer in Hawai'i

- Prostate cancer is the most common cancer diagnosed in men in Hawai'i.
- Annually, an average of 743 men are diagnosed with invasive prostate cancer in Hawai'i.
- An average of 99 men die of prostate cancer in Hawai'i each year.
- Nearly all prostate cancers are diagnosed at ages 55 and older.
- Prostate cancer incidence and mortality rates in Hawai'i steadily declined over the past 20 years with the rate of new cancers falling nearly 5% per year over the past decade.
- Hawai'i has among the lowest incidence of prostate cancer in the U.S.: 96.5 per 100,000 in Hawai'i compared to 123.1 per 100,000 in the U.S. overall in 2009-2013.
- Hawai'i has the lowest prostate cancer mortality in the country: 13.7 per 100,000 in Hawai'i compared to 20.7 per 100,000 in the U.S. overall in 2009-2013.
- Prostate cancer incidence rates are highest among Filipinos while mortality rates are highest in Native Hawaiians.
- In 2009-2013, 66% of prostate cancer cases were diagnosed at early stages and 22% at late stages.
- Filipinos and Native Hawaiians have greater proportions of late stage prostate cancers (26%) compared to the other major racial/ethnic groups.

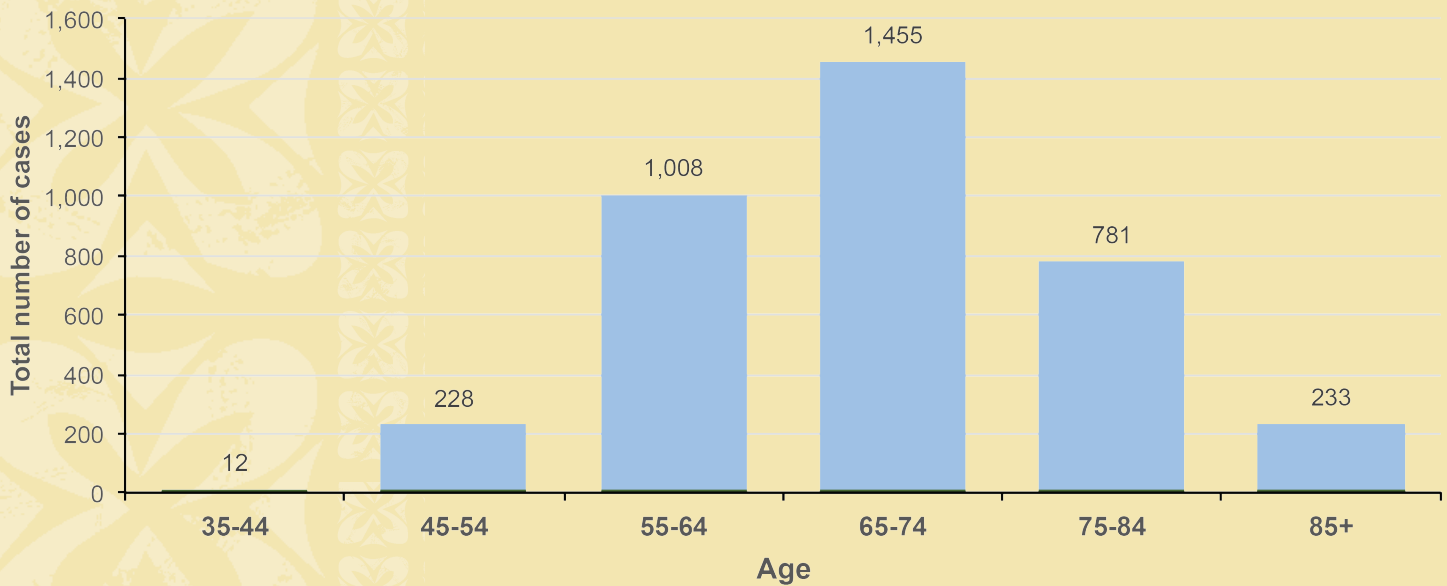


## Prostate Cancer Incidence & Mortality, Hawai'i, 1984-2013



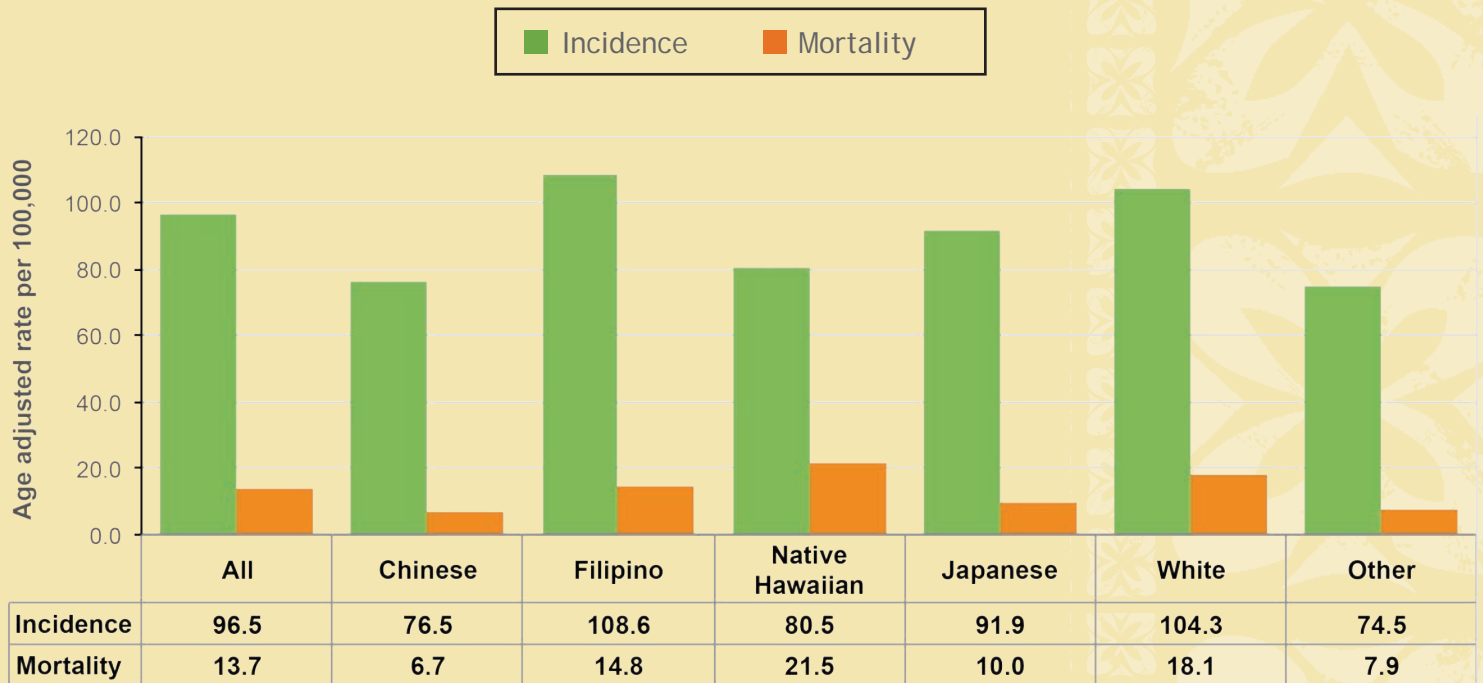
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Prostate Cancer Cases by Age at Diagnosis, Hawaii, 2009-2013



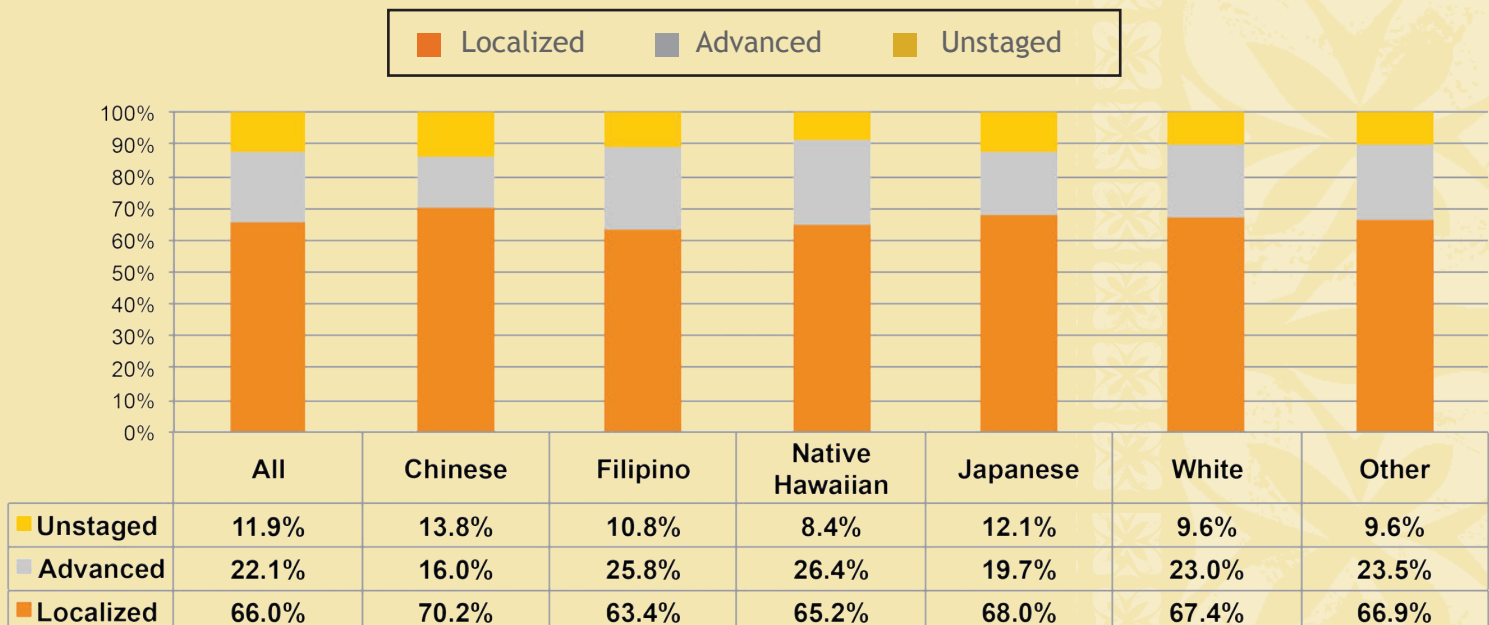
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Cancer case counts are average annual per the 5-year period, 2009-2013.

