



# PUERTO RICO CENTRAL CANCER REGISTRY

## Stat Fact Sheet

## Leukemia<sup>1</sup>

### Key Points

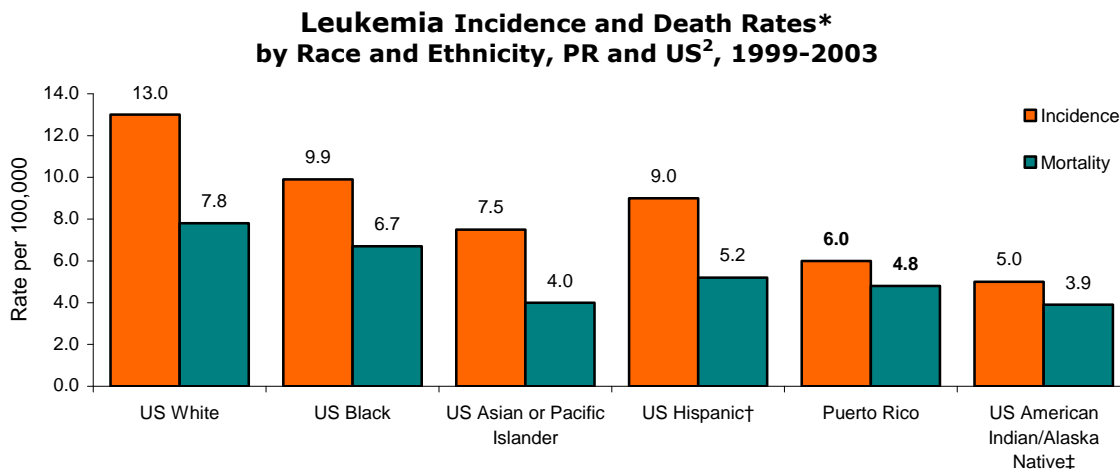
- ◆ Leukemia is the eleventh most commonly diagnosed cancer among men and the tenth most commonly diagnosed cancer in women in Puerto Rico.
- ◆ It accounts for 2.3% of all male cancers and 2.0% of all female cancers between 1999-2003.
- ◆ Leukemia accounts for 3.6% of all male cancer deaths and 3.9% of female cancer deaths between 2000-2004.
- ◆ Each year, approximately 124 men and 93 women were diagnosed with leukemia.
- ◆ Approximately 99 men and 79 women die from leukemia each year.
- ◆ Leukemia incidence are 1.6 times ([Confidence Interval \(CI\) 95%: 1.4, 1.8](#)) higher among men than among women, during 1999-2003.
- ◆ Leukemia mortality are 1.6 times (CI 95%: 1.6, 1.8) higher among men than among women, during 2000-2004.

## Incidence and Mortality

### Puerto Rico Incidence

From 1999-2003, the median age at diagnosis for leukemia was 60 years of age. Approximately 15.8% were diagnosed under age 20; 9.9% between 20 and 34; 7.0% between 35 and 44; 11.4% between 45 and 54; 12.3% between 55 and 64; 17.1% between 65 and 74; 18.7% between 75 and 84; and 7.7% 85+ years of age.

[The age-adjusted incidence rate](#) was 7.5 per 100,000 men per year and 4.8 per 100,000 women per year. These rates are based on cases diagnosed in 1999-2003 from Puerto Rico and adjusted to the 2000 US population.



\*Rates are per 100,000 and age-adjusted to the 2000 US standard population.

