

# Patient-Reported Outcomes Through 5 Years for Active Surveillance, Surgery, Brachytherapy, or External Beam Radiation With or Without Androgen Deprivation Therapy for Localized Prostate Cancer

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**IMPORTANCE** Understanding adverse effects of contemporary treatment approaches for men with favorable-risk and unfavorable-risk localized prostate cancer could inform treatment selection.

**OBJECTIVE** To compare functional outcomes associated with prostate cancer treatments over 5 years after treatment.

**DESIGN, SETTING, AND PARTICIPANTS** Prospective, population-based cohort study of 1386 men with favorable-risk (clinical stage cT1 to cT2bNOMO, prostate-specific antigen [PSA]  $\leq 20$  ng/mL, and Grade Group 1-2) prostate cancer and 619 men with unfavorable-risk (clinical stage cT2cNOMO, PSA of 20-50 ng/mL, or Grade Group 3-5) prostate cancer diagnosed in 2011 through 2012, accrued from 5 Surveillance, Epidemiology and End Results Program sites and a US prostate cancer registry, with surveys through September 2017.

**EXPOSURES** Treatment with active surveillance (n = 363), nerve-sparing prostatectomy (n = 675), external beam radiation therapy (EBRT; n = 261), or low-dose-rate brachytherapy (n = 87) for men with favorable-risk disease and treatment with prostatectomy (n = 402) or EBRT with androgen deprivation therapy (n = 217) for men with unfavorable-risk disease.

**MAIN OUTCOMES AND MEASURES** Patient-reported function, based on the 26-item Expanded Prostate Index Composite (range, 0-100), 5 years after treatment. Regression models were adjusted for baseline function and patient and tumor characteristics. Minimum clinically important difference was 10 to 12 for sexual function, 6 to 9 for urinary incontinence, 5 to 7 for urinary irritative symptoms, and 4 to 6 for bowel and hormonal function.

**RESULTS** A total of 2005 men met inclusion criteria and completed the baseline and at least 1 postbaseline survey (median [interquartile range] age, 64 [59-70] years; 1529 of 1993 participants [77%] were non-Hispanic white). For men with favorable-risk prostate cancer, nerve-sparing prostatectomy was associated with worse urinary incontinence at 5 years (adjusted mean difference, -10.9 [95% CI, -14.2 to -7.6]) and sexual function at 3 years (adjusted mean difference, -15.2 [95% CI, -18.8 to -11.5]) compared with active surveillance. Low-dose-rate brachytherapy was associated with worse urinary irritative (adjusted mean difference, -7.0 [95% CI, -10.1 to -3.9]), sexual (adjusted mean difference, -10.1 [95% CI, -14.6 to -5.7]), and bowel (adjusted mean difference, -5.0 [95% CI, -7.6 to -2.4]) function at 1 year compared with active surveillance. EBRT was associated with urinary, sexual, and bowel function changes not clinically different from active surveillance at any time point through 5 years. For men with unfavorable-risk disease, EBRT with ADT was associated with lower hormonal function at 6 months (adjusted mean difference, -5.3 [95% CI, -8.2 to -2.4]) and bowel function at 1 year (adjusted mean difference, -4.1 [95% CI, -6.3 to -1.9]), but better sexual function at 5 years (adjusted mean difference, 12.5 [95% CI, 6.2-18.7]) and incontinence at each time point through 5 years (adjusted mean difference, 23.2 [95% CI, 17.7-28.7]), than prostatectomy.

**CONCLUSIONS AND RELEVANCE** In this cohort of men with localized prostate cancer, most functional differences associated with contemporary management options attenuated by 5 years. However, men undergoing prostatectomy reported clinically meaningful worse incontinence through 5 years compared with all other options, and men undergoing prostatectomy for unfavorable-risk disease reported worse sexual function at 5 years compared with men who underwent EBRT with ADT.