

## Statistics

Mark Twain was right. He said, “There are lies. There are damned lies. An then there are statistics.”

Here is a coin. What are the statistics, the probability, that when I flip it, heads will come up? It's 50/50. If I toss the coin 100 times and each time it comes up heads, what are the chances of it coming up tails the next time I flip it? It's still 50/50 since from the coin's point of view, it doesn't matter what happened before.

What about after the coin comes to rest? It's either a head or a tail; i.e., it is either 100% head or 0% head. If you're alive right now, you're 100% alive and 0% dead. There is no probability here and now because YOU AS AN INDIVIDUAL ARE NOT A STATISTIC. Probability—and prognosis—only apply to groups of people. Your only job is to remain in the group who is 100% alive.

At some point your doctor either told you or you looked up the statistics about your cancer. You got some number. What did that number mean? Unless you have some background in math you are likely to have misinterpreted it. Even with a math degree your emotional interpretation was probably “that's how long I'm going to live.”

When given the “median survival” number for a particular cancer most people think of that as the time left on their parking meter. When the flag comes up you have to leave. I urge you to respond to that thought with a resounding “No! That's wrong.”

First of all, median survival means that half the people live longer than that number. Secondly, who is going to give you a ticket if you live longer than that? There are not survival police!

Regardless of the published survival statistics, there are some people who live far beyond the average. There is no cancer, however grim the prognosis, in which at least some people are cured or at least live a very long time. Why shouldn't you be one of them!

The other word that is used and misused is “prognosis.” The dialogue often goes like this.

Patient: “How long do I have, doc?”

Doctor: “Well, your prognosis is (chose one) “good,” “guarded,” “poor.” Then, depending on the doctor's style, they might add, “with treatment you've got a 50/50 chance of living 5 years.”

The patient is asking for reassurance. The doctor answers the literal question without either addressing the emotional needs or acknowledging that he doesn't really know how long you'll live.

Prognosis deals with probabilities. It tries to take an uncertain future and make it certain. That's what is beneath the patient's question: a desire for certainty. The uncomfortable truth is that the future is always uncertain. Sometimes patients are more at ease with a definite, though bad prognosis—“you have 2 months to live”—rather than an indefinite one—“you could live several years”—because at least they know what's in store for them.

There are two possible reasons for the uncertainty in a medical prognosis. One, the future is already determined but at the time of diagnosis there isn't enough information available to know what it is. Think of it as the "Oscar award envelope" model. The winner has already been chosen but you can't find out until the envelope is opened. In medical terms that means that we don't have sufficiently sensitive tests that can discriminate between curable and incurable cancers.

The second reason for uncertainty is that the future has not yet been determined and it is possible to influence the outcome. That is the "Olympic gymnastics judges" model. That means that you and your doctor can do something to make you the winner. (Though a common belief, there is no evidence that you can bribe The Judge in this case.)

In the first situation your fate is sealed and you can't change it. In the second case what you do, how you think and what you believe makes a difference. You may not be able to guarantee the future but you can influence it. Neither you nor your doctor know which scenario is true. Why not choose the one that gives you hope? Why not act as if your lifestyle, your beliefs and your treatment can make a difference. Even though the future will always have some degree of uncertainty at least you won't be passive, waiting in the middle of the street for a truck to run over you.

Vaclav Havel, an author and former president of the Czech Republic reminded us that "Hope is the ability to say no to what is directly before us—because that is not all that there is." A small chance of survival is **not zero** chance of survival.