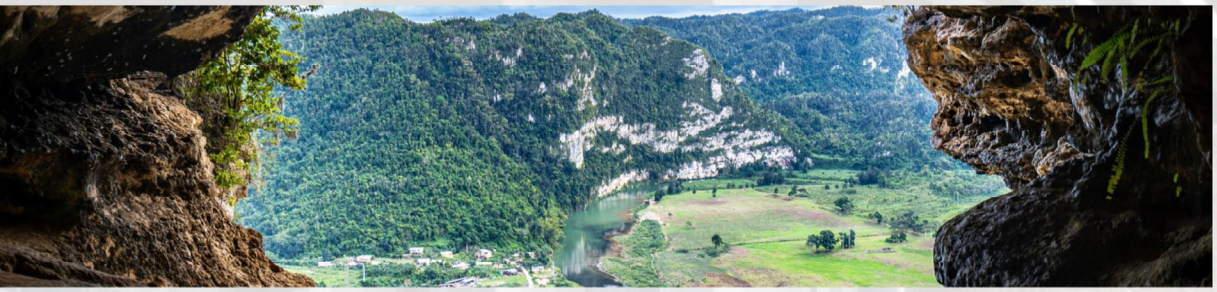
REGISTRO CENTRAL DE CÁNCER DE PUERTO RICO

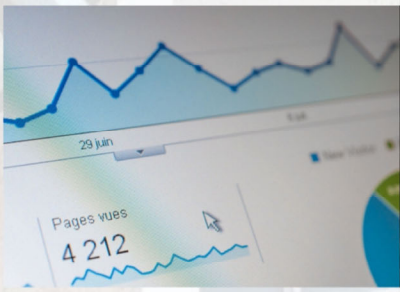
CENTRO COMPRENSIVO DE CÁNCER
UNIVERSIDAD DE PUERTO RICO

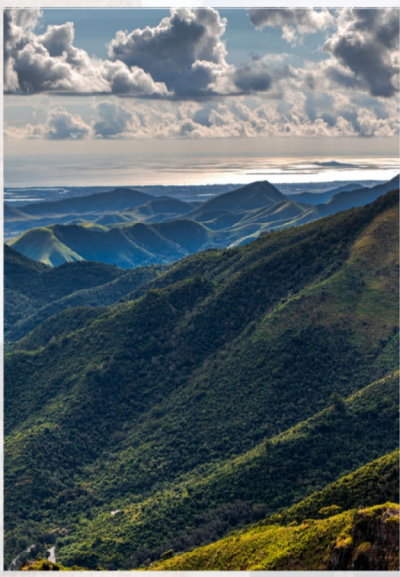
Cancer in Puerto Rico

2014-2018

Incidence, mortality, and survival







Cancer in Puerto Rico 2014-2018

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CONTENT

INTRODUCTION

The Puerto Rico Central Cancer Registry (PRCCR) is an agency of the Department of Health established in March 1950 and is responsible for collecting, analyzing, and publishing information on all cancer cases diagnosed and/or treated in Puerto Rico. The notification of cancer cases by public and private medical institutions is compulsory according to Law No. 113 of 2010, which replaced Law No. 28 adopted on March 20, 1951. The new law strengthens the authority of the Registry and formalizes electronic reporting of cancer cases in Puerto Rico. Copy of Law No. 113 is in this link: http://www.lexjuris.com/lexlex/Leyes2010/lexl2010113.htm.

In October of 1997, the PRCCR initiated its participation in the National Program of Cancer Registries (NPCR) coordinated by the Centers for Disease Control and Prevention, of the United States' Department of Health and Human Services. Thus, a plan to update the Registry data collection in electronic format began. Over the years the PRCCR improved data collection of cancer cases through electronic reporting, achieving a completeness of more than 95% of all cases annually since 2010. This has allowed the RCCPR to collaborate and serve as a source of information in important local and international scientific publications. In 2014, the PRCCR launched its' new webpage at: https://rcpr.org/. The aggregated statistical data of the PRCCR is considered open to the public and is available upon request and/or by accessing https://rcpr.org/Datos-de-Cáncer .

In this report, you will find relevant information on the incidence, mortality, and survival of cancer in Puerto Rico. For most descriptions, the period used is 2014-2018. The trend data covers a longer period (2000-2018) and the survival data takes cases from 2010 to 2014 and has a follow-up time of 5 years (until 2019). This report has a section that describes childhood cancer, a section that describes cancer in the adolescents and young adults group, and then describes the most common cancers in Puerto Rico.

DATA COMPLETENESS

The National Program of Cancer Registries (NPCR) of the Centers for Disease Control and Prevention (CDC) periodically evaluates the completeness of case ascertainment estimate for the PRCCR in order to obtain a more accurate estimate of the true occurrence of cancer in the Puerto Rican population. On the last evaluation, the PRCCR maintained the data completeness for 2018 cases reaching an estimated collection of more than 95% of the expected cancer cases in Puerto Rico. This is a significant achievement as it certifies the quality of the PRCCR data and allows the Puerto Rico cancer data to be maintained in the "US Cancer Statistics" report from the CDC.

MORTALITY

Cancer related digital death files were obtained from the Demographic Registry of Puerto Rico of the Puerto Rico Department of Health (1). Death certificate master files from 2000-2019 were used for this report. The cause of death was coded using the International Classification of Diseases, Tenth Edition, ICD-10 (2). This report includes the deaths of Puerto Rican residents only. Cases with unknown age (<0.1%) were excluded from the age-specific and age-adjusted analyses. Deaths with unknown municipality (residence of the patient at the moment of death) for the period 2014-2018 were excluded from the calculations of municipality-specific rates (<0.1%). Information on cancer mortality presented in this report is the responsibility of the authors, and was not reviewed nor endorsed by the Puerto Rico Demographic Registry prior to publication.

RELATIVE SURVIVAL

Cancer survival is another component of epidemiological surveillance of this disease in addition to monitoring incidence and mortality. Relative survival is defined as the relationship between the observed survival from all causes in a group of people with cancer and the expected survival from all causes in a similar group of people who do not have cancer. For the calculation of relative survival, only survival to the first tumor (in the event that a person had more than one) was taken into consideration. Cases with an unknown diagnosis confirmation method, cases with unknown age at the time of diagnosis, cases identified only by death certificates or autopsy, and cases older than 99 years were excluded. The cases that were taken into consideration were those diagnosed between 2010 and 2014, and these had a follow-up period of 5 years (until 2019) (Annex I).

SELECTION OF CASES, POPULATION FILE, AND YEAR 2017

For this report, all cancer cases with known age were considered. Statistics were generated for malignant cancer only, except urinary bladder cancer cases, which include malignant and in situ cases. The population used for the incidence and mortality rates calculation corresponds to the 2019 Vintage population from the United States Census Bureau.

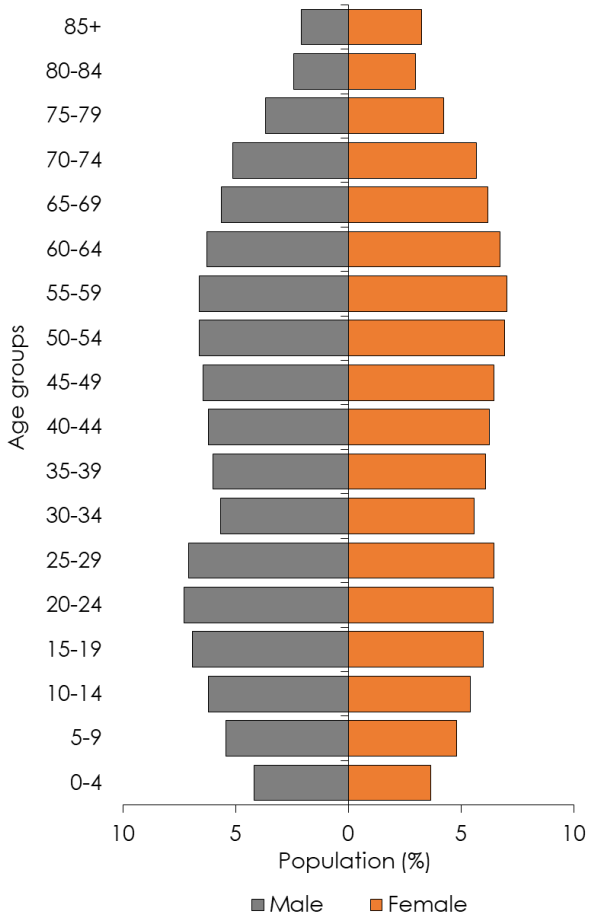
On September 20, 2017 Hurricane Maria severe impact on Puerto Rico resulted in a significant decrease of cancer diagnosis and treatment in the island. For **2017** the incident count was approximately 1,800 cases less than the previous year. After a thorough evaluation, the numbers of cases and population count to estimate **incidence** rates were restricted to the **first 6 months of the year** (January to June). Data from July to December 2017 were excluded due to delays in cancer diagnosis and population shift that occurred post Hurricane Maria.

PUERTO RICO POPULATION - 2018

Official population estimates were provided by the US Census Bureau. In 2020 census, the total population in Puerto Rico was 3,285,874 inhabitants, compared to 3,725,789 inhabitants reported in the 2010 census (decreased 11.8% from 2010 to 2020). Figure 1 shows the estimated population for 2018 (3,193,354) by age and sex, as well as the population pyramid for the same year. In 2018, the median age in men was 41 years and 44.5 years in women. The male to female ratio was 90.8 males per 100 females (3). Although 17.1% of Puerto Rico residents identified themselves as White and 49.8% identified themselves as “two or more races” in the 2020 Census, there is no official classification for race used in PR. Nevertheless, the PRCCR collects racial and ethnic data consistent with the US population data. Although ethnicity is well documented by the PRCCR, the Registry uses the North American Association of Central Cancer Registries (NAACCR) Hispanic Identification Algorithm (NHIA) to enhance the identification of Hispanic/Latino persons with cancer. In 2020, 98.9% of the population identified themselves as Hispanic/Latino. More information at: Puerto Rico 2020 Census State Profile.

Figure 1. Estimated population by age and sex: Puerto Rico, 2018

Age	Male	Female	Total
0 - 4	63,564	60,923	124,487
5 - 9	82,504	80,601	163,105
10 -14	94,139	90,688	184,827
15 - 19	105,002	100,291	205,293
20 - 24	110,616	107,734	218,350
25 - 29	107,468	108,194	215,662
30 - 34	85,899	93,181	179,080
35 - 39	91,299	102,195	193,494
40 - 44	94,228	104,813	199,041
45 - 49	98,025	107,936	205,961
50 - 54	100,527	115,826	216,353
55 - 59	100,359	117,821	218,180
60 - 64	95,430	112,683	208,113
65 - 69	85,438	103,428	188,866
70 - 74	77,896	95,172	173,068
75 - 79	55,835	70,662	126,497
80 - 84	36,846	49,971	86,817
85+	31,937	54,223	86,160
Total	**1,517,012**	**1,676,342**	**3,193,354**



CANCER IN PUERTO RICO 2018: OVERVIEW

CANCER INCIDENCE - 2018

In Puerto Rico, 16,343 new cancer cases were reported in 2018. Of these, 8,652 (52.9%) were men and 7,691 (47.1%) were women. Prostate cancer was the most commonly diagnosed cancer in men (39.7%), while breast cancer was the most commonly diagnosed in women (31.3%). Colorectal cancer was the second most diagnosed cancer in men and women, accounting for 11.2% and 10.7%, respectively. Lung and bronchial cancer was also one of the most common in men (5.3%) and women (3.9%). Thyroid cancer has had a significant increase in Puerto Rico, especially in women since the early 2000s. The age-adjusted (US 2000 standard population) incidence rate in 2018 was 38.9 per 100,000 women, a six-fold increase of the incidence in 2000 of 7.8 per 100,000 women. Thyroid cancer is currently the third most common malignancy in women and the tenth most common malignancy in men.

CANCER MORTALITY - 2018

In 2018, 5,052 people died from some type of cancer in Puerto Rico. Of these, 2,802 (55.5%) were men and 2,250 (44.5%) were women. Prostate cancer was the leading cause of cancer death among men (16.7%). Breast cancer was the leading cause of cancer death among women (18.2%). Cancer of the colon and rectum was the second leading cause of cancer deaths among men (14.4%) and among women (13.2%). Cancer of lung and bronchus was the third leading cause of cancer death in men (11.2%) and also in women (9.3%).

CANCER INCIDENCE AND MORTALITY 2014-2018

LIFETIME RISK

Based on incidence and mortality data for the period 2014-2018, approximately 41.0% of persons born today in Puerto Rico could be diagnosed with some type of cancer during their lifetime.

DATA FROM 2014-2018

During the period 2014-2018, 73,135 persons were diagnosed with invasive cancer in Puerto Rico: 38,224 (52.3%) men and 34,911 (47.7%) women. On average, 8,494 men and 7,758 women were diagnosed with cancer each year in Puerto Rico. Annex II shows the number of cases for the most frequent primary cancer sites by sex and the age-adjusted rates using three standard populations: Puerto Rico 2000, United States 2000, and the World. The median age at diagnosis of cancer overall during this period was 67 years. Approximately 1.0% of the cancer cases were diagnosed in people under 20 years of age; 2.8% between the ages of 20 and 34 years; 9.9% between the ages of 35 and 49; 29.3% between the ages of 50 and 64; 41.9% between the ages of 65 and 79 years; and 14.9% the group of over 79 years.

The ten most frequent cancer diagnosed by sex during this period are presented in Figure 2. In men, the most diagnosed cancer was prostate cancer (37.3%) which maintained a stable incidence trend during the period 2000-2018 (APC = 0.2%, $p>0.05$), followed by cancer of the colon and rectum (12.0%) which also maintained a stable incidence trend during the period 2000-2018 (APC = 0.1%, $p>0.05$) and cancer of the lung and bronchus (5.6%) which decreased 0.9% (APC = -0.9%, $p<0.05$) per year during the period 2000-2018. In women, breast cancer was the most diagnosed cancer (28.9%), having an increase of 1.6% (APC = 1.6%, $p<0.05$) per year during the period 2000-2018, followed by cancer of the colon and rectum (11.2%) which maintained a stable incidence trend during the period 2000-2018 (APC = -0.1%, $p>0.05$) and thyroid cancer (11.0%) which had an increase of 10.1% (APC = 10.1%, $p<0.05$) per year during the period 2000-2018.

In terms of mortality, during the period 2014-2018 a total of 26,041 cancer deaths were registered in Puerto Rico; 14,497 (55.6%) were men and 11,544 (44.4%) were women. Annex III

presents the number of deaths from cancer for the most frequent cancer sites by sex for 2014-2018 and the age-adjusted rate using three standard populations: Puerto Rico 2000, United States 2000 and the World. The average annual number of cancer deaths for this period was 2,899 in men and 2,308 in women. The median age at death was 73 years. Approximately 0.2% of all cancer deaths occurred in people younger than 20 years; 0.9%, between 20 and 34 years; 4.9%, between 35 and 49 years; 20.9%, between 50 and 64 years; 41.5%, between 65 and 79 years; and 31.6%, in the 80 or older age group.

The ten most common types of cancer as a cause of cancer death by sex are presented in Figure 3. In men, the most common cause of death was prostate with approximately 16.7% and it had a decrease of 3.1% (APC = -3.1%, $p<0.05$) per year during the period 2000-2018, followed by cancer of the colon and rectum (13.6%) which maintained a stable mortality trend during the period 2000-2018 (APC = -0.5%, $p>0.05$), and lung and bronchial cancer (12.3%) which had a decrease of 2.3% (APC = -2.3%, $p<0.05$) per year during the period 2000-2018. In women, breast cancer was the most common cause of death with approximately 18.9% and it maintained a stable mortality trend during the period 2000-2018 (APC = -0.4%, $p>0.05$), followed by cancer of the colon and rectum (13.3%) which had a decrease of 1.2% (APC = -1.2%, $p<0.05$) per year during the period 2000-2018, and lung and bronchial cancer (9.2%) which also had a decrease of 1.5% (APC = -1.5%, $p<0.05$) per year during the period 2000-2018.

Figure 2. Top ten cancer sites (incidence) by sex: Puerto Rico, 2014-2018

♂ Male (N = 38,224)	%	APC[2000-2018]	♀ Female (N = 34,911)	%	APC[2000-2018]
Prostate	37.3	-0.2	Breast	28.9	↑ 1.6*
Colon and rectum	12.0	0.1	Colon and rectum	11.2	-0.1
Lung and bronchus	5.6	↓ -0.9*	Thyroid	11.0	↑10.1*
Urinary bladder	4.1	0.1	Corpus and uterus, NOS	9.0	↑ 4.7*
Non-Hodgkin Lymphoma	4.1	↑ 2.5*	Lung and bronchus	4.0	0.5
Oral cavity and pharynx	3.8	↓ -0.7*	Non-Hodgkin Lymphoma	3.9	↑ 2.5*
Liver and bile duct	3.3	↑ 1.9*	Cervix uteri	3.1	↑ 1.8*
Kidney and renal pelvis	3.0	↑ 4.2*	Leukemia	2.5	↑ 2.9*
Leukemia	2.9	↑ 2.3*	Ovary	2.4	↑ 1.0*
Thyroid	2.5	↑10.3*	Pancreas	2.3	↑ 3.0*
Other sites	21.4		Other sites	21.9	

Statistics were generated for malignant tumors only; includes urinary bladder cancer *in situ*. Data Source: Incidence Case File from the Puerto Rico Central Cancer Registry, March 23, 2021.

Figure 3. Top ten cancer sites (mortality) by sex: Puerto Rico, 2014-2018

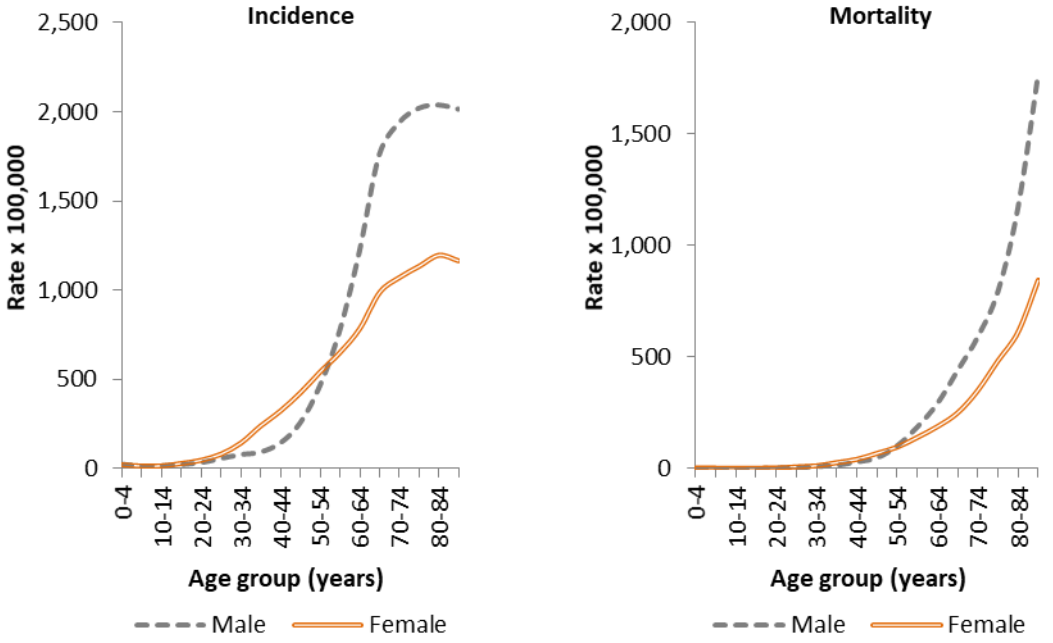
♂ Male (N = 14,497)	%	APC[2000-2018]	♀ Female (N = 11,544)	%	APC[2000-2018]
Prostate	16.7	↓ -3.1*	Breast	18.9	-0.4
Colon and rectum	13.6	-0.5	Colon and rectum	13.3	↓ -1.2*
Lung and bronchus	12.3	↓ -2.3*	Lung and bronchus	9.2	↓ -1.5*
Liver and bile duct	7.4	0.0	Pancreas	6.0	0.9
Pancreas	5.9	↑ 1.6*	Corpus and uterus, NOS	5.3	0.7
Stomach	3.8	↓ -5.0*	Liver and bile duct	4.7	↓ -1.5*
Leukemia	3.5	↓ -1.3*	Ovary	4.5	-0.2
Oral cavity and pharynx	3.4	↓ -2.9*	Leukemia	3.7	↓ -1.3*
Non-Hodgkin Lymphoma	3.1	↓ -1.3*	Stomach	3.4	↓ -4.3*
Esophagus	3.0	↓ -4.3*	Myeloma	2.8	-0.5
Other sites	27.2		Other sites	28.2	

Data Source: Mortality Case File provided by the Demographic Registry of Puerto Rico, October, 2019.

AGE AND SEX-SPECIFIC INCIDENCE RATES 2014-2018

During the period 2014-2018 median age at diagnosis for all cancer types in men was 68 years, while for women it was 65 years. The risk of developing cancer in men starts to increase significantly at the end of the fourth decade of life, whereas in women a slow and steady increase begins from 25 years onward. In the 80 to 84 age group, the risk of developing some type of cancer is almost double in men than in women (RR= 1.7, 95% IC: 1.6, 1.8). In terms of mortality, during the period 2014-2018 the median age at death for all types of cancer in men was 73 years. The risk of dying from cancer is similar for both sexes up to 45-49 years of age (less than 100 per 100,000 population). From age group 50-54 onward, the mortality rate in men begins to increase considerably in relation to the rate in women. Men 80-84 years old have almost twice the risk of dying from cancer than women of the same age (RR=1.9, 95% IC: 1.8, 2.1). Figure 4 shows the age and sex-specific incidence and mortality rates for this period.

Figure 4. Age-specific incidence and mortality rates for all cancers by sex: Puerto Rico, 2014-2018



THE MOST FREQUENT CANCERS BY SEX AND AGE, 2014-2018

The incidence of invasive cancer varies with age, sex, and the type of tumor. Figures 5 and 6 show the percent distribution of the most frequent cancers (diagnosed in men and women, respectively) during the period 2014-2018 by age in the adult population (>19 years).

Figure 5. The most frequently diagnosed cancer by age in men: Puerto Rico, 2014-2018

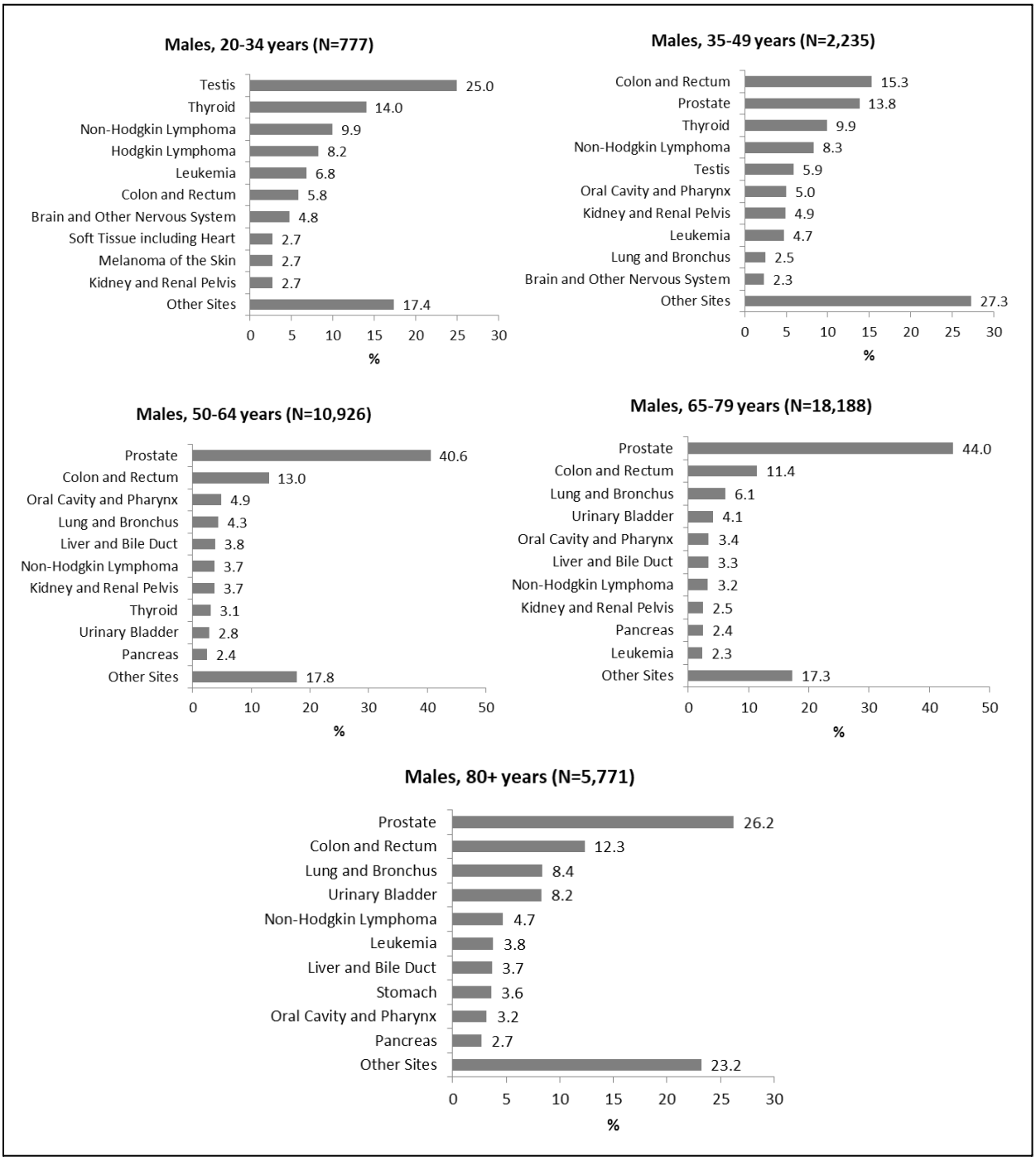
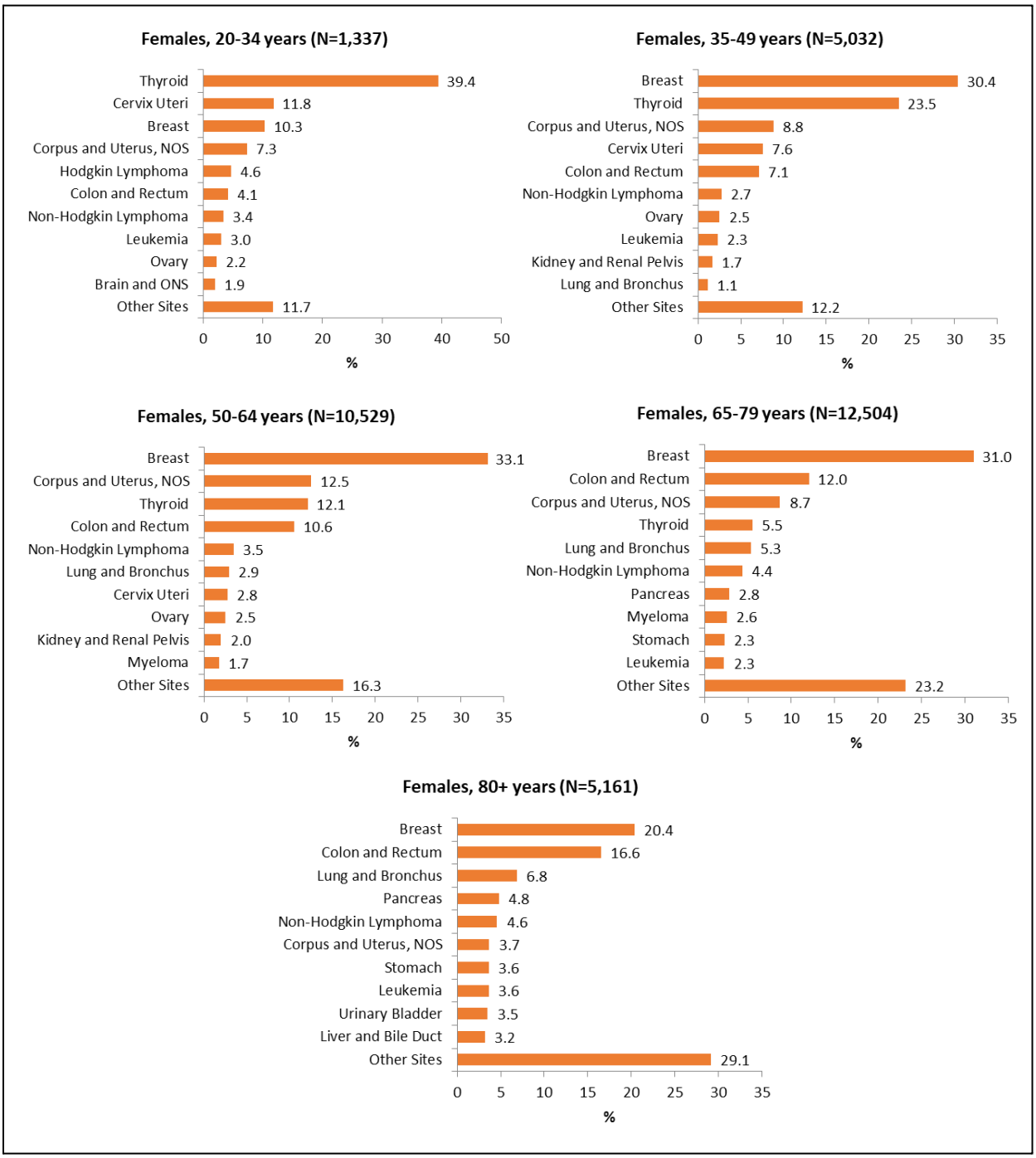


Figure 6. The most frequently diagnosed cancer by age in women: Puerto Rico, 2014-2018



Figures 7 and 8 show the percentage distribution of the most frequent cancer-related causes of death by age groups during the period 2014-2018 for men and women respectively. In men, leukemias are most frequent in young adults less than 35 years old. Cancer of the colon and rectum predominates in the ages between 35 to 64 years. Prostate cancer is the most frequent

in the 65-79 age group and after 80 years of age. Breast cancer begins to increase in the third decade of life in women and predominates throughout adult life and old age of women in Puerto Rico (up to 79 years). Colon and rectal cancer predominates beginning at 80 years of age.

