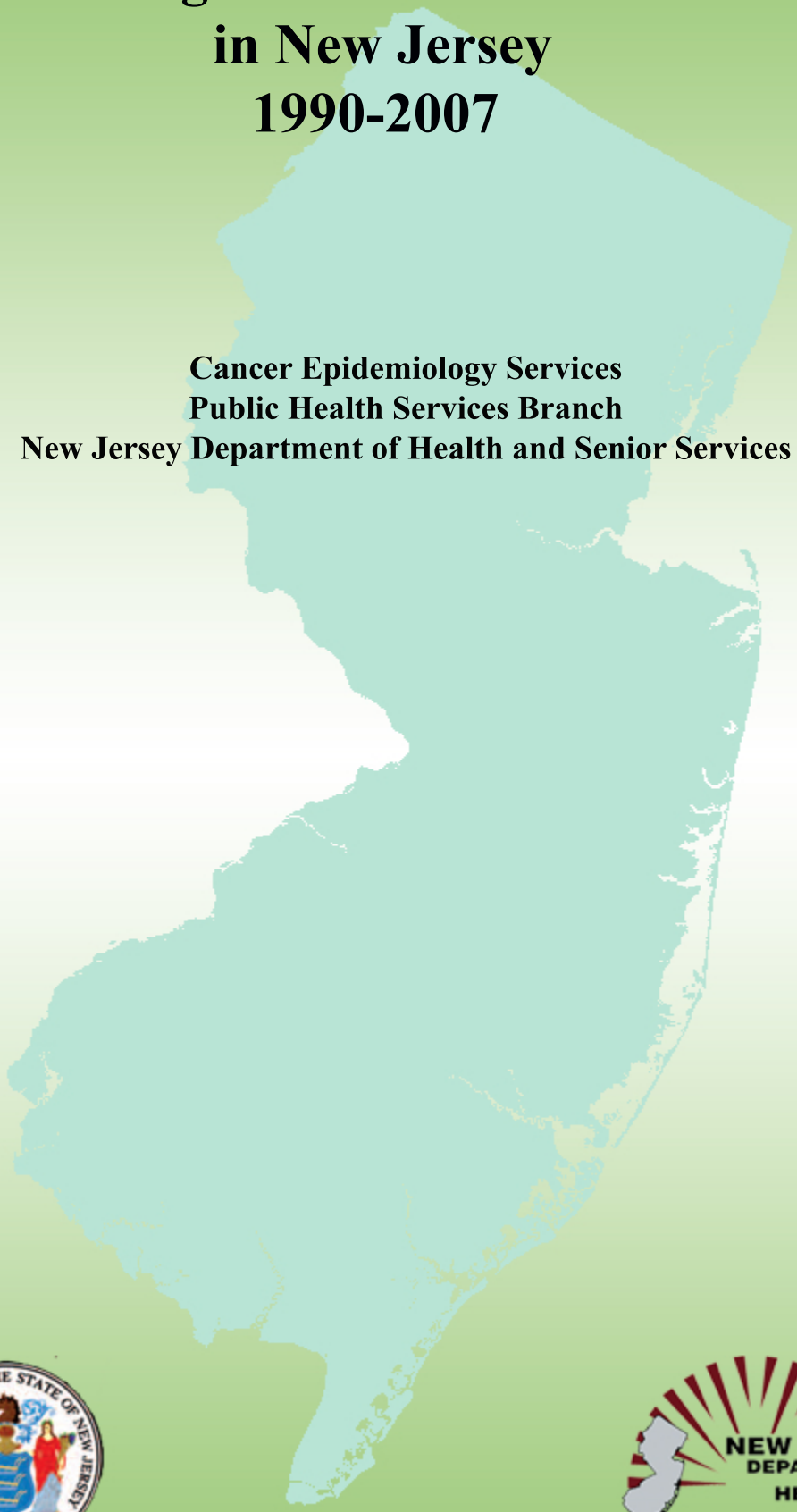
Cancer Among Asians and Pacific Islanders in New Jersey 1990-2007

Cancer Epidemiology Services
Public Health Services Branch
New Jersey Department of Health and Senior Services



Chris Christie, Governor
Kim Guadagno, Lt. Governor

Poonam Alaigh, MD, MSHCPM, FACP
Commissioner

Cancer Among Asians and Pacific Islanders in New Jersey, 1990-2007

Prepared by:
Xiaoling Niu, MS
Karen Pawlish, ScD, MPH
Stasia S. Burger, MS, CTR
Kevin A. Henry, PhD
John J. Graff, PhD, MS

Cancer Epidemiology Services
New Jersey Department of Health and Senior Services
PO Box 369
Trenton, NJ 08625-0369
(609)588-3500
cancer@doh.state.nj.us

December 2010

ACKNOWLEDGMENTS

The following staff of the New Jersey State Cancer Registry and the Cancer Surveillance Program of the Cancer Epidemiology Services were involved in the collection, quality assurance and preparation of the data on incident cases of cancer in New Jersey:

Pamela Agovino, MPH
Tara Blando, MPH
Donna Brown-Horn, CTR
Kathleen Diszler, RN, CTR
Thomas English, CTR
Lorraine Fernbach, CTR
Ruthann Filipowicz
Raj Gona, MPH, MA
Maria Halama, MD, CTR
Essam Hanani, MD, CTR
Denise Hansen
Marilyn Hansen, CTR
Joan Hess, RN, CTR
Yvette Humphries
Nicole Jackson
Jamal Johnson, CTR
Linda Johnson, CTR
Catherine Karnicky, CTR
Harrine Katz, CTR
Joan Kay, CTR
Fran Krol, CTR
Mireille Lemieux, CTR
Henry Lewis, MPH
Helen Martin, CTR
Ilsia Martin, MS
Kevin Masterson, CTR
Nicole McAnaney
Carl C. Monetti
John Murphy, CTR
Lisa Paddock, MPH
Maithili Patnaik, CTR
Theresa Pavlovcak, CTR
Gladys Pyatt-Dickson, CTR
Karen Robinson-Fraser, CTR
Lisa M. Roche, MPH, PhD
Marcelina Rosario
Antonio Savillo, MD, CTR
Suzanne Schwartz, MS, CTR
Celia Troisi, CTR
Homer Wilcox III, MS

We also acknowledge New Jersey hospitals, laboratories, physicians, dentists, and the states of Delaware, Florida, Maryland, New York, North Carolina, and Pennsylvania who reported cancer cases to the New Jersey State Cancer Registry.

Cancer Epidemiology Services, including the New Jersey State Cancer Registry, receives support from the Surveillance, Epidemiology, and End Results Program of the National Cancer Institute under contract HHSN261200544005C ADB No. N01-PC-54405, the National Program of Cancer Registries, Centers for Disease Control and Prevention under cooperative agreement 1 U58/DP000808, and the State of New Jersey.

TABLE OF CONTENTS

Introduction 1
Summary 2
Background Information on Asian and Pacific Islander Populations in New Jersey and the United States 5
Cancer Case Distribution Among API, NJ 2003-2007 8
Cancer Case Distribution Among Detailed API Groups By Time Period, NJ 1990-2007 9
Cancer Incidence Rates for API and All Races, NJ 2003-2007 10
Cancer Incidence Trends Among API and All Races, NJ 1990-2007 12
Five-Year Relative Cancer Survival Rates for Cases Diagnosed in 1990-2002 17
Stage at Diagnosis for Selected Cancers Sites for API and All Races, NJ 2003-2007 19
Cancer Mortality Rates for API and All Races, NJ 2003-2007 20
Cancer Mortality Trends Among API, NJ 1990-2007 22
Technical Notes 26
References 29
Appendix 31
Table 1a: Cancer Incidence Among API and All Races, NJ 2003-2007—Males 31
Table 1b: Cancer Incidence Among API and All Races, NJ 2003-2007—Females 32
Table 2: Five-Year Relative Cancer Survival Rates for Cases Diagnosed in NJ 1990-2002, API and All Races 33
Table 3: Cancer Mortality Rates for API and All Races, NJ 2003-2007 34
Table 4: Asian and Pacific Islander Population in New Jersey 2003-2007 35

INTRODUCTION

The goal of this report is to provide information on cancer incidence, survival, stage distribution, and mortality among the Asian and Pacific Islander (API) population in New Jersey (NJ) during the period of 1990-2007.

The cancer incidence and survival statistics are produced from the New Jersey State Cancer Registry (NJSCR), which includes all invasive cancers and bladder *in situ* cancers diagnosed during 1990-2007. Mortality data were obtained through the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute from National Center for Health Statistics (NCHS) and tabulated using SEER*Stat Version 6.62, a statistical software program distributed by the National Cancer Institute. Details on the cancer incidence data quality and method for age-adjusted rates are summarized in the technical notes in the annual report *Cancer Incidence and Mortality in New Jersey 2003-2007* (URL: http://nj.gov/health/ces/documents/report03-07.pdf). Additional NJ cancer incidence, mortality, and survival data can be found at the NJ Department of Health and Senior Services, Cancer Epidemiology Services website http://nj.gov/health/ces/index.shtml.

The most current complete available data for analysis in NJSCR is diagnosis year 2007. The mortality data are available through 2007. API population estimates became available in 1990. Data are presented here for the five-year period 2003-2007 for cancer incidence and mortality and for trends from 1990 to 2007. Five-year cancer survival rates are calculated for patients diagnosed during 1990-2002 so that all cases have at least five years of follow-up time.

In this report, we present case distributions by cancer site among total API and by detailed API race groups. The age-adjusted cancer incidence rates with 95% confidence intervals by cancer site for API and all races combined in NJ during 2003-2007 are presented in bar charts. Cancer incidence rate trends by three-year moving average centered on each year are presented for the common cancer sites for NJ API compared with the NJ general population. Relative five-year cancer survival rates and 95% confidence intervals by cancer site are also presented. Case distributions by stage at diagnosis for the four cancers, female breast, colorectal, cervical, and prostate, are presented. Finally, the NJ age-adjusted cancer mortality rates by three-year moving average centered on each year for API and all races are presented.

SUMMARY

Cancer Incidence

Between 1990 and 2007, 15,512 cancer cases were diagnosed among API populations in New Jersey, accounting for about 2% of the total cancer cases diagnosed among NJ residents. More detailed analyses were conducted for the most commonly diagnosed cancers in the NJ API population and for cancers diagnosed during 2003-2007. There were 6,449 cancers diagnosed in APIs during 2003-2007; the most commonly diagnosed cancers among males were prostate, colon and rectum (colorectal), lung and bronchus, stomach, non-Hodgkin lymphoma, liver and intrahepatic bile duct, urinary bladder, oral cavity and pharynx, and kidney and renal pelvis, and among females were breast, colorectal, thyroid, lung and bronchus, uterus, ovary, non-Hodgkin lymphoma, and stomach.

One limitation that should be considered in interpreting these data is misclassification of race, which could result in an underestimate of API incidence rates. Race information in the NJSCR is collected from medical records and is not always complete or accurate. In the NJSCR database 1.1% of the cases diagnosed in 1990-2007 were reported to be other or unknown race. Since API only account for 2% of the total cancer cases, missing race or misclassification of race may have a relatively greater effect on API cancer rates than rates for other racial groups.

Of the 6,449 API cancer cases diagnosed in NJ during 2003-2007, 30.5% were Asian Indians or Pakistanis, 22.5% were Filipinos, 20.9% were Chinese, and 13.7% were Koreans. The remaining cases included Japanese, Vietnamese, other Asians, and Pacific Islanders.

Compared to the NJ general population, NJ APIs have lower incidence rates for all cancers combined and for most types of the commonly diagnosed cancers, including prostate, breast, lung, and colorectal cancers. API males and females had higher stomach and liver cancer incidence rates than males and females of all races combined in NJ during 2003-2007.

Comparing NJ and U.S. age-adjusted cancer incidence rates using data published in *Cancer in North America* by the North American Association of Central Cancer Registries (NAACCR) for 2003-2007, NJ API males had lower rates for all cancers combined, and the commonly diagnosed cancers, including prostate, lung, and colon and rectum, and liver. The incidence rates for stomach, urinary bladder, non-Hodgkin lymphoma and thyroid cancer were higher for NJ API males than in U.S. API males. NJ API females had lower rates for all cancers combined and for the commonly diagnosed cancers including breast, lung, colon and rectum, and non-Hodgkin lymphoma. Uterine cancer and thyroid cancer incidence rates were higher for NJ API females than for the U.S. API females.

Cancer Incidence Trends from 1990 to 2007

The total cancer, colorectal and lung cancer incidence rates decreased for NJ API males and all NJ males during 1990-2007. Prostate cancer incidence rates decreased after 2002 in both groups. Stomach cancer incidence rates remained higher for API males compared to all NJ males and for API females compared to all NJ females. Stomach cancer rates fluctuated for NJ API males and

females during 1990-2007, while the rates decreased for the NJ general population during the same time period. The API female total cancer incidence rates increased from 1990 to 2000 and stabilized after 2000 and remained lower than rates for all NJ females. Differences in breast cancer incidence rates between API and all NJ females became smaller since 2000, following a decrease in breast cancer incidence in the general population. Uterine cancer incidence rates increased during 2003-2007 for API and for all NJ females. Cervical cancer incidence rates decreased for all NJ females from 1990 to 2007, while the rates for API females decreased sharply from 1997 to 2003 and increased slowly during 2003-2007.

Five-Year Relative Survival Rates

Among NJ cancer patients diagnosed during 1990-2002, the survival rates for APIs for the common cancers, including prostate, colon and rectum, and female lung, were higher but not statistically significantly different from all NJ patients. For cancers of all sites, API male cancer patients had lower five-year relative survival rates than all NJ male patients. This is due to relatively higher proportions of stomach and liver cancer among API male patients, two fatal cancers with poor survival rates. API male cancer patients had significantly higher five-year relative survival rates for oral, stomach, and lung cancer compared to all NJ male cancer patients. API female cancer patients had higher five-year relative survival rates for total cancer and breast cancer than all NJ female patients.

Stage at Diagnosis for Selected Cancers, API versus All Races

Stage is a measure of the extent of disease from the site of origin. Often, patients diagnosed with cancer at an early stage have a better chance of survival. Stage distributions were presented for four cancers for which screening tests are recommended: female breast, cervical, colorectal, and prostate cancers.

During 2003-2007, compared with all NJ patients with the same cancer, API colorectal cancer patients had a slightly lower percentage of early (*in situ* and local) stage cancer, API prostate cancer patients had a slightly higher percentage of distant stage cancer, and API female breast and cervical cancer patients had higher percentages of early stage cancer.