## Prostate Cancer Incidence & Mortality, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Prostate Cancer Stage Distribution, Hawai'i, 2009-2013



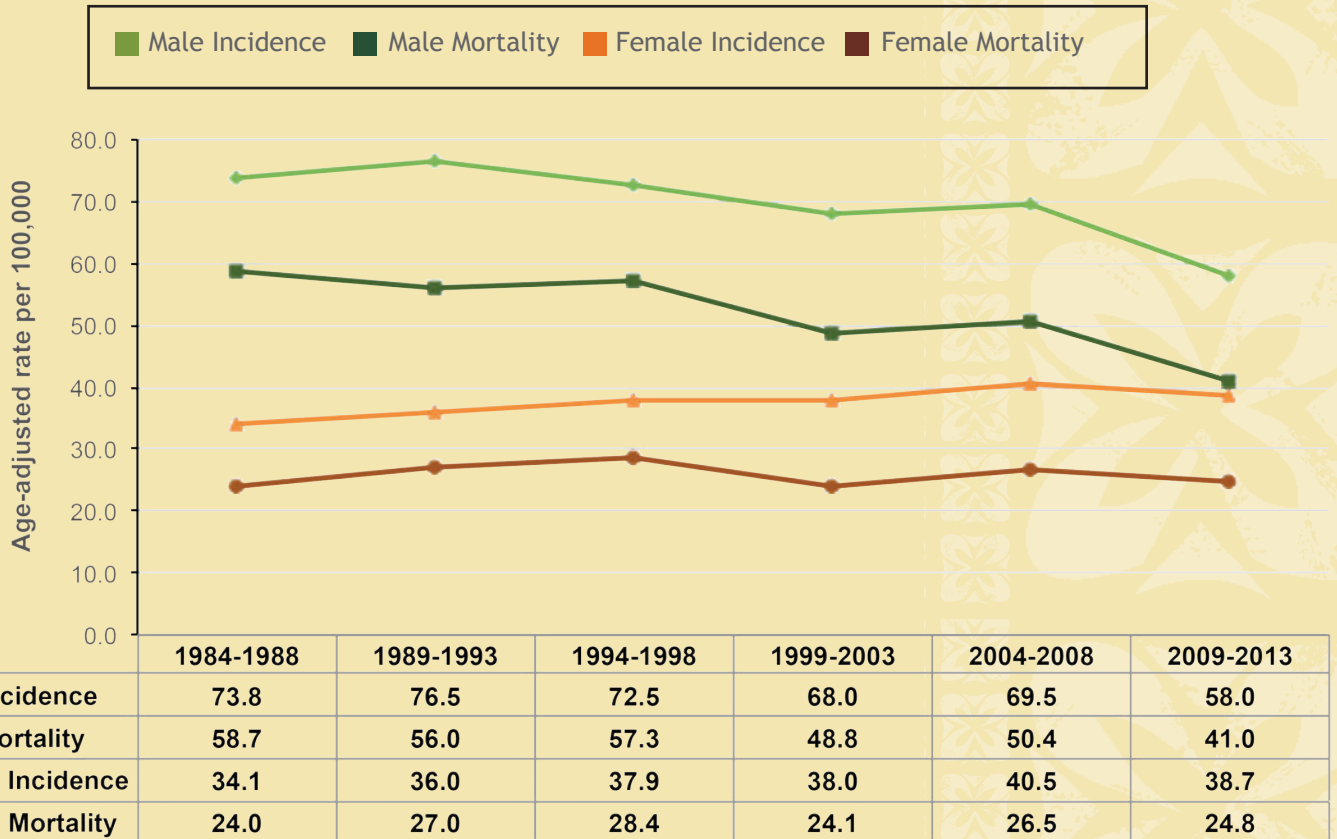
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.

# Lung & Bronchus Cancer in Hawai'i

- Cancers of the lung & bronchus are the 2nd most commonly diagnosed malignancy in men and women with an average of 776 new cases each year in Hawai'i.
- Lung & bronchus cancer is the leading cause of cancer mortality in both sexes with an average of 526 deaths statewide each year.
- Most lung & bronchus cancers are diagnosed at ages 55 and older.
- Among men, lung & bronchus cancer incidence steadily declined over the past several decades with the rate of new cancers falling more than 2% per year over the past decade (2004-2013).
- Among women, lung & bronchus cancer incidence has slightly increased over the past 30 years with the rate of new cancers rising an average of 0.5% per year from 2004 to 2013.
- Over the past 30 years, lung & bronchus cancer mortality rates have steadily declined in men while remaining relatively stable in women.
- Hawai'i has among the lowest lung & bronchus cancer incidence and mortality in the U.S. In 2009-2013, incidence was 47.2 per 100,000 compared to 62.4 per 100,000 in the U.S. overall; mortality was 31.9 per 100,000 in Hawai'i compared to 46.0 per 100,000 in the U.S. overall from 2009 to 2013.
- Native Hawaiian males and females have the highest incidence and mortality rates from lung & bronchus cancers.
- In 2009-2013, 15% of lung & bronchus cancers were diagnosed at early stages and 76% at late stages.
- Filipinos have the highest proportion of late stage lung & bronchus cancers (81%).

