

Understanding Prognosis and Cancer Statistics: Questions and Answers

Key Points

- A prognosis gives an idea of the likely course and outcome of a disease (see Question 1).
- Many factors affect a person's prognosis, including the type, location, and stage of the disease; the presence of a chromosomal abnormality or abnormal blood cell counts (for some cancers); and the person's age, general health, and response to treatment (see Question 2).
- When predicting the prognosis, doctors sometimes use statistics based on groups of people whose situations are most similar to that of an individual patient (see Question 3).
- Survival rate is a type of statistic that indicates the percentage of people with a certain type and stage of cancer who survive for a specific period of time after their diagnosis (see Question 3).
- Doctors cannot be absolutely certain about the outcome for a particular patient. In fact, a person's prognosis may change over time (see Question 4).
- The doctor who is most familiar with a patient's situation is in the best position to discuss prognosis, taking into account the individual characteristics of the patient that can affect the overall situation (see Question 5).

1. What is a prognosis?

People facing cancer are naturally concerned about what the future holds. A prognosis gives an idea of the likely course and outcome of a disease—that is, the chance that a patient will recover or have a recurrence (return of the cancer).

2. What factors affect a patient's prognosis?

Many factors affect a person's prognosis. Some of the most important are the type and location of the cancer, the stage of the disease (the extent to which the cancer has metastasized, or spread), and its grade (how abnormal the cancer cells look and how quickly the cancer is likely to grow and spread). In addition, for hematologic cancers (cancers of the blood or bone marrow) such as leukemias and lymphomas, the presence of chromosomal abnormalities and abnormalities in the patient's complete blood count (CBC) can affect a person's prognosis. Other factors that may also affect the prognosis include the person's age, general health, and response to treatment.

3. How do statistics contribute to predicting a patient's prognosis?

When doctors discuss a person's prognosis, they carefully consider all factors that could affect that person's disease and treatment and then try to predict what might happen. The doctor bases the prognosis on information researchers have collected over many years about hundreds or even thousands of people with cancer.

When possible, the doctor uses statistics based on groups of people whose situations are most similar to that of an individual patient. Several types of statistics might be used to discuss prognosis. Some commonly used statistics are described below:



- **Survival rate** indicates the percentage of people with a certain type and stage of cancer who survive for a specific period of time after their diagnosis. For example, 55 out of 100 people with a certain type of cancer will live for at least 5 years, and the other 45 people will not. Survival statistics may further categorize the people who die by cause of death because some will die from unrelated causes. For example, of the 45 people mentioned above, 35 may die from their cancer and 10 may die from other causes.
- The **5-year survival rate** indicates the percentage of people who are alive 5 years after their cancer diagnosis, whether they have few or no signs or symptoms of cancer, are free of disease, or are having treatment. Five-year survival rates are used as a standard way of discussing prognosis as well as a way to compare the value of one treatment with another. It does not mean that a patient can expect to live for only 5 years after treatment or that there are no cures for cancer.
- **Disease-free or recurrence-free survival rates** represent how long one survives free of the disease, rather than until death.

Because survival rates are based on large groups of people, they cannot be used to predict what will happen to a particular patient. No two patients are exactly alike, and treatment and responses to treatment vary greatly.

The doctor may speak of a favorable prognosis if the cancer is likely to respond well to treatment. The prognosis may be unfavorable if the cancer is likely to be difficult to control. It is important to keep in mind, however, that a prognosis is only a prediction. Again, doctors cannot be absolutely certain about the outcome for a particular patient.

4. **Is it helpful to know the prognosis?**

Cancer patients and their loved ones face many unknowns. Understanding cancer and what to expect can help patients and their loved ones plan treatment, think about lifestyle changes, and make decisions about their quality of life and finances. Many people with cancer want to know their prognosis. They find it easier to cope when they know the statistics. They may ask their doctor or search for statistics such as survival rates on their own. Other people find statistical information confusing and frightening, and they think it is too impersonal to be of use to them.

The doctor who is most familiar with a patient's situation is in the best position to discuss the prognosis and to explain what the statistics may mean for that person. At the same time, it is important to understand that even the doctor cannot tell exactly what to expect. In fact, a person's prognosis may change if the cancer progresses or if treatment is successful.

