

Hi, I'm Deboki Chakravarti, I'm a science educator, and today we're going to talk about cancer and what public health does about it.

In 1971, the United States launched an effort to find cures for common cancers. We called this "the war on cancer."

But after spending well over 100 billion dollars on research, we've made only limited progress on finding a cure, and the number of deaths from breast cancer, skin cancer and more is still high. Overall, cancer remains one of the leading causes of death in the U.S.

So until we have a surefire cure or a medical miracle, our best line of defense against cancer deaths are public health interventions.

Now, according to public health experts, one of the best ways to address cancer is to prevent it in the first place. That's what we call primary prevention.

Primary prevention could mean vaccinations. Like, cervical cancer is usually caused by a sexually transmitted infection called human papillomavirus, or HPV. But HPV vaccination has been shown to cut down the number of people who get cervical cancer by nearly 90%.

Primary prevention can also mean modifying our environment to make it safer and healthier. Take smoking, for example. We know that smoking tobacco causes about 30% of all cancer deaths and contributes to other common causes of death, like heart disease. That's why public health experts have created programs to help people quit smoking.

But non-smokers can still be exposed to secondhand smoke, increasing their odds of developing lung cancer by as much as 32%.

So starting in the 70s, many workplaces and businesses banned smoking on their premises, as a way to cut down on secondhand smoke exposure and keep everyone healthy.

And as an added benefit, recreational smokers who could no longer light up at work ended up smoking fewer cigarettes per day, and many found it easier to quit entirely.

Researchers from the National Institutes of Health estimated that between 1975 and 2000, tobacco control policies like smoking bans prevented almost 800,000 deaths from lung cancer.

Now, we can't always prevent cancer before it happens. So the next best thing is to diagnose it early, aka secondary prevention.

Identifying cancer in the late stages can make the disease harder to treat, so timely detection can mean the difference between life and an early death.

This is where routine screenings like full-body skin checks or mammograms come in. They can reveal tumors so tiny, they haven't even caused symptoms yet.

But there are barriers to getting screened, like income and insurance. People of color are often less likely to have health insurance and affordable access to screenings. So they're more likely to be diagnosed with skin cancer at a later stage, and more likely to die from various advanced-stage cancers.

That's why public health experts advocate for expanding the number of people eligible for Medicaid, a government program that provides free or low cost health insurance. So more people with lower incomes will be able to get screened, preventing unnecessary deaths.

Sometimes, though, a disease has already taken hold. At that point, clinicians try to prevent the condition from causing further damage, like disability or death. We call this tertiary prevention.

And although tertiary prevention is more the work of doctors than public health experts, it's still a part of public health.

For cancer, tertiary prevention can include some combination of surgery, radiation and chemotherapy, to try and remove the disease from the body and prevent it from coming back. Tertiary prevention is also where the U.S. spends most of its health budget. In the year 2020 alone, the government, private insurance and patients collectively spent over \$200 billion on cancer treatment.

To put that into perspective, the federal government spent about half that amount on primary prevention – not just for cancer, but for all diseases and public health problems. And this focus on treatment rather than early prevention is part of what contributes to the higher rates of cancer deaths among underserved populations. Because if you can't afford to get screened, you probably can't afford the best treatment either.

That's why public health workers support a shift in government spending towards primary and secondary prevention, so everyone has a better shot of preventing diseases – or diagnosing them early.

So primary, secondary and tertiary prevention are all important in the fight against cancer. But when we lean on early intervention – through tools like screening and vaccination – we shift the focus from preventing the worst health outcomes, to stopping people from getting sick in the first place. And that's how public health can truly prevent cancer.

Thanks for watching! This video is part of a series created by Complexly and the American Public Health Association to shed a little light on the important work that public health does. To learn more, visit apha.org.

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