Figure 7. Leading cancer-related deaths by age in men: Puerto Rico, 2014-2018

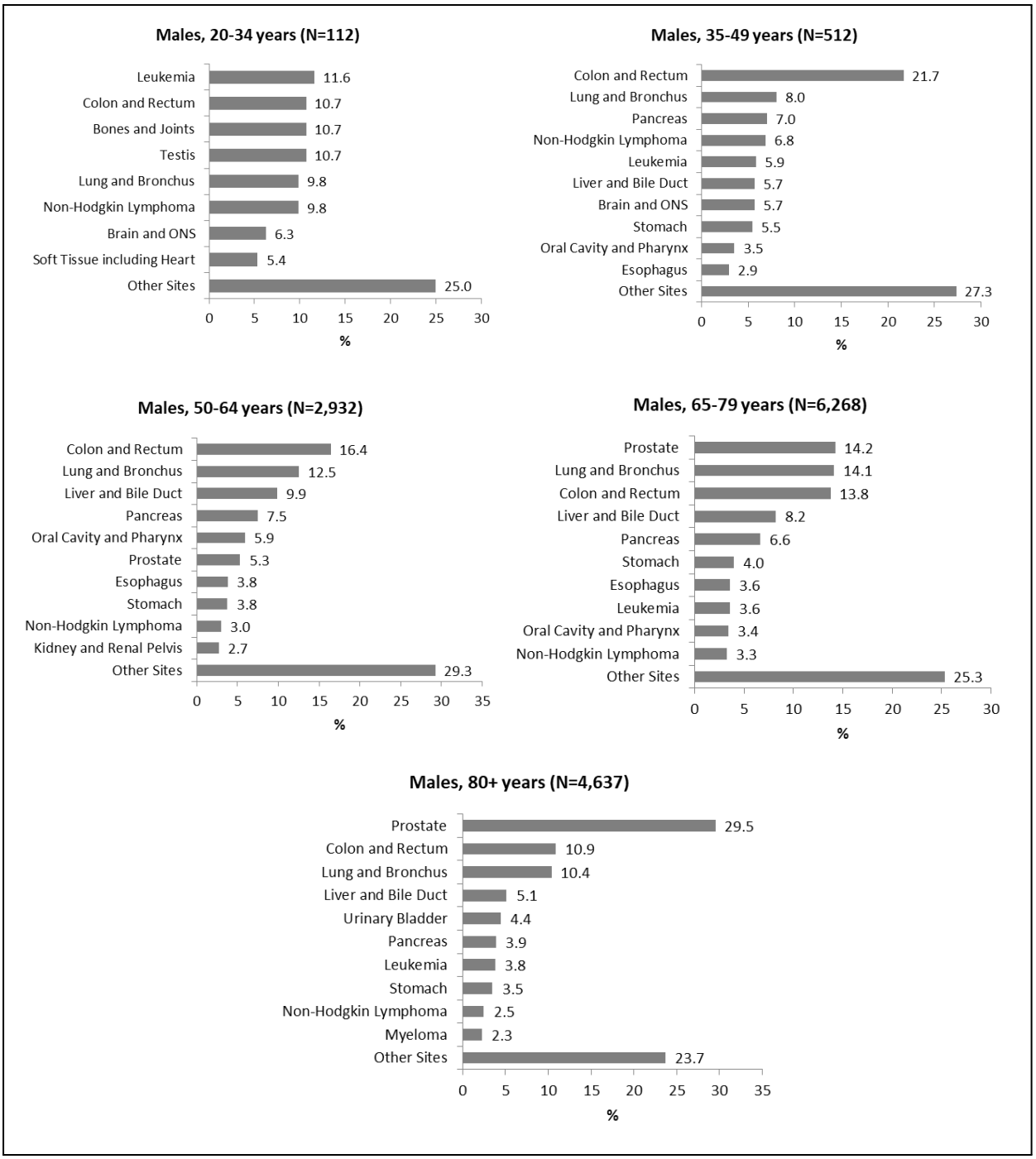
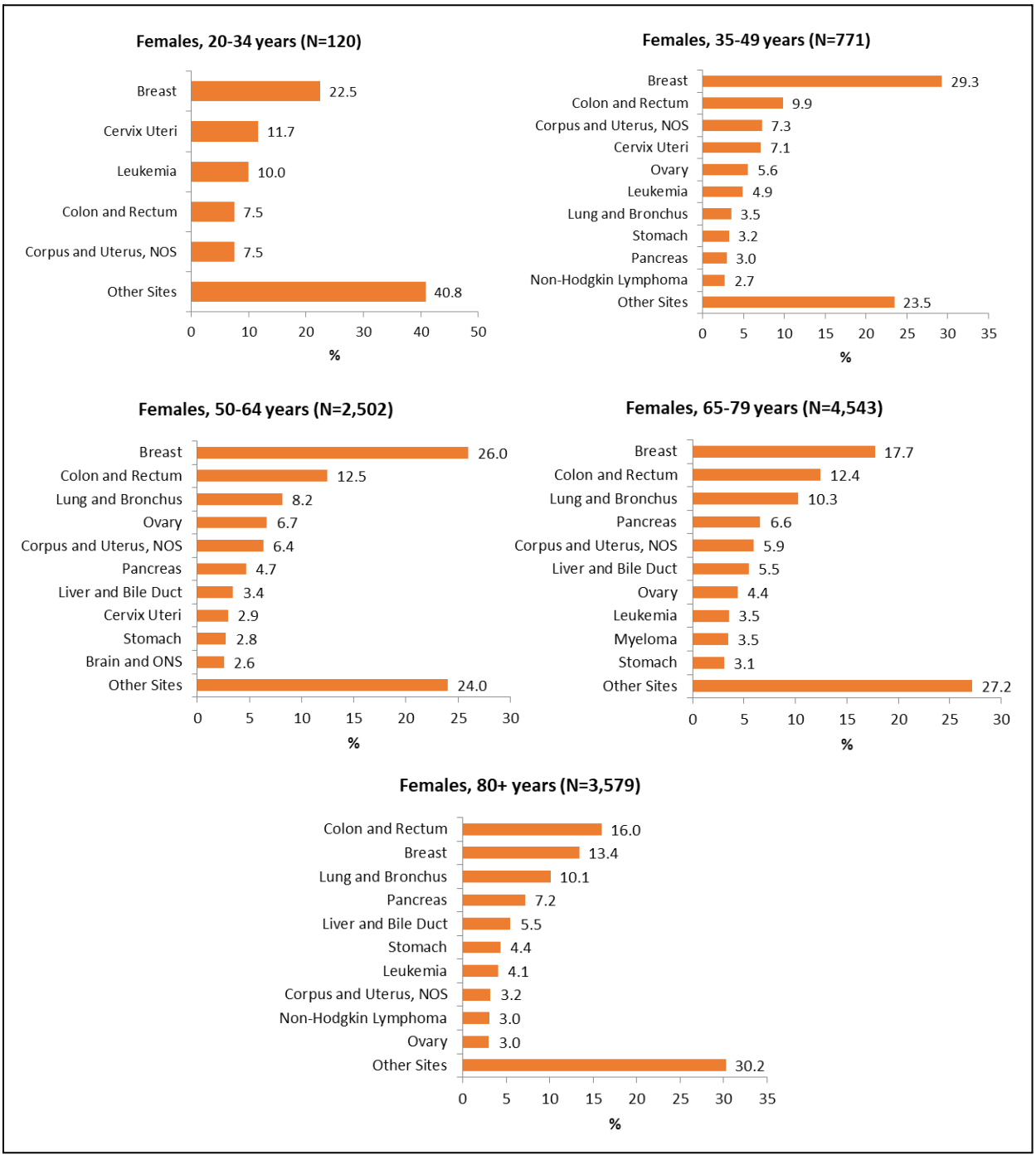


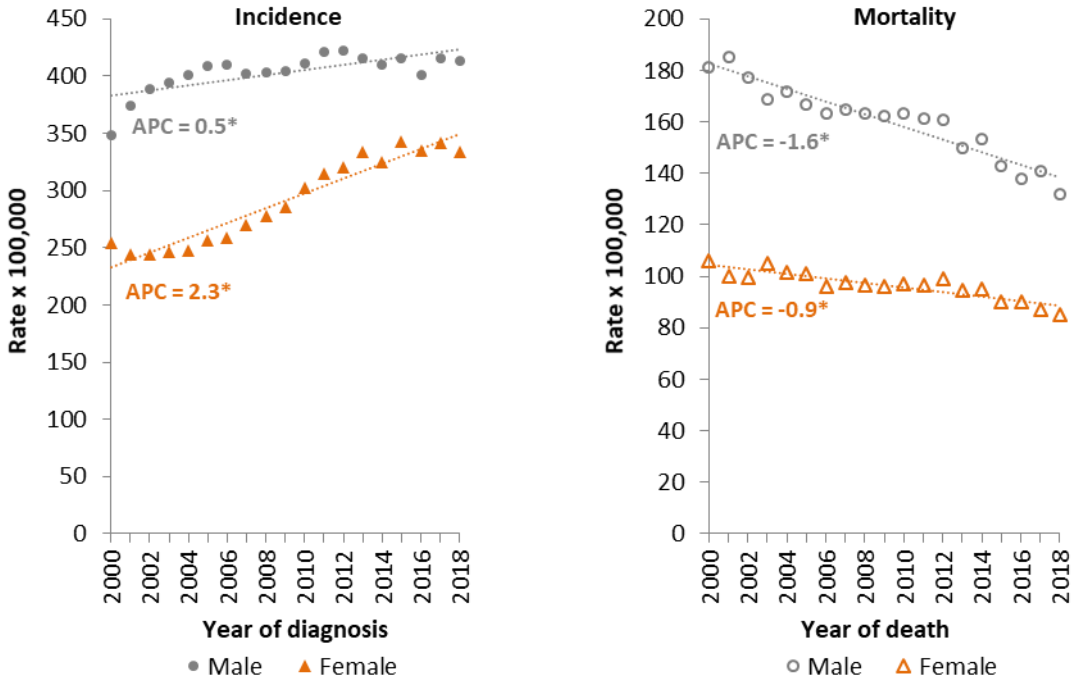
Figure 8. Leading cancer-related deaths by age in women: Puerto Rico, 2014-2018



CANCER INCIDENCE AND MORTALITY TRENDS 2000-2018

Figure 9 shows the trends in cancer incidence and mortality rates (age-adjusted to the standard US population 2000) for the period 2000-2018 by sex in Puerto Rico. For men, the incidence increased from 348.8 per 100,000 in 2000 to 412.8 in 2018 and for women, it increased from 254.2 per 100,000 in 2000 to 333.4 in 2018. Between 2000 and 2018 the incidence rate of cancer in men had an average annual increase of approximately 0.5%, while for women, the increase was about 2.3% per year. For both sexes, the increase over time was statistically significant ($p<0.05$). In terms of cancer mortality, during this period mortality in men fell from 181.4 per 100,000 in 2000 to 132.0 in 2018 and, in women, it decreased from 105.9 per 100,000 in 2000 to 85.2 in 2018. Between 2000 and 2018 the death rate from cancer in men had a reduction of approximately 1.6% per year and 0.9% per year in women. These decreasing trends are statistically significant ($p<0.05$).

Figure 9. Age-adjusted (2000 US standard population) incidence and mortality rates – all cancer sites by sex: Puerto Rico, 2000-2018



GEOGRAPHIC DISTRIBUTION - 2014-2018

Figure 10 shows the distribution of the average annual cancer incidence rates of all types by municipality. The classification of municipalities' rates is in quartiles (four proportionally equal groups). In the 2014-2018 period, mainly the municipalities in Southern and North-Central regions of Puerto Rico showed the highest cancer incidence rates. Figure 11 shows the distribution of annual average cancer mortality rates for all sites by municipality. In the 2014-2018 period, a greater number of municipalities with the highest cancer mortality rates are observed in the North and South-Central regions of the island.

Figure 10. Age-adjusted incidence rates (2000 PR standard population) – all cancer sites by municipality: Puerto Rico, 2014-2018

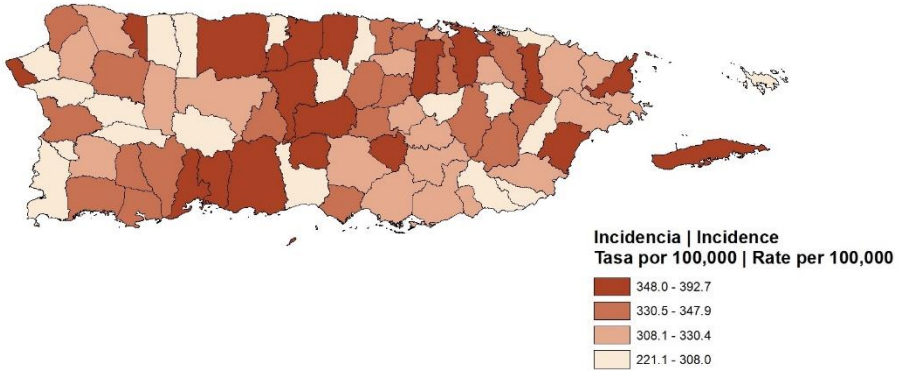
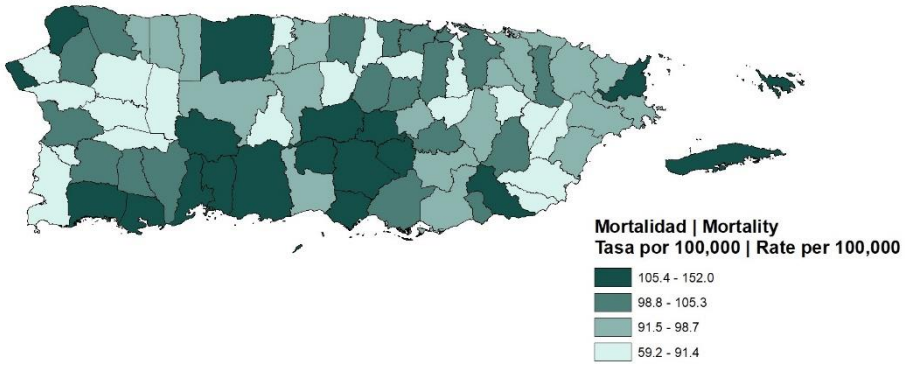


Figure 11. Age-adjusted mortality rates (2000 PR standard population) – all cancer sites by municipality: Puerto Rico, 2014-2018



CHILDHOOD CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 childhood cancer**:

Was less common than in adults (20 years or more), it accounted for 1.8% of all cancers.

A total of **675** boys and girls were diagnosed with cancer, and **65** died from a childhood cancer.

Carcinomas (21.9%), **leukemia** (21.5%), and **lymphomas** (14.1%) were the top three most diagnosed cancers among children.

Childhood cancer detection

Childhood cancer (ages 0 to 19) is rare and there are no recommended early detection tests to identify cancer in children unless they have a genetic predisposition. Recent reports suggest that at least 10% of pediatric cancer patients harbor a germline mutation in a cancer predisposition gene (4). To detect if a child has any childhood cancer, a doctor will ask about possible signs and symptoms, and will examine the child. If cancer might be causing the symptoms, the doctor might order other tests to be done. These tests may include: blood and urine tests, X-rays, CT scans, MRI, and biopsies, among other tests (5).

Risk factors

Childhood cancer is different from cancer in adults in terms of diagnosis, risk factors, anatomical site, treatment, and prognosis. The causes of childhood cancer are largely unknown. Only a small percent of cases can be explained by some specific conditions like chromosomal abnormalities/genetic (e.g., Down syndrome) and exposure to ionizing radiation. Environmental exposures have long been suspected of increasing the risk of developing certain childhood cancers.

For more information about childhood cancer go HERE.

Figure 12. The most frequently diagnosed cancer among children by sex: Puerto Rico, 2014-2018

♂ Boys (N = 327)	%	APC[2000-2018]	♀ Girls (N = 348)	%	APC[2000-2018]
Leukemias	21.4	1.9	Carcinomas	31.0	↑ 12.5*
Lymphomas	17.1	↑ 2.9*	Leukemias	21.6	↑ 4.2*
CNS Neoplasms	16.8	↑ 2.6*	CNS Neoplasms	11.5	0.0
Carcinomas	12.2	↑ 10.8*	Lymphomas	11.2	↑ 4.1*
Germ Cell Neoplasms	7.6	↑ 4.8*	Germ Cell Neoplasms	5.7	3.0
Other sites	24.8		Other sites	19.0	

CNS = Central Nervous System

Figure 13. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Childhood cancer by sex: Puerto Rico, 2000-2018

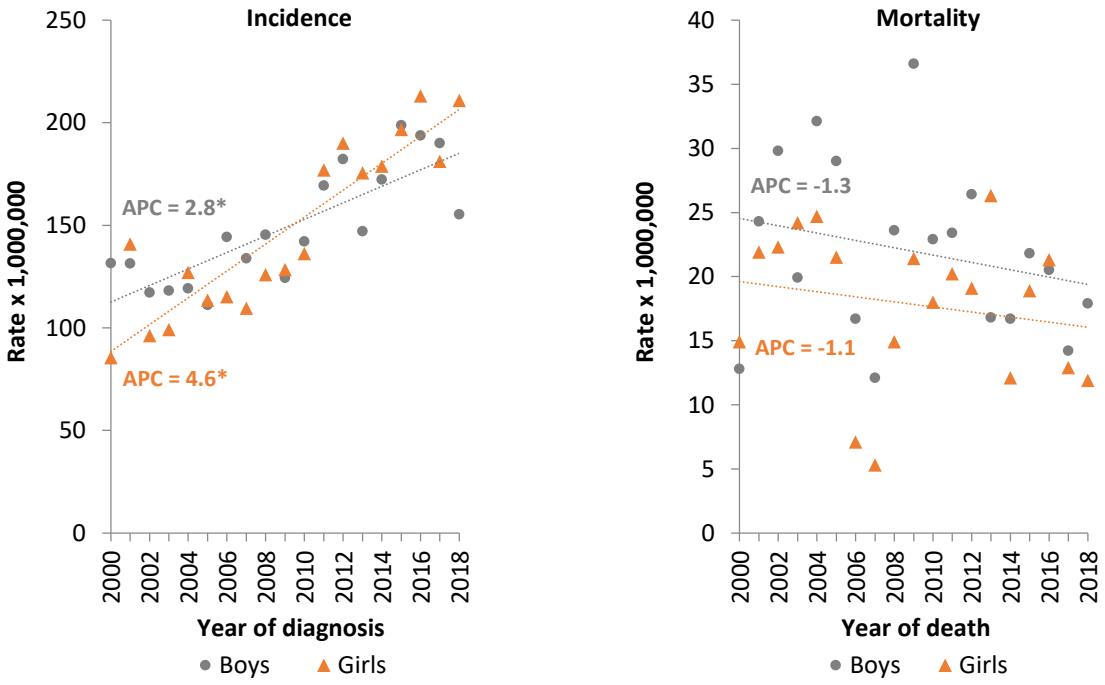
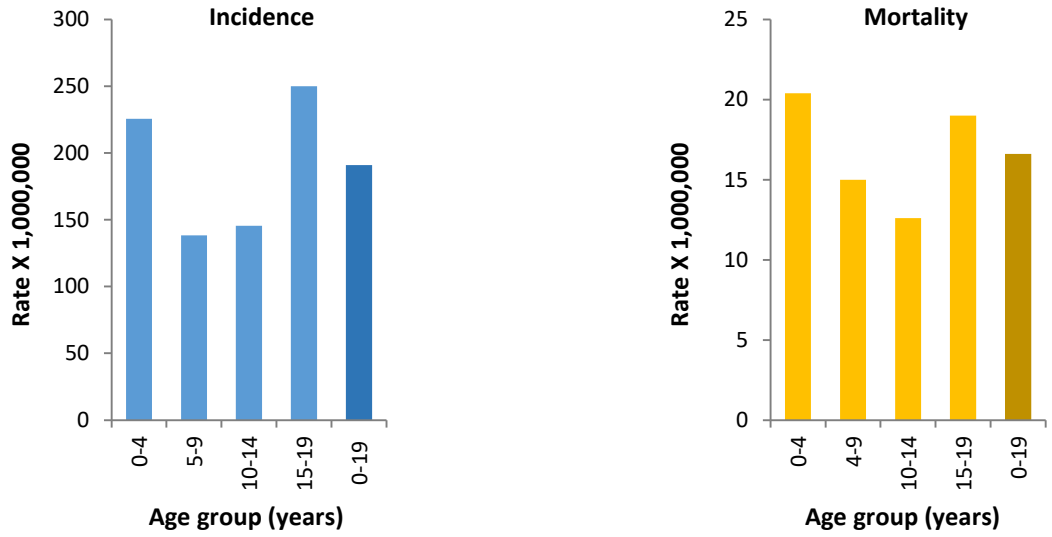


Figure 14. Age-specific incidence and mortality rates – Childhood cancer: Puerto Rico, 2014-2018



Figures summary. During the period 2014-2018, leukemias were the most common cancer diagnosed among boys; however, carcinomas were the most common cancer among girls (Figure 12). Between 2000 and 2018, the incidence rates of carcinomas among girls and boys increased on average **12.5%** ($p<0.05$) and **10.8%** ($p<0.05$) each year, respectively. The increased incidence among girls is most likely due to the increase of thyroid carcinomas, especially among girls aged 15-19 years. Between 2000 and 2018, the incidence rates of childhood cancer increased on average **2.8%** ($p<0.05$) per year in boys and **4.6%** ($p<0.05$) per year in girls (Figure 12). However, the mortality rates in boys and girls decreased on average **1.3%** ($p>0.05$) and **1.1%** ($p>0.05$) per year, respectively (Figure 13). Children between 15 and 19 years of age have higher incidence rates. While children aged 0 to 4 years have higher mortality rates (Figure 14). Annex IV shows the number of cases for selected primary childhood cancer sites by sex and the age-adjusted rates using three standard populations: Puerto Rico 2000, United States 2000, and the World. **For statistical information of childhood cancer in the United States of America go HERE.**

ADOLESCENTS AND YOUNG ADULTS CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 cancer among adolescents and young adults (AYAs) (15-39 years):**

It accounted for **5.4%** of all cancers reported in Puerto Rico and **2.0%** of all deaths.

The most common cancer type among AYAs was thyroid cancer, with an incidence age-adjusted rate of **23.5** per 100,000 AYAs**.**

Female breast cancer was the deadliest cancer among AYAs, with a mortality age-adjusted rate of **25.3** per 100,000 female AYAs**.**

The National Cancer Institute identified adolescents and young adults (AYAs) with cancer as individuals aged 15 to 39 years at cancer diagnosis. Studies have documented cancer among AYAs can be unique in their biology and genetics (6).