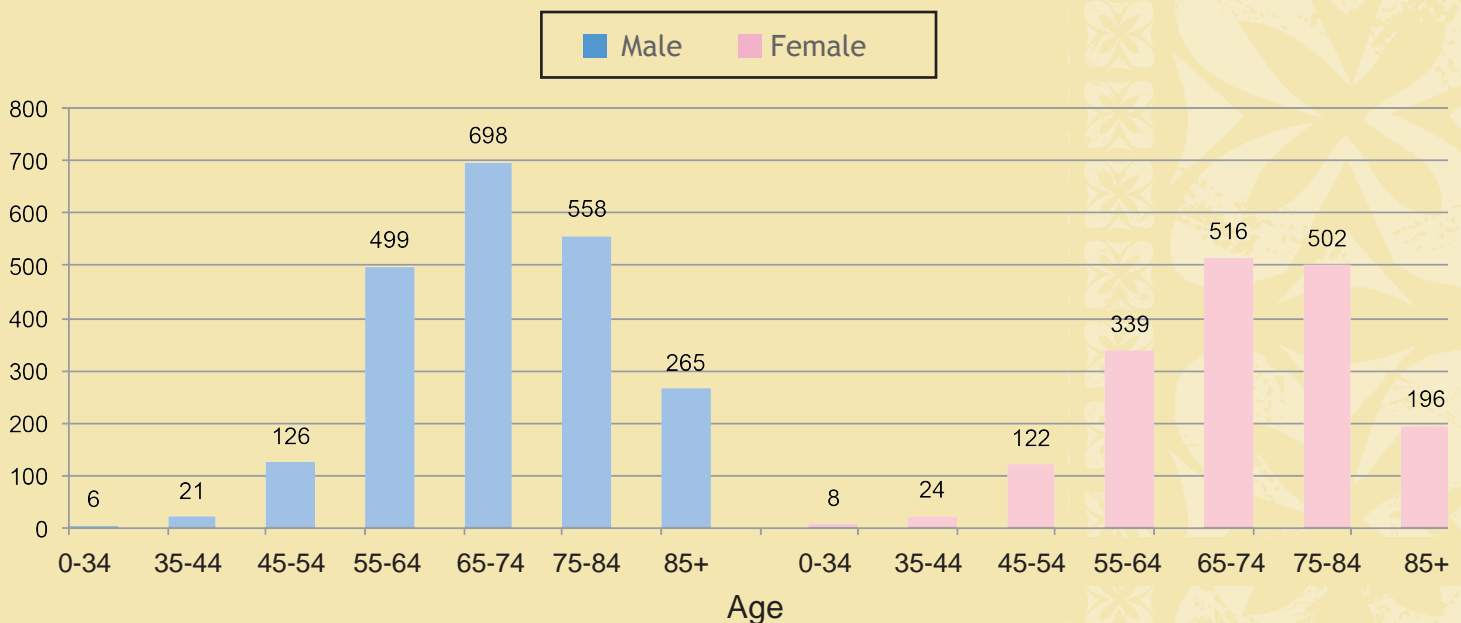


## Lung & Bronchus Cancer Incidence & Mortality, Hawai'i, 1984-2013



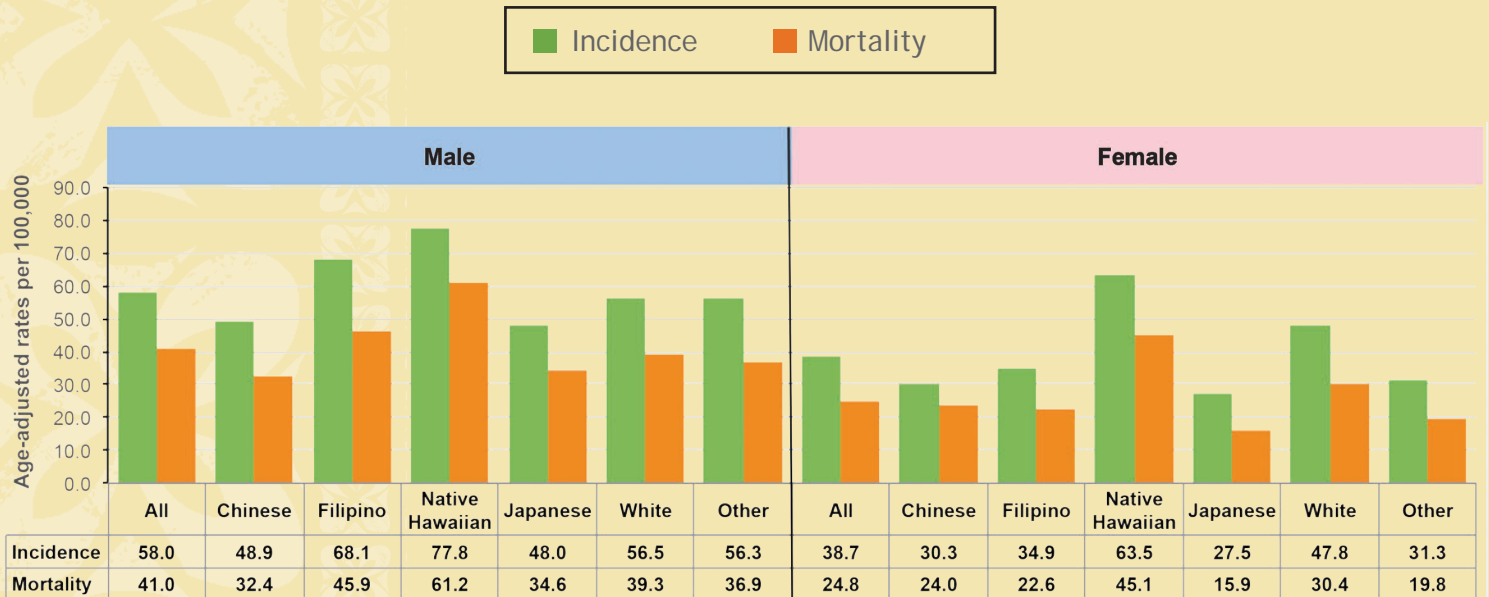
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Lung & Bronchus Cancer Cases by Age at Diagnosis, Hawai'i, 2009-2013



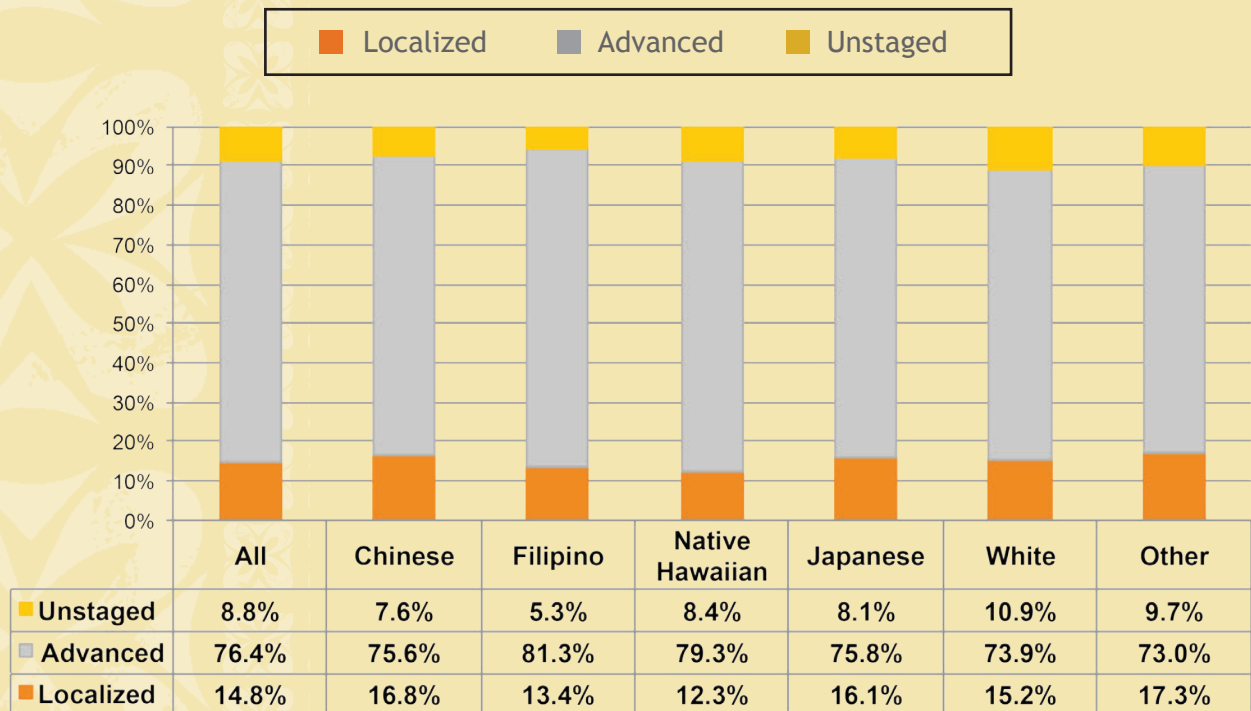
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.

## Lung & Bronchus Cancer Incidence & Mortality, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Lung & Bronchus Cancer Stage Distribution, Hawai'i, 2009-2013

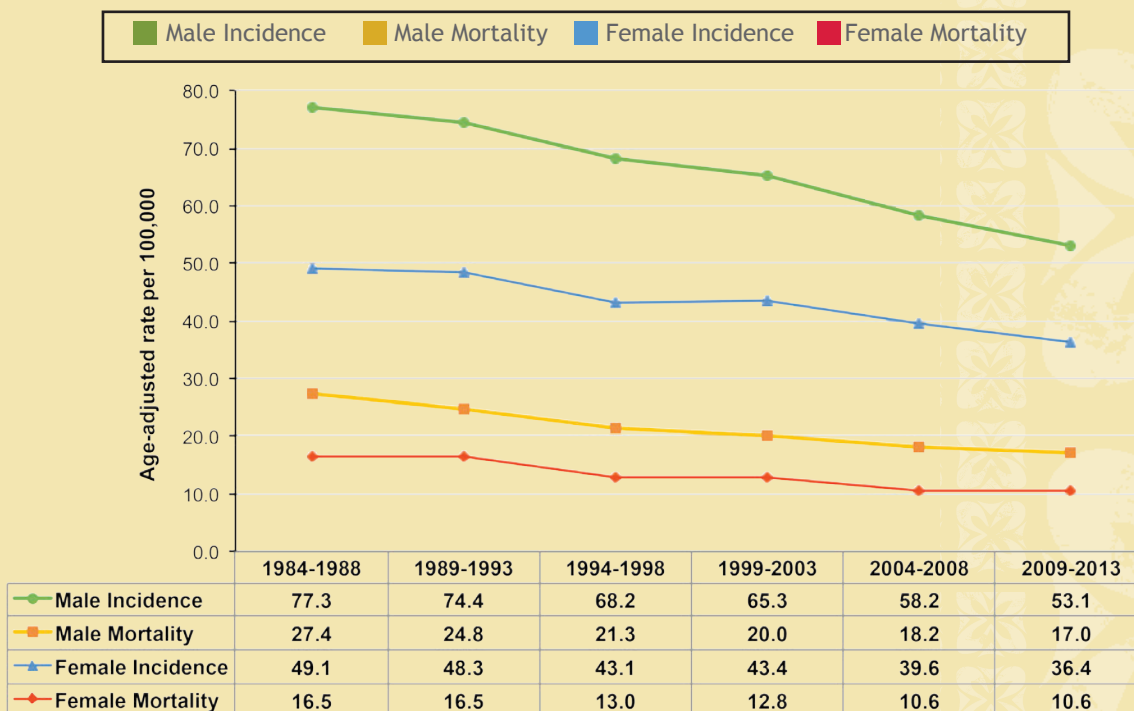


Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.

# Colon & Rectum Cancer in Hawai'i

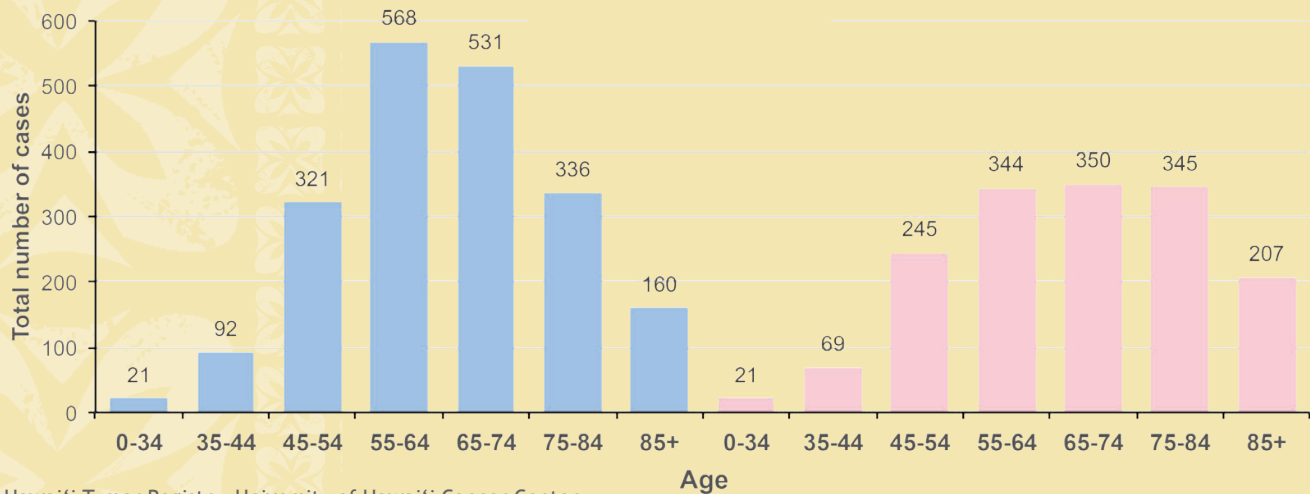
- Cancers of the colon & rectum are the 3rd most frequently diagnosed cancer in Hawai'i with an average of 722 new cases diagnosed each year.
- With an average of 224 deaths from colon & rectal cancer in Hawai'i each year, it is the 2nd leading cause of cancer death in men and 3rd among women.
- Most colon & rectal cancers are diagnosed at ages 55 and older.
- Colon & rectal cancer incidence and mortality have steadily declined statewide over the past several decades; incidence declined more than 1% per year over the past 10 years.
- Colon & rectal cancer incidence in Hawai'i is higher than the U.S. overall incidence was 44.3 per 100,000 in Hawai'i compared to 40.6 per 100,000 in the U.S. in 2009-2013.
- Colon & rectal cancer mortality is lower in Hawai'i than the U.S.: 13.5 per 100,000 in Hawai'i compared to 15.1 per 100,000 in the U.S. overall in 2009-2013.
- Colon & rectal cancer incidence is highest for Japanese males and females while mortality is highest for Native Hawaiian males and females.
- In 2009-2013, 43% of colon & rectal cancers were diagnosed at early stages, and 50% at late stages.
- Native Hawaiians have the highest proportion of late stage colon & rectal cancers (59%).