Mortality

There were 1,667 deaths due to cancer among the API population in NJ during 2003-2007. The most common cancer causes of death were lung, colorectal, and stomach for API men, and lung, breast, and colorectal for API women. The total cancer mortality rates for APIs were much lower than for the NJ general population. The mortality rates were lower for API men and women compared to the general NJ population for most cancer sites except stomach and liver cancer, for which the rates were higher but not statistically significant.

Comparing NJ API and the U.S. API, the cancer mortality rates were lower for all sites combined and the specific cancer causes of death, such as female breast, colorectal, lung, and prostate.

Mortality Trends

During 1990-2007 among the NJ general population and the NJ API population, the mortality rates decreased for all cancers combined and for lung (males only), colorectal, and prostate (after 1993 for API males). Breast cancer mortality rates decreased for NJ females but the rates increased for API females from 1990 to 2007. Stomach cancer mortality rates declined steadily among all NJ males and females, and also decreased among API males and females with fluctuations. Liver cancer mortality rates dropped after 2001 for API females and after 2004 for API males, while the rates for all NJ males and females increased slowly from 1990 to 2007.

Conclusions

- The most commonly diagnosed cancers among APIs were prostate, colorectal, lung, stomach, and non-Hodgkin lymphoma for males and breast, colorectal, thyroid, lung, and uterus for females.
- APIs had lower total cancer incidence rates compared to the general population in New Jersey (284.2 versus 588.2 and 251.6 versus 445.3 for male and female respectively) during 2003-2007.
- APIs also had lower incidence rates for most types of the commonly diagnosed cancers, including breast, colorectal, lung, and prostate cancers.
- APIS had higher stomach and liver cancer incidence rates.
- The most common cancer causes of death were lung, colorectal, and stomach for API men and lung, breast, and colorectal cancer for API women.
- The mortality rates for total cancer and most cancer sites were much lower than the NJ general population except that the stomach and liver cancer mortality rates for APIs were higher.

BACKGROUND INFORMATION ON ASIAN AND PACIFIC ISLANDER POPULATIONS IN NEW JERSEY AND THE UNITED STATES

Demography

Asians and Pacific Islanders are a rapidly growing segment of the U.S. population [U.S. Census Bureau (a)]. In 2009, there were an estimated 16 million Asian or Asian-American residents of the United States, comprising approximately 5.2% of the population, and an estimated 1.1 million Native Hawaiian and Other Pacific Islander (NHPI) residents, comprising 0.4% of the U.S. population. [U.S. Census Bureau (b)]. The Asian population in the United States increased by 32% between 2000 and 2009, and the NHPI population increased by 25%. In comparison, the total U.S. population grew by 9% during the same time period [U.S. Census Bureau (b)].

New Jersey had the fourth highest number of Asian residents in the United States, after California, New York, and Texas. In 2009, there were an estimated 730,990 Asian or Asian-American residents of NJ, comprising approximately 8.4% of the population. This number included 683,454 residents who said that they were Asian alone and 47,536 residents who said that they were Asian in combination with one or more other races. There were an estimated 15,317 NJ residents who said that they were NHPI, either alone or in combination with one or more other races, comprising 0.2% of the NJ population [U.S. Census Bureau (c)]. The Asian and NHPI populations in NJ increased by 38% and 40% respectively between 2000 and 2009 [U.S. Census Bureau (c)].

Note that the Asian (in combination with one or more other races) population and the NHPI (in combination with one or more other races) population are not mutually exclusive, as some individuals identified themselves as both Asian and NHPI. The question on race for the U.S. 2000 Census was different from previous versions, and individuals had the option of selecting one or more race categories to describe themselves for the first time [Grieco 2001].

Age Distribution of the Asian and Pacific Islander Populations in New Jersey

The Asian and Pacific Islander **(**API) populations are younger on average than the general population in NJ. In 2008, the median ages of the single-race Asian and single-race NHPI populations in NJ were 36.0 and 30.6 years respectively, compared to 38.7 years for the total population in the state [U.S. Census Bureau (d)]. The proportion of the single-race Asian population in NJ under 18 years of age was similar to the proportion of the total NJ population in this age group in 2008 (23.9% vs. 23.6%). However, the proportion of persons aged 65 or older was lower in the single-race Asian population (7.6%) than in the total NJ population (13.2%) [U.S. Census Bureau (e)].

Composition of the Asian and Pacific Islander Populations in New Jersey and the United States

The API populations in the United States are heterogeneous and include many groups of people who differ in terms of language, culture, length of residence in the United States [Reeves, 2004], and certain behavioral risk factors for cancer such as prevalence of cigarette smoking [Raz,

2008]. Chinese-Americans are the largest Asian group in the United States, followed by Filipinos, Asian Indians, Vietnamese, Koreans, and Japanese [Reeves, 2004]. Based on the 2000 Census, the single-race Asian population in the United States was approximately 23% Chinese, 19% Filipino, 17% Asian Indian, and 11% Vietnamese. The distribution of Asian subgroups in New Jersey differs from that of the total U.S. The most common Asian subgroup in New Jersey is Asian Indian, comprising approximately 36% of the single-race Asian population in 2000, followed by Chinese (20%), Filipino (18%), Korean (14%), Vietnamese (3%), and Japanese (3%) [U.S. Census Bureau (f)]. The proportion of single-race Asian residents of NJ who were foreign born (75%) is higher than the corresponding proportions among all residents of NJ (18%) or single-race Asian residents of the U.S. (69%) [U.S. Census Bureau (g)].

Native Hawaiians are the largest NHPI group in the United States, followed by Samoans, Guamanians or Chamorros, Tongans, Fijians, and Marshallese [Harris 2005]. In NJ, the largest group of individuals who reported one NHPI category only in 2000 was Guamanian or Chamorro, followed by Native Hawaiian and Samoan [U.S. Census Bureau (f)]. The proportion of single-race NHPI residents of NJ who were foreign born (29%) is higher than the corresponding proportions among all residents of NJ (18%) or single-race NHPI residents of the United States (20%) [U.S. Census Bureau (g)].

Socioeconomic Status of API in New Jersey

In New Jersey, 6.8 percent of single-race Asian individuals were living in poverty in 1999, compared with 8.5 percent of all NJ residents and 12.6 percent of single-race Asian residents in the United States, based on data from the 2000 Census. The median household income for single-race Asians in NJ in 1999 ($72,224) was higher than the median for all N.J. households combined ($55,146) and for single-race Asian householders in the United States ($51,908) [U.S. Census Bureau (g)]. The Asian population in NJ is highly educated. In 2000, the proportion of single-race Asians aged 25 years and older in NJ who had earned at least a high school diploma was 88.5%, compared to 82.1% of all NJ residents. A higher proportion of single-race Asians had earned at least a Bachelor's degree (62.1%), compared to the proportion of all NJ residents (29.8%) or the proportion of single-race Asian residents of the United States (44.1%) [U.S. Census Bureau (g)].

Based on data from the 2000 Census, approximately 17.1 percent of single-race NHPI residents in NJ were living in poverty in 1999, compared with 8.5 percent of all NJ residents and 17.7 percent of single-race NHPI residents of the United States. The median household income for single-race NHPI householders in NJ in 1999 ($56,080) was slightly higher than the median for all NJ households combined ($55,146) and higher than the median for single-race NHPI householders in the U.S. ($42,717) [U.S. Census Bureau (g)]. The proportion of single-race NHPI residents aged 25 years and older in NJ in 2000 who had earned at least a high school diploma (68.7%) was lower than the corresponding proportions of all NJ residents (82.1%) and of single-race NHPI residents in the U.S. (78.3%). The proportion of single-race NHPI residents in NJ who had earned at least a Bachelor's degree (21.7%) was lower than the corresponding proportion of all NJ residents (29.8%), but higher than the corresponding proportion of U.S. single-race NHPI residents (13.8%) [U.S. Census Bureau (g)].

Behavioral Risk Factors in the API Populations of New Jersey

Cigarette smoking is the major cause of lung cancer and is also associated with increased risk for other types of cancer, including cancers of the oral cavity and pharynx, larynx, esophagus, pancreas, uterine cervix, kidney, bladder, and stomach, as well as acute myeloid leukemia [ACS 2010]. According to the 2005 New Jersey Behavioral Risk Factor Surveillance Survey (NJ BRFSS), the percentage of current smokers among non-Hispanic Asian residents of NJ was much lower than other racial/ethnic groups (8.2% of Asian males vs. 19.1% of all NJ males; 2.2% of Asian females vs. 16.6% of all NJ females) [CDC 2005].

Alcohol consumption is a risk factor for cancers of the mouth, pharynx, esophagus, larynx, liver and breast [ACS 2010]. The percentage of NJ non-Hispanic Asian residents who reported heavy drinking (average of more than 25 drinks per month) was lower compared to other groups (7.3% of Asian males vs. 17.8% of all NJ males; 1.7% of Asian females vs. 7.4% of all NJ females), according to NJ BRFSS data [CDC 2005].

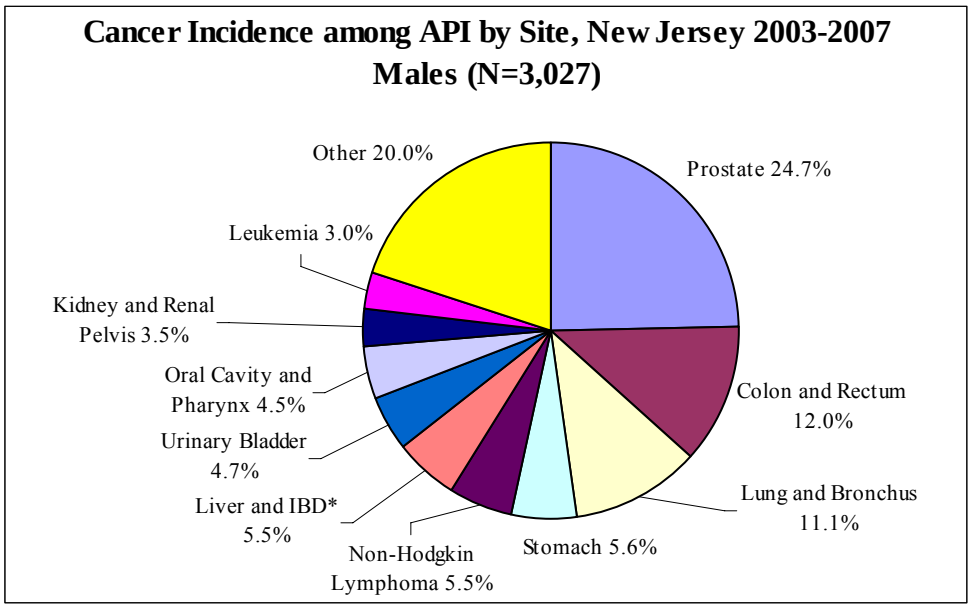
Obesity is associated with increased risk for developing cancers of the breast (in post-menopausal women), colon, endometrium, and kidney, and adenocarcinoma of the esophagus. There is also evidence that obesity increases the risk for other types of cancer, including cancers of the cervix, gallbladder, ovary, pancreas, and thyroid, as well as multiple myeloma and Hodgkin lymphoma [ACS 2010]. The percentage of NJ non-Hispanic Asian residents who reported being obese or overweight (body mass index ≥ 25) was much lower compared to other groups (34.5% of Asian males vs. 66.8% of all NJ males; 28% of Asian females vs. 51.6% of all NJ females) [CDC 2005].

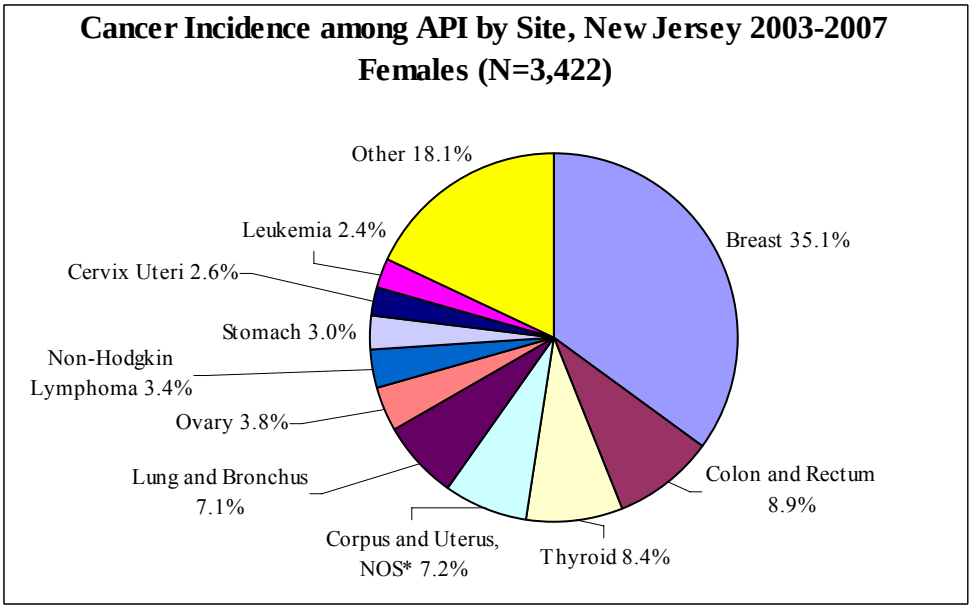
NJ BRFSS data on smoking and other behavioral risk factors in NHPI were not available due to small numbers.

Although APIs had lower incidence rates for many types of cancer compared to the general population in both NJ and the U.S., stomach and liver cancer incidence rates were higher in APIs [Copeland et al. 2010]. Chronic infection with the bacterium *Helicobacter pylori* is a major risk factor for stomach cancer, and the risk is believed to be higher for persons who are infected at a young age [Shibata and Parsonnet 2006]. The prevalence of *Helicobacter pylori* infection is reported to be higher in some Asian countries than in the U.S. [de Martel and Parsonnet 2006], and the majority of API in New Jersey are foreign-born [U.S. Census Bureau (g)]. Exposure to *Helicobacter pylori* early in life in their countries of origin is a possible explanation for the increased risk for stomach cancer among API immigrants [Miller et al. 2008]. In addition, dietary factors, such as increased consumption of salted foods among some API populations, may also play a role [Shibata and Parsonnet 2006].