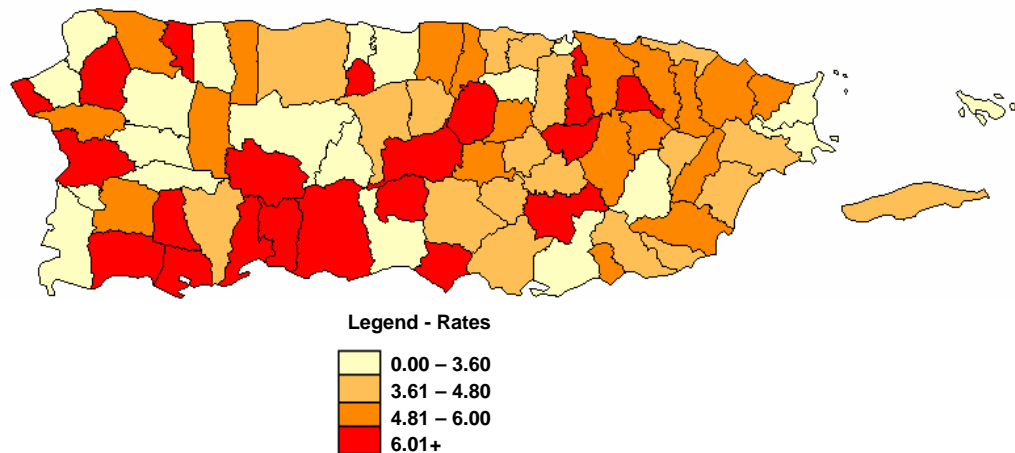
## Puerto Rico Mortality

From 2000-2004, the median age at death for leukemia was 69 years of age. Approximately 6.1% died under age 20; 5.5% between 20 and 34; 5.8% between 35 and 44; 10.2% between 45 and 54; 12.9% between 55 and 64; 21.9% between 65 and 74; 24.7% between 75 and 84; and 13.3% 85+ years of age.

The age-adjusted mortality rate was 5.9 per 100,000 men per year and 4.0 per 100,000 women per year. These rates are based on patients who died in 1999-2003 in Puerto Rico and adjusted to the 2000 US population.

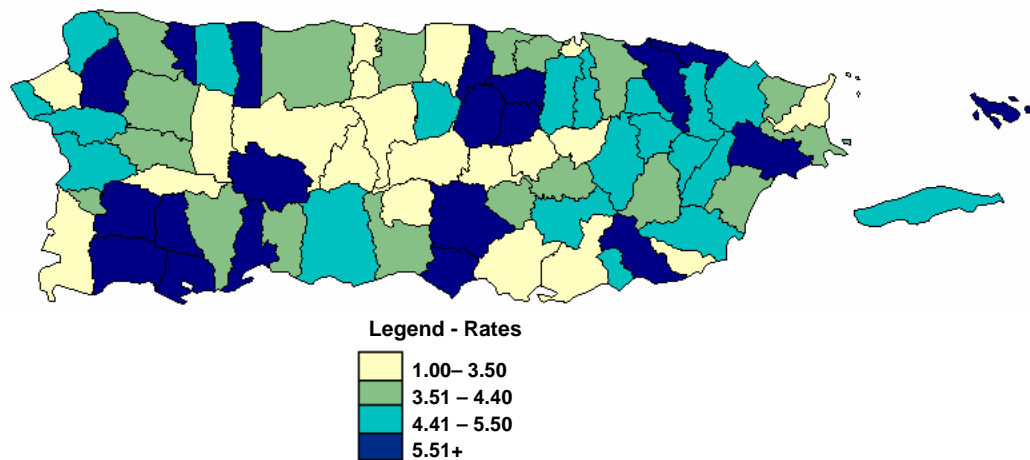
## Incidence and Mortality by Municipality

**Age-Adjusted Cancer Incidence Rates by Municipality in Puerto Rico  
Leukemia, 1999-2003\***



\*Rates are per 100,000 and age-adjusted to the 2000 P.R. population.

**Age-Adjusted Cancer Mortality Rates by Municipality in Puerto Rico  
Leukemia, 2000-2004\***



\*Rates are per 100,000 and age-adjusted to the 2000 P.R. population.

## Trends in Rates

Trends in rates can be described in many ways. Information for trends over a fixed period of time, for example 1987-2003, can be evaluated by the [annual percentage change \(APC\)](#). If there is a negative sign before the number, the trend is a decrease; otherwise it is an increase. If there is an asterisk after the APC then the trend was significant, that is, one believes that it is beyond chance, i.e. 95% sure, that the increase or decrease is real over the period 1987-2003. If the trend is not significant, the trend is usually reported as stable or level.

<b>Leukemia Incidence and Mortality Trends in Puerto Rico with associated APC (%)</b>				
<b>Sex</b>	<b>Incidence Trend</b>	<b>Period</b>	<b>Mortality Trend</b>	<b>Period</b>
Male and Female	-1.9**	1987-2003	-0.9**	1987-2004
Male	-1.5**	1987-2003	-0.5	1987-2004
Female	-2.3**	1987-2003	-1.4**	1987-2004

Between 1987-2003, the leukemia incidence rate among males in Puerto Rico decreased by an average of 1.5% each year while in females it decreased by an average of 2.3% annually. For males, the decrease was statistically significant ( $p < 0.05$ ) and for females the decrease was statistically significant ( $p < 0.05$ ).