## Colon & Rectum Cancer Incidence & Mortality Rates, Hawai'i, 1984-2013



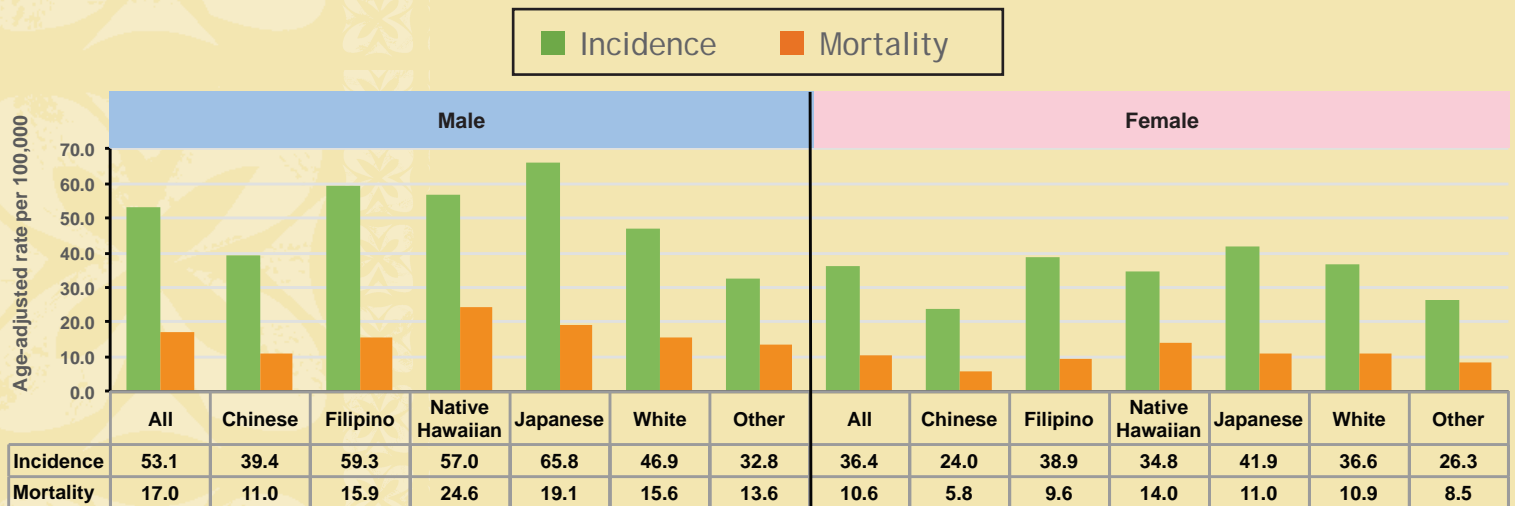
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Colon & Rectum Cancer Incidence by Age at Diagnosis, Hawai'i, 2009-2013



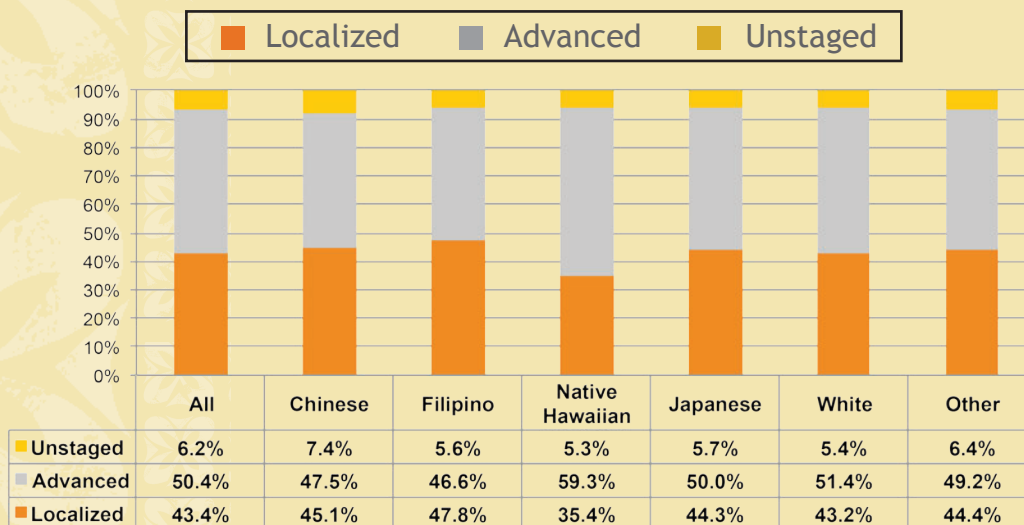
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive.

## Colon & Rectum Cancer Incidence & Mortality, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive.  
Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Colon & Rectum Cancer Stage Distribution, Hawai'i, 2009-2013

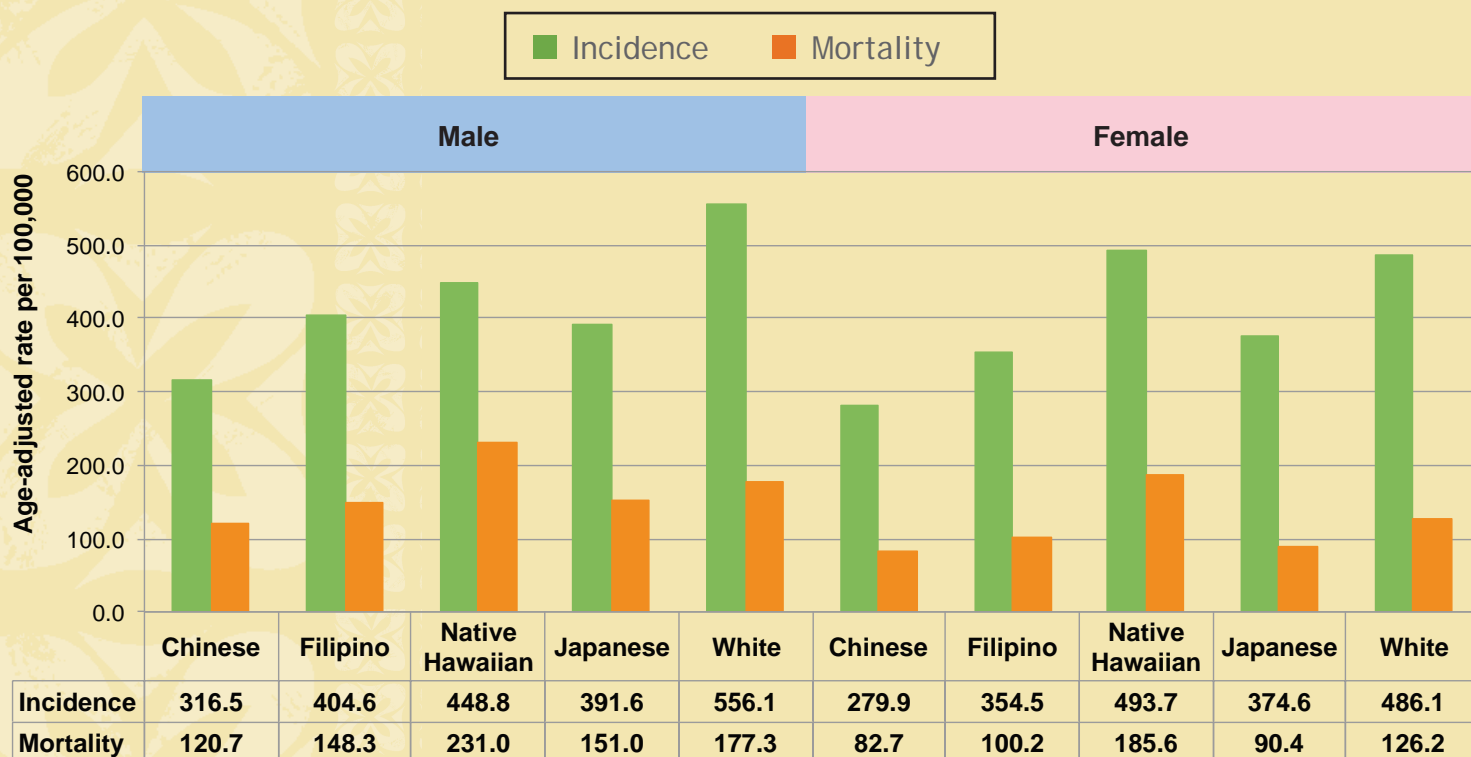


Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive.