Infections with hepatitis B and C viruses are established causes of liver cancer, and higher prevalence of these infections in some Asian countries may influence risk for liver cancer in API immigrants to the U.S. [Miller et al. 2008].

CANCER CASE DISTRIBUTION AMONG API, NEW JERSEY 2003-2007



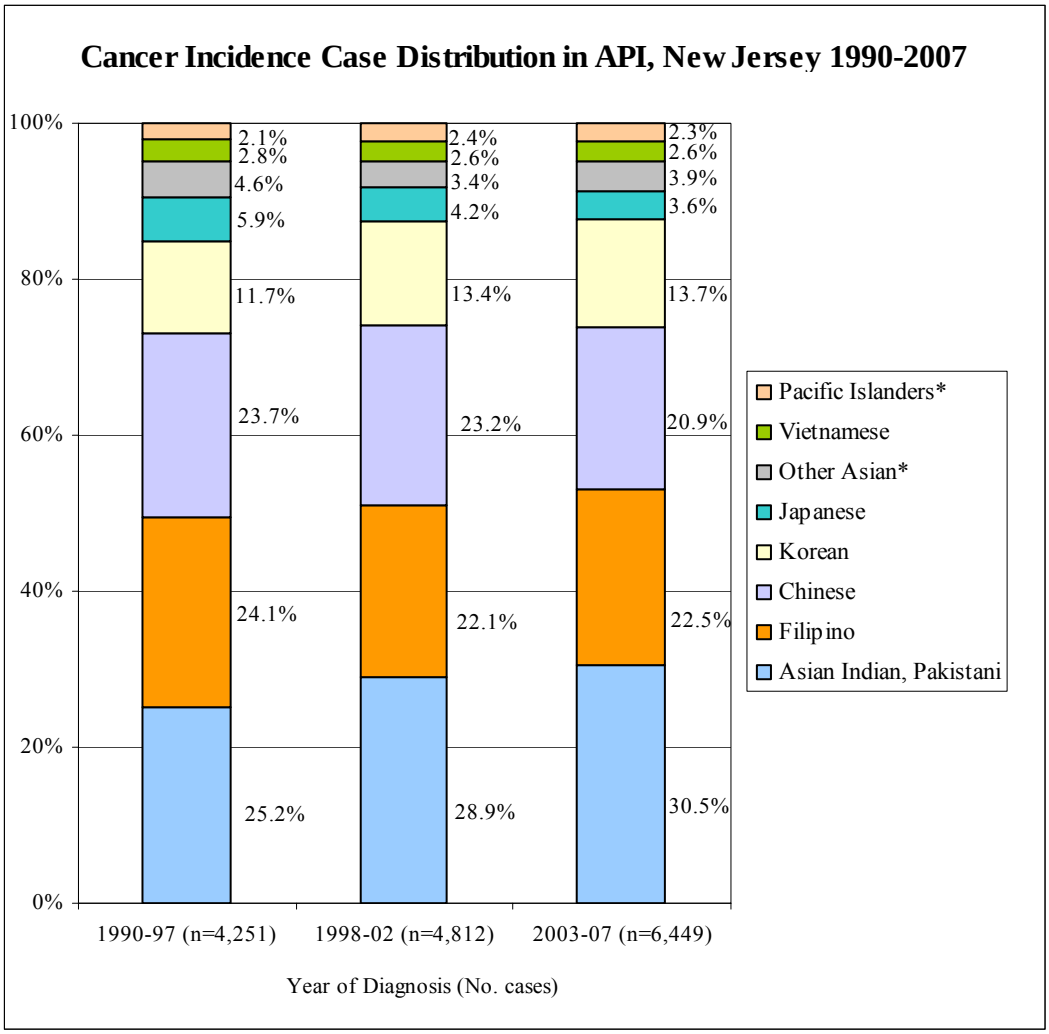


*IBD=Intrahepatic Bile Duct; NOS=Not Otherwise Specified.
Only invasive cases are included except bladder *in situ*. Percentages may not add to 100 due to rounding.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- The most common cancers diagnosed in API males were prostate (24.7%), colorectal (12.0%), lung (11.1%), stomach (5.6%), non-Hodgkin lymphoma (5.5%), and liver and intrahepatic bile duct (5.5%).

- The most common cancers diagnosed in API females were breast (35.1%), colon and rectum (8.9%), thyroid (8.4%), uterine (7.2%) and lung (7.1%).

CANCER CASE DISTRIBUTION AMONG DETAILED API GROUPS BY TIME PERIOD, NEW JERSEY 1990-2007

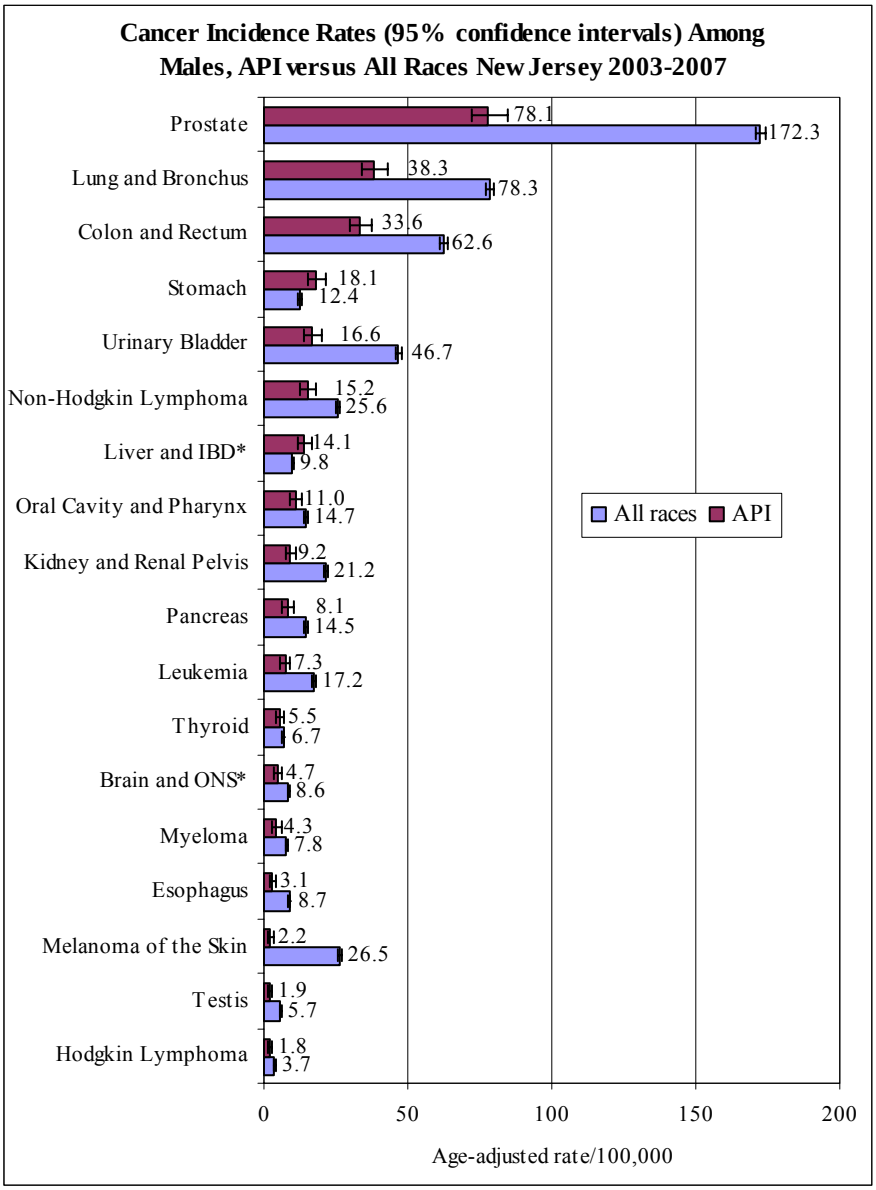


*Other Asian includes Laotian, Hmong, Kampuchean, Thai, and other/not specified Asian. Pacific Islander includes Hawaii, Micronesian, Chamorran, Guamanian, Polynesian, Samoan, Tongan, Melanesian, Fiji Islander, New Guinean, and other/not specified Pacific Islander. NAACCR Asian and Pacific Islander Identification Algorithm was used to recode other Asian to more specific Asian race categories based on birthplace and name.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- Among the 6,449 API cancer cases diagnosed in NJ during 2003-2007, 30.5% were Asian Indians or Pakistanis, 22.5% were Filipinos, 20.9% were Chinese, and 13.7% were Koreans.

- The total API cancer cases increased from 4,251 during 1990-1997 to 6,449 during 2003-2007. Among the total API cancer cases, the proportions of Asian Indians and Pakistanis had the largest increase from the time period 1990-1997 to the time period 2003-2007.

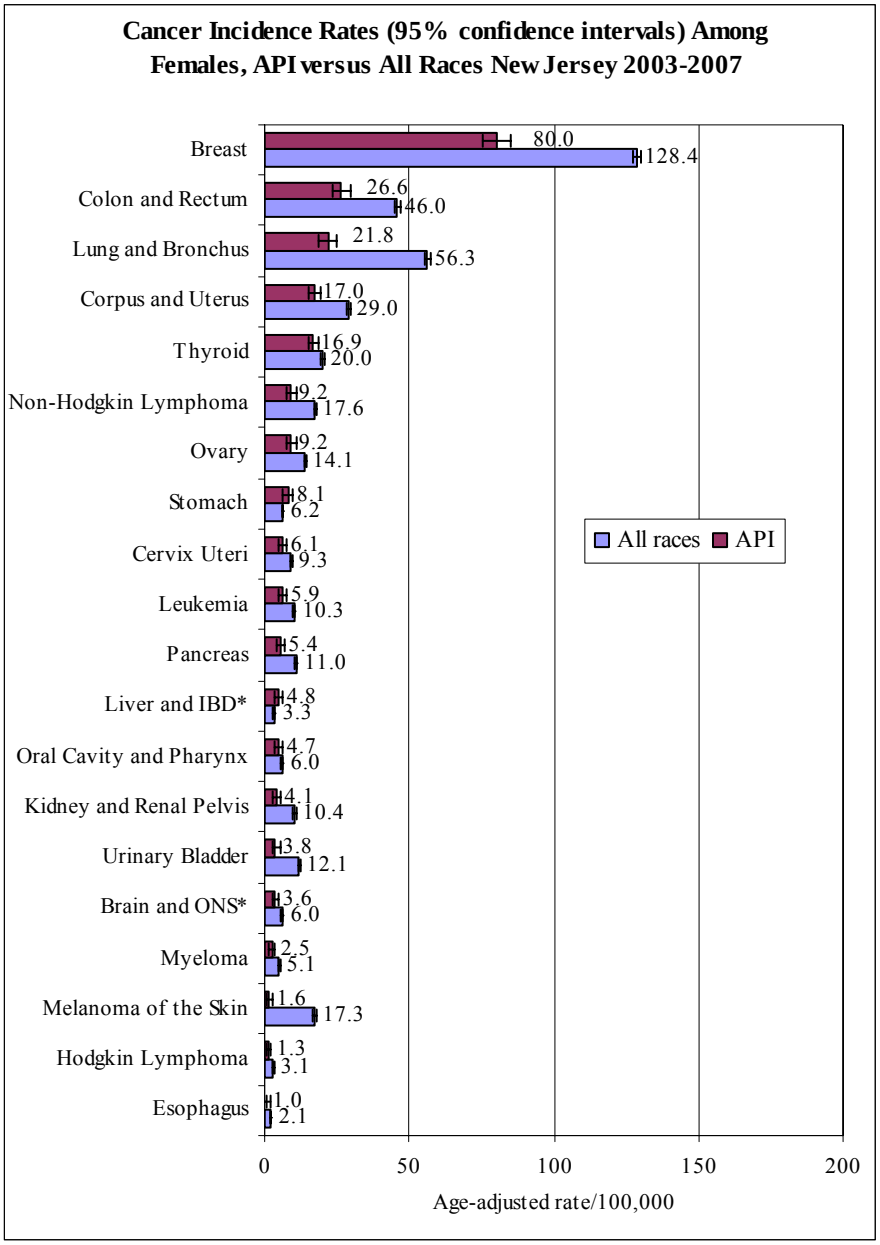
CANCER INCIDENCE RATES FOR API AND ALL RACES NEW JERSEY 2003-2007--Males



*IBD=Intrahepatic Bile Duct; ONS=Other Nervous System.
Only invasive cases are included except bladder *in situ*. Rates are age-adjusted to the 2000 U.S. standard population.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- The total cancer incidence rate for API males was 296.1 per 100,000 compared with 588.2 per 100,000 in NJ males of all races during 2003-2007 (Appendix Table 1a).
- Age-adjusted cancer incidence rates for API males were lower than for all NJ men for most cancers except that rates for stomach cancer and liver cancer were higher among API males.
- The age-adjusted prostate cancer incidence rate for API males (78.1 per 100,000) was much lower than the rate among all NJ males (172.3 per 100,000).

NEW JERSEY 2003-2007--Females

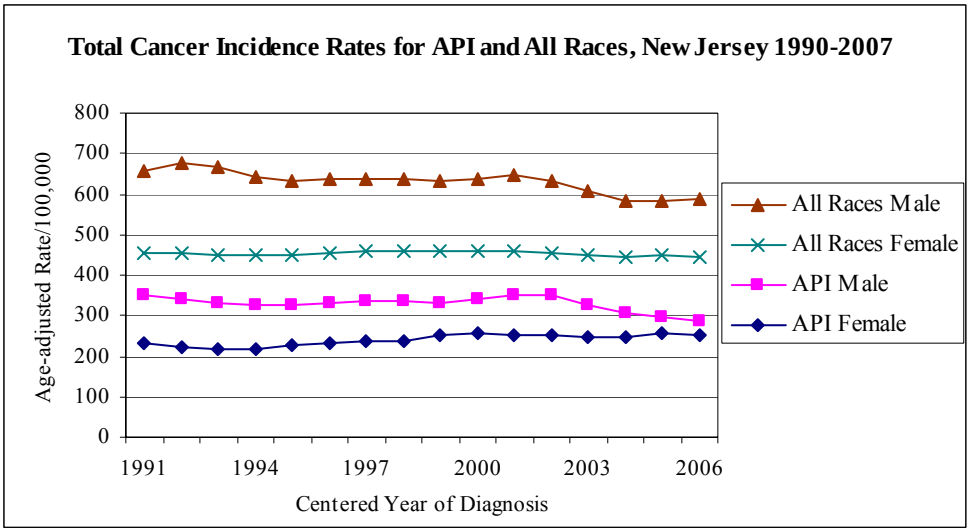


*IBD=Intrahepatic Bile Duct; NOS= Not Otherwise Specified; ONS=Other Nervous System.
Only invasive cases are included except bladder *in situ*. Rates are age-adjusted to the 2000 U.S. standard population.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- The total cancer incidence rate for API females was 251.6 per 100,000 compared with 445.3 per 100,000 for NJ females of all races during 2003-2007 (Appendix Table 1b).
- Age-adjusted cancer incidence rates for API females were lower than for all NJ females for most cancers except that the rates for stomach cancer and liver cancer were higher among API females.
- The age-adjusted breast cancer incidence rate was 80.0 per 100,000 API females compared with 128.4 per 100,000 in NJ females of all races.