Between 1987-2004, the leukemia mortality rate in Puerto Rico decreased by an average of 0.5% each year in males, while in females it decreased by an average of 1.4% annually. For males, the decrease was not statistically significant ( $p > 0.05$ ) and for females the decrease was statistically significant ( $p < 0.05$ ).

## Lifetime Risk

Based on rates from 1999-2003, 0.58% of men and women born today will be diagnosed with leukemia at some time during their lifetime. This number can also be expressed as 1 in 173 men and women will be diagnosed with leukemia during their lifetime. These statistics are called the [lifetime risk](#) of developing cancer. Sometimes it is more useful to look at the [probability of developing](#) leukemia between two age groups. For example, 0.15% of people will develop leukemia between their 50th and 70th birthdays.

## References

All statistics in this report are based on Puerto Rico cancer incidence and mortality and SEER (13 Registries) incidence and NCHS mortality statistics.

### Puerto Rico References

PR Data Source:

**Incidence** - Puerto Rico Central Cancer Registry, Puerto Rico Cancer Incidence File (May 2007).

**Mortality** - Puerto Rico Central Cancer Registry, Puerto Rico Mortality File (released August 2006), provided by the Division of Statistical Analysis, Auxiliary Secretariat for Planning and Development, Puerto Rico Department of Health.

### US References

US Data Sources:

**Incidence** - SEER 13 Regs Limited-Use, Nov 2006 Sub (1992-2004) - Linked To County Attributes - Total U.S., 1969-2004 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2007, based on the November 2006 submission.

**Mortality** - (SEER) Program SEER\*Stat Database: Mortality - All COD, Public-Use With State, Total U.S. (1990-2004), NCI, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2007. Underlying mortality data provided by NCHS ([www.cdc.gov/nchs](http://www.cdc.gov/nchs)).

## Footnotes

<sup>1</sup>Statistics were generated from malignant cases only

<sup>2</sup> US incidence data are collected by cancer registries participating in the National Cancer Institute's SEER Program (SEER 13 Registries).

<sup>†</sup>Hispanic is not mutually exclusive from Whites, Blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Persons of Hispanic origin may be any race. Incidence data for Hispanics is based on NHIA and excludes cases from Alaska Native Registry and Kentucky. Hispanic death rates exclude deaths from Minnesota, New Hampshire and North Dakota.

<sup>‡</sup> Incidence and mortality data for American Indians/Alaska Natives is based on the CHSDA (Contract Health Service Delivery Area) counties.

\*\*The APC is significantly different from zero ( $p < .05$ ).

## Definitions

### Age-Adjusted Rate

A statistical method allowing comparisons of populations that takes into account age-distribution differences between populations. Most incidence and death data in Puerto Rico are age-adjusted. Age-adjusting takes the 2000 PR population distribution and applies it to other time periods under consideration. This assures that such rates do not reflect any changes in the population age distribution.

Most data in Puerto Rico have been age-adjusted to the **2000 PR population**. This allows

comparison across time and places in Puerto Rico taking into account differences in age structure of the populations. Also some data in PR have been age-adjusted to the **2000 US population**. This allows comparison across racial groups taking into account differences in age structure of the populations. Rates adjusted to *different* populations should **NOT** be compared. The comparisons between adjusted-rates should always be among rates that have been adjusted using the *same* population.

### Annual percent change (APC)

The average annual percent change over several years. The APC is used to measure trends or the change in rates over time. The calculation involves fitting a straight line to the natural logarithm of the data when it is displayed by calendar year.

### Confidence Interval (CI)

A range of values that has a specified probability of containing the estimated rate or trend of interest. The 95% (p-value = 0.05) and 99% (p-value = 0.01) confidence intervals are the most commonly used.

### Lifetime risk

The probability of developing cancer in the course of one's lifespan. Lifetime risk may also be discussed in terms of the probability of developing or of dying from cancer.

### Probability of developing cancer

The chance that a person will develop cancer in his/her lifetime.

### Suggested Citation

Figuroa NR, De la Torre T, Ortiz KJ, Pérez J, Torres M (eds). Leukemia Stat Fact Sheet, Puerto Rico Central Cancer Registry. San Juan, PR, <http://www.salud.gov.pr/RCancer/Reports/Pages/default.aspx> , based on May 2007 Puerto Rico Central Cancer Registry data submission, posted on the Puerto Rico Department of Health web site, 2008.