## Cancer in Hawai'i's Racial & Ethnic Populations

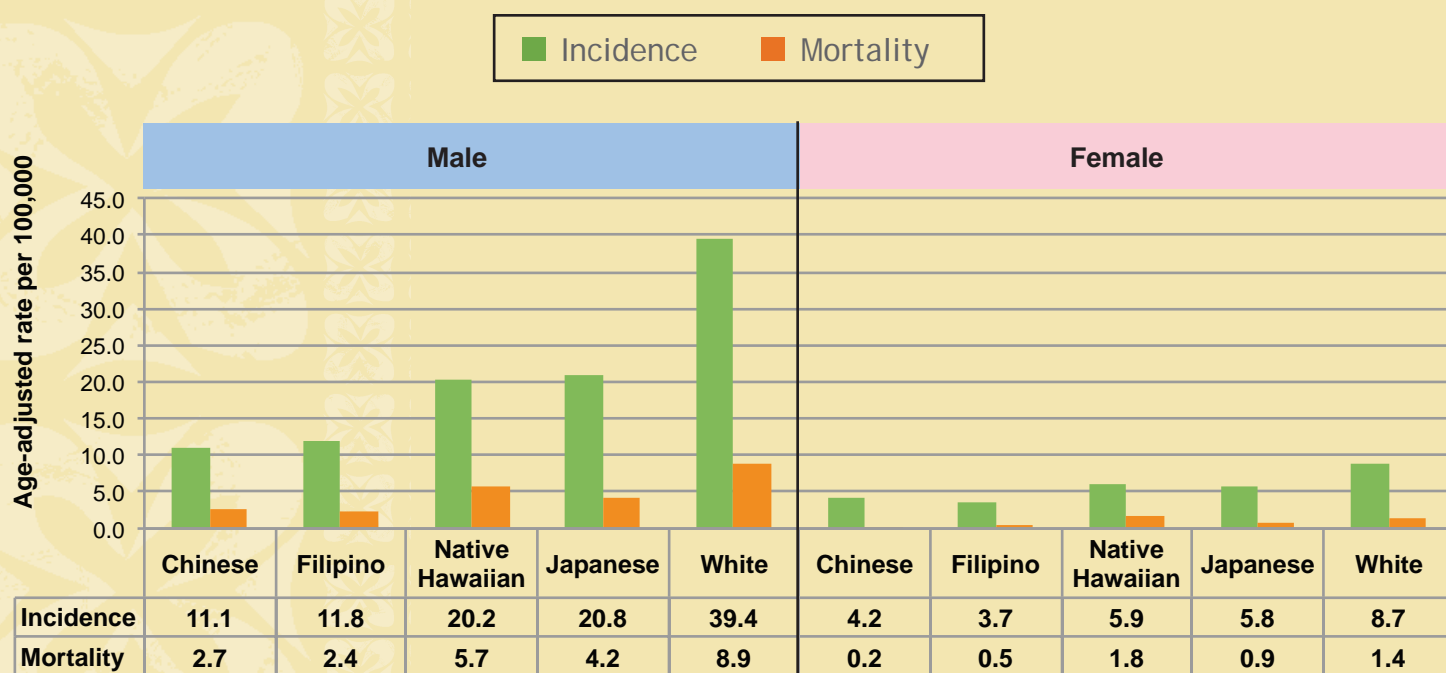
- In 2009-2013, cancer incidence and mortality varied substantially across Hawai'i's five largest racial/ethnic groups (Chinese, Filipinos, Native Hawaiians, Japanese, and Whites).
  - Overall cancer incidence was highest for White males and Native Hawaiian females.
  - Overall cancer mortality was highest for Native Hawaiian males and females.
  - Bladder cancer incidence was highest for White males and females; mortality was highest for White males as well as Native Hawaiian and White females.
  - Kidney & renal pelvis cancer incidence was highest for Japanese and White males and Native Hawaiian females; mortality was highest for Native Hawaiian males and females.
  - Leukemia incidence was highest for White males and Native Hawaiian and White females; mortality was comparable among males and highest for Native Hawaiian females.
  - Liver & intrahepatic bile duct cancer incidence and mortality were highest for Native Hawaiian males and Chinese females.
  - Melanoma of the skin incidence and mortality were highest for White males and females.
  - Non-Hodgkin lymphoma incidence was highest for White males and females; mortality was highest for Chinese males and Filipino females.
  - Oral cavity & pharynx cancer incidence was highest for White males and females; mortality was highest for Native Hawaiian males and Filipino females.
  - Pancreatic cancer incidence and mortality were highest for Chinese and Native Hawaiian males and Native Hawaiian females.
  - Stomach cancer incidence was highest for Japanese and Native Hawaiian males and Japanese females; mortality was highest for Japanese and Native Hawaiian males and Native Hawaiian females.
  - Thyroid cancer incidence was highest for Filipino males and females; mortality was highest for both Filipino and Native Hawaiian males and females.
  - Uterus/endometrium cancer incidence and mortality were highest for Native Hawaiians.
- Certain cancers are uniquely prominent among Hawai'i's smaller racial/ethnic groups (American Indian, Black, Korean, Micronesian, Samoan, and Vietnamese). For example, top cancers include myeloma among Blacks, stomach cancer in Koreans, oral cavity & pharynx cancer for Micronesians, and liver & intrahepatic bile duct cancer in Vietnamese.

## Overall Cancer Incidence & Mortality, All Sites, Hawai'i, 2009-2013



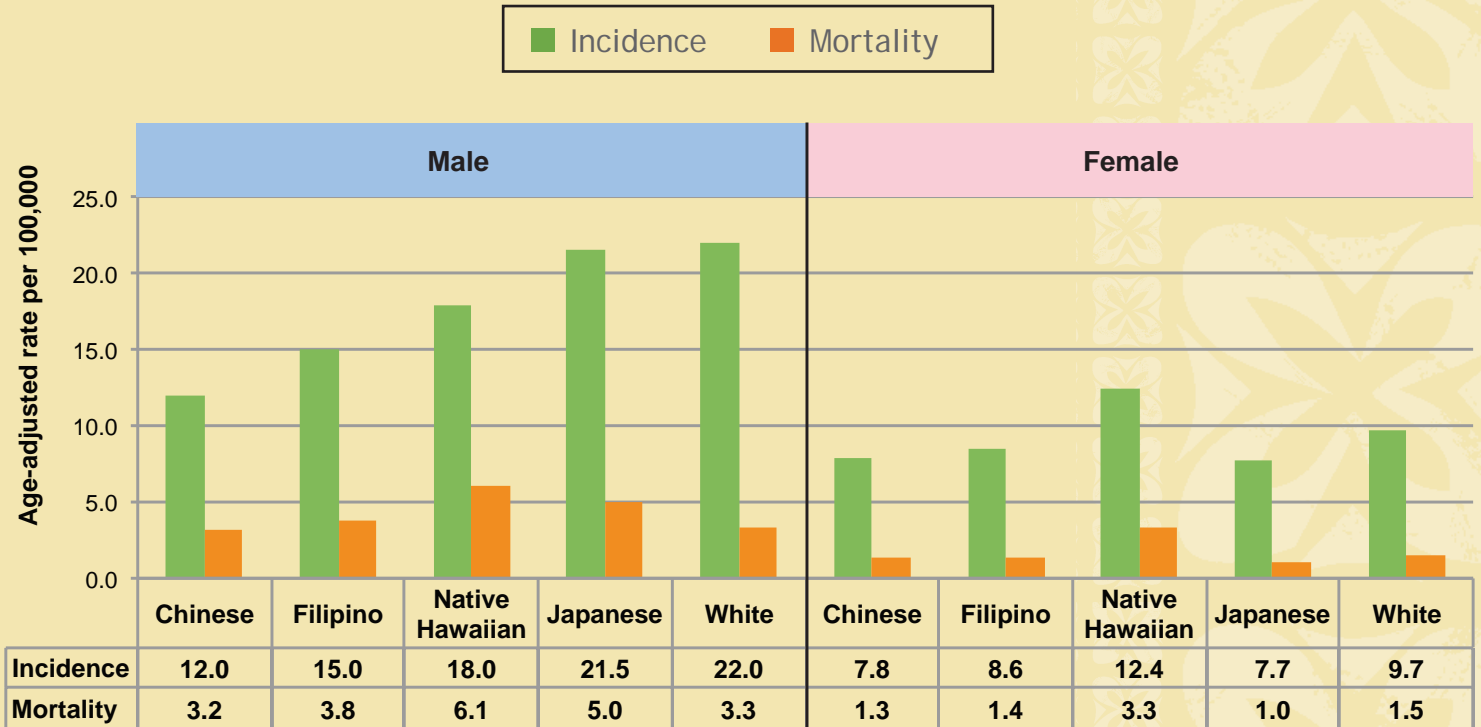
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive.  
Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Bladder Cancer Incidence & Mortality, Hawai'i, 2009-2013



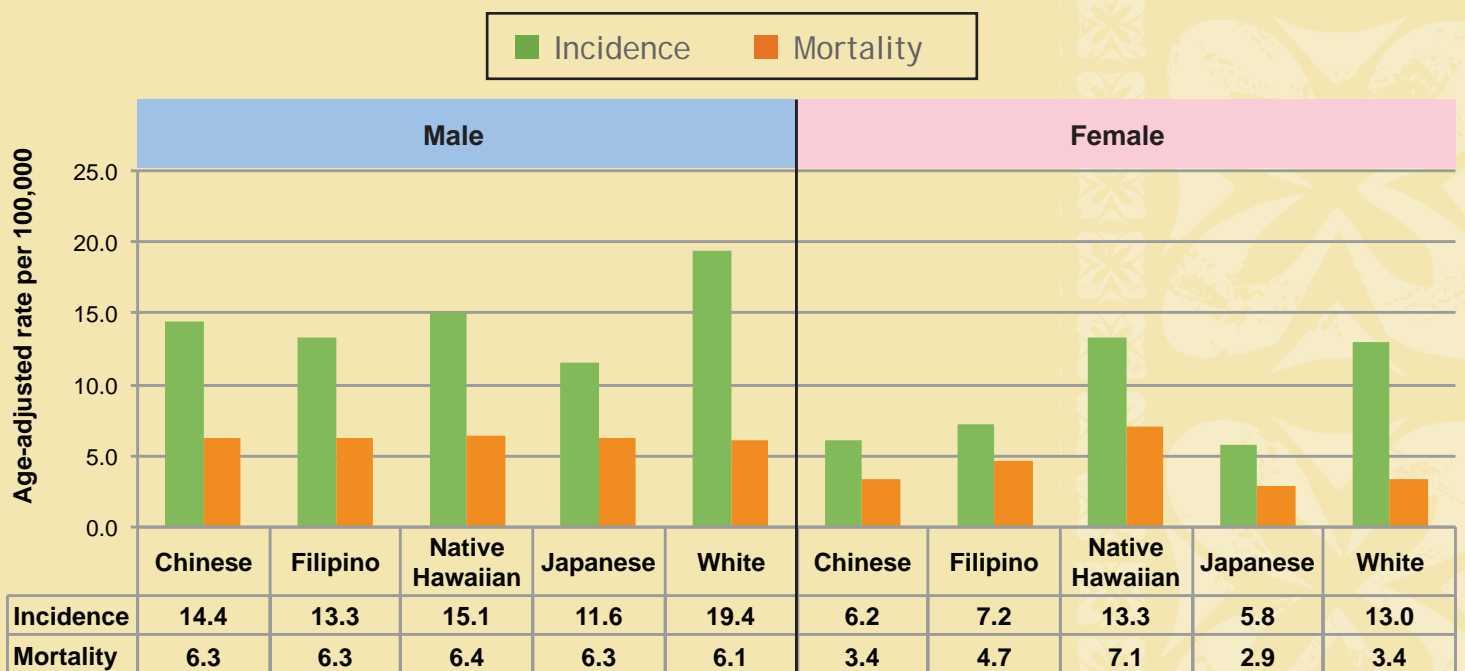
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
Bladder cancers are in situ and invasive.  
Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Kidney & Renal Pelvis Cancer Incidence & Mortality, Hawai'i, 2009-2013



