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 SEER are age-adjusted, although some tables, in contrast, present the **crude rate** . Age-adjusting takes the 2000 US 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. Rates can be adjusted for the distribution of other characteristics such as race/ethnicity.

Most data in SEER have been age-adjusted to the 2000 US standard population. This allows comparison across racial groups taking into account differences in age structure of the populations. For example, the average age of many Hispanic/Latino populations is less than that of other racial/ethnic groups. Therefore, it sometimes appears that these groups have lower cancer incidence rates than other groups. However, by adjusting for age, more accurate comparisons can be made. See Calculating **Age-adjusted Rates** (http://seer.cancer.gov/seerstat/tutorials/aarates/definition.html) for further information.

Age-Conditional Risk

A term related to **lifetime risk** . The probability of developing cancer starting at a specific age and during a specified number of years.

Age-Specific Rate

The rate of **incidence** or **mortality**of a specific age group, calculated per 100,000 people.

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. For information on how this is calculated, go to **Trend Algortihms** (http://seer.cancer.gov/seerstat/WebHelp/seerstat.htm#Trend_Algorithms.htm) in the SEER*Stat Help system. The calculation involves fitting a straight line to the natural logarithm of the data when it is displayed by calendar year.

Annual Report to the Nation

An annual update of cancer death rates, incidence rates (new cases), and trends in the United States. The Centers for Disease Control and Prevention, the American Cancer Society, the National Cancer Institute, and the North American Association of Central Cancer Registries collaborate to create this report.

Cancer Burden

An estimate of the financial, emotional, or social impact that cancer creates within the population. Different racial, ethnic, geographic, and age groups in the United States do not share the burden of disease equally.

Cancer Statistics Review (CSR)

An annual report containing the most recent incidence, mortality, and survival statistics, published by the Cancer Statistics Branch of the NCI. It presents a broad profile of the cancer burden.

Collaborative Staging Algorithm

A joint effort by several organizations to develop standard computerized methods for determining the stage of cancer based on tumor size, extension of the primary tumor, lymph node involvement, and metastases. This algorithm allows one to obtain both the American Joint Committee on Cancer (AJCC)

stage and the **SEER historic stage** . The AJCC stage is used clinically, but its definitions change over time. The definitions of the SEER historic stages have remained constant over time.

Go to **AJCC Collaborative Staging** (http://www.cancerstaging.org/cstage/index.html) Web site for further information and site specific algorithms.

Confidence Interval

An estimated range of values which is likely to include an unknown population parameter. The 95% (p-value = .05) and 99% (p-value = .01) confidence intervals are the most commonly used.

If an estimated **annual percentage change (APC)** is -2.44 with a 95% confidence interval of (-2.83, -2.05), then we are 95% confident that the actual APC is between a decrease of -2.83% and a decrease of 2.05%. Inversely, there is still a 5% chance that the actual APC is not in the confidence interval (between the upper and lower confidence limits).

Crude Probability of Death

The crude probability of death measures the mortality patterns actually experienced in a cohort of cancer patients on which many possible causes of death are acting simultaneously.

Crude Rate

A crude rate is the ratio of the number of people in which the event of interest happens in a specified time period to the size of the population who may experience this event during the same time period. There are no adjustments made when a crude rate is given.

Death Rate

See **Mortality** .

Delayed Reporting

See **Reporting delay** .

Extent of Disease

See **Stage** .

Fast Stats

Fast Stats is designed to allow quick and easy access to key statistics for all major cancer sites by age, sex, race, and geographic area. The statistics include incidence, mortality, prevalence, and the probability of developing or dying from cancer.

Five-Year Survival Rate

The percentage of people in a study or treatment group who are alive five years after they were diagnosed with or treated for a disease, such as cancer. The disease may or may not have come back.