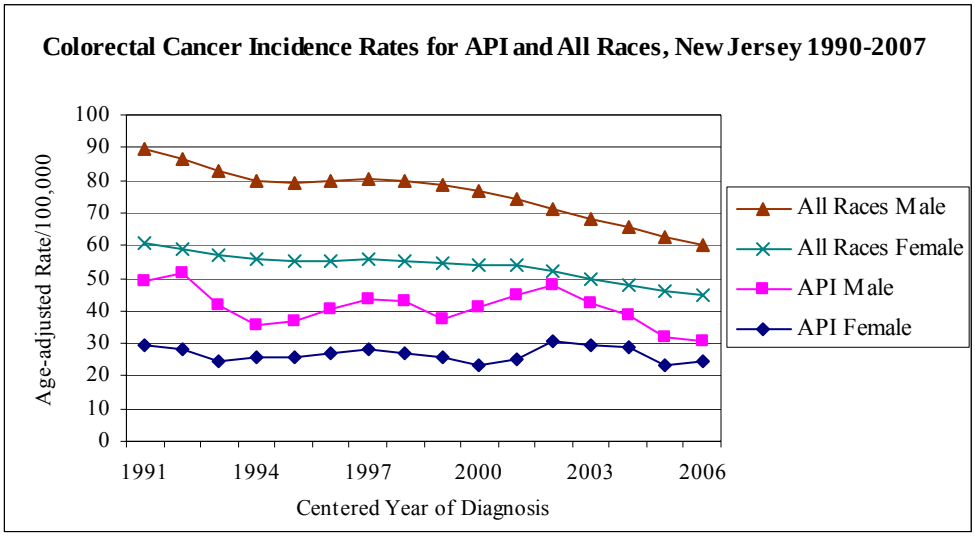
CANCER INCIDENCE TRENDS AMONG API AND ALL RACES NEW JERSEY 1990-2007

The total cancer cases diagnosed among API in NJ increased from 348 in 1990 to 1,374 in 2007 corresponding to the API population increase. This section presents the cancer incidence trends using three-year moving average rates centered on each year from 1991 (representing 1990-1992) to 2006 (representing 2005-2007). Three-year average rates are presented to reduce the amount of random fluctuation with small numbers of API cases.



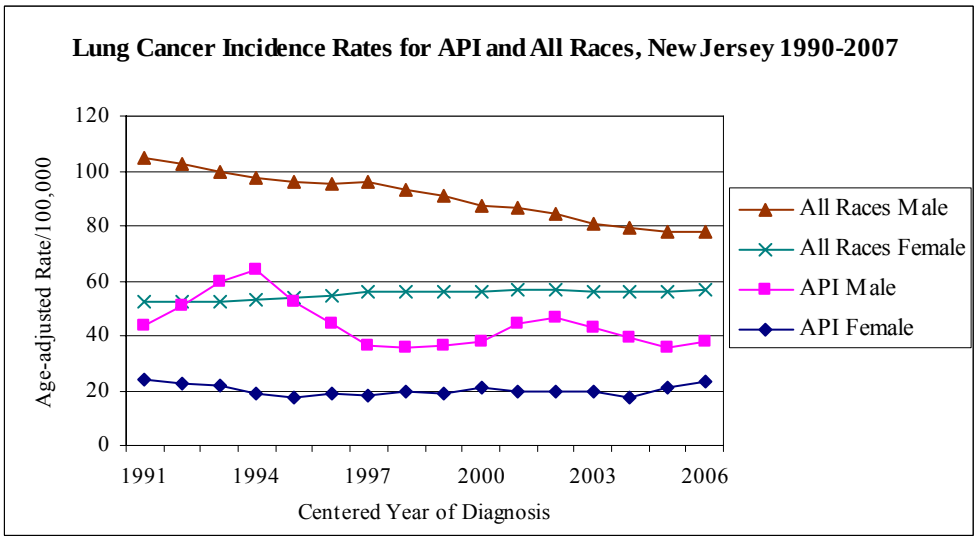
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- In NJ, the total cancer incidence rates decreased for API males and all NJ males from 1990 to 2007. The incidence rates for API females increased from 1990 to around 1999 and remained stable during 2000-2007, while no significant decrease was observed for the NJ female general population.



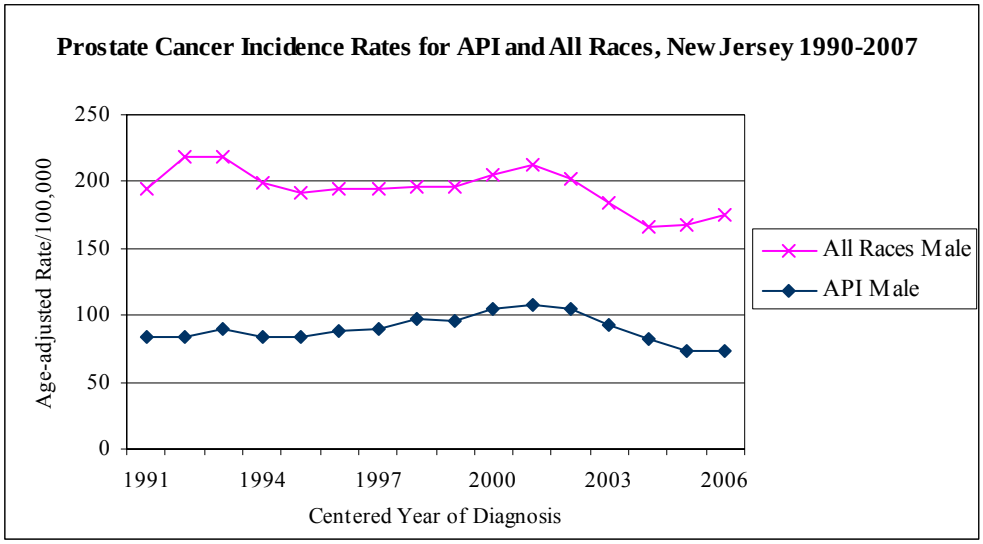
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- The colon and rectum (colorectal) cancer incidence rates decreased from 1990 to 2007 for both males and females in the NJ total population.
- Colorectal cancer incidence rates for NJ API were lower than for the general NJ population. The rates fluctuated during 1990-2002 and decreased from 2003 to 2007.



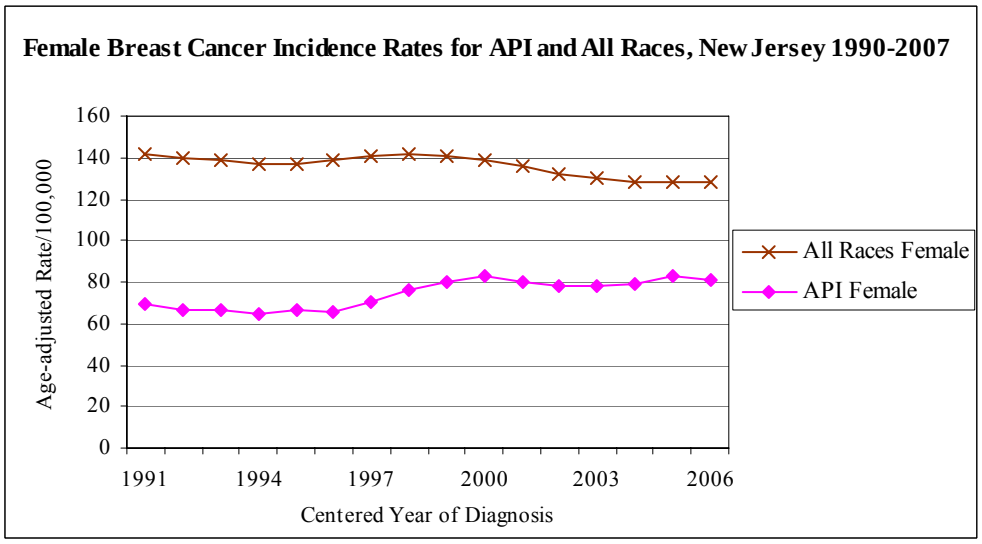
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- The lung cancer incidence rates were lower for the API population than for the NJ general population during 1990-2007.
- Lung cancer incidence rates decreased for all NJ males, with fluctuations and a decrease after 2003 for API males. NJ female lung cancer incidence rates slightly increased from 1990 to 1996 and then stabilized, while rates for API females fluctuated.



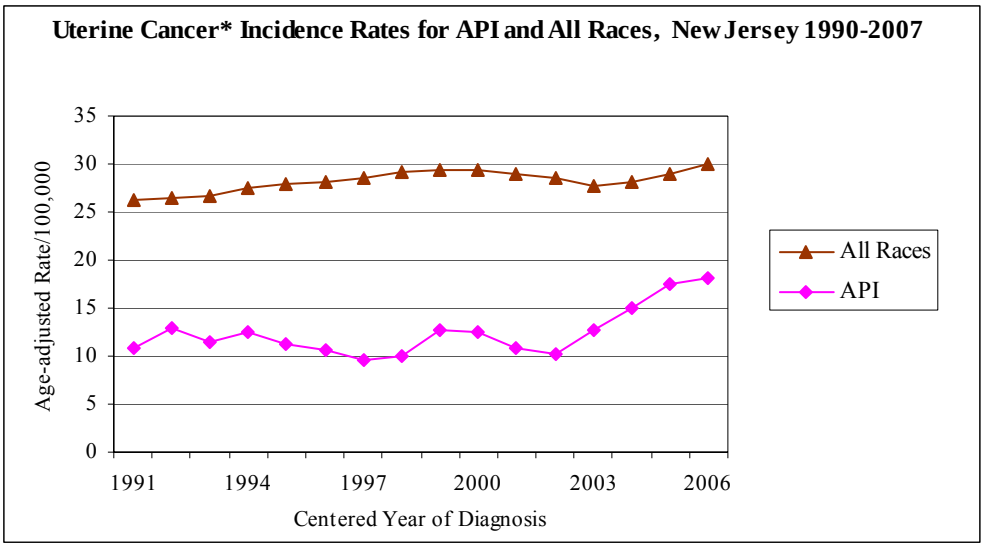
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- The prostate cancer incidence rates for API males were consistently lower and followed the same trend as the general male population in NJ during 1990-2007.



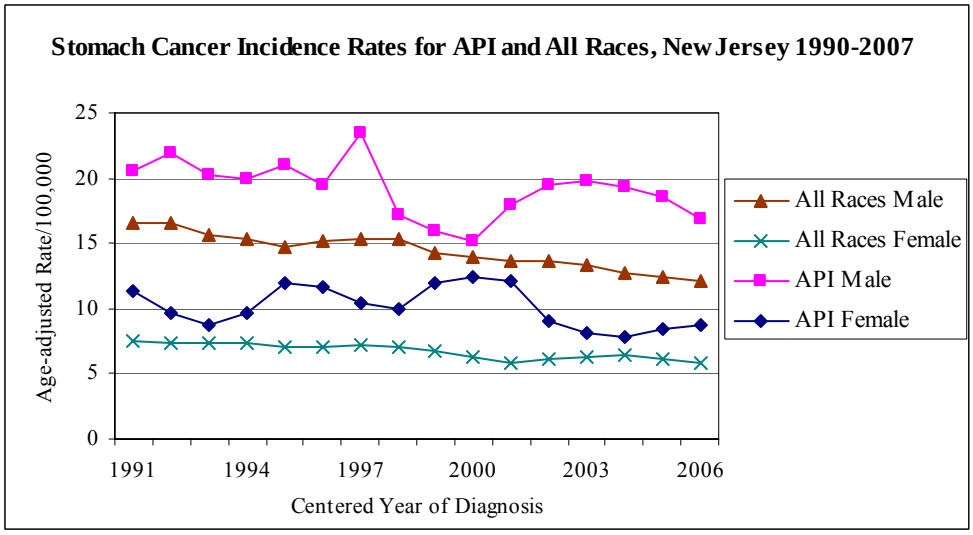
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- Among all NJ females, breast cancer incidence rates were relatively stable from 1990 to 2000 and then decreased during 2002-2007. The rates for NJ API females increased from 1996 to 2000 and remained around 80 per 100,000 during 2001-2007. The differences in incidence rates between API and all NJ females became smaller since 2000.



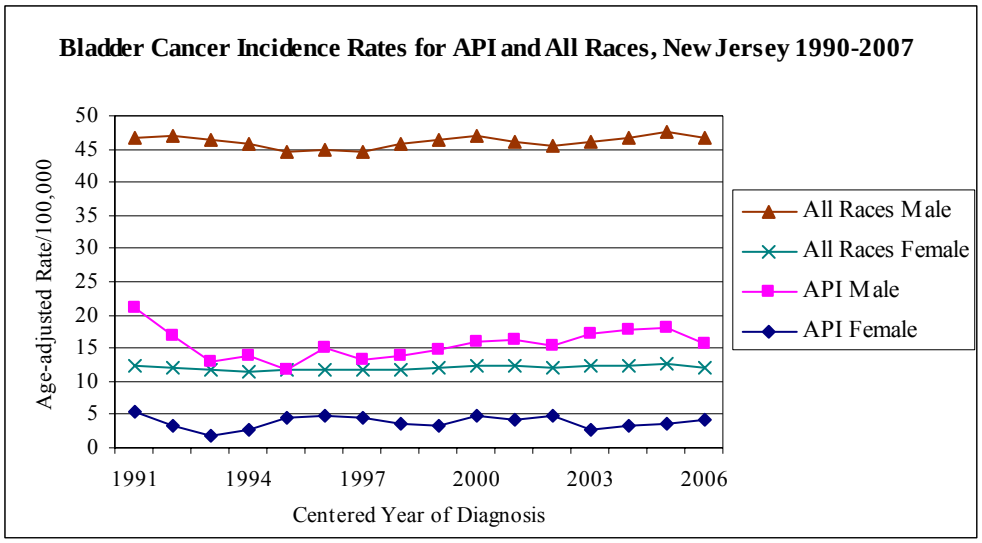
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.
*Includes cancers of the corpus and uterus, NOS.