Risk factors

Risk factors depend on the type of cancer. Some genetic syndromes are associated with the risk of developing certain types of cancer. For example, Lynch syndrome is associated with colorectal, endometrial, and ovarian cancer. Other risk factors are obesity, diet (high consumption of fats and processed meats), and lack of exercise (7). Exposure to estrogen and progesterone may increase the risk of testicular cancer (8). Exposure to infectious agents such human papilloma virus, Epstein-Barr virus, HIV, and herpesvirus 8 are risk factors for AYAs cancer (9).

For more information about cancer in AYAs go HERE.

Figure 15. The most frequently diagnosed cancer among adolescents and young adults by sex: Puerto Rico, 2014-2018

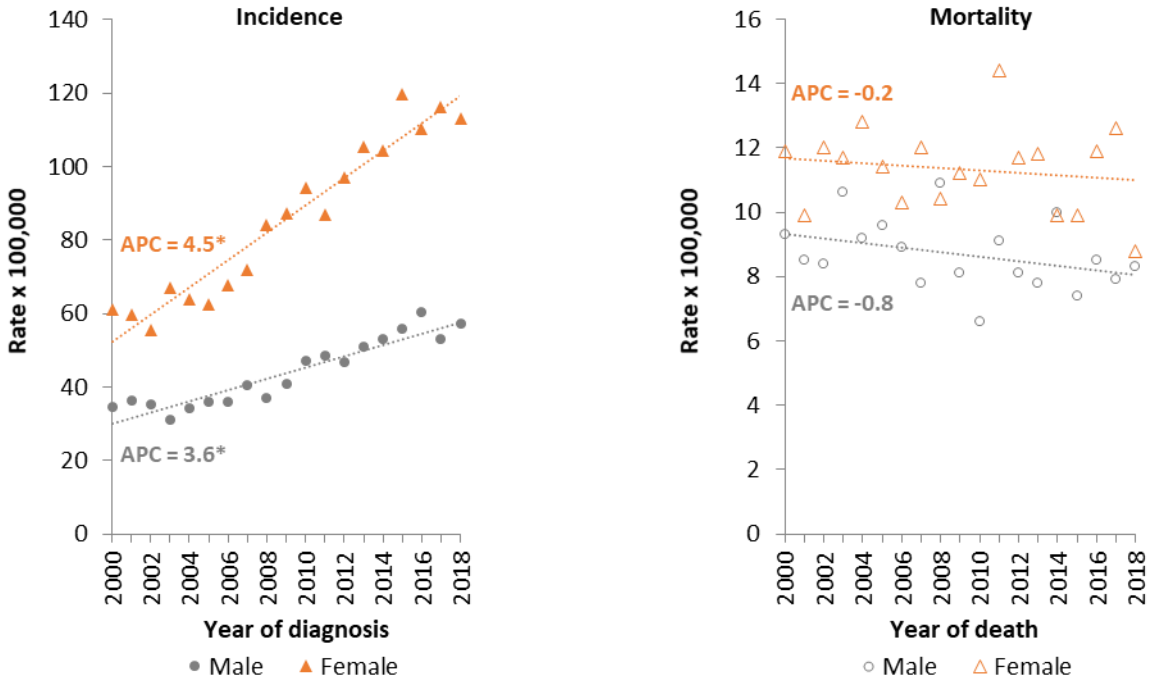
♂ Male (N = 1,302)	%	APC[2000-2018]	♀ Female (N = 2,680)	%	APC[2000-2018]
Testis	20.7	↑ 5.8*	Thyroid	35.1	↑ 10.7*
Thyroid	13.1	↑ 11.7*	Cervix and uterus	17.9	↑ 4.9*
Non-Hodgkin lymphoma	10.1	↑ 3.6*	Breast	14.9	↑ 1.0*
Leukemias	7.5	1.1	Colon and Rectum	4.7	↑ 5.5*
Hodgkin lymphoma	7.5	1.0	Non-Hodgkin lymphoma	3.5	↑ 3.3*
Other sites	41.2		Other sites	24.0	

Figure 16. Leading cancer-related deaths among adolescents and young adults by sex: Puerto Rico, 2014-2018

♂ Male (N = 210)	%	APC[2000-2018]	♀ Female (N = 277)	%	APC[2000-2018]
Leukemias	11.9	↓ - 4.1*	Breast	25.3	↑ 1.6
Colon and Rectum	11.4	↑ 2.6	Cervix and uterus	10.1	0.9
CNS and brain	10.0	~	Leukemias	8.7	↓ - 2.1
Testis	9.0	↑ 3.2	Colon and Rectum	6.5	~
Non-Hodgkin lymphoma	8.6	↓ - 4.3*	Corpus and Uterus, NOS	5.8	~
Other sites	49.0		Other sites	43.7	

CNS = Central Nervous System
~ Statistics could not be calculated.

Figure 17. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Adolescents and young adults' cancer by sex: Puerto Rico, 2000-2018



Figures summary. During the period 2014-2018, thyroid and testicular cancer were the most frequently diagnosed cancer among women and men AYAs, respectively (Figure 15). However, breast cancer and leukemias were the first causes of cancer deaths among women and men, respectively (Figure 16). Between 2000 and 2018, the incidence rates for men and women AYAs cancer increased on average **3.6%** ($p<0.05$) and **4.5%** ($p<0.05$) each year, respectively (Figure 17). The increase in rates is most likely due to the increase in thyroid cancer. During this period, the incidence rates of thyroid cancer increased on average **10.7%** each year ($p<0.05$) among females and **11.7%** ($p<0.05$) among males. However, mortality rates remained stable for both men and women. Annex V shows the number of cases for selected primary adolescents and young adults' cancer sites by sex and the age-adjusted rates using three standard populations: Puerto Rico 2000, United States 2000, and the World. **For statistical information of cancer in AYAs in the United States of America go HERE.**

CANCER IN THE GENERAL POPULATION

ORAL CAVITY AND PHARYNX CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 oral cavity and pharynx** cancer accounted for **3.8%** of all cancers in men and **1.6%** of all cancers in women.

It also accounted for **3.4%** of all cancer deaths in men and **1.0%** of all cancer deaths in women.

On average, **324** men and **121** women were diagnosed annually with oral cavity and pharynx cancer.

On average, **98** men and **24** women died from oral cavity and pharynx cancer each year.

The risk of developing oral cavity and pharynx cancer was **3.2** times higher in men than women (95% CI: 2.9, 3.5).

The risk of dying from oral cavity and pharynx cancer was **5.2** times higher in men than women (95% CI: 4.1, 6.4).

1 in 90 persons born today in Puerto Rico could be diagnosed with oral cavity and pharynx cancer during their lifetime.

The 5-year relative survival rate for oral cavity and pharynx cancer diagnosed between 2010 and 2014 was **49.9%**.

Oral cavity and pharynx cancer detection

There's no routine screening test for early detection of oral cavity and pharynx cancer. However, many precancerous lesions can be found during routine oral exams by a dentist. It is recommended that you look at your mouth in a mirror every month to check for any changes (white patches, sores, or lumps) (10).

Risk factors

Risk factors for this cancer include: cigarettes, cigars or pipe smoking, chewing snuff, drinking alcohol, infection with the human papillomavirus (HPV), exposure to sunlight, and personal history of head and neck cancer (11).

For more information about this cancer go HERE.

Figure 18. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Oral cavity and pharynx cancer by sex: Puerto Rico, 2000-2018

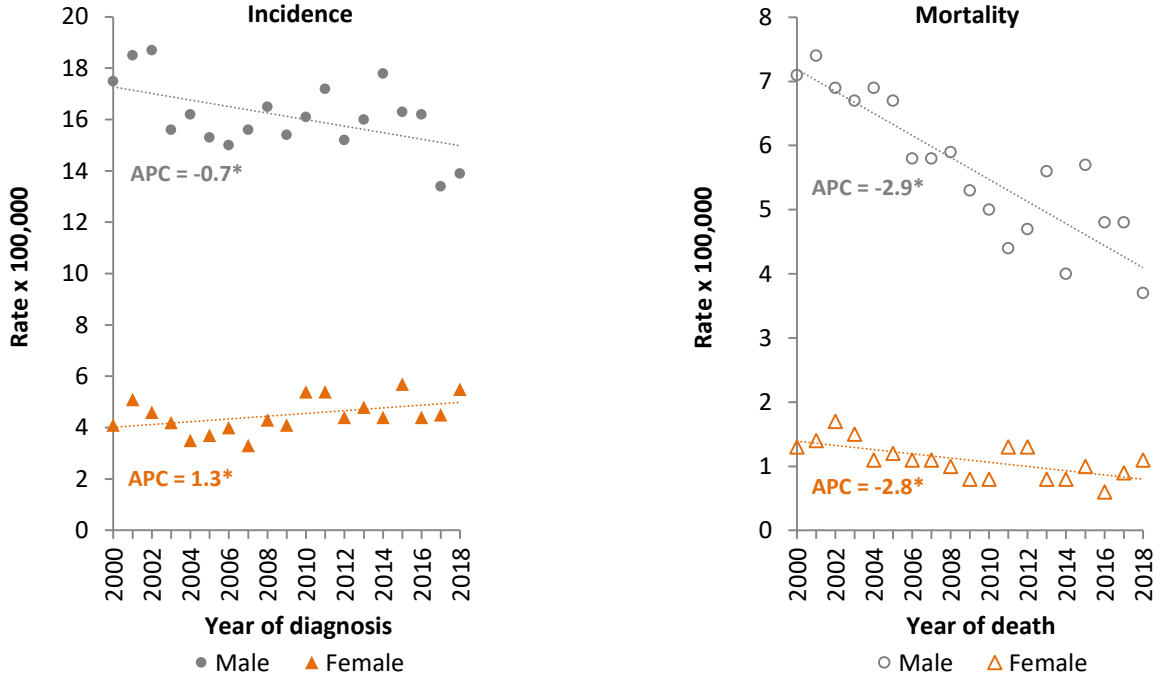


Figure 19. Age-specific incidence and mortality rates – Oral cavity and pharynx cancer by sex: Puerto Rico, 2014-2018

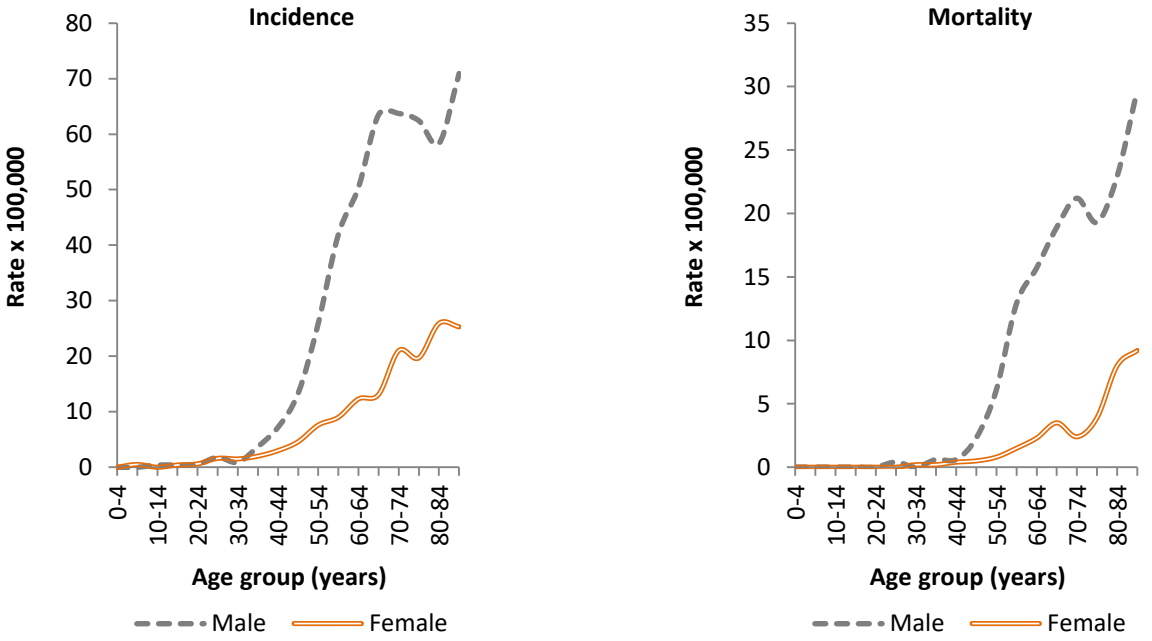


Figure 20. Age-adjusted incidence rates (2000 PR Standard Population) – Oral cavity and pharynx cancer by municipality: Puerto Rico, 2014-2018

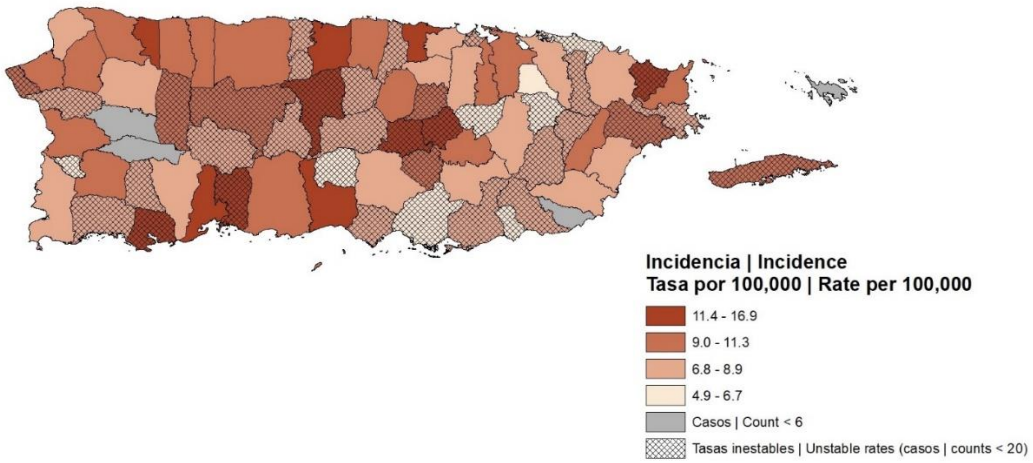
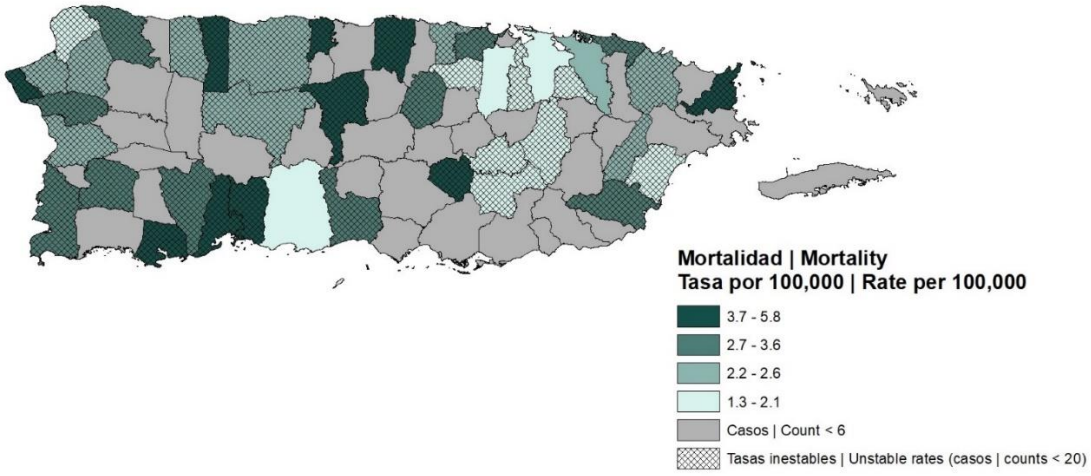


Figure 21. Age-adjusted mortality rates (2000 PR Standard Population) – Oral cavity and pharynx cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for oral cavity and pharynx cancer decreased on average **0.7%** ($p<0.05$) per year in men, while increased on average **1.3%** ($p<0.05$) per year in women. However, mortality rates decreased on average **2.9%** ($p<0.05$) per year in men and **2.8%** ($p<0.05$) per year in women (Figure 18). The median age at diagnosis for oral cavity and pharynx cancer in men was **66** years and **68** years in women. The median age at death in men was **67** years and **72** years in women (Figure 19). **For statistical information of this cancer in the United States of America go HERE.**

STOMACH CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 stomach** cancer accounted for **2.3%** of all cancers in men and **2.0%** of all cancers in women.

It also accounted for **3.8%** of all cancer deaths in men and **3.4%** of all cancer deaths in women.

On average, **192** men and **150** women were diagnosed annually with stomach cancer.

On average, **110** men and **78** women died from stomach cancer each year.

The risk of developing stomach cancer was **1.6** times higher in men than women (95% CI: 1.4, 1.8).

The risk of dying from stomach cancer was **1.8** times higher in men than women (95% CI: 1.6, 2.1).

1 in **105** persons born today in Puerto Rico could be diagnosed with stomach cancer during their lifetime.

The 5-year relative survival rate for stomach cancer diagnosed between 2010 and 2014 was **31.7%**.

Stomach cancer detection

There's no routine screening test for early detection of stomach cancer. Signs and symptoms can include: poor appetite, weight loss, abdominal pain, heartburn or indigestion, and feeling full after eating a small meal. You should see a doctor if you have any of these signs and symptoms (12).

Risk factors

The principal factor associated with increased risk of developing stomach cancer is an infection with *Helicobacter pylori*. Other factors are chronic gastritis, pernicious anemia, familial adenomatous polyposis or gastric polyps, smoking, diet poor in fruits and vegetables, advanced age, being male, and having a family history of stomach cancer (11).

For more information about this cancer go HERE.

Figure 22. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Stomach cancer by sex: Puerto Rico, 2000-2018

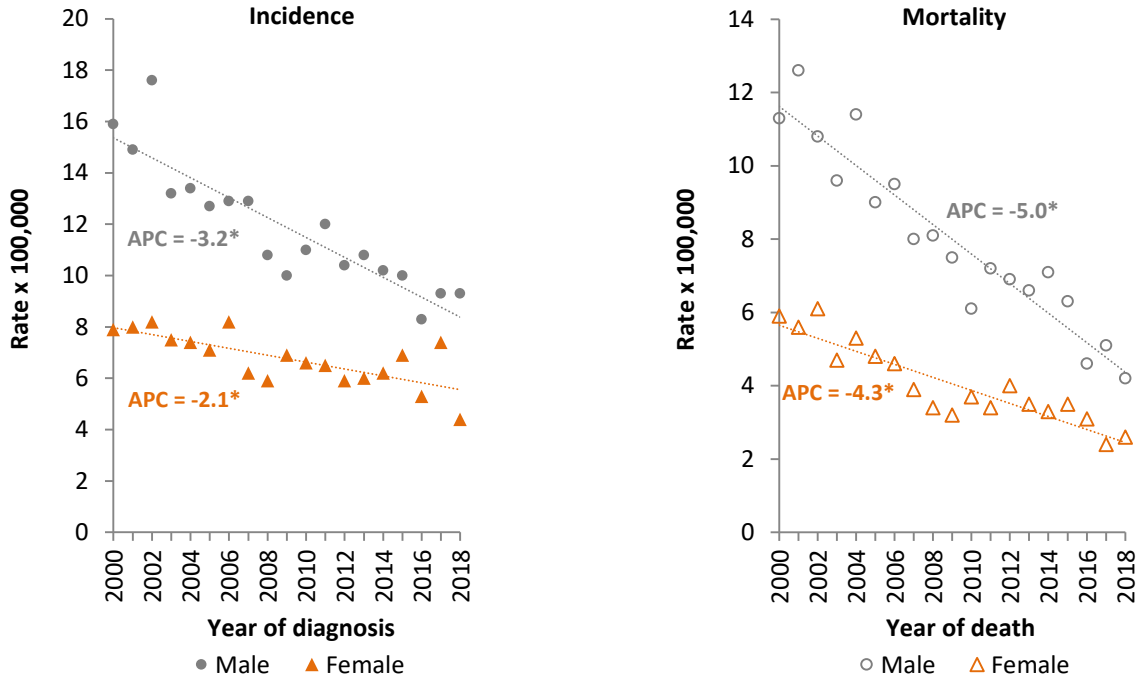


Figure 23. Age-specific incidence and mortality rates – Stomach cancer by sex: Puerto Rico, 2014-2018

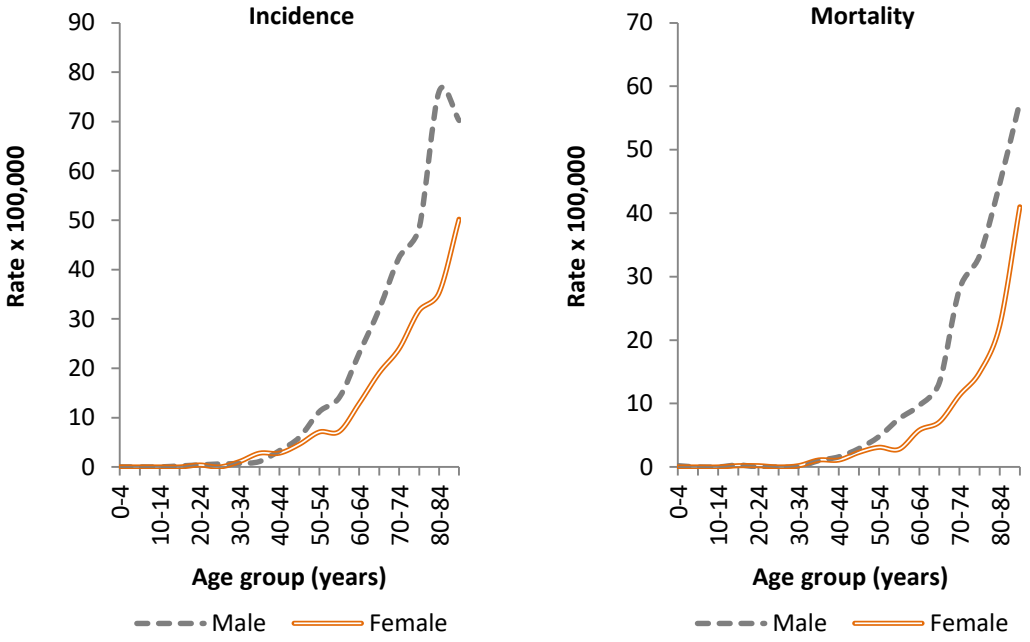


Figure 24. Age-adjusted incidence rates (2000 PR Standard Population) – Stomach cancer by municipality: Puerto Rico, 2014-2018

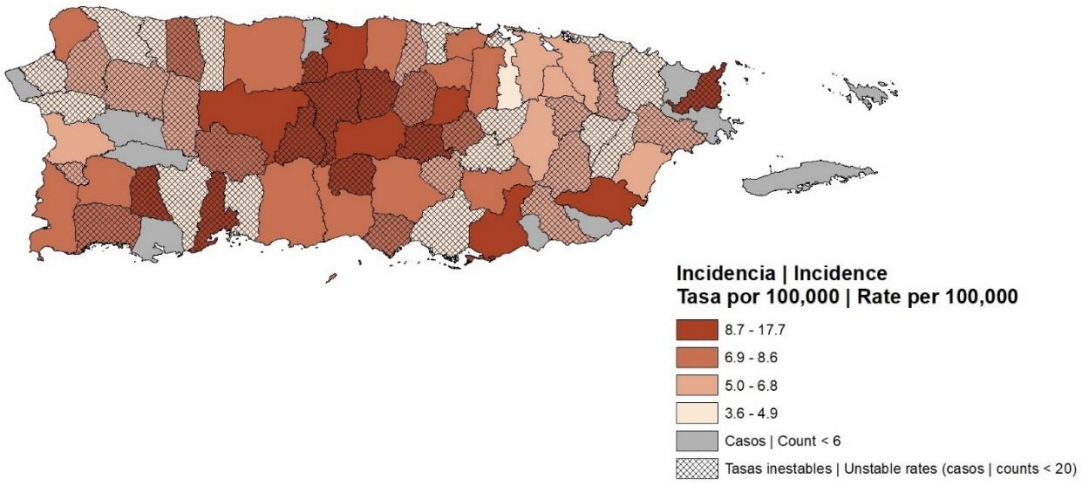
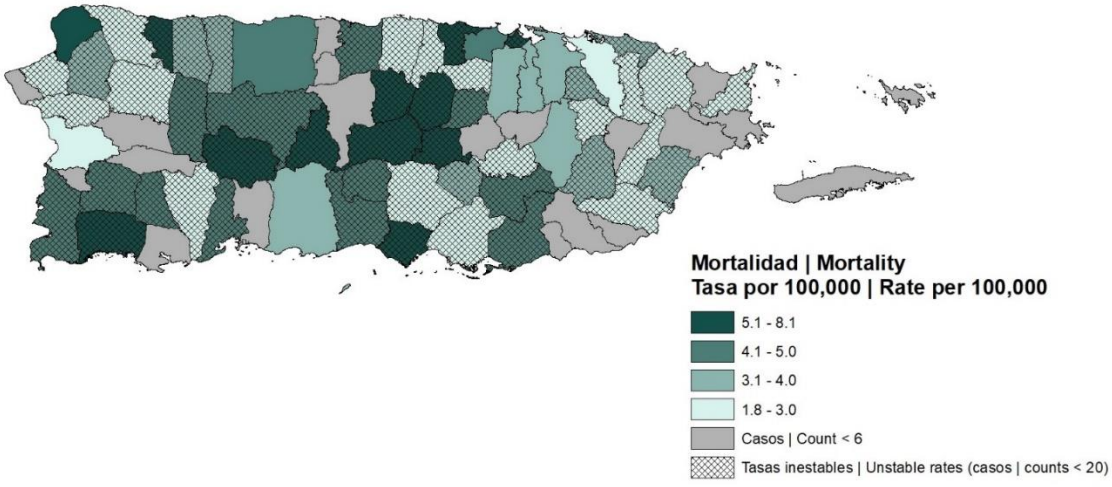


Figure 25. Age-adjusted mortality rates (2000 PR Standard Population) – Stomach cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for stomach cancer decreased on average **3.2%** ($p<0.05$) per year in men and **2.1**% ($p<0.05$) per year in women. Similarly, mortality rates decreased on average **5.0%** ($p<0.05$) per year in men and **4.3%** ($p<0.05$) per year in women (Figure 22). The median age at diagnosis for stomach cancer in men was **71** years and **72** years in women. The median age at death in men was **73** years and **76** years in women (Figure 23). **For statistical information of this cancer in the United States of America go HERE.**

COLORECTAL CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018** **colorectal** cancer accounted for **12.0%** of all cancers in men and **11.2%** of all cancers in women.

