

Helpless to Prevent Cancer? Actually, Quite a Bit Is in Your Control

By: Aaron E. Carroll, *The New York Times*



Americans seem very afraid of cancer, with good reason. Unlike other things that kill us, it often seems to come out of nowhere.

But evidence has increasingly accumulated that cancer may be preventable, too. Unfortunately, this has inflamed as much as it has assuaged people's fears.

As a physician, I have encountered many people who believe that heart disease, which is the single biggest cause of death among Americans, is largely controllable. After all, if people ate better, were physically active and stopped smoking, then lots of them would get better. This ignores the fact that people can't change many risk factors of heart disease like age, race and family genetics.

People don't often seem to feel the same way about cancer. They think it's out of their control. A study published in *Science* in January 2015 seemed to support that view. It attempted to explain why some tissues lead to cancer more often than others. It found a strong correlation between the number of times a cell divides in the course of a lifetime and the risk of developing cancer.

In other words, this study argued that the more times D.N.A. replicates, the more often something can go wrong. Some took this to mean that cancer is much more because of "bad luck" than because of other factors that people could control.

Unfortunately, this simple explanation is not really what the study showed. Lung cells, for instance, divide quite rarely, and still account for a significant amount of cancer. Cells in the gastrointestinal tract divide all the time and account for many fewer cancers. Some cancers, like melanoma, were found to be in the group of cancers influenced more by intrinsic factors (or those we can't control), when we clearly know that extrinsic factors, like sun exposure, are a major cause.

Further, this study was focused more on the relative risks of cancer in one type of tissue versus another. What we really care about is how much we can reduce our own risk of cancer by changing our behavior.

A more recent study published in *Nature* argues that there is a lot we can do. Many studies have shown that environmental risk factors and exposures contribute greatly to many cancers. Diet is related to colorectal cancer. Alcohol and tobacco are related to esophageal cancer. HPV is related to cervical cancer, and hepatitis C is related to liver cancer.

And you'd have to be living under a rock not to know that smoking causes lung cancer and that too much sun can lead to skin cancer.

Using sophisticated modeling techniques, the researchers argued that less than 30 percent of the lifetime risk of getting many common cancers was because of intrinsic risk factors, or the "bad luck." The rest were things you can change.

Most recently, in *JAMA Oncology*, researchers sought to quantify how a healthful lifestyle might actually alter the risk of cancer. They identified four domains that are often noted to be related to disease prevention: smoking, drinking, obesity and exercise.

They defined people who engaged in healthy levels of all of these activities as a "low-risk" group. Then they compared their risk of getting cancer with people who weren't in this group. They included two groups of people who have been followed and studied a long time, the Nurses' Health Study and the Health Professionals Follow-up Study, as well as national cancer statistics.

Of the nearly 90,000 women and more than 46,000 men, 16,531 women and 11,731 men fell into the low-risk group. For each type of cancer, researchers calculated a population-attributable risk, which is the percentage of people who develop cancer who might have avoided it had they adopted low-risk behaviors.

About 82 percent of women and 78 percent of men who got lung cancer might have prevented it through healthy behaviors. About 29 percent of women and 20 percent of men might have prevented colon and rectal cancer. About 30 percent of both might have prevented pancreatic cancer. Breast cancer was much less preventable: 4 percent.

Over all, though, about 25 percent of cancer in women and 33 percent in men was potentially preventable. Close to half of all cancer deaths might be prevented as well.

No study is perfect, and this is no exception. These cohorts are overwhelmingly white and consist of health professionals, who are not necessarily like the population at large. But the checks against the national data showed that if anything, these results might be underestimating how much cancer is preventable by healthy behaviors.

This also isn't a randomized controlled trial, and we can certainly argue that it doesn't prove causation.

A bigger concern to me is that people might interpret these findings as assigning fault to people who get cancer. You don't want to get into situations where you feel as if people don't deserve help because they didn't try hard enough to stay healthy. Much of cancer is still out of people's control.

I was especially worried because, in this study, "low-risk" status required all four healthy lifestyles. Failing in any one domain put you in the high-risk category, and that seemed like a lot to ask of people.

On further reading, though, I discovered that the requirements weren't overly burdensome. Not smoking was defined as never having smoked or having quit at least five years ago. That's clearly good for health. Moderate alcohol consumption was defined as no more than one drink a day on average for women, and no more than two for men. That's pretty much what I argued for in my column on alcohol, and in no way requires abstinence.

Adequate weight was defined as a BMI of at least 18.5 and no more than 27.5. The cutoff for "overweight" is 25, meaning that you don't have to be thin; you just have to be less than obese (BMI 30). Finally, exercise was defined as 150 minutes a week of moderate-intensity activity or 75 minutes of vigorous-intensity activity. That's the benchmark I talked about in detail two weeks ago.

I was surprised to realize that I'm already "low risk." I bet many of you are "low risk," too.

As we talk about cancer "moonshots" that will most likely cost billions of dollars and might not achieve results, it's worth considering that — as in many cases — prevention is not only the cheapest course, but also the most effective.

Simple changes to people's behaviors have the potential to make sure many cancers never occur. They have a side benefit of preventing health problems in many other areas, too. Investment in these efforts may not be as exciting, but it may yield greater results.

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