- Among all NJ females, uterine cancer incidence rates increased during 1990-1999, decreased during 1999-2002 and increased again during 2003-2007.
- Among API females, the rates fluctuated during 1990-2002 and rapidly increased during 2002-2007.



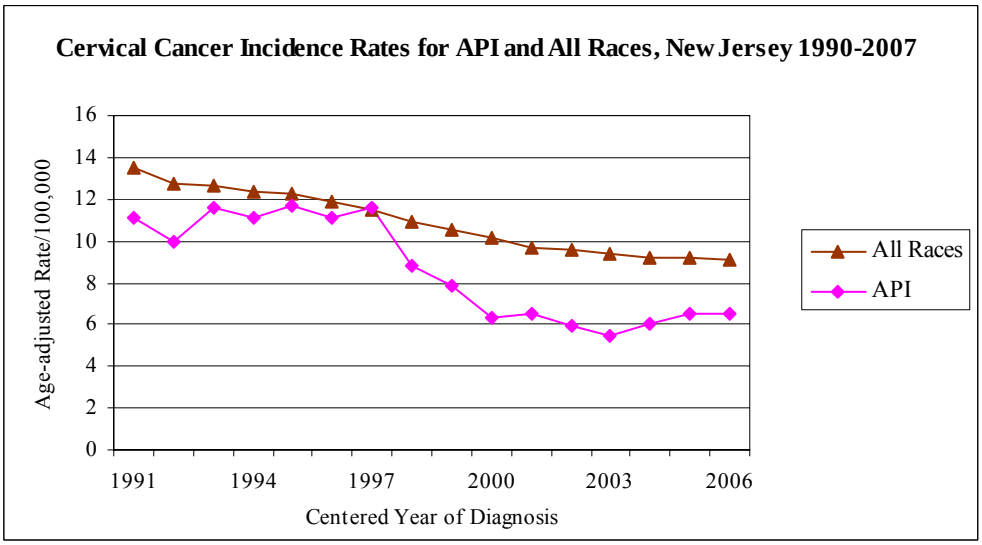
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- The stomach cancer incidence rates decreased for the general NJ male and female populations during 1990-2007 and tended to decrease among API males and females, with fluctuations. The rates were highest among NJ API males, followed by all NJ males, then API females, and were lowest among all NJ females.



Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- Bladder cancer incidence rates were relatively stable for the NJ general population but with greater fluctuation in API during 1990-2007. Rates were much lower for females than males and for API compared to the general population.

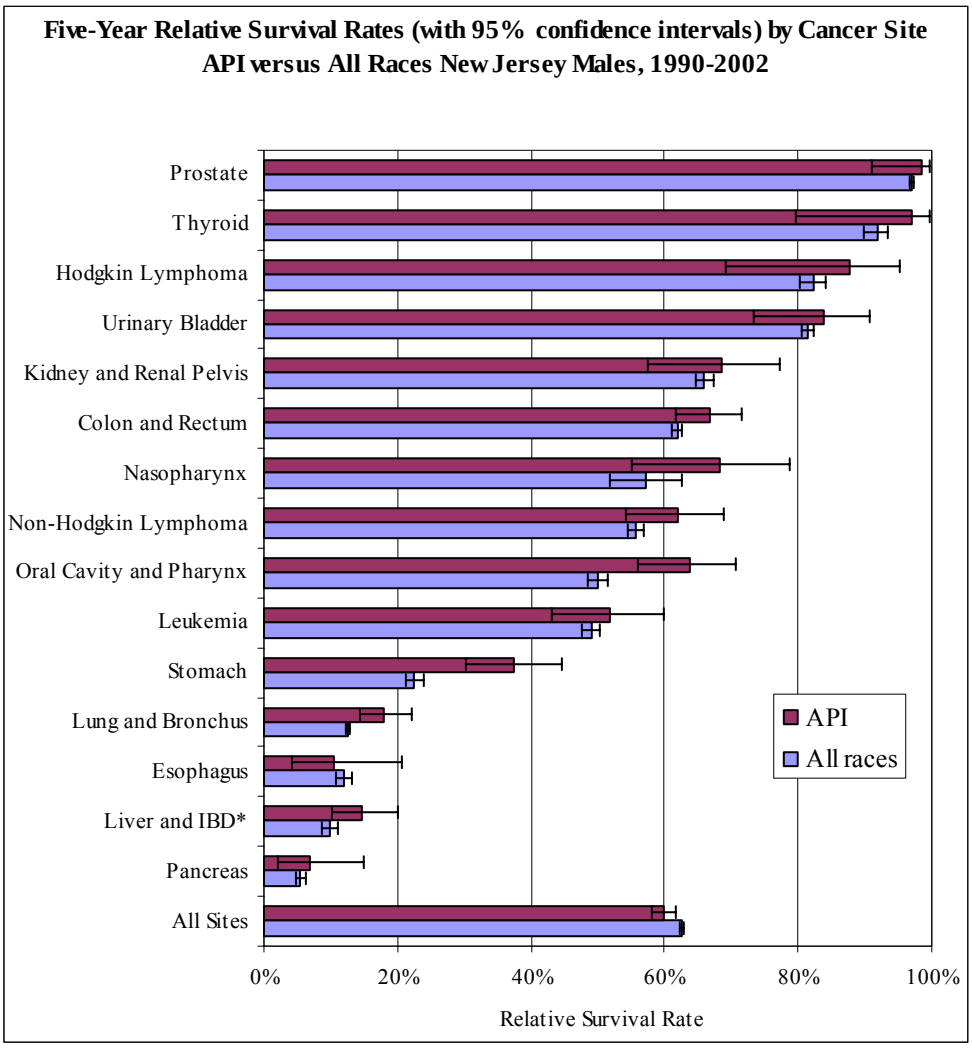


Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- Cervical cancer incidence rates decreased for all NJ females during 1990-2007. The rates for API females decreased sharply from 1997 to 2003 and increased slowly during 2003-2007.

FIVE-YEAR RELATIVE CANCER SURVIVAL RATES FOR CASES DIAGNOSED IN 1990-2002

Males

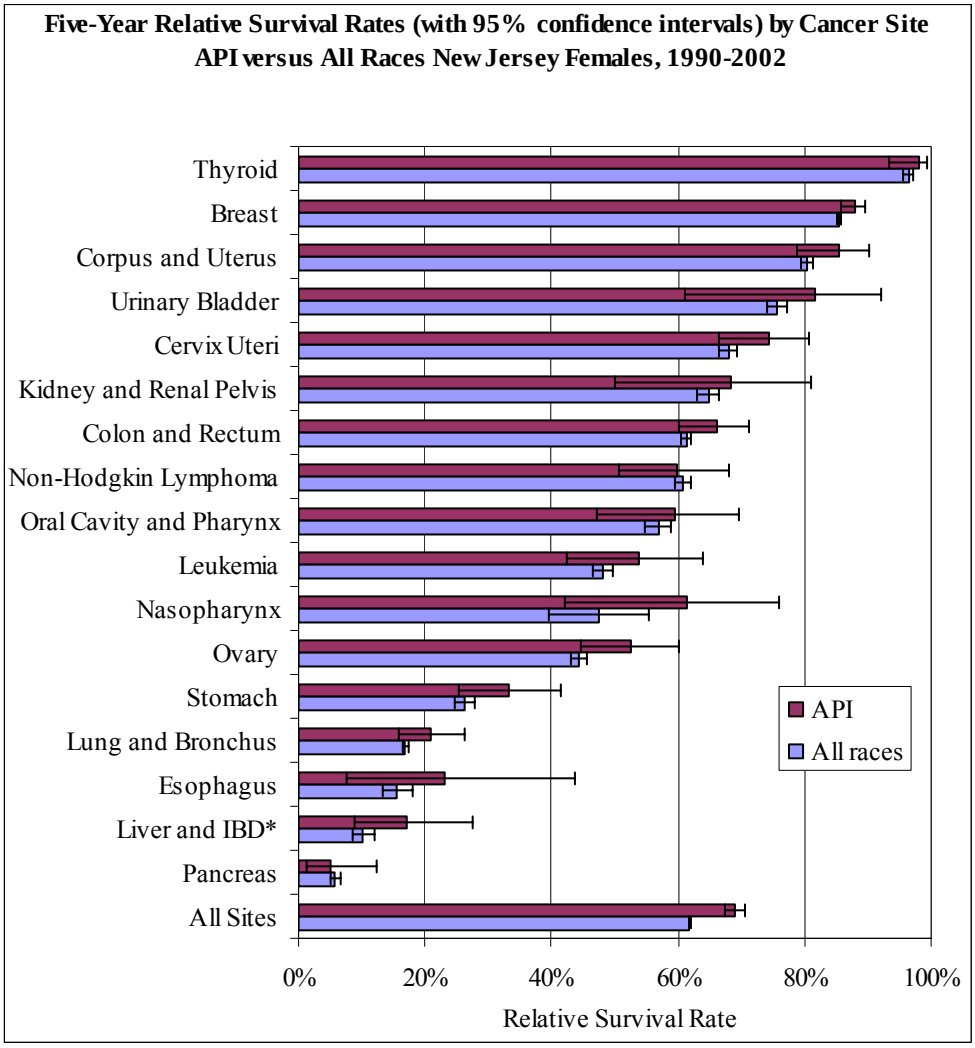


The survival rates were based on all first primary and invasive cancers with vital status followed through 2007.
*IBD=Intrahepatic Bile Duct.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- The five-year total cancer survival rate was lower for NJ API males than for all NJ males for cancers diagnosed during 1990-2002. The larger proportions of liver and stomach cancer cases resulted in the lower all-site cancer survival rates for API males.

- The five-year relative survival rates for oral, stomach and lung cancer were significantly higher for API males than for all NJ males. The survival differences between API and all NJ males for other selected cancers were not statistically significant.

Females



The survival rates were based on all first primary and invasive cancers with vital status followed through 2007.
*IBD=Intrahepatic Bile Duct; NOS=Not Otherwise Specified.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- The five-year relative survival rates for all sites and breast cancer were higher for NJ API females than for the all NJ females. The survival differences for other selected cancers were not statistically significant.

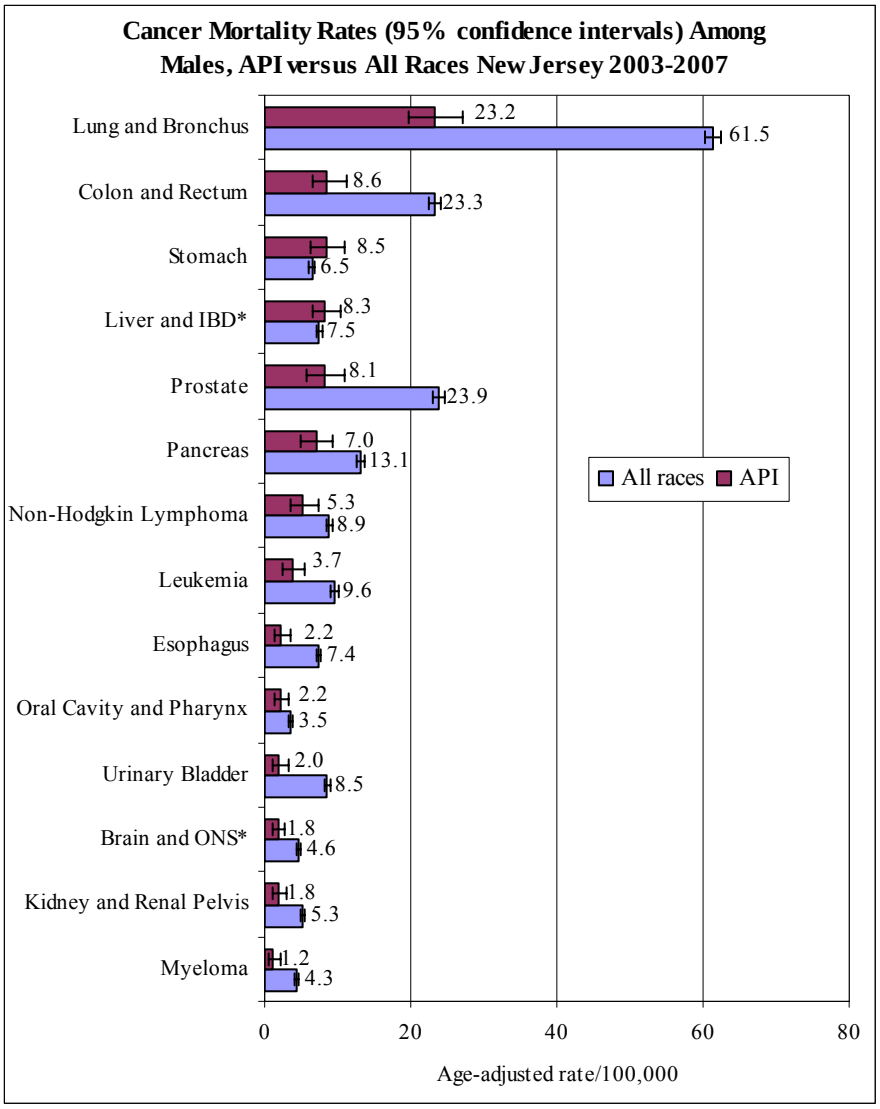
STAGE AT DIAGNOSIS FOR SELECTED CANCERS SITES FOR API AND ALL RACES, NEW JERSEY 2003-2007

Cancer Site	Race/Sex Group	*In situ* %	Local %	Regional %	Distant %	Unstaged %	Total Count
Colorectal	NJ Males	9.8%	34.8%	32.4%	16.2%	6.8%	13,605
	API Males	6.7%	34.7%	35.0%	17.0%	6.7%	389
	NJ Females	7.9%	33.9%	34.1%	16.3%	7.9%	13,489
	API Females	8.7%	29.6%	38.8%	15.5%	7.5%	335
Breast	NJ Females	22.2%	46.4%	24.0%	4.7%	2.7%	41,775
	API Females	26.5%	42.6%	25.2%	4.2%	1.5%	1,633
Prostate*	NJ Males	*	84.1%	7.4%	3.4%	5.1%	34,870
	API Males	*	82.5%	9.5%	3.9%	4.1%	750
Cervical*	NJ Females	*	43.9%	37.5%	10.9%	7.7%	2,196
	API Females	*	49.4%	34.8%	7.9%	7.9%	89

* *In situ* prostate cases were combined with local stage cases; Cervical *in situ* cases were not reportable.