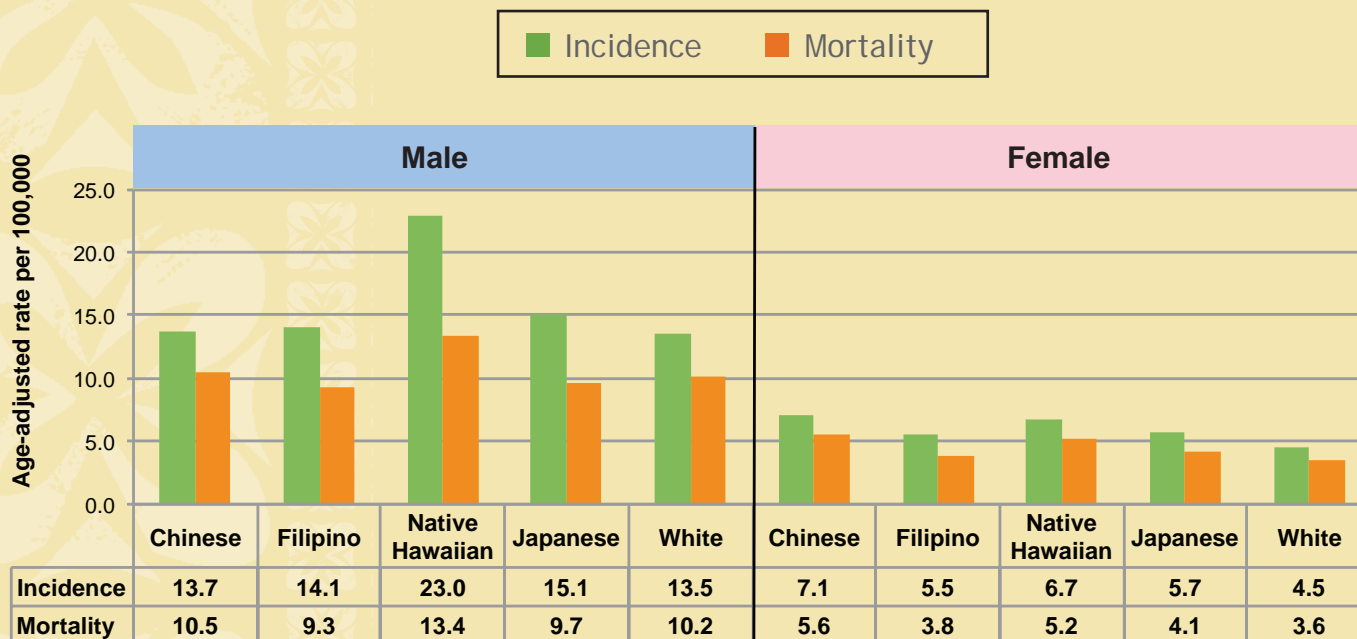
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Leukemia Incidence & Mortality, Hawai'i, 2009-2013



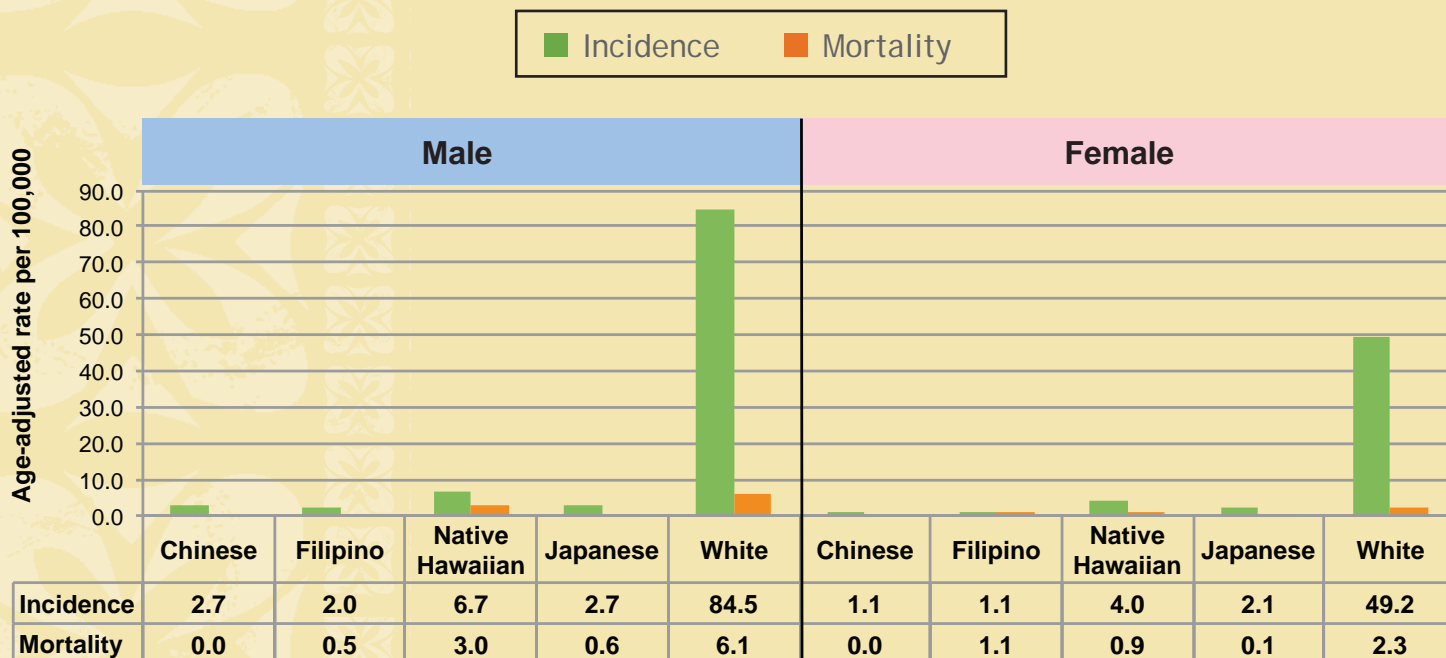
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Liver & Intrahepatic Bile Duct Cancer Incidence & Mortality, Hawai'i, 2009-2013



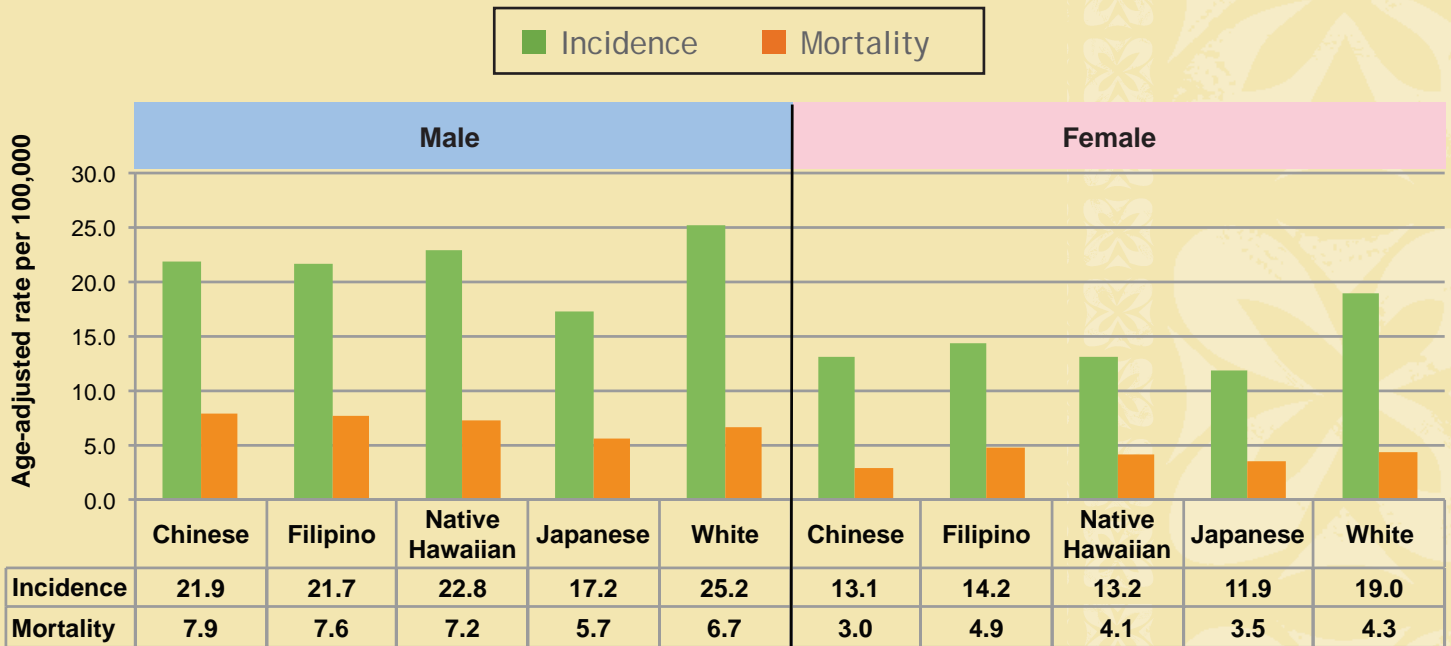
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Melanoma of the Skin Incidence & Mortality, Hawai'i, 2009-2013