It also accounted for **13.6%** of all cancer deaths in men and **13.3%** of all cancer deaths in women.

On average, **1,022** men and **865** women were diagnosed annually with colorectal cancer.

On average, **395** men and **307** women died from colorectal cancer each year.

The risk of developing colorectal cancer was **1.4** times higher in men than women (95% CI: 1.4, 1.5).

The risk of dying from colorectal cancer was **1.6** times higher in men than women (95% CI: 1.6, 1.8).

1 in **20** persons born today in Puerto Rico could be diagnosed with colorectal cancer during their lifetime.

The 5-year relative survival rate for colorectal cancer diagnosed between 2010 and 2014 was **62.1%**.

Early detection of colorectal cancer

Among the tests for the early detection of colon and rectal cancer are stool tests which include the fecal immunochemical test (FIT), guaiac-based fecal occult blood test (gFOBT), and the stool DNA test. Colonoscopy or CT colonography (a test that uses computerized tomography) (13) is also used to observe the structure of the colon and rectum and detect abnormalities.

Risk factors

Factors associated with an increased risk of developing colorectal cancer include personal or family history of polyps, ulcerative colitis, Crohn's disease, a diet high in fat and calories and low in fruits and vegetables, cigarette smoking, and physical inactivity (11).

For more information about this cancer go HERE.

Figure 26. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Colorectal cancer by sex: Puerto Rico, 2000-2018

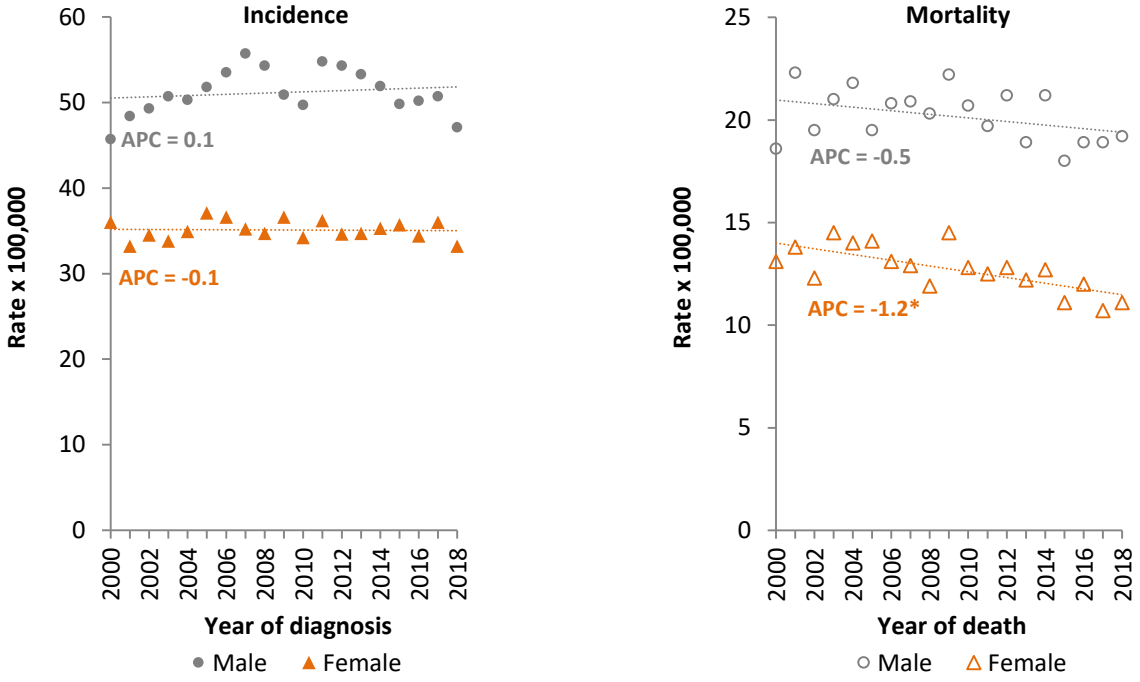


Figure 27. Age-specific incidence and mortality rates – Colorectal cancer by sex: Puerto Rico, 2014-2018

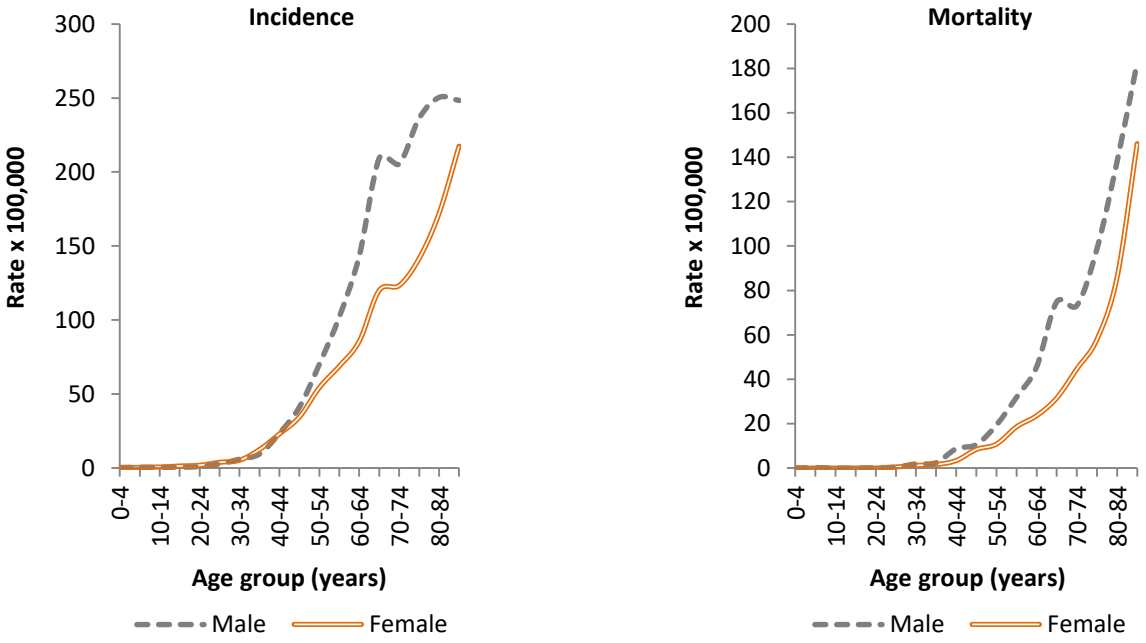


Figure 28. Age-adjusted incidence rates (2000 PR Standard Population) – Colorectal cancer by municipality: Puerto Rico, 2014-2018

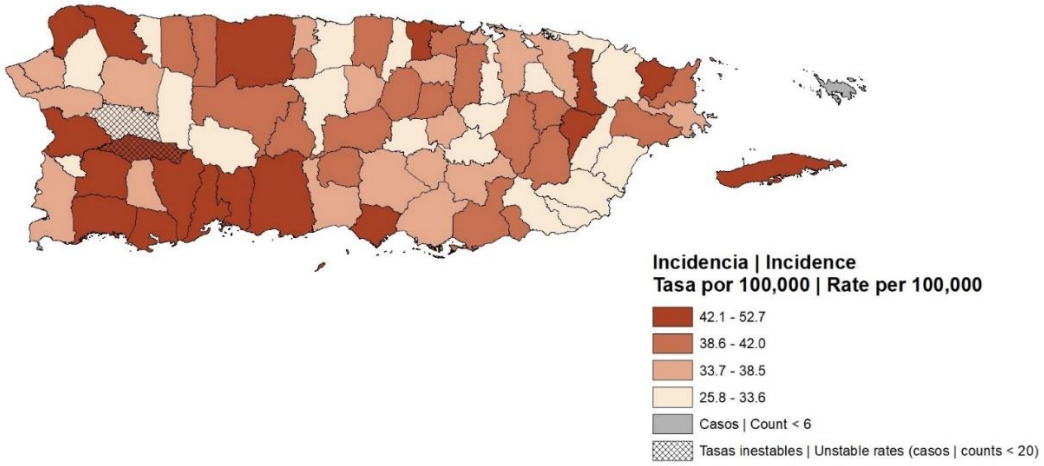
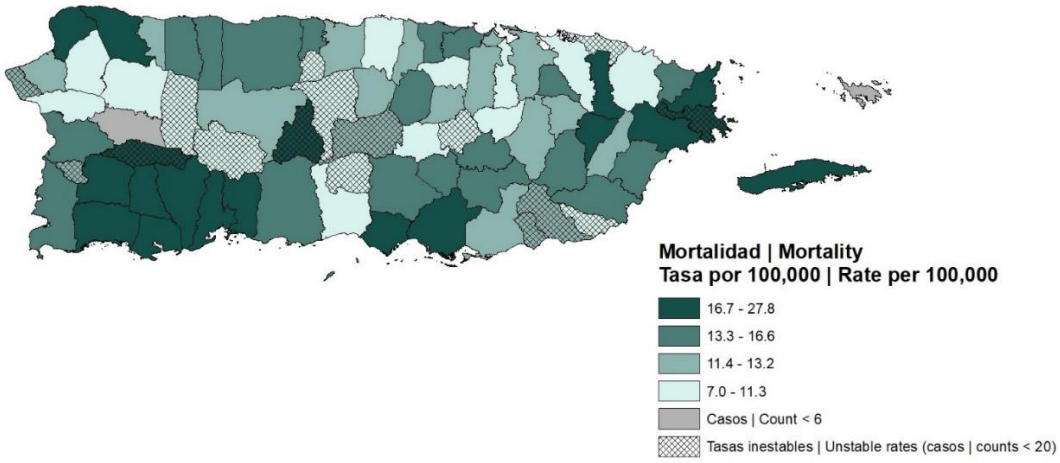


Figure 29. Age-adjusted mortality rates (2000 PR Standard Population) – Colorectal cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for colorectal cancer remained stable for both men and women. Similarly, mortality rates remained stable in men, but decreased on average **1.2%** ($p<0.05$) per year in women (Figure 26). The median age at diagnosis for colorectal cancer in men was **67** years and **68** years in women. The median age at death in men was **70** years and **74** years in women (Figure 27). **For statistical information of this cancer in the United States of America go HERE.**

LIVER AND INTRAHEPATIC BILE DUCT CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 liver and intrahepatic bile duct** cancer accounted for **3.3%** of all cancers in men and **1.5%** of all cancers in women.

It also accounted for **7.4%** of all cancer deaths in men and **4.7%** of all cancer deaths in women.

On average, **284** men and **118** women were diagnosed annually with liver and intrahepatic bile duct cancer.

On average, **215** men and **110** women died from liver and intrahepatic bile duct cancer each year.

The risk of developing liver and intrahepatic bile duct cancer was **3.0** times higher in men than women (95% CI: 2.7, 3.4).

The risk of dying from liver and intrahepatic bile duct cancer was **2.5** times higher in men than women (95% CI: 2.3, 2.8).

1 in **94** persons born today in Puerto Rico could be diagnosed with liver and intrahepatic bile duct cancer during their lifetime.

The 5-year relative survival rate for liver and intrahepatic bile duct cancer diagnosed between 2010 and 2014 was **16.0%**.

Liver and intrahepatic bile duct cancer detection

There's no routine screening test for early detection of liver and intrahepatic bile duct cancer. However, for people at higher risk, experts recommend screening for liver cancer with alpha-fetoprotein (AFP) blood test and ultrasound every 6 months (14).

Risk factors

Risk factors associated with liver and intrahepatic bile duct cancer include infection with hepatitis B virus (HBV) or hepatitis C virus (HCV), high alcohol consumption, aflatoxin (a harmful substance produced by certain molds), iron storage diseases, cirrhosis, obesity, and diabetes (11).

For more information about this cancer go HERE.

Figure 30. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Liver and intrahepatic bile duct cancer by sex: Puerto Rico, 2000-2018

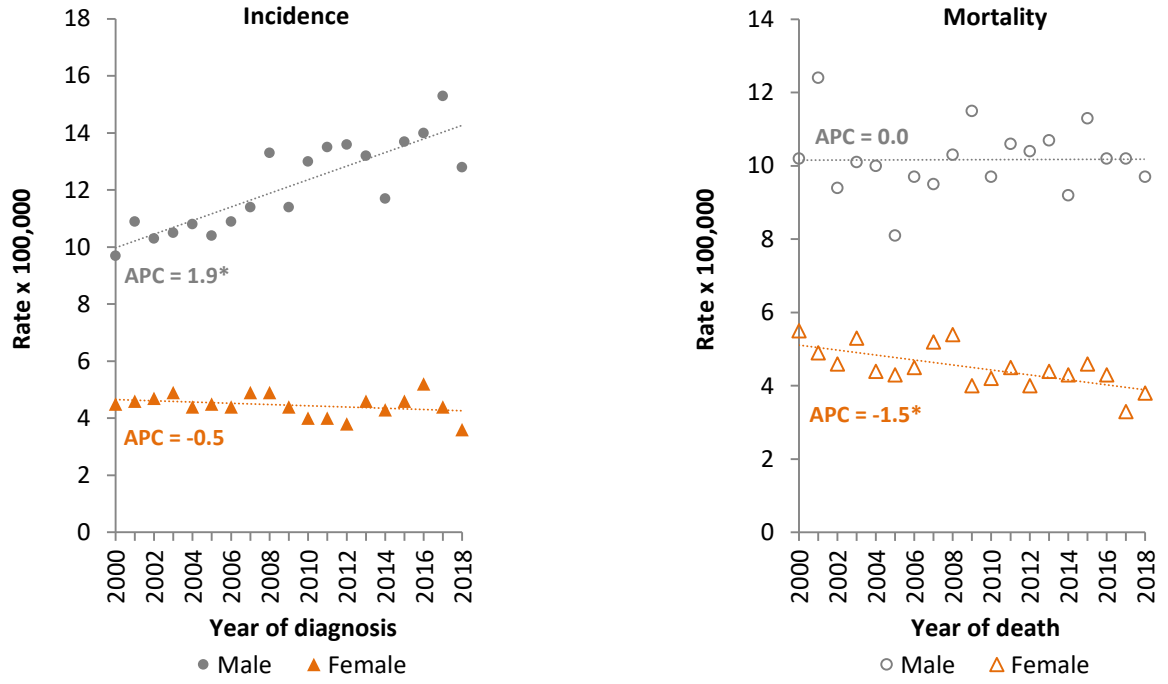


Figure 31. Age-specific incidence and mortality rates – Liver and intrahepatic bile duct cancer by sex: Puerto Rico, 2014-2018

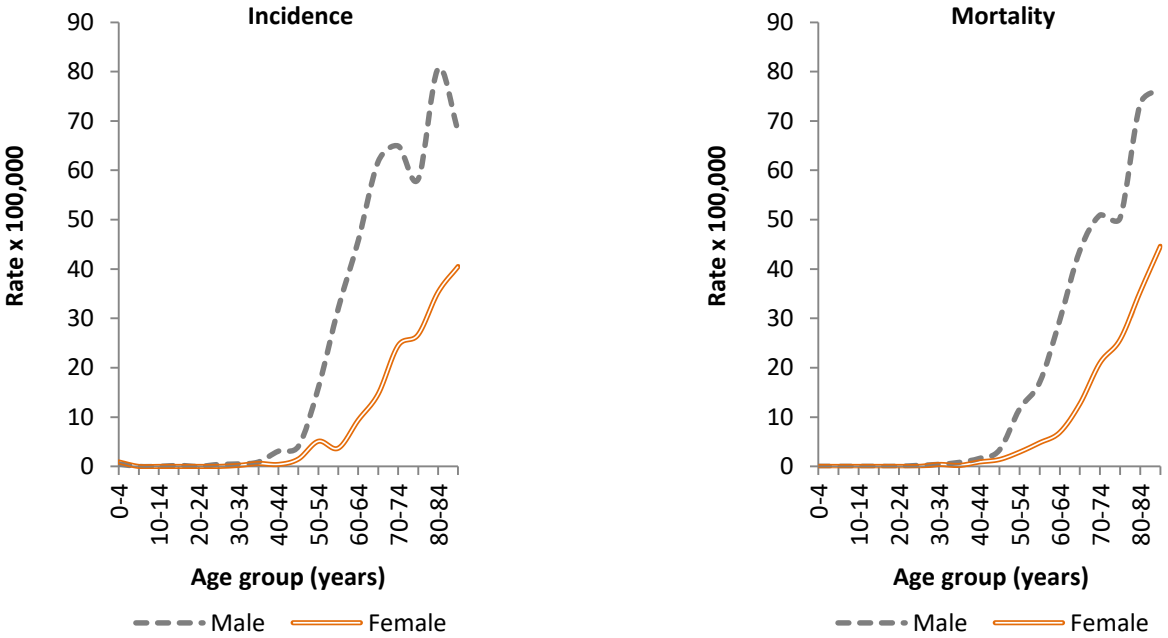


Figure 32. Age-adjusted incidence rates (2000 PR Standard Population) – Liver and intrahepatic bile duct cancer by municipality: Puerto Rico, 2014-2018

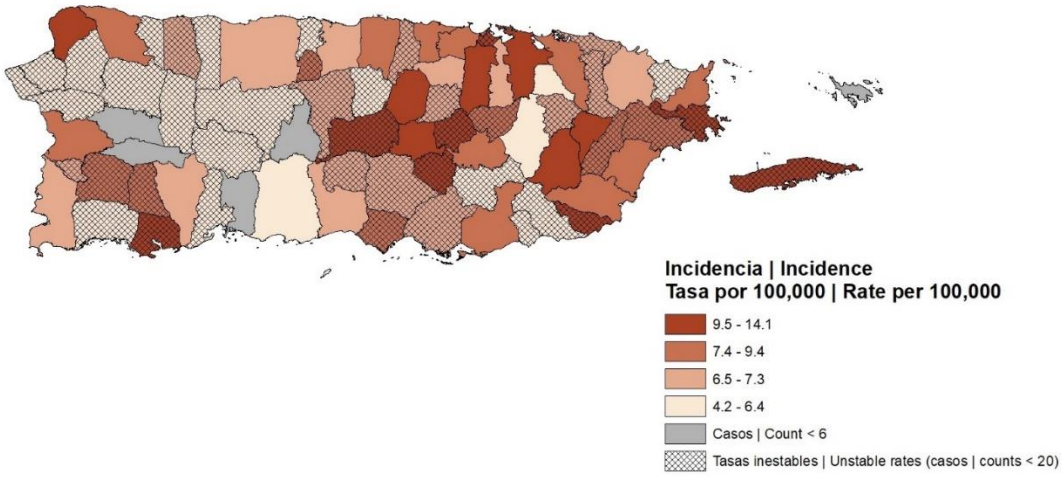
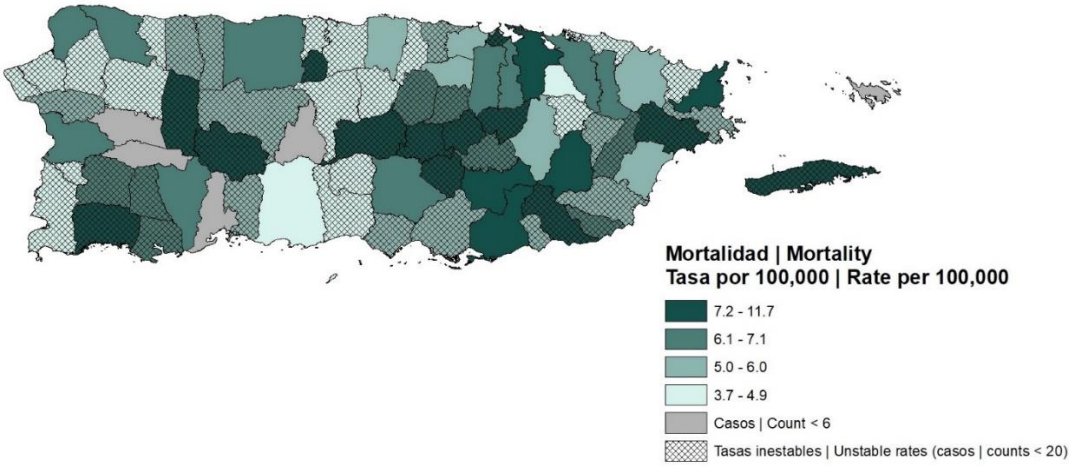


Figure 33. Age-adjusted mortality rates (2000 PR Standard Population) – Liver and intrahepatic bile duct cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for liver and intrahepatic bile duct cancer increased on average **1.9%** ($p<0.05$) per year in men, while remained stable in women. However, mortality rates remained stable in men, but decreased on average **1.5%** ($p<0.05$) per year in women (Figure 30). The median age at diagnosis for liver and intrahepatic bile duct cancer in men was **68** years and **73** years in women. The median age at death in men was **70** years and **75** years in women (Figure 31). **For statistical information of this cancer in the United States of America go HERE.**

LUNG AND BRONCHUS CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018** **lung and bronchus** cancer accounted for **5.6%** of all cancers in men and **4.0%** of all cancers in women.

It also accounted for **12.3%** of all cancer deaths in men and **9.2%** of all cancer deaths in women.

On average, **475** men and **307** women were diagnosed annually with lung and bronchus cancer.

On average, **357** men and **212** women died from lung and bronchus cancer each year.

The risk of developing lung and bronchus cancer was **2.0** times higher in men than women (95% CI: 1.8, 2.1).

The risk of dying from lung and bronchus cancer was **2.2** times higher in men than women (95% CI: 2.0, 2.3).

1 in **47** persons born today in Puerto Rico could be diagnosed with lung and bronchus cancer during their lifetime.

The 5-year relative survival rate for lung and bronchus cancer diagnosed between 2010 and 2014 was **19.5%**.

Lung and breast cancer detection

The American Cancer Society recommends yearly lung cancer screening with low-dose CT scan (LDCT) for people aged 55 to 74 years old with good health, and who meet some conditions (for information about these conditions go **HERE**.)

Risk factors

Tobacco consumption is the leading cause of lung and bronchial cancer. Other risk factors for lung and bronchial cancer include: smoking cigars and pipes, environmental smoke exposure (passive smoker), exposure to radon, asbestos and air pollution, other lung diseases such as tuberculosis, and family history of lung cancer (11).

For more information about this cancer go HERE.

Figure 34. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Lung and bronchus cancer by sex: Puerto Rico, 2000-2018

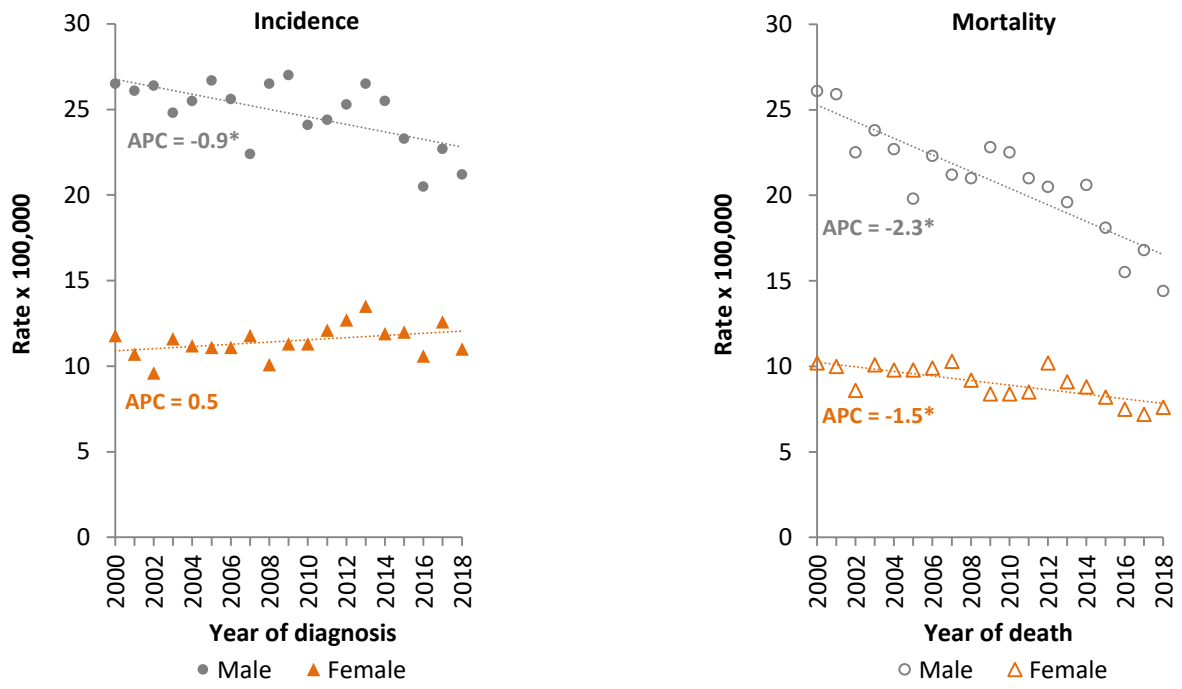


Figure 35. Age-specific incidence and mortality rates – Lung and bronchus cancer by sex: Puerto Rico, 2014-2018

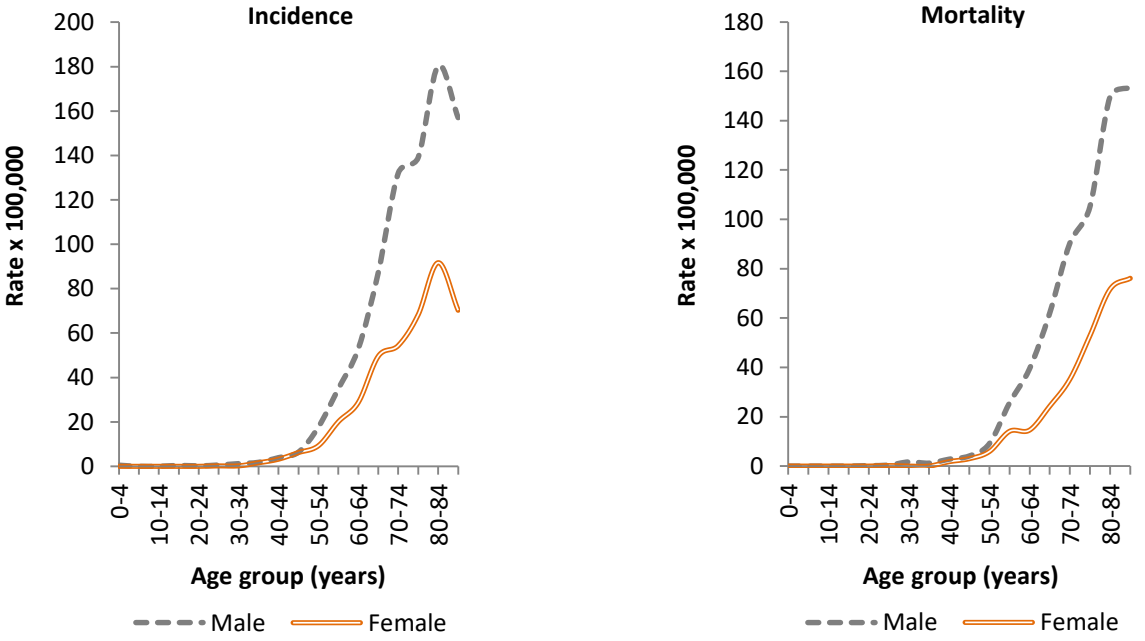


Figure 36. Age-adjusted incidence rates (2000 PR Standard Population) – Lung and bronchus cancer by municipality: Puerto Rico, 2014-2018

