

Screening strategy may predict lethal prostate cancer later in life

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Prostate cancer screening with prostate-specific antigen (PSA) has been shown to reduce death and the spread of prostate cancer to other parts of the body, but the PSA test remains highly controversial as it frequently leads to over diagnosis and over treatment of men who may not be at risk. Smarter screening strategies that can improve the accuracy of diagnosing lethal prostate cancer are urgently needed. Through a prospective study of US men, investigators from Brigham and Women's Hospital and the Harvard T.H. Chan School of Public Health have found that measuring PSA levels in younger men (between the ages of 40 and 59) could accurately predict future risk of lethal prostate cancer later in life. Their findings suggest that screening PSA levels in men at mid-life may help identify those who are at greater risk and should be monitored more closely.

"We found a single baseline PSA-level measurement during midlife could accurately predict future risk of lethal prostate cancer," said co-lead author Mark Preston, MD, MPH, a physician in BWH's Division of Urology. "These data identify subgroups of men, based on their PSA levels at a given age, who could benefit from screening intervals tailored to their actual magnitude of risk."

The current study leverages data from the Physicians' Health Study (PHS), a randomized, placebo-controlled trial that tested aspirin and risk of cardiovascular outcomes. The PHS began in 1982 and US male physicians who took part in it provided blood specimens before the trial began. Those blood samples, and the detailed questionnaires filled out by

the study participants over the next 30 years, gave researchers the information they needed to conduct the current research project. Using information from 234 men who were diagnosed with prostate cancer, including 60 who developed lethal prostate cancer, and 711 controls, all between 40 and 59 years of age at the start of the trial, the research team measured PSA levels from stored plasma samples and followed the men's outcomes over time.

The researchers found that this single, baseline PSA level measured at midlife could accurately predict future risk of prostate cancer: Of the lethal prostate cancer events, 82 percent, 71 percent and 86 percent occurred in men with a baseline PSA above the median at ages 40-49, 50-54 and 55-59, respectively.

The study also found that men who had a PSA below median (

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