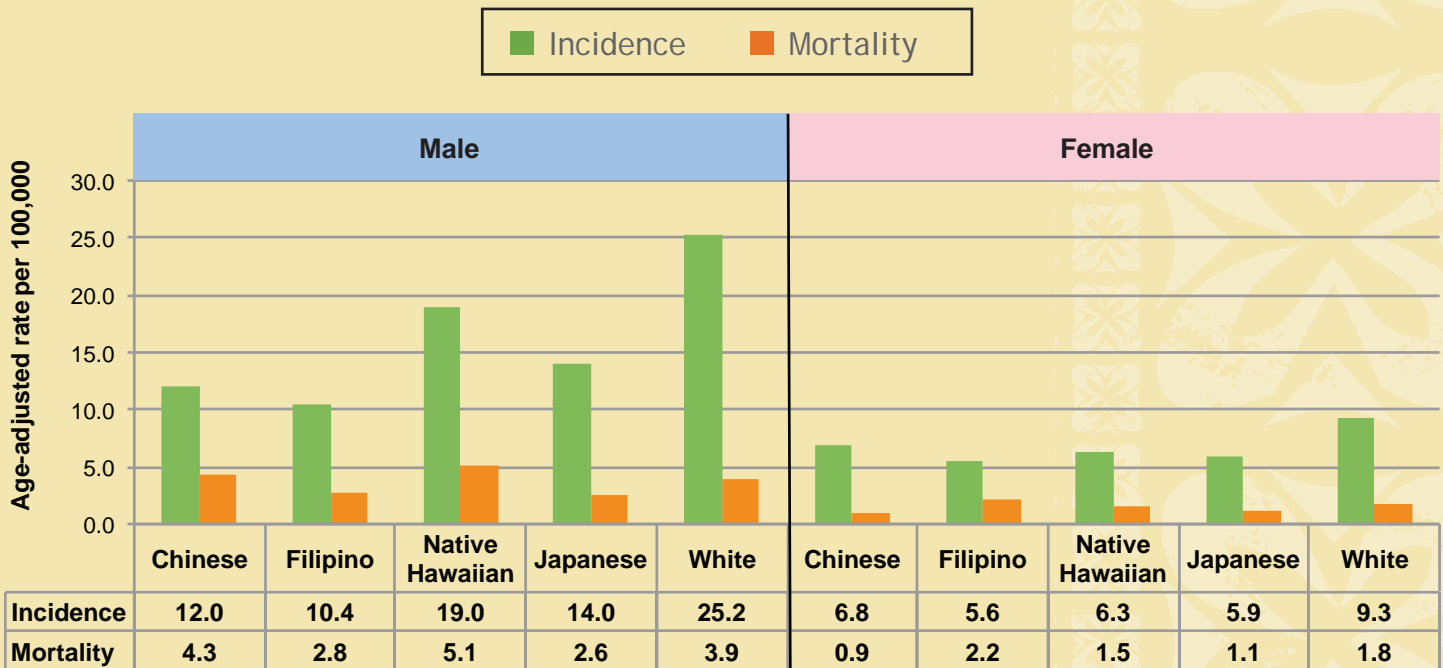
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Non-Hodgkin Lymphoma Incidence & Mortality, Hawai'i, 2009-2013



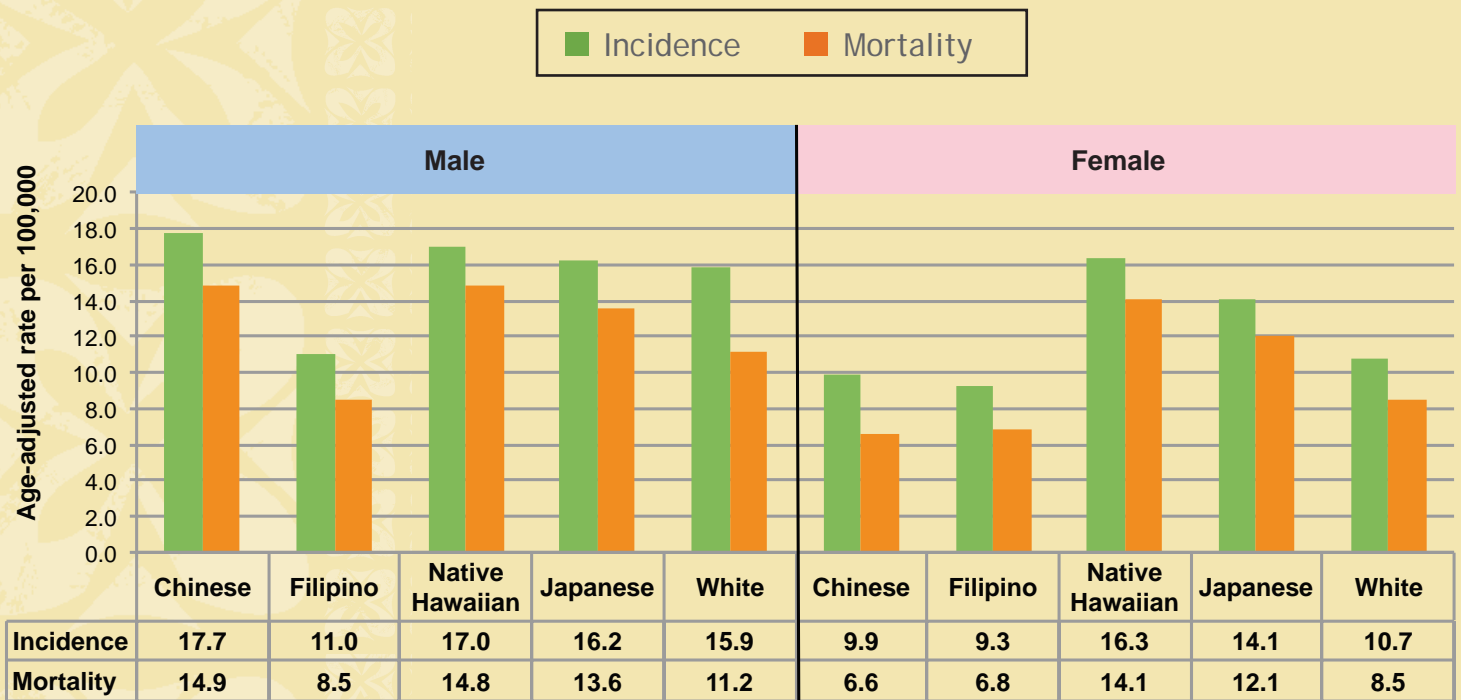
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Oral Cavity & Pharynx Cancer Incidence & Mortality, Hawai'i, 2009-2013



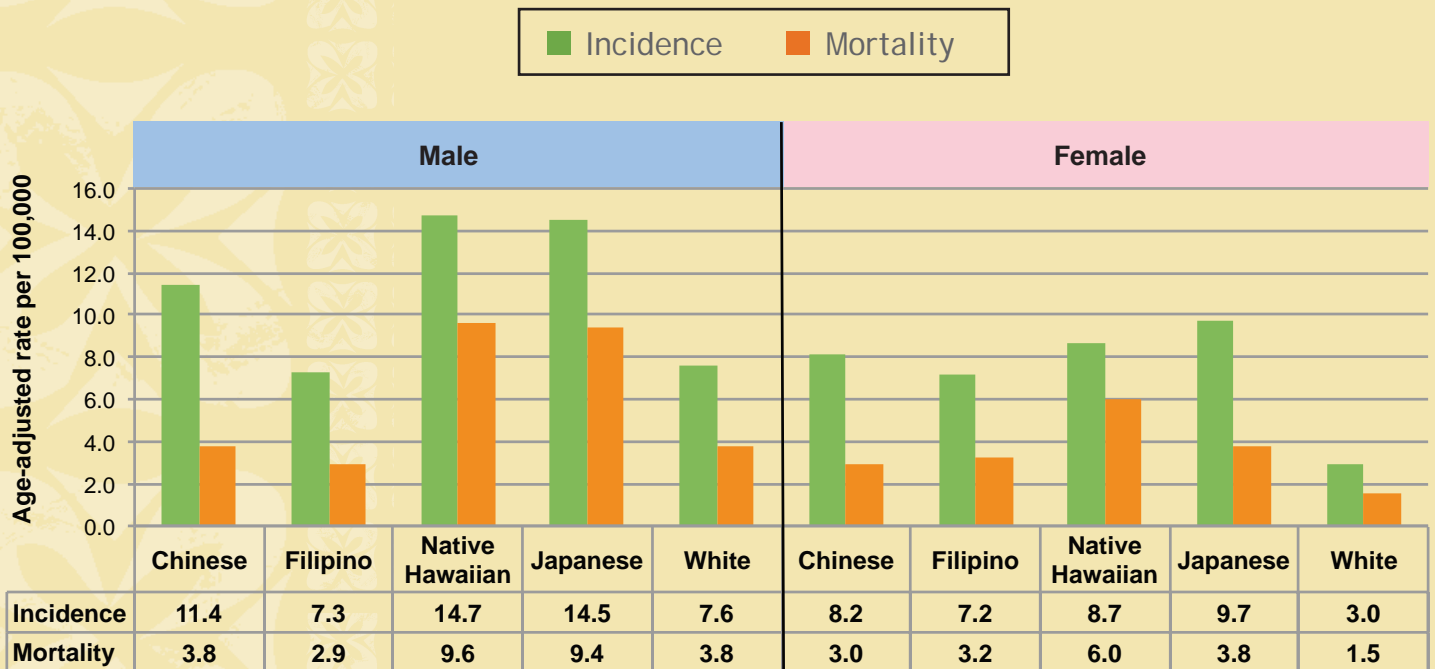
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Pancreas Cancer Incidence & Mortality, Hawai'i, 2009-2013