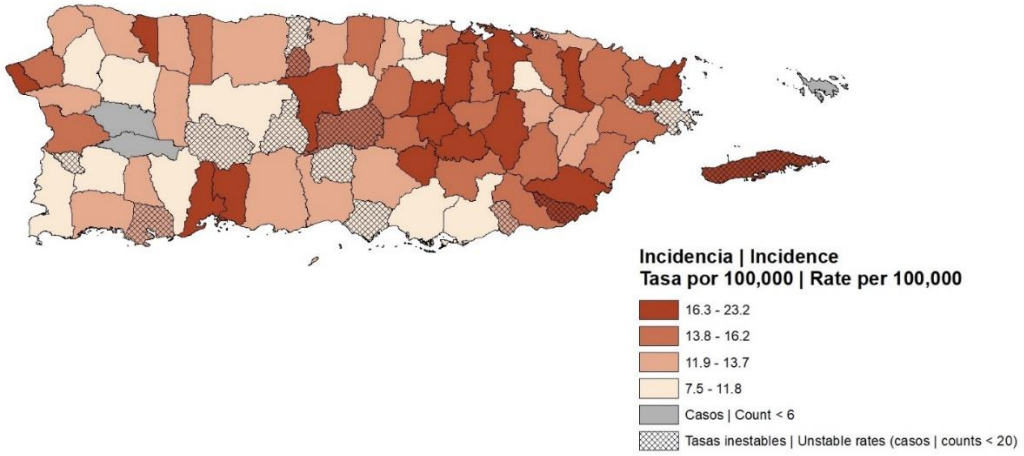
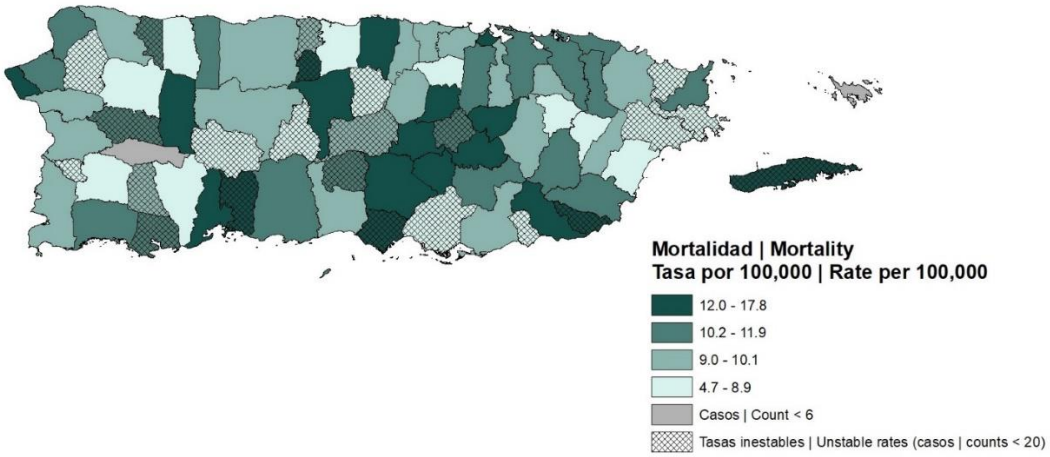


Figure 37. Age-adjusted mortality rates (2000 PR Standard Population) – Lung and bronchus cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for lung and bronchus cancer decreased on average **0.9%** ($p<0.05$) per year in men, while for women they remained stable. Similarly, mortality rates decreased on average **2.3%** ($p<0.05$) per year in men and **1.5%** ($p<0.05$) per year in women (Figure 34). The median age at diagnosis for lung and bronchus cancer in both men and women was **71** years. The median age at death in men was **73** years and **75** years in women (Figure 35). **For statistical information of this cancer in the United States of America go HERE.**

THYROID CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018** **thyroid** cancer accounted for **2.5%** of all cancers in men and **11.0%** of all cancers in women.

It also accounted for **0.3%** of all cancer deaths in men and **0.5%** of all cancer deaths in women.

On average, **212** men and **850** women were diagnosed annually with thyroid cancer.

On average, **9** men and **11** women died from thyroid cancer each year.

The risk of developing thyroid cancer was **0.3** times higher in men than women (95% CI: 0.2, 0.3).

The risk of dying from thyroid cancer was **1.1** times higher in men than women (95% CI: 0.7, 1.7).

1 in **43** persons born today in Puerto Rico could be diagnosed with thyroid cancer during their lifetime.

The 5-year relative survival rate for thyroid cancer diagnosed between 2010 and 2014 was **100.0%**.

Thyroid cancer detection

It is recommended to visit a doctor if you notice a mass or swelling in your neck. Most thyroid cancers are detected in early stages when patients see their doctors after feeling the above symptoms (15).

Risk factors

Factors associated with increased risk of thyroid cancer include: radiation exposure, family history of medullary thyroid cancer, personal or family history of gout or benign thyroid nodules, history of familial adenomatous polyposis, female and 45 years of age or older. Exposure to iodine is being investigated as a possible risk factor for thyroid cancer (11).

For more information about this cancer go HERE.

Figure 38. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Thyroid cancer by sex: Puerto Rico, 2000-2018

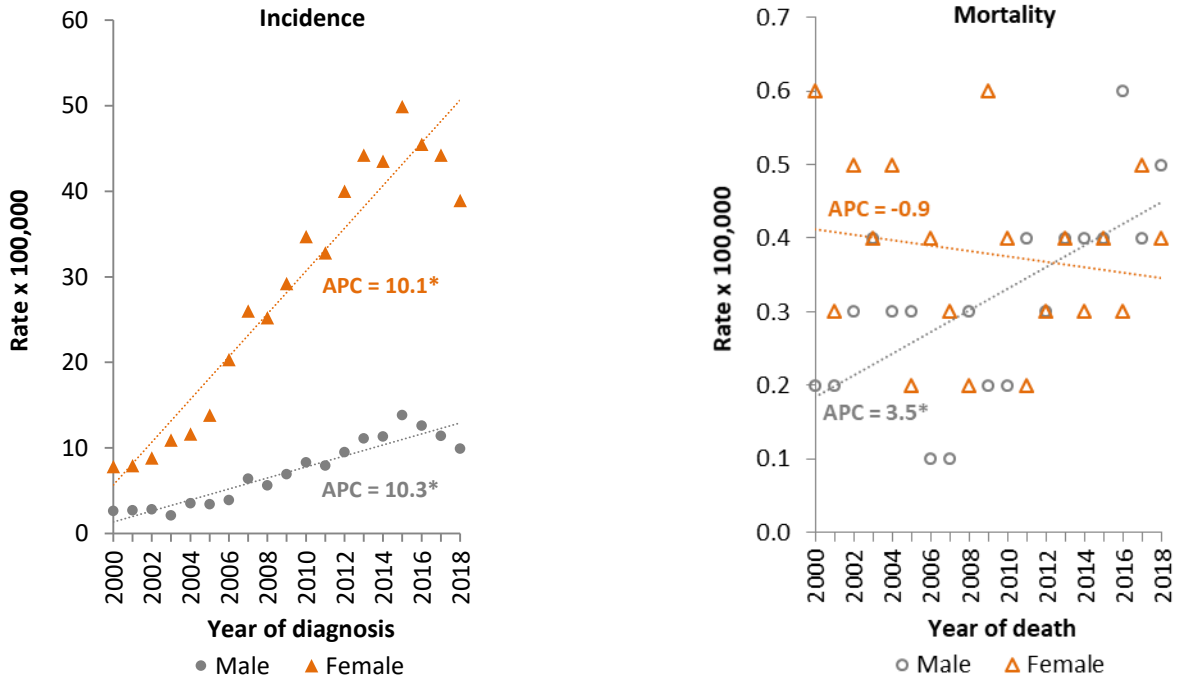


Figure 39. Age-specific incidence and mortality rates – Thyroid cancer by sex: Puerto Rico, 2014-2018

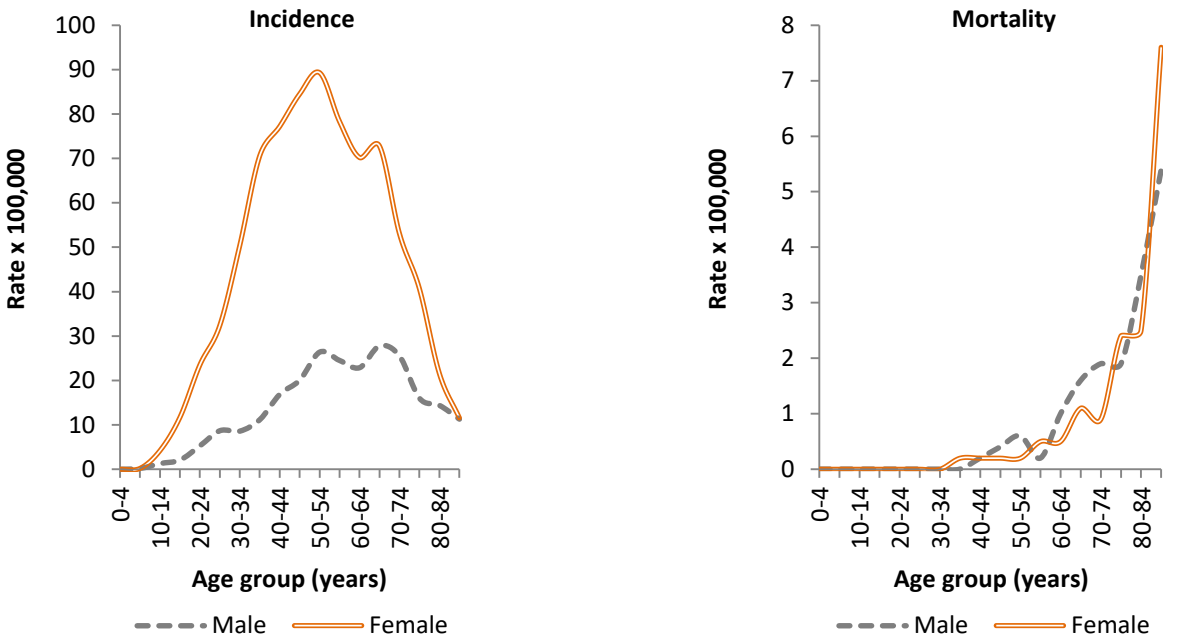
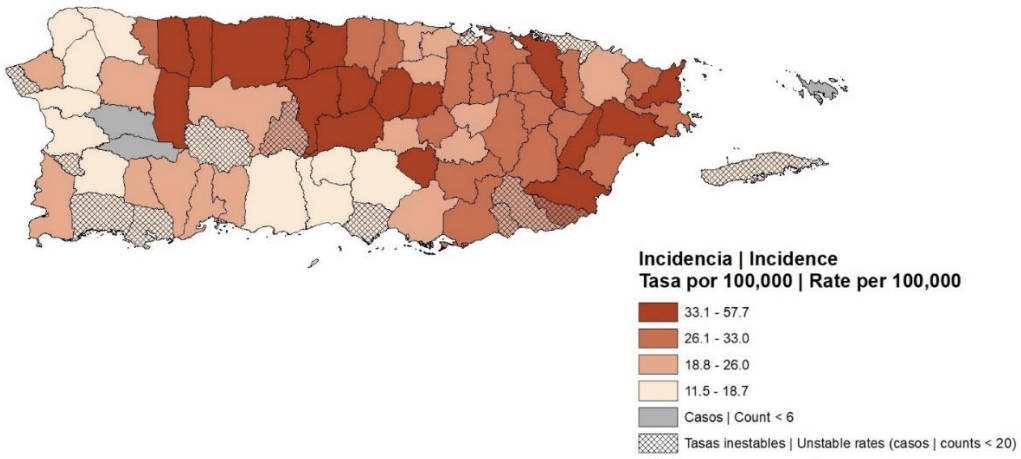


Figure 40. Age-adjusted incidence rates (2000 PR Standard Population) – Thyroid cancer by municipality: Puerto Rico, 2014-2018



Note: Mortality rates by municipality could not be calculated due to the small number of cases in most of the municipalities.

Figures summary. Between 2000 and 2018, the incidence rates among men and women for thyroid cancer increased on average **10.3%** ($p<0.05$) and **10.1%** ($p<0.05$) per year respectively. Similarly, mortality rates increased on average **3.5%** ($p<0.05$) per year in men, but remained stable in women (Figure 38). The median age at diagnosis for thyroid cancer in men was **55** years and **51** years in women. The median age at death in men was **73** years and **79** years in women (Figure 39). **For statistical information of this cancer in the United States of America go HERE.**

URINARY BLADDER CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 urinary bladder** cancer accounted for **4.1%** of all cancers in men and **1.6%** of all cancers in women.

It also accounted for **2.7%** of all cancer deaths in men and **1.6%** of all cancer deaths in women.

On average, **351** men and **122** women were diagnosed annually with urinary bladder cancer.

On average, **78** men and **37** women died from urinary bladder cancer each year.

The risk of developing urinary bladder cancer was **3.8** times higher in men than women (95% CI: 3.4, 4.1).

The risk of dying from urinary bladder cancer was **2.9** times higher in men than women (95% CI: 2.4, 3.5).

1 in **73** persons born today in Puerto Rico could be diagnosed with urinary bladder cancer during their lifetime.

The 5-year relative survival rate for urinary bladder cancer diagnosed between 2010 and 2014 was **70.1%**.

Urinary bladder cancer detection

According to the American Cancer Society, some doctors recommend testing for urinary bladder cancer, but only in people with a very high risk of developing this cancer. The tests used to screen for bladder cancer are urine tests to detect blood in the urine. There are also urine tests that detect tumor markers that may be indicative of bladder cancer (16).

Risk factors

The most important risk factor for bladder cancer is cigarette smoking. Studies have found that some chemicals, some cancer treatments, and personal or family history can increase the likelihood of developing bladder cancer (11).

For more information about this cancer go HERE.

Figure 41. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Urinary bladder cancer by sex: Puerto Rico, 2000-2018

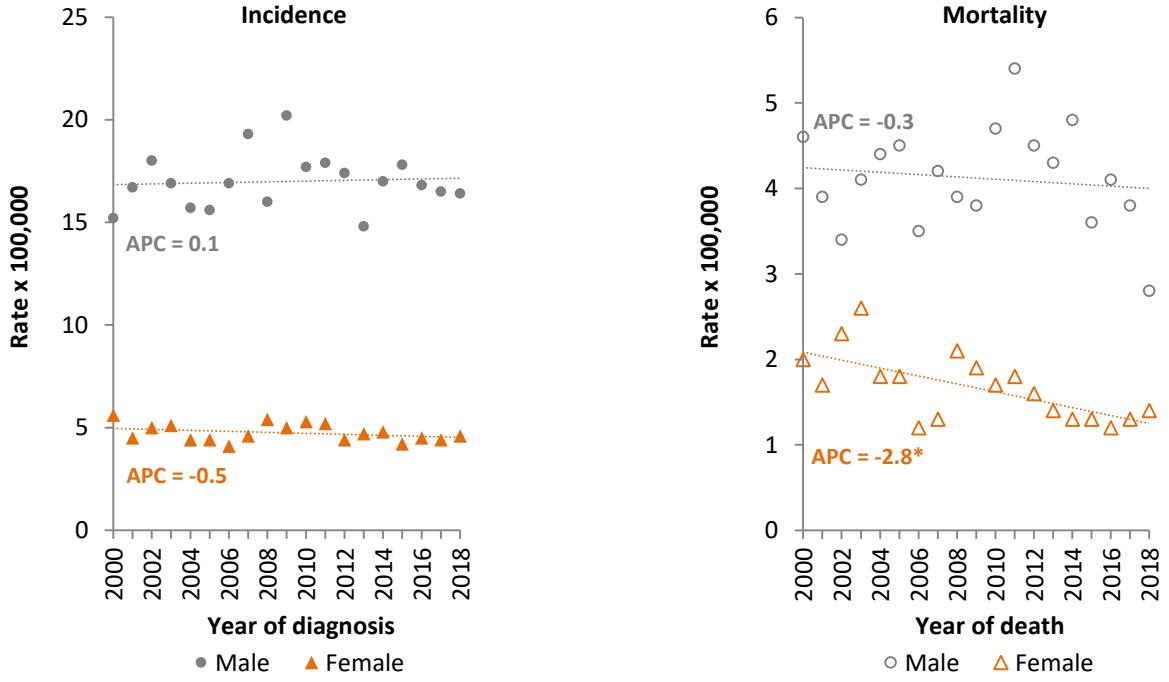


Figure 42. Age-specific incidence and mortality rates – Urinary bladder cancer by sex: Puerto Rico, 2014-2018

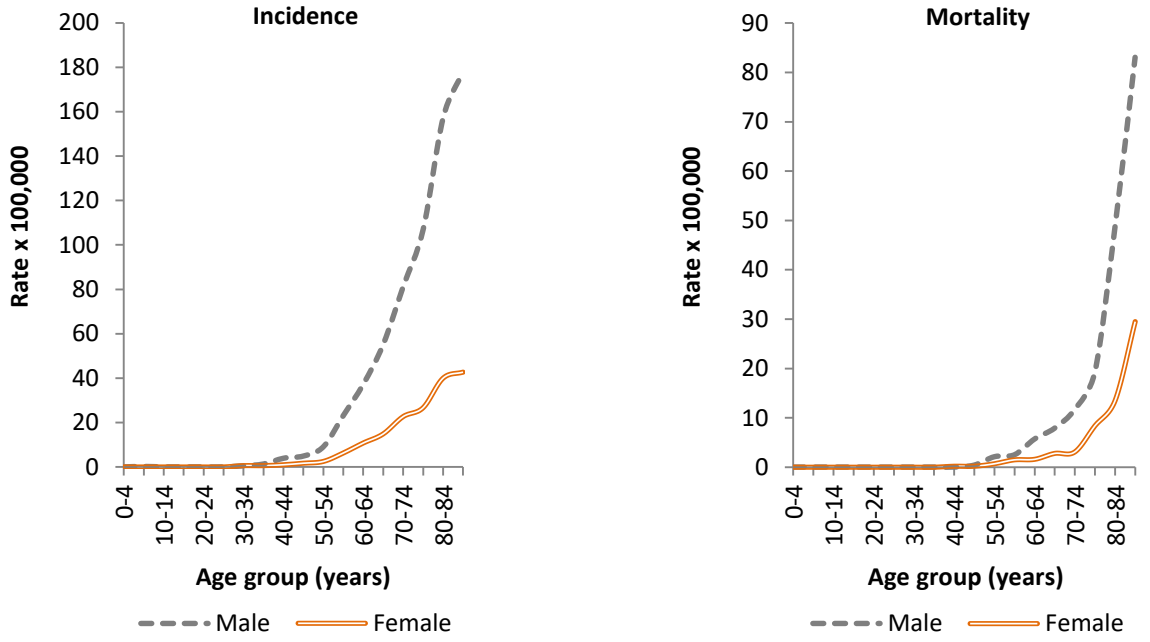
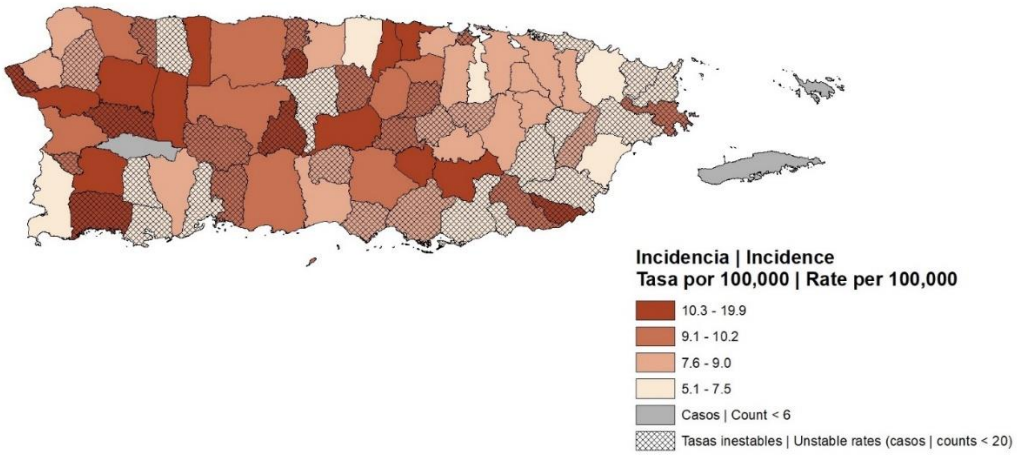


Figure 43. Age-adjusted incidence rates (2000 PR Standard Population) – Urinary bladder cancer by municipality: Puerto Rico, 2014-2018



Note: Mortality rates by municipality could not be calculated due to the small number of cases in most of the municipalities.

Figures summary. Between 2000 and 2018, the incidence rates for urinary bladder cancer remained stables in both men and women. Similarly, mortality rates remained stable in men, but decreased on average **2.8%** ($p<0.05$) per year in women (Figure 41). The median age at diagnosis for urinary bladder cancer was **74** in both men and women. The median age at death in men was **80** years and **81** years in women (Figure 42). **For statistical information of this cancer in the United States of America go HERE.**

PROSTATE CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018** **prostate** cancer accounted for **37.3%** of all cancers in men and **17.0%** of all cancer deaths in men.

On average, **3,168** men were diagnosed annually with prostate cancer.

On average, **485** men died from prostate cancer each year.

1 in **7** men born today in Puerto Rico could be diagnosed with prostate cancer during their lifetime.

The 5-year relative survival rate for prostate cancer diagnosed between 2010 and 2014 was **99.2%**.

Early detection of prostate cancer

Prostate cancer can be detected in its early stages by means of two tests: prostate-specific antigen (PSA) blood test and the digital rectal exam (DRE) (17).

Risk factors

Factors associated with increased risk of developing this cancer include age (>45 years), having a family history of prostate cancer, history of high-grade intraepithelial neoplasia (PIN), and a diet rich in animal fat or meat (11).

For more information about this cancer go HERE.

