length bias, and overdiagnosis, and substantial debate continues among experts as to whether screening should be offered unless the patient specifically asks to be screened. Virtually all organizations stress the importance of informing men about the uncertainty regarding screening efficacy and the harms associated with screening. Prostate cancer screening clearly detects many asymptomatic cancers, but the ability to distinguish tumors that are lethal but still curable from those that pose little or no threat to health is limited, and randomized trials indicate that the effect of PSA screening on prostate cancer mortality across a population is, at best, small. Men older than age 50 years have a high prevalence of indolent, clinically insignificant prostate cancers (about 30–50% of men, increasing further as men age).

Two major randomized controlled trials of the impact of PSA screening on prostate cancer mortality have been published. The PLCO Cancer Screening Trial was a multicenter U.S. trial that randomized almost 77,000 men age 55–74 years to receive either annual PSA testing for 6 years or usual care. At 13 years of follow-up, no statistically significant difference in the number of prostate cancer deaths were noted between the arms (rate ratio 1.09; 95% confidence interval 0.87–1.36). Approximately 50% of men in the control arm received at least one PSA test during the trial, which may have potentially diluted a small effect.

The European Randomized Study of Screening for Prostate Cancer (ERSPC) was a multinational study that randomized approximately 182,000 men between age 50 and 74 years (with a predefined "core" screening group of men age 55–69 years) to receive PSA testing or no screening. Recruitment and randomization procedures, as well as actual frequency of PSA testing, varied by country. After a median follow-up of 11 years, a 20% relative reduction in the risk of prostate cancer death in the screened arm was noted in the "core" screening group. The trial found that 1055 men would need to be invited to screening, and 37 cases of prostate cancer detected, to avert 1 death from prostate cancer. Of the seven countries included in the mortality analysis, two demonstrated statistically significant reductions in prostate cancer deaths, whereas five did not. There was also an imbalance in treatment between the two study arms, with a higher proportion of men with clinically localized cancer receiving radical prostatectomy in the screening arm and receiving it at experienced referral centers.

Treatments for low-stage prostate cancer, such as surgery and radiation therapy, can cause significant morbidity, including impotence and urinary incontinence. In a trial conducted in the United States after the initiation of widespread PSA testing, random assignment to radical prostatectomy compared with "watchful waiting" did not result in a statistically significant decrease in prostate cancer deaths (absolute risk reduction 2.7%; 95% confidence interval–1.3 to 6.2%).

SKIN CANCER Visual examination of all skin surfaces by the patient or by a health care provider is used in screening for basal and squamous cell cancers and melanoma. No prospective randomized study has been performed to look for a mortality decrease. Unfortunately, screening is associated with a substantial rate of overdiagnosis.