- In NJ during 2003-2007, API colorectal cancer patients had a slightly lower percentage of early (*in situ* and local) stage cancers compared with the total colorectal cancer patients.
- Of NJ API females diagnosed with breast cancer during 2003-2007, 69.1% were diagnosed at earlier stage (*in situ* and local together) compared with 68.6% for all NJ women diagnosed during the same period.
- The proportion of API prostate cancer patients diagnosed with local stage cancer was slightly lower compared with the total NJ prostate cancer patients (82.5% versus 84.1%) diagnosed during 2003-2007.
- Among NJ women diagnosed with cervical cancer during 2003-2007, API patients had a higher percentage of local stage compared with the total NJ cervical cancer patients.

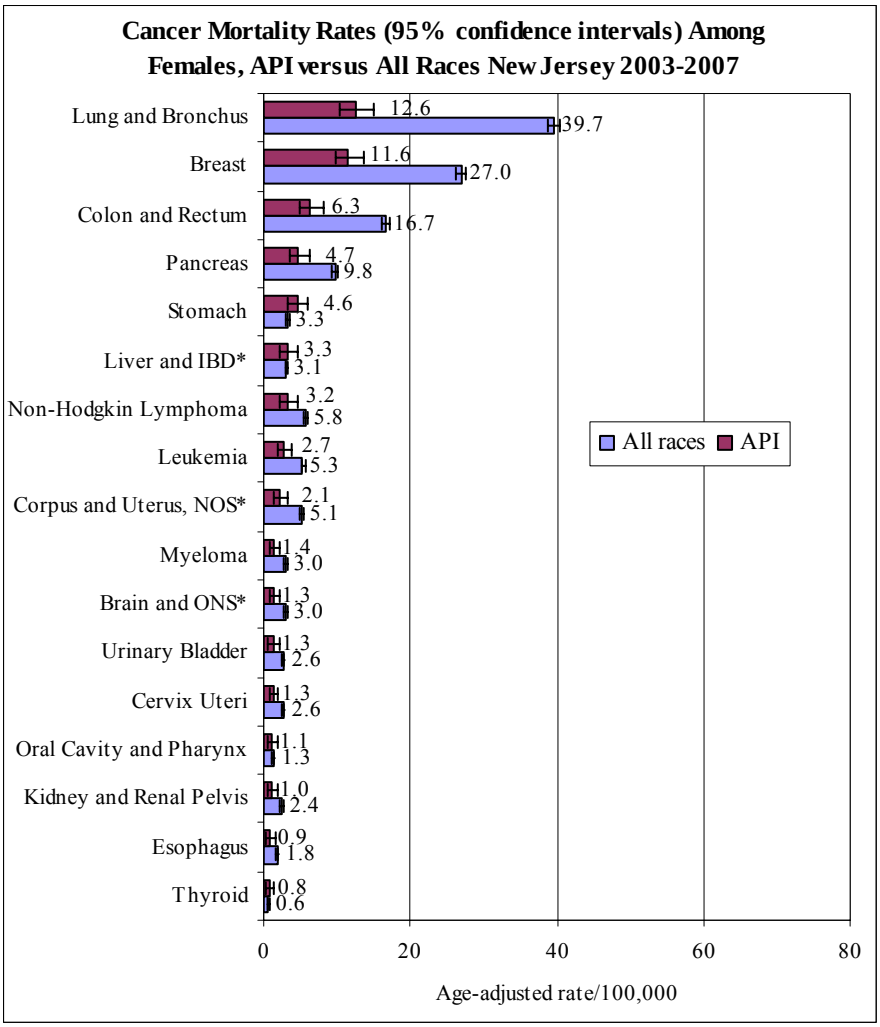
CANCER MORTALITY RATES IN API AND ALL RACES, NEW JERSEY 2003-2007
Males



Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population; Confidence intervals (Tiwari mod) are 95% for rates.
* IBD=intrahepatic bile duct. ONS=other nervous system.
Data source: Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

- In NJ during 2003-2007, there were 1,677 cancer deaths among the NJ API population, 855 among males and 822 among females (Appendix Table 3).
- The total cancer mortality was lower for API males (99.2 per 100,000) than for all NJ males (222.5 per 100,000) (Appendix Table 3).
- The most common cancer causes of death for API males were lung, colorectal, stomach, liver, and prostate. The most common cancer causes of death in NJ males were lung, prostate, colorectal, pancreas, and leukemia.
- The cancer mortality rates for most cancer sites were lower for API males except for stomach and liver cancer, for which the rates were higher for API but not statistically significant.

Females

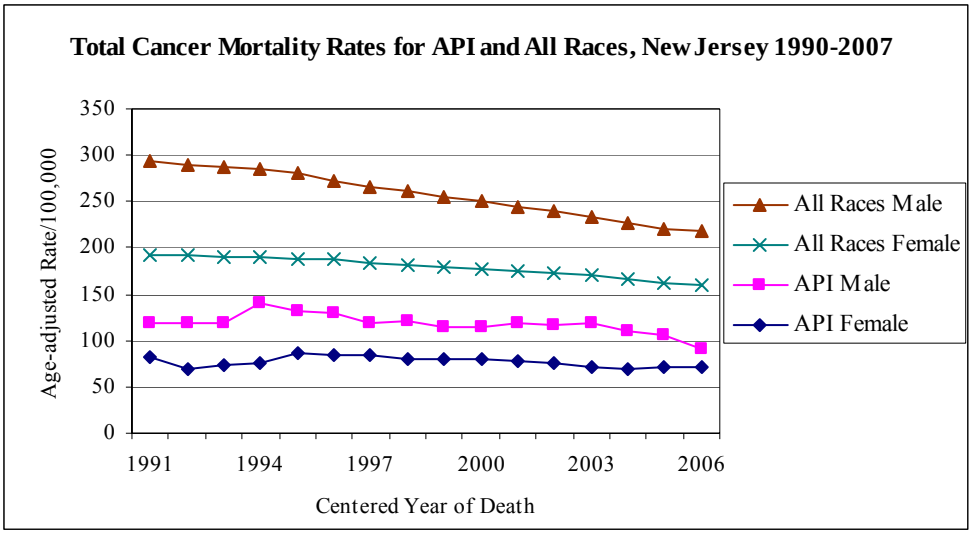


Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population; Confidence intervals (Tiwari mod) are 95% for rates.
* IBD=intrahepatic bile duct. ONS=other nervous system.
Data source: Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

- The total cancer mortality rate for NJ API females was 72.3 per 100,000 compared with 163.2 per 100,000 for all NJ females during 2003-2007 (Appendix Table 3).
- The most common cancer causes of death for NJ API females were lung, breast, colorectal, pancreas, and stomach. For all NJ females the top four cancer causes of death were the same but the fifth most common was non-Hodgkin lymphoma.
- The cancer mortality rates were lower for most cancer sites for API females than for the NJ general population, except for stomach and liver cancer. The rates for these two cancers were higher in API, but the difference was not statistically significant.

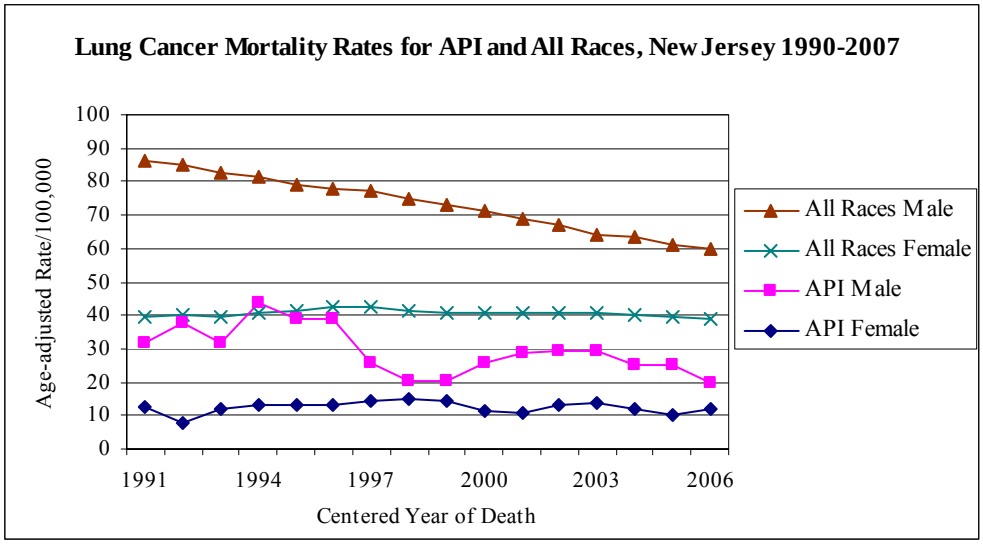
CANCER MORTALITY TRENDS AMONG API, NEW JERSEY 1990-2007

The total cancer causes of death among API in NJ increased from 124 in 1990 to 355 in 2007 corresponding to the API population increase. This section presents the cancer mortality trends using three-year moving average rates centered on each year from 1991 (representing 1990-1992) to 2006 (representing 2005-2007). Three-year average rates are presented to reduce the amount of random fluctuation with small numbers of API cases.



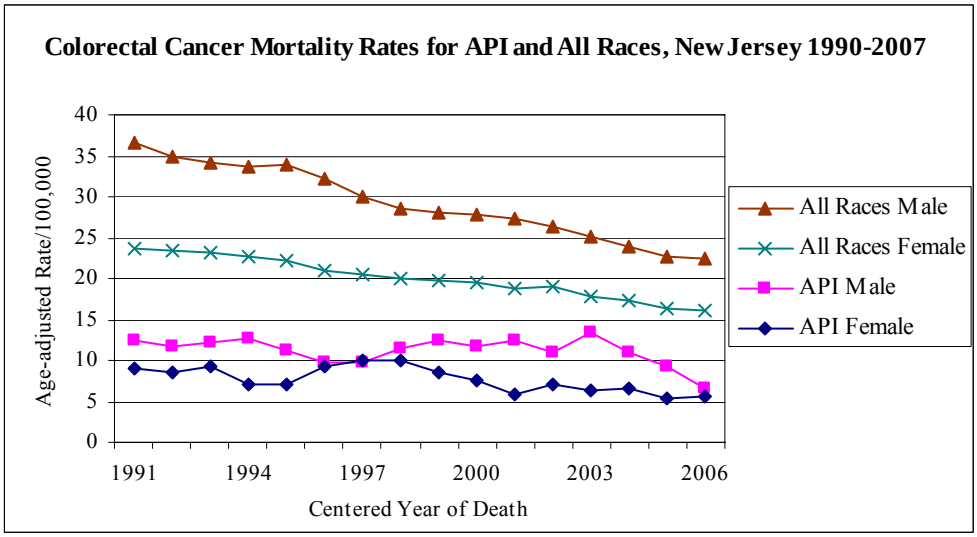
Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- The total cancer mortality rates slightly decreased for NJ API, with some fluctuations, while the mortality rates decreased consistently from 1990 to 2007 for the NJ general population.



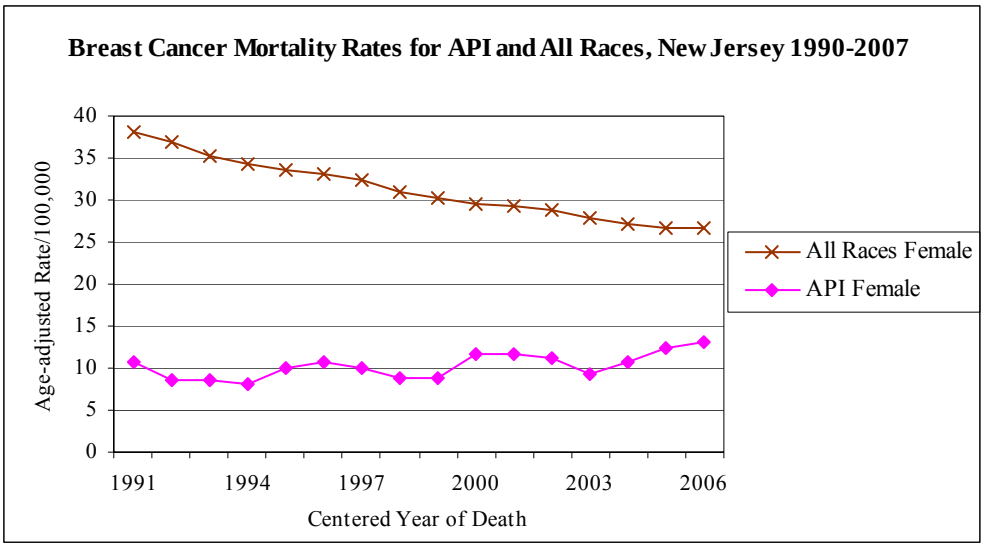
Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- Lung cancer mortality rates for males decreased by over 30% from 1990 to 2007, with more fluctuations in API males. Lung cancer mortality rates for females were stable during 1990-2007, with average rates of 40.5 per 100,000 for NJ females and 12.6 for API females.



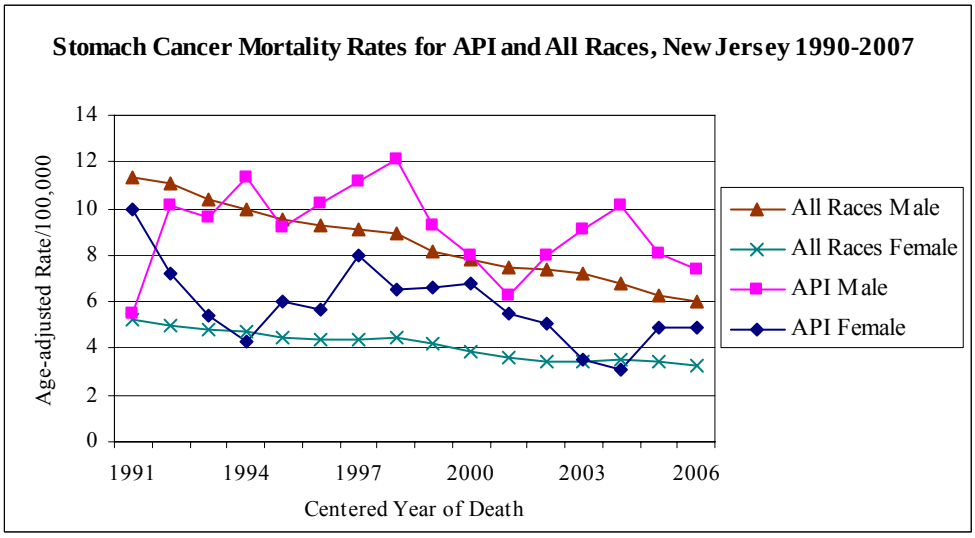
Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- From 1990 to 2007, colorectal cancer mortality rates dropped for API and for the NJ general population by over 30%. There were more fluctuations in the rates for API and these rates remained lower than the NJ general population rates.