Georeferenced Statistics

Statistics reported by geographic location of the events (e.g., residence of the cancer case)

ICCC Classification

At the time the World Health Organization's (WHO) International Agency for Research on Cancer (IARC) published their first monograph on Childhood Cancer in 1988, Dr. R. Marsden published an annex giving a classification scheme for childhood cancer that consisted of 12 groups based chiefly on histologic type. The classification by Marsden has been modified and is now called the International **Classification of Childhood Cancers** (http://seer.cancer.gov/iccc/) .

In situ cancer
See **Stage** .

Incidence
The number of newly diagnosed cases of cancer during a specific time period.

The American Cancer Society estimated that there would be approximately 1,399,790 people first diagnosed with cancer in 2006.

Incidence Rate
The ratio of the number of new cancers of a specific site/type occurring in a specified population during a year to the number of individuals who were at risk for the given cancer, generally expressed as the number of cancers per 100,000 persons.

Incidence, Delay-Adjusted
A term related to **incidence** . An algorithm is used to estimate the incidence if it were unaffected by **reporting delays**.

Invasive Cancer
Cancer that has spread beyond the layer of tissue in which it developed and is growing into surrounding, healthy tissues -- generally, the stage is either "localized", "regional", or "distant".

Joinpoint
A statistical model for characterizing cancer trends which uses statistical criteria to determine how many times and when the trends in incidence or mortality rates have changed. The results of joinpoint are given as calendar year ranges, and the annual percent change (APC) in the rates over each period.

Joinpoint Software
Statistical software for the analysis of trends using a regression model that describes trends by a sequence of straight line segments, connected at "joinpoints" where significant changes in trend have been calculated.

Life Tables
A table for a given population listing, for each sex and each age from 0 to 120, how many members die at that age and how many survive one more year.

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.

Based on cancer rates from 2001 to 2003, it was estimated that men had about a 45 percent chance of developing cancer in their lifetimes, while women had about a 38 percent chance.

Malignant Cancer
See **Invasive cancer** .

Median Age at Diagnosis/Death
The age at which half of all reported cases were older and half were younger.

Mortality
The number of deaths from cancer during a specific time period.

Percent Change

The percent change (PC) in a statistic over a given time interval is Percent change = (Final value - Initial value) / Initial value * 100. A positive PC corresponds to an increasing trend, a negative PC to a decreasing trend.

Prevalence, Complete

The number of people alive on a certain date who have been diagnosed with cancer at any time in their lives. This is different from incidence in that it considers both newly diagnosed and previously diagnosed people.

Prevalence, Limited Duration

The number of people who have received a diagnosis of cancer during a defined time period, and who are alive on the last day of that period. Most prevalence data in SEER is for limited duration because information on cases diagnosed before 1973 is not generally available.

Primary Tumor

An original tumor. A tumor that did not initially arise in another site.

Probability

The chance that an event occurs. It is usually expressed as a percent. Zero percent denotes impossibility, while 100% denotes certainty.

Probability of Developing Cancer

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

Probability of Dying of Cancer

The chance that a person will die from cancer.

Relative Survival Rate

A specific measurement of survival where the rate is calculated by adjusting the rate to remove all causes of death except cancer. It is the ratio of a cancer patient's chance of surviving a given time interval to that of an average person of the same age and sex.

Reporting Delay

The time elapsed before a diagnosed cancer case is reported to the NCI.

Currently, there is a standard delay of 22 months between the end of the diagnosis year and the time SEER cancer registries first report cancers to the NCI. Cancers are reported November 1 of each year for all years including the complete year two previous to the current year. However, SEER cancer registries continue to update registry data indefinitely, so statistics may change, becoming more accurate, every year.

SEER

The Surveillance, Epidemiology, and End Results (SEER) Program of the NCI is a collection of central cancer registries in the United States that collect and submit cancer incidence, prevalence, mortality, survival, stage at diagnosis data and other statistics to the National Cancer Institute. The National Cancer Act of 1971 mandated the collection, analysis, and dissemination of data useful in the prevention, diagnosis, and treatment of cancer leading to the establishment of the SEER Program.