Seeking information about the prognosis is a personal decision. It is up to each patient to decide how much information he or she wants and how to deal with it.

5. **What is the prognosis if a patient decides not to have treatment?**

Because everyone's situation is different, this question can be difficult to answer (see Question 3). Prognostic statistics often come from studies comparing new treatments with best available treatments, not with "no treatment." Therefore, it is not always easy for doctors to accurately estimate prognosis for patients who decide not to have treatment. However, as mentioned above, the doctor who is most familiar with a patient's situation is in the best position to discuss prognosis, taking into account individual characteristics of the patient that can affect the overall situation.

There are many reasons patients decide not to have treatment. One reason may be concern about side effects related to treatment. Patients should discuss this concern with their doctor and cancer nurse. Many medications are available to prevent or control the side effects caused by cancer therapies. Another reason patients might decide not to have treatment is that their type of cancer does not have a good prognosis even when treated. In these cases, patients may want to explore clinical trials (research studies). A clinical trial may offer access to new drugs that may be more promising than the standard treatments available.

People interested in taking part in a clinical trial should talk with their doctor. Information about clinical trials is available from the National Cancer Institute's (NCI) Cancer Information Service (CIS) (see below) at

1-800-4-CANCER and in the NCI booklet *Taking Part in Cancer Treatment Research Studies*, which is available at <http://www.cancer.gov/clinicaltrials/Taking-Part-in-Cancer-Treatment-Research-Studies> on the Internet. This booklet describes how research studies are carried out and explains their possible benefits and risks. The NCI is a part of the National Institutes of Health. Further information about clinical trials is available at <http://www.cancer.gov/clinicaltrials> on the NCI's Web site. The Web site offers detailed information about specific ongoing studies by linking to PDQ®, the NCI's comprehensive cancer information database. The CIS also provides information from PDQ.

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Related NCI materials and Web pages:

- National Cancer Institute Fact Sheet 2.11, *Clinical Trials*
(<http://www.cancer.gov/cancertopics/factsheet/Information/clinical-trials>)
- National Cancer Institute Fact Sheet 5.9, *Tumor Grade: Questions and Answers*
(<http://www.cancer.gov/cancertopics/factsheet/Detection/tumor-grade>)
- National Cancer Institute Fact Sheet 5.18, *Tumor Markers: Questions and Answers*
(<http://www.cancer.gov/cancertopics/factsheet/Detection/tumor-markers>)
- National Cancer Institute Fact Sheet 5.27, *Interpreting Laboratory Test Results*
(<http://www.cancer.gov/cancertopics/factsheet/Detection/laboratory-tests>)
- National Cancer Institute Fact Sheet 5.32, *Staging: Questions and Answers*
(<http://www.cancer.gov/cancertopics/factsheet/Detection/staging>)
- National Cancer Institute Fact Sheet 7.47, *How To Find a Doctor or Treatment Facility If You Have Cancer*
(<http://www.cancer.gov/cancertopics/factsheet/Therapy/doctor-facility>)
- Clinical Trials Home Page
(<http://www.cancer.gov/clinicaltrials>)
- *Taking Part in Cancer Treatment Research Studies*
(<http://www.cancer.gov/clinicaltrials/Taking-Part-in-Cancer-Treatment-Research-Studies>)
- *Taking Time: Support for People With Cancer*
(<http://www.cancer.gov/cancertopics/takingtime>)
- *What You Need To Know About™ Cancer*
(<http://www.cancer.gov/cancertopics/wyntk/overview>)

How can we help?

We offer comprehensive research-based information for patients and their families, health professionals, cancer researchers, advocates, and the public.

- **Call** NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237)
- **Visit** us at <http://www.cancer.gov> or <http://www.cancer.gov/espanol>
- **Chat** using LiveHelp, NCI's instant messaging service, at <http://www.cancer.gov/livehelp>
- **E-mail** us at cancergovstaff@mail.nih.gov
- **Order** publications at <http://www.cancer.gov/publications> or by calling 1-800-4-CANCER
- **Get help** with quitting smoking at 1-877-44U-QUIT (1-877-448-7848)

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