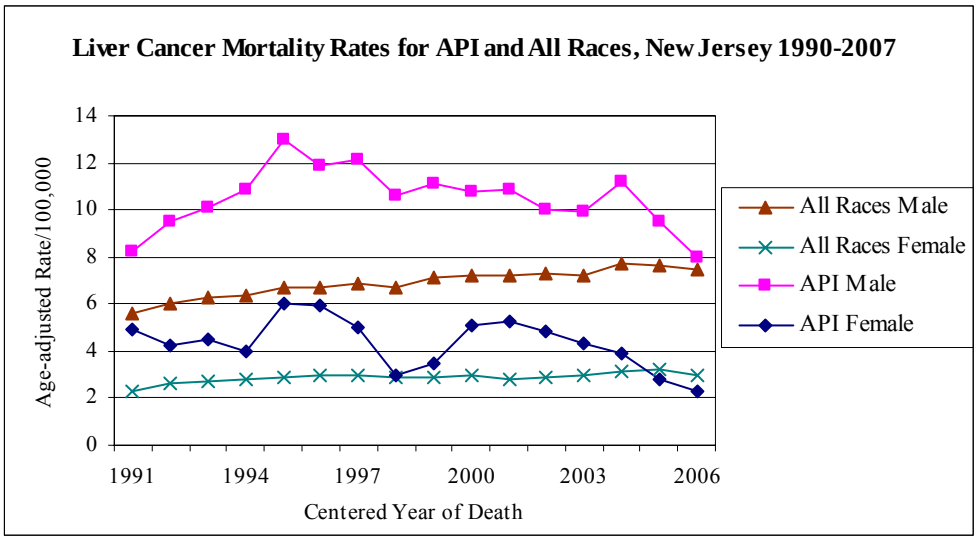
Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- During 1990-2007, breast cancer mortality rates for API females were much lower than for the general NJ population but increased by 20%, while the mortality rates for all NJ females decreased by 30%.



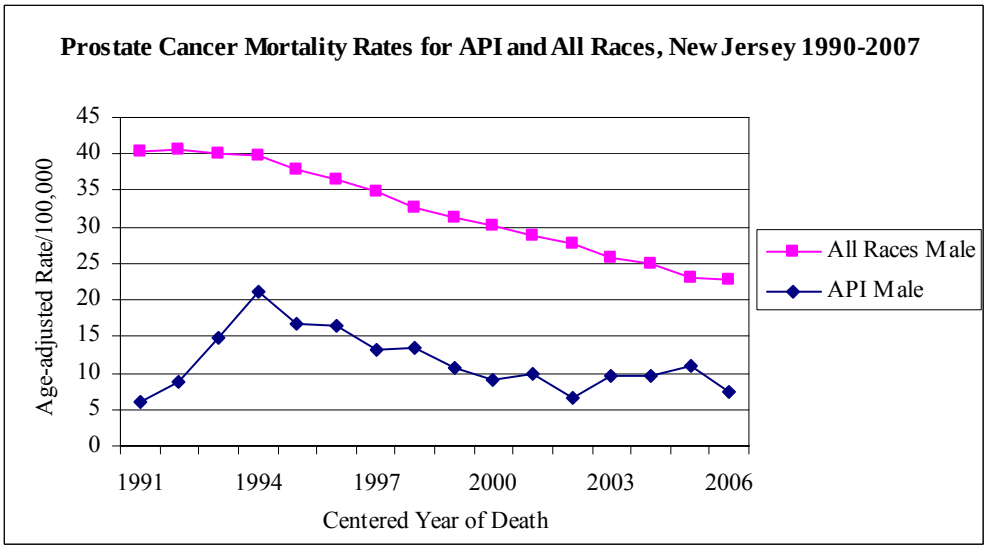
Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- From 1990 to 2007, stomach cancer mortality rates decreased consistently by over 40% for NJ general population, while the rates for API fluctuated a lot, decreasing during 1997-2001 and 2005-2007 for males and 1997-2004 for females.



Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- API male liver cancer mortality rates increased during 1990-1994 and then decreased, while rates for API females decreased since 2001, after fluctuating during 1990-2000. The liver cancer mortality rates for the NJ general population increased for both males and females during 1990-2007.



Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are three-year average per 100,000 centered to each year and age-adjusted to the 2000 U.S. standard population.

- Prostate cancer morality rates decreased for NJ API men after 1994 and decreased for all NJ men during 1990-2007.
- NJ API men had lower prostate cancer mortality rates compared to the general NJ male population.

TECHNICAL NOTES

Data Sources

New Jersey cancer incidence data were taken from the December 2009 analytic file of the NJSCR. Cancer mortality data were from the National Center for Health Statistics (NCHS).

The 1990-2007 population data used in this report for the incidence and mortality rates are estimates from the NCHS based on U.S. Census Bureau data, which were downloaded from NCI SEER's website (NCI SEER Program release November 20, 2009), http://www.seer.cancer.gov/popdata/index.html

Incidence and mortality rates

A cancer incidence rate is defined as the number of new cases of cancer diagnosed during a specified time period in a specified population. Cancer rates are most commonly expressed as cases per 100,000 population. Cancer occurs at different rates in different age groups, and population subgroups defined by sex and race have different age distributions. Therefore, before a valid comparison can be made between rates, it is necessary to standardize the rates to the age distribution of a standard population. In this report, the 2000 U.S. standard population (19 age groups-Census P25-1130) was used.

The first step in the age-standardization procedure is to determine the age-specific rates. For each age group for a given time interval (within each race-sex group, for the entire state), the following formula is applied:

$$r_a = \frac{n_a}{t \; x \; P_a}$$

where:

- r_a = the age-specific rate for age group a;
- n_a = the number of events (cancer diagnoses) in the age group during the time interval;
- t = the length of the time interval (in years); and
- P_a = average size of the population in the age group during the time interval (mid-year population or average of mid-year population sizes).

In order to determine the age-adjusted rate, a weighted average of the age-specific rates is calculated, using the age distribution of the standard population to derive the age-specific weighting factors. This is the technique of direct standardization, which uses the following formula:

$$R = \frac{\sum_{a=1}^{n} r_a \; x \; Std.P_a}{\sum_{a=1}^{n} Std.P_a}$$

where:

R = the age-adjusted rate;
r_a = the age-specific rate for age group a; and
$Std.P_a$ = the size of the standard population in each age group a.

Analogous definitions and calculations apply for the cancer mortality rates. All the counts and rates were tabulated using SEER*Stat Version 6.6.2, a statistical software package distributed by the NCI available at http://www.seer.cancer.gov/seerstat/ .

There were great fluctuations from year to year due to the small number of some cancer counts in API. To smooth over the extreme fluctuations, three year average rates were calculated and centered to each year for the incidence and mortality trends.

Relative Survival Rate

The relative survival rate is the ratio of the observed survival rate to the expected survival rate for a given group of patients; in this report the "given group of patients" is the New Jersey individuals diagnosed with cancer between 1990 and 2002. The expected survival rate is based on mortality rates for the entire population, taking into account the age, sex, race and year of diagnosis of the patients. The relative survival rate is an estimate of the probability that a patient will not die of the diagnosed cancer within a given number of years and is expressed as a percentage, e.g. 80%. The "given number of years" for this report is five years, hence the five-year relative survival rate. The expected survival rates were for the U.S. population and are included in the SEER*Stat survival session that was used to generate the five-year relative survival rates.

In order to calculate valid estimates of survival, the vital status (alive or deceased) must be known for a large percentage of the cancer patients in the registry. For New Jersey the vital status was known (follow-up) for 87% of the API cancer patients. The follow-up percentage ranged from 94% for leukemia to 76% for cervical cancer.

Data Limitations

Cancer data in the NJ State Cancer Registry are collected from medical records; the race information is not always complete or accurate. In the NJSCR database 1.1% of the cases diagnosed in 1990-2007 were other or unknown race cases. Since API only account for 2% of the total cancer cases, missing race or misclassification of race may have a relatively greater effect on API cancer rates than rates for other racial groups.

The cancer incidence and mortality rates for detailed API race/ethnicity group were not provided in this report due to the lack of accurate population data. NCI's SEER program reported cancer incidence and mortality rates among specific API population in the U.S. in 1998-2002 (Miller BA 2008) using the Census 2000 population.

It should be noted that rates for relatively uncommon cancers tend to fluctuate substantially from year to year because of small numbers, particularly in the API and other minority populations. Rates generated from small numbers should be interpreted with caution.

There has been an increased interest in API health data in recent years. Despite the above limitations, this report has been generated to help in the process of assessing information on cancer and health care needs among persons of Asian or Pacific Islander origin in New Jersey. APIs are an important part of our population and are frequently undercounted in health data.

REFERENCES

American Cancer Society. *Cancer Facts & Figures 2010*. Atlanta: American Cancer Society, 2010.

Breslow NE and Day NE. Statistical Methods in Cancer Research. Volume II – The Design and Analysis of Cohort Studies. New York: Oxford University Press, 1987.

Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005. Available at: http://apps.nccd.cdc.gov/s_broker/htmsql.exe/weat/freq_analysis.hsql?survey_year=2005 [Accessed 2/18/2010].

Copeland G, lake A, Firth R, et al. (eds). *Cancer in North America: 2003-2007. Volume One: Combined Cancer Incidence for the United States and Canada*. Springfield, IL: North America Association of Central Cancer Registries, Inc. May 2010.

de Martel C and Parsonnet J. *Helicobacter pylori* infection and gender: a meta-analysis of population-based prevalence surveys. *Digestive Diseases and Sciences* 2006; 51:2292-2301.

Grieco EM and Cassidy RC. *Overview of Race and Hispanic Origin: 2000*. U.S. Census 2000 Brief, C2KBR/01-1, March 2001, U.S. Census Bureau. Available at: http://www.census.gov/population/www/cen2000/briefs.html [Accessed 8/13/2010].

Harris PM, Jones NA. *We the People: Pacific Islanders in the United States*. *Census 2000 Special Reports*. U.S. Census Bureau, August 2005.

Miller BA, Chu KC, Hankey BF, Ries LAG. Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes Control* 2008 Apr;19(3):227-56.

NAACCR Race and Ethnicity Work Group. *NAACCR Asian Pacific Islander Identification Algorithm [NAPIIA v1.2]*. Springfield, IL: North American Association of Central Cancer Registries, September 2009.

Raz DJ, Gomez SL, Chang ET, Kim JY, Keegan THM, Pham J, Kukreja J, Hiatt RA, Jablons DM. Epidemiology of non-small cell lung cancer in Asian Americans. *Journal of Thoracic Oncology* 2008; 3: 1391-1397.

Reeves TJ, Bennett CE. *We the People: Asians in the United States*. *Census 2000 Special Reports*. U.S. Census Bureau, December 2004.

Rothman K. *Modern Epidemiology*. U.S.A. Little, Brown, and Company, 1986.

Shibata A and Parsonnet J. Stomach cancer. [In]: Editors, Schottenfeld D, Fraumeni, JF, Jr. *Cancer Epidemiology and Prevention*. Oxford University Press, 2006, pp. 707-720.

Surveillance Research Program, National Cancer Institute SEER*Stat software (www.seer.cancer.gov/seerstat) version 6.6.2.

U.S. Census Bureau (a). Facts for Features: Asian/Pacific American Heritage Month: May 2010, March 2010. Available at: http://www.census.gov/newsroom/releases/pdf/cb10-ff07.pdf. [Accessed 8/13/2010].

U.S. Census Bureau (b). Table 3: Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for the United States: April 1, 2000 to July 1, 2009 (NC-EST2009-03). Source: U.S. Census Bureau, Population Division. Release Date: June 2010. Available at: http://www.census.gov/popest/national/asrh/NC-EST2009-srh.html [Accessed 8/13/2010].

U.S. Census Bureau (c). Table 3: Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for New Jersey: April 1, 2000 to July 1, 2009 (SC-EST2009-03-34). Source: U.S. Census Bureau, Population Division. Release Date: June 2010. Available at: http://www.census.gov/popest/states/asrh/SC-EST2009-03.html [Accessed 8/13/2010].

U.S. Census Bureau (d). Table 6: Median Age of the Resident Population by Race and Hispanic Origin for the United States and States: July 1, 2009 (SC-EST2009-06). Source: U.S. Census Bureau, Population Division. Release Date: June 2010. Available at: http://www.census.gov/popest/states/asrh/SC-EST2009-06.html [Accessed 8/13/2010].

U.S. Census Bureau (e). 2008 American Community Survey One-Year Estimates, September 2009. Available at: http://factfinder.census.gov/servlet/DatasetMainPageServlet?_lang=en&_ts=300018334685&_ds_name=ACS_2008_1YR_G00_&_program= [Accessed 2/4/2010].

U.S. Census Bureau (f). Census 2000 Summary File 1 (SF 1) 100% data. Available at: http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=&_lang=en&_ts= [Accessed 2/9/2010].

U.S. Census Bureau (g). Census 2000 Summary File 1 100% Data, Summary File 3 Sample Data. Available at: http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=&_lang=en&_ts= [Accessed 2/9/2010].