Figure 44. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Prostate cancer: Puerto Rico, 2000-2018

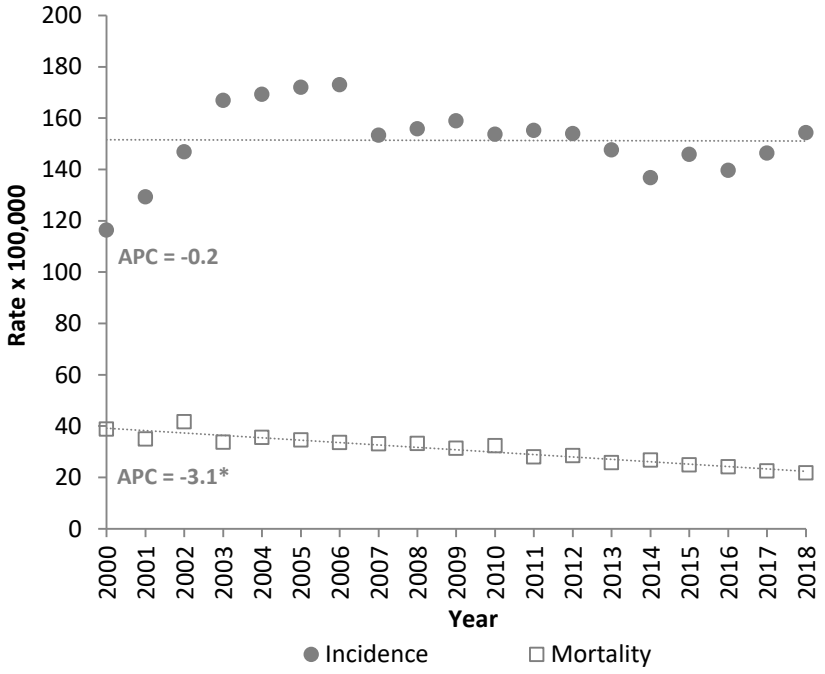


Figure 45. Age-specific incidence and mortality rates – Prostate cancer: Puerto Rico, 2014-2018

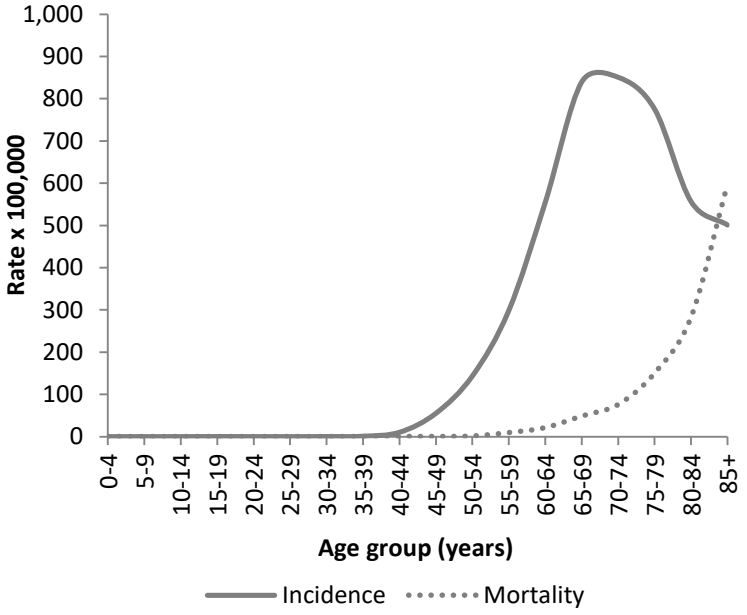


Figure 46. Age-adjusted incidence rates (2000 PR Standard Population) – Prostate cancer by municipality: Puerto Rico, 2014-2018

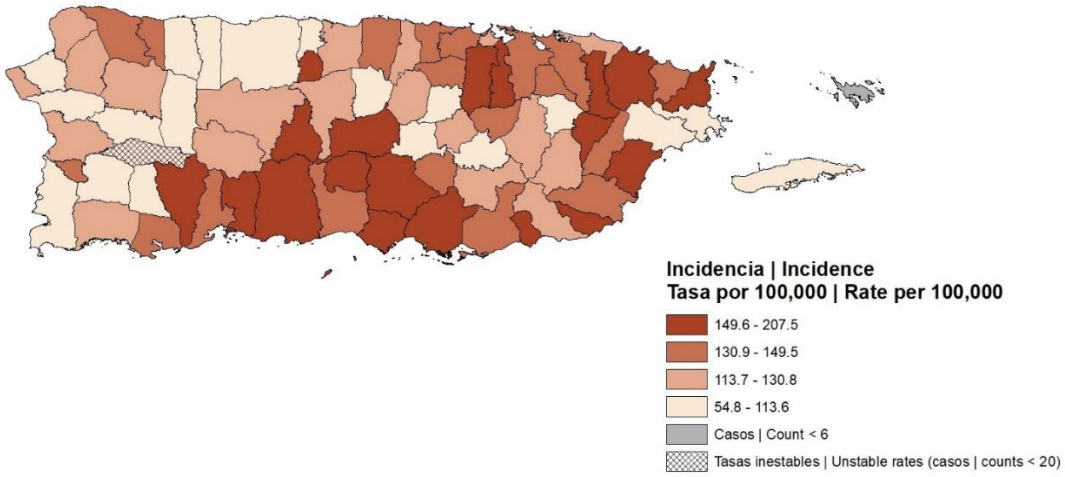
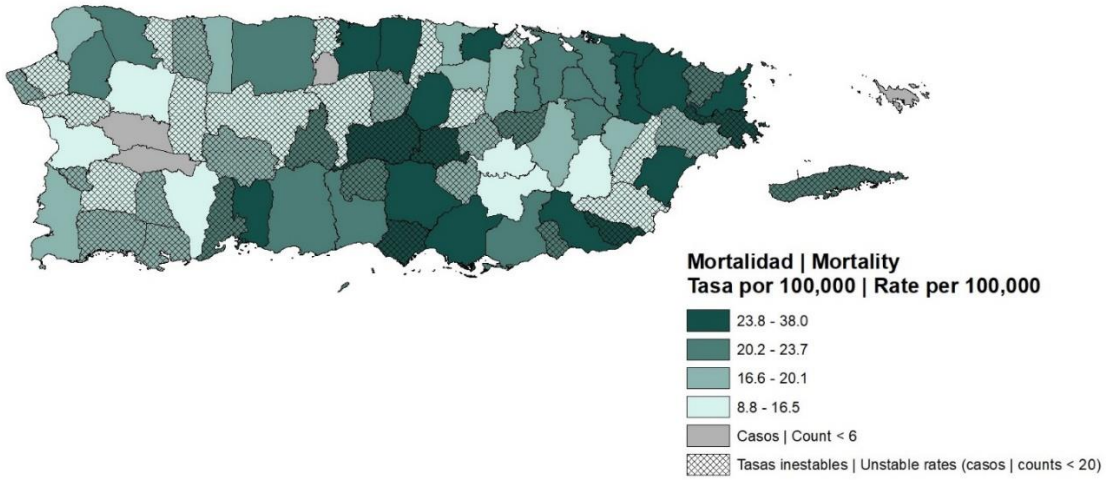


Figure 47. Age-adjusted mortality rates (2000 PR Standard Population) – Prostate cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for prostate cancer remained stables. However, mortality rates decreased on average **3.1%** ($p<0.05$) per year (Figure 44). The median age at diagnosis for prostate cancer was **69** years. The median age at death was **81** years (Figure 45). **For statistical information of this cancer in the United States of America go HERE.**

FEMALE BREAST CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 female breast** cancer accounted for **28.9%** of all cancers in women and **18.9%** of all cancer deaths in women.

On average, **2,242** women were diagnosed annually with invasive breast cancer.

On average, **437** women died from invasive breast cancer each year.

1 in **9** women born today in Puerto Rico could be diagnosed with breast cancer during their lifetime.

The 5-year relative survival rate for female breast cancer diagnosed between 2010 and 2014 was **86.2%**.

Early detection of female breast cancer

Mammography is the best method for early detection of breast cancer. Women 50 to 74 years should have a mammogram every two years. Women 40 to 49 years have the option of starting mammography if they have discussed with their doctor the benefits and risk of a mammography at this age (18).

Risk factors

Breast cancer is a disease mainly influenced by risk factors related to lifestyle; about 15% of all breast cancer cases can be attributed to a genetic factor. Other risk factors may be related to harmful effects from exposure to hormones (11).

For more information about this cancer go HERE.

Figure 48. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Female breast cancer: Puerto Rico, 2000-2018

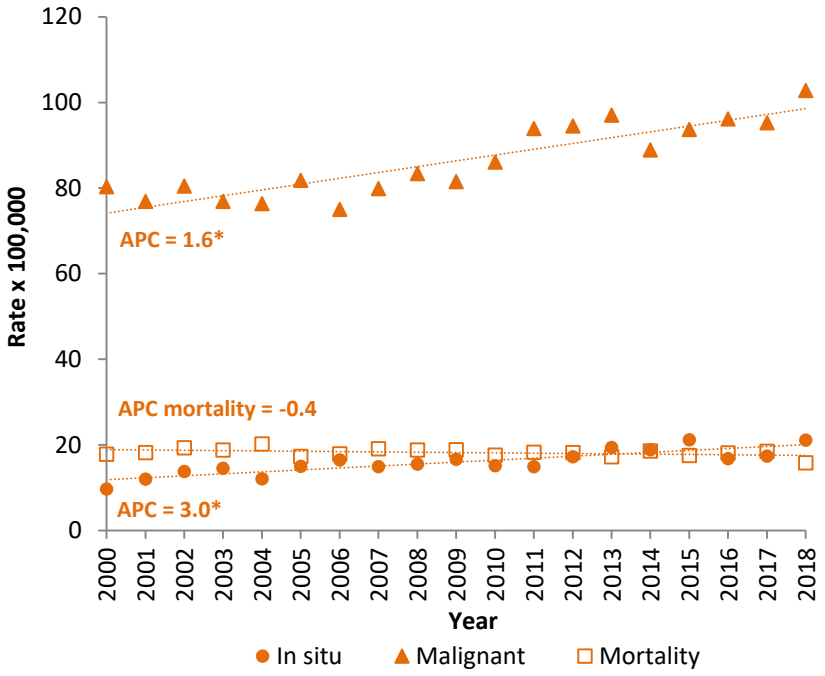


Figure 49. Age-specific incidence and mortality rates – Female breast cancer: Puerto Rico, 2014-2018

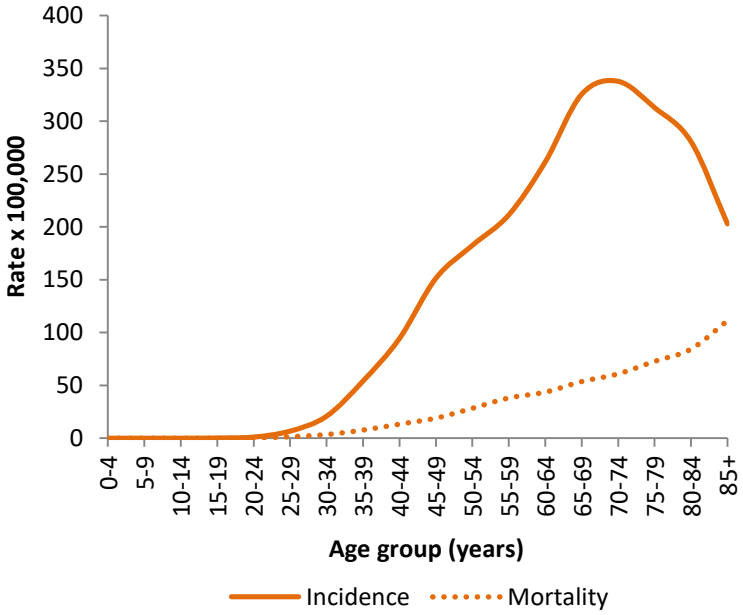


Figure 50. Age-adjusted incidence rates (2000 PR Standard Population) – Female breast cancer by municipality: Puerto Rico, 2014-2018

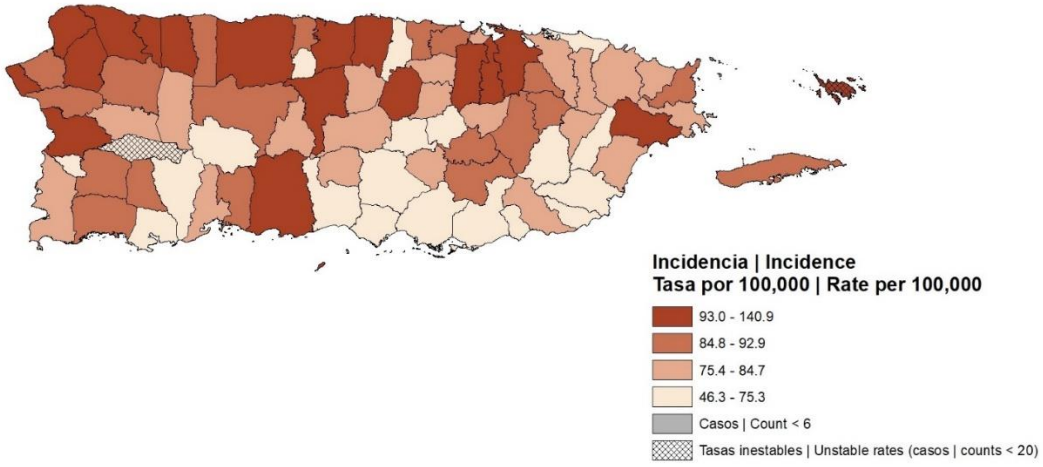
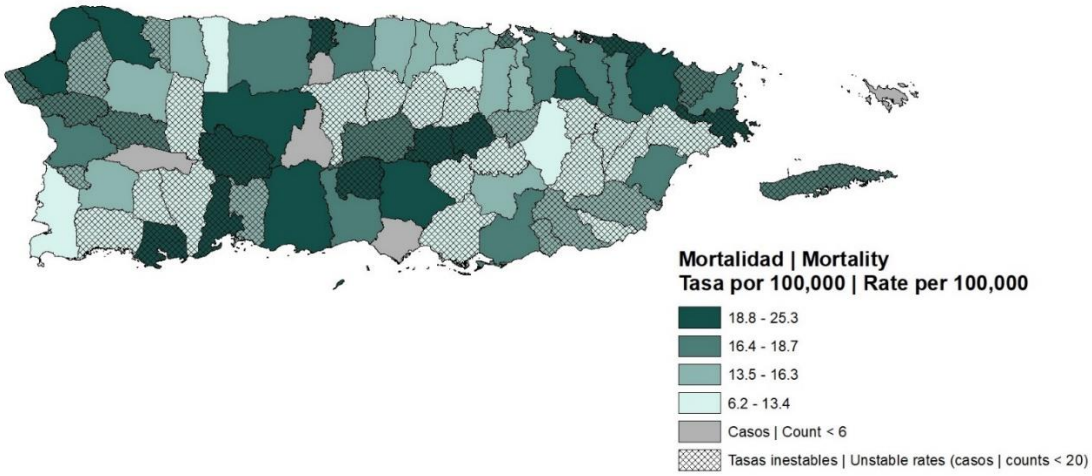


Figure 51. Age-adjusted mortality rates (2000 PR Standard Population) – Female breast cancer by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, the incidence rates for invasive breast cancer among women increased on average **1.6%** ($p<0.05$) per year, while those *"in situ"* breast cancer increased on average **3.0%** ($p<0.05$) per year. However, mortality rates have remained stable (Figure 48). The median age at diagnosis for invasive breast cancer was **64** years and **63** years for in situ breast cancer. The median age at death was **68** years (Figure 49). **For statistical information of this cancer in the United States of America go HERE.**

CERVIX UTERI CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 cervix uteri** cancer accounted **3.1%** of all cancers in women and **2.0%** of all cancer deaths.

On average, **242** women were diagnosed annually with cervix uteri cancer.

On average, **47** women died from cervix uteri cancer each year.

1 in **92** women born today in Puerto Rico could be diagnosed with cervix uteri cancer during their lifetime.

The 5-year relative survival rate for cervix uteri cancer diagnosed between 2010 and 2014 was **64.2%**.

Early detection of cervical cancer

The Papanicolaou (Pap) test and the human papillomavirus (HPV) test are the screening tests for cervical cancer. Women with a cervix should have one of these tests (alone) or both (at the same time). It is important to follow the guidelines for having these routine tests.

Risk factors

Infection of the cervix with HPV is the main risk factor for cervical cancer. Other risk factors for developing cervical cancer are: sexual history such as sexual activity at a young age, having many sexual partners, or having a high-risk partner (e.g., partner with HPV infection); prolonged use of oral contraceptives, history of cigarette smoking, low socioeconomic status, and a diet deficient in fruits and vegetables (11).

For more information about this cancer and prevention guidelines go HERE.

Figure 52. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Cervix uteri cancer: Puerto Rico, 2000-2018

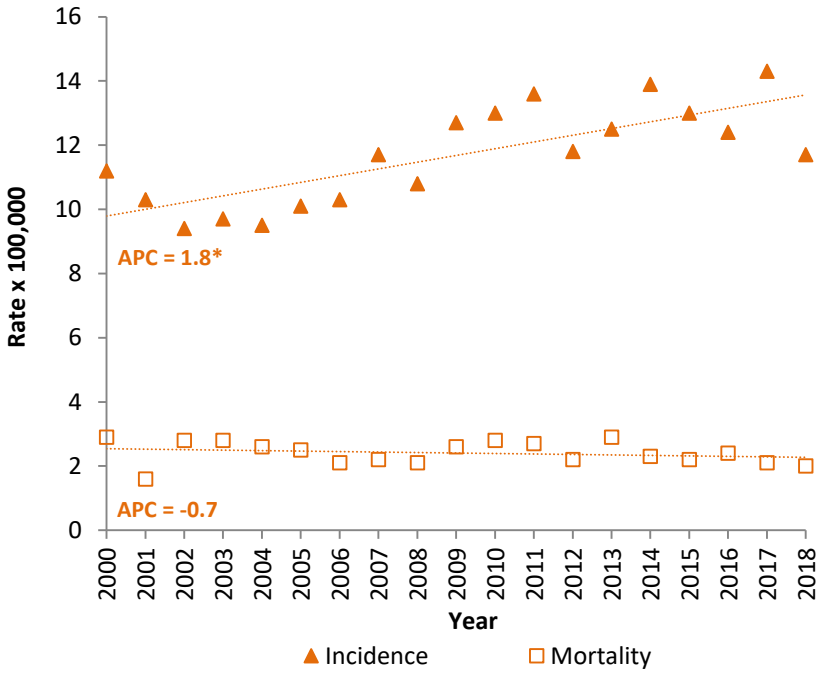


Figure 53. Age-specific incidence and mortality rates – Cervix uteri cancer: Puerto Rico, 2014-2018

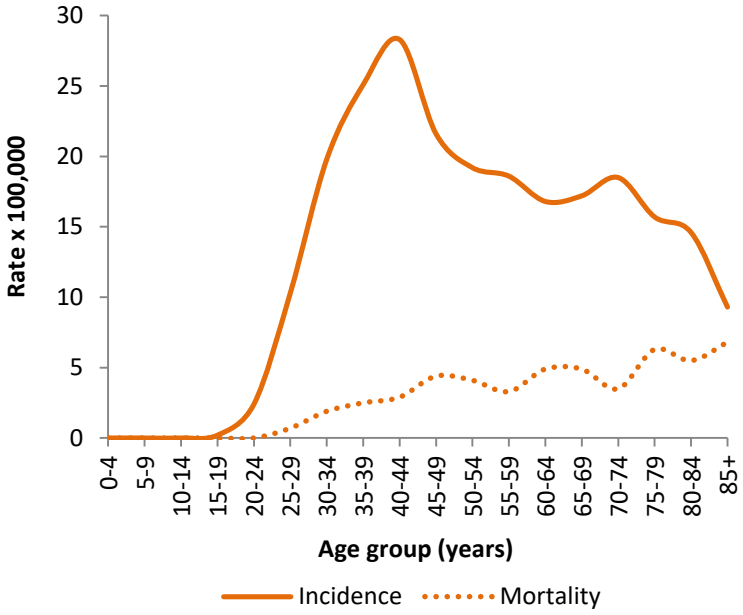
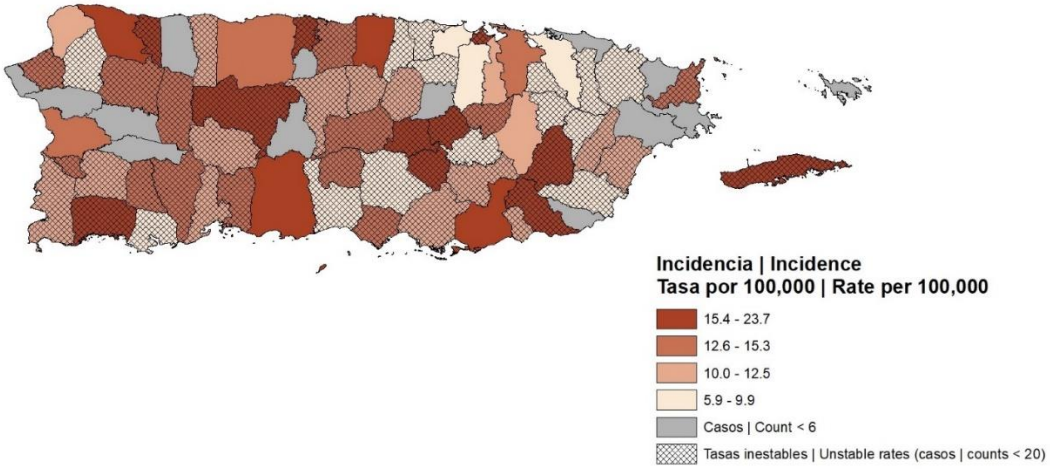


Figure 54. Age-adjusted incidence rates (2000 PR Standard Population) – Cervix uteri cancer by municipality: Puerto Rico, 2014-2018



Note: Mortality rates by municipality could not be calculated due to the small number of cases in most of the municipalities.

Figures summary. Between 2000 and 2018, the incidence rates for cervix uteri cancer increased on average **1.8%** ($p<0.05$) per year, while mortality rates remained stable (Figure 52). The median age at diagnosis for cervix uteri cancer was **50** years. The median age at death was **60** years (Figure 53). **For statistical information of this cancer in the United States of America go HERE.**

CORPUS AND UTERUS CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 corpus and uterus** cancer accounted for **9.0%** of all cancers in women and **5.3%** all cancer deaths.

On average, **698** women were diagnosed annually with corpus and uterus cancer.

On average, **121** women died from corpus and uterus cancer each year.

1 in **32** women born today in Puerto Rico could be diagnosed with corpus and uterus cancer during their lifetime.

The 5-year relative survival rate for corpus and uterus cancer diagnosed between 2010 and 2014 was **79.8%**.

Detection of corpus and uterus cancer

To detect cancer of the corpus and uterus (endometrium) at an early stage see a doctor if you have any signs and symptoms associated with this cancer. Symptoms include: abnormal vaginal bleeding or discharge (that is getting worse, occurring between periods, or happening after menopause) (19).

Risk factors

Factors associated with an increased risk of cancer of the corpus and uterus include: age, endometrial hyperplasia, hormone replacement therapy, obesity and related conditions, tamoxifen, and colorectal cancer. Other factors are related to the duration of estrogen exposure, such as nulliparity, early age at first menstrual period, and late age at menopause (11).

For more information about this cancer go HERE.

Figure 55. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Corpus and uterus cancer: Puerto Rico, 2000-2018

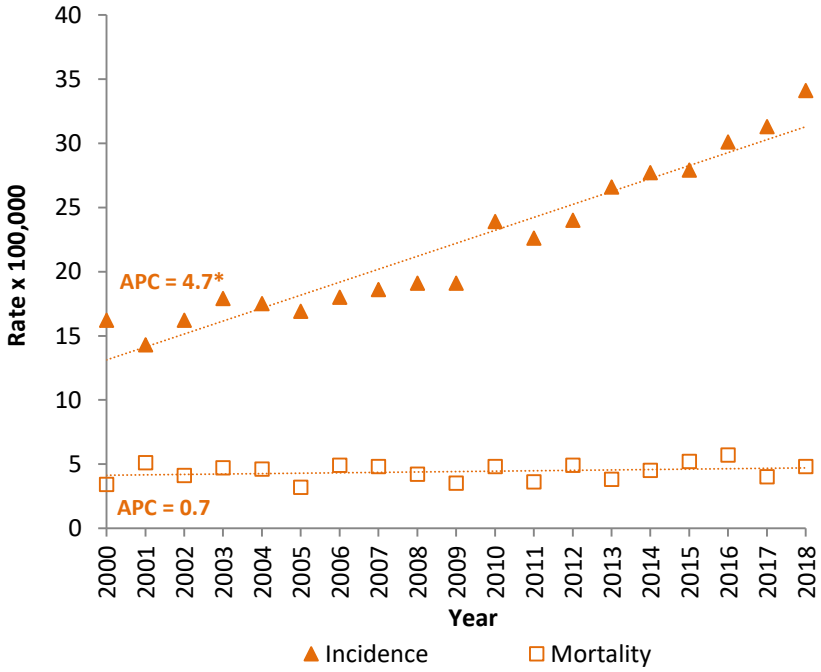


Figure 56. Age-specific incidence and mortality rates – Corpus and uterus cancer: Puerto Rico, 2014-2018

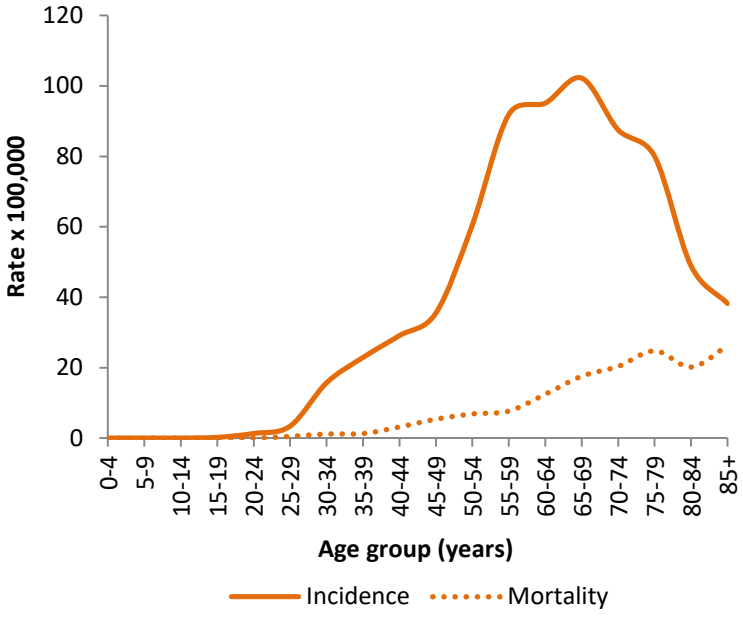
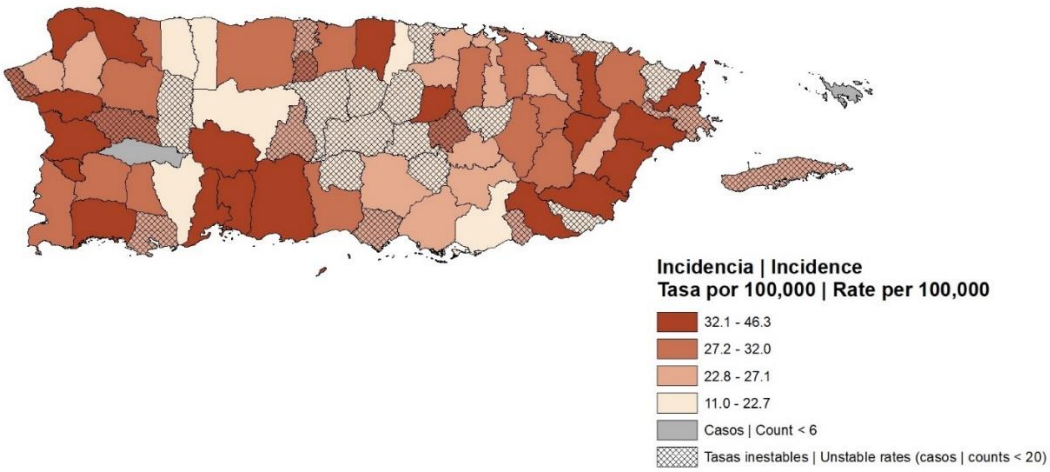


Figure 57. Age-adjusted incidence rates (2000 PR Standard Population) – Corpus and uterus cancer by municipality: Puerto Rico, 2014-2018



Note: Mortality rates by municipality could not be calculated due to the small number of cases in most of the municipalities.

Figures summary. Between 2000 and 2018, the incidence rates for corpus and uterus cancer increased on average **4.7%** ($p<0.05$) per year, while mortality rates remained stable (Figure 55). The median age at diagnosis for corpus and uterus cancer was **62** years. The median age at death was **69** years (Figure 56). **For statistical information of this cancer in the United States of America go HERE.**

NON-HODGKIN LYMPHOMA

KEY POINTS

In Puerto Rico, during the period **2014-2018 non-Hodgkin lymphoma** accounted for **4.1%** of all cancers in men and **3.9%** of all cancers in women.

It also accounted for **3.1%** of all cancer deaths in men and **2.8%** of all cancer deaths in women.

On average, **344** men and **299** women were diagnosed annually with non-Hodgkin lymphoma.

On average, **91** men and **64** women died from non-Hodgkin lymphoma each year.

The risk of developing non-Hodgkin lymphoma was **1.4** times higher in men than women (95% CI: 1.3, 1.6).

The risk of dying from non-Hodgkin lymphoma was **1.9** times higher in men than women (95% CI: 1.6, 2.2).

1 in **60** persons born today in Puerto Rico could be diagnosed with non-Hodgkin lymphoma during their lifetime.

The 5-year relative survival rate for non-Hodgkin lymphoma diagnosed between 2010 and 2014 was **66.9%**.

Non-Hodgkin lymphoma detection

In order to detect non-Hodgkin lymphoma in its early stages, it is recommended to pay attention to its signs and symptoms. Among the most common symptoms is an enlargement of one or more lymph nodes in the neck, armpits, or groin. This lump is under the skin and usually is not painful (20).

