Understanding Statistics Used to Guide Prognosis and Evaluate Treatment [1]

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One of the first questions people diagnosed with cancer may ask is, “what’s the chance of survival?” Understanding survival statistics becomes very important. A doctor can use them to estimate a patient’s prognosis, or chance of recovery, and determine treatment options. Read below to learn how.

Estimating how long people live after a cancer diagnosis

Researchers usually give survival statistics as rates. The rates describe the percentage of people with a specific cancer type who will be alive a certain time after diagnosis. Survival rates can describe any given length of time. However, researchers usually give cancer statistics as a 5-year relative survival rate. The rate describes the percentage of people with cancer who will be alive 5 years after diagnosis. It does not count those who die from other diseases.

Sometimes, researchers calculate survival statistics to include *all* people with a specific cancer type. The stage of cancer doesn’t matter. Researchers call this an **overall rate**.

Example: The 5-year relative survival rate for women with cervical cancer is about 68%. This means that about 68 out of every 100 women with cervical cancer will be alive 5 years after diagnosis.

Researchers calculate other survival statistics for specific cancer stages [3]. The stage indicates the tumor’s size. It also describes whether and how far the cancer has spread. Survival statistics

can vary by stage.

Example: The 5-year relative survival rate for early-stage cervical cancer is 92%. This means that 92 out of every 100 women with early-stage cervical cancer will be alive 5 years after diagnosis.

Calculating how many people are cancer free or have cancer that's not growing or spreading

Five-year relative survival rates include people in remission. Remission is the temporary or permanent absence of disease. The rates also include those still in treatment. Disease-free survival (DFS) statistics and progression-free survival (PFS) statistics are more specific survival statistics. Doctors often use them to evaluate cancer treatments.

DFS rates refer only to the percentage of people who are in complete remission after finishing treatment.

PFS rates describe the percentage of people who don't have *new* tumor growth or cancer spread during or after treatment. The rates include those whose disease responded completely or partially to treatment. They also include those whose disease is stable. That means the cancer is still there but not growing or spreading.

Determining prognosis

Another question people often ask after a cancer diagnosis is whether the doctor can successfully treat the disease. Doctors use survival statistics to make prognosis predictions.

Example: The overall 5-year relative survival rate for testicular cancer is 95%. Therefore, a doctor may tell a man diagnosed with the disease that he has a **favorable prognosis.**

Similar to survival statistics, prognosis also depends on the stage of the cancer at diagnosis.

Example: If doctors detect colorectal cancer early, the 5-year relative survival rate is 90%. For advanced stage colorectal cancer that's spread to distant parts of the body, the rate drops to about 13%.

Evaluating treatment options

Doctors often use 5-year relative survival rates to evaluate and compare different treatment options. They consider the 5-year relative survival a good indication that:

- The cancer is responding to treatment, and

- The treatment is successfully extending the life of the person with cancer.

Survival statistics help doctors decide which treatments provide the most benefit to people with cancer. The statistics also help them decide whether the benefits outweigh any of a certain treatment's risks, such as unpleasant side effects. Learn about making decisions about cancer treatment [4].

The concept of "cure"

Doctors generally consider cancer cured after they treat the disease and it doesn't return. The concept of "cure" is hard to apply to cancer. Sometimes undetected cancer cells can remain in the body after treatment. The cells can cause the cancer to return later. Doctors call this a recurrence or relapse. The medical community considers many cancers "cured" when doctors can't detect cancer 5 years after diagnosis. However, recurrence after 5 years is still possible.

Points to remember

- Statistics are estimates that describe trends in large numbers of people. Doctors *can't* use statistics to predict what will actually happen to an individual.
- Survival statistics for different cancer types, cancer stages, age groups, or time periods can vary greatly. Ask your doctor for the most appropriate statistics based on your individual medical condition.
- Ask your doctor to explain any cancer-related statistics that seem unclear.
- Researchers base five-year survival statistics on patients doctors treated at least 5 years ago. The statistics may not reflect the latest treatment advances.
- Survival statistics give doctors useful information when they decide among treatment options. However, statistics should be only one factor in a complete treatment plan designed for your individual situation.

Statistics adapted from the American Cancer Society's publication, Cancer Facts & Figures 2016, *and the National Cancer Institute Surveillance Epidemiology and End Results (SEER) database.*

More Information

Understanding Statistics Used to Estimate Risk and Recommend Screening [5]

Understanding Cancer Risk [6]

Survivorship [7]

Links
[1] http://www.cancer.net/navigating-cancer-care/cancer-basics/understanding-statistics-used-guide-prognosis-and-evaluate-treatment
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/25070
[4] http://www.cancer.net/node/24582
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