

Without PSA Testing, What Would Happen?

Zosia Chustecka

Jul 30, 2012

July 30, 2012 — Routine screening for prostate cancer with the prostate-specific antigen (PSA) test has come under fire in recent months, but what would happen if there was no such screening?

Three times as many men would have advanced prostate cancer on diagnosis, according to a new analysis, [published online](#) July 30 in *Cancer*. The researchers suggest that PSA testing in the United States prevents about 17,000 men each year from having advanced metastatic prostate cancer at diagnosis.

"Our findings are very important in the light of the recent controversy over PSA testing," said lead researcher Edward Messing, MD, from the University of Rochester Medical Center in New York.

The controversy erupted after the US Preventive Services Task Force recently [recommended against routine use](#) of the PSA test for screening asymptomatic men for prostate cancer, concluding that the potential harms from doing so outweigh the potential benefits. The test can identify cases of prostate cancer that are indolent and would probably never interfere with quality of life, yet once they are found, these cases are often treated aggressively, and each treatment has adverse effects.

Dr. Messing and colleagues focus on the other side of this coin. They home in on prostate cancer at the other end of the scale, where the prostate cancer is already metastatic at diagnosis. For their analysis, they used a mathematical model to determine what might happen if PSA testing was abandoned.

"Our data clearly indicate that not doing the PSA test will result in many more men presenting with far advanced prostate cancer," Dr. Messing said in a statement. "Almost all men with clinically apparent metastases at initial diagnosis will die from prostate cancer," he added.

In an interview with *Medscape Medical News*, Dr. Messing elaborated: "The PSA test does what it is supposed to do — it detects prostate cancer. In a sense, maybe it's too good, because it is picking up disease that you don't need to know about, but it is catching the bad disease early."

Comparing Data Before and After

For their analysis, the researchers used data from the National Cancer Registry and the Surveillance Epidemiology, and End Results (SEER) database.

The team compared data collected from 1983 to 1985, which was immediately before routine PSA testing was introduced, with data collected from 2006 to 2008, when PSA testing was widespread.

The researchers collected incidence rates on metastatic prostate cancer reported in several geographic regions, and then extrapolated the findings to the entire United States.

The actual data (presented in the paper in tabular form) give details of the incidence rates for metastatic prostate cancer by age group and race (black and white). The largest differences in the incidence of metastatic prostate cancer are seen in older men. For example, in white men 75 to 79

years of age, the incidence of metastatic prostate cancer was 156 per 100,000 men from 1983 to 1985, and was 41 per 100,000 men in 2006 to 2008 (incidence difference, 115).

The difference between the 2 time periods was even greater in older black men. In black men 75 to 79 years of age, the incidence of metastatic prostate cancer was 331 per 100,000 men from 1983 to 1985, and was 54 per 100,000 men from 2006 to 2008 (Incidence difference, 277).

The researchers do not provide overall figures for the incidence of metastatic prostate cancer in all men in the 2 time periods. However, they do give one overall figure — they estimate that there were 8000 cases of metastatic prostate cancer diagnosed in the United States in 2008. Using the data from the earlier time period, they estimate that if this testing had not been in place in 2008, the incidence would actually be 3 times greater, and there would have been 25,000 cases of metastatic prostate cancer.

Dr. Messing and colleagues caution that it is important to keep 2 significant issues in mind when interpreting these findings: the possibility of residual confounding, and lead-time effects resulting from screening.

Residual confounding covers factors other than PSA testing that can influence the incidence of prostate cancer. One example is obesity, which has increased in the United States over the 2 decades that the study spans, and has been reported to increase the risk for metastatic prostate cancer.

Lead-time effects relate to the possibility that screening has no impact on overall survival, despite finding the cancer at an earlier stage of presentation.

Rapid Reduction in Metastatic Presentation

Dr. Messing and colleagues report that their data show that the introduction of PSA testing resulted in a rapid reduction in the incidence of men presenting with metastatic prostate cancer in the early and middle 1990s.

Again, these data are presented for specific age groups (this time as graphs). The largest decrease in the annual incidence rates of men presenting with metastatic prostate cancer was seen in black men 70 years and older — there is a sharp drop from around 350 cases per 100,000 men in 1990 to around 150 per 100,000 men in 1995.

The argument that PSA screening leads to earlier detection of prostate cancer, and thus reduces the number of men presenting with advanced prostate cancer, has been put forward by several expert groups, including the American Urological Association (AUA), as a reason to continue to screen with PSA.

This is also the clinical experience of older physicians who have been treating prostate cancer over several decades, as [reported previously](#) by *Medscape Medical News*.

"It was as if people were drowning all around us," said Ian Thompson, MD, director of the Cancer Therapy & Research Center at the University of Texas Health Science Center at San Antonio, and chair of the AUA prostate cancer guideline panel. When the PSA test came along in the 1980s, urologists saw it as a life preserver that could save patients' lives by detecting prostate cancer at an earlier stage, he said earlier this year at the AUA annual meeting.

Doesn't Address Main Controversy

Dr. Messing acknowledged to *Medscape Medical News* that the paper does not touch on the main controversy surrounding PSA screening — that it leads to overdiagnosis and overtreatment.

But he noted that there is now enough evidence to support observation and active surveillance instead of treatment, and that diagnostic criteria and methodology have evolved. For example, he said, "Gleason 6 used to be considered a real disease, but now its an indolent tumor."

In the continuum from PSA testing to treatment for prostate cancer, there are now many places that the process can be stopped. "Even when the train is moving, you can still stop it," he said.

Dr. Messing is not advocating wholesale PSA screening for all men: "I am not sure this is the right thing to do." But there is a place for the test in older men. One of the benefits of testing — as shown in this paper — is that you can catch "bad disease earlier on," he explained.

However, 2 outspoken critics of using the PSA test to screen for prostate cancer, Richard Ablin, PhD, from the Department of Pathology at the University of Arizona College of Medicine in Tucson, and Mark Haythorn, from the Robert Benjamin Ablin Foundation for Cancer Research in Tucson, are not convinced, and told *Medscape Medical News* that the paper is based on calculated estimates.

"The authors' conclusion of 'possibly' preventing 17,000 men annually from having advanced disease at diagnosis is based on one assumption after another," they explain in an email to *Medscape Medical News*.

The 2 researchers coauthored an essay last year detailing the limitation of the PSA test (*Biomarker Med.* 2011;5:515-526), in which they conclude that "continuing with the current thinking, 'PSA testing is the best thing we have,' and misusing and overusing a test that cannot do what it is purported to do is not in keeping with the dictum...'first do no harm'."

Now, although Dr. Messing and colleagues make some "interesting calculations...it does not change our mind," they note.

"The fact remains that the manner in which the PSA test has been used is flawed," they explain.

Cancer. Published online July 30, 2012. [Abstract](#)

Cite this article: Without PSA Testing, What Would Happen? *Medscape*. Jul 30, 2012.