Risk factors

The causes of non-Hodgkin lymphoma are unknown; however, exposure to certain industrial and agricultural chemicals, infections and immune system deficiencies, and autoimmune disorders may increase the risk (11).

For more information about this cancer go HERE.

Figure 58. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Non-Hodgkin lymphoma by sex: Puerto Rico, 2000-2018

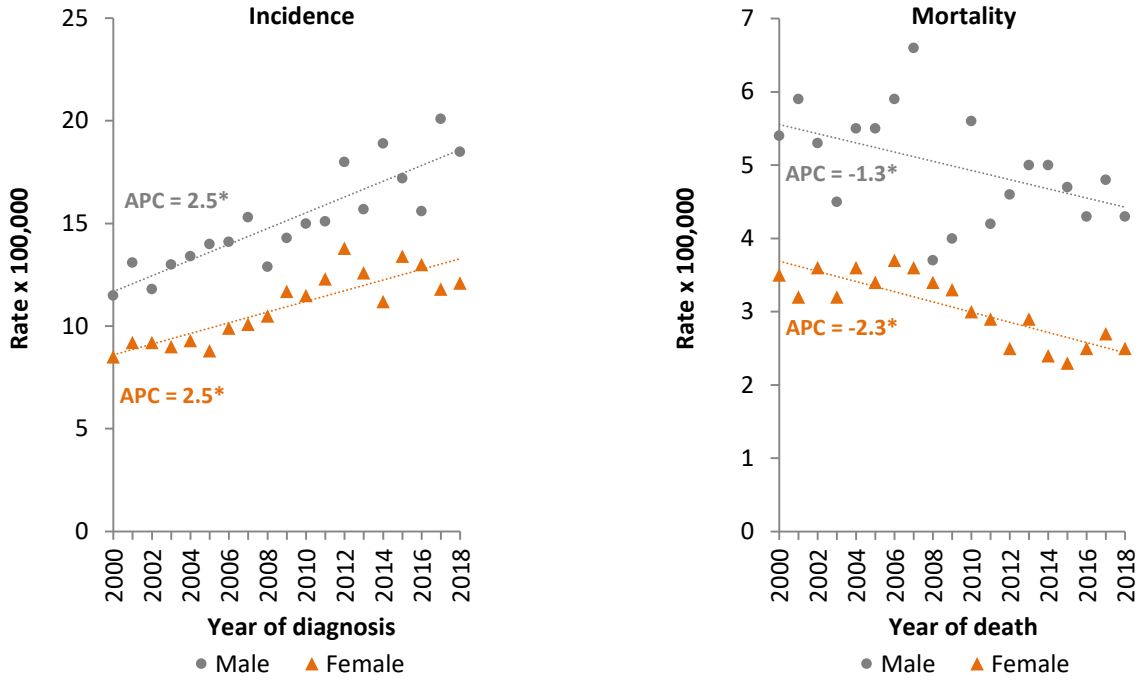


Figure 59. Age-specific incidence and mortality rates – Non-Hodgkin lymphoma by sex: Puerto Rico, 2014-2018

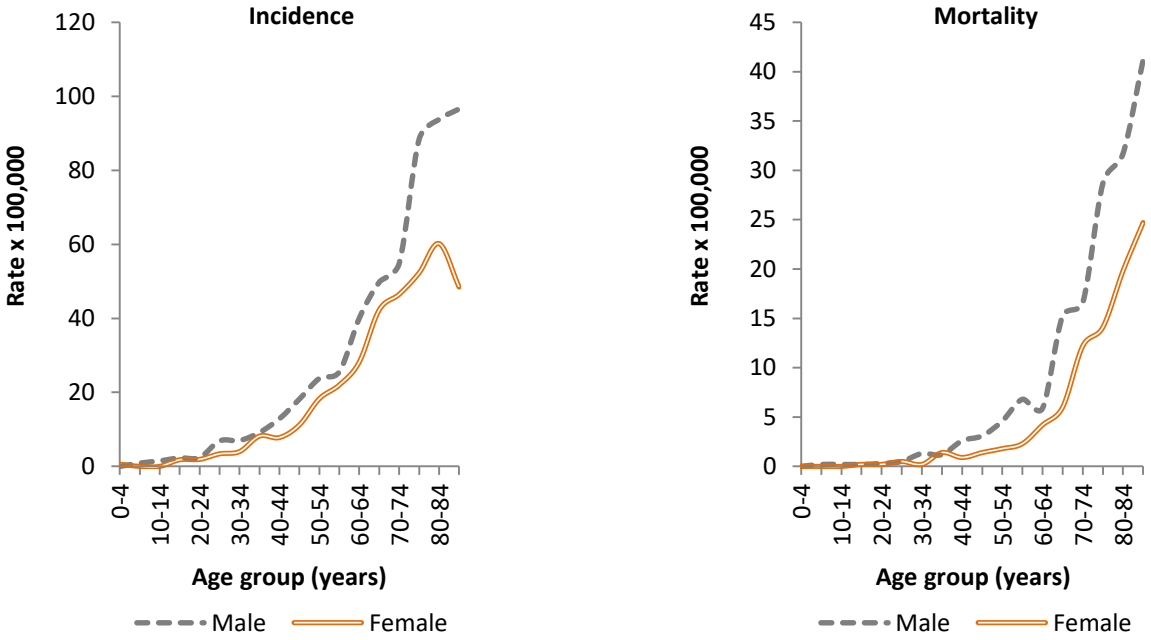


Figure 60. Age-adjusted incidence rates (2000 PR Standard Population) – Non-Hodgkin lymphoma by municipality: Puerto Rico, 2014-2018

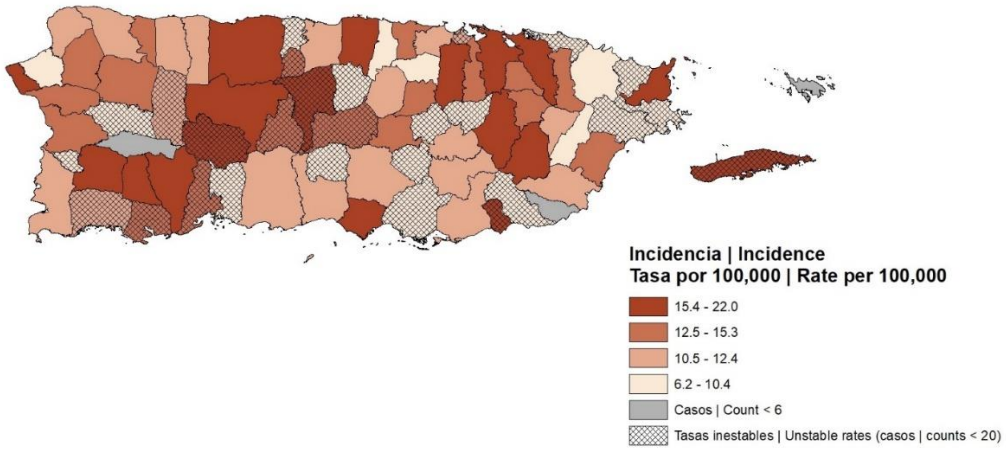
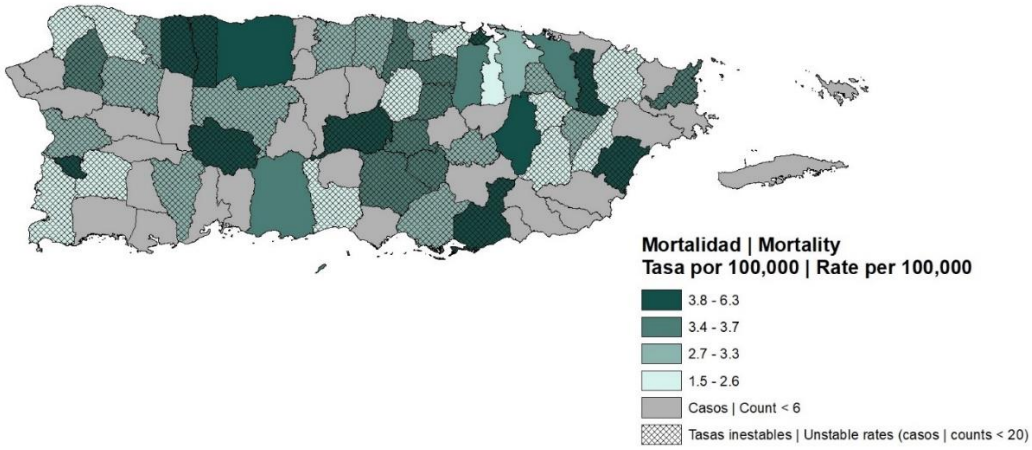


Figure 61. Age-adjusted mortality rates (2000 PR Standard Population) – Non-Hodgkin lymphoma by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, incidence rates among men and women for non-Hodgkin lymphoma increased on average **2.5%** ($p<0.05$) per year. However, mortality rates decreased on average **1.3%** ($p<0.05$) per year in men and **2.3%** ($p<0.05$) per year in women (Figure 58). The median age at diagnosis for non-Hodgkin lymphoma in men was **66** years and **67** years in women. The median age at death in men was **71** years and **74** years in women (Figure 59). **For statistical information of this cancer in the United States of America go HERE.**

LEUKEMIA

KEY POINTS

In Puerto Rico, during the period **2014-2018** **leukemia** accounted for **2.9%** of all cancers in men and **2.5%** of all cancers in women.

It also accounted for **3.5%** of all cancer deaths in men and **3.7%** of all cancer deaths in women.

On average, **242** men and **193** women were diagnosed annually with leukemia.

On average, **102** men and **85** women died from leukemia each year.

The risk of developing leukemia was **1.5** times higher in men than women (95% CI: **1.3**, **1.6**).

The risk of dying from leukemia was **1.5** times higher in men than women (95% CI: **1.3**, **1.8**).

1 in **85** persons born today in Puerto Rico could be diagnosed with leukemia during their lifetime.

The 5-year relative survival rate for leukemia diagnosed between 2010 and 2014 was **61.9%**.

Types of leukemia and detection

Leukemia is a type of cancer that starts in the blood-forming tissue, such as bone marrow, and causes large numbers of abnormal blood cells to enter the bloodstream (17). The four main types of leukemia are acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), acute myelogenous leukemia (AML), and chronic myelogenous leukemia (CML).

The best way to detect leukemia in early stages is to talk to your doctor about any signs or symptoms of leukemia. The symptoms depend on the type of leukemia. For more information about the risk factors and signs and symptoms of the different types of leukemia go **HERE**.

Figure 62. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Leukemia by sex: Puerto Rico, 2000-2018

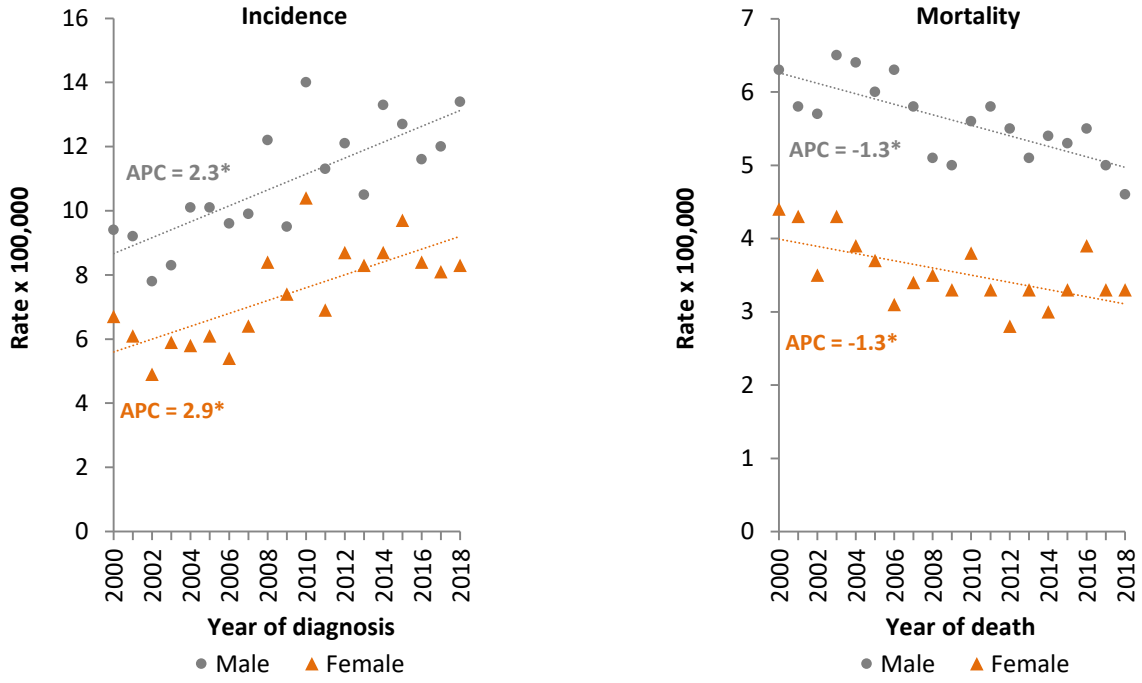


Figure 63. Age-specific incidence and mortality rates – Leukemia by sex: Puerto Rico, 2014-2018

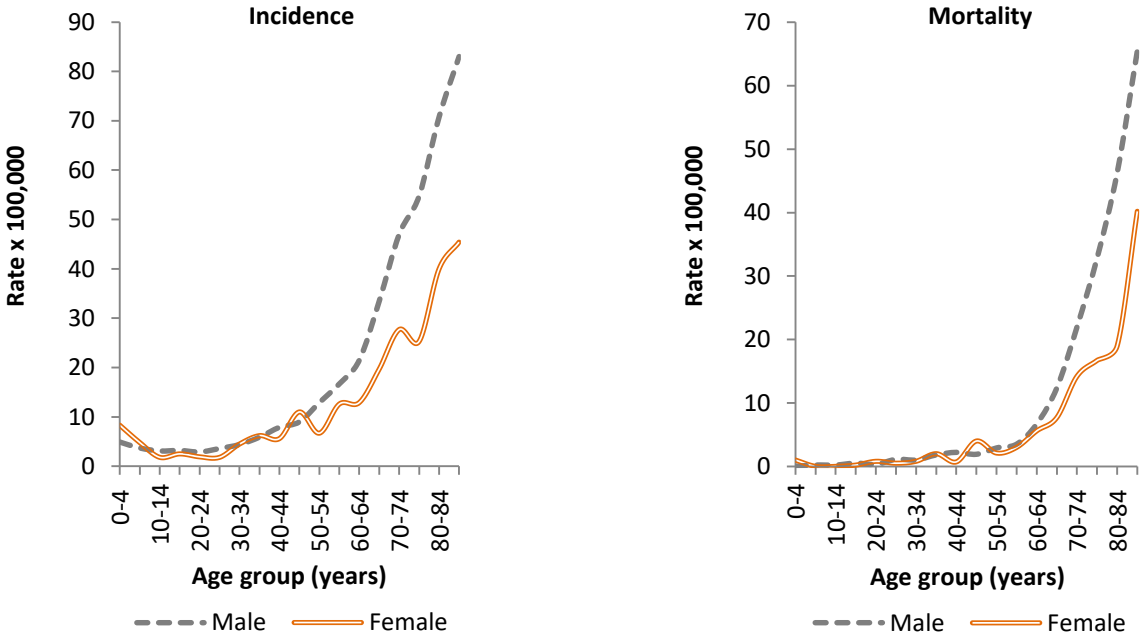


Figure 64. Age-adjusted incidence rates (2000 PR Standard Population) – Leukemia by municipality: Puerto Rico, 2014-2018

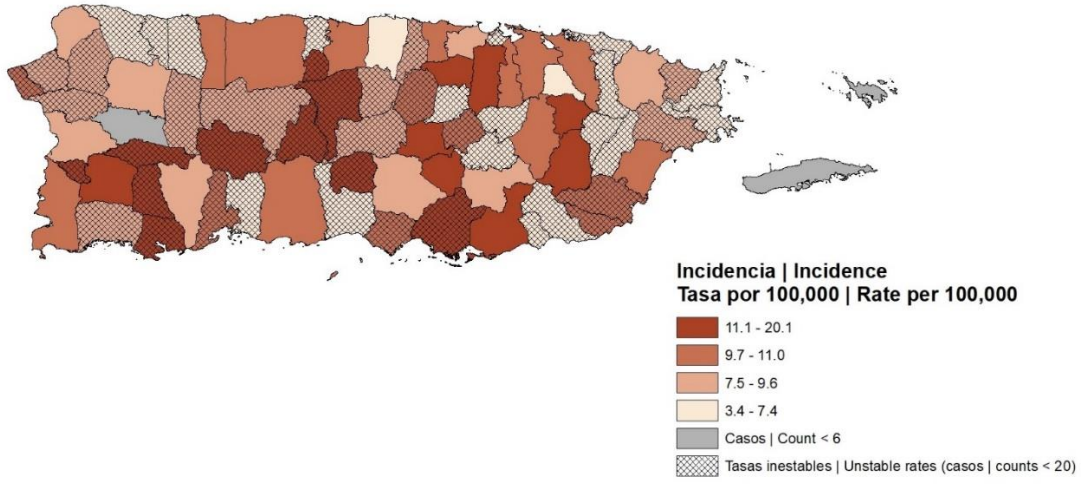
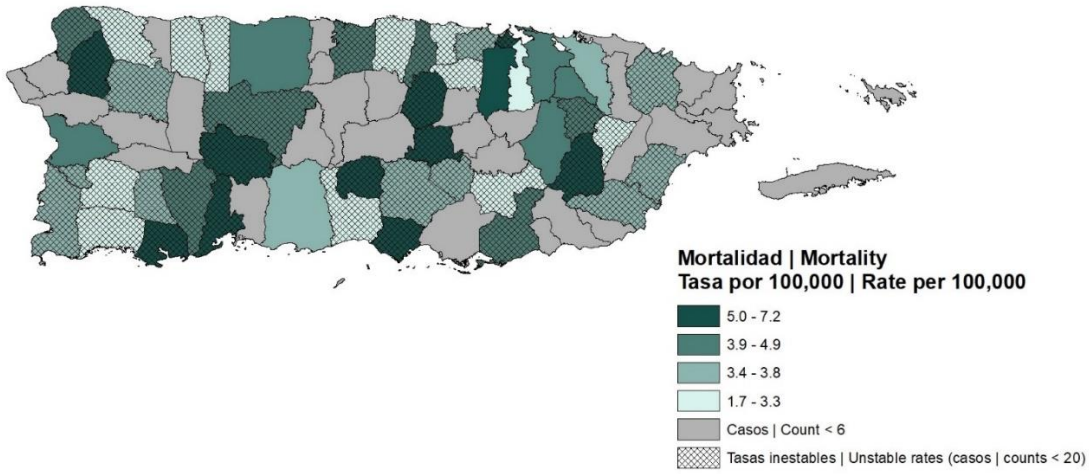


Figure 65. Age-adjusted mortality rates (2000 PR Standard Population) – Leukemia by municipality: Puerto Rico, 2014-2018



Figures summary. Between 2000 and 2018, incidence rates for leukemia among men and women increased on average **2.3%** ($p<0.05$) and **2.9%** ($p<0.05$) per year respectively. However, mortality rates decreased on average **1.3%** ($p<0.05$) per year in both men and women (Figure 62). The median age at diagnosis for leukemia in men was **68** years and **66** years in women. The median age at death in men was **75** years and **74** years in women (Figure 63). **For statistical information of this cancer in the United States of America go HERE.**

KIDNEY AND RENAL PELVIS CANCER

KEY POINTS

In Puerto Rico, during the period **2014-2018 kidney and renal pelvis** cancer accounted for **2.9%** of all cancers in men and **1.8%** of all cancers in women.

It also accounted for **1.9%** of all cancer deaths in men and **1.3%** of all cancer deaths in women.

On average, **254** men and **140** women were diagnosed annually with kidney and renal pelvis cancer.

On average, **56** men and **30** women died from kidney and renal pelvis cancer each year.

The risk of developing kidney and renal pelvis cancer was **2.1** times higher in men than women (95% CI: 1.9, 2.3).

The risk of dying from kidney and renal pelvis cancer was **2.3** times higher in men than women (95% CI: 1.9, 2.9).

1 in **103** persons born today in Puerto Rico could be diagnosed with kidney and renal pelvis during their lifetime.

The 5-year relative survival rate for kidney and renal pelvis cancer diagnosed between 2010 and 2014 was **79.3%**.

Kidney cancer detection

Kidney cancer is often found by chance during an imaging test (MRI or CT scan) done for other diseases; this cancer usually has no symptoms at the time of detection. A routine urine test may find small amounts of blood in the urine of people with early stage kidney cancer. But the bleeding maybe for other reasons, such as bladder or urinary tract infection (21).

Risk factors

Risk factors that make a person more likely to develop kidney cancer are: smoking, obesity, high blood pressure, family history of kidney cancer, exposure to thrichloroethylene in the workplace, being male, advanced kidney disease, and some hereditary risk factors (11).

For more information about this cancer go HERE.

Figure 66. Age-adjusted (2000 US Std. Pop.) incidence and mortality rates – Kidney and renal pelvis cancer by sex: Puerto Rico, 2000-2018

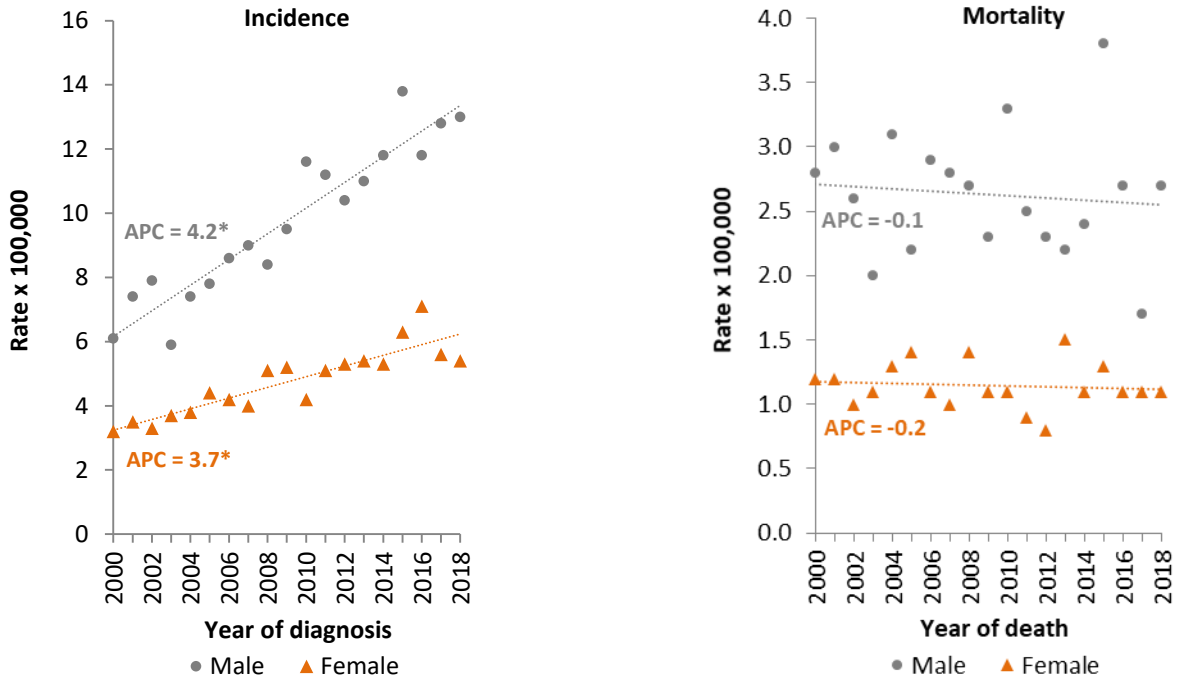


Figure 67. Age-specific incidence and mortality rates – Kidney and renal pelvis cancer by sex: Puerto Rico, 2014-2018

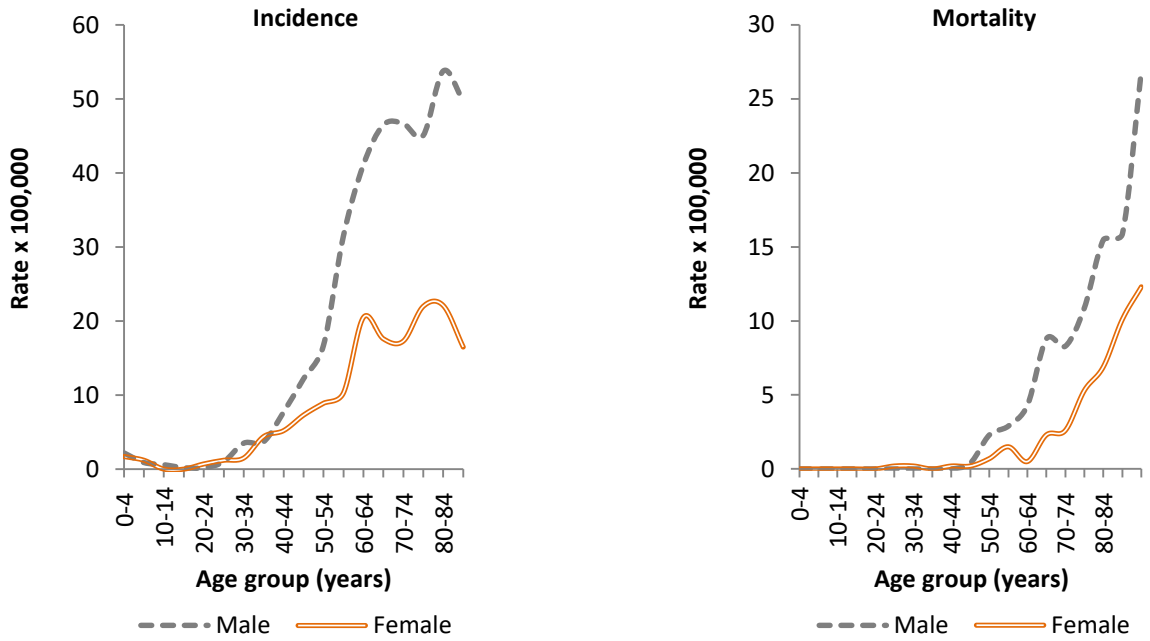
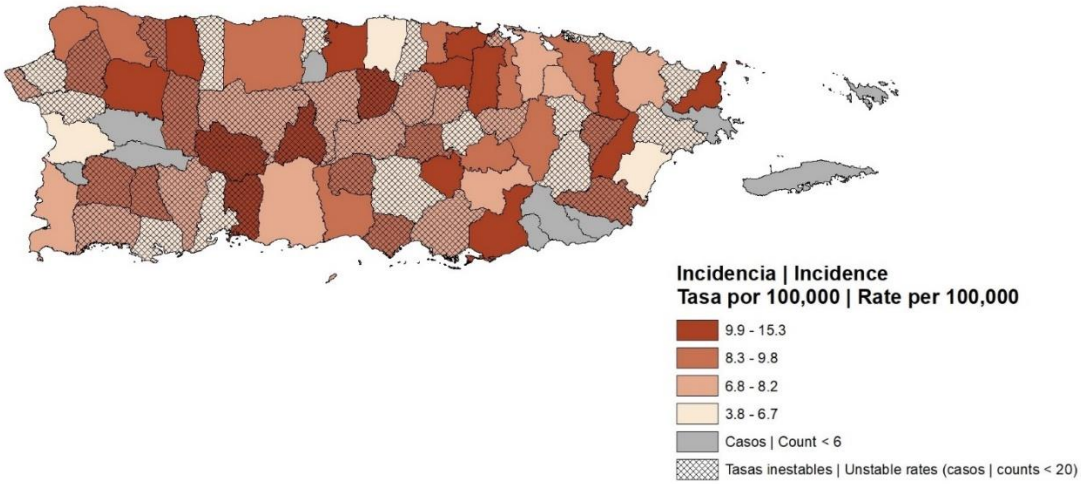


Figure 68. Age-adjusted incidence rates (2000 PR Standard Population) – Kidney and renal pelvis cancer by municipality: Puerto Rico, 2014-2018



Note: Mortality rates by municipality could not be calculated due to the small number of cases in most of the municipalities.