SEER Registries

Geographic areas that were selected for inclusion in the SEER Program based on their ability to operate

and maintain a high quality population-based cancer reporting system and for their epidemiologically significant population subgroups. See the **SEER Registries** (http://seer.cancer.gov/registries/) for more information.

See the **Common Terms** (http://seer.cancer.gov/registries/terms.html) page for the combinations of the SEER Registries commonly used in statistical analyses.

Spatial Correlation
A measure of the tendency for places that are near to each other to have more similar (positive correlation) or dissimilar (negative correlation) values of their statistics.

Stage
Stage provides a measure of disease progression, detailing the degree to which the cancer has advanced. Two methods commonly used to determine stage are AJCC and SEER historic. The AJCC method (see **Collaborative Stage Data Collection System** (http://www.cancerstaging.org/cstage/)) is more commonly used in the clinical settings, while SEER has standardized and simplified staging to ensure consistent definitions over time.

SEER describes cancers in five stages:

- **In situ cancer**is early cancer that is present only in the layer of cells in which it began.
- **Localized cancer**is cancer that is limited to the organ in which it began, without evidence of spread.
- **Regional cancer** is cancer that has spread beyond the original (primary) site to nearby lymph nodes or organs and tissues.
- **Distant cancer** is cancer that has spread from the primary site to distant organs or distant lymph nodes.
- **Unstaged cancer** is cancer for which there is not enough information to indicate a stage.

Stage at Diagnosis
The stage (see item above) that the cancer has progressed to at the time of diagnosis.

Standard Error
The standard error of an estimate is a measure of the sampling variability of the estimate.

Standard Million Population
A standard million population for a geographic area is a table giving the number of persons in each age group 0, 1-4, ... , 85+ out of a theoretical cohort of 1,000,000 persons that is distributed by age in the same proportions as the population.

Standard Population
A standard population for a geographic area, such as the US or the world, is a table giving the proportions of the population falling into the age groups 0, 1-4, 5-9,…, 80-84, and 85+.

Statistically Significant
Describes a mathematical measure of difference between groups. The difference is said to be statistically significant if it is greater than what might be expected to happen by chance alone 95% of the time. Although statistically significant usually refers to 95% confidence, sometimes other confidence levels such as 99% or 90% are specified.

Surveillance Data (Cancer)
Data that is used to monitor changes in cancer in a population. Included are measures of cancer

incidence, morbidity, survival, prevalence and mortality. Also included are the assessment of genetic predisposition, environmental and behavioral risk factors, screening practices, and the quality of care from prevention through palliation.

Survival

Survival examines how long after diagnosis people live. Cancer survival is measured in a number of different ways depending on the intended purpose. Several examples of survival statistics are listed below.

Survival, Cause-specific

A measure of net survival that is calculated by using the cause of death listed on death certificates to estimate the proportion of deaths due to cancer.

Survival, Net

Survival from cancer that is calculated in the absence of other causes of death. It represents a hypothetical situation where the only possible cause of death is cancer. Can be calculated as either **relative survival** or **cause-specific** survival.

Survival, Observed

An estimate of the probability of surviving all causes of death for a specified time interval calculated from the cohort of cancer cases. Observed survival does not consider cause of death, it simply looks at who is alive and who is not. Sometimes referred to as overall survival.

Survival, Period

A newer method for calculating survival that uses only information from the most recent calendar years available. This method is believed to give a more recent estimate than previously-used methods and may take newer treatment modalities into account more effectively than other methods.

Survival, Progression-Free

The length of time during and after treatment in which a patient is living with a disease that does not get worse. Progression-free survival may be used in a clinical study or trial to help find out how well a new treatment works.

Survival, Relative

A measure of net survival that is calculated by comparing observed (overall) survival with expected survival from a comparable set of people that do not have cancer to measure the excess mortality that is associated with a cancer diagnosis.

Trends Over Time

The change in rate over time expressed as an annual percent change.