

New tool helps identify prostate cancer patients with highest risk of death

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After a prostate cancer patient receives radiation treatment, his doctor carefully monitors the amount of prostate-specific antigen, or PSA, in his blood. An increase in PSA, called biochemical failure, is the first detectable sign of the cancer's return to the prostate. Fox Chase Cancer Center researchers have found that the time between the last radiation treatment and biochemical failure can accurately predict a patient's risk of death of prostate cancer.

Now, Mark Buyyounouski, M.D., M.S., a [radiation oncologist](#) at Fox Chase, has led the development of a new tool, called a nomogram, that can be used to estimate the risk of dying from [prostate cancer](#) for patients who have already had [radiation treatment](#). Buyyounouski introduced the new tool at the 53rd Annual Meeting of the American Association for [Radiation Oncology](#) on Sunday, October 2.

It's the first tool of its kind; existing nomograms do not factor in the interval between radiation and biochemical failure. Nomograms already exist to help newly-diagnosed patients and their doctors decide on a treatment, but the new tool provides information about patients who have already undergone radiation.

Buyyounouski and his international team of collaborators built and tested the nomogram using data from 2,132 men who had biochemical failure. The data came from five institutions in three countries. In addition to the time to biochemical failure, the nomogram uses other factors such as the patient's age, tumor-stage, Gleason score, and PSA characteristics, to

calculate risk of death. The researchers describe the comparison between the test's predicted [survival rates](#) and [experimental observations](#) as "excellent."

Patients who are told they're in biochemical failure often face tough questions about the risk of dying from cancer that are difficult to answer. "We haven't had really had much information to help guide us," Buyyounouski says. "But, we've learned that the sooner a patient experiences biochemical failure after the completion of radiation treatment, the more likely it is that he is going to develop metastases and die of prostate cancer. This new tool uses that information to predict the risk of death on an individual basis."

"With this nomogram, a practitioner can plug in various factors, including the the PSA level, Gleason score, [tumor stage](#), and interval to biochemical failure to get an estimate of the five- and 10-year risk of death. It's a very useful tool."

"The decision to start a new treatment is often difficult to make because patients almost always have no symptoms when the PSA levels return. If a patient knew they had a 50% risk of dying of prostate cancer in the next 5 years may make the decision easier," Buyyounouski added

"This tool is also useful for research who are interested in exploring new prostate cancer treatments, before it has had a chance to spread. The [nomogram](#) can identify patients at the highest risk of dying."

"Unfortunately, patients who have [PSA](#) recurrence but no evidence of spread," Buyyounski says, "are often overlooked in clinical trials of new treatments."

For Buyyounouski, the test is a culmination of years of research establishing the validity of using time to biochemical failure as a way of predicting risk of death in prostate cancer patients. He and his

collaborators are adapting their work to create an online version of the tool that will be freely available to the public. The tool will be available at the Fox Chase Cancer Center web site early next year.

Provided by Fox Chase Cancer Center

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