APPENDIX

Table 1a: Cancer Incidence Among API and All Races, NJ 2003-2007—Males

Male	All races				API			
		95% CI*				95% CI*		
Cancer Site	Rate	Lower	Upper	Count	Rate	Lower	Upper	Count
All Sites	588.2	584.8	591.6	117,453	296.1	284.2	308.3	3,027
Hodgkin Lymphoma	3.7	3.4	3.9	760	1.8	1.2	2.7	28
Testis	5.7	5.3	6.0	1,192	1.9	1.3	2.8	32
Melanoma of the Skin	26.5	25.8	27.2	5,339	2.2	1.2	3.5	20
Esophagus	8.7	8.3	9.1	1,761	3.1	2.0	4.5	32
Myeloma	7.8	7.4	8.2	1,545	4.3	2.9	6.0	41
Brain and ONS*	8.6	8.2	9.0	1,777	4.7	3.6	6.1	68
Thyroid	6.7	6.3	7.0	1,432	5.5	4.2	6.9	82
Leukemia	17.2	16.7	17.8	3,418	7.3	5.6	9.2	90
Pancreas	14.5	14.0	15.1	2,852	8.1	6.1	10.4	76
Kidney and Renal Pelvis	21.2	20.6	21.9	4,350	9.2	7.3	11.4	106
Oral Cavity and Pharynx	14.7	14.1	15.2	3,091	11.0	9.0	13.3	137
Liver and IBD*	9.8	9.4	10.2	2,031	14.1	11.8	16.7	165
Non-Hodgkin Lymphoma	25.6	24.9	26.3	5,136	15.2	12.6	18.1	166
Urinary Bladder	46.7	45.7	47.7	8,949	16.6	13.6	19.9	142
Stomach	12.4	11.9	12.9	2,436	18.1	15.2	21.4	170
Colon and Rectum	62.6	61.4	63.7	12,273	33.6	29.8	37.7	363
Lung and Bronchus	78.3	77.1	79.6	15,294	38.3	33.9	43.2	335
Prostate	172.3	170.5	174.1	34,856	78.1	72.0	84.5	749

Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population.
* CI: Confidence Interval; ONS: Other Nervous System; IBD: Intrahepatic Bile Duct.

Table 1b: Cancer Incidence Among API and All Races, NJ 2003-2007—Females

Female	All races				API			
		95% CI*				95% CI*		
Cancer Site	Rate	Lower	Upper	Count	Rate	Lower	Upper	Count
All Sites	445.3	442.7	447.9	114,371	251.6	242.7	260.8	3,422
Esophagus	2.1	1.9	2.3	569	1.0	0.5	1.8	10
Hodgkin Lymphoma	3.1	2.9	3.4	689	1.3	0.8	2.1	20
Melanoma of the Skin	17.3	16.8	17.9	4,266	1.6	1.0	2.6	21
Myeloma	5.1	4.8	5.4	1,348	2.5	1.7	3.7	31
Brain and ONS*	6.0	5.7	6.3	1,458	3.6	2.6	4.8	49
Urinary Bladder	12.1	11.7	12.6	3,265	3.8	2.6	5.2	40
Kidney and Renal Pelvis	10.4	10.0	10.8	2,674	4.1	3.1	5.4	60
Oral Cavity and Pharynx	6.0	5.7	6.3	1,528	4.7	3.5	6.2	59
Liver and IBD*	3.3	3.1	3.5	875	4.8	3.5	6.4	52
Pancreas	11.0	10.6	11.4	2,986	5.4	4.1	7.0	61
Leukemia	10.3	9.9	10.7	2,621	5.9	4.6	7.4	82
Cervix Uteri	9.3	8.9	9.7	2,196	6.1	4.8	7.6	89
Stomach	6.2	5.9	6.5	1,670	8.1	6.5	10.0	103
Ovary	14.1	13.6	14.6	3,606	9.2	7.6	11.0	130
Non-Hodgkin Lymphoma	17.6	17.1	18.2	4,569	9.2	7.5	11.1	115
Thyroid	20.0	19.4	20.6	4,663	16.9	14.9	19.0	288
Corpus and Uterus, NOS*	29.0	28.3	29.6	7,427	17.0	14.9	19.4	247
Lung and Bronchus	56.3	55.3	57.2	14,702	21.8	18.9	24.8	242
Colon and Rectum	46.0	45.2	46.8	12,423	26.6	23.5	29.9	306
Breast	128.4	127.0	129.8	32,495	80.0	75.3	84.9	1,200

Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population.
* CI: Confidence Interval; ONS: Other Nervous System; IBD: Intrahepatic Bile Duct; NOS=Not Otherwise Specified.

Table 2: Five-Year Relative Cancer Survival Rates for Cases Diagnosed in NJ 1990-2002, API and All Races

Male	All Races				API			
Cancer Site	Cases	Relative Survival Rate	95% CI*		Cases	Relative Survival Rate	95% CI*	
			Lower	Upper			Lower	Upper
All Sites	249,186	62.7%	62.4%	62.9%	3,999	60.0%	58.2%	61.7%
Pancreas	5,020	5.5%	4.8%	6.2%	81	6.8%	2.2%	15.0%
Liver and IBD*	2,859	9.8%	8.6%	11.0%	222	14.8%	10.2%	20.2%
Esophagus	3,432	11.9%	10.7%	13.2%	65	10.6%	4.1%	20.6%
Lung and Bronchus	35,147	12.6%	12.2%	13.0%	477	18.1%	14.3%	22.2%
Stomach	5,557	22.6%	21.3%	23.9%	218	37.4%	30.1%	44.6%
Leukemia	6,724	49.0%	47.6%	50.4%	157	51.8%	43.1%	59.8%
Oral Cavity and Pharynx	6,309	50.0%	48.6%	51.4%	205	63.9%	56.0%	70.8%
Non-Hodgkin Lymphoma	9,965	55.8%	54.6%	57.0%	217	62.0%	54.3%	68.8%
Nasopharynx	414	57.3%	51.7%	62.5%	69	68.4%	55.0%	78.6%
Colon and Rectum	29,165	62.0%	61.2%	62.7%	490	66.8%	61.7%	71.5%
Kidney and Renal Pelvis	6,625	66.0%	64.6%	67.4%	113	68.5%	57.6%	77.1%
Urinary Bladder	16,218	81.4%	80.5%	82.4%	144	83.9%	73.4%	90.6%
Hodgkin Lymphoma	1,875	82.3%	80.2%	84.2%	31	87.6%	69.2%	95.3%
Thyroid	1,637	91.9%	89.8%	93.5%	69	97.0%	79.5%	99.6%
Prostate	82,528	97.0%	96.6%	97.4%	940	98.6%	90.9%	99.8%
Female								
All Sites	233,365	61.8%	61.6%	62.1%	4,156	68.9%	67.3%	70.5%
Pancreas	5,842	5.8%	5.1%	6.5%	81	5.0%	1.4%	12.4%
Liver and IBD*	1,405	10.2%	8.5%	12.1%	73	17.2%	9.0%	27.6%
Esophagus	1,255	15.6%	13.4%	18.0%	26	23.1%	7.5%	43.7%
Lung and Bronchus	27,251	16.9%	16.4%	17.4%	262	20.8%	15.7%	26.3%
Stomach	3,730	26.3%	24.7%	28.0%	163	33.3%	25.2%	41.6%
Ovary	8,644	44.3%	43.1%	45.5%	189	52.6%	44.7%	60.0%
Nasopharynx	193	47.6%	39.4%	55.3%	34	61.3%	42.1%	75.8%
Leukemia	5,398	48.0%	46.4%	49.6%	96	53.8%	42.4%	63.8%
Oral Cavity and Pharynx	3,210	56.9%	54.8%	58.9%	89	59.4%	47.2%	69.7%
Non-Hodgkin Lymphoma	9,180	60.8%	59.6%	62.0%	154	59.8%	50.5%	67.9%
Colon and Rectum	29,543	61.3%	60.5%	62.0%	372	66.0%	60.1%	71.3%
Kidney and Renal Pelvis	4,422	64.9%	63.1%	66.6%	46	68.3%	50.1%	81.1%
Cervix Uteri	6,195	67.9%	66.6%	69.2%	187	74.3%	66.4%	80.7%
Urinary Bladder	6,145	75.7%	74.1%	77.1%	43	81.8%	61.1%	92.1%
Corpus and Uterus, NOS*	14,564	80.3%	79.5%	81.2%	206	85.4%	78.9%	90.1%
Breast	71,008	85.5%	85.1%	85.8%	1,514	87.9%	85.8%	89.6%
Thyroid	5,031	96.5%	95.6%	97.2%	245	98.1%	93.4%	99.4%

The survival rates were based on all first primary and invasive cancers with vital status followed through 2007.
* CI: Confidence Interval; IBD: Intrahepatic Bile Duct; NOS=Not Otherwise Specified.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

Table 3: Cancer Mortality Rates for API and All Races, NJ 2003-2007

Male	All Races				API			
		95% CI*				95% CI*		
Cancer Site	Rate	Lower	Upper	Count	Rate	Lower	Upper	Count
All Sites	222.5	220.3	224.6	42,363	99.2	91.8	107.1	855
Lung and Bronchus	61.5	60.4	62.6	11,821	23.2	19.6	27.2	191
Colon and Rectum	23.3	22.6	24.0	4,401	8.6	6.6	11.1	78
Stomach	6.5	6.1	6.8	1,234	8.5	6.3	11.0	68
Liver and IBD*	7.5	7.2	7.9	1,511	8.3	6.5	10.5	88
Prostate	23.9	23.1	24.6	4,201	8.1	5.8	10.9	46
Pancreas	13.1	12.5	13.6	2,524	7.0	5.0	9.3	56
Non-Hodgkin Lymphoma	8.9	8.5	9.4	1,706	5.3	3.6	7.3	46
Leukemia	9.6	9.1	10.0	1,804	3.7	2.5	5.4	35
Oral Cavity and Pharynx	3.5	3.3	3.8	720	2.2	1.3	3.4	24
Esophagus	7.4	7.0	7.8	1,482	2.2	1.3	3.5	22
Urinary Bladder	8.5	8.1	9.0	1,548	2.0	1.0	3.4	16
Kidney and Renal Pelvis	5.3	5.0	5.6	1,028	1.8	1.0	2.9	20
Brain and ONS*	4.6	4.3	4.9	948	1.8	1.1	2.8	24
Myeloma	4.3	4.0	4.6	818	1.2	0.5	2.1	11
Female								
All Sites	163.2	161.7	164.8	44,247	72.3	67.1	77.8	822
Lung and Bronchus	39.7	38.9	40.5	10,591	12.6	10.4	15.1	128
Breast	27.0	26.3	27.6	7,188	11.6	9.8	13.6	161
Colon and Rectum	16.7	16.2	17.2	4,728	6.3	4.8	8.2	65
Pancreas	9.8	9.4	10.2	2,689	4.7	3.5	6.3	51
Stomach	3.3	3.1	3.5	905	4.6	3.3	6.1	52
Liver and IBD*	3.1	2.9	3.3	849	3.3	2.2	4.6	34
Non-Hodgkin Lymphoma	5.8	5.5	6.1	1,600	3.2	2.2	4.6	33
Leukemia	5.3	5.1	5.6	1,461	2.7	1.8	3.8	33
Corpus and Uterus, NOS*	5.1	4.9	5.4	1,380	2.1	1.3	3.2	23
Myeloma	3.0	2.8	3.2	810	1.4	0.7	2.3	15
Cervix Uteri	2.6	2.4	2.8	650	1.3	0.7	2.0	18
Urinary Bladder	2.6	2.4	2.8	747	1.3	0.6	2.3	11
Brain and ONS*	3.0	2.8	3.2	758	1.3	0.7	2.1	16
Oral Cavity and Pharynx	1.3	1.2	1.5	363	1.1	0.5	2.0	11
Kidney and Renal Pelvis	2.4	2.2	2.6	662	1.0	0.5	1.8	11
Esophagus	1.8	1.6	1.9	487	0.9	0.4	1.7	8
Thyroid	0.6	0.5	0.7	154	0.8	0.3	1.5	8

Underlying mortality data provided by NCHS (www.cdc.gov/nchs).
Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population.
* CI: Confidence Interval; IBD: Intrahepatic Bile Duct; NOS=Not Otherwise Specified; ONS: Other Nervous System.

Table 4: Asian and Pacific Islander Population in New Jersey 2003-2007

Age Group	Male						Female					
	2003-07	2003	2004	2005	2006	2007	2003-07	2003	2004	2005	2006	2007
<1	26,135	5,165	5,306	5,238	5,221	5,205	24,766	4,942	4,970	4,974	4,930	4,950
01-04	100,102	18,357	19,466	20,436	20,681	21,162	95,947	17,824	18,760	19,495	19,888	19,980
05-09	113,074	21,841	22,047	22,401	23,177	23,608	110,930	21,342	21,811	22,127	22,499	23,151
10-14	109,723	21,006	21,555	21,893	22,430	22,839	104,346	19,629	20,198	20,779	21,540	22,200
15-19	95,662	18,168	18,591	19,189	19,578	20,136	87,697	16,696	17,038	17,514	18,005	18,444
20-24	87,337	17,536	17,481	17,495	17,475	17,350	86,805	17,190	17,528	17,571	17,335	17,181
25-29	117,904	24,212	23,739	23,563	22,817	23,573	123,420	25,844	24,856	24,481	24,137	24,102
30-34	164,693	31,923	33,181	33,450	33,326	32,813	166,956	32,111	33,210	33,970	33,895	33,770
35-39	158,485	28,815	29,910	31,619	33,138	35,003	157,788	29,086	30,090	31,286	32,882	34,444
40-44	143,854	26,513	27,921	28,778	30,010	30,632	145,454	27,084	28,274	29,201	30,049	30,846
45-49	124,238	22,579	23,840	25,171	25,952	26,696	127,922	23,634	24,849	25,707	26,482	27,250
50-54	99,224	18,171	18,852	19,517	20,708	21,976	103,809	18,822	19,584	20,533	21,772	23,098
55-59	79,370	13,838	14,856	16,090	16,931	17,655	83,004	14,505	15,664	16,934	17,724	18,177
60-64	56,929	10,245	10,790	11,218	11,979	12,697	59,700	10,312	11,046	11,852	12,721	13,769
65-69	41,767	7,105	7,776	8,489	8,885	9,512	42,898	7,506	7,998	8,492	9,132	9,770
70-74	24,978	4,161	4,529	4,866	5,484	5,938	31,000	5,387	5,784	6,261	6,614	6,954
75-79	15,043	2,515	2,763	3,027	3,232	3,506	21,955	3,832	4,146	4,393	4,657	4,927
80-84	8,646	1,471	1,604	1,735	1,874	1,962	13,284	2,259	2,401	2,655	2,899	3,070
85+	6,271	973	1,093	1,241	1,396	1,568	10,300	1,603	1,803	2,065	2,281	2,548
Total	1,573,435	294,594	305,300	315,416	324,294	333,831	1,597,981	299,608	310,010	320,290	329,442	338,631

Source: The National Cancer Institute's SEER Program (URL: http://www.seer.cancer.gov/popdata/index.html).