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Development of an online prediction tool to aid treatment selection for men with localized prostate cancer



Introduction: Prostate cancer is the most common non-skin cancer in men. The goal of this practicum was to provide personalized estimates of adverse outcomes for treatments for localized prostate cancer by creating an online user-friendly prediction tool in collaboration with the Vanderbilt Clinical Informatics Center.

Methods: Data from a 10-year longitudinal study of men who underwent treatment for prostate cancer with surgery, radiation, or observation were used to create a nomogram in collaboration with an expert analytic team. The nomogram provided estimates of functional outcomes (urinary, sexual, bowel, and hormonal function) through 10 years of treatment based on baseline patient characteristics, function, and treatment choice. The nomogram was converted into a user-friendly online prediction tool (website and application) in collaboration with Vanderbilt Clinical Informatics Center.

Results: An online user-friendly mobile application and website was created where prostate cancer patients can enter their information to receive personalized predictions on outcomes following different treatments based on their baseline function and disease characteristics. The outcomes project the overall functions (sexual, urinary, bowel, and hormonal function) over 10 years and also provide specific outcomes related to these functions, such as the probability of achieving an erection or using a pad for urine leakage.

Conclusions: This prediction tool can aid patients in deciding which treatment option for prostate cancer is better for them based on their personal preferences.