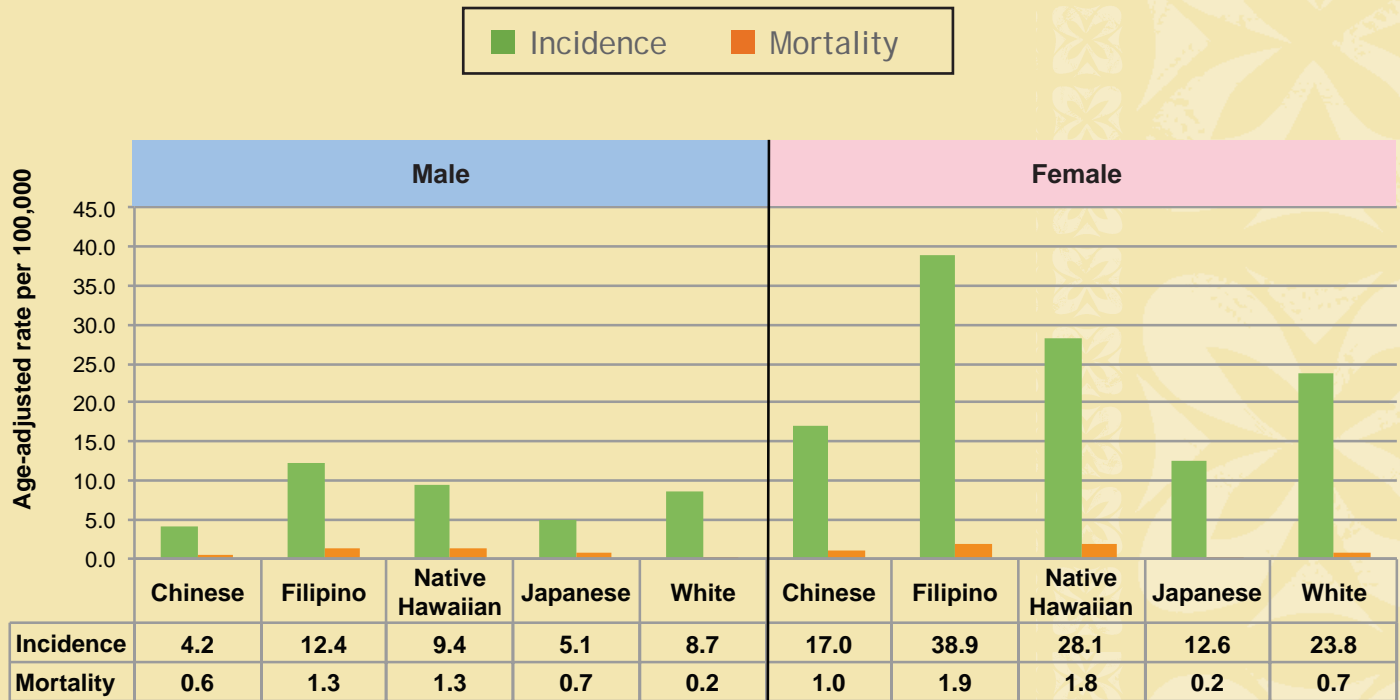
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive.  
Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Stomach Cancer Incidence & Mortality, Hawai'i, 2009-2013



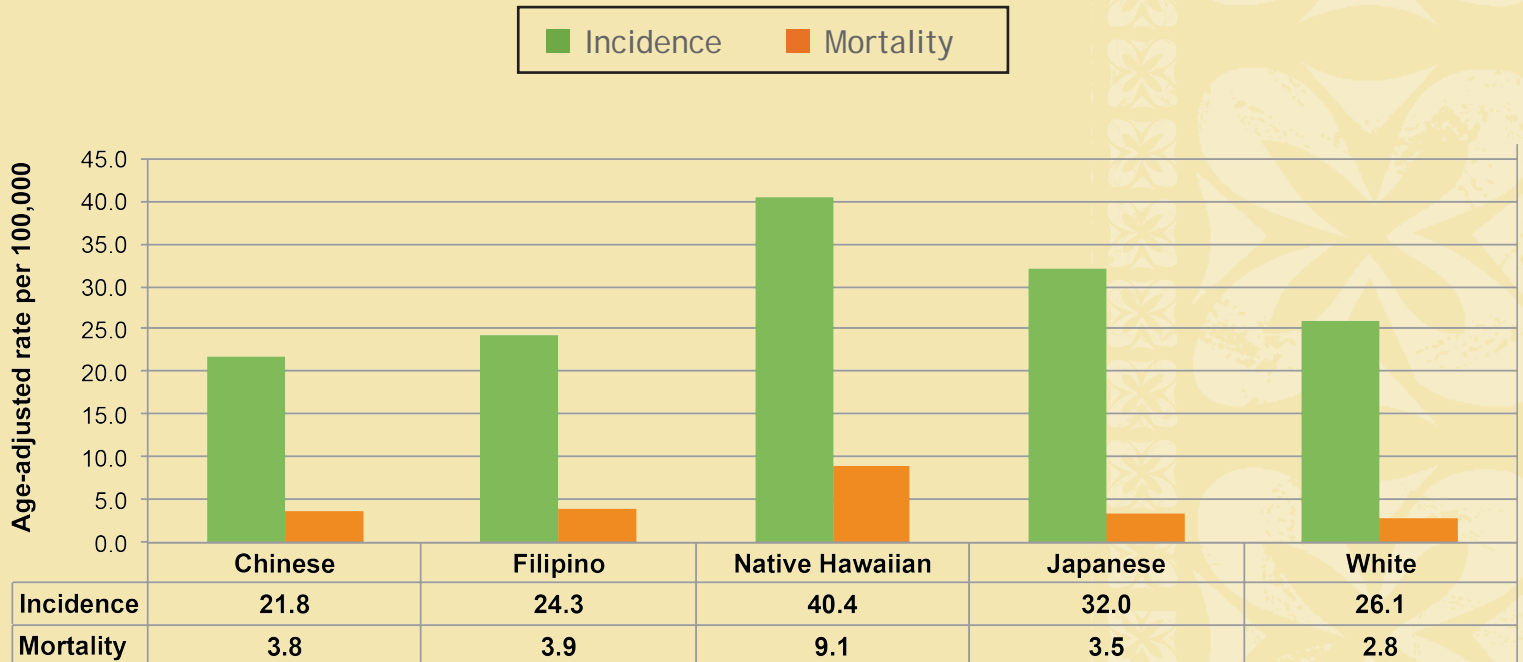
Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
All cases are invasive.  
Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.

## Thyroid Cancer Incidence & Mortality, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual & age-adjusted to the U.S. 2000 Standard Population.

## Uterus/Endometrium Cancer Incidence & Mortality, Hawai'i, 2009-2013



Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive.  
 Rates are average annual and age-adjusted to the U.S. 2000 Standard Population.



## Top Cancers in Other Racial/Ethnic Groups,

American Indian	Black	Korean
Breast (Female), Lung & Bronchus* 17 (13.4%)	Prostate 88 (24.9%)	Breast (Female) 124 (17.8%)
Pancreas 8 (6.3%)	Breast (Female) 46 (13.0%)	Lung & Bronchus 100 (14.4%)
Colon & Rectum; Melanoma of the Skin; Prostate* 7 (5.5%)	Lung & Bronchus 34 (9.6%)	Colon & Rectum 90 (12.9%)
Bladder; Non-Hodgkin Lymphoma* 6 (4.7%)	Colon & Rectum 31 (8.8%)	Prostate 48 (6.9%)
Leukemia; Thyroid; Uterus/Endometrium; Oral Cavity & Pharynx* 5 (3.9%)	Non-Hodgkin Lymphoma; Myeloma; Bladder* 15 (4.2%)	Stomach 44 (6.3%)
Other 32 (25.4%)	Other 110 (31.1%)	Other 290 (41.7%)
All Sites 127 (100%)	All Sites 354 (100%)	All Sites 696 (100%)

Source: Hawai'i Tumor Registry, University of Hawai'i Cancer Center.  
 All cases are invasive except for bladder cancer which is in situ and invasive.  
 Cancer case counts are average annual per the 5-year period, 2009-2013.  
 \*Same number of cases for all sites listed.



## Males & Females Combined, Hawai'i, 2009-2013

Micronesian	Samoaan	Vietnamese
Lung & Bronchus 52 (17.9%)	Breast (Female) 83 (15.7%)	Liver & Intrahepatic Bile Duct 21 (15.2%)
Uterus/Endometrium 29 (10.0%)	Prostate; Lung & Bronchus* 64 (12.1%)	Colon & Rectum; Breast (Female); Lung & Bronchus* 17 (12.3%)
Breast (Female) 24 (8.3%)	Uterus/Endometrium 60 (11.3%)	Thyroid 11 (8.0%)
Non-Hodgkin Lymphoma 21 (7.2%)	Colon & Rectum 44 (8.3%)	Non-Hodgkin Lymphoma 8 (5.8%)
Oral Cavity & Pharynx; Liver & Intrahepatic Bile Duct* 19 (6.6%)	Stomach 26 (4.9%)	Prostate 7 (5.1%)
Other 126 (43.4%)	Other 188 (35.6%)	Other 40 (29.0%)
All Sites 290 (100%)	All Sites 529 (100%)	All Sites 138 (100%)