Figures summary. Between 2000 and 2018, the incidence rates among men and women for kidney and renal pelvis cancer increased on average **4.2%** ($p<0.05$) and **3.7%** ($p<0.05$) per year respectively. However, mortality rates remained stable in men and women (Figure 66). The median age at diagnosis for kidney and renal pelvis cancer in men was **65** years and **64** years in women. The median age at death in men was **71** years and **75** years in women (Figure 67). **For statistical information of this cancer in the United States of America go HERE.**

ANNEXES

Annex I. 1-, 3-, and 5-year relative survival percentage for specific cancer sites by tumor stage, Puerto Rico: 2010-2014 (follow-up to 2019)

Cancer site	Total cases	1-year survival (95% CI)	3-year survival (95% CI)	5-year survival (95% CI)
Oral cavity and pharynx	1,790	73.61 (71.41-75.67)	53.61 (51.11-56.06)	49.89 (47.30-52.45)
Localized	556	80.98 (77.27-84.20)	70.11 (65.70-74.17)	66.02 (61.29-70.47)
Regional	649	74.30 (70.62-77.62)	48.22 (44.11-52.25)	43.09 (38.93-47.23)
Distant	270	61.75 (55.51-67.42)	29.21 (23.69-34.98)	25.61 (20.23-31.37)
Unknown	315	69.33 (63.72-74.31)	56.62 (50.54-62.36)	56.41 (50.03-62.50)
Esophagus	563	41.07 (36.90-45.20)	21.37 (17.93-25.04)	16.67 (13.50-20.16)
Localized	214	46.73 (39.75-53.44)	28.02 (21.86-34.55)	23.15 (17.31-29.62)
Regional	105	52.74 (42.56-62.02)	24.70 (16.61-33.77)	16.30 (9.59-24.71)
Distant	113	29.00 (20.84-37.68)	9.54 (4.88-16.14)	7.15 (3.16-13.46)
Unknown	131	32.95 (24.93-41.21)	18.15 (11.87-25.59)	14.69 (8.95-21.89)
Stomach	1,391	52.95 (50.22-55.62)	35.81 (33.15-38.49)	31.71 (29.05-34.41)
Localized	488	65.27 (60.69-69.50)	54.33 (49.42-59.05)	50.11 (45.01-55.10)
Regional	401	58.92 (53.79-63.72)	29.60 (24.99-34.38)	22.05 (17.85-26.60)
Distant	276	22.67 (17.86-27.86)	5.45 (3.12-8.71)	3.27 (1.54-6.09)
Unknown	224	52.42 (45.50-58.94)	44.52 (37.56-51.34)	44.39 (37.22-51.47)
Colon and rectum	7,574	82.67 (81.74-83.56)	68.97 (67.81-70.12)	62.05 (60.78-63.30)
Localized	2,933	93.26 (92.14-94.26)	86.84 (85.25-88.32)	83.17 (81.31-84.93)
Regional	2,950	85.85 (84.44-87.16)	71.16 (69.30-72.95)	61.18 (59.13-63.18)
Distant	1,135	50.78 (47.78-53.72)	21.59 (19.16-24.12)	12.96 (10.98-15.11)
Unknown	556	75.10 (71.11-78.67)	60.46 (55.92-64.76)	56.35 (51.58-60.94)
Liver and intrahepatic bile duct	956	41.89 (38.69-45.07)	21.53 (18.88-24.32)	15.97 (13.58-18.54)
Localized	394	54.87 (49.69-59.77)	33.84 (28.97-38.80)	25.16 (20.69-29.92)
Regional	105	47.69 (37.72-57.06)	18.25 (11.35-26.53)	15.98 (9.41-24.23)
Distant	116	22.92 (15.68-31.03)	4.59 (1.71-9.72)	2.84 (0.77-7.42)
Unknown	341	31.57 (26.62-36.63)	14.13 (10.56-18.23)	9.83 (6.81-13.53)

Cancer site	Total cases	1-year survival (95% CI)	3-year survival (95% CI)	5-year survival (95% CI)
Pancreas	10,051	30.20 (27.40-33.04)	13.26 (11.22-15.47)	10.59 (8.74-12.66)
Localized	165	44.73 (36.88-52.31)	30.93 (23.78-38.41)	27.95 (20.96-35.45)
Regional	277	46.48 (40.41-52.35)	16.49 (12.26-21.29)	10.79 (7.32-15.03)
Distant	467	18.64 (15.20-22.35)	5.71 (3.80-8.17)	4.05 (2.46-6.26)
Unknown	142	19.51 (13.39-26.52)	11.20 (6.57-17.23)	11.50 (6.75-17.70)
Lung and bronchus	2,667	42.46 (40.54-44.38)	24.67 (22.97-26.40)	19.53 (17.93-21.18)
Localized	601	61.46 (57.32-65.35)	46.21 (41.92-50.43)	39.67 (35.38-43.99)
Regional	486	54.01 (49.36-58.45)	33.16 (28.80-37.61)	23.66 (19.71-27.85)
Distant	1,101	28.42 (25.74-31.16)	10.13 (8.38-12.08)	7.49 (5.94-9.27)
Unknown	478	39.03 (34.56-43.50)	22.27 (18.48-26.32)	17.8 (14.26-21.70)
Female breast	8,893	96.30 (95.82-96.74)	90.19 (89.44-90.92)	86.22 (85.31-87.09)
Localized	5,137	99.29 (98.86-99.65)	97.70 (96.96-98.37)	96.23 (95.29-97.12)
Regional	2,758	96.36 (95.48-97.11)	86.09 (84.57-87.49)	78.75 (76.95-80.46)
Distant	449	71.65 (67.16-75.67)	42.85 (38.11-47.52)	31.30 (26.90-35.81)
Unknown	549	88.14 (84.96-90.76)	79.58 (75.58-83.12)	75.42 (71.03-79.41)
Cervix uteri	1,145	86.27 (84.08-88.19)	69.47 (66.62-72.14)	64.17 (61.19-67.01)
Localized	486	93.62 (90.94-95.57)	83.85 (80.08-87.02)	80.59 (76.53-84.11)
Regional	322	84.79 (80.29-88.37)	58.33 (52.61-63.63)	49.46 (43.72-54.97)
Distant	104	54.21 (44.11-63.27)	19.62 (12.57-27.85)	16.83 (10.30-24.77)
Unknown	233	87.30 (82.11-91.16)	77.18 (70.88-82.44)	71.41 (64.66-77.29)
Corpus and uterus, NOS	2,574	91.76 (90.56-92.83)	82.77 (81.11-84.31)	79.78 (77.97-81.50)
Localized	1,641	96.53 (95.39-97.44)	92.23 (90.57-93.68)	89.98 (88.06-91.72)
Regional	568	90.72 (87.87-92.99)	74.04 (69.97-77.70)	69.54 (65.21-73.54)
Distant	153	57.57 (49.24-65.07)	29.75 (22.57-37.29)	22.73 (16.28-29.90)
Unknown	212	82.28 (76.25-87.00)	70.99 (64.01-77.00)	69.23 (61.96-75.6.0)

Cancer site	Total cases	1-year survival (95% CI)	3-year survival (95% CI)	5-year survival (95% CI)
Ovary	728	71.88 (68.38-75.08)	52.85 (49.02-56.55)	45.60 (41.77-49.38)
Localized	149	94.13 (88.68-97.20)	86.18 (79.04-91.33)	82.88 (75.09-88.83)
Regional	161	77.46 (70.01-83.37)	63.72 (55.46-71.00)	54.03 (45.58-61.88)
Distant	350	62.08 (56.68-67.03)	35.70 (30.57-40.89)	27.17 (22.43-32.15)
Unknown	68	59.96 (47.10-70.77)	41.52 (29.41-53.36)	37.84 (25.95-49.91)
Prostate	14,133	99.70 (99.4-99.97)	99.18 (98.66-99.67)	99.16 (98.49-99.81)
Localized	11,787	100.00	100.00	100.00
Regional	725	100.00	100.00	100.00
Distant	359	81.99 (77.27-85.94)	52.82 (47.03-58.40)	38.60 (32.92-44.37)
Unknown	1,262	94.80 (93.07-96.25)	90.64 (88.16-92.89)	88.86 (85.89-91.62)
Urinary bladder	1,672	87.06 (85.17-88.77)	76.21 (73.72-78.57)	70.13 (67.32-72.83)
In-situ	741	97.66 (95.75-99.07)	93.31 (90.31-95.88)	87.97 (84.17-91.38)
Localized	704	83.14 (79.91-85.98)	66.84 (62.74-70.71)	60.93 (56.48-65.22)
Regional	95	72.89 (62.27-81.25)	52.12 (40.79-62.68)	39.81 (28.85-51.05)
Distant	49	39.79 (25.99-53.38)	19.83 (9.79-32.64)	16.35 (7.18-29.14)
Unknown	83	69.65 (58.07-78.86)	63.20 (50.8-73.87)	54.55 (41.77-66.44)
Kidney and renal pelvis	1,299	86.89 (84.81-88.74)	81.26 (78.73-83.58)	79.27 (76.49-81.86)
Localized	896	97.19 (95.59-98.38)	95.74 (93.53-97.56)	94.97 (92.33-97.24)
Regional	175	82.86 (76.09-88.02)	73.00 (65.08-79.72)	68.63 (60.14-76.12)
Distant	142	40.21 (32.02-48.29)	19.39 (13.19-26.55)	13.96 (8.64-20.61)
Unknown	85	64.03 (52.54-73.61)	47.93 (36.41-58.83)	43.52 (31.97-54.91)
Thyroid	4,409	100.00	100.00	100.00
Localized	3,398	100.00	100.00	100.00
Regional	777	99.60 (98.53-100.15)	99.48 (98.00-100.46)	99.40 (97.62-100.70)
Distant	86	89.49 (80.48-94.76)	82.97 (72.54-90.20)	79.81 (68.69-88.00)
Unknown	148	97.72 (93.12-99.7)	97.88 (92.59-100.64)	96.74 (90.52-100.54)

Cancer site	Total cases	1-year survival (95% CI)	3-year survival (95% CI)	5-year survival (95% CI)
Non-Hodgkin lymphoma	2,527	76.79 (75.03-78.46)	70.13 (68.14-72.04)	66.87 (64.75-68.93)
Localized	870	80.92 (78.03-83.51)	73.62 (70.27-76.71)	71.33 (67.75-74.68)
Regional	305	72.11 (66.56-76.95)	65.87 (59.89-71.30)	63.27 (57.00-69.05)
Distant	631	69.54 (65.67-73.09)	60.09 (55.89-64.07)	55.28 (50.91-59.49)
Unknown	720	80.10 (76.85-82.99)	76.49 (72.85-79.80)	73.27 (69.31-76.95)
Leukemia	1,597	76.08 (73.83-78.18)	65.23 (62.66-67.69)	61.92 (59.22-64.53)

Annex II. Incidence for specific cancer sites by sex: Puerto Rico, 2014-2018

Sex →	Overall					Male					Female				
Cancer site† ↓	Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:		
			PR	US	World			PR	US	World			PR	US	World
All Sites	73,135	478.9	338.3	365.8	260.2	38,224	525.6	379.7	410.4	282.2	34,911	436.5	308.7	334.6	244.8
Oral Cavity and Pharynx	2,003	13.1	9.1	9.8	7.0	1,459	20.1	14.7	15.8	11.2	544	6.8	4.5	4.9	3.4
Esophagus	625	4.1	2.7	2.9	1.9	514	7.1	5.0	5.4	3.6	111	1.4	0.8	0.9	0.5
Stomach	1,541	10.1	6.7	7.4	4.6	866	11.9	8.5	9.4	5.8	675	8.4	5.2	5.9	3.7
Colon and Rectum	8,494	55.6	38.0	41.4	28.2	4,600	63.2	45.8	49.8	33.9	3,894	48.7	31.7	34.7	23.6
Liver and Intrahepatic Bile Duct	1,805	11.8	7.7	8.4	5.5	1,276	17.5	12.4	13.3	9.0	529	6.6	3.9	4.4	2.6
Pancreas	1,729	11.3	7.4	8.2	5.2	915	12.6	9.0	9.8	6.4	814	10.2	6.2	6.9	4.1
Larynx	680	4.5	3.0	3.2	2.2	617	8.5	6.0	6.5	4.5	63	0.8	0.5	0.5	0.3
Lung and Bronchus	3,520	23.1	14.8	16.4	10.1	2,138	29.4	20.3	22.6	13.7	1,382	17.3	10.4	11.5	7.2
Skin Melanoma	672	4.4	3.2	3.5	2.4	395	5.4	4.1	4.5	3.0	277	3.5	2.6	2.8	2.0
Prostate	~	~	~	~	~	14,258	196.0	135.5	144.4	100.6	~	~	~	~	~
Testis	~	~	~	~	~	377	5.2	5.5	5.7	5.2	~	~	~	~	~
Breast	~	~	~	~	~	~	~	~	~	~	10,087	126.1	88.0	95.3	70.0
Cervix Uteri	~	~	~	~	~	~	~	~	~	~	1,089	13.6	11.8	12.9	10.3
Corpus and Uterus, NOS	~	~	~	~	~	~	~	~	~	~	3,139	39.2	28.3	30.1	23.1
Ovary	~	~	~	~	~	~	~	~	~	~	822	10.3	7.5	8.0	6.0
Urinary Bladder	2,127	13.9	8.8	9.9	5.7	1,579	21.7	15.0	16.9	9.6	548	6.9	4.0	4.5	2.6
Kidney and Renal Pelvis	1,770	11.6	8.4	8.9	6.6	1,141	15.7	11.8	12.6	9.2	629	7.9	5.6	6.0	4.5
Brain and Other Nervous System	745	4.9	4.1	4.2	3.8	402	5.5	4.8	5.0	4.5	343	4.3	3.4	3.6	3.1
Thyroid	4,778	31.3	27.3	29.1	24.1	955	13.1	11.2	11.9	9.7	3,823	47.8	41.7	44.5	37.1
Hodgkin Lymphoma	434	2.8	2.7	2.8	2.5	230	3.2	3.0	3.1	2.7	204	2.6	2.5	2.5	2.3
Non-Hodgkin Lymphoma	2,895	19.0	13.6	14.8	10.3	1,550	21.3	16.3	17.9	12.3	1,345	16.8	11.4	12.4	8.7
Myeloma	1,365	8.9	6.0	6.6	4.3	697	9.6	6.8	7.6	4.8	668	8.4	5.3	5.9	3.9
Leukemia	1,958	12.8	9.7	10.5	7.9	1,091	15.0	11.7	12.7	9.1	867	10.8	8.1	8.7	7.0

* Rates per 100,000 population.

† Excludes basal and squamous cell carcinomas of the skin except when these occur on the skin of the genital organs, and in situ cancers except urinary bladder.

~ Not applicable.

PR = Puerto Rico; US = United States of America

Annex III. Mortality for specific cancer sites by sex: Puerto Rico, 2014-2018

Sex →	Overall					Male					Female				
Cancer site ↓	Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:		
			PR	US	World			PR	US	World			PR	US	World
All Sites	26,041	153.8	99.1	111.2	66.2	14,497	179.8	125.3	141.2	80.9	11,544	130.1	79.9	89.4	55.0
Oral Cavity and Pharynx	608	3.6	2.4	2.6	1.7	489	6.1	4.3	4.6	3.1	119	1.3	0.8	0.9	0.5
Esophagus	531	3.1	2.0	2.2	1.3	441	5.5	3.8	4.1	2.6	90	1.0	0.6	0.7	0.3
Stomach	944	5.6	3.6	4.1	2.3	552	6.8	4.8	5.4	3.1	392	4.4	2.6	3.0	1.7
Colon and Rectum	3,506	20.7	13.4	14.9	9.0	1,973	24.5	17.3	19.2	11.8	1,533	17.3	10.2	11.5	6.7
Liver and Intrahepatic Bile Duct	1,620	9.6	6.1	6.7	4.1	1,073	13.3	9.2	10.1	6.4	547	6.2	3.5	4.0	2.2
Pancreas	1,548	9.1	5.8	6.6	3.8	851	10.6	7.4	8.2	5.1	697	7.9	4.5	5.2	2.8
Larynx	235	1.4	0.9	1.0	0.6	213	2.6	1.8	2.0	1.2	22	0.2	0.2	0.2	0.1
Lung and Bronchus	2,845	16.8	10.6	11.8	6.9	1,786	22.1	15.2	17.0	9.9	1,059	11.9	6.9	7.8	4.4
Skin Melanoma	120	0.7	0.5	0.5	0.3	78	1.0	0.7	0.8	0.4	42	0.5	0.3	0.3	0.2
Prostate	~	~	~	~	~	2,423	30.0	20.1	23.9	10.3	~	~	~	~	~
Testis	~	~	~	~	~	30	0.4	0.4	0.4	0.3	~	~	~	~	~
Breast	~	~	~	~	~	~	~	~	~	~	2,187	24.7	16.1	17.7	11.9
Cervix Uteri	~	~	~	~	~	~	~	~	~	~	235	2.6	2.0	2.2	1.6
Corpus and Uterus, NOS	~	~	~	~	~	~	~	~	~	~	607	6.8	4.4	4.8	3.3
Ovary	~	~	~	~	~	~	~	~	~	~	520	5.9	3.8	4.2	2.8
Urinary Bladder	575	3.4	2.0	2.4	1.1	388	4.8	3.3	3.8	1.8	187	2.1	1.1	1.3	0.6
Kidney and Renal Pelvis	427	2.5	1.6	1.8	1.1	278	3.4	2.4	2.7	1.7	149	1.7	1.0	1.1	0.6
Brain and Other Nervous System	558	3.3	2.4	2.6	1.8	280	3.5	2.7	2.9	2.1	278	3.1	2.1	2.3	1.6
Thyroid	98	0.6	0.4	0.4	0.2	45	0.6	0.4	0.4	0.3	53	0.6	0.3	0.4	0.2
Hodgkin Lymphoma	97	0.6	0.4	0.5	0.3	58	0.7	0.6	0.6	0.4	39	0.4	0.3	0.4	0.2
Non-Hodgkin Lymphoma	775	4.6	3.0	3.4	2.1	456	5.7	4.1	4.6	2.8	319	3.6	2.2	2.5	1.4
Myeloma	655	3.9	2.4	2.7	1.5	331	4.1	2.8	3.2	1.8	324	3.7	2.1	2.4	1.4
Leukemia	937	5.5	3.6	4.1	2.4	512	6.3	4.5	5.2	2.9	937	5.5	3.0	3.4	2.1

* Rates per 100,000 population.
~ Not applicable.
§ Counts and rates are not presented when less than six cases are reported in order to protect the confidentiality of the information.
‡Counts < 20 are too few to calculate a stable age-adjusted rate.
PR = Puerto Rico; US = United States of America

Annex IV. Incidence of childhood cancer by sex: Puerto Rico, 2014-2018

Sex →	Overall					Male					Female				
Cancer site ↓	Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:		
			PR	US	World			PR	US	World			PR	US	World
All Sites	675	190.8	190.2	189.6	191.7	327	181.0	182.3	181.9	185.8	348	201.0	198.4	197.7	197.8
Leukemia	145	41.0	42.7	42.6	45.0	70	38.7	39.6	39.5	40.7	75	43.3	45.9	45.8	49.5
Lymphomas	95	26.8	25.3	25.2	23.9	56	31.0	29.5	29.4	27.9	39	22.5	21.0	20.9	19.7
CNS Neoplasms	95	26.8	28.1	28.1	29.6	55	30.4	31.9	31.8	34.0	40	23.1	24.1	24.1	25.1
CNS Tumors	30	8.5	10.3	10.4	12.8	20	11.1	13.3	13.3	16.2	10	5.8	7.2	7.3	9.1
Retinoblastoma	6	1.7	2.1	2.2	2.7	^	^	^	^	^	^	^	^	^	^
Renal tumors	6	1.7	2.0	2.1	2.5	^	^	^	^	^	^	^	^	^	^
Bone tumors	27	7.6	7.2	7.2	6.5	14	7.7	7.3	7.3	6.6	13	7.5	7.0	7.0	6.4
Soft tissue sarcomas	37	10.5	10.1	10.0	9.7	21	11.6	11.5	11.5	11.4	16	9.2	8.6	8.6	7.8
Germs cell neoplasm	45	12.7	12.0	12.0	11.3	25	13.8	13.1	13.0	12.5	20	11.6	11.0	11.0	10.2
Carcinomas	148	41.8	38.0	37.6	34.2	40	22.1	20.2	20.0	18.2	108	62.4	56.5	56	50.8

*Rates are per 1,000,000 persons.

§ Counts and rates are not presented when less than six cases are reported in order to protect the confidentiality of the information.

Statistics were generated using the International Classification of Childhood Cancer (ICCC).

PR = Puerto Rico; US = United States of America

CNS = Central Nervous System

Annex V. Incidence of cancer in AYAs by sex: Puerto Rico, 2014-2018

Sex →	Overall					Male					Female				
Cancer site ↓	Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:			Count	Crude rate*	Age-adjusted rates Standard population:		
			PR	US	World			PR	US	World			PR	US	World
All sites	3,982	79.8	79.2	85.4	74.6	1,302	52.9	53.3	56.2	51.1	2,680	106.0	103.1	112.2	96.5
Leukemias	181	3.6	3.6	3.8	3.5	97	3.9	4.0	4.1	3.9	84	3.3	3.3	3.5	3.1
No-Hodgkin lymphoma	226	4.5	4.5	4.8	4.3	131	5.3	5.3	5.6	5.2	95	3.8	3.7	3.9	3.5
Hodgkin lymphoma	187	3.7	3.7	3.7	3.7	97	3.9	4.0	4.1	3.9	90	3.6	3.5	3.5	3.6
CNS and Other Intracranial and Intraspinal Neo (malignant)	103	2.1	2.0	2.1	2.1	62	2.5	2.5	2.5	2.5	41	1.6	1.6	1.6	1.6
Soft Tissue Sarcomas	129	2.6	2.6	2.7	2.5	73	3.0	3.0	3.2	2.9	56	2.2	2.2	2.3	2.1
Germ cell and trophoblastic neoplasms of gonads	281	5.6	5.6	5.8	5.4	269	10.9	11.0	11.5	10.6	12	0.5	0.5	0.5	0.5
Melanoma and Skin Carcinomas	75	1.5	1.5	1.6	1.4	39	1.6	1.6	1.7	1.5	36	1.4	1.4	1.5	1.3
Thyroid carcinoma	1,111	22.3	22.1	23.5	21.0	171	6.9	6.9	7.3	6.7	940	37.2	36.3	38.7	34.5
Other carcinoma of head and neck	73	1.5	1.4	1.6	1.4	45	1.8	1.8	2.0	1.7	28	1.1	1.1	1.1	1.0
Carcinoma of trachea, bronchus, and lung	25	0.5	0.5	0.6	0.5	16	0.6	0.7	0.7	0.6	9	0.4	0.3	0.4	0.3
Carcinoma of breast	~	~	~	~	~	~	~	~	~	~	399	15.8	15.1	17.4	13.5
Other sites in lip, oral cavity and pharynx	57	1.1	1.1	1.2	1.1	31	1.3	1.3	1.4	1.2	26	1.0	1.0	1.1	1.0
Carcinoma of kidney	75	1.5	1.5	1.7	1.4	38	1.5	1.6	1.8	1.4	37	1.5	1.4	1.6	1.3
Carcinoma of cervix and uterus	479	9.6	9.5	10.6	8.7	~	~	~	~	~	479	19.0	18.3	20.4	16.7
Carcinoma of colon and rectum	215	4.3	4.3	4.7	4.0	90	3.7	3.7	4.1	3.4	125	4.9	4.8	5.3	4.5
Carcinoma of stomach	31	0.6	0.6	0.7	0.6	12	0.5	0.5	0.5	0.5	19	0.8	0.7	0.8	0.6
Carcinoma of pancreas	25	0.5	0.5	0.5	0.5	11	0.4	0.5	0.5	0.4	14	0.6	0.5	0.6	0.5

*Rates are per 100,000 persons.
§ Counts and rates are not presented when less than six cases are reported in order to protect the confidentiality of the information.
Statistics were generated using the adapted classification scheme for tumors of adolescents and young adults is based on the classification scheme proposed by Barr and colleagues (2006).
PR = Puerto Rico; US = United States of America
CNS = Central Nervous System
~ Not applicable

SCIENTIFIC PUBLICATIONS

Between 2007 and 2021, the Puerto Rico Central Cancer Registry has participated or provided data in the following scientific publications:

Ramos-Fernández MR, Ortiz-Ortiz KJ, Torres-Cintrón CR, Tortolero-Luna G. **Patterns of End-of-Life Care as Measured by Emergency Room Visits Among Cancer Patients in Puerto Rico.** *Am J Hosp Palliat Care.* 2021 Jul 7;10499091211025743. [PubMed]

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